

ONLINE E-BOOK MAKER

BY

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A REPORT

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FACULTY OF INFORMATION AND COMMUNICATION TECNOLOGY

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ABSTRACT

The title of this project is called “Online e-Book Maker”. This project is conducted because of the bright future of the eBook industry. According to the expert analysis, the eBook market size is expected to increase which means growth in eBook demand. However, the existing systems unprepared for the forecasting since there are crucial problems discovered in existing system. The main objective is to solve the problem, enhance the system and ultimately provide better user experience. This project adopts phased development under Rapid Application Development to manage the lifecycle of development process to shorten development time and establish quality product within the planned timeline. The development was carried out using software such as Visual Studio 2022 which use ASP.NET(VB.NET/C#), HTML and JavaScript for coding the final product. Additionally, technologies like Microsoft Azure were utilized for deployment, GitHub for version management and various online libraries for functionalities development. The final developed system integrates document analysis and questionnaires as the primary techniques for gathering information to understand market benchmarks, user requirements, and satisfaction levels. This approach enables the system to integrate the advantages of the existing system while solving those weaknesses to better serve the target audiences like senior citizens and novice users. It comprises four main modules covering the core aspects which are builder module, tools module, interface module and security module. These modules are depicted through diagrams like architecture, entity relationship, use-case, activity, and wireframe diagram to understand the interconnection of the systems’ components, data storage, functionalities, process, and user interface. Subsequently, the system flow is demonstrated to show the project functionalities. while remarking the implementation issues and challenges After conducting black box testing and user testing, the system is evaluated and found to achieve a satisfactory result with a perfect achievement rate for the objective assessment Finally, the project development is concluded through reviewing the whole project and highlighting both its limitations and potential future enhancements.

TABLE OF CONTENTS

TITLE PAGE	i
REPORT STATUS DECLARATION FORM	ii
FYP THESIS SUBMISSION FORM	iii
DECLARATION OF ORIGINALITY	iv
ACKNOWLEDGEMENTS	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
LIST OF FIGURES	xi
LIST OF TABLES	xxv
LIST OF SYMBOLS	xxvii
LIST OF ABBREVIATIONS	xxviii
CHAPTER 1 INTRODUCTION	1
1.1 Project Background	1
1.2 Problem Statement and Motivation	4
1.3 Research Objectives	7
1.4 Project Scope and Direction	9
1.5 Contribution	10
1.6 Report Organization	11
CHAPTER 2 LITERATURE REVIEW	13
2.1 Canva	13
2.2 Kindle Create	15
2.3 Kotobee Author	16
2.4 Marq	17
2.5 Visme	19
2.6 Limitation of Previous Studies	20
2.7 Proposed Solution	22
2.8 Comparison of Proposed System and Previous Studies	23

CHAPTER 3 SYSTEM METHODOLOGY/APPROACH	25
3.1 System Development Life Cycle	25
3.1.1 Structured Design Methodology	25
3.1.2 Rapid Application Development	26
3.1.3 Agile Development	26
3.1.4 Selecting the Methodology	27
3.1.5 Implementation	30
3.2 Development Specification	31
3.2.1 Hardware	31
3.2.2 Software and Technologies	32
3.3 Functional Requirements	34
3.3.1 Demographic Information	34
3.3.2 Results Analysis	36
3.4 Project Timeline	42
3.4.1 FYP1	42
3.4.2 FYP2	42
CHAPTER 4 SYSTEM DESIGN	44
4.1 System Architecture Diagram	44
4.2 Database Design	45
4.2.1 Business Rule	45
4.2.2 Entity Relationship Diagram	46
4.2.3 Data Dictionary	48
4.3 Use-Case Diagram	52
4.4 Activity Diagram	53
4.4.1 Login Use Case	53
4.4.2 Edit Profile Use Case	55
4.4.3 View eBook Use Case	57
4.4.4 Create eBook Use Case	59
4.4.5 Edit eBook Use Case	61
4.4.6 Edit File Setting Use Case	63
4.4.7 Perform Design Use Case	65
4.4.8 Manage eBook Use Case	67

4.5	Wireframe Diagram	69
4.5.1	Overview of User Interface	69
4.5.2	Guest Header User Interface	75
4.5.3	Login Header User Interface	77
4.5.4	Profile Expand User Interface	78
4.5.5	Footer User Interface	78
4.5.6	Home User Interface	79
4.5.7	About User Interface	84
4.5.8	Feature User Interface	85
4.5.9	Help User Interface	88
4.5.10	Login User Interface	90
4.5.11	Register User Interface	91
4.5.12	Forget Password User Interface	95
4.5.13	Resend Email Confirmation User Interface	98
4.5.14	Profile Setting User Interface	100
4.5.15	Dashboard User Interface	104
4.5.16	File Setting User Interface	108
4.5.17	Version Content and Published Content User Interface	112
4.5.18	Design User Interface	113
 CHAPTER 5 SYSTEM IMPLEMENTATION		122
5.1	Developer Setup	122
5.2	User Setup	123
5.3	System Operation (with Screenshot)	123
5.3.1	Account Management Flow	123
5.3.2	Dashboard Flow	133
5.3.3	eBook Creation Flow	136
5.3.4	Design Flow	164
5.3.5	eBook Management Flow	170
5.3.6	Top Management Flow	179
5.4	Implementation Issues and Challenges	180

CHAPTER 6 SYSTEM EVALUATION AND DISCUSSION	183
6.1 Black Box Testing	183
6.2 User Testing	228
6.3 Objectives Evaluation	235
CHAPTER 7 CONCLUSION AND RECOMMENDATION	237
7.1 Conclusion	237
7.2 Limitations	238
7.3 Future Enhancement	239
REFERENCES	241
APPENDIX A	
A.1 User Requirements Collection Questionnaires	A-1
A.2 User Testing Survey	A-7
A.3 Weekly Report	A-10
A.4 Poster	A-17
PLAGIARISM CHECK RESULT	
FYP2 CHECKLIST	

LIST OF FIGURES

Figure Number	Title	Page
Figure 1.1	Number of connected devices per head worldwide from 2010 to 2015	2
Figure 1.2	Average number devices and connections per person worldwide in 2018 and 2023	2
Figure 1.3	Average wages of Malaysian from 2011 to 2021	3
Figure 1.4	Number of eBooks sold from 2010 to 2020	3
Figure 1.5	Online Book Sales in the US - Market Size 2005–2022	4
Figure 1.6	Not Responsive Web Design System	7
Figure 1.7	Normal View of System	7
Figure 2.1	User Interface of Canva	15
Figure 2.2	User Interface of Kindle Create	16
Figure 2.3	User Interface of Kotobee Author	17
Figure 2.4	User Interface of Marq	19
Figure 2.5	User Interface of Visme	20
Figure 3.1.1	Criteria for Selecting a Methodology	27
Figure 3.1.2	Phased Development Methodology	30
Figure 3.3.1.1	Gender Proportion Chart	34
Figure 3.3.1.2	Age Proportion Chart	34
Figure 3.3.1.3	Occupation Proportion Chart	35
Figure 3.3.1.4	Chart for Percentage of eBook Maker System User	35
Figure 3.3.2.1	eBook Maker System Usage Frequency Chart	36
Figure 3.3.2.2	Satisfaction Level Chart with a Non-Mobile Responsive Website	36
Figure 3.3.2.3	Chart on Document Read by Users	37
Figure 3.3.2.4	Chart on Document Created by Users	38
Figure 3.3.2.5	Design Satisfaction Chart	38
Figure 3.3.2.6	Security Necessity Chart	39
Figure 3.3.2.7	Most Used Export Formats Chart	40

Figure 3.3.2.8	Collaborator Feature Necessity Rating Chart	40
Figure 3.3.2.9	Chart on Required Elements During eBook Creation	41
Figure 3.3.2.10	Most Preference Guidance Chart	41
Figure 3.4.1	Timeline of FYP1	42
Figure 3.4.2	Timeline of FYP2	43
Figure 4.1	System Architecture Diagram	45
Figure 4.2	Entity Relationship Diagram of eBook Maker System	47
Figure 4.3	Use-Case Diagram of eBook Maker System	52
Figure 4.4.1	Login Activity Diagram	54
Figure 4.4.2	Edit Profile Activity Diagram	56
Figure 4.4.3	View eBook Activity Diagram	58
Figure 4.4.4	Create Book Activity Diagram	60
Figure 4.4.5	Edit eBook Activity Diagram	62
Figure 4.4.6	Edit File Setting Activity Diagram	64
Figure 4.4.7	Perform Design Activity Diagram	66
Figure 4.4.8	Manage eBook Activity Diagram	68
Figure 4.5.1.1	Overview of Home UI	69
Figure 4.5.1.2	Overview of About UI	69
Figure 4.5.1.3	Overview of Feature UI	70
Figure 4.5.1.4	Overview of Help UI	70
Figure 4.5.1.5	Overview of Login UI	70
Figure 4.5.1.6	Overview of Forget Password UI	71
Figure 4.5.1.7	Overview of Register UI	71
Figure 4.5.1.8	Overview of Resend Email Confirmation UI	71
Figure 4.5.1.9	Overview of Profile Setting UI	72
Figure 4.5.1.10	Overview of Dashboard Loading Screen UI	72
Figure 4.5.1.11	Overview of Dashboard UI	72
Figure 4.5.1.12	Overview of Create eBook UI	73
Figure 4.5.1.13	Overview of File Setting UI	73
Figure 4.5.1.14	Overview of Published Content and Version History UI	73
Figure 4.5.1.15	Overview of Design UI	74
Figure 4.5.1.16	Overview of Print UI	74
Figure 4.5.1.17	Overview of Print Preview UI	74

Figure 4.5.1.18	Overview of Privacy UI	75
Figure 4.5.1.19	Overview of Terms and Condition UI	75
Figure 4.5.2.1	Guest Header UI for screens larger than 991px	75
Figure 4.5.2.2	Guest Header UI for screens between 767px and 991px	75
Figure 4.5.2.3	Guest Header UI for screens between 479 and 767px	76
Figure 4.5.2.4	Guest Header UI for screens smaller than 479px	76
Figure 4.5.2.5	Guest Header Sidebar UI Sidebar for screens larger than 479px	76
Figure 4.5.2.6	Guest Header Sidebar UI Sidebar for screens smaller than 479px	76
Figure 4.5.3.1	Login Header UI for screens larger than 991px	77
Figure 4.5.3.2	Login Header UI for screens between 767px and 991px	77
Figure 4.5.3.3	Login Header UI for screens between 479 and 767px	77
Figure 4.5.3.4	Login Header UI for screens smaller than 479px	77
Figure 4.5.3.5	Login Header Sidebar UI for screens larger than 479px	77
Figure 4.5.3.6	Login Header Sidebar UI for screens smaller than 479px	78
Figure 4.5.4.1	Profile Expand UI	78
Figure 4.5.5.1	Footer UI for screens larger than 767px	78
Figure 4.5.5.2	Footer UI for screens smaller than 767px	78
Figure 4.5.6.1	Home Hero UI for normal screen view	79
Figure 4.5.6.2	Home Hero UI for mobile screen view	79
Figure 4.5.6.3	Home About UI for normal screen view	80
Figure 4.5.6.4	Home About UI for mobile screen view	80
Figure 4.5.6.5	Home Feature UI for screens larger than 991px	80
Figure 4.5.6.6	Home Feature UI for screens between 479px and 991px	81
Figure 4.5.6.7	Home Feature UI for screens smaller than 479px	81
Figure 4.5.6.8	Home Help UI for screens larger than 767px	82
Figure 4.5.6.9	Home Help Section UI for screens smaller than 767px	82
Figure 4.5.6.10	Home Testimonial Card for screens larger than 991px	83
Figure 4.5.6.11	Home Testimonial Card for screens smaller than 991px	83
Figure 4.5.7.1	About Mission and Vision UI for screens larger than 767px	84
Figure 4.5.7.2	About Mission and Vision UI for screens smaller than 767px	84

	767px	
Figure 4.5.7.3	About Why Choose Us for screens larger than 767px	85
Figure 4.5.7.4	About Why Choose Us UI for screens smaller than 767px	85
Figure 4.5.8.1	Feature Products UI for screens larger than 767px	85
Figure 4.5.8.2	Feature Products UI for screens smaller than 767px	86
Figure 4.5.8.3	Feature Services UI for screens larger than 767px	86
Figure 4.5.8.4	Feature Services UI for screens smaller than 767px	87
Figure 4.5.8.5	Feature Capabilities UI for screens larger than 767px	87
Figure 4.5.8.6	Feature Capabilities UI for screens smaller than 767px	88
Figure 4.5.9.1	Help Search UI	88
Figure 4.5.9.2	Help Guidance Overview UI	88
Figure 4.5.9.3	Help Guidance UI for screens larger than 991px	89
Figure 4.5.9.4	Help Guidance UI for screens between 767px and 991px	89
Figure 4.5.9.5	Help Guidance UI for screens smaller than 767px	89
Figure 4.5.9.6	Help Contact Us UI for screens larger than 991px	90
Figure 4.5.9.7	Help Contact Us UI for screens between 767px and 991px	90
Figure 4.5.9.8	Help Contact Us UI for screens smaller than 767px	90
Figure 4.5.10.1	Login UI for screens larger than 767px	90
Figure 4.5.10.2	Login UI for screens smaller than 767px	91
Figure 4.5.11.1	Register Name UI for screens larger than 767px	91
Figure 4.5.11.2	Register Name UI for screens smaller than 767px	91
Figure 4.5.11.3	Register Birthday and Gender UI for screens larger than 767px	92
Figure 4.5.11.4	Register Birthday and Gender UI for screens smaller than 767px	92
Figure 4.5.11.5	Register Email UI for screens larger than 767px	92
Figure 4.5.11.6	Register Email UI for screens smaller than 767px	93
Figure 4.5.11.7	Register Password UI for screens larger than 767px	93
Figure 4.5.11.8	Register Password UI for screens smaller than 767px	93
Figure 4.5.11.9	Register Privacy and Terms UI for screens larger than 767px	94

Figure 4.5.11.10	Register Privacy and Terms UI for screens smaller than 767px	94
Figure 4.5.11.11	Register Success Message for screens larger than 767px	94
Figure 4.5.11.12	Register Success Message for screens smaller than 767px	95
Figure 4.5.12.1	Forget Password UI for screens larger than 767px	95
Figure 4.5.12.2	Forget Password UI for screens smaller than 767px	95
Figure 4.5.12.3	Forget Password Confirmation UI for screens larger than 767px	96
Figure 4.5.12.4	Forget Password Confirmation UI for screens smaller than 767px	96
Figure 4.5.12.5	Reset Password UI for screens larger than 767px	96
Figure 4.5.12.6	Reset Password UI for screens smaller than 767px	97
Figure 4.5.12.7	Successful Reset Password UI for screens larger than 767px	97
Figure 4.5.12.8	Successful Reset Password UI for screens smaller than 767px	97
Figure 4.5.12.9	Fail Reset Password UI for screens larger than 767px	98
Figure 4.5.12.10	Fail Reset Password UI for screens smaller than 767px	98
Figure 4.5.13.1	Resend Email Confirmation UI for screens larger than 767px	98
Figure 4.5.13.2	Resend Email Confirmation UI for screens smaller than 767px	99
Figure 4.5.13.3	Successful Confirm Email UI for screens larger than 767px	99
Figure 4.5.13.4	Successful Confirm Email UI for screens smaller than 767px	99
Figure 4.5.13.5	Fail Confirm Email UI for screens larger than 767px	100
Figure 4.5.13.6	Fail Confirm Email UI for screens smaller than 767px	100
Figure 4.5.14.1	Profile Setting Welcome UI for screens larger than 767px	100
Figure 4.5.14.2	Profile Setting Welcome UI for screens smaller than 767px	101

Figure 4.5.14.3	Profile Setting Content Container UI for screens larger than 767px	101
Figure 4.5.14.4	Profile Setting Content Container UI for screens smaller than 767px	101
Figure 4.5.14.5	Profile Setting Personal Information Edit UI for screens larger than 767px	102
Figure 4.5.14.6	Profile Setting Personal Information Edit UI for screens smaller than 767px	102
Figure 4.5.14.7	Profile Setting Security Edit UI for screens larger than 767px	103
Figure 4.5.14.8	Profile Setting Security Edit UI for screens smaller than 767px	103
Figure 4.5.15.1	Dashboard Loading Screen UI	104
Figure 4.5.15.2	Dashboard Sidebar UI for screens larger than 991px	104
Figure 4.5.15.3	Dashboard Sidebar UI for screens smaller than 991px	104
Figure 4.5.15.4	Dashboard 6 Grid Item UI	105
Figure 4.5.15.5	Dashboard 5 Grid Item UI	105
Figure 4.5.15.6	Dashboard 4 Grid Item UI	105
Figure 4.5.15.7	Dashboard 3 Grid Item UI	105
Figure 4.5.15.8	Dashboard 2 Grid Item UI	105
Figure 4.5.15.9	Dashboard 1 Grid Item UI	105
Figure 4.5.15.10	Dashboard Filter UI for screens larger than 1200px	106
Figure 4.5.15.11	Dashboard Filter UI for screens between 767px and 1200px	106
Figure 4.5.15.12	Dashboard Filter UI for screens smaller than 767px	106
Figure 4.5.15.13	Dashboard Paginated List UI	106
Figure 4.5.15.14	Dashboard Home Recommend List UI for normal screen	106
Figure 4.5.15.15	Dashboard Home Recommend List UI for mobile screen	106
Figure 4.5.15.16	Dashboard Management List UI for screens larger than 1200px	106
Figure 4.5.15.17	Dashboard Management List UI for screens between 767px and 1200px	107
Figure 4.5.15.18	Dashboard Management List UI for screens between	107

	479px and 767px	
Figure 4.5.15.19	Dashboard Management List UI for screens smaller than 479px	107
Figure 4.5.15.20	Dashboard Published List UI	108
Figure 4.5.16.1	File Setting Welcome UI for screens larger than 767px	108
Figure 4.5.16.2	File Setting Welcome UI for screens smaller than 767px	108
Figure 4.5.16.3	File Setting Edit eBook UI for screens larger than 767px	109
Figure 4.5.16.4	File Setting Edit eBook UI for screens smaller than 767px	109
Figure 4.5.16.5	File Setting Collaboration UI for screens larger than 767px	110
Figure 4.5.16.6	File Setting Collaboration UI for screens smaller than 767px	110
Figure 4.5.16.7	File Setting Version UI for screens larger than 767px	111
Figure 4.5.16.8	File Setting Version UI for screens between 479px and 767px	111
Figure 4.5.16.9	File Setting Version UI for screens smaller than 479px	112
Figure 4.5.17.1	Version Content and Published Content UI for normal screen	112
Figure 4.5.17.2	Version Content and Published Content UI for mobile screen	113
Figure 4.5.18.1	Design Header UI for screens larger than 991px	113
Figure 4.5.18.2	Design Header UI for screens between 767px and 991px	113
Figure 4.5.18.3	Design Header UI for screens smaller than 767px	113
Figure 4.5.18.4	Design UI for screens larger than 767px	113
Figure 4.5.18.5	Design UI for screens smaller than 767px	114
Figure 4.5.18.6	Design Add Shape UI	114
Figure 4.5.18.7	Design Add Text UI	115
Figure 4.5.18.8	Design Add Image UI	115
Figure 4.5.18.9	Design Add Chart UI	116
Figure 4.5.18.10	Design OCR UI	116
Figure 4.5.18.11	Design Add Background UI	117
Figure 4.5.18.12	Design Edit Position UI	117

Figure 4.5.18.13	Design Edit Border UI	118
Figure 4.5.18.14	Design Edit Text UI	118
Figure 4.5.18.15	Design Edit Chart Type I UI	119
Figure 4.5.18.16	Design Edit Chart Type II UI	119
Figure 4.5.18.17	Design Edit Shape UI	120
Figure 4.5.18.18	Design Comment UI	120
Figure 4.5.18.19	Design Find and Replace Text UI	121
Figure 5.3.1.1	Valid First Name Field	123
Figure 5.3.1.2	Null First Name Field	124
Figure 5.3.1.3	Valid Birthday and Gender Field	124
Figure 5.3.1.4	Null Birthday and Gender Field	124
Figure 5.3.1.5	Invalid Birthday Year	124
Figure 5.3.1.6	Invalid Birthday Date	125
Figure 5.3.1.7	Valid Email Address Field	125
Figure 5.3.1.8	Null Email Address Field	125
Figure 5.3.1.9	Invalid Email Address Format	125
Figure 5.3.1.10	Email Duplication Error	125
Figure 5.3.1.11	Valid Password Field Input	126
Figure 5.3.1.12	Null Password Field	126
Figure 5.3.1.13	Short Password Error	126
Figure 5.3.1.14	Weak Password Error	126
Figure 5.3.1.15	Password Not Matching Error	126
Figure 5.3.1.16	Privacy and Terms Agreement Checked	127
Figure 5.3.1.17	Account Registration Confirmation	127
Figure 5.3.1.18	Privacy and Terms Agreement Not Checked Error	127
Figure 5.3.1.19	Activation Link Sent to the Prompted Email Address	128
Figure 5.3.1.20	Account Successfully Activated	128
Figure 5.3.1.21	Account Activation Failed	128
Figure 5.3.1.22	Successfully Resend Activation Email	128
Figure 5.3.1.23	Resend Activation Email Failed	128
Figure 5.3.1.24	Reset Password Confirmation Message	129
Figure 5.3.1.25	Reset Password Link Sent to the Prompted Email Address	129

Figure 5.3.1.26	Valid Reset Password Input	130
Figure 5.3.1.27	Successful Reset Password	130
Figure 5.3.1.28	Reset Password Failed	130
Figure 5.3.1.29	Valid Information Input for Login Page	131
Figure 5.3.1.30	Invalid Login Attempt	131
Figure 5.3.1.31	Profile Setting Page	132
Figure 5.3.1.32	Successful Updating Personal Information	132
Figure 5.3.1.33	Successful Updating Password	132
Figure 5.3.1.34	Updating Personal Information Failed	133
Figure 5.3.1.35	Updating Password Failed	133
Figure 5.3.2.1	Dashboard Home Section	134
Figure 5.3.2.2	Dashboard Projects Section	134
Figure 5.3.2.3	Dashboard Shared Section	134
Figure 5.3.2.4	Dashboard Published Section	135
Figure 5.3.2.5	eBook Design View	135
Figure 5.3.2.6	eBook Published View	135
Figure 5.3.2.7	Filter List Available Options	135
Figure 5.3.2.8	Paginated List	136
Figure 5.3.3.1	Create eBook through Dashboard Recommendation List	136
Figure 5.3.3.2	Create eBook through Create Button in Dashboard Header	136
Figure 5.3.3.3	Create eBook UI	137
Figure 5.3.3.4	Error Input in Create eBook Form	137
Figure 5.3.3.5	eBook Created in Design Page	137
Figure 5.3.3.6	Design Add Chapter Button	138
Figure 5.3.3.7	Chapter Added in the eBook	138
Figure 5.3.3.8	Updating Chapter Name	138
Figure 5.3.3.9	Page Action List	139
Figure 5.3.3.10	Before and After Clicking Moving Page Downward Button	139
Figure 5.3.3.11	Toggle of Lock and Unlock icon	139
Figure 5.3.3.12	Before and After Clicking Deleting Page Button	139
Figure 5.3.3.13	Before and After Clicking Add Page Button	140

Figure 5.3.3.14	Design Sidebar Element List	140
Figure 5.3.3.15	OCR Sidebar	141
Figure 5.3.3.16	Sample OCR Image	141
Figure 5.3.3.17	Sample OCR Result	141
Figure 5.3.3.18	Add Text Sidebar	142
Figure 5.3.3.19	Page After Adding the Text	142
Figure 5.3.3.20	Filter Text Results	143
Figure 5.3.3.21	Add Shape Sidebar	143
Figure 5.3.3.22	Page After Adding the Shape	144
Figure 5.3.3.23	Filter Shape Results	144
Figure 5.3.3.24	Add Chart Sidebar	145
Figure 5.3.3.25	Page After Adding the Chart	145
Figure 5.3.3.26	Filter Chart Results	146
Figure 5.3.3.27	Add Image Sidebar	146
Figure 5.3.3.28	Page After Adding the Images	147
Figure 5.3.2.29	Filter Image Results	147
Figure 5.3.2.30	Add Background Sidebar	148
Figure 5.3.3.31	Add Background Colour Picker	148
Figure 5.3.3.32	Page After Replacing the Solid Colour Background	148
Figure 5.3.3.33	Page After Replacing the Background Image	149
Figure 5.3.3.34	Filter Background Results	149
Figure 5.3.3.35	Element Hover State	150
Figure 5.3.3.36	Element Selected State	150
Figure 5.3.3.37	Resize the Element	150
Figure 5.3.3.38	Resize Limitations	150
Figure 5.3.3.39	Rotate the Element	150
Figure 5.3.3.40	Move the Element to Edge of Page Continaer	151
Figure 5.3.3.41	Shape Advanced Edit Options	151
Figure 5.3.3.42	Text Advanced Edit Options	151
Figure 5.3.3.43	Image Advanced Edit Options	151
Figure 5.3.3.44	Chart Advanced Edit Options	151
Figure 5.3.3.45	Advanced Position Edit Options	152
Figure 5.3.3.46	Before and After Moving Element Forward and	152

	Backward	
Figure 5.3.3.47	Advanced Shape Edit Options	153
Figure 5.3.3.48	Before and After Changing Colour of Shape	153
Figure 5.3.3.49	Activation of Text Editor Function	154
Figure 5.3.3.50	Advanced Text Edit Options	154
Figure 5.3.3.51	Default Text Style Options	154
Figure 5.3.3.52	Text Font Type Options	154
Figure 5.3.3.53	Text Font Size Options	155
Figure 5.3.3.54	Text Colour and Background Options	155
Figure 5.3.3.55	Mathematical Equation Input	155
Figure 5.3.3.56	Edit Text Results	156
Figure 5.3.3.57	Advanced Border Edit Options	157
Figure 5.3.3.58	Editing Border Results	157
Figure 5.3.3.59	Chart Hover and Clicked Functionalities	158
Figure 5.3.3.60	Single Dataset Chart Edit Options	158
Figure 5.3.3.61	Multiple Dataset Chart Edit Options	159
Figure 5.3.3.62	Chart Colour Options	160
Figure 5.3.3.63	Updating Chart Information Results	160
Figure 5.3.3.64	Updating Chart Label Results	160
Figure 5.3.3.65	Single Dataset Chart Before Adding Label	160
Figure 5.3.3.66	Single Dataset Chart After Adding Label	161
Figure 5.3.3.67	Multiple Dataset Chart Before Adding Label	161
Figure 5.3.3.68	Multiple Dataset Chart After Adding Label	161
Figure 5.3.3.69	Single Dataset Chart After Deleting Label	161
Figure 5.3.3.70	Multiple Dataset Chart After Deleting Label	162
Figure 5.3.3.71	Multiple Dataset Chart After Updating the Title and Background Colour	162
Figure 5.3.3.72	Multiple Dataset Chart After Adding the Dataset	162
Figure 5.3.3.73	Multiple Dataset Chart After Deleting the Dataset	162
Figure 5.3.3.74	Updating the Data Value Results	163
Figure 5.3.3.75	Deactivate the Setting for Pie Chart	163
Figure 5.3.3.76	Activate the Setting for Bar Chart	163
Figure 5.3.3.77	Deactivate the Setting for Bar Chart	163

Figure 5.3.4.1	Design Header Section	164
Figure 5.3.4.2	Design Header Sidebar	164
Figure 5.3.4.3	File Expanded List	164
Figure 5.3.4.4	Design Plus Collaboration Button	165
Figure 5.3.4.5	Design Add Collaboration Container	165
Figure 5.3.4.6	Design Add Collaboration Success Message	165
Figure 5.3.4.7	Design Add Collaboration Fail Message	165
Figure 5.3.4.8	Print Preview Container	166
Figure 5.3.4.9	Printed Document View	166
Figure 5.3.4.10	Top Tab Element Button List	166
Figure 5.3.4.11	Element in Locked State	167
Figure 5.3.4.12	Find and Replace Text Function	167
Figure 5.3.4.13	Before Implementing Find and Replace Text Function	167
Figure 5.3.4.14	After Implementing Find and Replace Text Function	167
Figure 5.3.4.15	Design Bottom Tab List	168
Figure 5.3.4.16	Container View After Zooming	168
Figure 5.3.4.17	Comment Sidebar	169
Figure 5.3.4.18	Resolved Comment	169
Figure 5.3.4.19	Unresolved Comment	169
Figure 5.3.4.20	Text Grammar Detection	170
Figure 5.3.5.1	Dashboard Grid List Item Hovering State	170
Figure 5.3.5.2	Collapsible File Setting Container	170
Figure 5.3.5.3	Expanded File Setting Container	171
Figure 5.3.5.4	Updating File Setting Information	171
Figure 5.3.5.5	Successful Update File Setting Information	172
Figure 5.3.5.6	Failure in Updating File Setting Information	172
Figure 5.3.5.7	eBook Delete Confirmation Message Box	172
Figure 5.3.5.8	Successful Delete eBook Message in Dashboard	172
Figure 5.3.5.9	Publish and Delete File Setting Container	173
Figure 5.3.5.10	Reviewed State eBook	173
Figure 5.3.5.11	Published State eBook	174
Figure 5.3.5.12	Rejected State eBook	174
Figure 5.3.5.13	Successful Publishing eBook Information	174

Figure 5.3.5.14	Failure in Updating File Setting Information	174
Figure 5.3.5.15	Published Content View Mode	174
Figure 5.3.5.16	Published Content Zoom Input	174
Figure 5.3.5.17	File Setting Collaboration Section	175
Figure 5.3.5.18	After Adding Collaboration Status	175
Figure 5.3.5.19	Error Collaboration Adding Message I	176
Figure 5.3.5.20	Error Collaboration Adding Message II	176
Figure 5.3.5.21	Error Collaboration Adding Message III	176
Figure 5.3.5.22	After Deleting Collaboration Status	176
Figure 5.3.5.23	File Setting Version Section Container	177
Figure 5.3.5.24	After Adding Version Status	177
Figure 5.3.5.25	After Deleting Version Status	178
Figure 5.3.5.26	After Updating Version Status	178
Figure 5.3.5.27	Version Content View Mode	178
Figure 5.3.5.28	Failure in Updating Version Information	178
Figure 5.3.6.1	Dashboard Management Section	179
Figure 5.3.6.2	Published Content View Mode	179
Figure 5.3.6.3	After Clicking Back Button in Published Content View Mode	180
Figure 5.3.6.4	Review Confirmation Message	180
Figure 5.3.6.5	Successful eBook Publication	180
Figure 5.3.6.6	Update Reviewed Failed Message	180
Figure 6.2.1	Gender Proportion Chart	228
Figure 6.2.2	Age Proportion Chart	228
Figure 6.2.3	Occupation Proportion Chart	229
Figure 6.2.4	Chart for Percentage of eBook Maker System User	229
Figure 6.2.5	Chart for Mobile Responsiveness of Website Interface	230
Figure 6.2.6	Mobile Responsiveness Rating Chart	230
Figure 6.2.7	Navigation Ease Rating Chart	231
Figure 6.2.8	Key Feature Accessibility Chart	231
Figure 6.2.9	User-Friendliness Satisfaction Chart	232
Figure 6.2.10	Chart for Ease of eBook Creation	232
Figure 6.2.11	Learning Curve Rating Chart	233

Figure 6.2.12	Website eBook Creation Capability Rating Chart	233
Figure 6.2.13	Recommendation Likelihood Chart	234
Figure 6.2.14	Overall Experience Rating	234

LIST OF TABLES

Table Number	Title	Page
Table 2.1	Comparison of Proposed System and Previous Studies	23
Table 3.2.1	Specifications of Laptop	32
Table 4.2.1	User Entity	48
Table 4.2.2	Administrator Entity	48
Table 4.2.3	eBook Entity	48
Table 4.2.4	Comment Entity	49
Table 4.2.5	Collaboration Entity	49
Table 4.2.6	Version Entity	50
Table 4.2.7	Chapter Entity	50
Table 4.2.8	Bookpage Entity	50
Table 4.2.9	Element Entity	51
Table 4.4.1	Login Use Case Description	53
Table 4.4.2	Edit Profile Use Case Description	55
Table 4.4.3	View eBook Use Case Description	57
Table 4.4.4	Create eBook Use Case Description	59
Table 4.4.5	Edit eBook Use Case Description	61
Table 4.4.6	Edit File Setting Use Case Description	63
Table 4.4.7	Perform Design Use Case Description	65
Table 4.4.8	Manage Use Case Description	67
Table 6.1.1	Test Scenario for Guest Header	183
Table 6.1.2	Test Scenario for Login Header	184
Table 6.1.3	Test Scenario for Profile Expand Container in Header	186
Table 6.1.4	Test Scenario for Footer	186
Table 6.1.5	Test Scenario for Welcome Page	187
Table 6.1.6	Test Scenario for Login Page	187
Table 6.1.7	Test Scenario for Account Registration	189
Table 6.1.8	Test Scenario for Resend Email Confirmation	192
Table 6.1.9	Test Scenario for Forget Password	193

Table 6.1.10	Test Scenario for Profile Setting Page	195
Table 6.1.11	Test Scenario for Dashboard Page	197
Table 6.1.12	Test Scenario for Design Page	204
Table 6.1.13	Test Scenario for File Setting Page	223
Table 6.1.14	Test Scenario for Published Content	226
Table 6.1.15	Test Scenario for Version Content	227

LIST OF SYMBOLS

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pi

LIST OF ABBREVIATIONS

<i>AJAX</i>	Asynchronous JavaScript And XML
<i>CASE</i>	Computer-Aided Software Engineering
<i>CRUD</i>	Create, Read, Update and Delete
<i>CSS</i>	Cascading Style Sheets
<i>ERD</i>	Entity Relationship Diagram
<i>GUI</i>	Graphical User Interface
<i>HTML</i>	HyperText Markup Language
<i>OCR</i>	Optical Character Recognition
<i>PDF</i>	Portable Document Format
<i>SDLC</i>	System Development Life Cycle

CHAPTER 1

Introduction

In this chapter, it presents the background information on the eBook industry to know its popularity, marketability and future growth and understand the technology development of eBook maker system and its application. Besides, it also outlines the problems with the existing eBook maker system and motivation of the project. The objectives will be detailly described in the next section. Furthermore, the final product model is discussed deeply in project scope and direction. Lastly, it will mention about the contribution of the project and the report organization.

1.1 Project Background

The concept of the eBook had been born by Bob Brown in the year 1930 and is named “The Readies” according to Wilber [1]. Brown proposed the idea that paper works are unable to catch out with future reading materials because of explosive information quantity. The simple reading machine to support the speed reading idea is inevitable. In the following years, there are many innovations and products have been proposed. For instance, the first prototype eReader device by Angela Ruiz Robles in 1949, creation of heavily annotated electronic index by Roberto Busa in 1970 and the first formal eBook which is Declaration of Independence created by Michael S. Hart in 1971 [2]. Furthermore, the early technologies in 1960 have been developed like NLS (oN-Line System), Hypertext Editing System and File Retrieval and Editing System make some major contributions to the evolution of eBook. At the end of the 20th century, the maturity of Internet and electronic devices supports the growth of the eBook industry [3]. It leads to the eBook technology slowly achieving mature state and the products related to eBooks are emerging one after another.

After entering the 2010 decade, the evolution of technology and popularization of electronic devices enables citizens to purchase high versatility electronic devices like tablets, smartphones, eReader and personal computers with economic price compared to the 2000s. Figure 1.1 [4] and figure 1.2 [5] show that the number of connected devices per head is increasing steadily. Every citizen owns at

CHAPTER 1

least a connected device since 2013 [4]. Even though they don't buy eReader, their devices also possess reading eBook functionality. They are still capable to buy and read eBooks. Therefore, the concern of lacking a device to read the eBook is disappeared. Citizens are provided with another choice other than buying the physical books. Additionally, the economy is growing constantly from 2010 to 2019. It accompanies with incremental in annual wages of Malaysian [6] which means that they possess better financial ability. Consequently, citizens will have additional money to acquire the luxury items like eBooks and electronic devices. In short, the factors discussed above stimulate the eBook market which can be seen in figure 1.4 [7]. The sales of eBooks increase by about 122 million which is 176% percent compared with the year 2010.

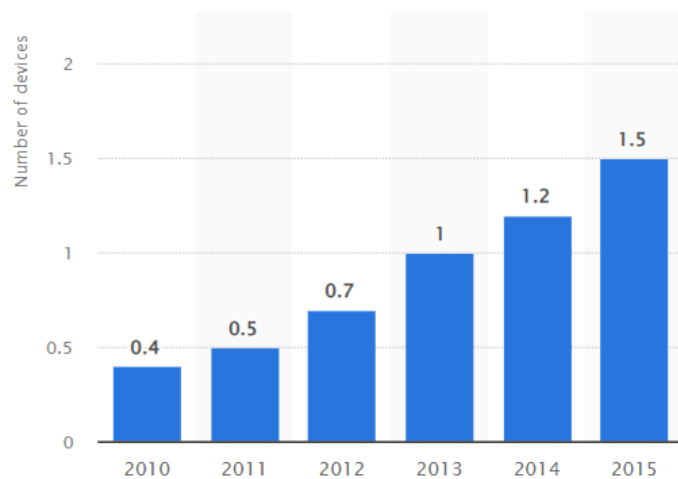


Figure 1.1: Number of connected devices per head worldwide from 2010 to 2015 [4]

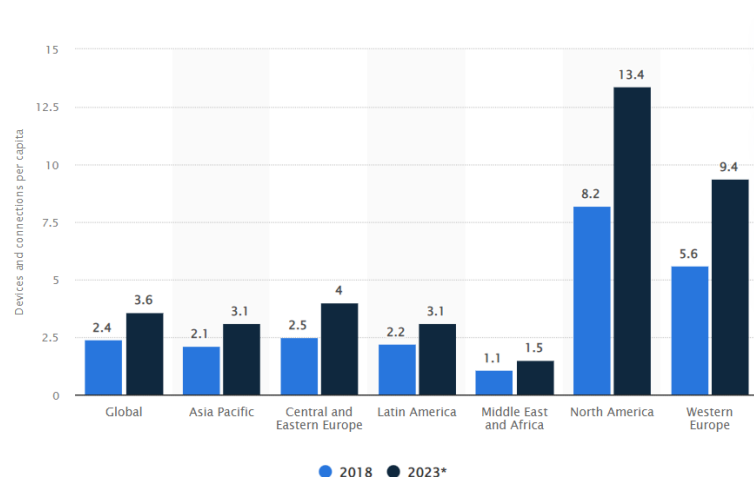


Figure 1.2: Average number devices and connections per person worldwide in 2018 and 2023 [5]

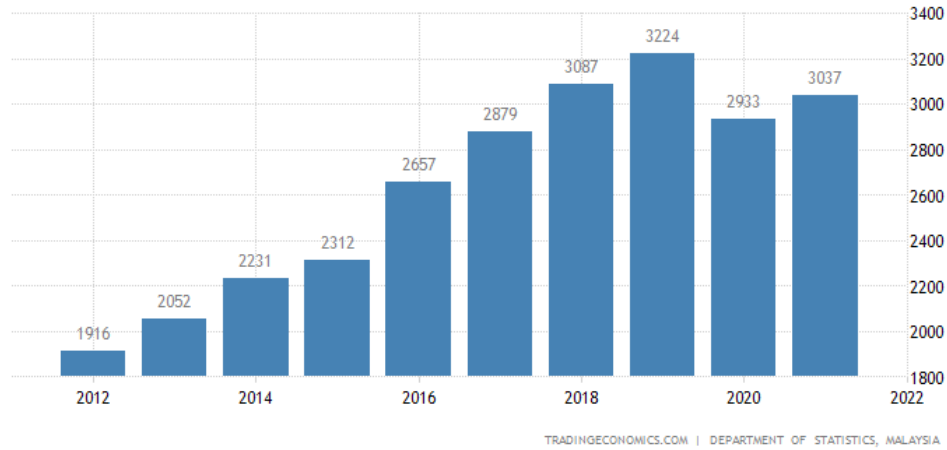


Figure 1.3: Average wages of Malaysian from 2011 to 2021 [6]

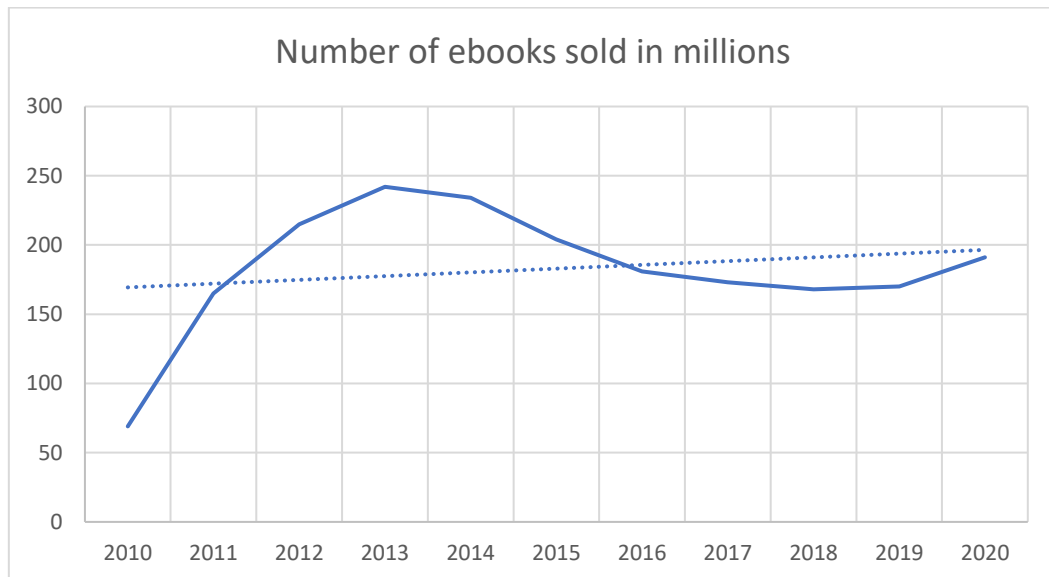


Figure 1.4: Number of eBooks sold from 2010 to 2020 [7]

More than that, the developed countries [8,9,10] have actively advocated the green environment to decrease the pollution caused to Earth. High green awareness has been cultivated and instilled in citizens’ minds. The citizens are highly encouraged to decrease paper usage like printing physical books. Therefore, eBook is a perfect choice to conquer the problem and achieve green society since it is an environment friendly option which will decrease transportation pollution, paper resources usage and production pollution [11]. Besides, COVID-19 also heavily impacts the eBook industry. Under the COVID-19 background, people are forced to stay at home which accelerates the digital transformation everywhere. Utilization and deployment of digital devices are becoming a new norm. Senior citizens will be more willing to use the device to read the eBook. Humans will be more tolerant and

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 Faculty of Information and Communication Technology (Kampar Campus), UTAR

familiar with the devices which encourages eBook sales. As a result, the number of eBook readers will be increasing tremendously which leads in increasing in market size [12].

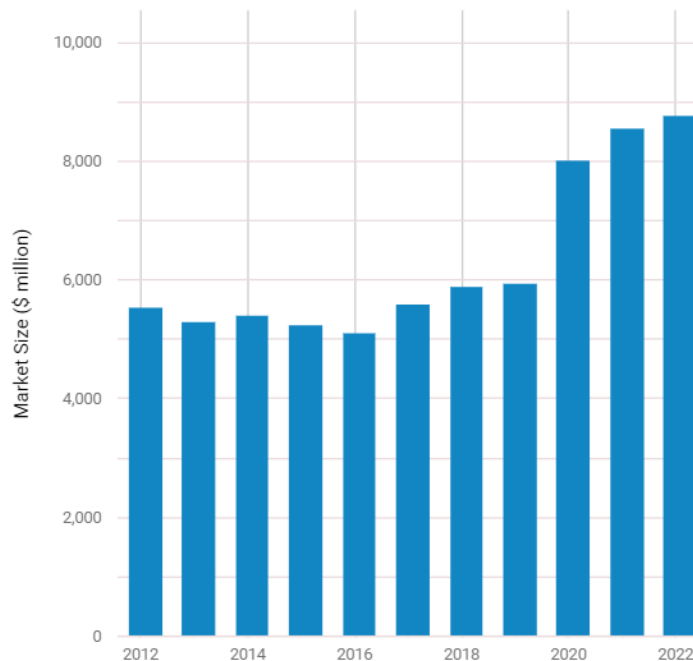


Figure 1.5: Online Book Sales in the US - Market Size 2005–2022 [8]

In terms of consideration of different aspects like business view, technology level, financial ability, environmental issues and changes in human lifestyle, the future of the eBook industry is promising. According to the report [13], it anticipates that the eBook market is expected to reach USD 18.69 billion by 2026, registering a CAGR of 3.62% during 2021-2026. Therefore, the eBook industry is entering the growing phase which has a high potential to bring huge revenue to the author and publisher. The positive forecast will attract more people to involve in the industry to match the demands. As a result, there will be requirements or demands from the author to have an online eBook maker.

1.2 Problem Statement and Motivation

The fatal flaw of the existing system is **the inefficient conversion from existing works to formal eBooks**. With the interruption of COVID-19, humans were forced to accept the drastic changes in their life which were digital transformations.

CHAPTER 1

People had changed their lifestyles and living habits, familiarized themselves with those electronic devices and increased their digital literacy. Those factors led to increasing eBook demand. However, the skills equipped by the system were not keeping up with the trend. It is mainly caused by lacking OCR function in the eBook maker system. It leads to inability to translate the image of a physical book to text form. To publish their existing works, the author needs to retype the book contents which is unrealistic and time-consuming. The alternative way is to find an external source to translate. They need to rely on external sources since the current existing eBook system doesn't possess the ability to convert the physical book image into text form. However, it is not practical and unhandy for the user to leave the platform to execute the translation. Thus, the absence of OCR function decreases the willingness of author to make an eBook publication. The motivation is to enhance the eBook maker system through appending the missing function which is OCR function. The author can easily use the function embedded in the system to make the conversion. Hence, the problem mentioned above can be easily solved. It will benefit the readers since they have the digital format as their additional reading sources.

The second problem is **the complicated eBook making process**. Creating an eBook is harder than one imagines and more complicated than it looks. Other than the eBook contents, the author needs to take care of format standards, layout, graphic design, and accessibility [14]. They require to standardize the format by themselves like font and size of text, layout and orientation of page and alignment of context. Otherwise, it causes inconsistent content arrangement which leads to a bad reading experience. Besides, they also need to insert those graphic design to make the eBook more interesting which require many creative works. Lastly, they must make the content accessible to edit even after submission to the publisher since there might be some error that doesn't discover during the auditing phase. The eBook maker process should be simplified to make it easier to get started. Without a doubt, it is difficult for newcomers to know the focus during eBook creation. Therefore, they possibly overlook some important stuff. The project's motivation is to simplify the eBook creation process to make it more intuitive and user-friendly for newcomers. There will be fewer operational problems faced by the author during the creation of the eBook. Thus, it can involve more experts in the eBook industry to increase the quantity and

variety of eBooks to match the market demands [13]. More than that, the quality of eBooks will have significantly increased through the high competition level.

Furthermore, **the operational interface is complicated for those senior citizens** since they are not proficient in using those digital devices. Lower digital literacy among senior citizens causes them to struggle in using those eBook maker systems [15]. Undoubtedly, youngsters wouldn't feel any issues while using the eBook maker system since they grow up with electronic devices [15]. Nevertheless, the baby boomers and even millennials will feel overwhelmed. Insufficient knowledge in the technology field causes them to lose their confidence in producing high-quality eBooks through the eBook maker system. Even though there are some online teaching materials to educate them on way to produce an eBook, they struggle with it due to their inexperience in using the Internet [16]. It results in low interest in producing eBooks. This issue is also one of the motivations that drive this project's execution. Senior citizens shouldn't be excluded from this industry. This project dedicates to reworking the operational interface to make it more user-friendly and intuitive to those senior authors. It can involve more senior citizens to generate their eBook since it minimizes their burden and problem encountered during eBook creation process. Thus, the variety of eBooks is increasing and matching with different types of readers in the future.

Lastly, **the interface of the eBook maker system is limited responsive web design**. A responsive web design possesses the ability to adapt and adjust to different screen sizes and viewports. Several systems are not optimized for mobile devices like tablets and phones, while others are not optimized for the width of the screen. For example, when the user resizes the website, it will disrupt the layout and orientation and hide some buttons. Non-responsive web design limits the author's ability to resize and arrange the website side by side which leads to a bad online browsing experience [17]. Consequently, it results in low working efficiency since the inconvenient operational interface delays eBook production. They need to go back and forth between the applications. Furthermore, there are some limitations on the devices used. It exhausts their enthusiasm and causes them unwilling to involve in the eBook industry which limits eBook production. Hence, the motivation of the project is to improve the user experience by designing a mobile responsive eBook maker system.

CHAPTER 1

Users can resize the screen width according to their preference. It provides convenience and increases user satisfaction.

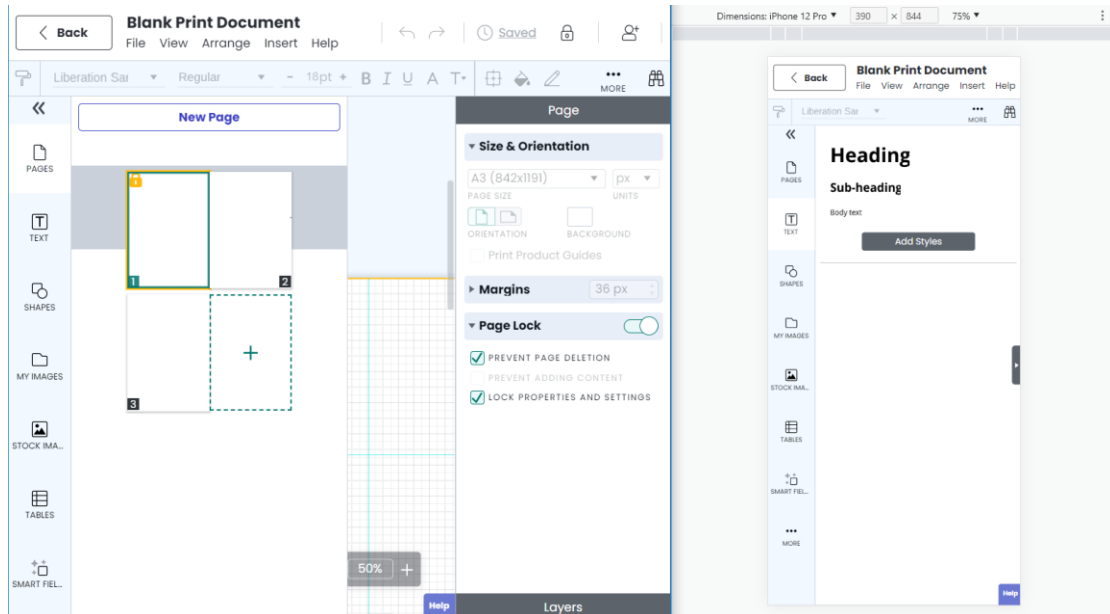


Figure 1.6: Not Responsive Web Design System

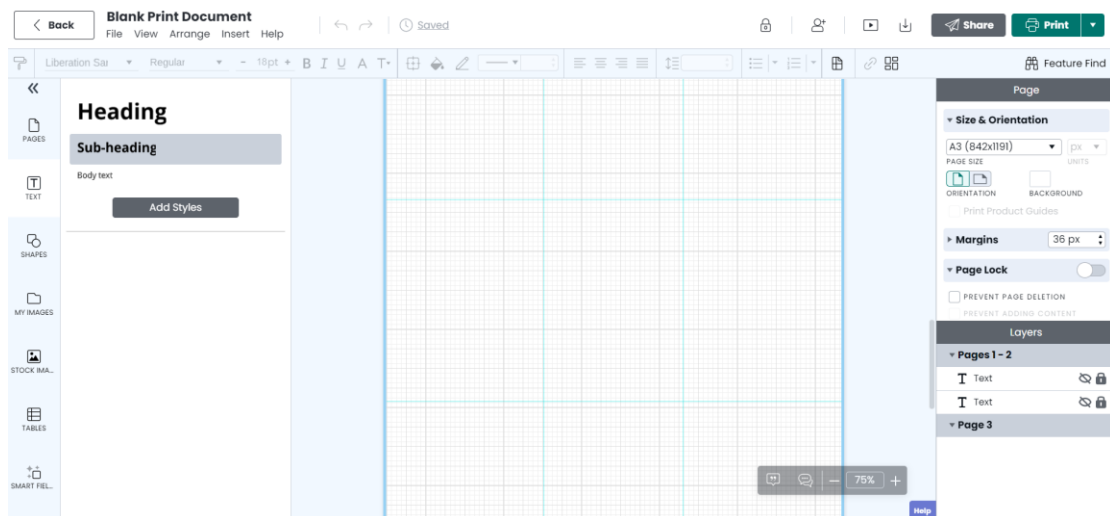


Figure 1.7: Normal View of System

1.3 Research Objectives

The project goal is to produce an online eBook maker system that suitable for the novice users and senior citizens to generate their own eBook easily. There are 3 objectives for this project.

1. To redesign the eBook maker system to be more guidance based and user-friendly to the users.

The primary objective of the project is to redesign the eBook maker system to be more guidance based and user-friendly to the users like newcomers and senior citizens through simplifying the operational interface, cutting down the operational button, minimizing the operational step and eliminating unnecessary steps. For example, forcing the author to follow the standard flow. It provides convenience to rookie users like senior citizens. Moreover, the system's design is planned to be simple and plain. Even one with 0 electronic knowledge can produce an eBook if they follow the guideline and instructions. Furthermore, they will not overlook the important stuff anymore with the guidance provided. More than that, the design tools will be intuitive to the human and obey the 3-click rules. Therefore, it can cater the target user either senior author or novice user. They can easily use this system to create their eBook even no operational experience with an eBook maker system.

2. To enhance the existing eBook maker system.

The second objective is to enhance the existing eBook maker system through adding the OCR function. The OCR function will make the eBook maker system functionalities more complete. It will allow the user to import their physical book image to text form and continuously work on it which saves lots of time. Otherwise, they require to find an external source to complete the action. After adding the OCR function, they will have a better user experience and increase their willingness to publish an eBook.

3. To improve the user experience

The last objective is to improve the user experience through customizing the different types of views for each type and width of the device. User can develop their eBook on any device used since the system will auto-render the suitable view according to the devices. They no longer require zooming and shrinking their screens. Thus, there will be no device or screen width constraint for the user. It means that they can develop their eBook on any device and screen size which provides convenience and increase

efficiency during book creation. It eases the operational procedure as they don't require resizing the view to fit their screen.

1.4 Project Scope and Direction

The project plan is to develop an online eBook Maker System. The website development technique is utilized to deploy a complete online eBook Maker System. The target audiences of the project are novice users like newcomers and senior citizens. Therefore, the development concept is to create a user-friendly platform to take care of those users. The final product is inclined to be more guidance-based and easy to proficient in through familiarizing them with the flow and guiding them step by step to make their eBook. Not only that, but it can also enhance expert users' final products by providing lots of assistance tools. In short, the user who commits to creating their eBook can be benefitted from this project.

Furthermore, this project will be divided into four modules which are the builder module, interface module, tools module, and security module. The builder module will allow the user to create an eBook project. It allows the user to customize the eBook by choosing the eBook type. Next, the system will request the user to select their page size which will be fixed throughout the whole process and fill in the basic information for the eBook. After that, the system will create and return the eBook to user. Additionally, the system enables the user to append the contents or decorate the eBook by adding the elements to their eBook. For example, setting background colour or image for all page, text, shape, image, chart, and graphics. Not only that, but the user can also divide their eBook into chapters through the categorization function. For the editing part, the basic function like the content amendment, move, drag, resize, and delete will be included. Furthermore, the user can change the design style for the elements. For instance, colour, font size, font type, border colour and others. Lastly, it provides two options which are exporting and publishing the project. In short, this module provides the basic functionalities of the eBook maker system.

Besides, the interface module mainly consists of two parts which are user interface and mobile responsive. The GUI of the proposed system is simple and plain. It can be achieved by categorizing similar functions and grouping them in the same bar to ease the users' searching for certain functions. Furthermore, the operational

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CHAPTER 1

flow will be simplified by cutting down the unnecessary process and adding some descriptive words to it to generate a better understanding for the user. All designs of the proposed system will obey the three-click rule which can provide a good user experience. More than that, all operational processes will be focused on the design page only to avoid page redirection which will cause user confusion. Lastly, there will be two views to customize the different types of devices. Therefore, regardless of the device or screen width, it renders the best view for the user. Hence, users can have the best usage experience while using the system.

Other than that, the security module will provide four major functions which are account verification, locking function, autosave and version history. Account verification will verify every user that prompts to enter the project. Only verified accounts can view and edit the project to protect the data from breach, stealing or loss due to malicious acts. The locking function enables the user to lock the element and page to make it uneditable. Therefore, no one can change the content. It also avoids the careless mistake that will dispute the finalized content. Moreover, the autosave and version history build up a proper recovery mechanism for the user. It allows them to retrieve the content even if unforeseen issue happen.

Lastly, the tools module supports and eases the creation process by aiding tools to match the special demands. The assistance tools include grammar error detection, comment, search and replace function, OCR ability, work sharing feature, and template provided. Grammar error detection helps the user to save time in checking and proofreading their context. Furthermore, the comment feature allows them to leave a note on certain pages to remind themselves or exchange thoughts with their collaborators. More than that, the previewing function will show the view of the final product. The search and replace function can reduce their work to find the words one by one and replace them in one click. OCR function can scan the image and convert it into text form which saves the users' efforts. User can share their work by adding an email to their project. The granted account can read and edit the project. Lastly, it will provide some default templates for the user to apply to their design.

1.5 Contributions

The contribution of this project is building an eBook Maker System which enables users to create their eBook without relying on external help. The signature of the system is the user-interface and operational process. It is highly user-friendly and easy to operate by making the flow self-explanatory and simplifying the flow. Thus, it can easily hit the target audiences who are novice users. Having this characteristic improves the competition level and might be a persuasive factor for the user to choose our system over the others. Descriptive words when hovering over the button and tutorial can help those users familiarise themselves with the process.

Other than that, this project also contributes to establish an innovation which is OCR function. OCR function is not discovered in the existing system on the market. It is a major flow for the user who wants to upload their physical words in digital format. OCR function can conquer this issue by allowing the user to upload an image to make the conversion from the image to text form. It provides convenience to the authors and speeds up the development speed.

Lastly, our system also contributes to improving the user experience. The proposed system is mobile responsive and can adapt to any device and screen width. Therefore, it provides flexibility in resizing the screen width which allows them to arrange the website side by side. In addition, the interface can work well with any type of device. Hence, it can increase user satisfaction and increase the willingness to continue at the platform to make their work.

All these contributions will help in involving more people in the eBook industry which is the goal of this project. The project shortens the learning times for novice users to invite them to join the eBook industry. Therefore, newcomers and senior citizens wouldn't be excluded from the eBook industry or deprived of the right of making their eBooks. Furthermore, the addition of OCR function and improvement of the user interface provides convenience which attracts the user to make more eBooks.

1.6 Report Organization

The research information is disclosed in the following chapters. In Chapter 2, the literature review will be conducted to analyse and learn the mechanism, strengths,

CHAPTER 1

and weaknesses of the existing systems in the market. There is a comparison table to compare each review system to explore the advantages and improve the weaknesses discovered. Chapter 3 show the preprocessing stage of the development cycle like the selecting the suitable system methodology, deciding hardware and software, learning the user requirements, and planning a detailed development timeline. In Chapter 4, the system design is presented including wireframe diagrams, ERD, use-case diagrams, activity diagrams and architecture diagrams to explain the proposed system. The system implementation primarily emphasizes the user side like the user access methods and system implementation while also pointing out the implementation issues and challenges during development. The next chapter mainly focuses on evaluating the system through black box testing and user testing and followed by a discussion the achievement rate of objectives. Lastly, the chapter concludes by reviewing the project development cycle, highlighting limitations, and suggesting future enhancements.

CHAPTER 2

Literature Reviews

To generate a more comprehensive and flawless online eBook maker, the five common eBook maker systems are reviewed and analysed in this project which are Canva [18], Kindle Create [19], Kotobee Author [20], Marq [21] and Visme [22]. These five applications or websites are mainly to serve the author to aid them to produce the eBook which has a similar function with this project. Each system will be examined to know its strengths and limitations in four aspects which are interface, design, security, and assistance tools.

2.1 Canva

Canva's GUI is simple and plain which more user-friendly for a novice user. This kind of design enables the senior author to familiarize himself with the system faster through straightforward guidance instead of those complicated and compact user interfaces. Otherwise, it will expel those senior authors whose technology knowledge is outdated. Consequently, there will be fewer and fewer eBooks available on the market. Moreover, Canva only has 2 main pages which are the home page and the design page. On the other hand, multiple pages will confuse the user since they will not be able to know the location. Additionally, the navigation bar and sidebar are well-designed. The navigation bar is comprised of frequently used features only. Meanwhile, the sidebar includes those content-related functions. To edit the design for the content like text and images, the edit tab is in the highlighted area of figure 2.1. Hence, the user can easily navigate their desired function or features in a short time. Furthermore, all designs obey the three-click rule. It means that brings good user experience since they can perform the function within three clicks.

In terms of design view, Canva allows users to insert many types of elements. For instance, graphic elements, text, images, self-uploading galleries, video, background, statistics data and third-party applications. User can decorate their eBook by utilizing the default text with different styles and gallery items for their eBook or uploading their content which can be reused in another eBook. Furthermore, they can

CHAPTER 2

upload their external file source like PDF or Microsoft Word and adapt it to the eBook format which saves retyping time for the author. For the mathematical contents, they can insert those charts as an illustration to explain their content. Lastly, some popular third-party services are provided like Google Maps, Instagram, and YouTube. Besides, they can animate the context to make it more interesting and vivid. Moreover, there are many templates provided according to user requirements. The user can select and make it as the background design of the eBook which cut down lots of design time. For the layout and orientation of the eBook, they can resize the eBook and make it landscape or portrait to adapt to different kinds of eBook like report, educational material, novel, or storybook.

The assistance tools provided by Canva include gridline and ruler system, find and replace features, grammar error detection, commenting function and exporting eBook to another file type. The gridline and ruler system enable the user to standardize their content arrangement to make it tidier. Grammar error detection eliminates the preliminary checking and find and replace function shortens the debugging time. Furthermore, the commenting function allows interaction between the collaborators in the project. One can leave a comment to communicate with the team members or make it a reminder for the team. Lastly, Canva enables exporting the eBook into JPG, PNG, PDF, and SVG.

In terms of security aspects, Canva provides three functions which are lock, account verification, autosave, and version history. The lock function enables the user to lock the page, background, and context of the page to make them uneditable. It prevents any uncareful editing action which will mess up the original contents. Therefore, the user can work with their literature more safely. More than that, the autosave feature is embedded in the project. The user doesn't need to worry about the application crashing causing loss of progress. Other than that, the version history record enables them to examine the error that occurred in their project and backtrack to the correct version. Thus, they can make immediate rectify if any unforeseen incident happens. Lastly, the user can share the project link to their collaborators to work together through adding their email address in account verification. The project will only allow the verified account to edit the project. Even though unverified account enters the project with the link, they will not be granted

CHAPTER 2

access to the project. In short, the project will be in a safe state with the account verification method.

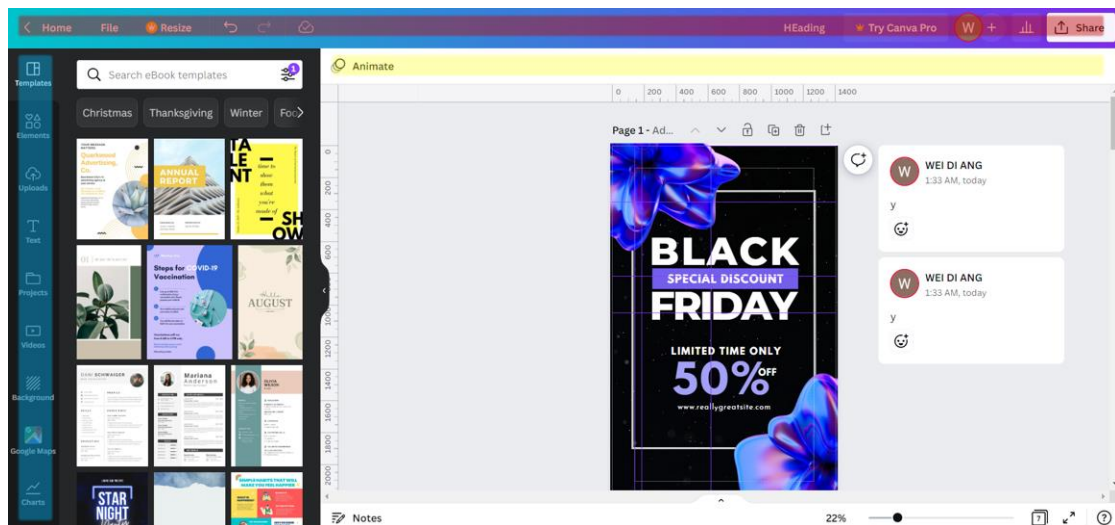


Figure 2.1: User Interface of Canva

2.2 Kindle Create

The interface of the system is simple and plain since it classifies the function available well. For example, general function on the top bar, chapter division at the left sidebar and those text design elements at the right sidebar. For the design part, Kindle Create is more focused on text representation during creating an eBook. It offers many text styles like chapter title, chapter subtitle, chapter first paragraph, subheading, block quote, poem, separator, opening quote and opening quote credit. Those elements will be mainly used in creating the eBook like novel. Furthermore, there are many template pages like copyright, table of content, and many more. It provides some ideas for the author to know the page should be included in their eBook. For the orientation and layout, Kindle Create offers the user the standard eBook format used by Kindle. Therefore, the author doesn't need to readjust the format to adapt to the Kindle. After they export the eBook to Kindle format, they can straight submit the eBook to the Kindle platform. It also equips the search function to find out the target content in their content from large amounts of words. More than that, it allows the user to choose the desired print format. Moreover, the user can preview the reader's view from tablet, Kindle eReader or phone. The application is in offline mode, so no account verification is needed.

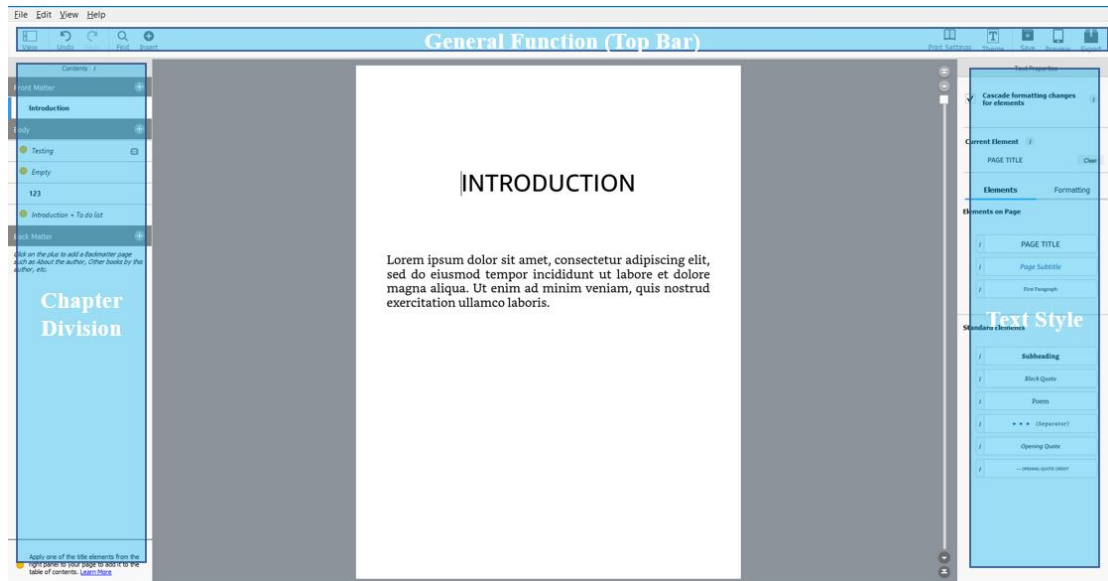


Figure 2.2: User Interface of Kindle Create

2.3 Kotobee Author

Kotobee Author interface is compact which suitable for the expert user. The system consists of multiple pages. Each page will be catered to one specified function like edit, customize, export, and manage.

For the context design, it is highly similar with Canva. It allows the user to insert many types of elements in their eBook including image, gallery, link, anchor, questions, video, audio, container, widget, and some technical items which are equations and 3D object. In advance, they can insert the table and special characters for the technical contents. Furthermore, there are multiple templates provided for the user to choose to decorate their eBook. It also supports a variety set of eBooks like novel, reports, storybook and educational materials. The user can arrange and align their context without restrictions since it doesn't limit the flow of content. Other than that, it allows the user to choose fixed layout page or flow layout page which allow the user to design their customized eBook according to their requirements. Moreover, they can make some notes when reading the books. It allows chapter division which makes the better classification of contents. Therefore, the reader can clearly know the content of the eBook through the chapter listed in the table of content. It also allows the user the import their external context into it. They no need to retype those contents.

Furthermore, they can save their design in the library and reuse it on other pages

CHAPTER 2

which saves some design time. It also provides the default pages for the user so that they don't require to design by themselves.

In term of the functional aspects, Kotobee Author support searching, exporting, previewing, and chapter division. The search function with advanced filter makes the searching process more effective for the user. Furthermore, it allows to export to different types of sources like standard files, web app, desktop app, mobile app, host online or library. Not only that, but they can preview their eBook through different devices. Therefore, they can make highly customized design according to the user's device which provides them with a better reading experience. It also ensures that the content is displayed accurately. Furthermore, it allows the user to quickly navigate to the target chapter by clicking the chapter.

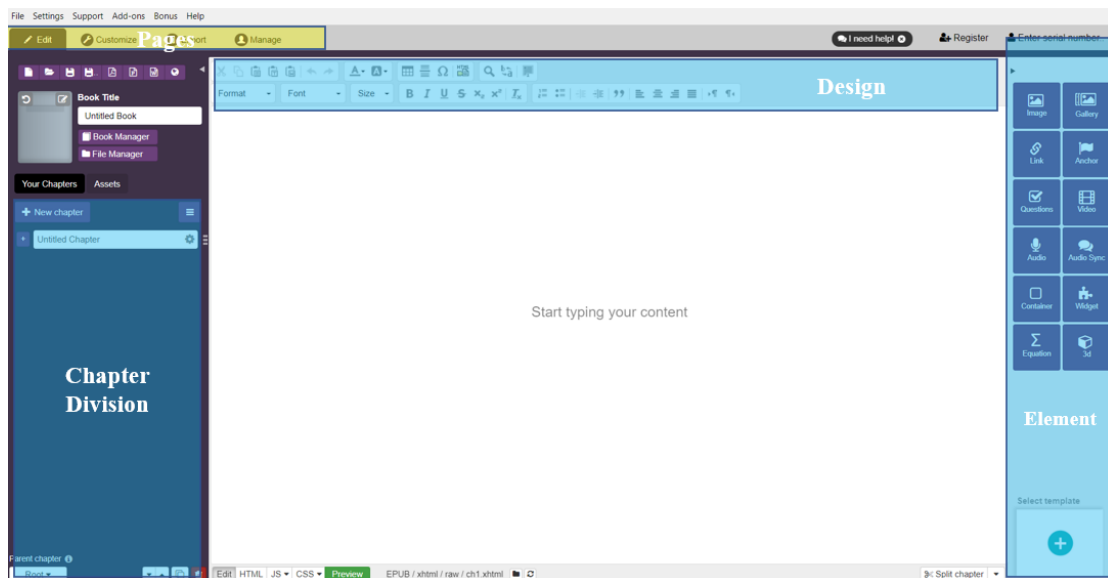


Figure 2.3: User Interface of Kotobee Author

2.4 Marq

For the user interface, it is simple and plain. There is a navigation bar and two sidebars. The navigation bar is comprised some basic and common-use functions. Furthermore, the left sidebar contains the choice of elements. Meanwhile, the right sidebar contains the project setting and layers. The well and consistent design enable the user to navigate or target the function desired easily. Marq is mainly made up of two pages which are the home page and the design page. Moreover, each button is

CHAPTER 2

self-explanatory. Therefore, users can immediately understand the functions of buttons. In short, the design is user-friendly. Lastly, all designs obey the three-click rule.

For the design phase, it allows text, shapes, images, own upload graphic items, tables and smart fields. They can use the default text to create the book and insert some image graphic items as diagrams to aid their eBook creation. Furthermore, the smart field uses coding to show up the field value to avoid some typo. Lastly, some basic formats and designs can apply to the text like font, size, text decoration, and colour. Users can also resize the eBook and choose the orientation type.

For the assistance tools, it supports the user with the grid and margin system, comment functions and previewing of eBooks. Gridline and margin system will show the margin and grid of the eBook to allow the user to locate their content in a more precise location. Furthermore, it can standardize the content without any discrepancy. Users can leave their comments to conduct communication with the collaborators. Previewing the content in the eBook form to ensure the accurateness of format.

For the security part, it offers locking function, revision history, autosave and account verification. It has the same functions as Canva. It can lock the page with different levels like limiting the adding, deleting, and editing functions. Account authentication will only allow the verified account to edit the eBook. Therefore, Lastly, one can invite their members to edit the work together. The revision history enables the user to retrieve the previous edition which prevents the permanent data corruption of the current project. Autosave will save the changes applied for every second. The user will not worry about data loss after accidentally closing the website. The security system for Marq is complete.

CHAPTER 2

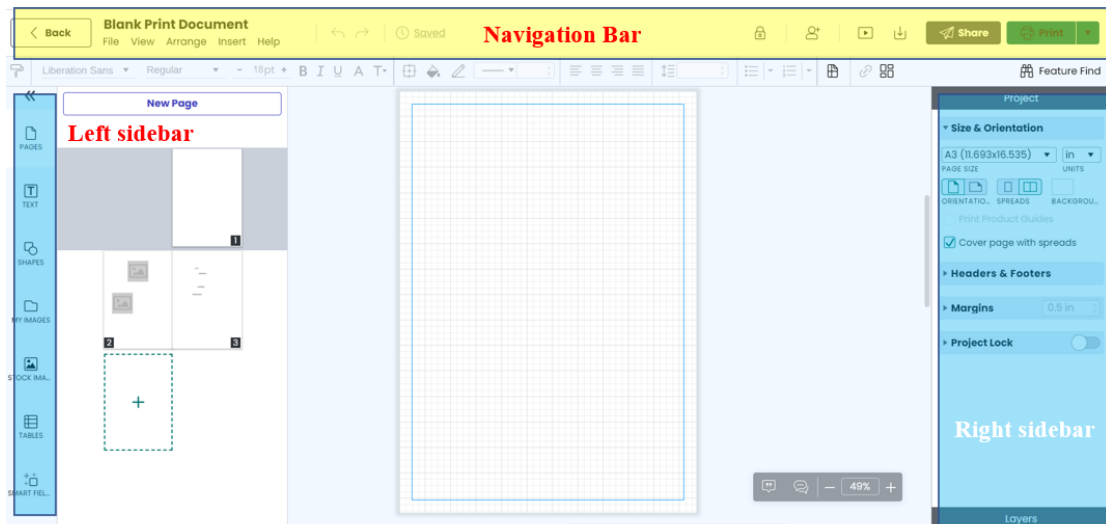


Figure 2.4: User Interface of Marq

2.5 Visme

The user interface is simple and plain. It almost covers everything important in their interface. There are only 2 sidebar and one collapsible menu bar. The left sidebar comprises those basic context elements whereas the right sidebar contains the overview of pages and comments. The menu bar will be in collapsed form when not clicked. After the click, it will expand and show the features related to settings. The clean interface wouldn't cause confusion to the user. They will easily know where to find their desired functions. Furthermore, all designs possess 3-click rules. Therefore, it provides good user experience to the user.

For the context design, Visme offers the basic template layout. Users can choose the template as their design or design by themselves. In addition, the website provides many elements like texts, diagrams or descriptive data figures with lots of designs pattern. Furthermore, user can upload their gallery or photo from searching bar given. Additionally, they also provide different charts to explain those statistics data. Utmostly, it can import other existing documents which saves the retyping time for the user. Popular third-party application is also provided and can be used in the eBook. Lastly, one can apply the animation or effects to their context.

Many assistance tools are provided by Visme to assist the eBook creation process like gridline and ruler system, grammar error detection, find and replace

CHAPTER 2

function, publishing and exporting. Gridline and ruler system provide the standardization of the content and consistency of object arrangement. Grammar error detection helps them to identify some basic errors. Find and replace functions save that manpower and time spent. It is able to publish to the website with the flipping effects which is viewable by the public. Exporting allows the user to export their product into multiple types like JPG, PNG, PDF and a lot more.

Security and recovery system are well designed because it provides the version history, locking button and account verification. The version history enables the user to retrieve back the previous work if some unwanted edited applied. Furthermore, the locking button can prohibit one from making changes to finalized contents. Account verification prevents unauthorized account make changes to the file and permit the collaborators to edit the work together.

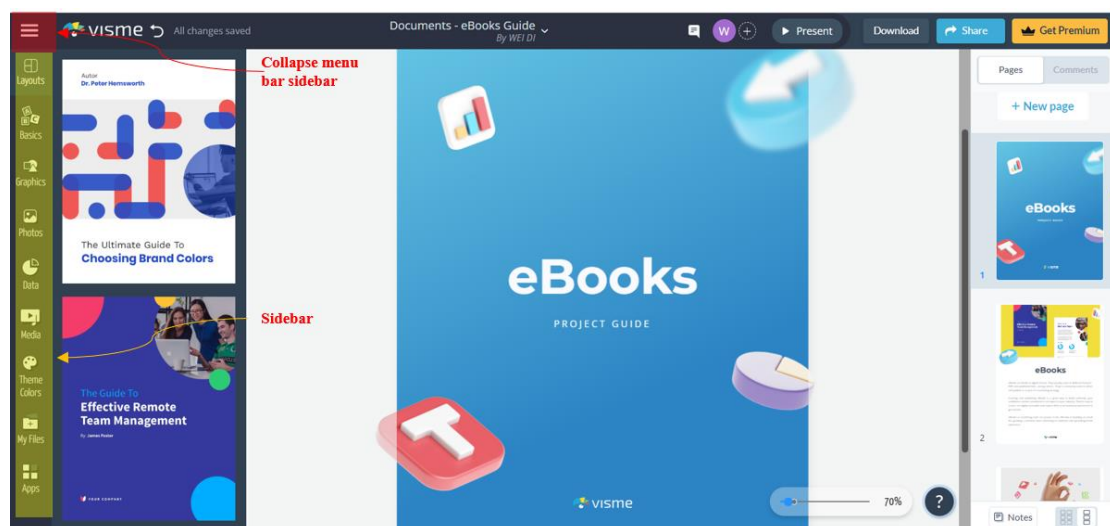


Figure 2.5: User Interface of Visme

2.6 Limitation of Previous Studies

The minor issue with Canva is limited mobile responsive. It may not provide the best view of the system according to the width of the screen. It will cause the other device users to prioritize another eBook over Canva one. In addition, lacking chapter division is also one of the problems. It confuses the users since they are unable to know the reading progress. Lastly, it can't scan the text from images and insert it into the eBook.

CHAPTER 2

The major limitation of Kindle Create is the unhandy user interface. For the chapter division, it requires many clicks to achieve the function which violates the three-click rule. It hides the adding chapter and part page which make the user difficult to find out the function. From my personal experience in using Kindle, it spends like 10 minutes to find out the add page functions on the first try which is unacceptable. Besides, the font size used in describing the functions in Kindle Create is too small. The standard font size in the user manual should be 12px. Consequently, unclear instructions make those users quit this type of eBook maker. Besides, the function guide is not self-descriptive which make confusion for the user. Additionally, Kindle Create hinders the addition of media and graphic items. It leads to the dull representation of eBooks which makes the eBook less attractive to readers. More than that, the design of the eBook is highly restrictive. The user is unable to align the paragraph by themselves to make their arrangement. Lastly, it doesn't possess the OCR function.

The design of Kotobee Author is too compact which makes the user unable to immediately find out the function they wanted to use. Although there are many functions provided, the operational step is not intuitive which makes extra time spent on comprehending the function provided. Lacking a description for each function confuses the user. Furthermore, their exit button is not designed as the convention. The black colour of the exit button makes the user difficult to identify the location of the exit page. Lastly, it doesn't possess the text scanning function from the image.

The problem of Marq is lacking the chapter division. Although it provides many types of elements, the choice per element is low. Users may discover that insufficient shape is provided during the design phase. Furthermore, it is limited mobile responsive which means it doesn't possess the auto-scaling function according to the device size. It also doesn't equip with OCR function.

The limitation of Visme is lacking the chapter division. The author can't divide their chapter according to their needs. Furthermore, it is limited mobile responsive. It is unable to deliver the best views of the contents based on the device or screen width. It will worsen the user experience. The last weakness is the inexistence of OCR function.

2.7 Proposed Solutions

A similar limitation of all systems is lacking OCR function. The solution is adding OCR function in the importing section by applying the OCR technique in the system. Afterwards, append one section to allow the user to convert their physical book image to text form. Furthermore, Canva, Visme and Marq consist of the same limitations which are lacking chapter division and the eBook Maker System is limited mobile responsive. The first problem can be solved by adding the chapter section to the page section. It allows the user to categorize certain page ranges under which chapter. The solution for the second problem is designing more views to cater for different types of devices and screen widths. The insufficient variety of design elements is found in Marq and Kindle Create. To solve this problem, the system should add more elements for the user to have more choices to decorate their eBook.

The last problem is the interface and design issue from Kindle Create and Kotobee Author. For Kindle Create, it should improve its interface. There should be two buttons designed for the adding chapter and part page instead of collapsing in the add section. The captions should be written under the button to make it more descriptive. Furthermore, the font size of the system should change to a standard font size which is 12px. Kindle Create should append the decoration section that allows the author to align the paragraph without restriction. In our objective, this project aims to have a simple and plain design. Therefore, the interface design of Kotobee Author might not be suitable to apply to this project. To make the operational step clearer, they should add some captions or hover to show more information for each section. Lastly, Kotobee Author can change the colour of the exit button to red colour to make it more visible to the user.

2.8 Summary of Previous Studies

Table 2.1: Comparison of Proposed System and Previous Studies

	Canva	Kindle Create	Kotobee Author	Marq	Visme	Proposed System
Interface						
GUI	Simple	Simple	Compact	Simple	Simple	Simple
Navigation Bar	Well Designed	Well Designed	Well Designed	Well Designed	Well Designed	Well designed
Design						
Context Elements	-text -image -graphics -statistical data -video -third-party application	text	-text -image -external link -questions -video -equation -3D object	-text -image -graphics -table -smart field	-text -image -graphics -video -statistical data -smart field -third-party application	-text -image -chart -shape -maths equation
Chapter Division	✘	✓	✓	✘	✘	✓
Template	✓	✓	✓	✓	✓	✓
Page Resize	✓	✘	✘	✓	✓	✓
Orientation Layout	✓	✘	✘	✓	✓	✓
Assistance Tools						
Gridline and ruler system	✓	✘	✘	✓	✓	✘

CHAPTER 2

Searching	✓	✓	✓	✓	✓	✓
Replace	✓	✗	✓	✓	✓	✓
Grammar Error Detection	✓	✓	✗	✓	✓	✓
Comment	✓	✗	✗	✓	✓	✓
Export	✓	✓	✓	✓	✓	✓
Mobile Responsive	Limited	N/A	N/A	Limited	Limited	Mobile Responsive
Preview	✗	✓	✓	✗	✗	✓
OCR	✗	✗	✗	✗	✗	✓
Security						
Work Sharing	✓	✗	✗	✓	✓	✓
Lock	✓	✗	✗	✓	✓	✓
Account Verification	✓	✗	✓	✓	✓	✓
Autosave	✓	✗	✗	✓	✓	✓
Version History	✓	✗	✗	✓	✓	✓

CHAPTER 3

Proposed Method/Approach

3.1 System Development Life Cycle

As the saying goes, a good beginning is half the battle won. Therefore, development methodology is playing an important role in developing a high quality system. Otherwise, incompatibility development methodology will cause lots of system amendments which lead to consuming processes, resource wastage and low quality systems. In this project, SDLC is implemented as the primary development way. Generally, SDLC can be divided into the planning phase, analysis phase, design phase, and implementation phase. According to Dennis et al. [23], there are three major categories of methodologies including structured design, rapid application development (RAD), and agile development. Other than that, there is also multiple SDLC model which popular on the Internet like Iterative Model, Spiral Model, The Big Bang Model and V-Model [24]. For this project, we will mainly analyze the 3 major categories from Dennis et al. [23].

3.1.1 Structured Design Methodology

The first category of methodology is Structured Design Methodology. Its characteristic is abiding the formal step-by-step approach to the SDLC [23]. The phase will only move to the next phase if the previous phase is done. After entering the next phase, it is almost impossible to return to the last step since it is too costly which is considered its major weakness. The irreversible process causes the time spent on each phase is too long which causes a long delay between the system proposal and deliverables [23]. Hence, a detailed development plan is required before the programming begins. For example, multiple requirement determination techniques will be conducted to ensure the user requirement and avoid the final product discrepancy. On the other hand, it leads to the high complexity of the system since the detailed documentation and systemized and error-free final product. Waterfall Development and Parallel Development fall under this category. The key deliverables of Waterfall Development for each phase are very long. Before obtaining sponsor approval, it is not allowed to begin the next phase. Parallel Development slightly

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Faculty of Information and Communication Technology (Kampar Campus), UTAR

shorten the long delays problem by dividing the project into distinct subprojects that are developed in sequence [23]. Subproject will be carried out parallelly and integrated after completion of all subjects. In short, this approach is more suitable for those critical real-time systems like train systems since it has low tolerance to the errors and long development time.

3.1.2 Rapid Application Development

RAD is the approach that attempts to address the weaknesses of structured design methodologies [23]. It emphasizes on development speed of the system by modifying the whole process to deliver the system quickly to users. RAD enable the user to develop the system part by part. Additionally, the analyst or developer is highly advocated to use special techniques and computers to assist their system development [23]. For example, CASE tools in drawing the system design, JAD sessions in determining the user requirements, visualization programming languages and code generators in building the system [25]. Those supporting tools speed up the system development process. Generally, it is suitable for the user who has vague system requirements or low digital technology knowledge. Part of the system will be constructed and delivered to the user to know their exact requirement to decrease the user discrepancy. Therefore, it embraces the minimal changes in the previous version. Under this category, there are two methodologies which are phased development and prototyping development [23]. For phased development, it will break the complex system into series of version that are sequentially developed [23]. The requirements obtained during the analysis phase will be divided into the module. The most important and fundamental module has the priority to be developed and delivered and followed by the remaining module according to the priority [23]. In addition, the throwaway prototyping will execute the analysis, design, and implementation phases simultaneously by building a design prototype. After determining the requirements, the project will proceed to the system development and the design prototypes are thrown away [23]. Thus, RAD can clear user unclarity on their system and promote delivering the part of the system in a short time.

3.1.3 Agile Development

Agile Development methodology is a programming-centric methodology [23]. Extreme Programming, Scrum, and Dynamic Systems Development Method are Bachelor of Information Systems (Honours) Information Systems Engineering Faculty of Information and Communication Technology (Kampar Campus), UTAR

popular examples of this methodology [23]. The characteristic of this methodology is the fastest system development speed among those methodologies. This methodology advocates the simple SDLC and follows with the coding to find out the real requirement because it assumes that the user's requirement will be changed from time to time. It conducts all phases at the same time and eliminates time-consuming procedures like modelling, documentation, and requirement determination. It emphasizes simple and iterative application development which results in delivering the system early and continuously through the development process to satisfy the customer [23]. Hence, it is high tolerance in changing the requirements regardless of when they occur in the development process. It provides high flexibility to the customer to change the system anytime. However, frequent communication is required between development teams and customers to constantly update the user requirement and provide improvement feedback. Another drawback of the methodology is small, experienced, and proficient development team is required to produce a high quality system effectively. Moreover, Agile Development is not suitable for large mission-critical systems. Hence, Agile Development elevates the development speed and embraces the changes from the customer. It suits best the customer who wants to develop a system and constantly receive feedback in a short time.

3.1.4 Selecting the Methodology

Dennis et al. [23] state that the best methodology has not existed in this world. However, one can pick the methodology that can fit the best according to their situation. There are 6 important indicators to decide the best methodology which are clarity of user requirements, familiarity with technology, system complexity, system reliability, time schedules and schedule visibility [23]. Figure 3.1.1 shows the compatibility of each methodology with the system.

Ability to Develop Systems	Structured Methodologies		RAD Methodologies		Agile Methodologies		
	Waterfall	Parallel	Phased	Prototyping	Throwaway Prototyping	XP	SCRUM
With Unclear User Requirements	Poor	Poor	Good	Excellent	Excellent	Excellent	Excellent
With Unfamiliar Technology	Poor	Poor	Good	Poor	Excellent	Good	Good
That Are Complex	Good	Good	Good	Poor	Excellent	Good	Good
That Are Reliable	Good	Good	Good	Poor	Excellent	Excellent	Excellent
With a Short Time Schedule	Poor	Good	Excellent	Excellent	Good	Excellent	Excellent
With Schedule Visibility	Poor	Poor	Excellent	Excellent	Good	Excellent	Excellent

Figure 3.1.1: Criteria for Selecting a Methodology [23]

A detailed and complete analysis of the system is required to make the selection for the methodology. The first criterion is clarity of user requirements. This project applies two information gathering techniques which are questionnaire and document analysis to obtain the user requirements. The questionnaire can collect the user's feedback, opinion, and improvement on the existing system whereas the document analysis helps in exploring the strengths and weaknesses of the system and the professional perspective from the enterprise. Therefore, there is high clarity and understanding of the user requirements.

Another key criterion is familiarity on the technology. The developer used the technology to build a website with some simple functions. However, the complexity of the system is on another level. The system requires more advanced functions and comprehensive planning to make the system work. It means that there is a minimal understanding of the technology from the developer. Only part of the programming techniques can translate and utilize to develop the new system.

Moreover, the system complexity is high. It is due to the large number of components, interconnections, and dependencies between components in the system. For example, the interactive elements in the system, mobile responsive interface, security functions, and many assistance tools provided. More than that, the component requires to work with another component to perform their desired functions like receiving the input, exchanging the data, and controlling the flow. Most components are closely related. It results in increasing the difficulties in integrating the system modules. Therefore, lacking one component will crash the whole system. The system is complex with the consideration of the number and interaction of components.

Other than that, the reliability of system is also needed to examine prior choosing the methodology. The proposed system is a real-time system. Thus, it must be highly reliable as the users will continuously create, read, edit, and delete their eBook. Each action must be recorded and stored properly. The possible consequences of low reliability of the system are causing system to crash, losing the work and failure in storing the user changes. The user's progress on the eBook will be lost and required to repeat the work which is unacceptable. Furthermore, it requires dissolving

CHAPTER 3

the discrepancy if multiple works are stored. The system must be highly reliable in the real-time system to assure user's benefits.

Lastly, the duration of the project and schedule visibility is also important aspects during deciding the methodology. The final year project is required to be completed and delivered in 35 weeks which is considered a short schedule. Furthermore, the schedule is needed to be highly visible since there will be an inspection at the end of final year project I and II. Not only that, but one needs to present the system progress to the supervisor for guidance and monitoring during the weekly report. Therefore, the project has a short schedule and high schedule visibility.

In a nutshell, the project has high clarity with user requirements, moderate level of familiarity with the technology used, high complexity, high reliability, short time schedule and high schedule visibility. Therefore, structured design methodology is not appropriate in this scenario since the system complexity is not that difficult. Additionally, this methodology requires long development time and has low schedule visibility. On the other hand, the incapability and inexperience development team doesn't pass the basic requirement of Agile Development. Taking all into consideration, phased development under RAD is the best choice for this project due to its high compatibility.

It is mainly because RAD is fast project turnaround [26] which is suitable for this fast-paced project. CASE tools provided aid the users to elevate their progress. For example, draw.io is a good visualizing tool to illustrate the system design like wireframe diagram, ERD, use-case diagram and more. It can significantly decrease the development time which realizes the short project timeline. Other than that, the characteristic of phased development allows the developer to demonstrate the different project versions which means that it has high schedule visibility. The stakeholder can measure the development easily [26]. Besides, phased development can be applied to system development that is complex and reliable. A complex system can be broken down into series of version. It allows the developers to process the system part by part instead of developing the whole system simultaneously. Furthermore, it also makes the system more manageable since it can easily identify the system defect without wasting time. Lastly, phased development is also good for dealing with unfamiliar technology. It is incremental learning progress. Developers

will have enough time to learn the technology throughout the whole development process.

3.1.5 Implementation

The project will have the same flow as shown in figure 3.1.2 when developing the eBook Maker System. During the planning phase, deep research on the project background and problem statement has been conducted to know the potential growth and current struggles of the existing system. Furthermore, the evaluation of the eBook maker system is carried out to know its target audiences and business value like profitability, essentiality, and prospects. Besides, studying the system request to know an expectation of the proposed system [26]. It acts as the main reference for the feasibility study to evaluate the workability of the proposed system.

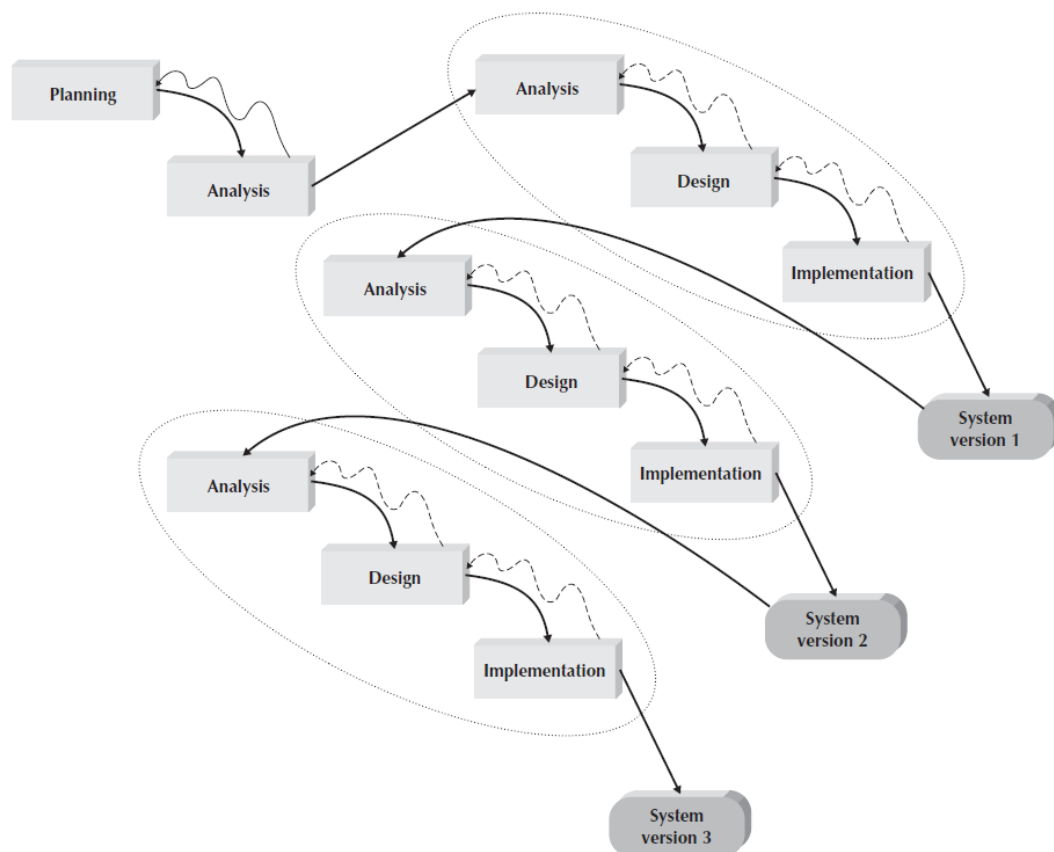


Figure 3.1.2: Phased Development Methodology [23]

After establishing agreeableness on the project, the project enters the analysis phase. This phase will identify the overall system concept and categorize the requirements into a series of versions [23]. There are multiple information gathering

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Faculty of Information and Communication Technology (Kampar Campus), UTAR

techniques available. This project utilizes 2 main techniques as mentioned in user clarity of Chapter 3.1.5 to determine the requirements. The questionnaires are distributed to the existing users to collect their opinions to understand the weightage of each feature and their dissatisfaction. Additionally, the document analysis assists the developer in understanding the market preferences and standards which serve as a benchmarking in this project. Lastly, it breaks the complex system into a series of version [23,26] to develop sequentially according to their similarity and importance in the system which are the builder module, tools module, interface module and security module.

Next, it leads to into core of phased development. The builder module is the most fundamental because it provides the basic functionalities of the system. In addition, additional research is conducted to obtain the additional request and integrate it with the previous ideas. Then, the developers will use CASE tools like draw.io to draw the wireframe diagram, use-case diagram, activity diagram and ERD and code generator from Visual Studio 2022 to scaffold CRUD functions [25]. Lastly, the module will be developed and tested. After the completion of the module, it repeats with the tools module to provide convenience to the user, the interface module to increase user satisfaction and experience and lastly the security module to ensure data safety.

3.2 Development Requirement

3.2.1 Hardware

The hardware involved in this project is a laptop and its specification is mentioned in table 3.2.1. Taking the functionalities, performance and accessibility into consideration, this laptop is suitable to develop the system. The main reason for choosing this laptop is its functionalities. The operating system of this laptop is 64-bit OS with Windows 10 which can download and run most software available on the Internet. It can cater to the developer's needs which mention in Chapter 3.2.2 Software. Furthermore, this laptop possesses the ability to access the Internet which is crucial since the developer will need to use Microsoft Azure for deploying the system online and connecting to the Azure Database. In addition, the laptop storage is 512 GB SSD which is more than enough because most software or developed system will

not consume that much memory. As everyone knows, the coding and deployment process will consume lots of resources. For the performance issue, the laptop has i5-10210U CPU and 12GB RAM. Although the performance might not at its best, it is still sufficient for the developer to code and run the software smoothly. It can also decrease the possibility of system crashing or bluescreen conditions. Lastly, the availability and portability of laptops provide convenience to developers by allowing one to code everywhere.

Table 3.2.1: Specifications of Laptop

Description	Specifications
Model	Asus VivoBook S15
Processor	Intel® Core™ i5-10210U CPU @ 1.60GHz 2.11 GHz
Operating System	64-bit OS with Windows 10
Graphic	NVIDIA GeForce GT 930MX 2GB
Memory	12GB RAM
Storage	512 GB SSD
Internet Connectivity	Yes
Input	Mouse, keyboard

3.2.2 Software and Technologies

The software involved in this project are Visual Studio 2022, Visual Studio Code, Draw.io, Gantt Project, Microsoft PowerPoint, teleportHQ and Google Chrome whereas the technologies involved are HTML, JavaScript, jQuery, Bootstrap, ASP.NET(VB.NET/C#), MSSQL, Microsoft Azure, GitHub and online libraries. The main consideration for choosing these software and technologies is familiarity with the software. Therefore, less time will be spent on learning a new type of programming technique.

Visual Studio Code mainly uses HTML, JavaScript, and jQuery as the programming language to code the front-end logic. HTML contributes to structuring the webpage whereas JavaScript and jQuery perform some specific functions. Furthermore, Bootstrap makes mobile responsive web design become reality. Moreover, teleportHQ is a website that offers the services for designing mobile responsive website through drag-and-drop action and it also allows users to export the

Bachelor of Information Systems (Honours) Information Systems Engineering
Faculty of Information and Communication Technology (Kampar Campus), UTAR

CHAPTER 3

generated coding for direct implementation into their websites. In short, Visual Studio Code is used exclusively for testing front-end coding like mobile responsive interfaces. After ensuring the coding is completed and error-free, it will transfer to Visual Studio 2022.

On the other hand, Visual Studio 2022 is the main platform for developing the eBook Maker System. This platform will be committed to developing the back-end logic through ASP.NET(VB.NET/C#). Furthermore, it provides many frameworks like Razor Page. The programming work will be significantly decreased since it provides the template for the user database and login module. Not only that, but this platform supports the code generator tool to scaffold the CRUD functions for an entity. Built-in IntelliSense expedites the coding process through the auto-complete feature MSSQL is responsible for managing the database.

Additionally, Microsoft Azure will be the deployment tool to make the website online. Visual Studio 2022 uses Azure services for deploying the website online and connecting to the online database. In addition, Visual Studio 2022 also embeds with GitHub which allows the developers to upload the contents to GitHub for version control. It permits the developer to manage their files like reroll back to the previous version if the latest version malfunction.

Furthermore, Draw.io is a good visualizing tool to visualize the system design diagram since it supplies many types of graphics to cater for all diagrams like entity template for ERD, actor and use case shape for use-case diagram, swimlane for activity diagram and wireframe diagram. More than that, Gantt Project will be responsible for drawing the timeline of the FYP1 and FYP2. Microsoft PowerPoint will be utilized in designing the poster.

Lastly, the project integrates several online libraries including chart.js [27], Quill Editor [28], interact.js [29] and tesseract [30]. Chart.js provides functionality for creating charts, Quill Editor offers a rich text editor functionality, interact.js facilitates interactive action like resizing, rotating and moving elements, while tesseract enables the OCR ability to extract the text.

3.3 Functional Requirements

The survey or questionnaire is one of the information-gathering techniques to collect the user requirements [23]. In this questionnaire, there are 10 questions formulated to know the public's opinions toward the system. The questions are uploaded to the Google Form and distributed to the respondents. 24 respondents participate in this questionnaire. Before analysis and interpretation of the results, one must know the meaning of value for the scaling questions. The data range starts from the minimum value to the maximum value which is 1 to 5. 3 means the average standard. Any value lower than 3 is below average whereas any value higher than 3 is higher than average.

3.3.1 Demographic Information

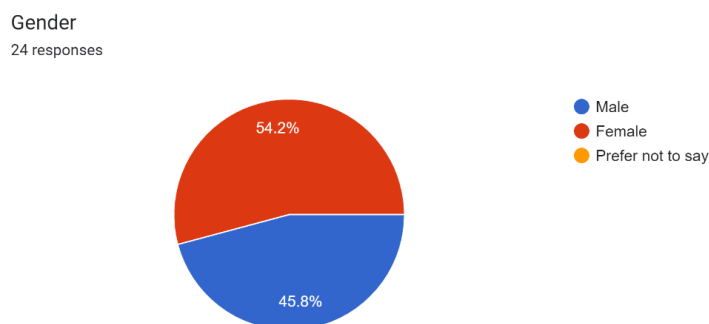


Figure 3.3.1.1: Gender Proportion Chart

As shown in Figure 3.3.1.1, there were 24 respondents participated in this questionnaire. 54.2% of respondents are male whereas 45.8% of them are female.

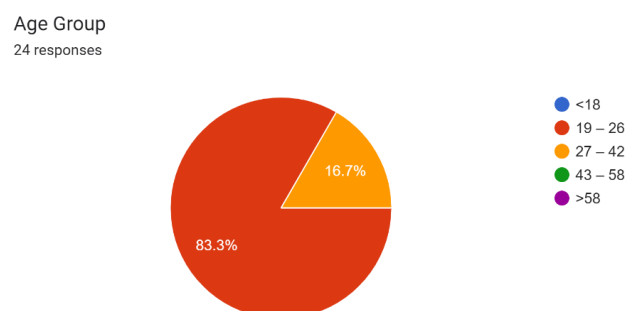


Figure 3.3.1.2: Age Proportion Chart

As shown in Figure 3.3.1.2, the respondent's age group concentrate in the 19-26 age group which is 83.3%. The remaining 16.7% belong to Millennials. Therefore, the feedback gained through this survey will likely reflect more on Gen Z's opinions.

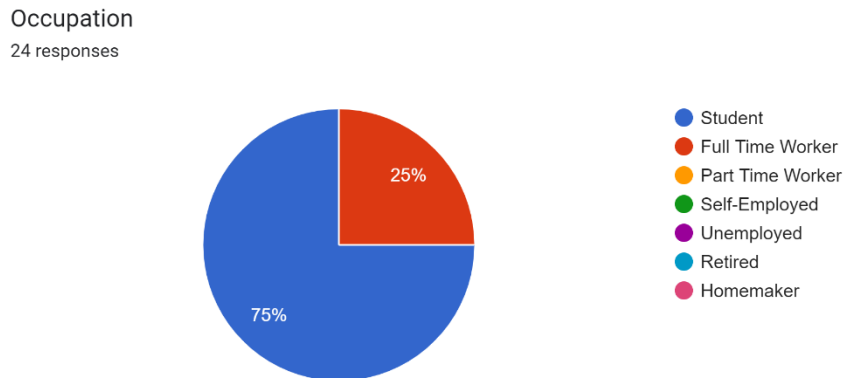


Figure 3.3.1.3: Occupation Proportion Chart

As shown in Figure 3.3.1.3, three-fourths of the respondents are students and one-fourth of the respondents are full-time worker.

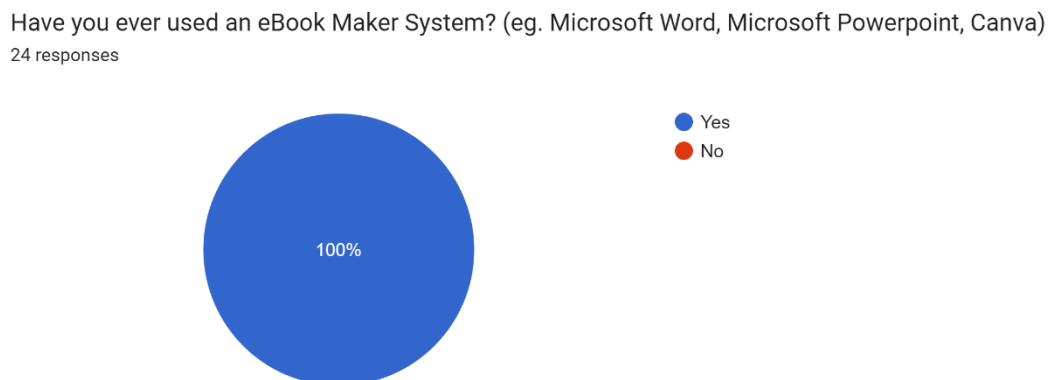


Figure 3.3.1.4: Chart for Percentage of eBook Maker System User

This question filters out those respondents who never use the eBook Maker System because the target respondents of this questionnaire are experienced eBook Maker System users. As shown in Figure 3.3.1.4, all respondents have experience using the eBook Maker System. It shows the popularization of the eBook Maker System in the current background.

3.3.2 Results Analysis

How frequent you use the eBook Maker System?
24 responses

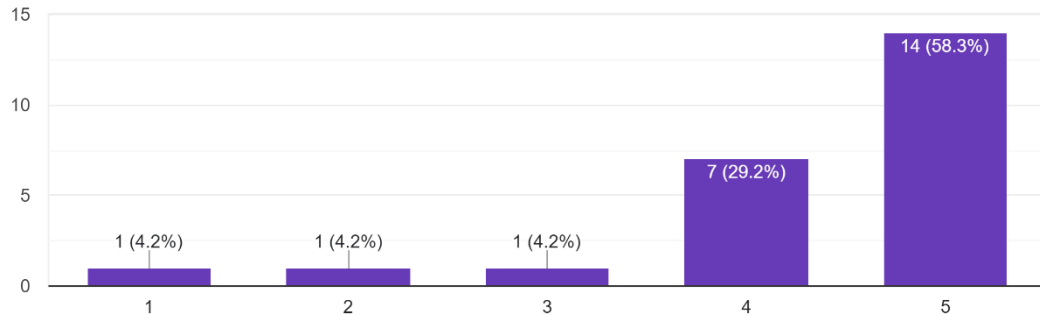


Figure 3.3.2.1: eBook Maker System Usage Frequency Chart

This question investigates the usage rate of the user to know the necessity of the eBook Maker System. The average value of the results is 4.33 which is higher than the average value and 58.3% of respondents always use the eBook Maker System. It means that the respondents are highly frequent using the eBook Maker System. It shows the importance of the system and the reliability of the respondents towards the system. Hence, there is a demand for the user to use the system.

Rate your user experience while the website is not mobile responsive. **Image below showing the website is not mobile responsive
24 responses

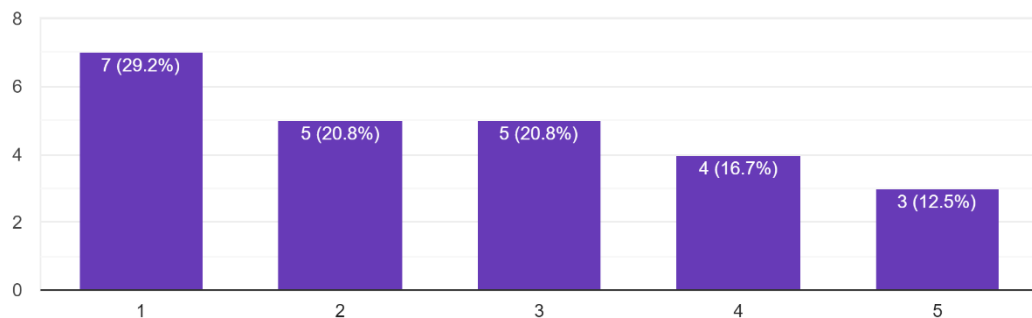


Figure 3.3.2.2: Satisfaction Level Chart with a Non-Mobile Responsive Website

The second question is to understand the feeling and intolerance of users towards the non-mobile responsive website. As shown in Figure 3.3.2.2, most respondents are highly dissatisfied with the non-mobile responsive website with the bad user experience whereas only 3 respondents conceive the non-mobile responsive website has no effects at all. Overall, the average satisfaction level is 2.63 which is lower than the average and reflects the bad user experience caused by the non-mobile responsive website. Therefore, formulating a mobile responsive website is essential in system development.

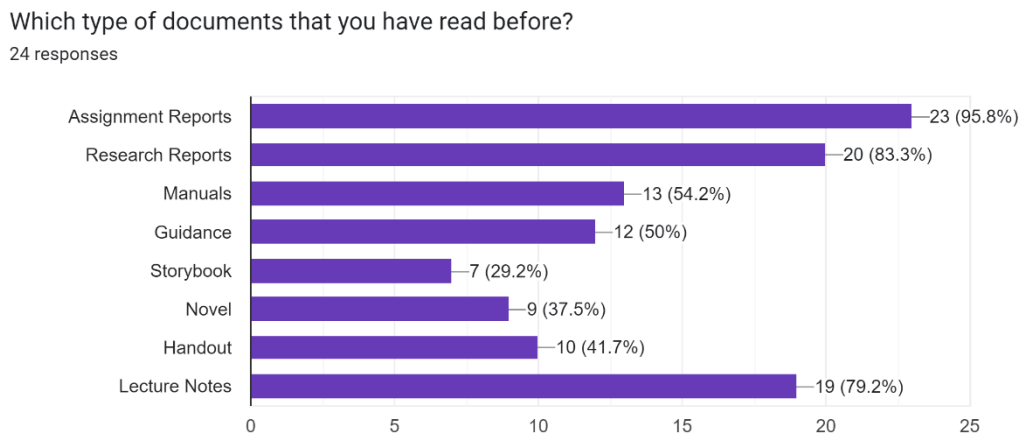


Figure 3.3.2.3: Chart on Document Read by Users

The third question mainly wants to know the popularity of the document types in the market. As shown in Figure 3.3.2.3, the most read document is assignment report and followed by research reports, lecture notes, guidance, manuals, handout, novel, and storybooks. Almost everyone has read reports before. Most respondents have read academic-related content like assignment reports, research reports and lecture notes. Almost 50% have read tutorial-type documents like manuals and guidance. A small percentage have read storybooks, novels, and handouts. Therefore, this chart concludes that the current market preferences are academic and tutorial-type reading materials.

What kind of eBook did you created using the eBook maker system?

24 responses

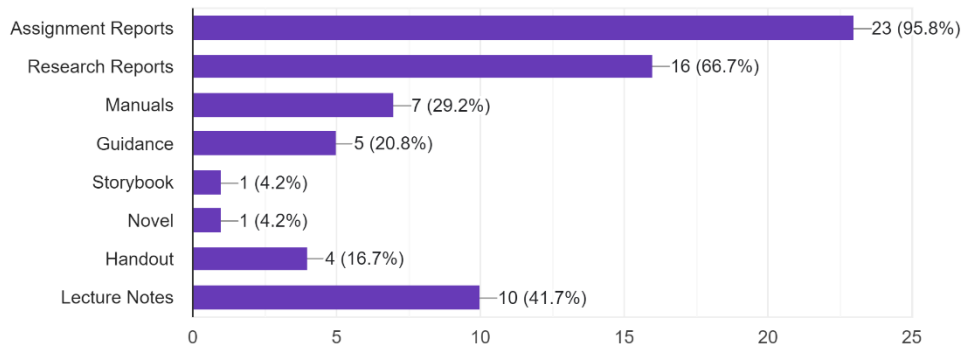


Figure 3.3.2.4: Chart on Document Created by Users

This question intends to collect the most created document to focus on those types of documents to develop in the proposed system. As shown in Figure 3.3.2.4, more than two-thirds of respondents have created assignment reports and research reports. A very small percentage of respondents have created manuals, guidance, handout, and lecture notes. Almost none of the respondents have created a storybook and novel before. Therefore, it can summarize that the proposed system should focus more on reports type eBooks and possibly notes type or tutorial type eBooks.

Please rate the design below from top to bottom.

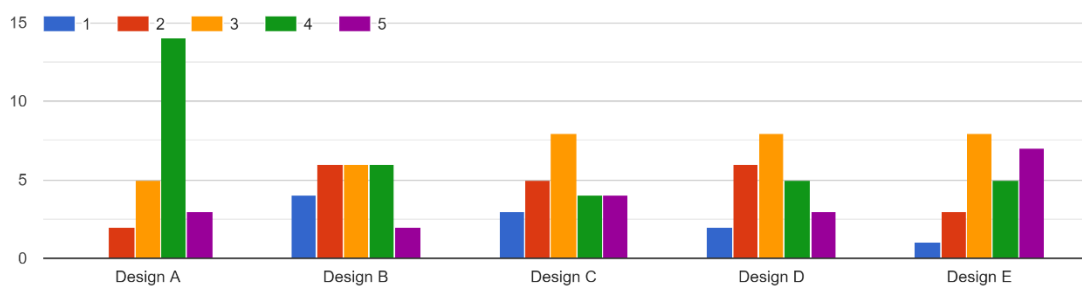


Figure 3.3.2.5: Design Satisfaction Chart

The fifth question is to know the respondent’s preference designs which act as the main reference for designing the proposed system. Furthermore, it conceals the name of the system to prohibit any potential bias, preconceived notions, and brand

recognition to achieve an impartial response from the respondent. To clarify, Design A is Canva, Design B is Kindle Create, Design C is Kotobee Author, Design D is Marq and Design E is Visme. As shown in Figure 3.3.2.5, Canva has the most 4 star rating whereas Visme has the most 5 star rating. Overall, the average score for Canva is 3.75 which is the highest, Kindle Create is 2.83, Kotobee Author is 3.04, Marq is 3.04 and Visme is 3.58. Thus, design A and design E will be the main reference when designing the user interface of the proposed system since Canva and Visme have a higher average score and most voted 4 stars and 5 stars ratings respectively. The results can reflect that users prefer simple designs. Furthermore, the other 3 design has dull colour representation whereas Canva and Visme have high-contrast colours and attractive visual designs.

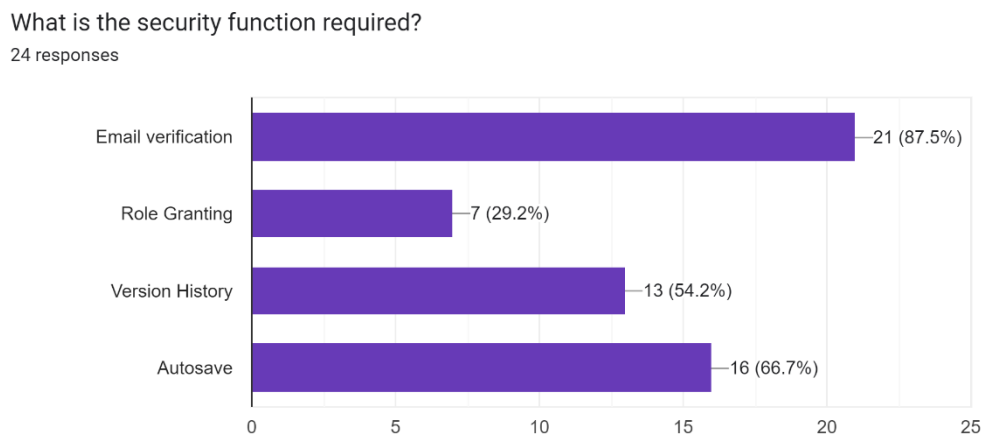


Figure 3.3.2.6: Security Necessity Chart

The sixth question collects the necessity of security function in the system. The top 3 voted will be adopted and applied in the proposed system. As shown in figure 3.3.2.6, 87.5% of respondents have voted that email verification is an indispensable security function. Additionally, 66.7%, 54.2% and 29.2% of them conceive autosave, version history and role granting as important security functions. Therefore, the top 3 security functions which are email verification, autosave and version history will be integrated into the proposed system.

Which format you usually exporting?

24 responses

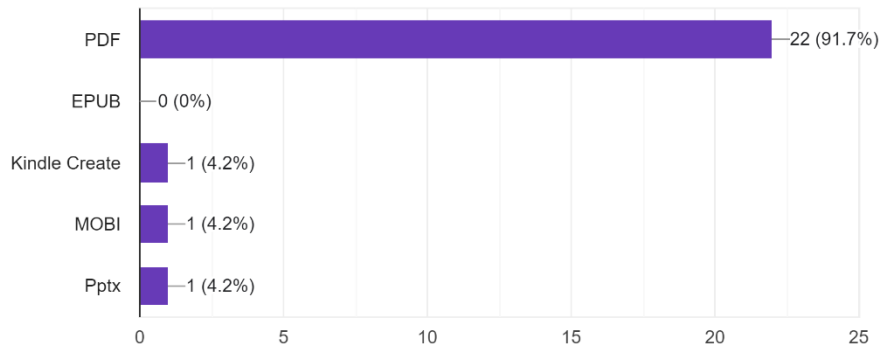


Figure 3.3.2.7: Most Used Export Formats Chart

This question is to know the most used export formats to display the eBook. If the voted format is exceeding 50%, it will apply as one of the exporting format methods in the system. As shown in Figure 3.3.2.7, almost all respondents have experience exporting the eBook to PDF format. On the other hand, only one respondent has exported to Kindle Create, MOBI and pptx format. 0 respondent has exported to EPUB format. Therefore, it shows that the respondents mainly export their eBooks to PDF format. The proposed system will mainly work on it.

Rate the necessity of the collaborator feature.

24 responses

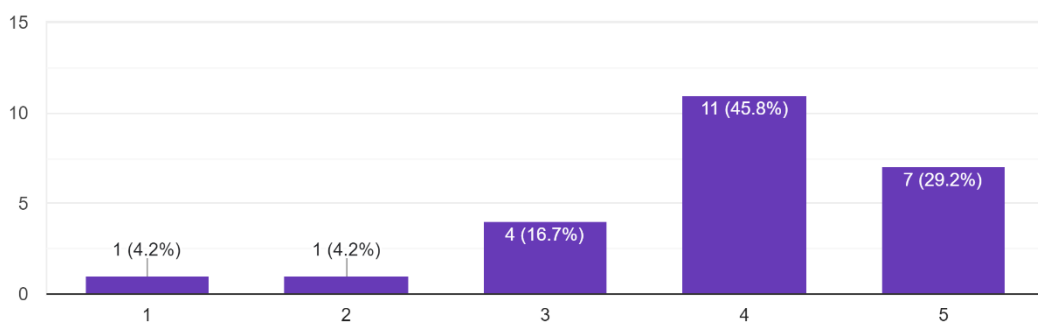


Figure 3.3.2.8: Collaborator Feature Necessity Rating Chart

This question wants to know the necessity of the collaborator feature in the tools module. As shown in Figure 3.3.2.8, 75% of respondents vote for 4 or 5. The

CHAPTER 3

average score for the necessity of the collaborator feature is 3.92 which is incredibly high. Therefore, the work sharing feature is viewed as an important feature and will be included in the proposed system.

Which type of interactive elements is required when creating an eBook?
24 responses

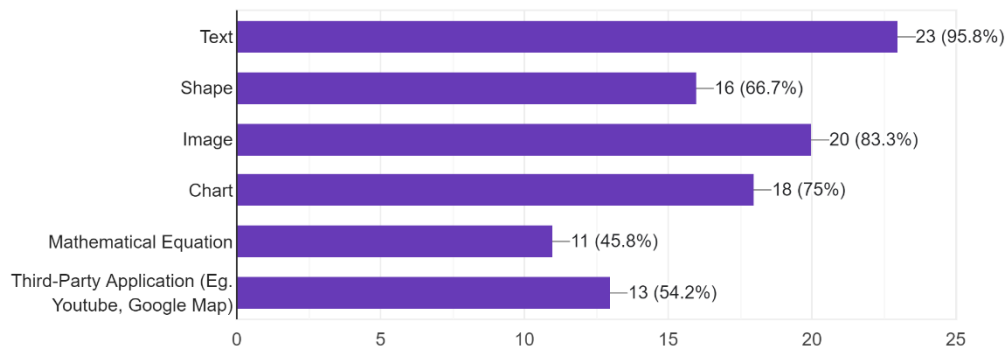


Figure 3.3.2.9: Chart on Required Elements During eBook Creation

The ninth question explores the usage of the elements in the eBook created. 95.8% of respondents vote text, 83.3% vote image, 75% vote chart, 66.7% vote shape, 54.2% vote third-party application and 45.8% vote mathematical equation. Undoubtedly, the text is the most voted element. On the other hand, the mathematical equation is the lowest voted element. Therefore, it will be discarded. Third-party application barely achieved 50%. Taking the previous analysis results into consideration, the element is incompatible with the proposed system so it will be neglected too. The elements available in the system are text, shape, image, and chart.

If you are novice user, which type of guidance is the most effective one?
24 responses

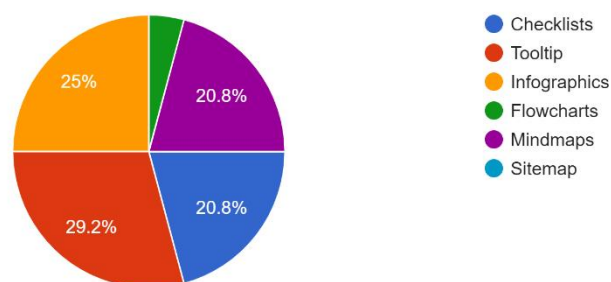


Figure 3.3.2.10: Most Preference Guidance Chart

CHAPTER 3

The last question wants to study the effectiveness of guidance in the system to help the user to achieve a high understanding of the flow and functions. As shown in figure 3.3.2.10, 29.2% of respondents believe that tooltips are the most effective guidance, 25% vote for infographics, 20.8% vote for checklists and mind maps, 4.2% vote for flowcharts and none of them vote for sitemaps. The top 3 will be selected and added to the proposed system to act as user manuals. With the consideration of the similar property held by mind maps and infographics. Only one will be developed which is infographics. Another two guidance is tooltips and checklists.

3.4 Project Timeline

3.4.1 FYP1

Project I was initiated on 30th January 2023 and ended on 20th April 2023. The entire duration is 12 weeks. The first 8 week of the project focused on the project writing and requirement collection. The last 4 week of the project committed on preliminary work to build part of the systems. The report submitted on 21st April 2023.

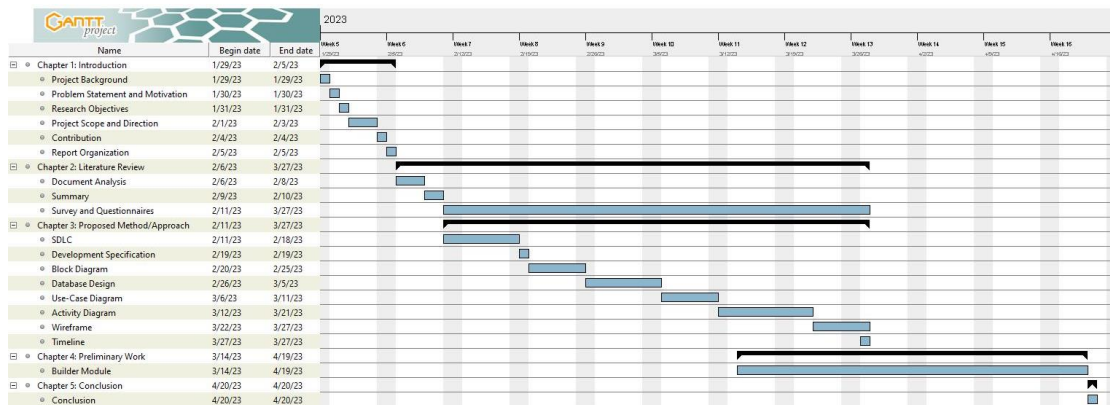


Figure 3.4.1: Timeline of FYP 1

3.4.2 FYP2

Project I was begun on 30th January 2024 and ended on 20th April 202. The entire duration is 12 weeks. The first 9 week of the project focused on the project implementation whereas the last 3 week of the project dedicated on testing and evaluating the system. The report is planned to submit on 25th April 2024.

CHAPTER 3

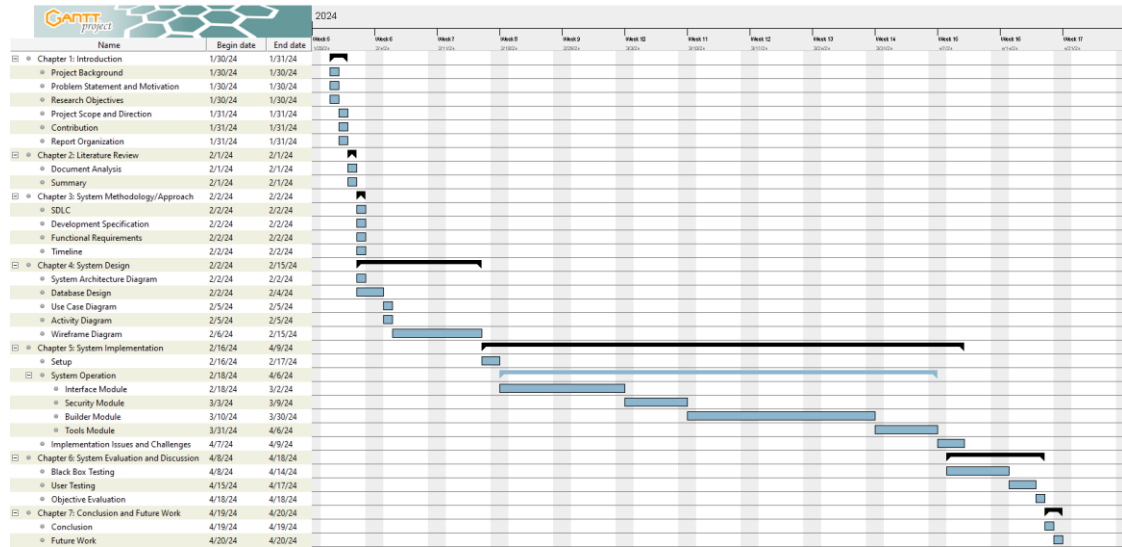


Figure 3.4.2: Timeline of FYP 2

CHAPTER 4

System Design

In this chapter, it presents various system development details. Initially, it showcases the system architecture diagram to better understand the system structure. Afterwards it demonstrates the database design to illustrate the data storage methods. The use-case and activity diagram highlights user interactions and functionalities within the system. Lastly, the wireframe diagram displays the user interface and depicts its mobile responsiveness.

4.1 System Architecture Diagram

The system is designed using web application architecture which is under 3-tier architecture. The diagram is displayed in figure 4.1. There are 3 layers in this architecture which are the presentation layer, application layer and data layer. The presentation layer is front-end coding which mainly uses HTML, CSS, and JavaScript to construct the user interface whereas the application layer and data layer are responsible for back-end logic. The main function of the presentation layer is to provide the user interface and interact with the users. The users can interact with the interface to do their desired functions. For the application layer, it contains app logic. It directs the system to handle the request incoming and generate the response accordingly. Lastly, the data layer has 2 main components which are the file system and Azure SQL Database. Those CSHTML files, CSS files, JS files and images will be stored in the file system. On the other hand, the database stores the records mentioned in Chapter 4.2 in entity form.

Undoubtedly, the web application requires Internet access. Users or admins must connect to the Internet to browse the website or access the web application. The webs server from the presentation layer will collect the data from the new entry, generate an HTTP request and HTTP response and then pass them to the business layer. The business layer processes the request from the browser and acts accordingly to the use-case diagram in Chapter 4.3. It will fetch the required data from the data layer, process the data, store the results in the HTTP response and pass them back to

CHAPTER 4

the presentation layer. Therefore, the content can be represented to the user at the presentation layer.

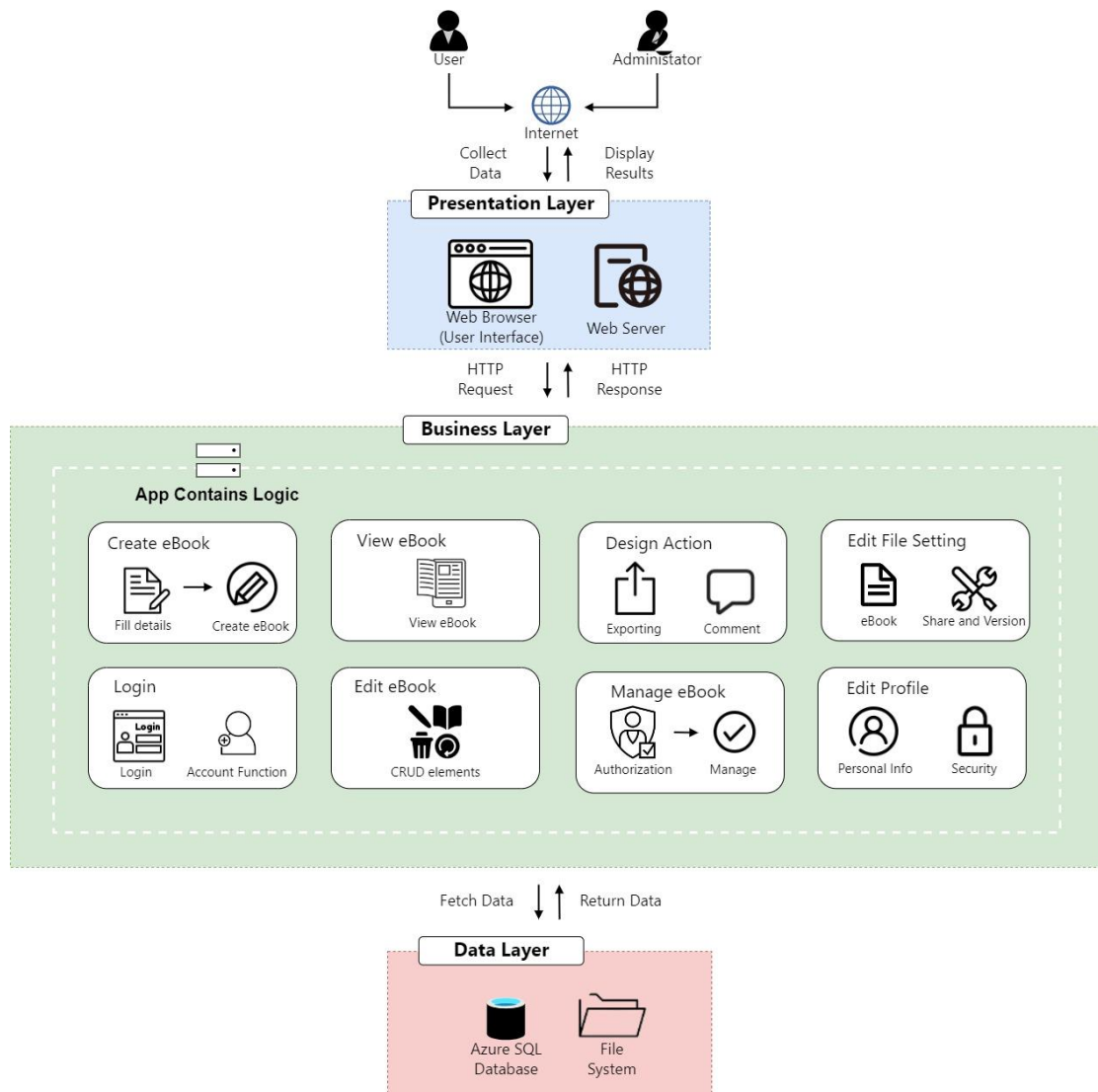


Figure 4.1: System Architecture Diagram

4.2 Database Design

4.2.1 Business Rule

User may or may not be appointed as administrator role.

Each user can create zero or many eBooks.

Each eBook is created by one and only user.

CHAPTER 4

Each user can leave zero or many comments.

Each comment is leave by one and only one user.

Each user can be invited as zero or many collaborations.

Each collaboration invites one and only one user.

Each administrator role can manage zero or many eBooks.

Each eBook is managed by one and only administrator role.

Each eBook has zero or many collaborations.

Each collaboration belongs to one and only one eBook.

Each eBook has zero or many history versions.

Each history version belongs to one and only one eBook.

Each eBook exists of zero or many chapters.

Each chapter belongs to one and only eBook.

Each chapter contains zero or many bookpages.

Each bookpage belongs to one and only one chapter.

Each bookpage places zero or many elements.

Each element is placed in one and only one bookpage.

Each eBook has zero or many comments.

Each comment belongs to one and only one eBook.

4.2.2 Entity Relationship Diagram

Figure 4.2 demonstrate the database storage of the system. The user entity will store the email as the unique identifier for each author. The remaining attribute will provide meaningful information to the readers to know their names, gender and birthday. Furthermore, this information can avoid malicious intent like keeping registering the dummy user which increases the burden of the database server.

CHAPTER 4

Additionally, the administrator entity will record the granted email which will provide the privilege and authority to manage the published eBook. Furthermore, the existence of the collaboration entity ensures the execution of work sharing feature by listing down the eligibility of users to access the eBook which not created by them. If the user email is invited for eBook collaboration by the author, the user's name will be automatically added to the entity and granted access to the eBook. The eBook will store the basic information for authentication, exporting, publishing, and designing purposes. The title and description provide the meta information. The type, height and width will affect the exporting and designing behaviors. The book status is used in identifying the publishing status of the platform. Furthermore, the version entity allows the user to save the version history to prevent unrecoverable errors occurred. The version content will store the whole file content and allow one to retrieve it back. Substantially, the eBook, chapter, bookpage and element entity are highly related. These 4 entities' combinations will provide a complete eBook with the content written. Lastly, the comment entity will store the comment of the user on the page of eBook. It leaves a comment box beside the page with its contents.

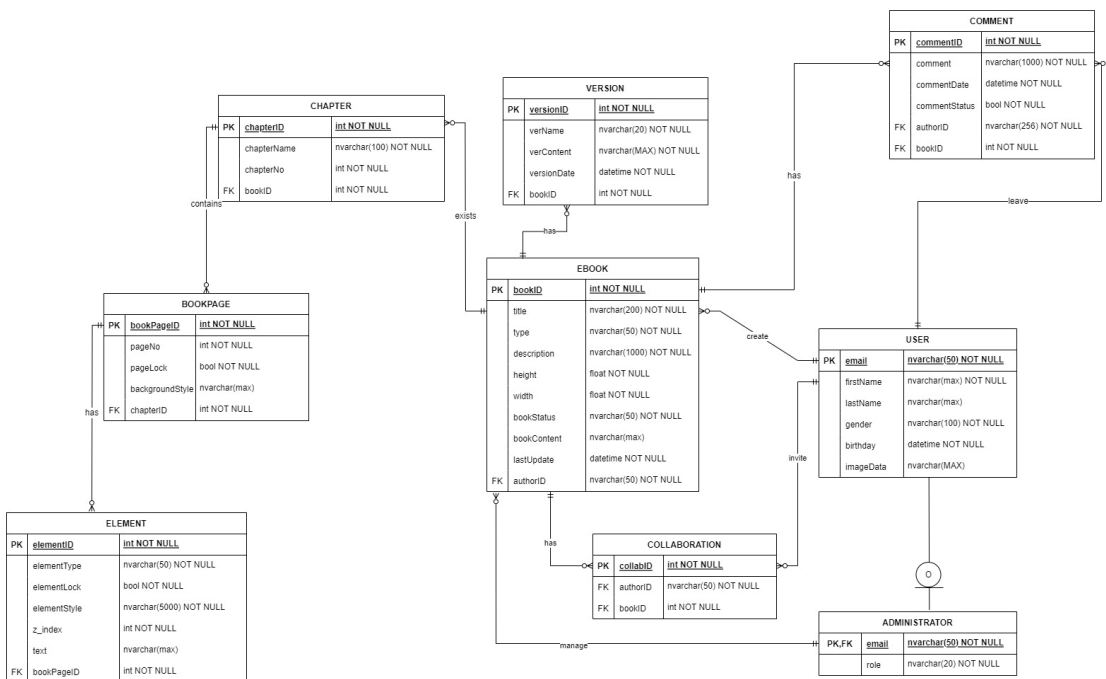


Figure 4.2: Entity Relationship Diagram of eBook Maker System

4.2.3 Data Dictionary

Table 4.2.1: User Entity

Field Name	Data Type	Description	Integrity
email	nvarchar(50)	Email	Primary key
firstName	nvarchar(max)	First name of user	NOT NULL
lastName	nvarchar(max)	Last name of user	
gender	nvarchar(100)	Gender of user	NOT NULL
birthday	datetime	Birthday of user	NOT NULL
imageData	nvarchar(max)	User profile image	

Table 4.2.2: Administrator Entity

Field Name	Data Type	Description	Integrity
email	nvarchar(50)	Email	Primary key Foreign key references User(email)
role	nvarchar(20)	User's role	NOT NULL

Table 4.2.3: eBook Entity

Field Name	Data Type	Description	Integrity
bookID	int	Book Unique ID	Primary key
title	nvarchar(200)	Title of eBook	NOT NULL
type	nvarchar(50)	Type of eBook	NOT NULL
description	nvarchar(1000)	eBook content description	NOT NULL
height	float	Height of eBook	NOT NULL
width	float	Width of eBook	NOT NULL
bookStatus	nvarchar(50)	Publishing Status of Book	NOT NULL Default "Drafting"

CHAPTER 4

bookContent	nvarchar(max)	User profile image	
lastUpdate	datetime	eBook project last modified time	NOT NULL Default Datetime.now
authorID	nvarchar(50)	User email	NOT NULL Foreign key references User(email)

Table 4.2.4: Comment Entity

Field Name	Data Type	Description	Integrity
commentID	int	Comment Unique ID	Primary key
comment	nvarchar(1000)	Comment content on the eBook page	NOT NULL
commentDate	datetime	Comment Date	NOT NULL Default Datetime.now
commentStatus	bool	Comment Status	NOT NULL Default false
authorID	nvarchar(256)	Author email	NOT NULL Foreign key references User(email)
bookID	int	Book unique ID	NOT NULL Foreign key references eBook(bookID)

Table 4.2.5: Collaboration Entity

Field Name	Data Type	Description	Integrity
collabID	int	Collaboration Unique ID	Primary key
authorID	nvarchar(50)	User email	NOT NULL Foreign key references User(email)

CHAPTER 4

bookID	int	Book unique ID	NOT NULL Foreign key references eBook(bookID)
Composite Key: Unique(authorID, bookID)			

Table 4.2.6: Version Entity

Field Name	Data Type	Description	Integrity
versionID	int	Comment Unique ID	Primary key
verName	nvarchar(20)	Version name	NOT NULL
verContent	nvarchar(MAX)	Content in the current version	NOT NULL
versionDate	datetime	version Date	NOT NULL Default datetime.now
bookID	int	Book unique ID	NOT NULL Foreign key references eBook(bookID)

Table 4.2.7: Chapter Entity

Field Name	Data Type	Description	Integrity
chapterID	int	Chapter Unique ID	Primary key
chapterName	nvarchar(100)	Chapter name	NOT NULL
chapterNo	int	Chapter number	NOT NULL
bookID	int	Book unique ID	NOT NULL Foreign key references eBook(bookID)

Table 4.2.8: Bookpage Entity

Field Name	Data Type	Description	Integrity
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CHAPTER 4

bookPageID	int	Page Unique ID	Primary key
pageNo	int	Page number	NOT NULL
pageLock	bool	Page editable status	NOT NULL Default false
backgroundStyle	nvarchar(max)	Page Background	
chapterID	int	Chapter unique ID	NOT NULL Foreign key references Chapter(chapterID)

Table 4.2.9: Element Entity

Field Name	Data Type	Description	Integrity
elementID	int	Element Unique ID	Primary key
elementType	nvarchar(50)	Element Type	NOT NULL
elementLock	bool	Element editable status	NOT NULL Default false
elementStyle	nvarchar(5000)	Element Style	NOT NULL Default “min-height:10px”
z_index	int	Order of overlapping objects	NOT NULL Default 1
text	nvarchar(max)	Content Resources	
bookPageID	int	Page unique ID	NOT NULL Foreign key references Page(pageID)

4.3 Use-Case Diagram

Figure 4.3 shows the use case diagram of the online eBook maker system. There are 2 roles in this system which are user and admin. The user and admin can execute the login use case to fill in their account information to access the system. They can perform account registration, password recovery and resend email confirmation in case any account-related issues. Afterwards, they can view their profile related information and update the personal information and password. Furthermore, they can also view the eBooks created by themselves, shared with them, or published on the platform. Administrators have the privilege to review and manage eBooks awaiting publication. The searching function enables users to locate specific eBooks using keywords, type, time, and sorting criteria. Moreover, the user can perform eBook creation by choosing the eBook type and filling in the title and document size. They can then edit the eBook according to their action like CRUD chapter, page and elements inside the eBook. Additionally, users can edit and delete eBooks, manage publication settings, invite other users to collaborate, and store version history as backup.

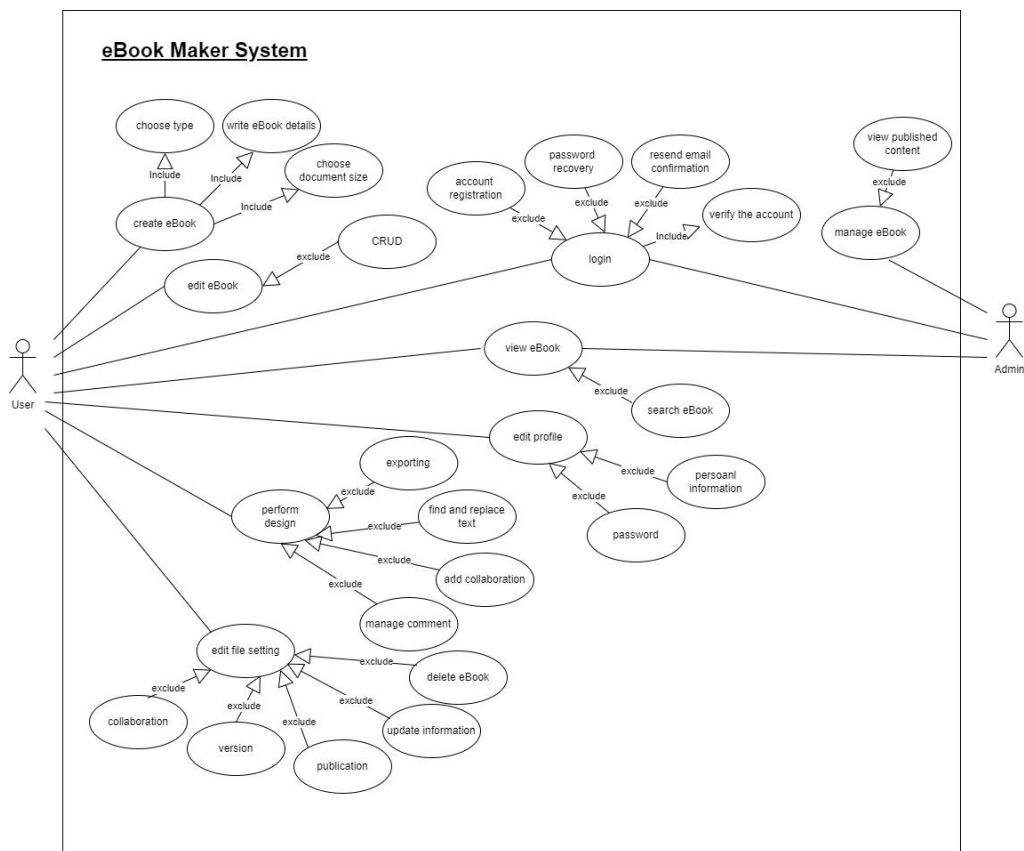


Figure 4.3: Use-Case Diagram of eBook Maker System

4.4 Activity Diagram

4.4.1 Login Use Case

Table 4.4.1: Login Use Case Description

Use Case Name: Login	ID: 101	Importance Level: High
Primary Actor: User, Admin	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User, Admin – want to login		
Brief Description: This use case describes login process		
Precondition: -		
Trigger: Users enter login page		
<u>Relationships:</u> Association: User, Admin Include: verify the account Extends: account registration, password recovery, resend email confirmation Generalization:		
Normal Flow of Events: 1) User/admin enter the login page 2) If user want to create an account Click create account link. If user want to recover the password Click password recovery link. If user want to resend email confirmation Click resent email confirmation link. If user want to login Skip to step 6 3) User/Admin input the information required 4) User/Admin submit the request 5) The system processes the request 6) User/Admin input the email and password into login input field 7) System verifies the details		

If the account information is inaccurate,
 Repeat the cycle starting from Step 1 and prompt error text.
 8) User/admin enter the system

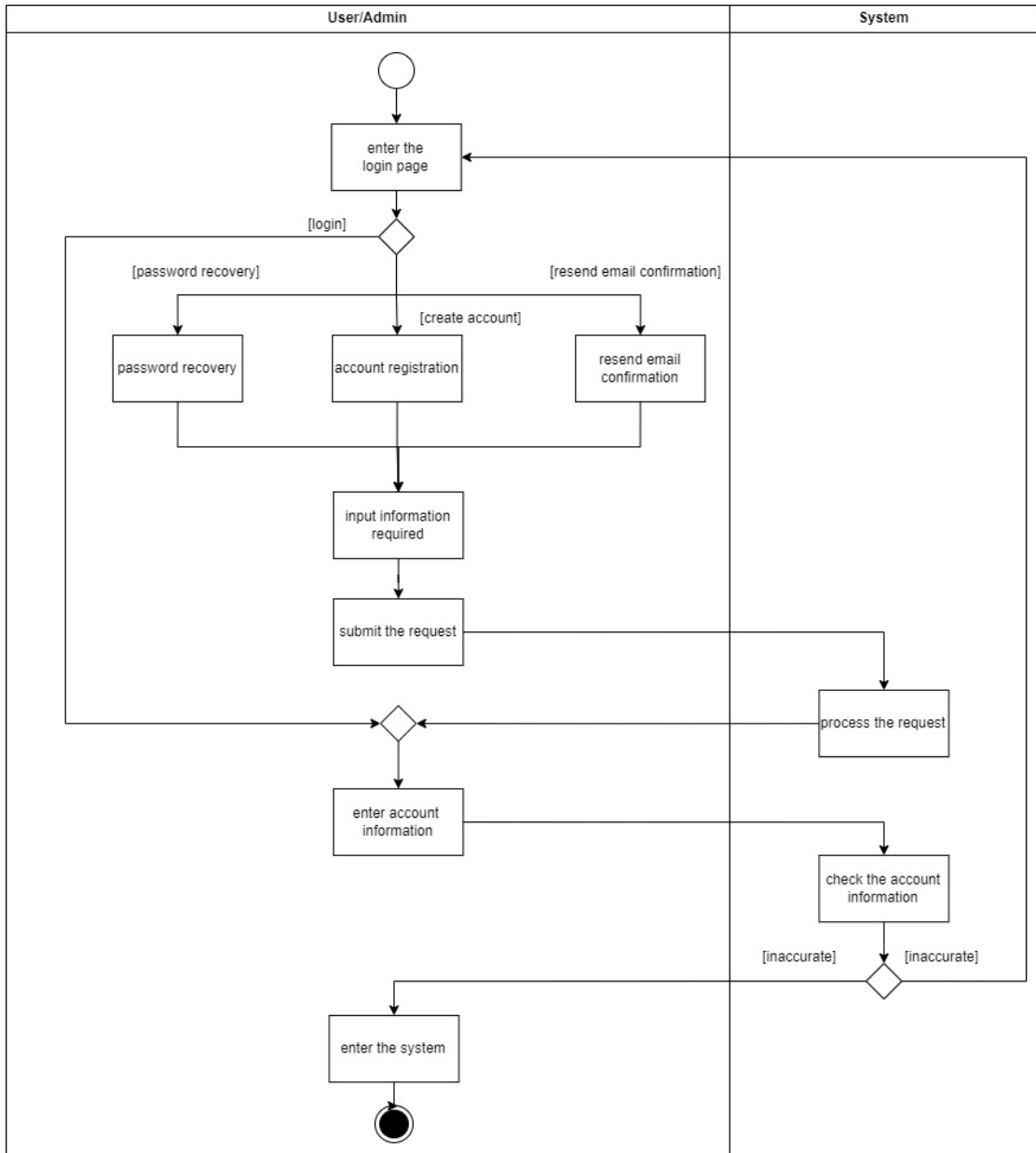


Figure 4.4.1: Login Activity Diagram

4.4.2 Edi Profile Use Case

Table 4.4.2: Edit Profile Use Case Description

Use Case Name: Edit Profile	ID: 102	Importance Level: Medium
Primary Actor: User	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User – want to edit the profile		
Brief Description: This use case describes available option on profile information		
Precondition: Login		
Trigger: User click setting button		
Relationships: Association: User Include: Extends: personal information, password Generalization:		
Normal Flow of Events: 1) System returns the profile setting information 2) If user decide to update personal information Update the personal information in basic info section. If user decide to update password, Update password in security section. If user decide to do nothing Skip to step 6 3) The update request is generated 4) The system validates the request 5) System processes the request and return to Step 2 6) Users leave the page		

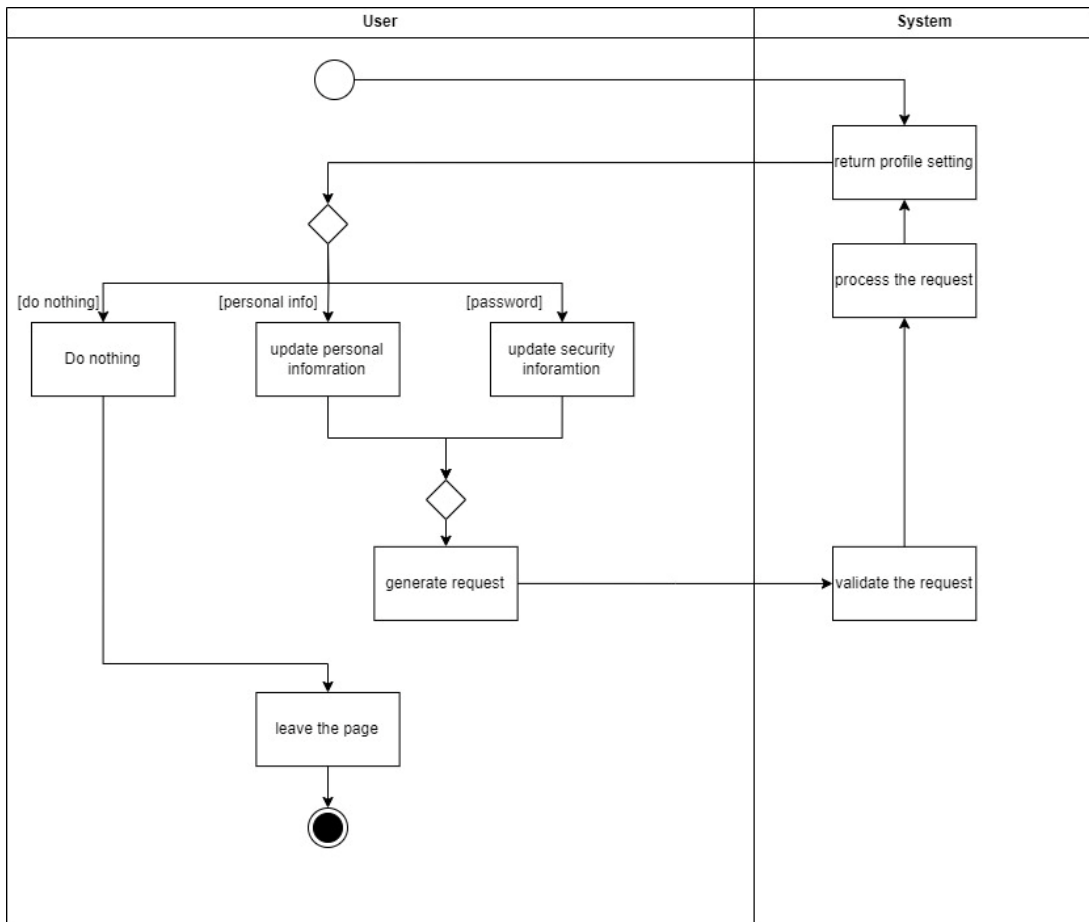


Figure 4.4.2: Edit Profile Activity Diagram

4.4.3 View eBook Use Case

Table 4.4.3: View eBook Use Case Description

Use Case Name: View eBook	ID: 103	Importance Level: Low
Primary Actor: User, Admin	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User, Admin – want to view the eBook		
Brief Description: This use case describes how the user view published eBook		
Precondition: Login		
Trigger: User/Admin click view button at dashboard		
Relationships: Association: User, Admin Include: Extends: search eBook Generalization:		
Normal Flow of Events: 1) If user/admin want to search, S-1 searching sub flow is performed. Else System returns all available eBook according to the time. 2) User/admin click view eBook button 3) System renders eBook content to the user		
Sub Flows: S-1: searching 1. If user search by sorting sequence User/admin fill in the words in searching bar. If user search by keyword User/admin select sorting sequence If user search by type User/admin select type If user search by date User/admin select date 2. User/admin click search button.		

3. System returns all eBooks which fulfil the requirement

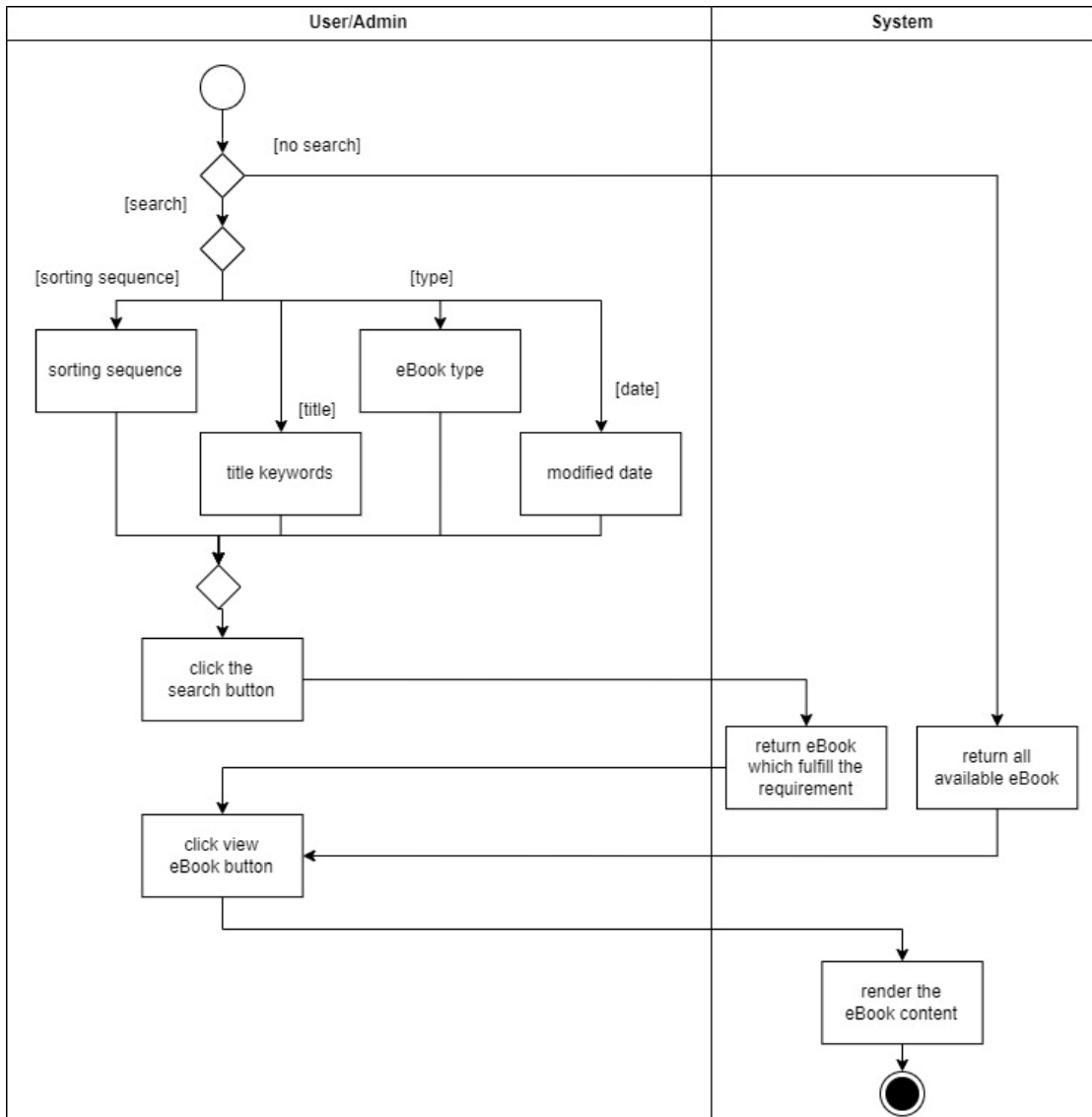


Figure 4.4.3: View eBook Activity Diagram

4.4.4 Create eBook Use Case

Table 4.4.4: Create eBook Use Case Description

Use Case Name: Create eBook	ID: 104	Importance Level: High
Primary Actor: User	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User – intent to create new eBook		
Brief Description: This use case describes how the user create new eBook		
Precondition: Login		
Trigger: User click create eBook button		
Relationships: Association: User Include: Choose layout, write eBook details, choose document size Extends: Generalization:		
Normal Flow of Events: 1) User clicks the create eBook button 2) User chooses the type of the eBook 3) User writes the title and description 4) User select the document size 5) System shows the eBook details 6) User checks the eBook details If user want to make amendment, Repeat the cycle starting from step 2 7) User clicks the finish button. 8) System creates an eBook and render to user.		

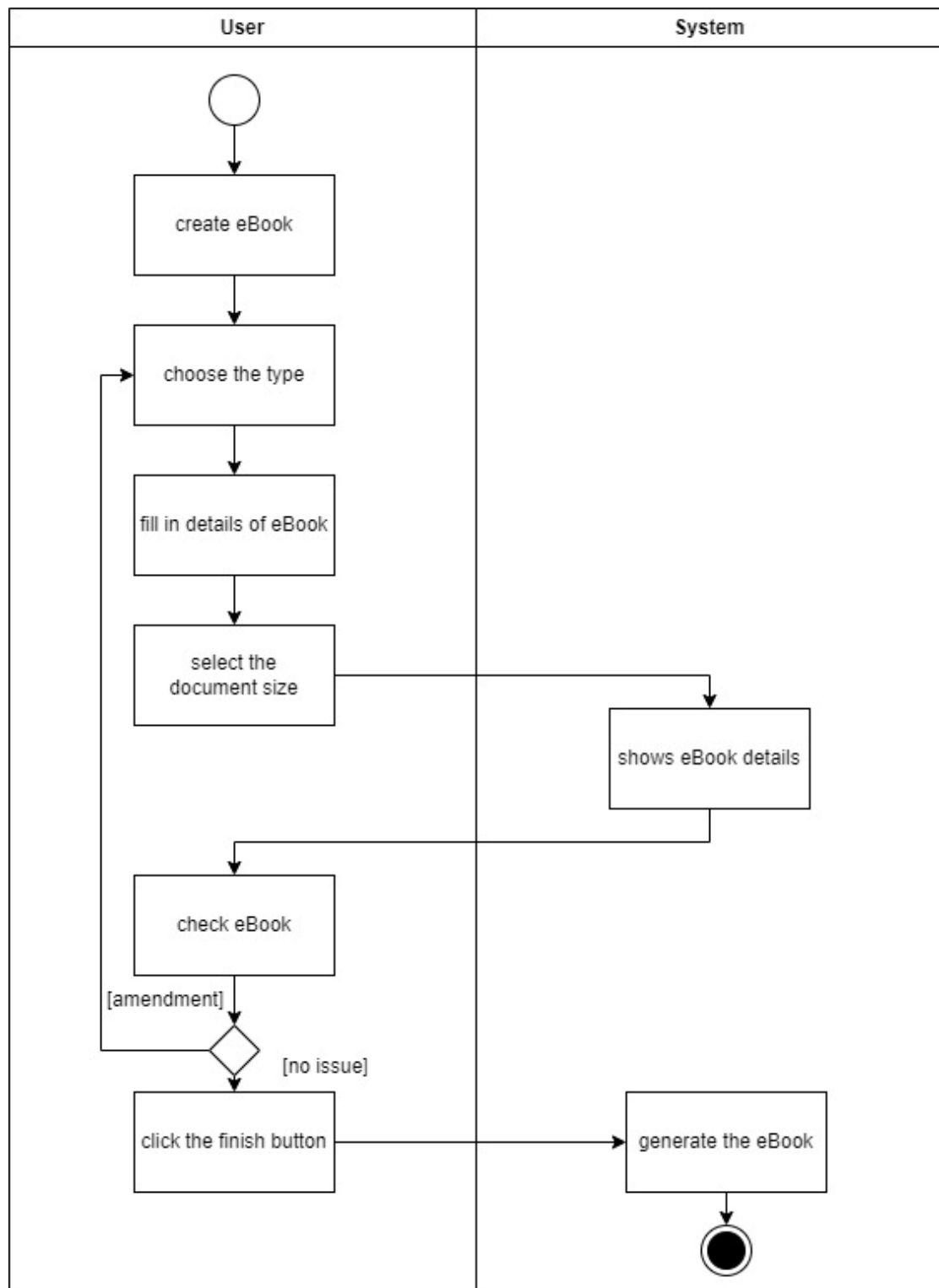


Figure 4.4.4: Create Book Activity Diagram

4.4.5 Edit eBook Use Case

Table 4.4.5: Edit eBook Use Case Description

Use Case Name: Edit eBook	ID: 105	Importance Level: High
Primary Actor: User	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User – want to edit the existing eBook		
Brief Description: This use case describes how the user edit existing eBook		
Precondition: Login, select existing eBook		
Trigger: User click edit eBook button		
Relationships: Association: User Include: Extends: CRUD item (eBook, Chapter, Book Page and Element) Generalization:		
Normal Flow of Events: 1) User click edit eBook button 2) System displays the eBook content 3) User makes changes to the eBook If user want to append items, The item is appended into the system. If user want to edit items, The item is selected and edited. If user want to delete items, The item is selected and deleted from the system. 4) System process and store the request 5) If actions are not finished, Repeat the cycle starting from Step 2 6) User leaves the eBook		

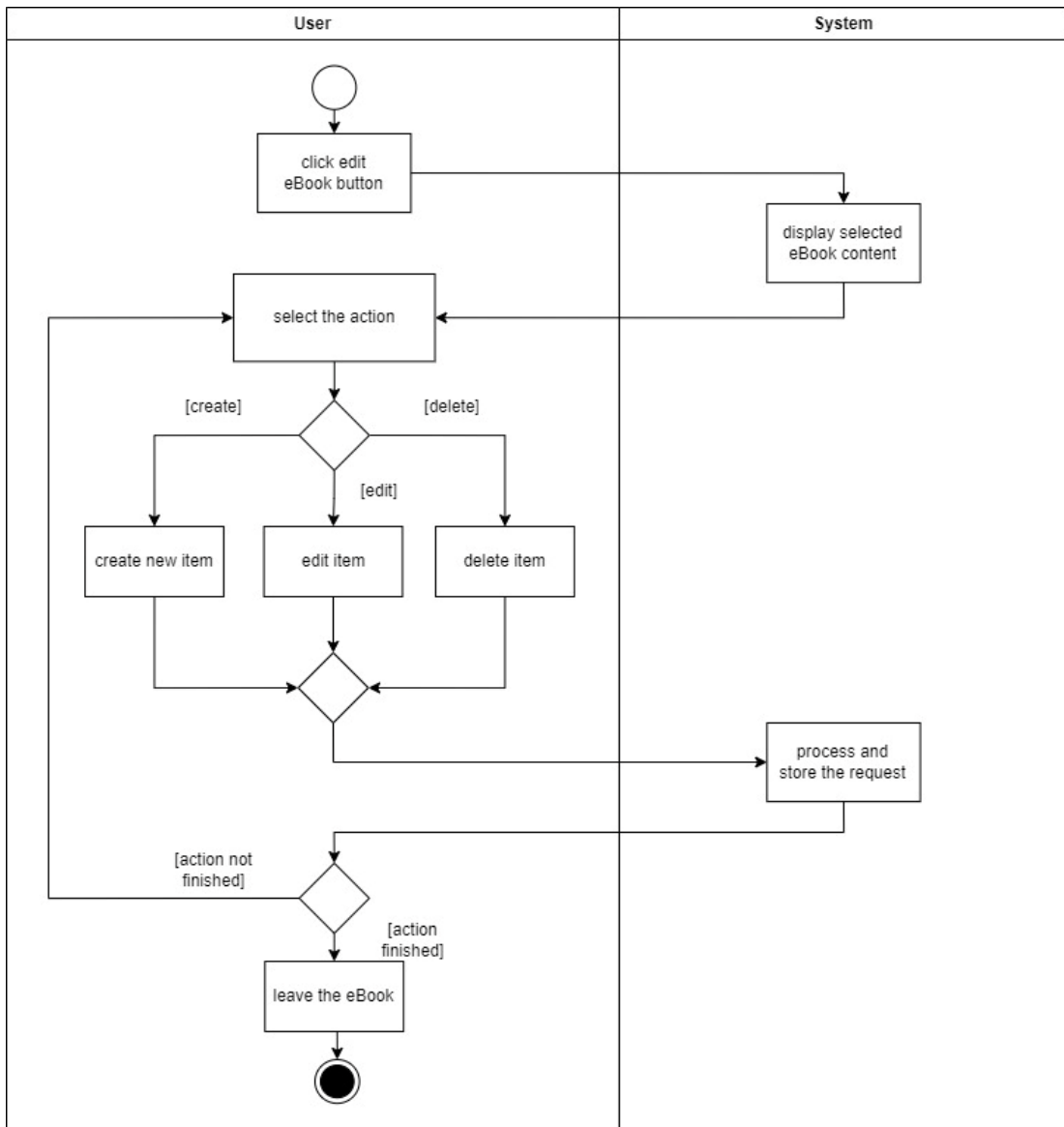


Figure 4.4.5: Edit eBook Activity Diagram

4.4.6 Edit File Setting Use Case

Table 4.4.6: Edit File Setting Use Case Description

Use Case Name: Edit File Setting	ID: 106	Importance Level: Medium
Primary Actor: User	Use Case Type: Detail, Essential	
Stakeholders and Interests: - User – want to edit the file setting		
Brief Description: This use case describes available option on setting of eBook		
Precondition: Login, select an eBook		
Trigger: User click file setting button		
Relationships: Association: User Include: Extends: collaboration, delete eBook, update information, publication, version Generalization:		
Normal Flow of Events: 1) System returns the file setting information 2) If user decide to edit eBook eBook edit request is generated. If user decide to delete eBook, eBook delete request is generated. If user decide to update collaboration, Collaboration update request is generated. If user decide to update Version, Version update request is generated. If user decide to update publication, Publication manage request is generated. If user decide to do nothing Skip the step 6 3) The update request is generated 4) The system validates the request 5) System processes the request and return to Step 2 6) Leave the page		

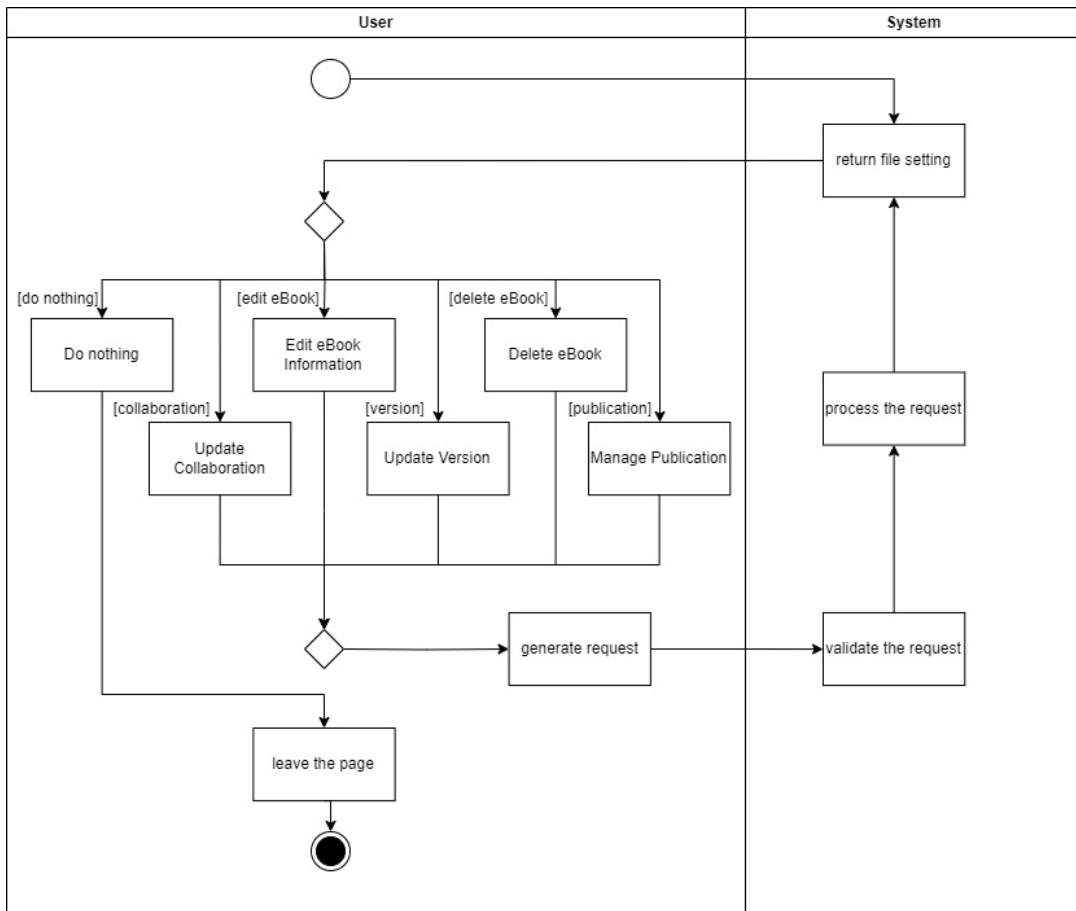


Figure 4.4.6: Edit File Setting Activity Diagram

4.4.7 Perform Design Use Case

Table 4.4.7: Perform Design Use Case Description

Use Case Name: Perform Design	ID: 107	Importance Level: High
Primary Actor: User	Use Case Type: Detail, Essential	
Stakeholders and Interests:		
- User – want to perform design action at design page		
Brief Description: This use case describes how the user perform design action		
Precondition: Login, select an eBook		
Trigger: Users click design button		
Relationships:		
Association: User		
Include:		
Extends: exporting, find and replace text, collaboration, comment		
Generalization:		
Normal Flow of Events:		
1) User clicks design eBook button		
2) System displays the eBook content		
3) Users make design selection		
4) If user want to export, Click print button.		
If user want to find and replace text, Click find and replace text button.		
If user want to add collaboration, Click collaboration button		
If user want to manage comment, Click the comment button		
5) Users input the information required		
6) Users click the submit button to generate the update request		
7) System process and store the request		
8) If actions are not finished, Repeat the cycle starting from Step 3		
9) User leaves the eBook		

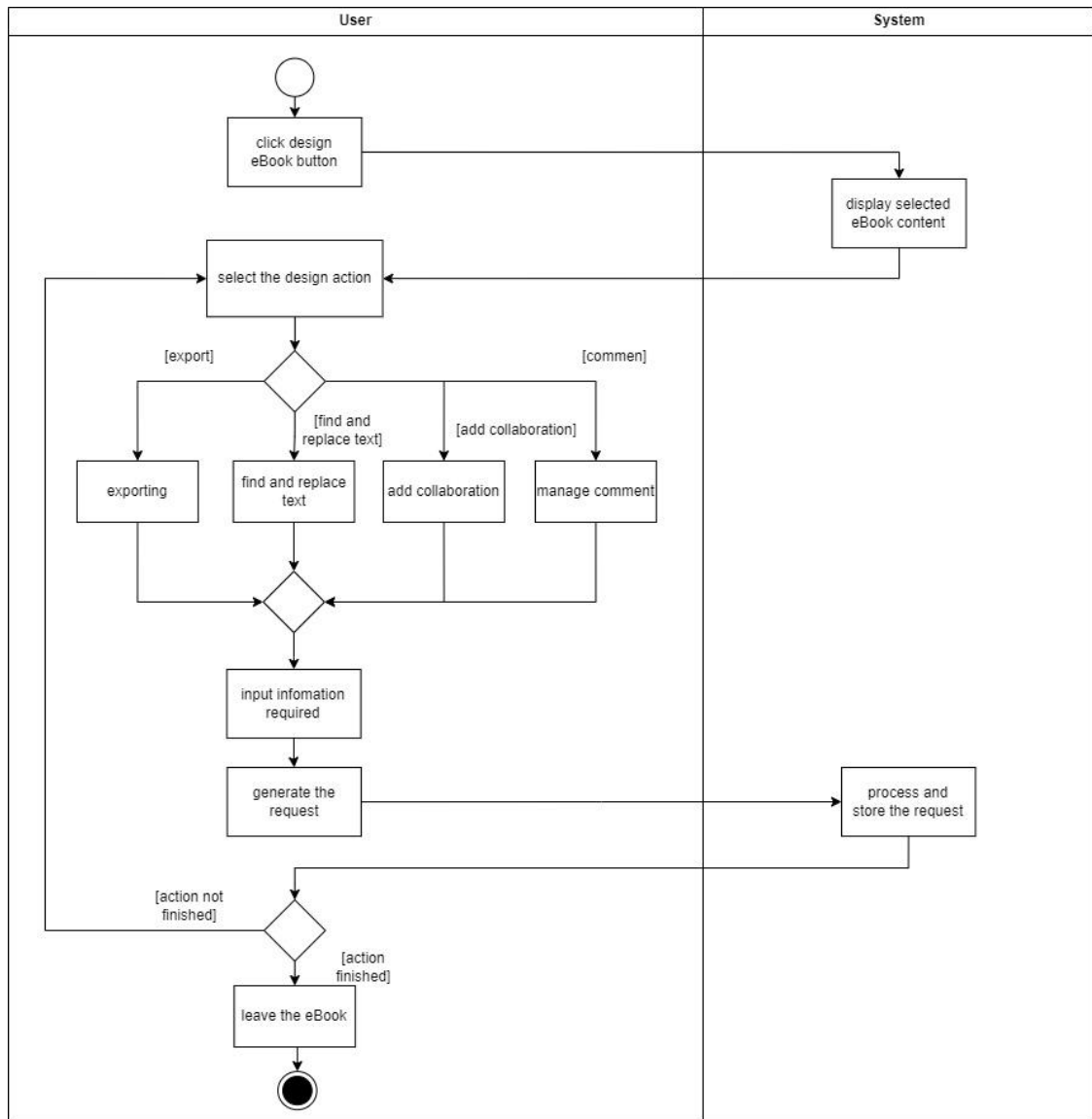


Figure 4.4.7: Perform Design eBook Activity Diagram

4.4.8 Manage eBook Use Case

Table 4.4.8: Manage eBook Use Case Description

Use Case Name: Manage eBook	ID: 108	Importance Level: Low
Primary Actor: Admin	Use Case Type: Detail, Essential	
Stakeholders and Interests: - Admin – want to manage the published eBook		
Brief Description: This use case describes how the admin manage eBook publication		
Precondition: Login, Admin role		
Trigger: Admins enter management interface		
Relationships: Association: Admin Include: Extends: view published content Generalization:		
Normal Flow of Events: 1) Admin enters management interface 2) Admin select a published eBook 3) If admin wants to view the published content Published content is return. 4) Admin manages the eBook 5) If content is appropriate The request is approved. If the content is inappropriate The request is rejected. 6) System processes the request		

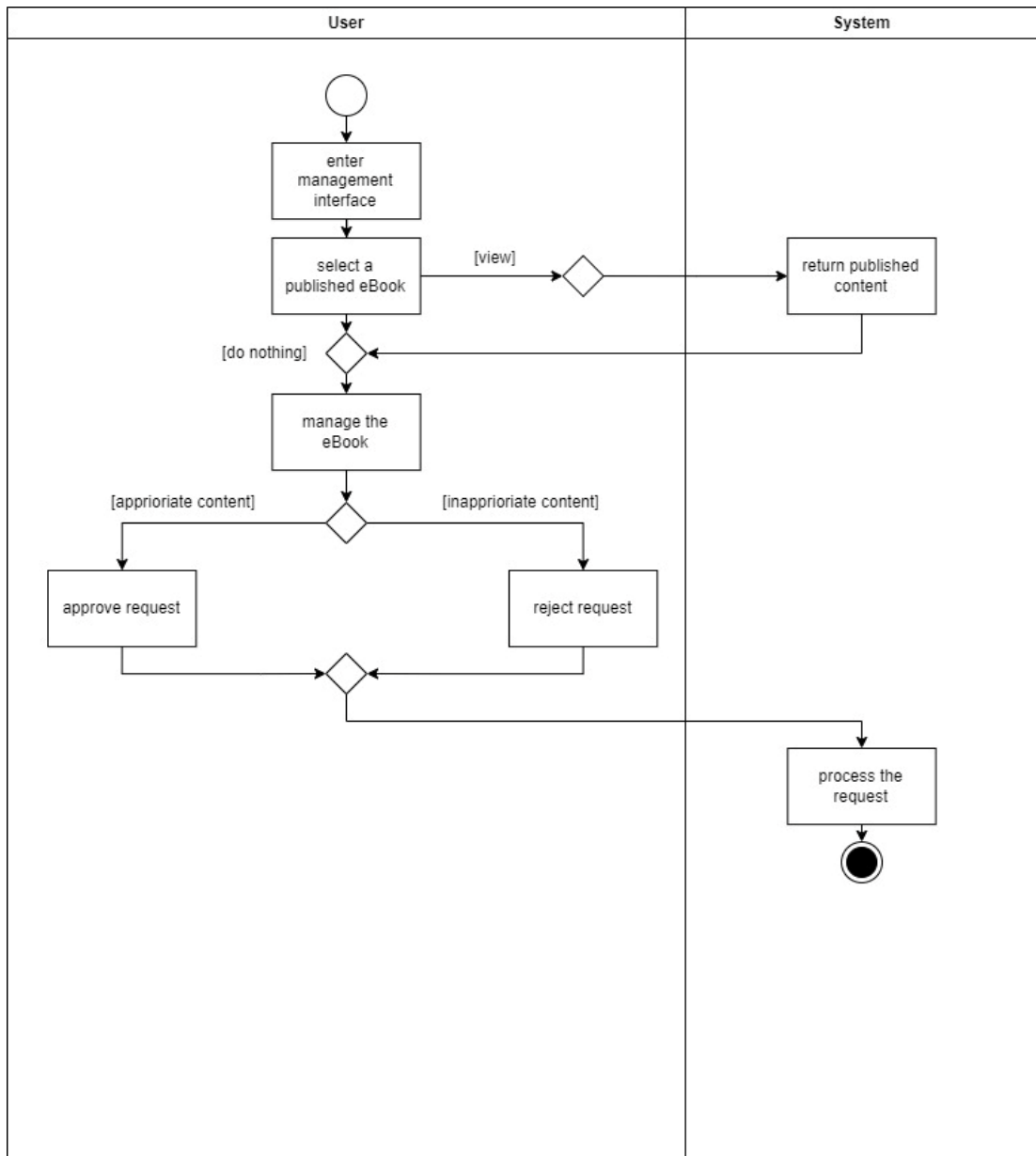


Figure 4.4.8: Manage eBook Activity Diagram

4.5 Wireframe Diagram

The wireframe diagram employs a high-fidelity demonstration way to display the UI of the entire system to enhance the clarity and comprehension. Furthermore, it also exhibits its mobile responsiveness capabilities by categorizing the devices based on screen width rather than device types. This approach brings one additional advantage which is accommodating the scenarios where laptop users may view the website side by side, guaranteeing all users have the best user experience. For instance, screen widths of 1920px are indicative of desktop computers and large screens followed by 1600px representing large laptops and high-resolution tablets, 1200px for medium-sized laptops and desktop monitors, 991px for small laptops and tablets in landscape orientation, 767px for tablets in portrait orientation and smaller laptops, and finally 479px for smartphones in portrait orientation. This finer categorization maximizes the convenience to ensure optimal user experience across various devices.

4.5.1 Overview of User Interface

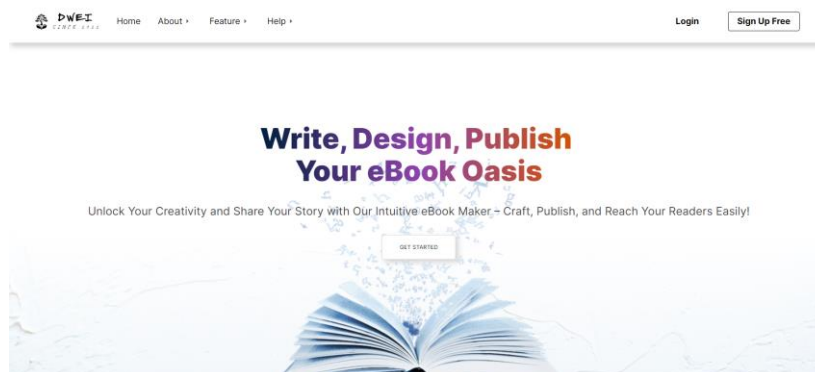


Figure 4.5.1.1: Overview of Home UI

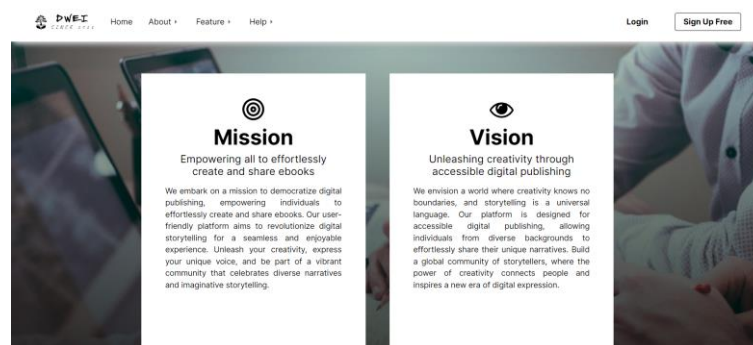


Figure 4.5.1.2: Overview of About UI

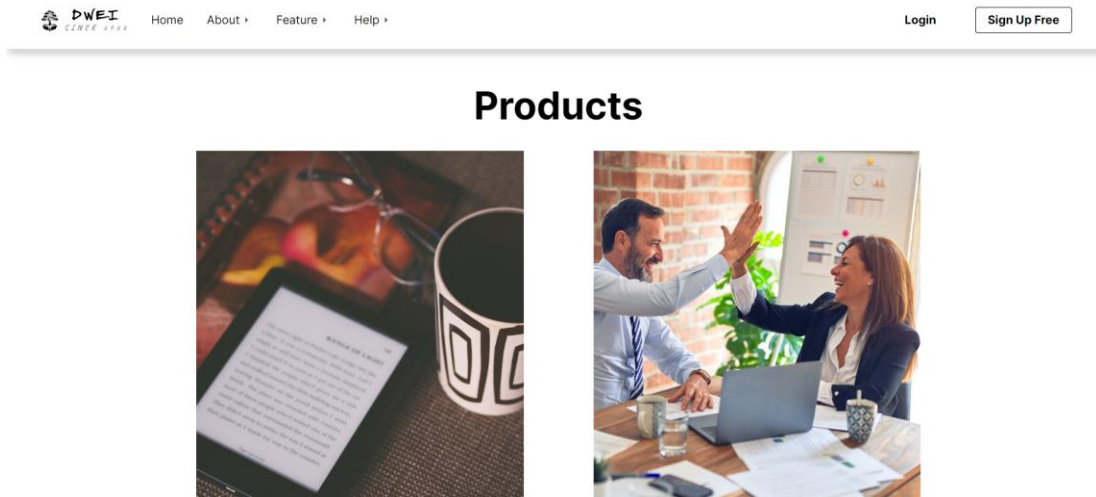


Figure 4.5.1.3: Overview of Feature UI

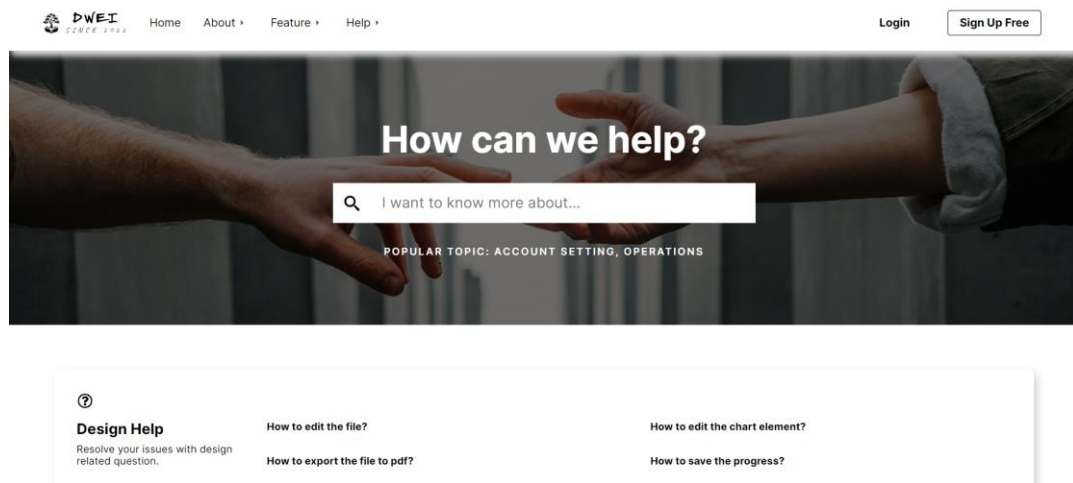


Figure 4.5.1.4: Overview of Help UI

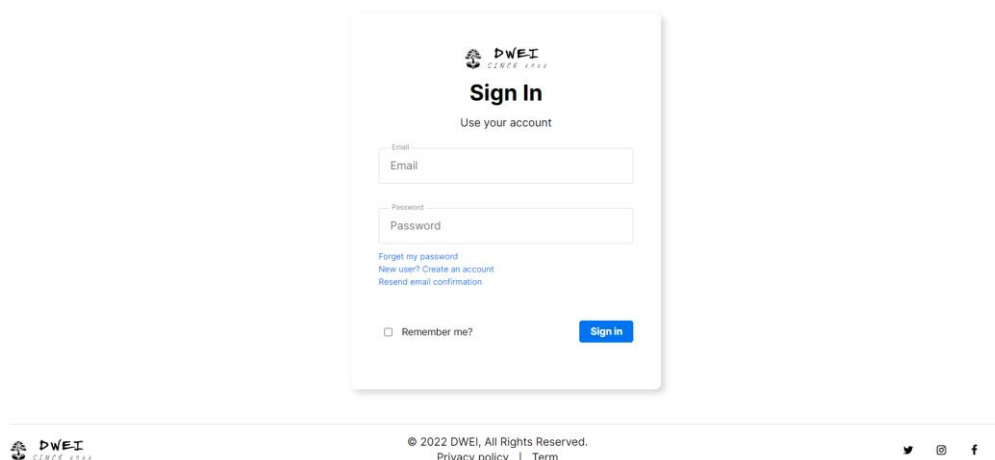


Figure 4.5.1.5: Overview of Login UI

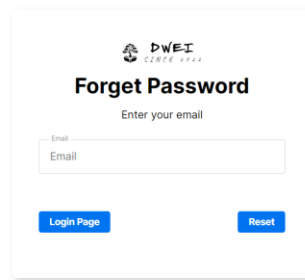


Figure 4.5.1.6: Overview of Forget Password UI

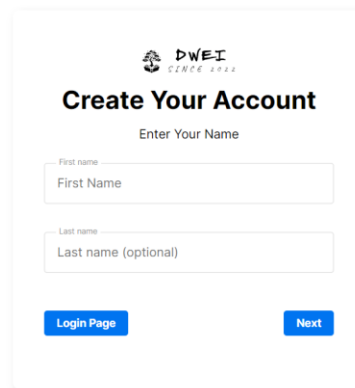


Figure 4.5.1.7: Overview of Register UI

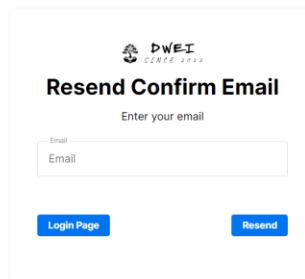


Figure 4.5.1.8: Overview of Resend Email Confirmation UI

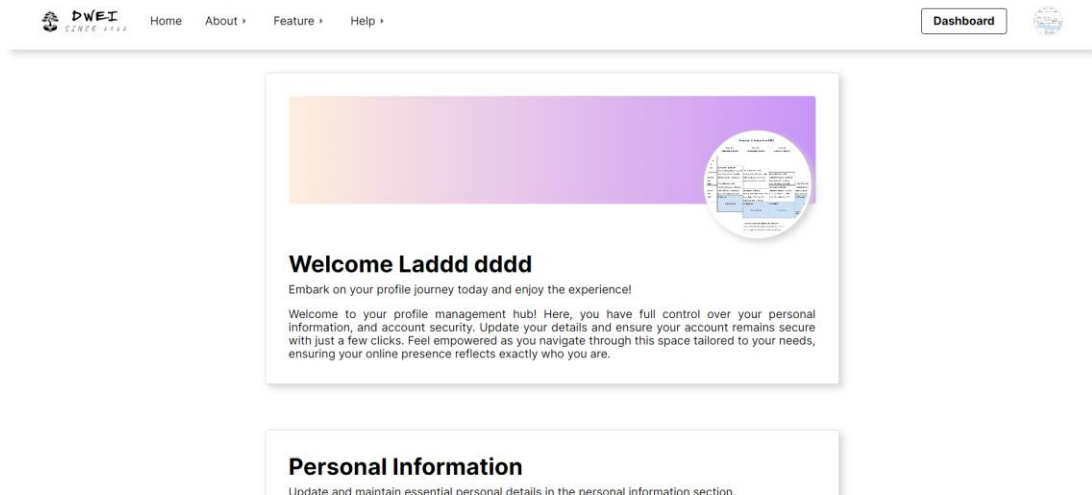


Figure 4.5.1.9: Overview of Profile Setting UI

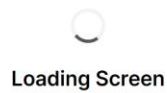


Figure 4.5.1.10: Overview of Dashboard Loading Screen UI

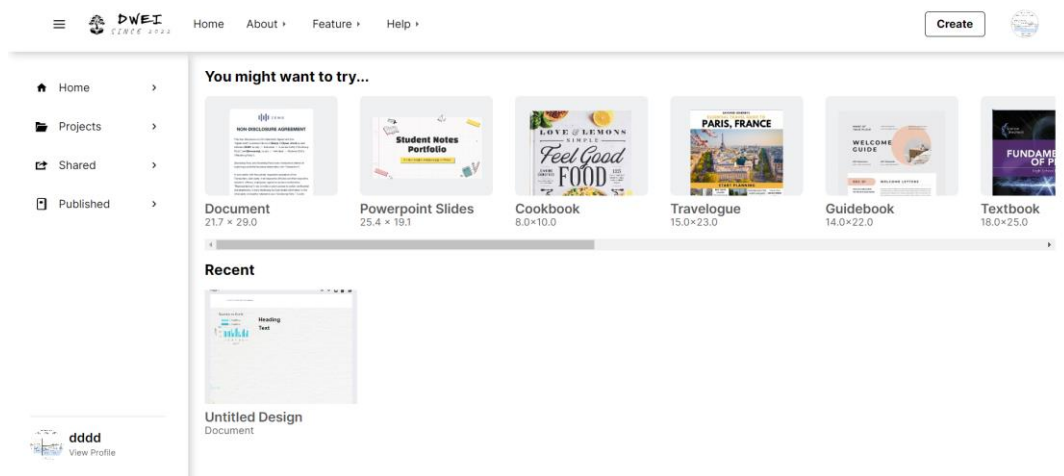


Figure 4.5.1.11: Overview of Dashboard UI

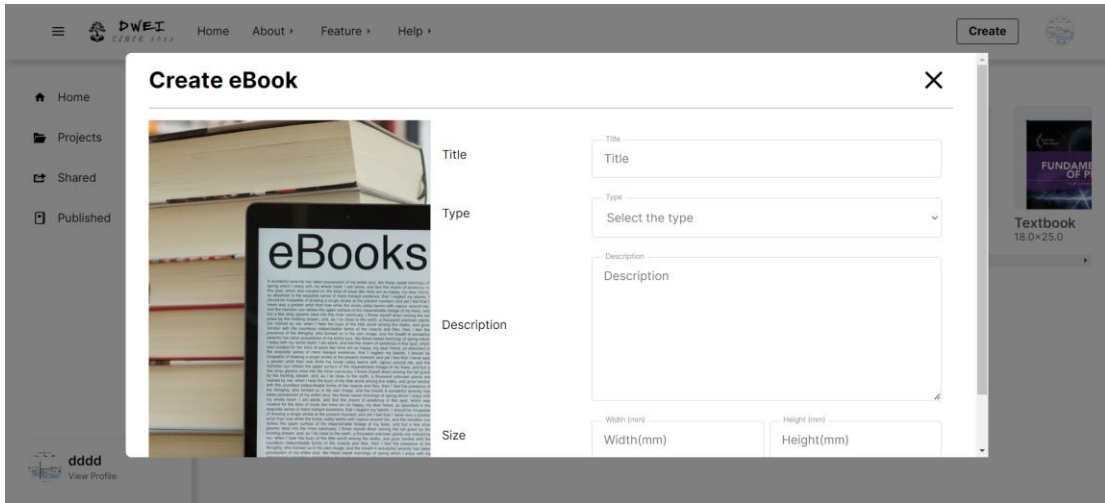


Figure 4.5.1.12: Overview of Create eBook UI

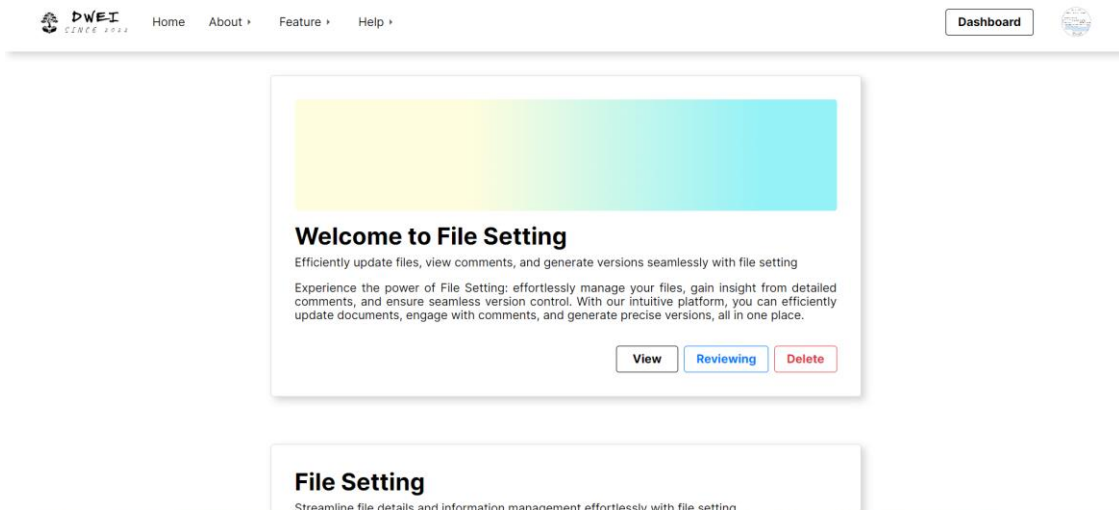


Figure 4.5.1.13: Overview of File Setting UI

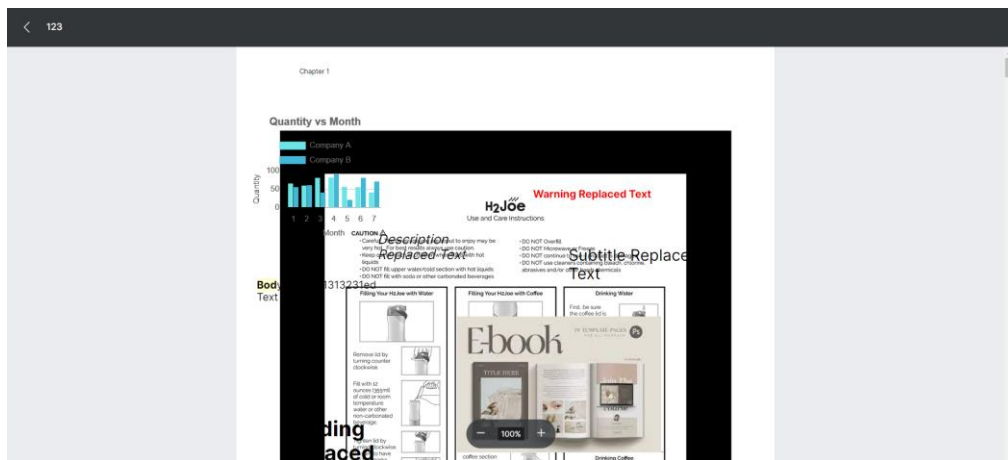


Figure 4.5.1.14: Overview of Published Content and Version History UI

CHAPTER 4

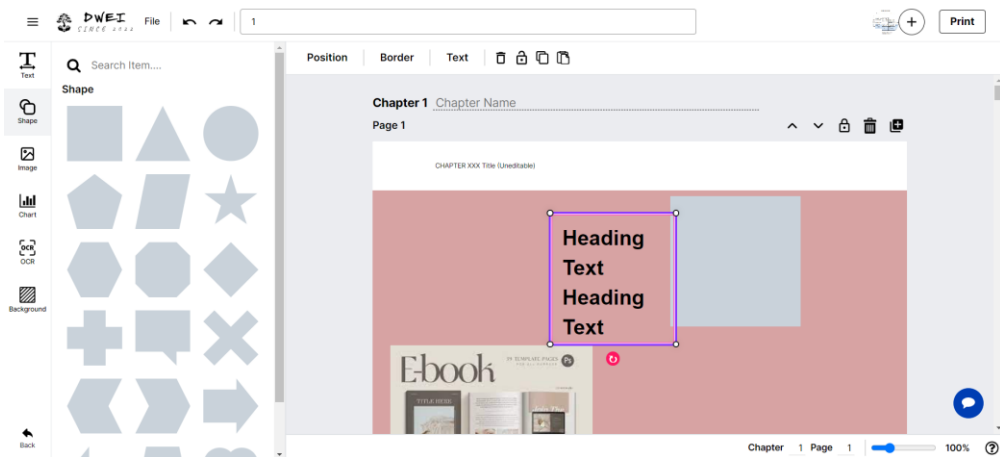


Figure 4.5.15: Overview of Design UI

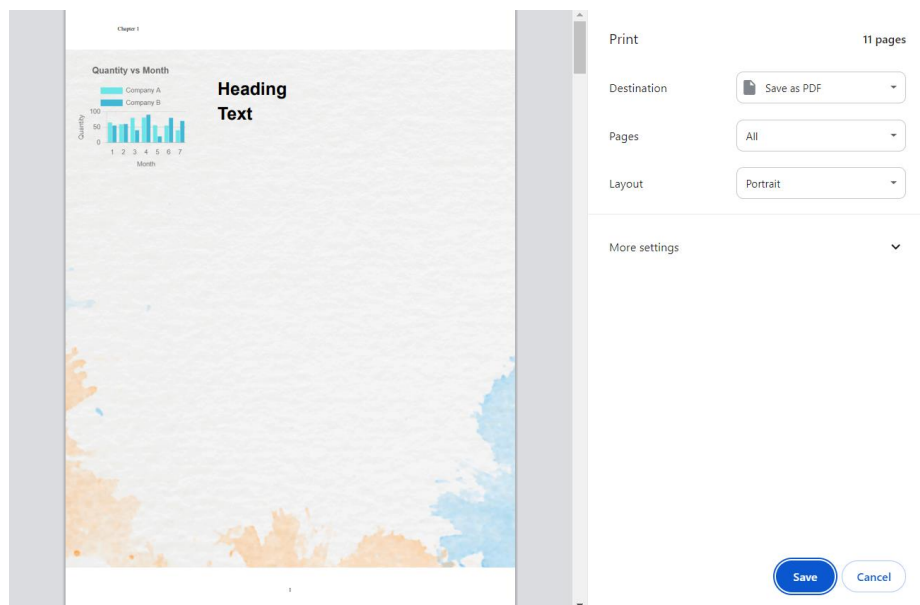


Figure 4.5.16: Overview of Print UI

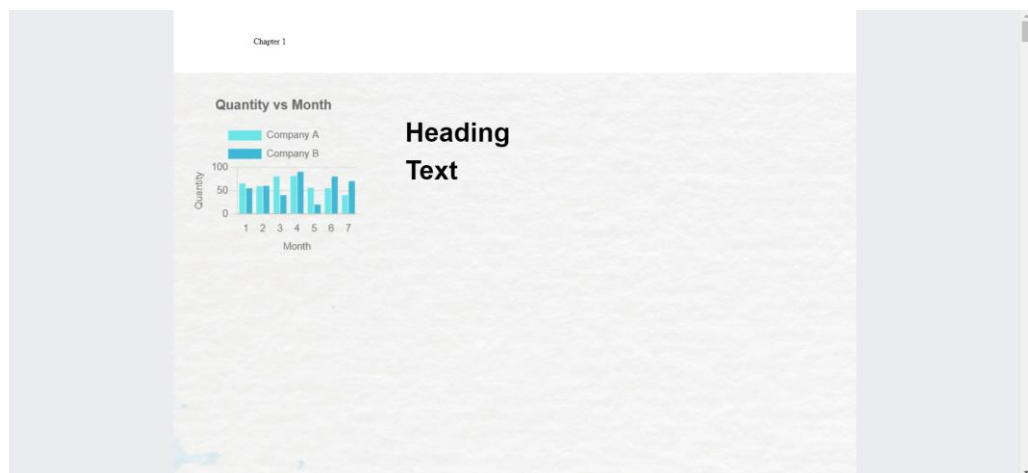


Figure 4.5.17: Overview of Print Preview UI

CHAPTER 4

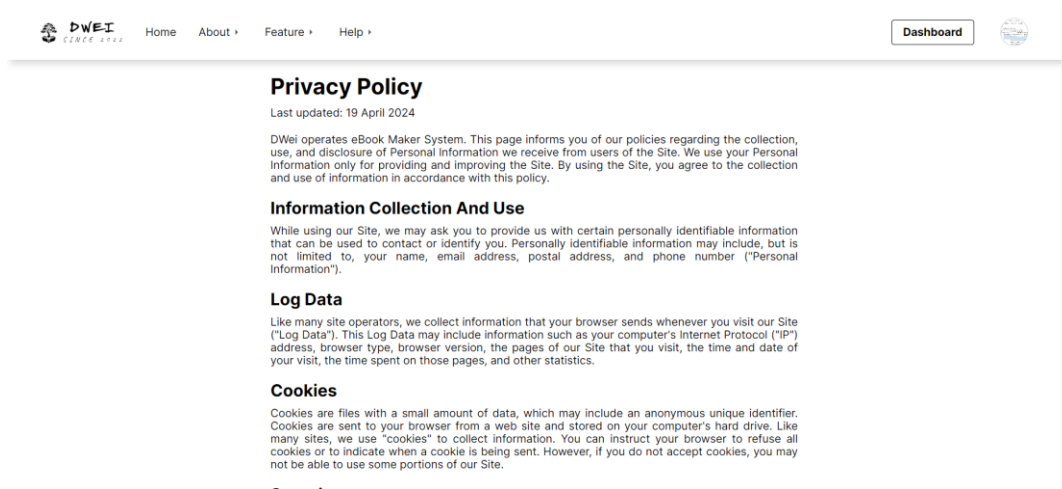


Figure 4.5.1.18: Overview of Privacy UI

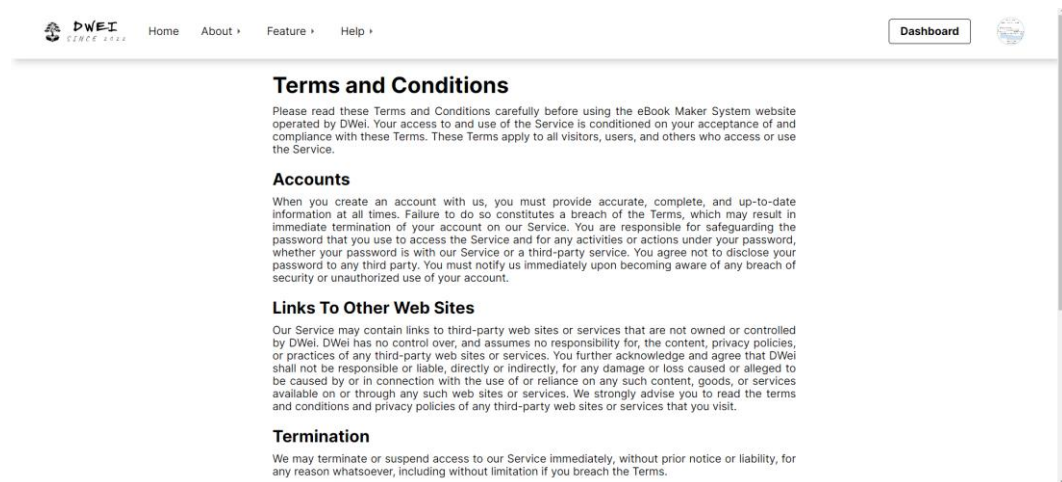


Figure 4.5.1.19: Overview of Terms and Condition UI

4.5.2 Guest Header User Interface

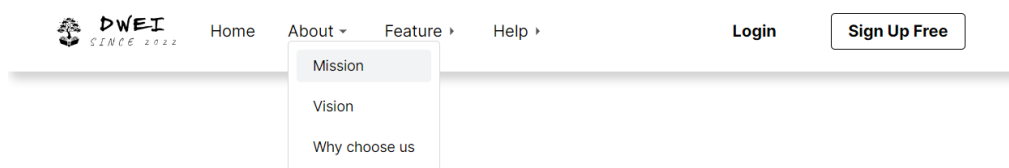


Figure 4.5.2.1: Guest Header UI for screens larger than 991px



Figure 4.5.2.2: Guest Header UI for screens between 767px and 991px



Figure 4.5.2.3: Guest Header UI for screens between 479 and 767px



Figure 4.5.2.4: Guest Header UI for screens smaller than 479px

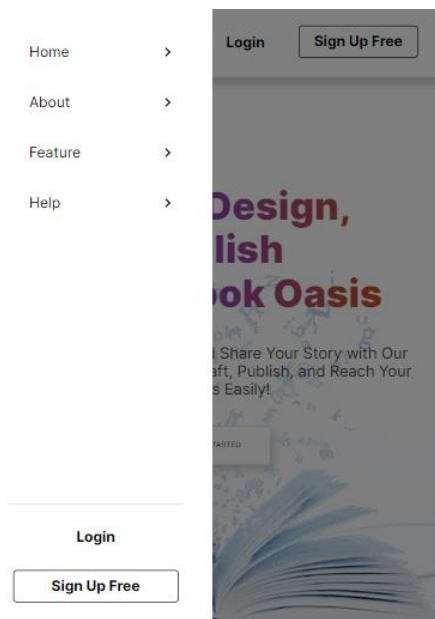


Figure 4.5.2.5: Guest Header Sidebar UI for screens larger than 479px

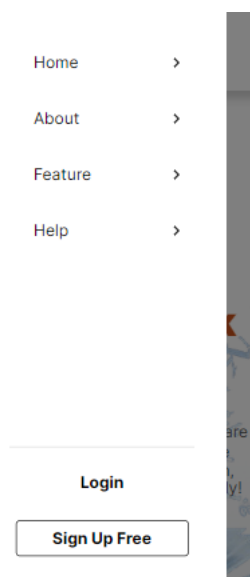


Figure 4.5.2.6: Guest Header Sidebar UI Sidebar for screens smaller than 479px
Bachelor of Information Systems (Honours) Information Systems Engineering
Faculty of Information and Communication Technology (Kampar Campus), UTAR

4.5.3 Login Header User Interface

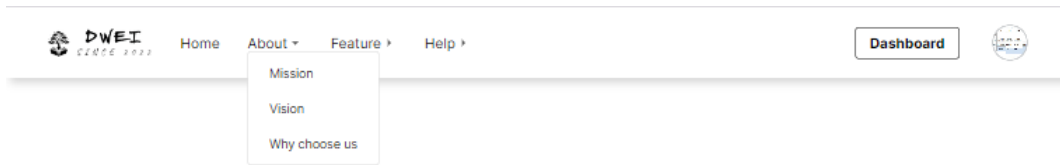


Figure 4.5.3.1: Login Header UI for screens larger than 991px

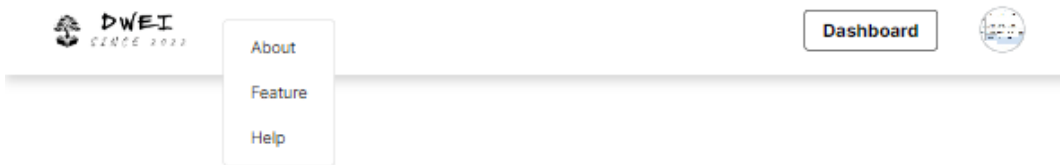


Figure 4.5.3.2: Login Header UI for screens between 767px and 991px



Figure 4.5.3.3: Login Header UI for screens between 479 and 767px



Figure 4.5.3.4: Login Header UI for screens smaller than 479px

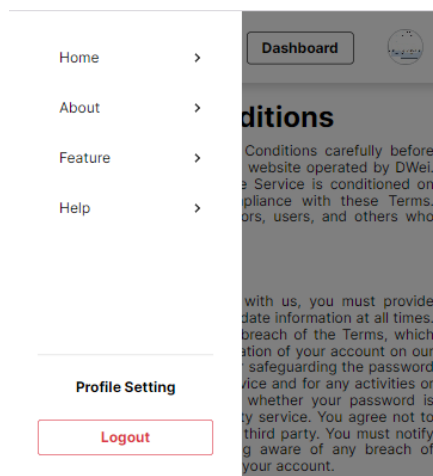


Figure 4.5.3.5: Login Header Sidebar UI for screens between 479px and 767px

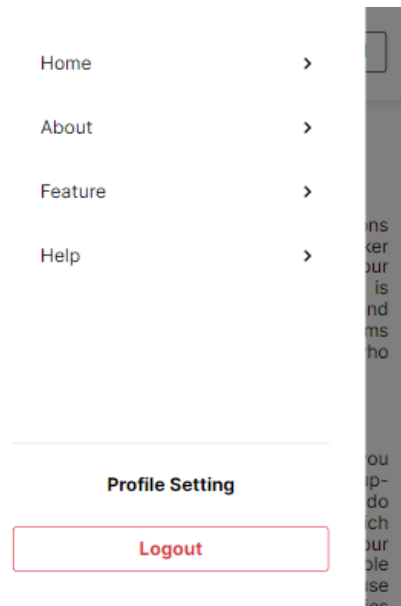


Figure 4.5.3.6: Login Header Sidebar UI for screens smaller 479px

4.5.4 Profile Expand User Interface

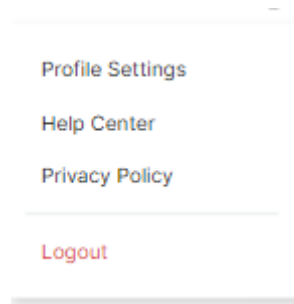


Figure 4.5.4.1: Profile Expand UI

4.5.5 Footer User Interface

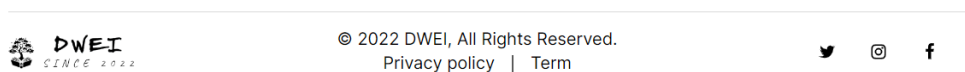


Figure 4.5.5.1: Footer UI for screens larger than 767px

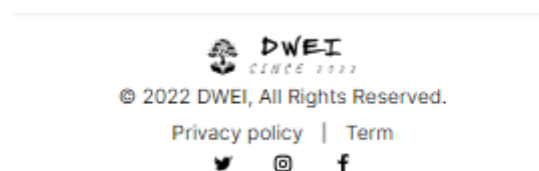


Figure 4.5.5.2: Footer UI for screens smaller than 767px

4.5.6 Home Hero User Interface

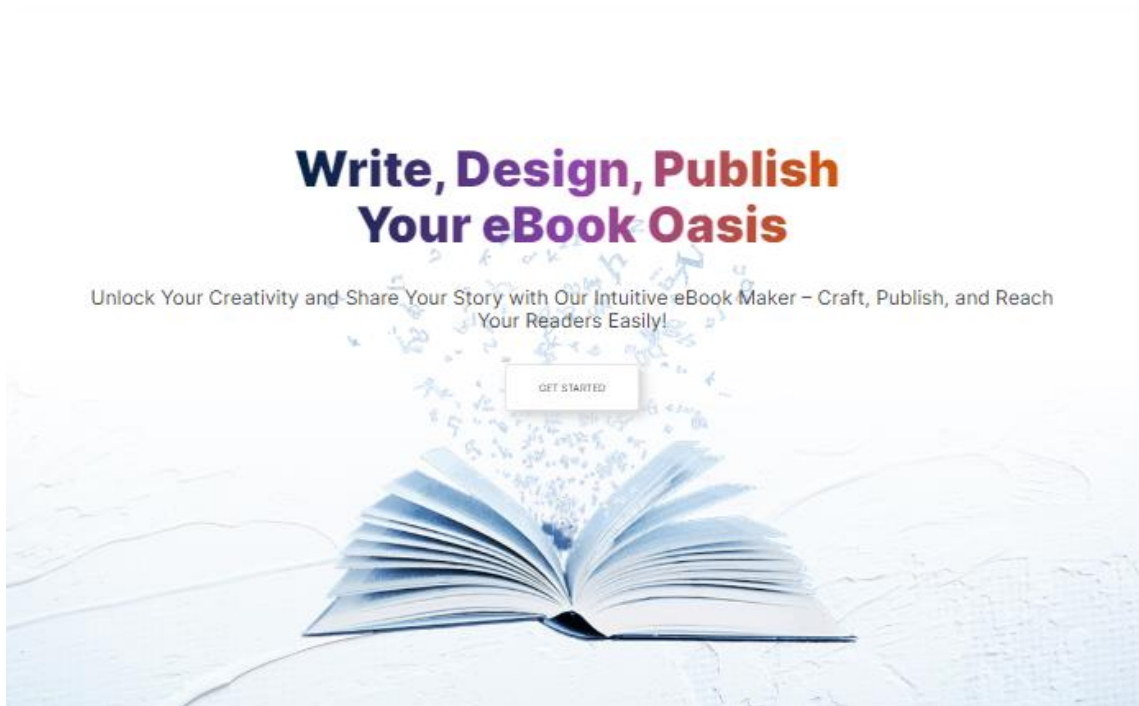


Figure 4.5.6.1: Home Hero UI for normal screen view

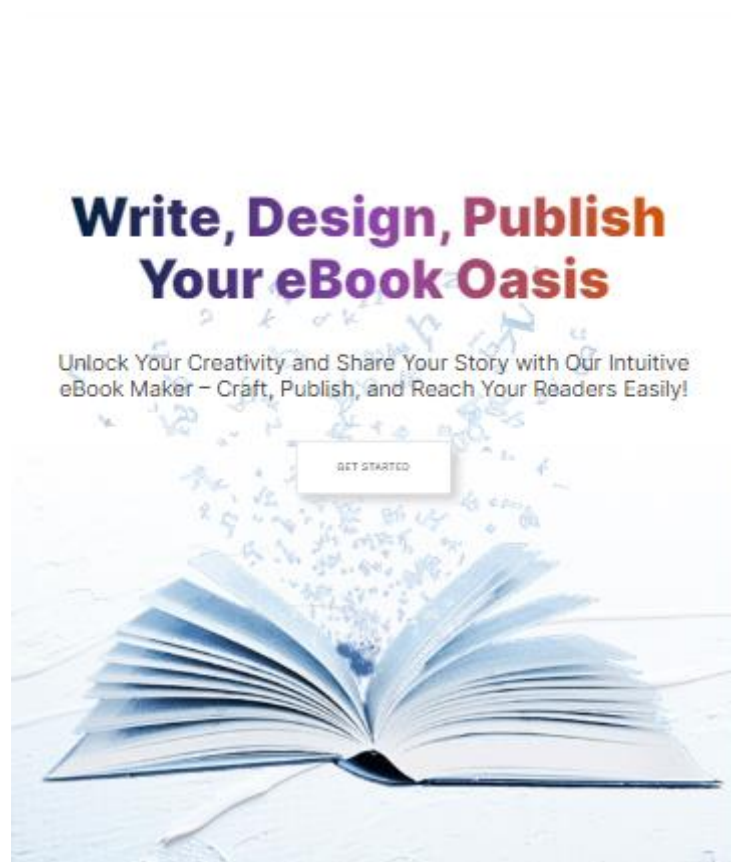


Figure 4.5.6.2: Home Hero UI for mobile screen view

About Us

We're on a mission to democratize ebook creation. Our platform is tailored to empower individuals, regardless of their background, to express their creativity effortlessly. Whether you're an aspiring author or have a unique story to share, we're here to assist you in bringing your ideas to life. Join us as we celebrate diverse voices and unique stories within our community.

LEARN MORE

Figure 4.5.6.3: Home About UI for normal screen view

About Us

We're on a mission to democratize ebook creation. Our platform is tailored to empower individuals, regardless of their background, to express their creativity effortlessly. Whether you're an aspiring author or have a unique story to share, we're here to assist you in bringing your ideas to life. Join us as we celebrate diverse voices and unique stories within our community.

LEARN MORE

Figure 4.5.6.4: Home About UI for mobile screen view

What we offer?

Discover our comprehensive platform that empowers your creativity, making eBook creation a seamless and enjoyable experience.



Collaborative Editing

Unleash your creativity by collaborating with others in real-time, ensuring a seamless and shared ebook creation experience.



Exporting Tools

Easily export your ebooks in various formats, providing flexibility and compatibility for sharing and publishing.



Intuitive Design

Our platform offers an intuitive and user-friendly design, making ebook creation accessible for users of all levels.



Creative Design Tools

Access a comprehensive set of design tools that cater to every aspect of ebook creation, allowing you to bring your vision to life effortlessly.

SEE DETAILS

Figure 4.5.6.5: Home Feature UI for screens larger than 991px

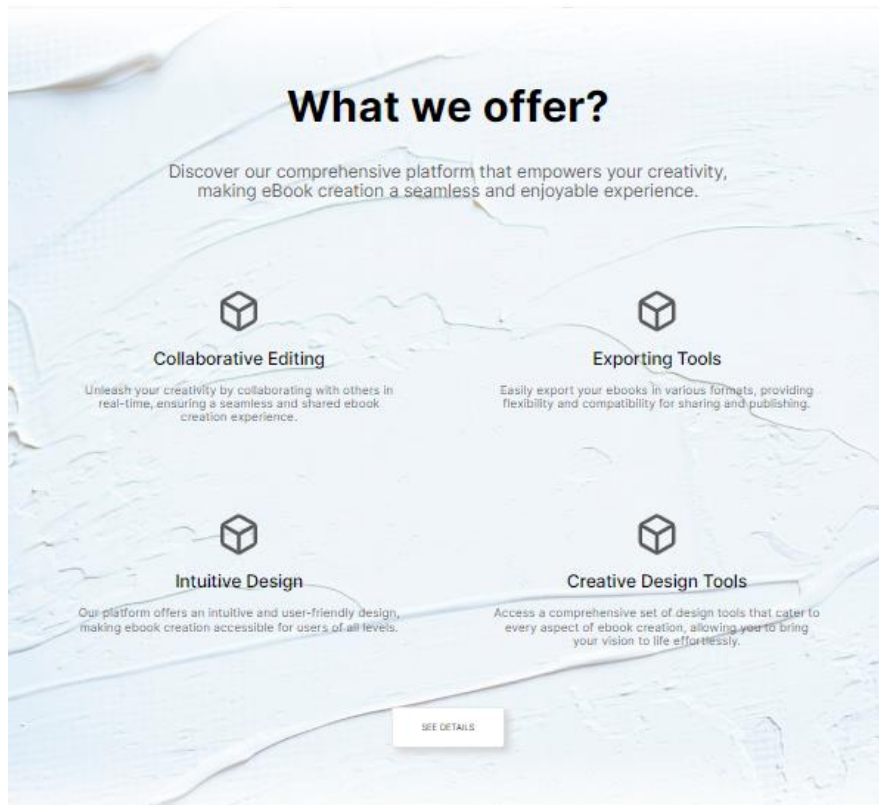


Figure 4.5.6.6: Home Feature UI for screens between 479px and 991px

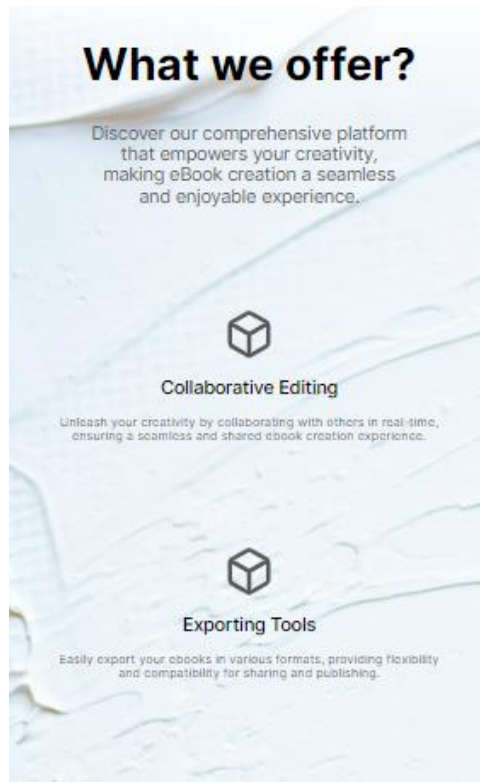


Figure 4.5.6.7: Home Feature UI for screens smaller than 479px

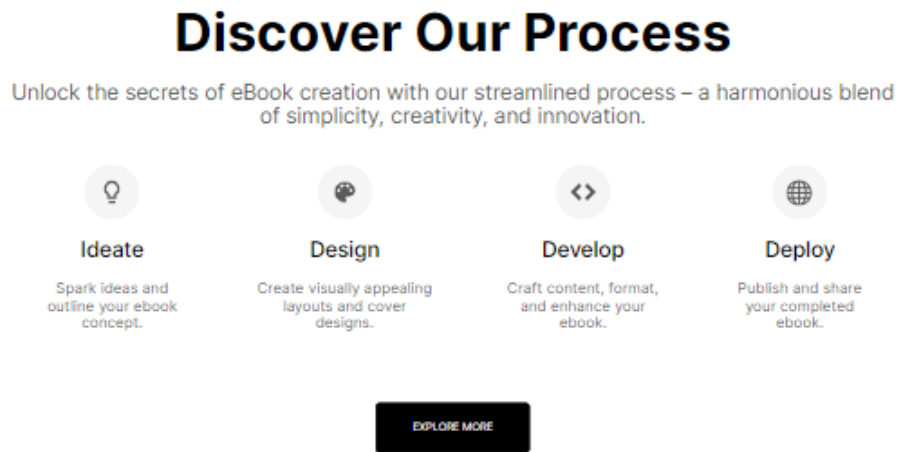


Figure 4.5.6.8: Home Help UI for screens larger than 767px

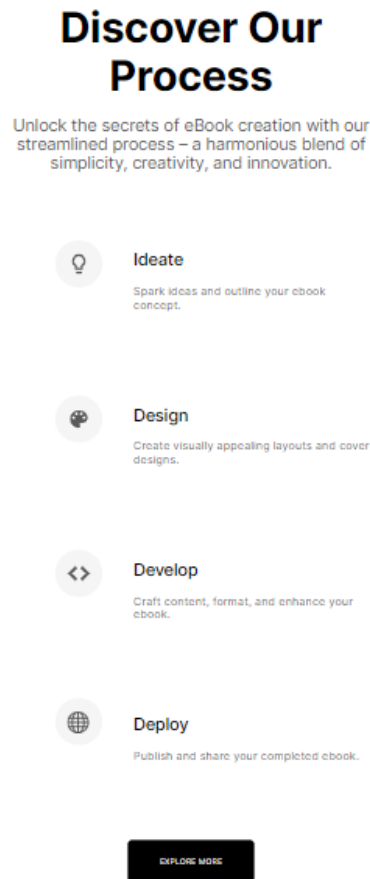


Figure 4.5.6.9: Home Help Section UI for screens smaller than 767px

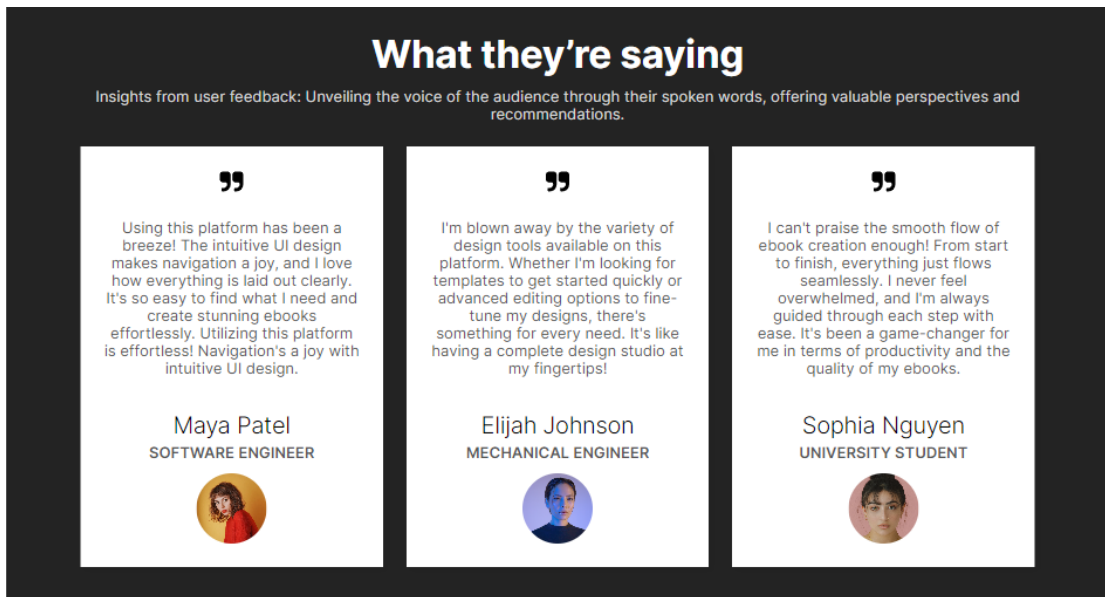


Figure 4.5.6.10: Home Testimonial Card for screens larger than 991px

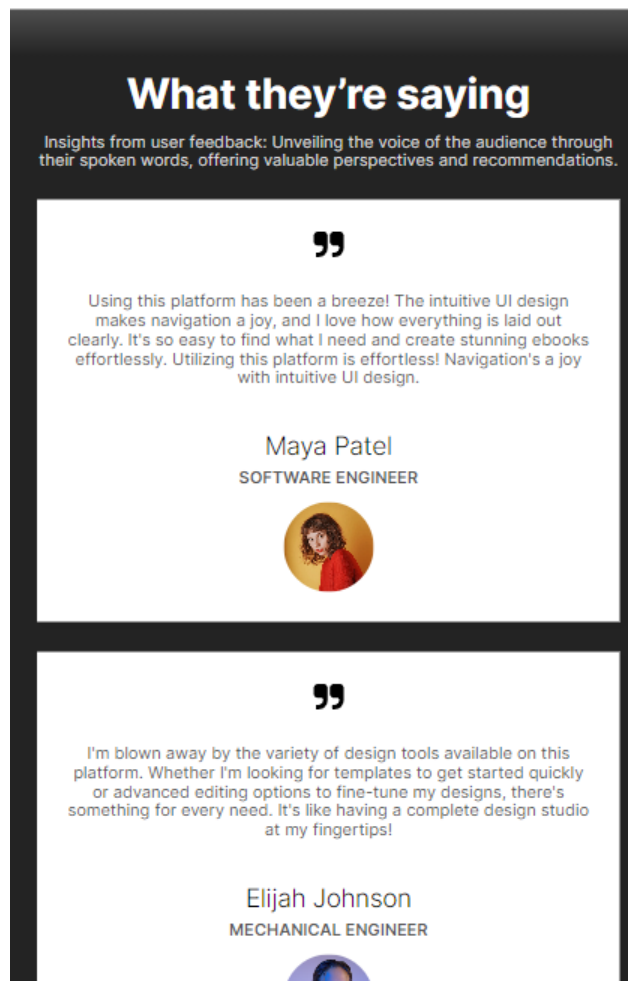


Figure 4.5.6.11: Home Testimonial Card for screens smaller than 991px

4.5.7 About User Interface



Figure 4.5.7.1: About Mission and Vision UI for screens larger than 767px

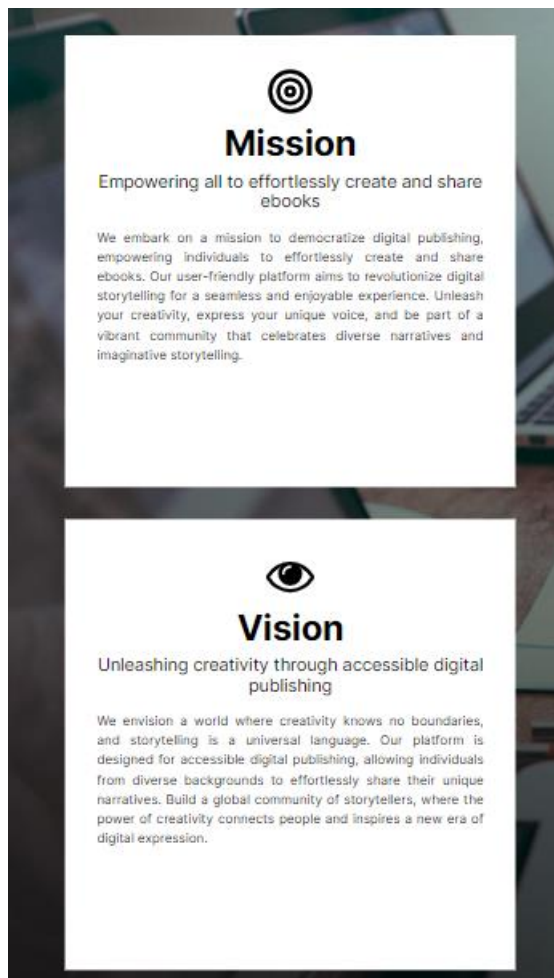


Figure 4.5.7.2: About Mission and Vision UI for screens smaller than 767px

Why choose us?

- User-friendly**
Designed for all individuals levels and devices, removing complexities and ensuring the process is user-friendly.
- Low entry barrier**
Seamless onboarding regardless of your skill level or previous experience. Guarantee a smooth start with minimal learning curve.
- Community support**
Offer a wealth of helpful resources, guidelines, and support to aid creators at every step of their journey.
- Cost-free**
Embrace creative freedom without financial constraints. We provides essential tools and features for free.

Figure 4.5.7.3: About Why Choose Us for screens larger than 767px

Why choose us?

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Designed for all individuals levels and devices, removing complexities and ensuring the process is user-friendly.
- Low entry barrier**
Seamless onboarding regardless of your skill level or previous experience. Guarantee a smooth start with minimal learning curve.
- Community support**
Offer a wealth of helpful resources, guidelines, and support to aid creators at every step of their journey.
- Cost-free**
Embrace creative freedom without financial constraints. We provides essential tools and features for free.

Figure 4.5.7.4: About Why Choose Us UI for screens smaller than 767px

4.5.8 Feature User Interface

Products



Figure 4.5.8.1: Feature Products UI for screens larger than 767px

Products



Figure 4.5.8.2: Feature Products UI for screens smaller than 767px

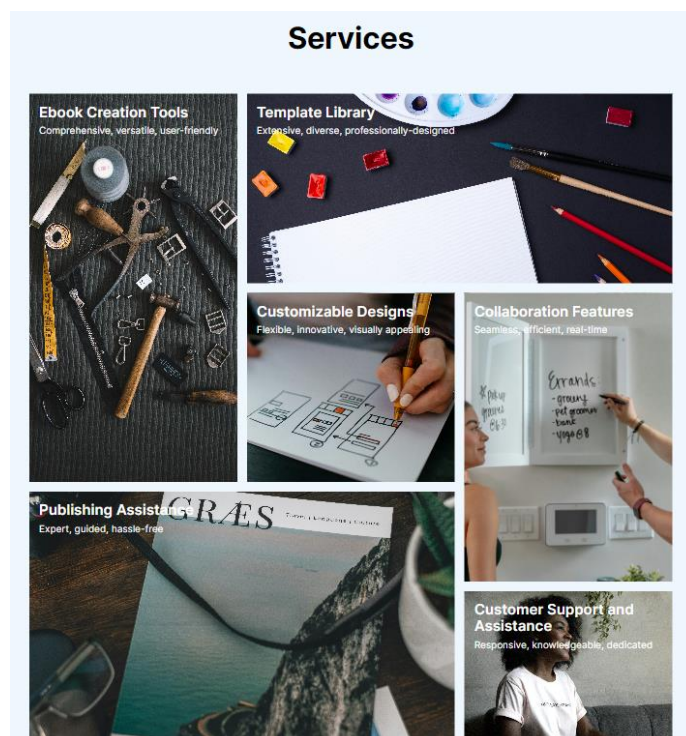


Figure 4.5.8.3: Feature Services UI for screens larger than 767px

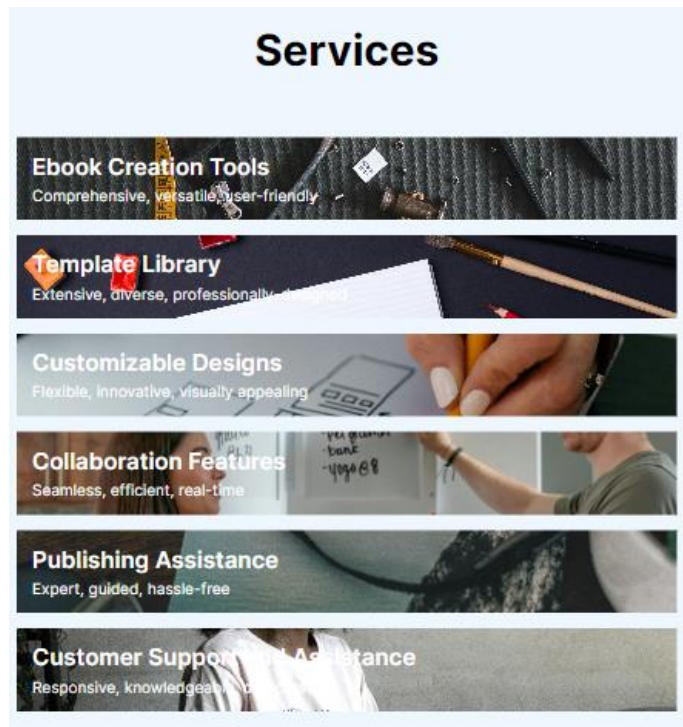


Figure 4.5.8.4: Feature Services UI for screens smaller than 767px

Capabilities

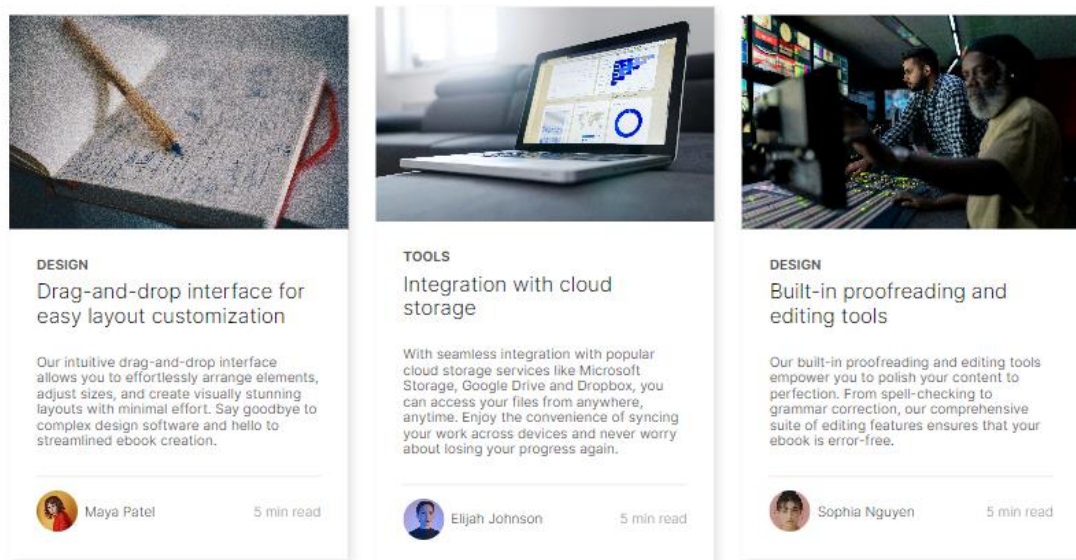


Figure 4.5.8.5: Feature Capabilities UI for screens larger than 767px

Capabilities

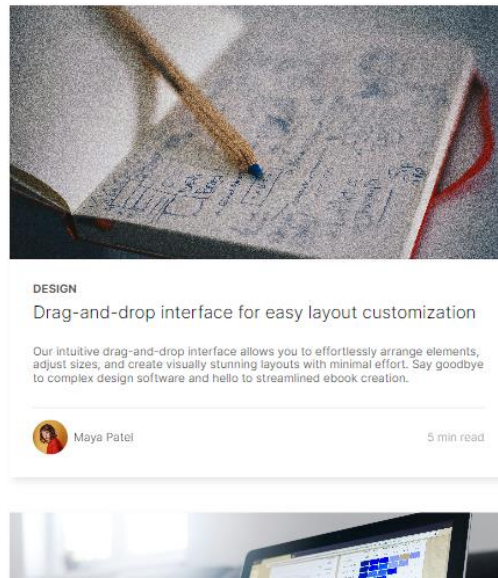


Figure 4.5.8.6: Feature Capabilities UI for screens smaller than 767px

4.5.9 Help User Interface

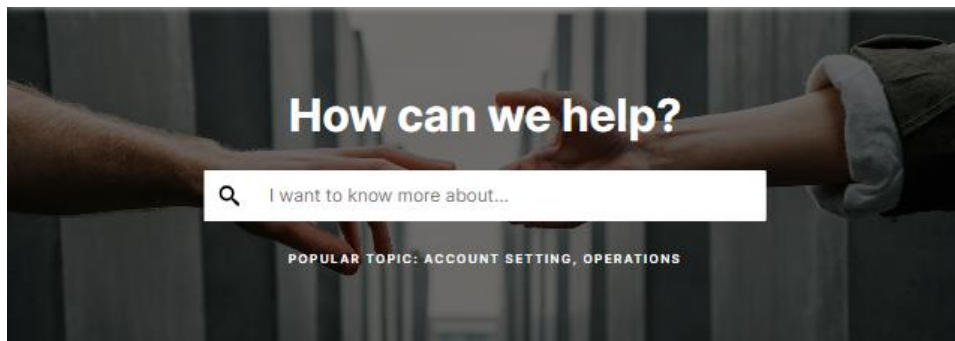


Figure 4.5.9.1: Help Search UI

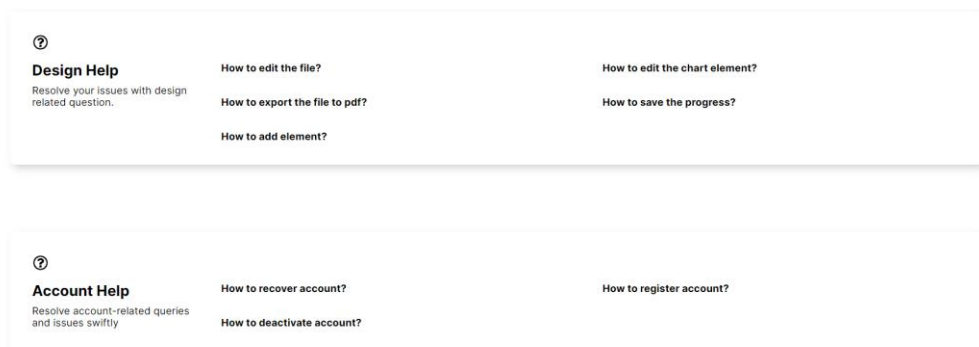


Figure 4.5.9.2: Help Guidance Overview UI

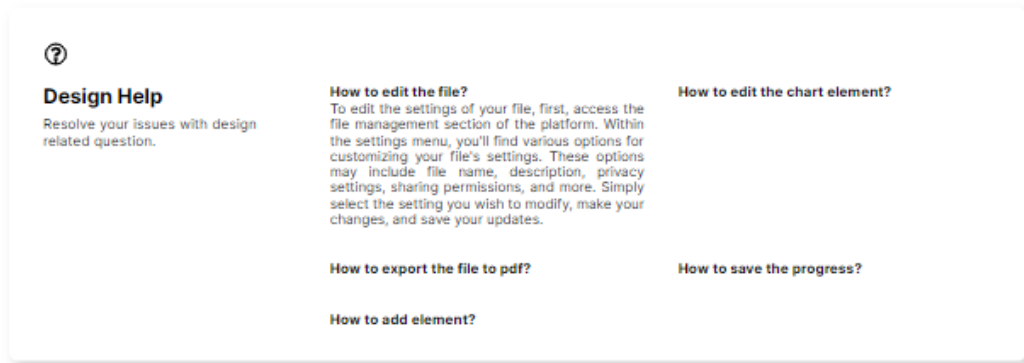


Figure 4.5.9.3: Help Guidance UI for screens larger than 991px

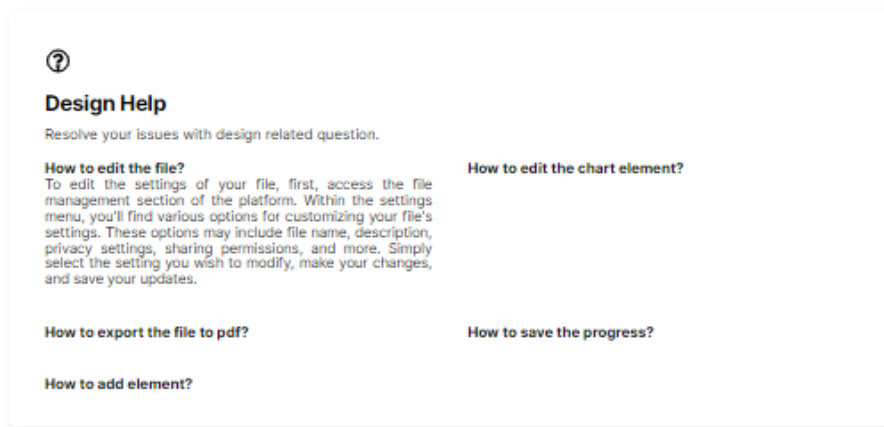


Figure 4.5.9.4: Help Guidance UI for screens between 767px and 991px

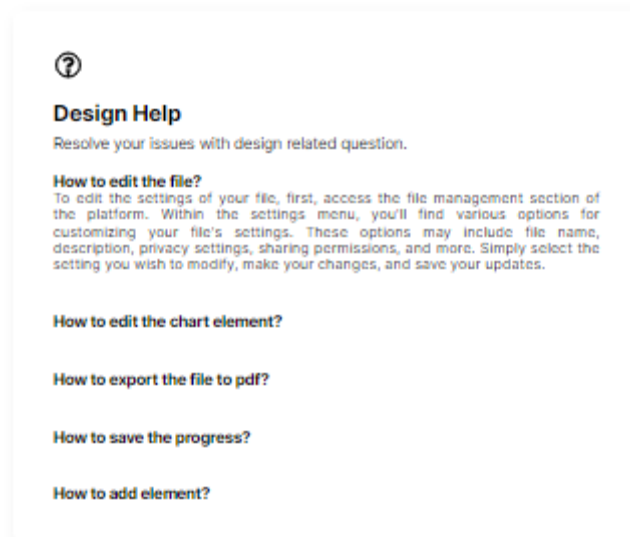


Figure 4.5.9.5: Help Guidance UI for screens smaller than 767px

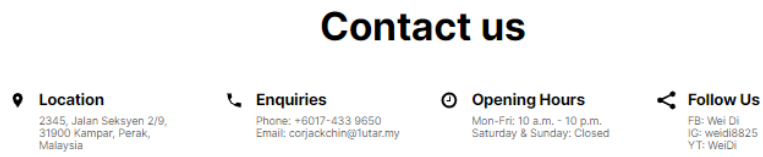


Figure 4.5.9.6: Help Contact Us UI for screens larger than 991px

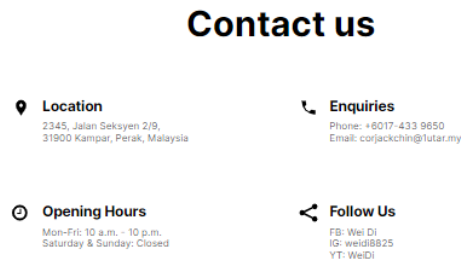


Figure 4.5.9.7: Help Contact Us UI for screens between 767px and 991px

Contact us

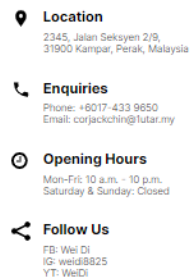


Figure 4.5.9.8: Help Contact Us UI for screens smaller than 767px

4.5.10 Login User Interface

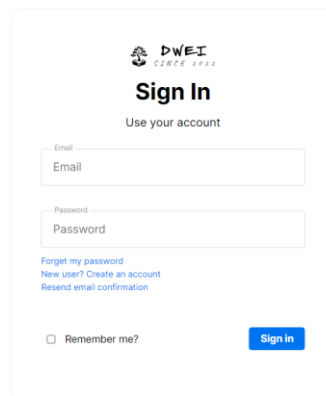
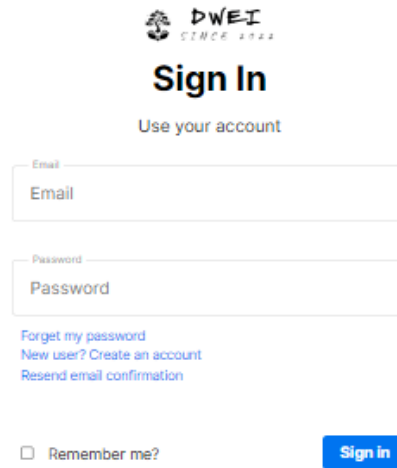


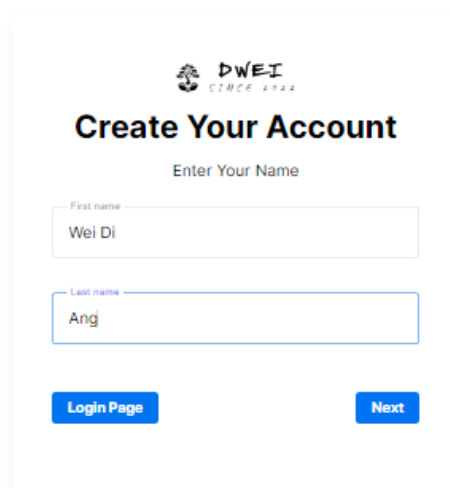
Figure 4.5.10.1: Login UI for screens larger than 767px



The image shows a mobile-optimized 'Sign In' form. At the top is the DWEL logo with the tagline 'SINCE 1922'. Below the logo is the heading 'Sign In' and the sub-heading 'Use your account'. The form contains two input fields: 'Email' and 'Password'. Below the password field are three links: 'Forgot my password', 'New user? Create an account', and 'Resend email confirmation'. At the bottom left is a checkbox labeled 'Remember me?'. At the bottom right is a blue 'Sign in' button.

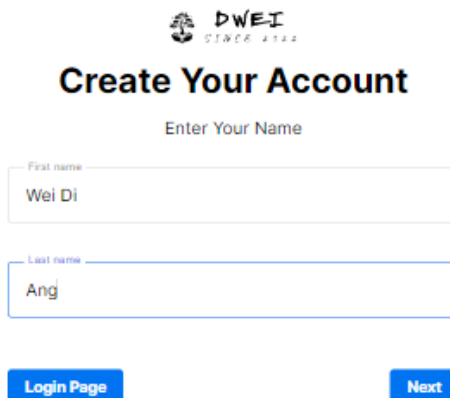
Figure 4.5.10.2: Login UI for screens smaller than 767px

4.5.11 Register User Interface



The image shows a desktop-optimized 'Create Your Account' form. At the top is the DWEL logo with the tagline 'SINCE 1922'. Below the logo is the heading 'Create Your Account' and the sub-heading 'Enter Your Name'. The form contains two input fields: 'First name' with the value 'Wei Di' and 'Last name' with the value 'Ang'. Below the input fields are two blue buttons: 'Login Page' and 'Next'.

Figure 4.5.11.1: Register Name UI for screens larger than 767px



The image shows a mobile-optimized 'Create Your Account' form. At the top is the DWEL logo with the tagline 'SINCE 1922'. Below the logo is the heading 'Create Your Account' and the sub-heading 'Enter Your Name'. The form contains two input fields: 'First name' with the value 'Wei Di' and 'Last name' with the value 'Ang'. Below the input fields are two blue buttons: 'Login Page' and 'Next'.

Figure 4.5.11.2: Register Name UI for screens smaller than 767px

The image shows a mobile registration form titled "Basic Information" for DWEL. The form asks for "Enter your birthday and gender". It features three input fields for the birthday: "Month" (a dropdown menu showing "Februar"), "Day" (a text input with "10"), and "Year" (a text input with "5000"). Below these fields is a red error message: "Birthday must be between 18 and 100 years ago". There is also a "Gender" dropdown menu with "Gender" selected and a red error message: "Select your gender". At the bottom, there are two blue buttons: "Back" and "Next".

Figure 4.5.11.3: Register Birthday and Gender UI for screens larger than 767px

The image shows a mobile registration form titled "Basic Information" for DWEL, similar to Figure 4.5.11.3 but with a different layout. It asks for "Enter your birthday and gender". The birthday fields are "Month" (dropdown "Februar"), "Day" (text input "10"), and "Year" (text input "5000"). A red error message "Birthday must be between 18 and 100 years ago" is present. The "Gender" dropdown menu shows "Gender" and a red error message "Select your gender". At the bottom are "Back" and "Next" buttons.

Figure 4.5.11.4: Register Birthday and Gender UI for screens smaller than 767px

The image shows a mobile registration form titled "How you'll sign in?" for DWEL. It asks to "Use an existing email address for signing in to our website". There is a "Username" text input field containing "email@address.com". Below the field is a small note: "You can use letters, numbers and symbols". At the bottom, there are two blue buttons: "Back" and "Next".

Figure 4.5.11.5: Register Email UI for screens larger than 767px



Figure 4.5.11.6: Register Email UI for screens smaller than 767px

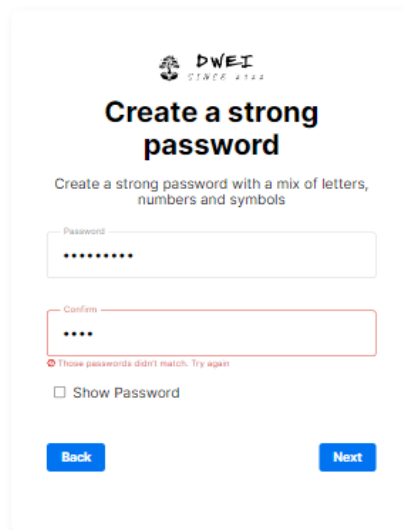


Figure 4.5.11.7: Register Password UI for screens larger than 767px

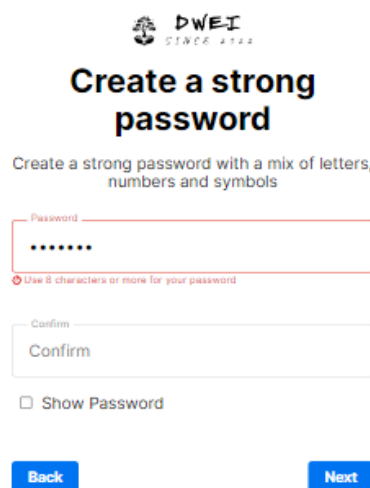


Figure 4.5.11.8: Register Password UI for screens smaller than 767px

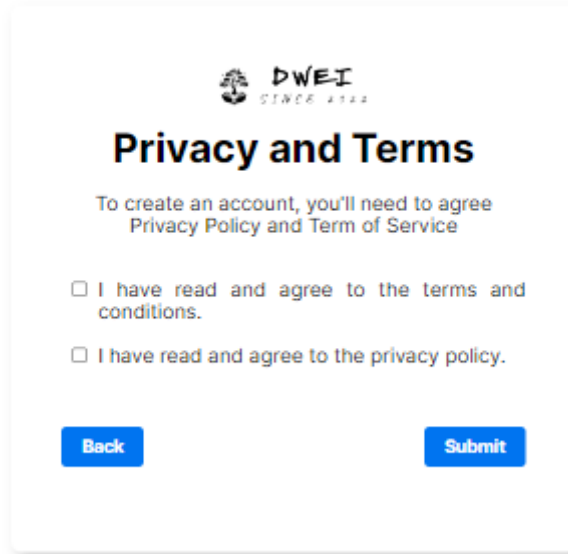


Figure 4.5.11.9: Register Privacy and Terms UI for screens larger than 767px

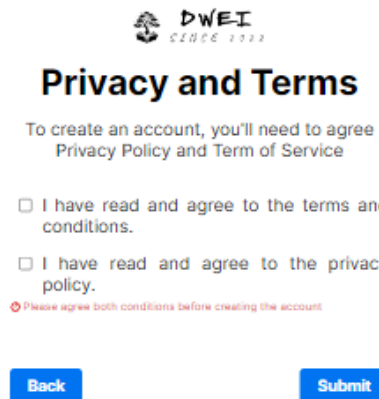


Figure 4.5.11.10: Register Privacy and Terms UI for screens smaller than 767px

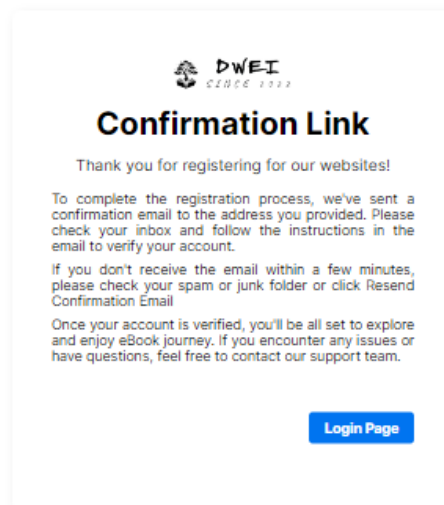


Figure 4.5.11.11: Register Success Message for screens larger than 767px

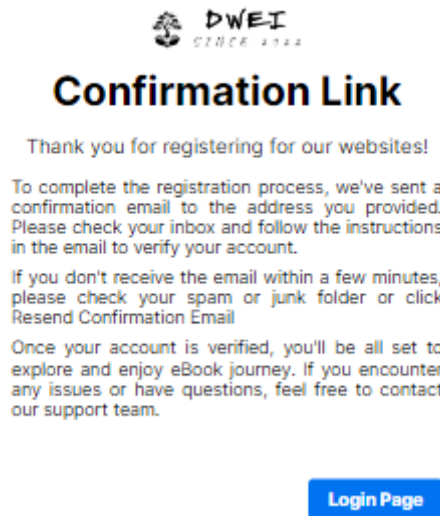


Figure 4.5.11.12: Register Success Message for screens smaller than 767px

4.5.12 Forget Password User Interface

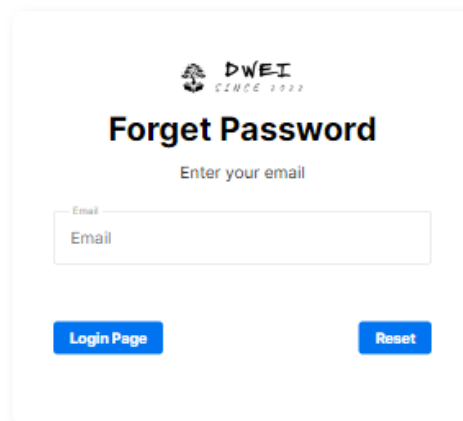


Figure 4.5.12.1: Forget Password UI for screens larger than 767px

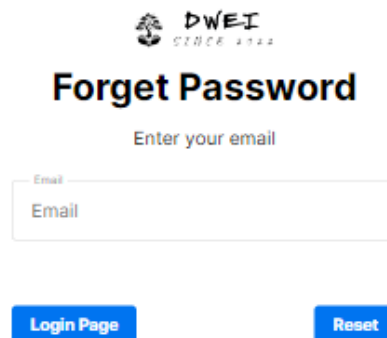


Figure 4.5.12.2: Forget Password UI for screens smaller than 767px

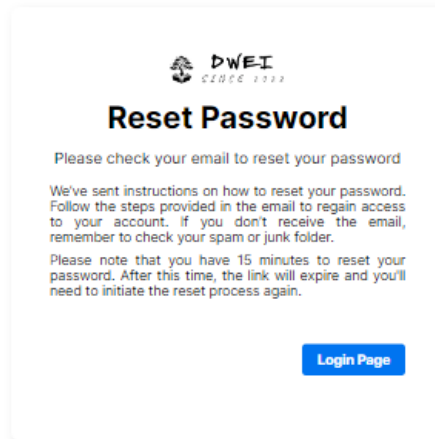


Figure 4.5.12.3: Forget Password Confirmation UI for screens larger than 767px

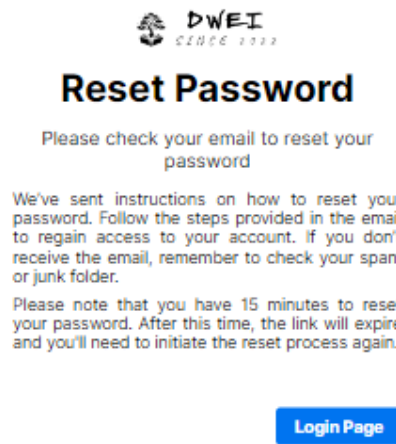


Figure 4.5.12.4: Forget Password Confirmation UI for screens smaller than 767px

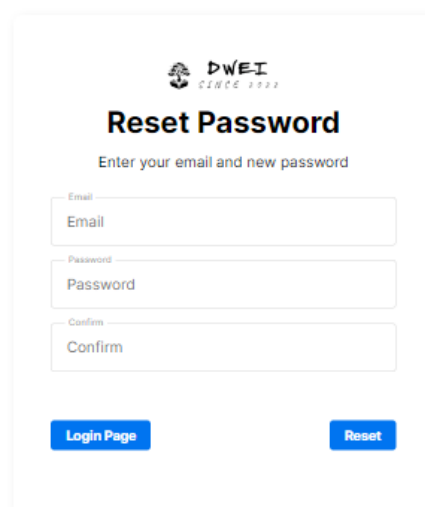
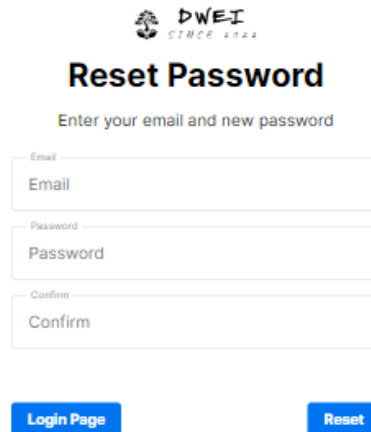


Figure 4.5.12.5: Reset Password UI for screens larger than 767px



The image shows a mobile-optimized 'Reset Password' form. At the top is the DWEL logo with the tagline 'SINCE 1922'. Below the logo is the title 'Reset Password' and the instruction 'Enter your email and new password'. The form consists of three vertically stacked input fields: 'Email', 'Password', and 'Confirm'. At the bottom of the form are two blue buttons: 'Login Page' on the left and 'Reset' on the right.

Figure 4.5.12.6: Reset Password UI for screens smaller than 767px

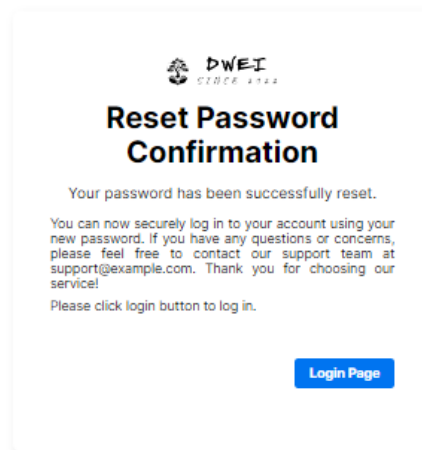


Figure 4.5.12.7: Successful Reset Password UI for screens larger than 767px

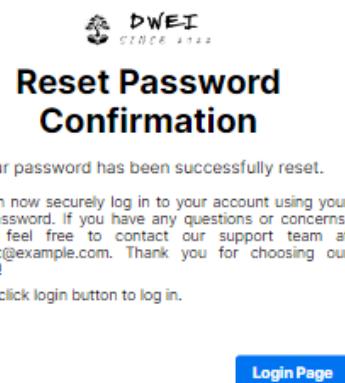


Figure 4.5.12.8: Successful Reset Password UI for screens smaller than 767px

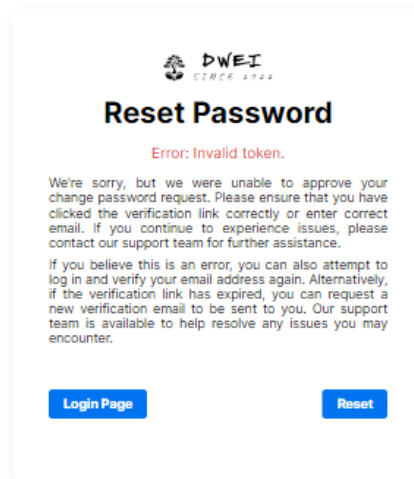


Figure 4.5.12.9: Fail Reset Password UI for screens larger than 767px

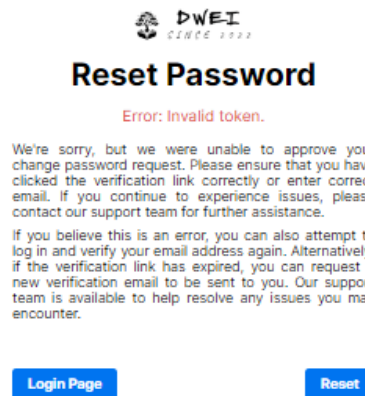


Figure 4.5.12.10: Fail Reset Password UI for screens smaller than 767px

4.5.13 Resend Email Confirmation User Interface

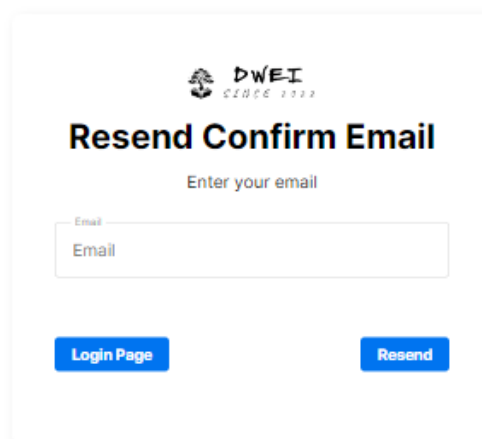


Figure 4.5.13.1: Resend Email Confirmation UI for screens larger than 767px

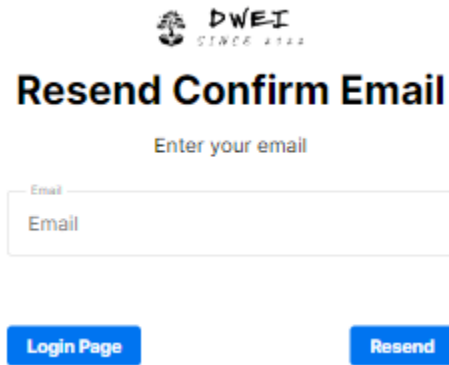


Figure 4.5.13.2: Resend Email Confirmation UI for screens smaller than 767px

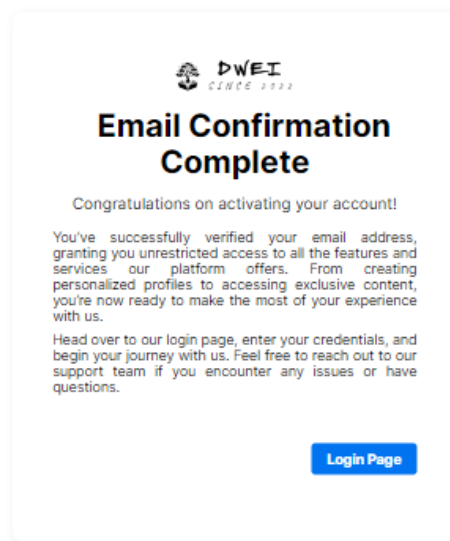


Figure 4.5.13.3: Successful Confirm Email UI for screens larger than 767px

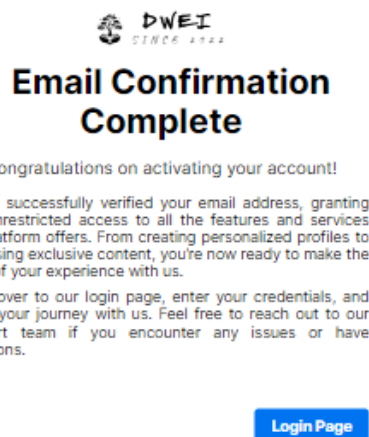


Figure 4.5.13.4: Successful Confirm Email UI for screens smaller than 767px

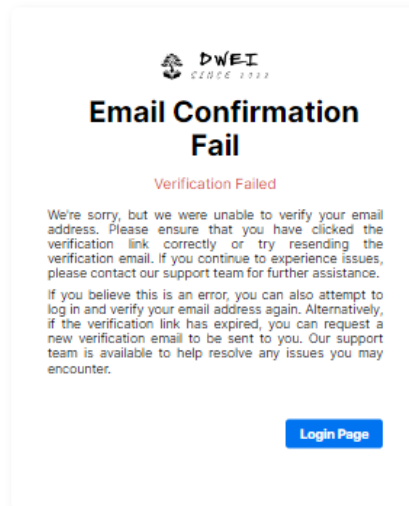


Figure 4.5.13.5: Fail Confirm Email UI for screens larger than 767px

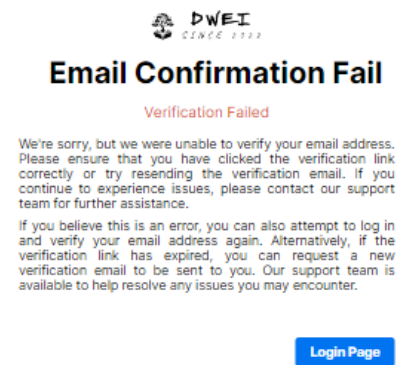


Figure 4.5.13.6: Fail Confirm Email UI for screens smaller than 767px

4.5.14 Profile Setting User Interface

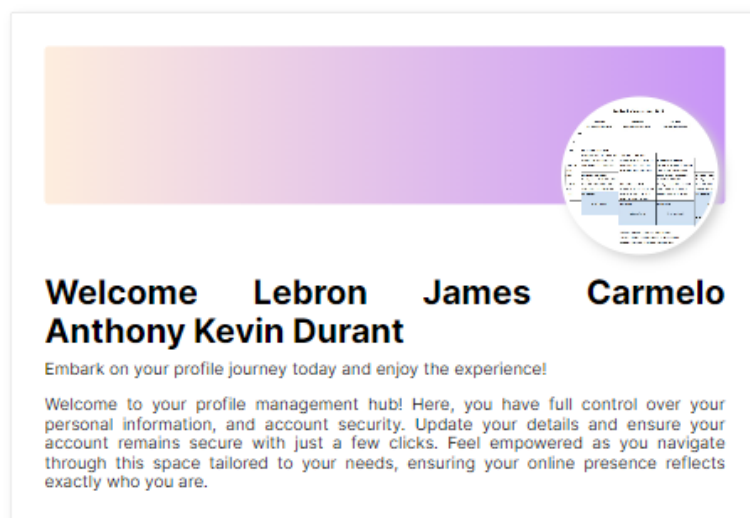


Figure 4.5.14.1: Profile Setting Welcome UI for screens larger than 767px



Figure 4.5.14.2: Profile Setting Welcome UI for screens smaller than 767px

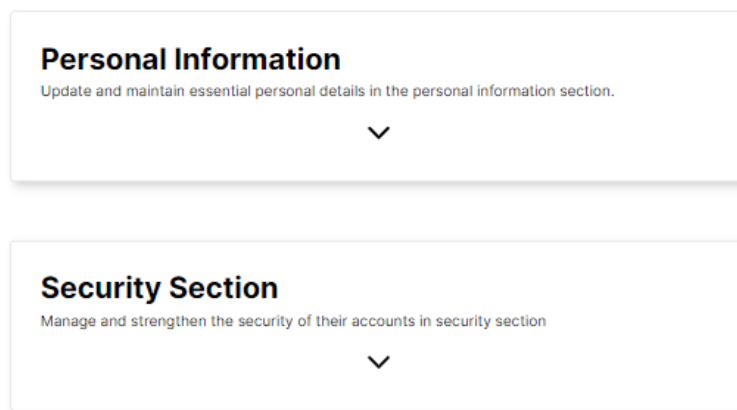


Figure 4.5.14.3: Profile Setting Content Container UI for screens larger than 767px

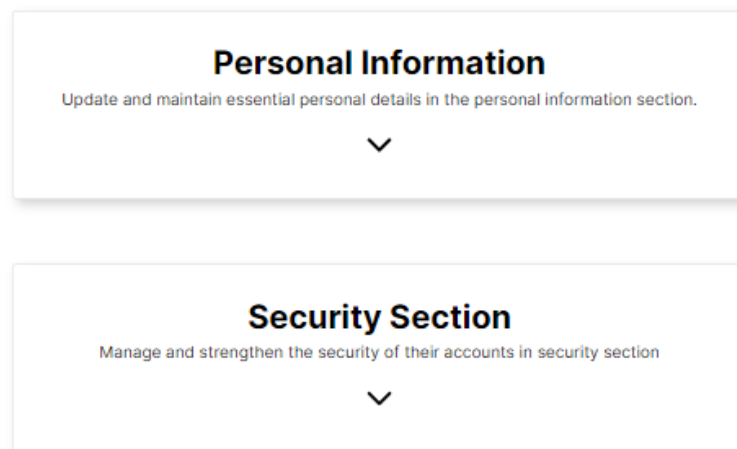
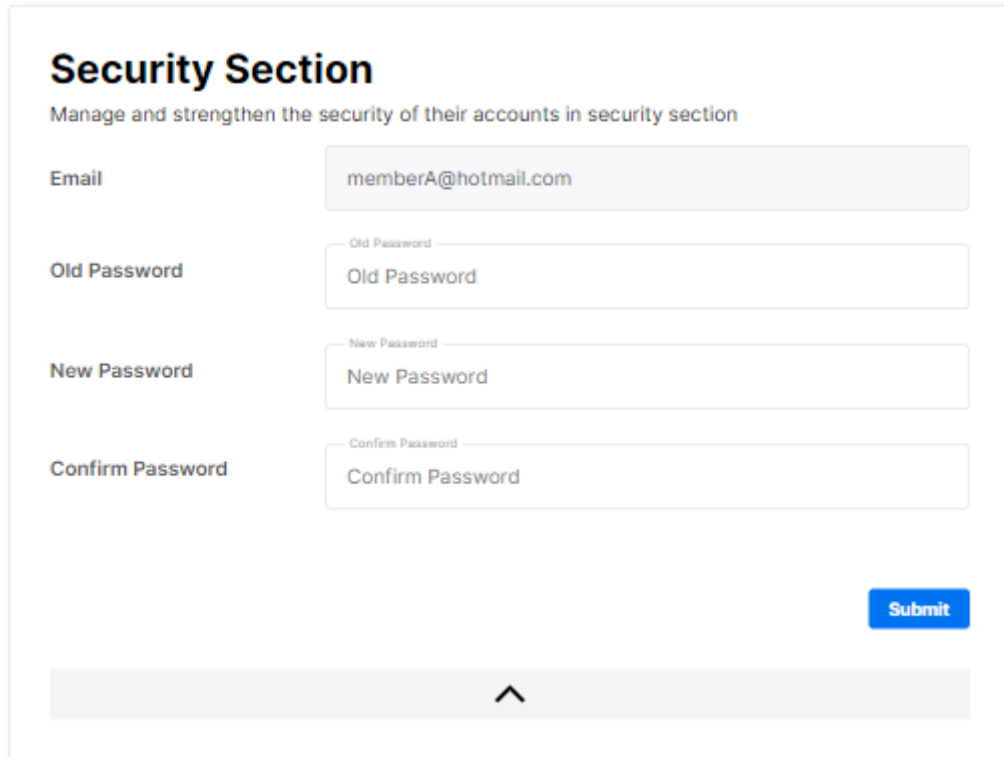


Figure 4.5.14.4: Profile Setting Content Container UI for screens smaller than 767px

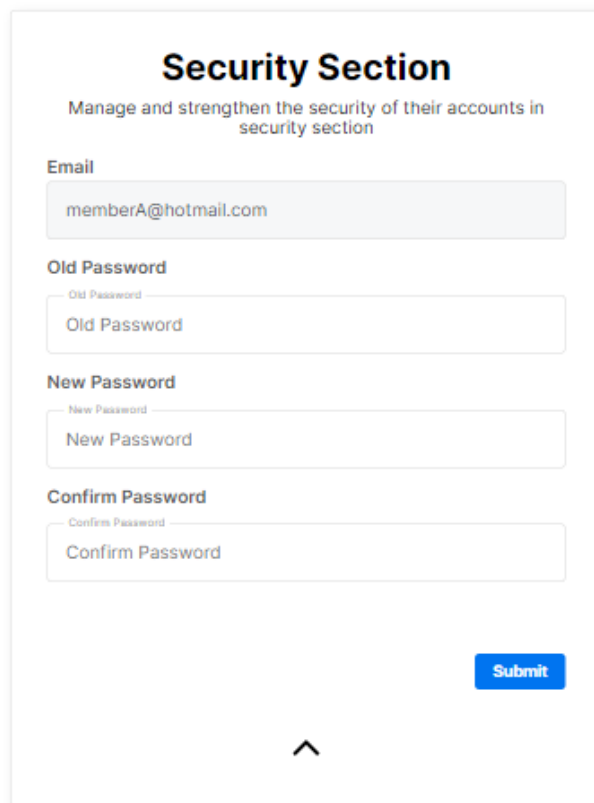
Figure 4.5.14.5: Profile Setting Personal Information Edit UI for screens larger than 767px

Figure 4.5.14.6: Profile Setting Personal Information Edit UI for screens smaller than 767px



The image shows a web form titled "Security Section" with the subtitle "Manage and strengthen the security of their accounts in security section". The form contains four input fields: "Email" (with the value "memberA@hotmail.com"), "Old Password", "New Password", and "Confirm Password". Each password field has a small label above it: "Old Password", "New Password", and "Confirm Password". A blue "Submit" button is located at the bottom right. A grey bar with an upward-pointing arrow is at the bottom center.

Figure 4.5.14.7: Profile Setting Security Edit UI for screens larger than 767px



The image shows a mobile-optimized version of the "Security Section" form. The title and subtitle are centered at the top. The form fields are stacked vertically: "Email" (with "memberA@hotmail.com"), "Old Password", "New Password", and "Confirm Password". Each password field has its label ("Old Password", "New Password", "Confirm Password") centered above the input box. A blue "Submit" button is at the bottom right. A grey bar with an upward-pointing arrow is at the bottom center.

Figure 4.5.14.8: Profile Setting Security Edit UI for screens smaller than 767px

4.5.15 Dashboard User Interface

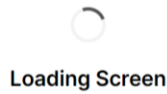


Figure 4.5.15.1: Dashboard Loading Screen UI

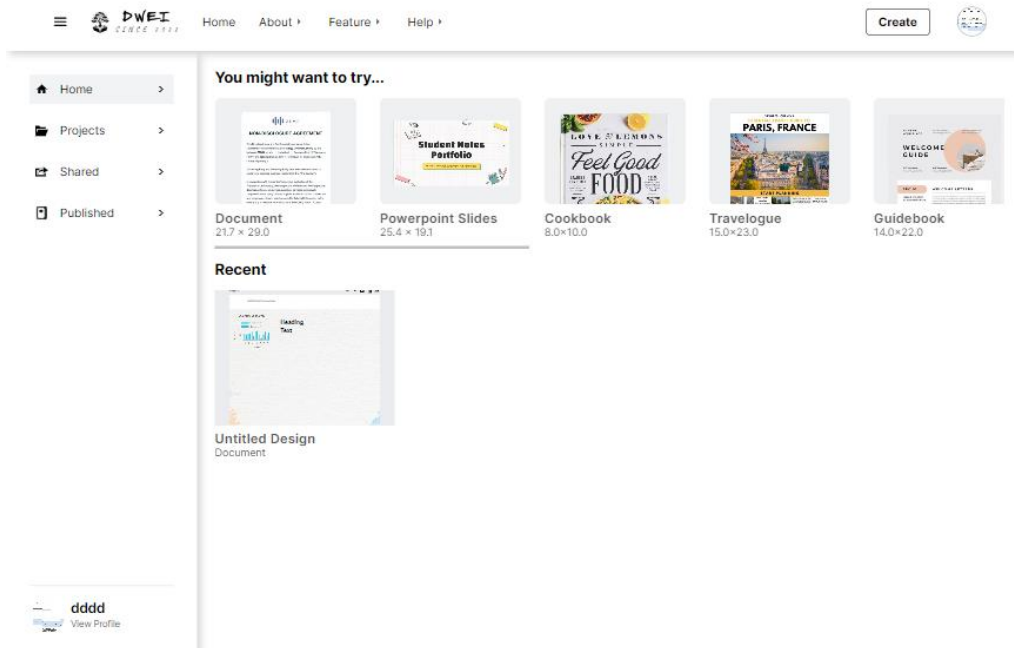


Figure 4.5.15.2: Dashboard Sidebar UI for screens larger than 991px

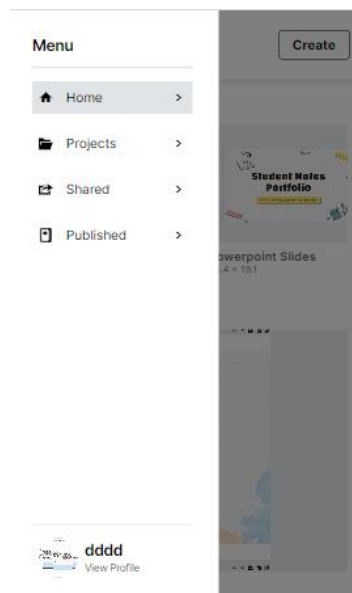


Figure 4.5.15.3: Dashboard Sidebar UI for screens smaller than 991px

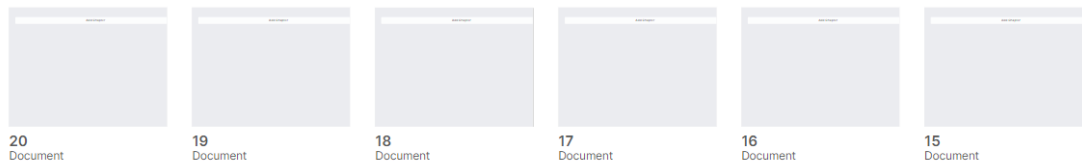


Figure 4.5.15.4: Dashboard 6 Grid Item UI

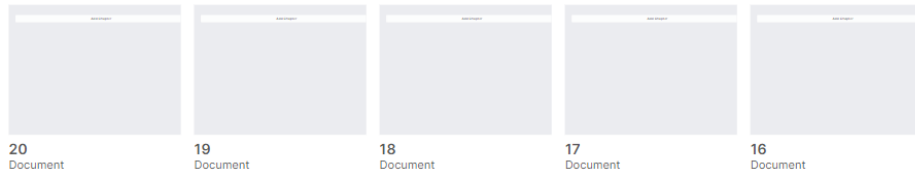


Figure 4.5.15.5: Dashboard 5 Grid Item UI



Figure 4.5.15.6: Dashboard 4 Grid Item UI



Figure 4.5.15.7: Dashboard 3 Grid Item UI



Figure 4.5.15.8: Dashboard 2 Grid Item UI

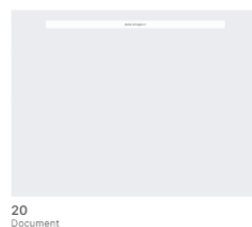


Figure 4.5.15.9: Dashboard 1 Grid Item UI



Figure 4.5.15.10: Dashboard Filter UI for screens larger than 1200px

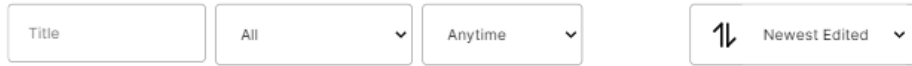


Figure 4.5.15.11: Dashboard Filter UI for screens between 767px and 1200px



Figure 4.5.15.12: Dashboard Filter UI for screens smaller than 767px



Figure 4.5.15.13: Dashboard Paginated List UI

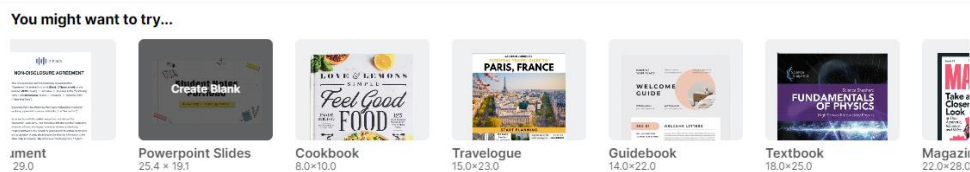


Figure 4.5.15.14: Dashboard Home Recommend List UI for normal screen

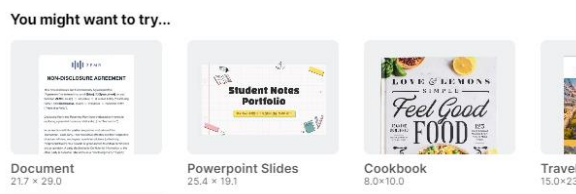


Figure 4.5.15.15: Dashboard Home Recommend List UI for mobile screen

Here is the title Here is the title Here is the title Here is th...	memberA@hotmail.com	7/4/2024 3:43:07 PM	Approve	Reject
Here is the title Here is the title Here is the title Here is th...	memberA@hotmail.com	7/4/2024 3:43:07 PM	Approve	Reject
Here is the title Here is the title Here is the title Here is th...	memberA@hotmail.com	7/4/2024 3:43:07 PM	Approve	Reject
Here is the title Here is the title Here is the title Here is th...	memberA@hotmail.com	7/4/2024 3:43:07 PM	Approve	Reject

Figure 4.5.15.16: Dashboard Management List UI for screens larger than 1200px

CHAPTER 4

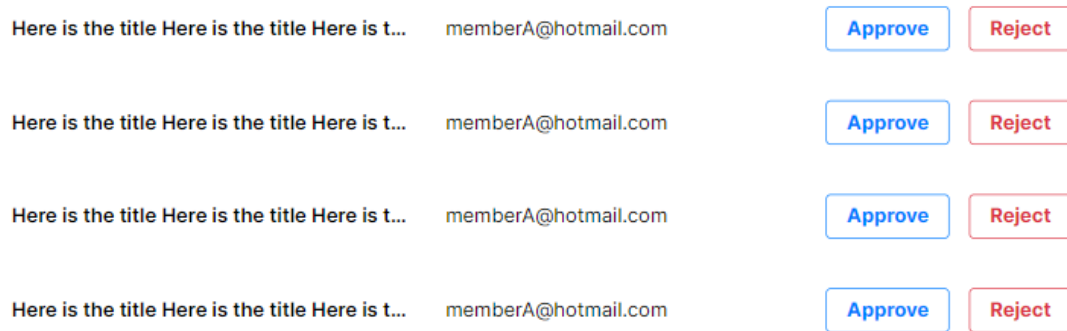


Figure 4.5.15.17: Dashboard Management List UI for screens between 767px and 1200px

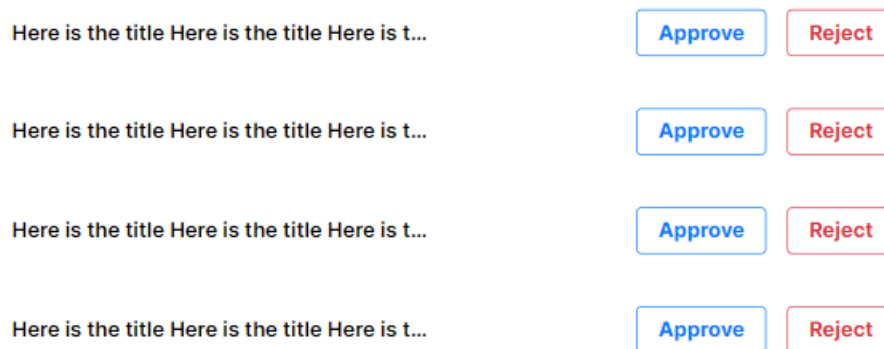


Figure 4.5.15.18: Dashboard Management List UI for screens between 479px and 767px



Figure 4.5.15.19: Dashboard Management List UI for screens smaller than 479px

File Setting
Streamline file details and information management effortlessly with file setting

Title
Title
1

Type
Type
Document

Description
Description
eBook related to Document

Size
Width: 217, Height: 290

Status
Status
REVIEWED

Author
Author
memberA@hotmail.com

Last Modified Time
Last Modified Time
7/4/2024 3:43:07 PM

Submit

Figure 4.5.16.3: File Setting Edit eBook UI for screens larger than 767px

File Setting
Streamline file details and information management effortlessly with file setting

Title
Title
1

Type
Type
Document

Description
Description
eBook related to Document

Size
Width: 217, Height: 290

Status
Status
REVIEWED

Author
Author
memberA@hotmail.com

Last Modified Time
Last Modified Time
7/4/2024 3:43:07 PM

Figure 4.5.16.4: File Setting Edit eBook UI for screens smaller than 767px

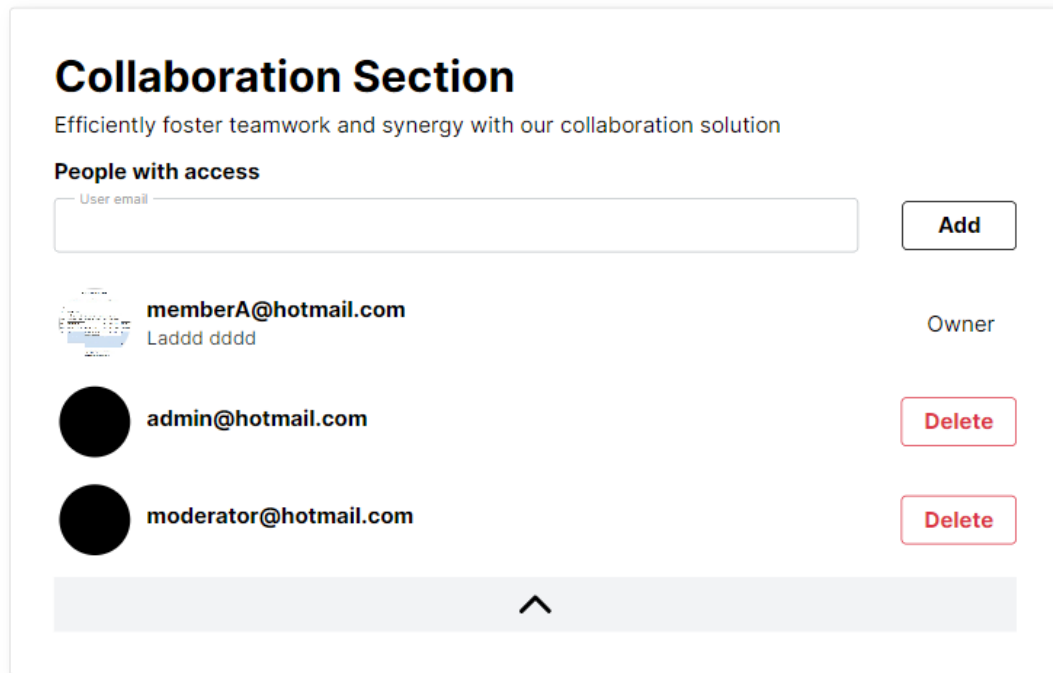


Figure 4.5.16.5: File Setting Collaboration UI for screens larger than 767px

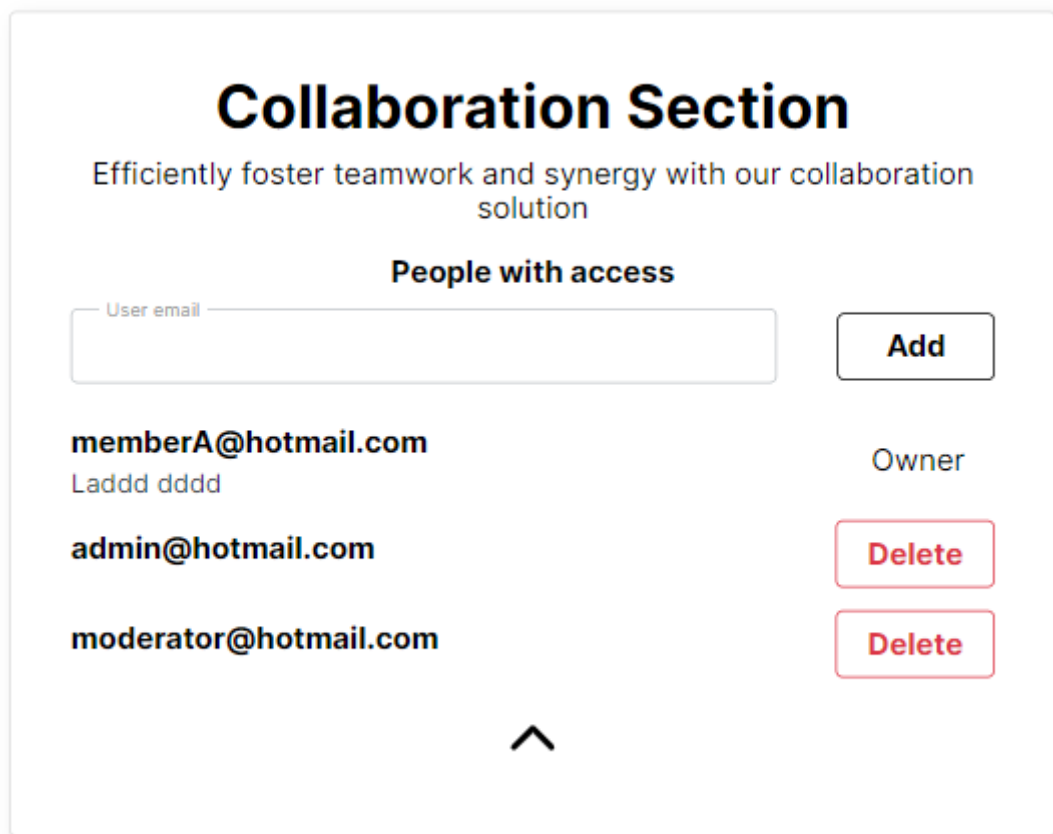


Figure 4.5.16.6: File Setting Collaboration UI for screens smaller than 767px

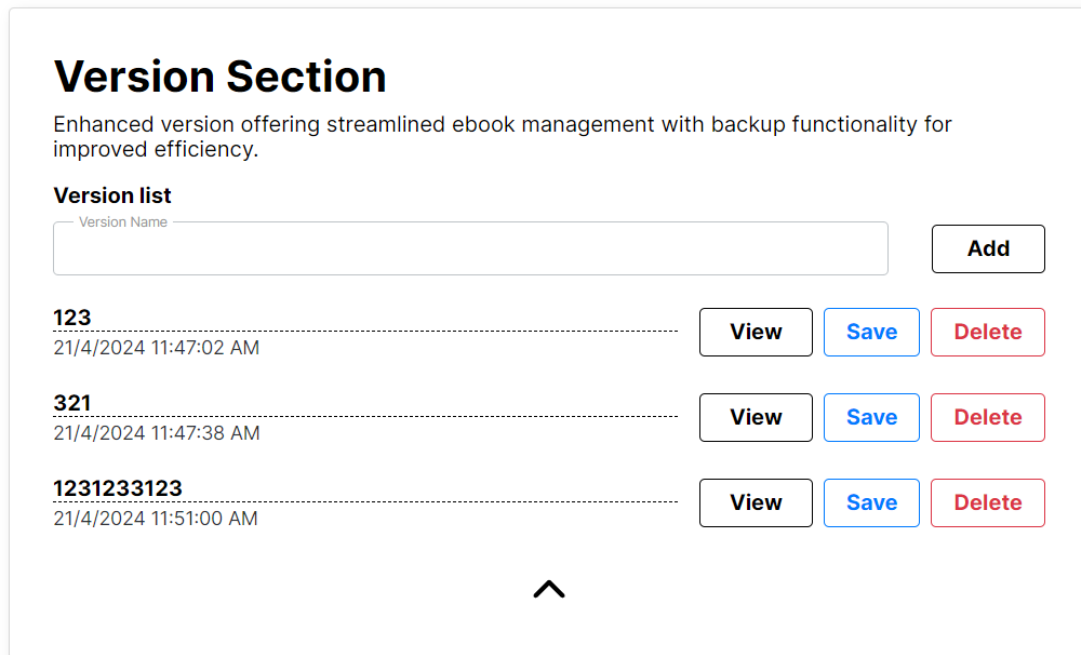


Figure 4.5.16.7: File Setting Version UI for screens larger than 767px

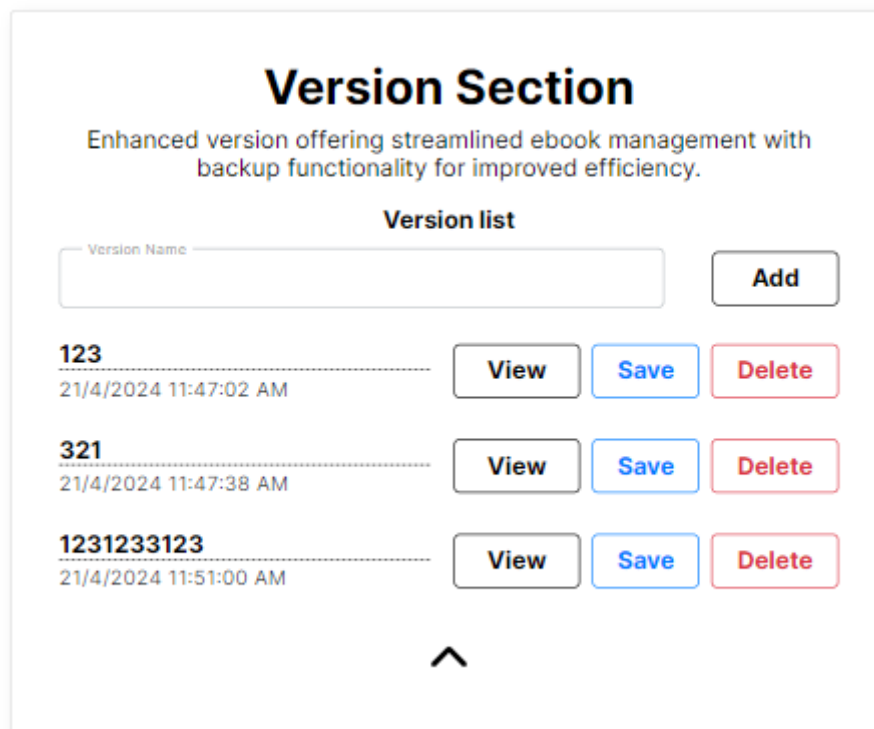


Figure 4.5.16.8: File Setting Version UI for screens between 479px and 767px

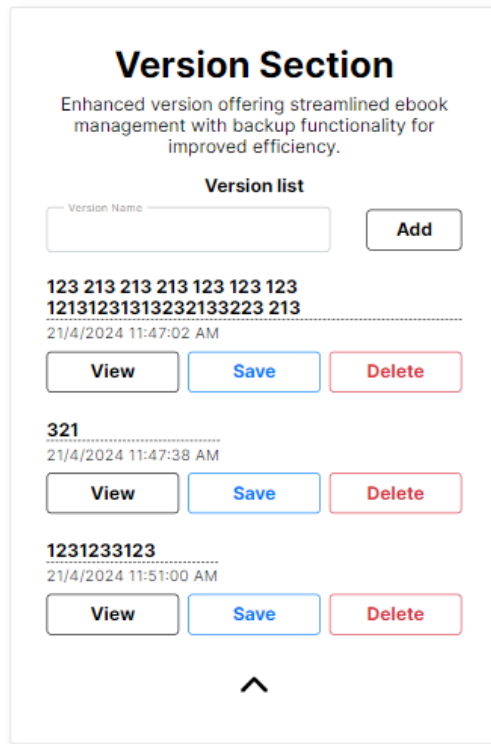


Figure 4.5.16.9: File Setting Version UI for screens smaller than 479px

4.5.17 Version Content and Published Content User Interface

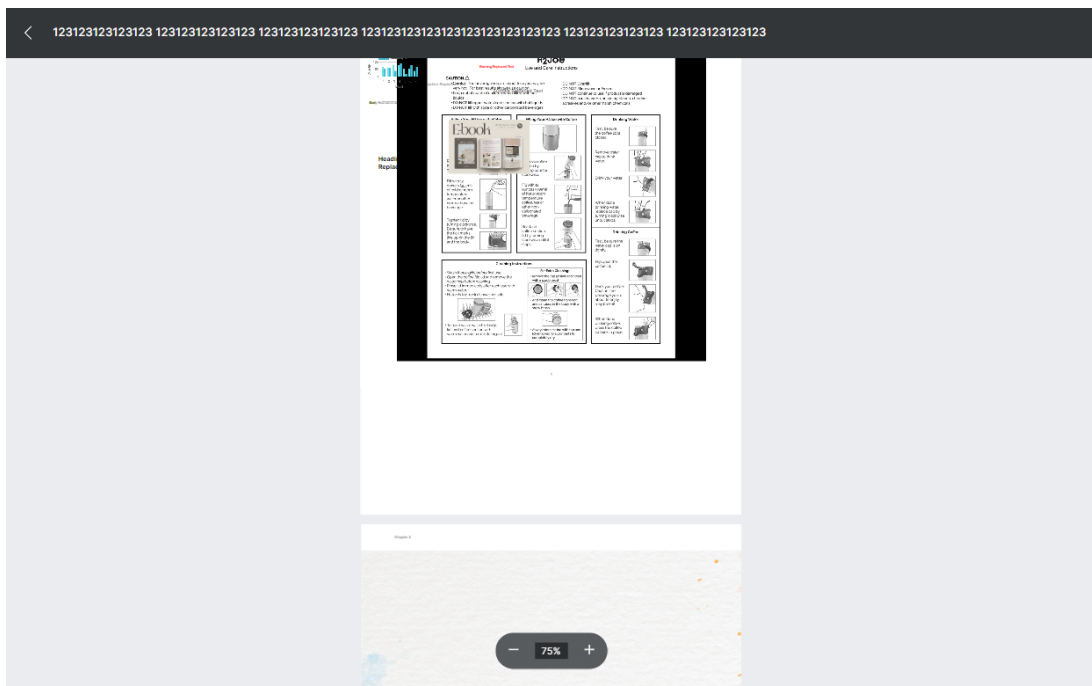


Figure 4.5.17.1: Version Content and Published Content UI for normal screen

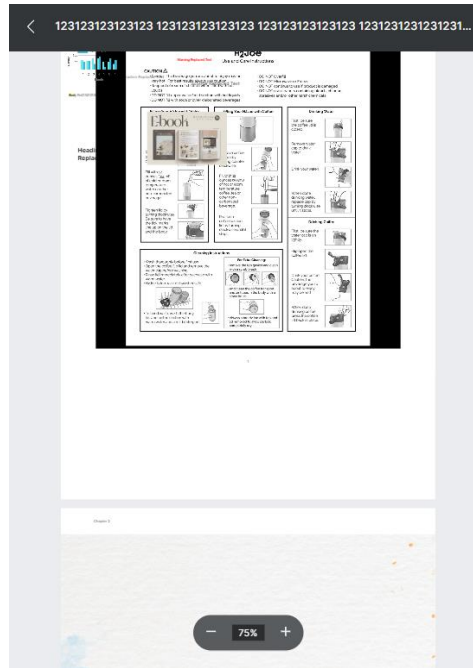


Figure 4.5.17.2: Version Content and Published Content UI for mobile screen

4.5.18 Design User Interface



Figure 4.5.18.1: Design Header UI for screens larger than 991px



Figure 4.5.18.2: Design Header UI for screens between 767px and 991px



Figure 4.5.18.3: Design Header UI for screens smaller than 767px

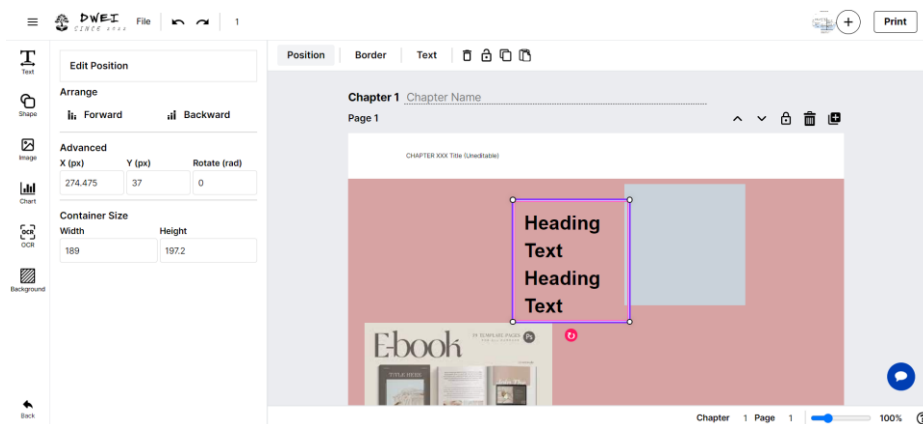


Figure 4.5.18.4: Design UI for screens larger than 767px

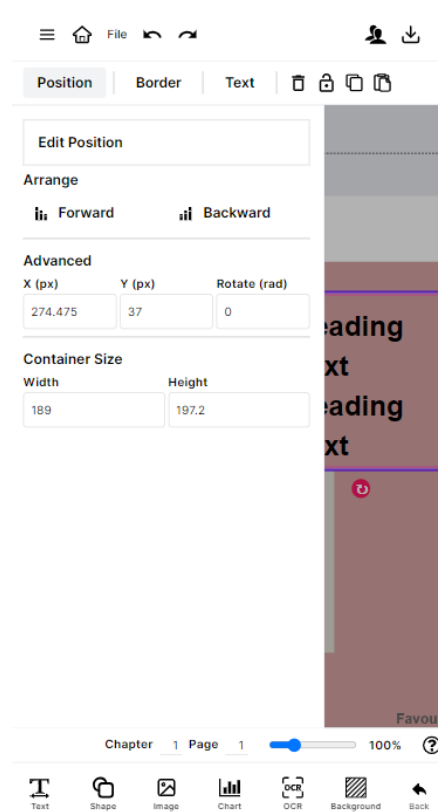


Figure 4.5.18.5: Design UI for screens smaller than 767px

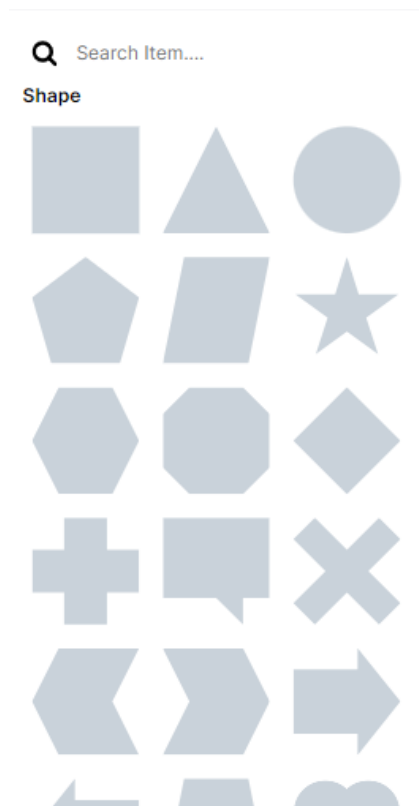


Figure 4.5.18.6: Design Add Shape UI

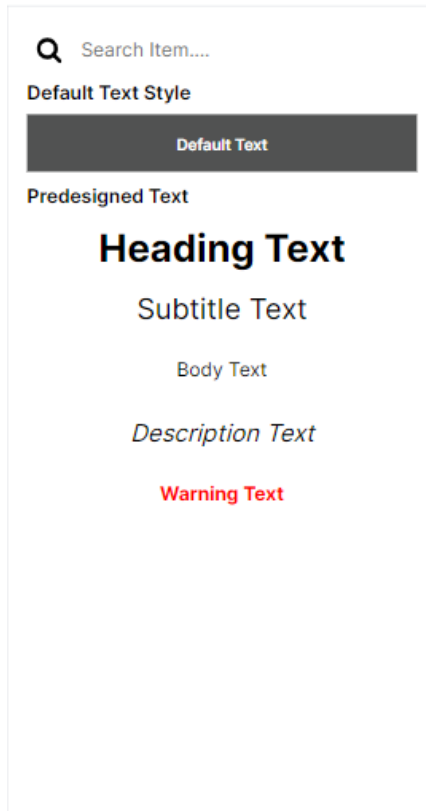


Figure 4.5.18.7: Design Add Text UI



Figure 4.5.18.8: Design Add Image UI

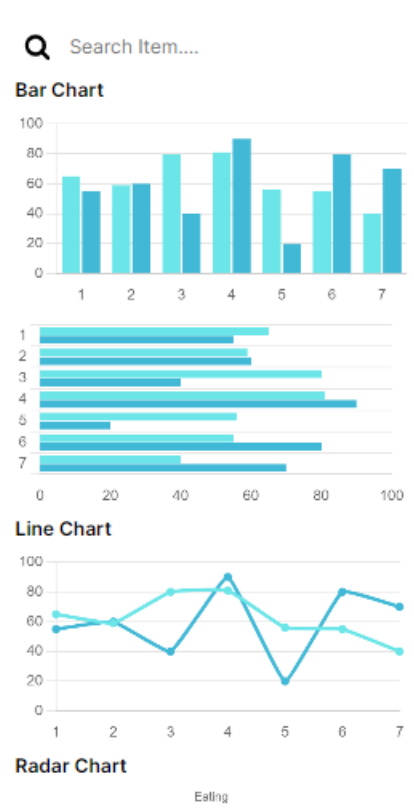


Figure 4.5.18.9: Design Add Chart UI



Figure 4.5.18.10: Design OCR UI

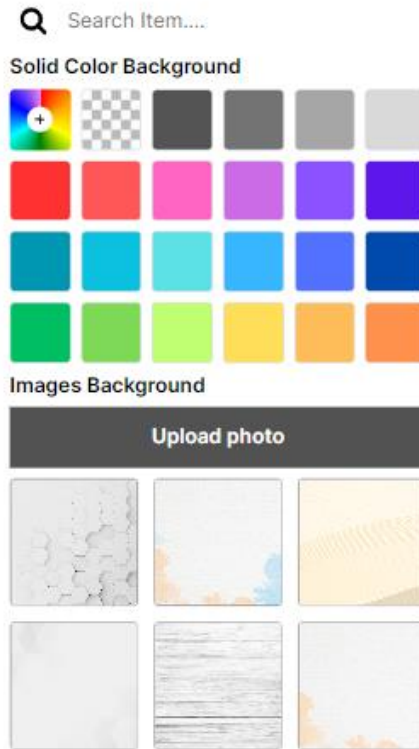


Figure 4.5.18.11: Design Add Background UI

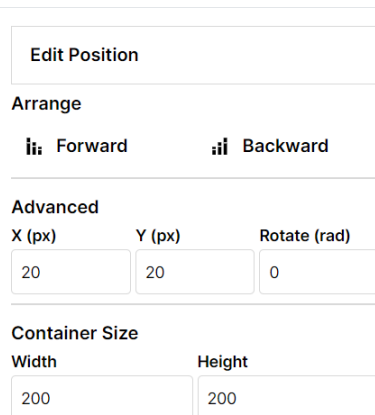


Figure 4.5.18.12: Design Edit Position UI

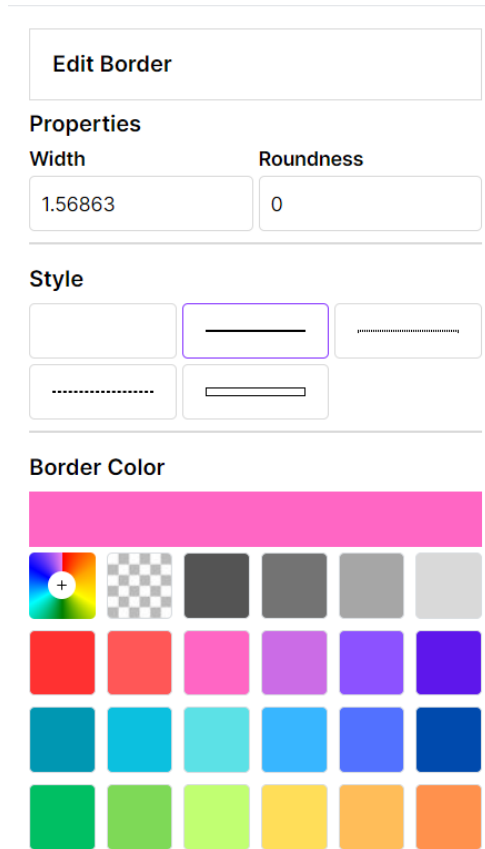


Figure 4.5.18.13: Design Edit Border UI

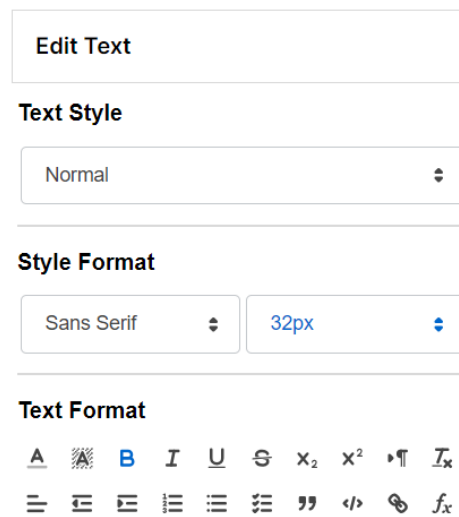


Figure 4.5.18.14: Design Edit Text UI

Edit Chart

Chart Information

Quantity vs Month

X	Month
Y	Quantity

Labels

1	6	🗑
---	---	---

Add label row

Data

■	Company A	🗑
1	55	
■	Company B	🗑
1	80	

Add dataset

Setting

Show title

Show legend

Show gridline

Show axis title

Figure 4.5.18.15: Design Edit Chart Type I UI

Edit Chart

Chart Information

Favourite Colour

Labels

■	Red	🗑
■	Blue	🗑
■	Yellow	🗑
■	Purple	🗑

Add label row

Data

1	300
2	50
3	100
4	80

Setting

Show title

Show legend

Figure 4.5.18.16: Design Edit Chart Type II UI

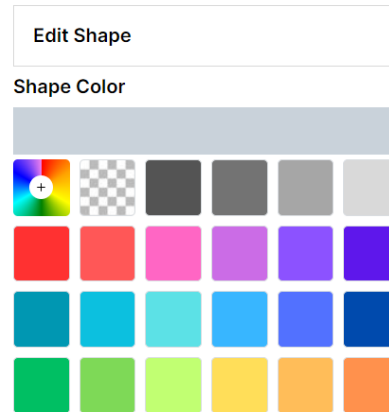


Figure 4.5.18.17: Design Edit Shape UI

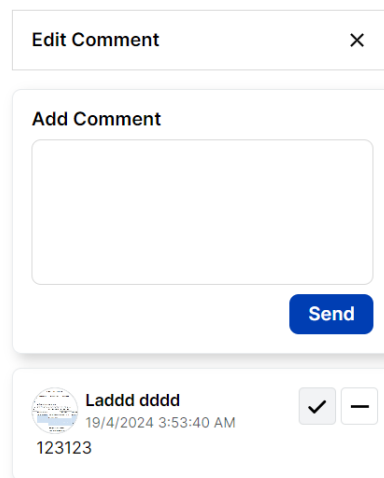


Figure 4.5.18.18: Design Comment UI

Find and Replace Text ×

Find

Replace

Replace All

Figure 4.5.18.19: Design Find and Replace Text UI

CHAPTER 5

System Implementation

In this chapter, it outlines the deployment process for developers and details the tutorials to setup the website for users' use. On the other hand, it has the comprehensive documentation which provided for users to access services. Furthermore, it will further describe the system capabilities like the available interaction between the user and the system. Lastly, it discusses the challenges task during the implementation stages.

5.1 Developer Setup

The most fundamental requirement of deploying the web service is has one Microsoft Account which serves as gateway to access Microsoft deployment services. With this account, they can access a wide range of resources necessary for deploying their services like website and database after subscribing to Microsoft Services. Afterwards, developers can access Azure Services page to create a resource group to centralize all the related resources required for the eBook Maker website to ease the management and organization. During the creation process, the developers can select their preferred pricing tiers based on their project requirements and budget. In addition, they should complete the necessary information according to the instruction to configure the deployment aspects. Subsequently, the webpage will show a sample page act as a successful implementation of the web services.

Next, the developers require to download the source code from GitHub and utilize the Visual Studio to publish and deploy the app services, leveraging its integrated development environment for seamless deployment. Following similar steps, they create the database, selecting the access control, defining website specifications, configuring security controls through firewall settings and authentication mechanisms, after completing all procedures, they proceed to change the connection string to point to the online database location which indicates the website if fully deployed and ready for use. Finally, the Microsoft will send a monthly bill to them to maintain access to these services.

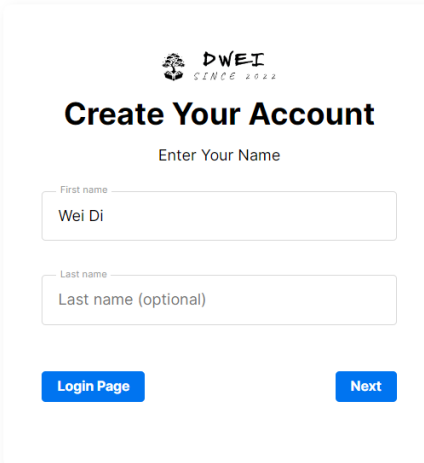
5.2 User Setup

First, users must possess a device that can connect to the Internet. Furthermore, they should expose under the Wi-Fi area to enable their device to connect to Wi-Fi network. Next, they require to utilize the web browser like Google, Mozilla Firefox, Microsoft Edge or many others to access the web services. Afterwards, they must have one verified email to meet the minimum registration requirement. Then, they must fill in the information and submit the registration request according to the instruction. The system will send one email to the user for account activation. They can enter their account information and enjoy the web services after clicking the confirmation link and activation the account.

5.3 System Operation

5.3.1 Account Management Flow

The Account Management Flow gathers the steps related to the user accounts. Initially, users must create an account before logging into the system. The users can navigate themselves to the registration page from any location such as header or sidebar. After reaching the registration page, users are prompted to input the basic information as shown in Figure 5.3.1.1. Basic validation rules apply to the input like mandatory input for the first name input as indicated in Figure 5.3.1.2 and prohibition of numbers and symbols in first name field. Meanwhile, the last name field is optional.



The image shows a registration form titled "Create Your Account" for DWET (SINCE 2022). The form prompts the user to "Enter Your Name". It contains two input fields: "First name" with the text "Wei Di" and "Last name" with the text "Last name (optional)". At the bottom of the form, there are two buttons: "Login Page" and "Next".

Figure 5.3.1.1: Valid First Name Field

First name

First Name

Enter first name

Figure 5.3.1.2: Null First Name Field

Subsequently, the users proceed to the input their birthday and gender information in the next form as shown in the Figure 5.3.1.3. Furthermore, the basic validation rule for both birthday and gender input like non-nullable requirements as shown in Figure 5.3.1.4. The birthday date is subject to additional rules like ensuring the day is valid for the selected month as indicated in Figure 5.3.1.5, year falls within the range of 18 to 100 years old and only allowing numerical input as depicted in Figure 5.3.1.6.

DWEI
SINCE 2022

Basic Information

Enter your birthday and gender

Month: April | Day: 13 | Year: 2000

Gender: Other

Back Next

Figure 5.3.1.3: Valid Birthday and Gender Field

Month: | Day: | Year: |

Gender: |

Please complete the birthday date

Select your gender

Figure 5.3.1.4: Null Birthday and Gender Field

Month: May | Day: 13 | Year: 2024

Birthday must be between 18 and 100 years ago

Figure 5.3.1.5: Invalid Birthday Year

Month: May | Day: 50 | Year: 2024

⊗ Invalid day for the selected month

Figure 5.3.1.6: Invalid Birthday Date

Afterwards, the user requires to enter their existing email address for future sign-in to the website as illustrated in Figure 5.3.1.7. In addition, the system validates the email field to ensure it is non-nullable field, in a valid format and not duplicated as shown in Figure 5.3.1.8, 5.3.9 and 5.3.10.

DWEI
SINCE 2022

How you'll sign in?

Use an existing email address for signing in to our website

Username: corjackchin13@gmail.com

You can use letters, numbers and symbols

Back Next

Figure 5.3.1.7: Valid Email Address Field

Username: email@address.com

⊗ Please complete the email address

Figure 5.3.1.8: Null Email Address Field

Username: 123

⊗ Invalid email address format

Figure 5.3.1.9: Invalid Email Address Format

Username: corjackchin@1utar.my

⊗ Email has been taken

Figure 5.3.1.10: Email Duplication Error

Next, users are requested to fill in the password for their account which is mandatory with a mix of letters, numbers and symbols as illustrated in Figure 5.3.1.11. Furthermore, there is a lists of validation rule including non-nullable input, minimum length of 8 characters, a strong password with a minimum of letters, numbers and symbols, and ensuring the password matches the confirm password field as shown in Figure 5.3.1.12, 5.3.1.13, 5.3.1.14, and 5.3.1.15 accordingly.

Figure 5.3.1.11: Valid Password Field Input

Figure 5.3.1.12: Null Password Field

Figure 5.3.1.13: Short Password Error

Figure 5.3.1.14: Weak Password Error

Figure 5.3.1.15: Password Not Matching Error

Additionally, the user requires to agree to both the privacy and terms after reading that information to create the account as shown in Figure 5.3.1.16 and prompt the successful registration message as displayed in Figure 5.3.1.17. Otherwise, it will prompt the error message as shown in Figure 5.3.1.18.

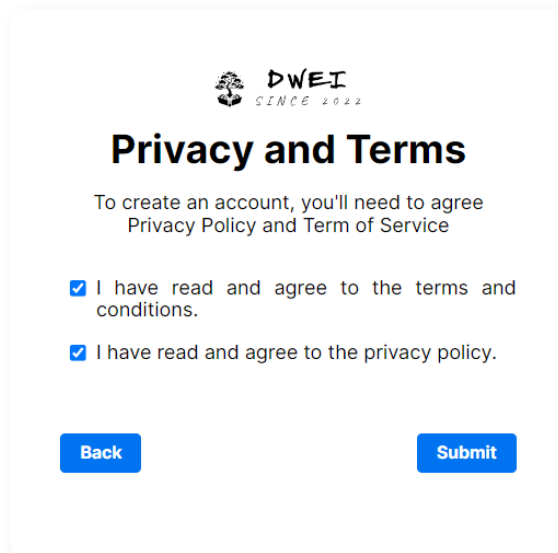


Figure 5.3.1.1.16: Privacy and Terms Agreement Checked

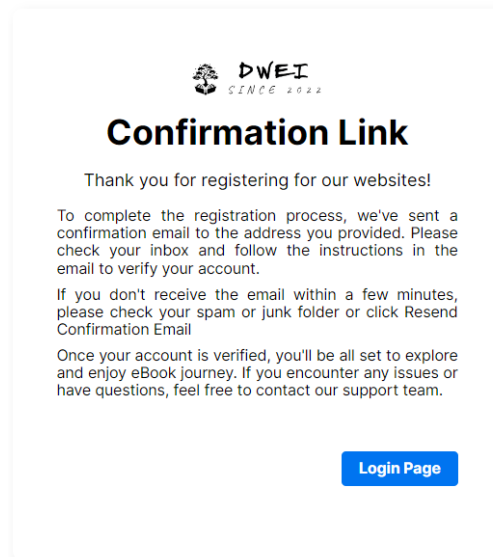


Figure 5.3.1.17: Account Registration Confirmation

- I have read and agree to the terms and conditions.
 - I have read and agree to the privacy policy.
- ⊘ Please agree both conditions before creating the account

Figure 5.3.1.18: Privacy and Terms Agreement Not Checked Error

Next, the system will utilize the official account to send an email address to the prompted email address as shown in Figure 5.3.1.19. The users require to click the link to activate their account as shown in Figure 5.3.1.20. If the activation link is not used within 15 minutes, it will expire and display a message as shown in Figure 5.3.1.21. If the activation link is expired, the user can prompt to resend the email confirmation. This process follows the same validation rule with the previous email input with an additional rule to check whether the email is activated or not. The successful resend confirmation email is displayed in Figure 5.3.1.22, whereas the failure is shown in Figure 5.3.1.23.

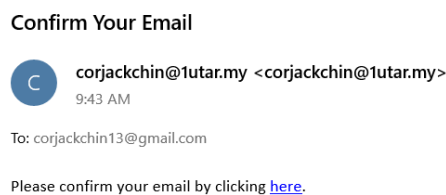


Figure 5.3.1.19: Activation Link Sent to the Prompted Email Address

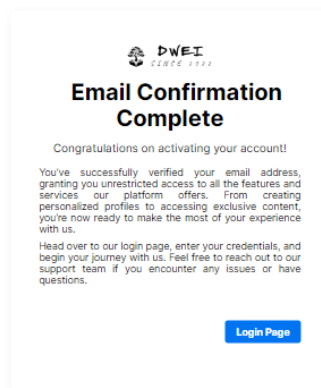


Figure 5.3.1.20: Account Successfully Activated

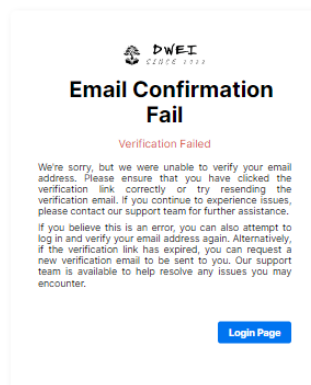


Figure 5.3.1.21: Account Activation Failed

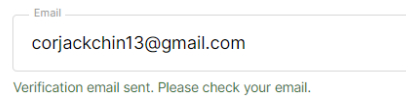


Figure 5.3.1.22: Successfully Resend Activation Email

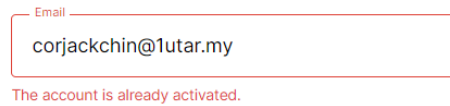


Figure 5.3.1.23: Resend Activation Email Failed

After the account activation, the user may forget their password and unable to login to their account. Therefore, the website provides a “forget password” mechanism with secure measures in place. The validation rule for this mechanism is similar to the previous input, requiring a valid email address and being non-nullable. However, no matter the email address is registered or not, it will prompt successfully send password to protect the account and show the message in Figure 5.3.1.24. Upon clicking the link and following the instructions, the user can change their password which adhering the validation rules as shown in the Figure 5.3.1.25. A successful message is displayed in Figure 5.3.1.26 whereas a failure message is shown in Figure 5.3.1.27 because of non-matching email address, invalid token, expired link and many others.

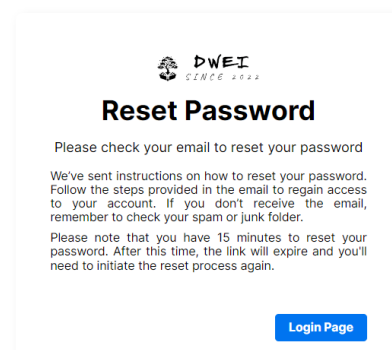


Figure 5.3.1.24: Reset Password Confirmation Message

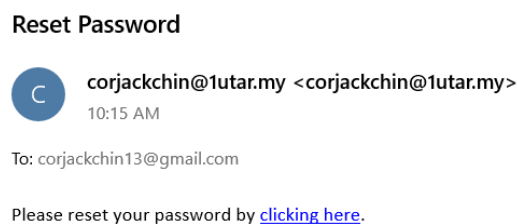


Figure 5.3.1.25: Reset Password Link Sent to the Prompted Email Address

Bachelor of Information Systems (Honours) Information Systems Engineering
Faculty of Information and Communication Technology (Kampar Campus), UTAR

DWEI
SINCE 2022

Reset Password

Enter your email and new password

Email
corjackchin13@gmail.com

Password
.....

Confirm
.....

Login Page Reset

Figure 5.3.1.26: Valid Reset Password Input

DWEI
SINCE 2022

Reset Password Confirmation

Your password has been successfully reset.

You can now securely log in to your account using your new password. If you have any questions or concerns, please feel free to contact our support team at support@example.com. Thank you for choosing our service!

Please click login button to log in.

Login Page

Figure 5.3.1.27: Successful Reset Password

DWEI
SINCE 2022

Reset Password

Error: Invalid token.

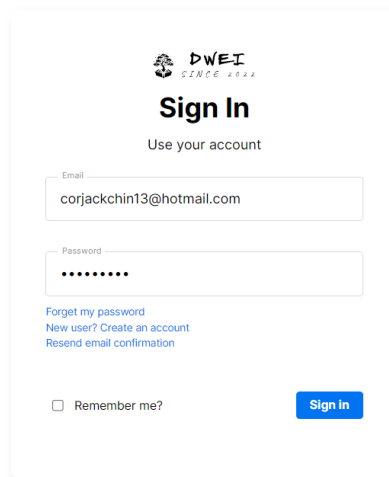
We're sorry, but we were unable to approve your change password request. Please ensure that you have clicked the verification link correctly or enter correct email. If you continue to experience issues, please contact our support team for further assistance.

If you believe this is an error, you can also attempt to log in and verify your email address again. Alternatively, if the verification link has expired, you can request a new verification email to be sent to you. Our support team is available to help resolve any issues you may encounter.

Login Page Reset

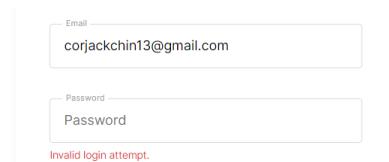
Figure 5.3.1.28: Reset Password Failed

After resetting the password, the user can login their account with the correct email address and password as shown in the Figure 5.3.1.29 which redirects them to the appropriate page. With the remember me checked option, it will have a longer expiration time to allow users to remain signed in even after long inactivity period. Undoubtedly, it also has the same validation rule for the email and password. Invalid login attempts due to incorrect email or password will prompt an error message as shown in Figure 5.3.1.30.



The screenshot shows the DWET Sign In page. At the top, there is a logo for DWET (Dewan Pendidikan) with the tagline 'SINCE 1982'. Below the logo, the text 'Sign In' is displayed in a large, bold font, followed by 'Use your account'. There are two input fields: 'Email' containing 'corjackchin13@hotmail.com' and 'Password' containing a series of dots. Below the password field, there are three links: 'Forgot my password', 'New user? Create an account', and 'Resend email confirmation'. At the bottom left, there is a checkbox labeled 'Remember me?' which is currently unchecked. At the bottom right, there is a blue 'Sign in' button.

Figure 5.3.1.29: Valid Information Input for Login Page



The screenshot shows the DWET Sign In page with an error message. The 'Email' field contains 'corjackchin13@gmail.com' and the 'Password' field contains 'Password'. Below the password field, there is a red error message that reads 'Invalid login attempt.'

Figure 5.3.1.30: Invalid Login Attempt

After logging into their account, the users can update the account information through the profile setting page as shown in Figure 5.3.1.31 accessible via the header or the sidebar which includes the profile settings option. The users can change their information like name, gender and birthday date while following the validation rules. This update of profile information can prevent the case of entering wrong personal information or enhance the security by changing the password as shown in Figure 5.3.1.32 and 5.3.1.33 accordingly. After submitting the update request, the system will prompt a successful message in the top of the section as shown in Figure 5.3.1.32 and 5.3.1.33. In the event of a failure to update, an error message will be displayed as indicated in Figure 5.3.1.34 and 5.3.1.35.

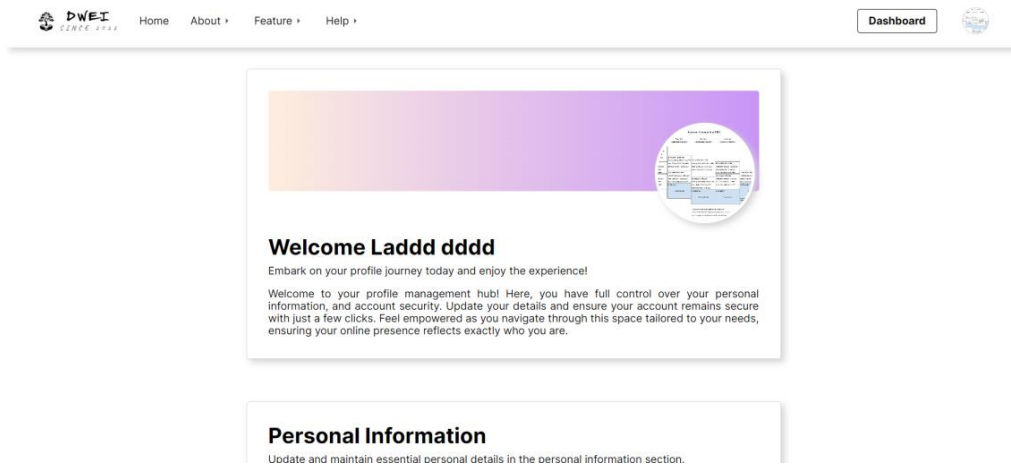


Figure 5.3.1.31: Profile Setting Page

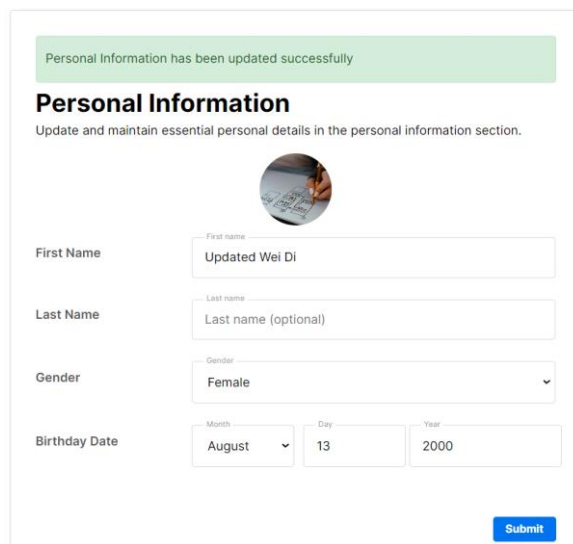


Figure 5.3.1.32: Successful Updating Personal Information

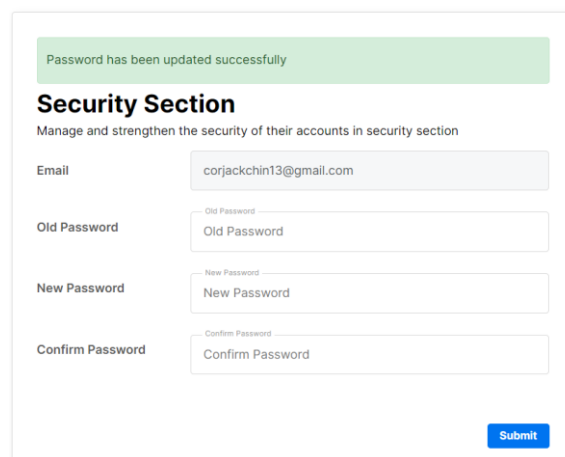


Figure 5.3.1.33: Successful Updating Password

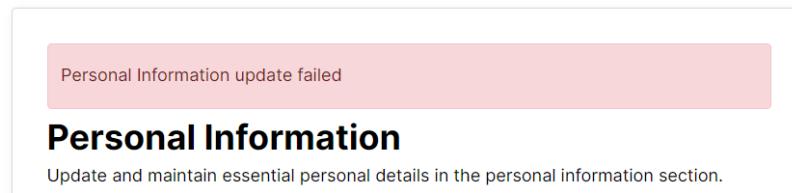


Figure 5.3.1.34: Updating Personal Information Failed

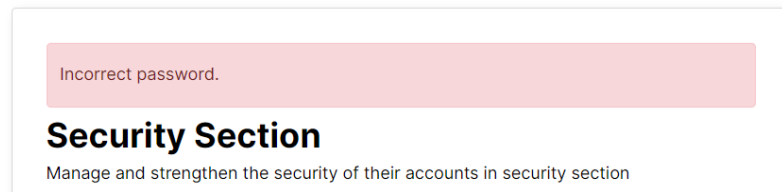


Figure 5.3.1.35: Updating Password Failed

5.3.2 Dashboard Flow

For the normal user, they can access four sections in the dashboard which are home, projects, shared and published sections as displayed in the Figure 5.3.2.1, 5.3.2.2, 5.3.2.3 and 5.3.2.4 respectively. The home section primarily serves as a convenience tool to streamline the operation to access the required materials. For example, it is divided into recommendation and recent part. The recommendation part displays a list of samples with the image, type and size as aids materials serving as a shortcut for user to create the eBook after clicking. Furthermore, the container is overflowed which displays only a horizontal list that can be scrolled through. Meanwhile, the recent part becomes the most commonly selected option by the user since it displays the most recently modified eBooks. This feature provides convenience for users and saving the time. Otherwise, they would spent most time in searching for the eBook they need.

Moreover, users can access self-created eBooks in the project section, eBooks created by other users that have been with them in shared section and published eBook in the published section. Therefore, users can enter to design view to edit the eBooks as shown in Figure 5.3.2.5 whereas can only view published eBooks in view mode through the published content as shown in Figure 5.3.2.6. The filter options as shown in the Figure 5.3.2.7 can speed up the searching process with the option provided including title, book type, and last modified date and can be further sorted according to the name and date either in ascending or descending order. Furthermore,

CHAPTER 5

the paginated list function as shown in Figure 5.3.2.8 comes into play when the number of contents exceed the list limit. Additionally, users can switch to other pages through the next page button or inputting a number as shown in the Figure 5.3.2.8 to view other contents. This helps decrease loading time and conserves resources.

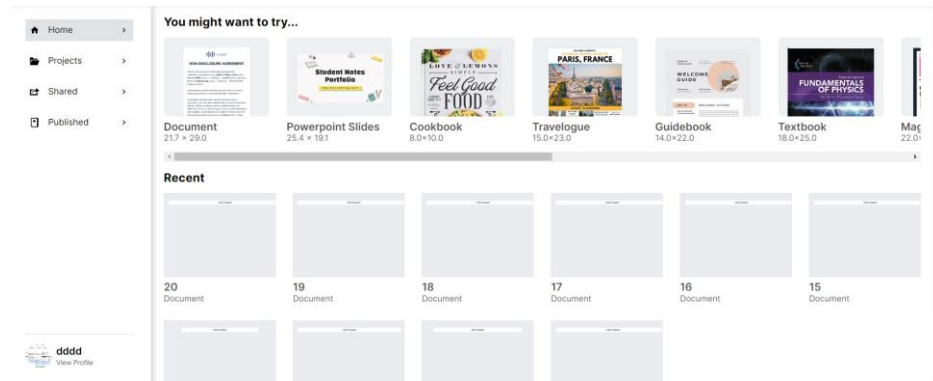


Figure 5.3.2.1: Dashboard Home Section

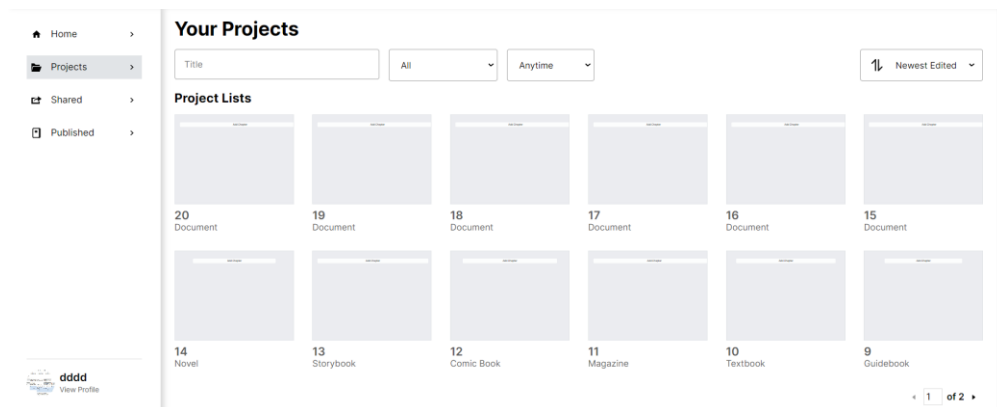


Figure 5.3.2.2: Dashboard Projects Section

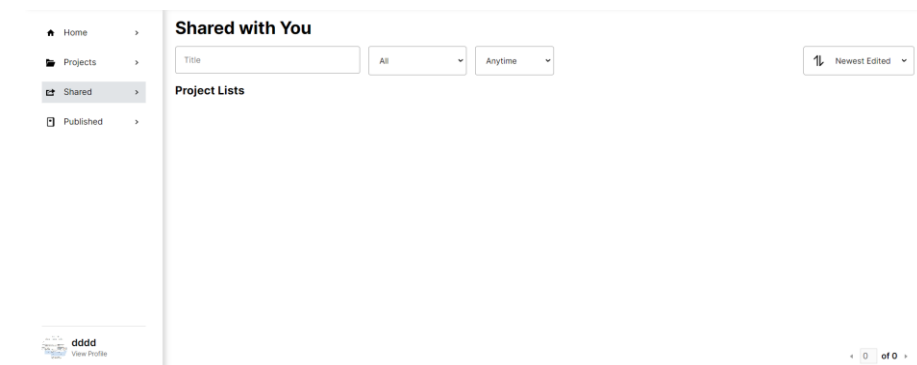


Figure 5.3.2.3: Dashboard Shared Section

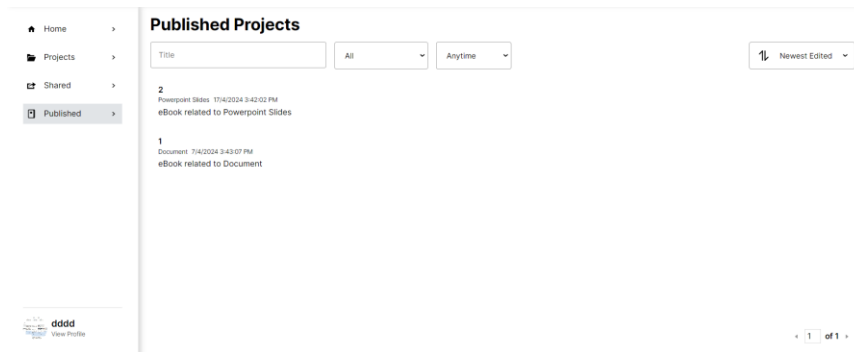


Figure 5.3.2.4: Dashboard Published Section

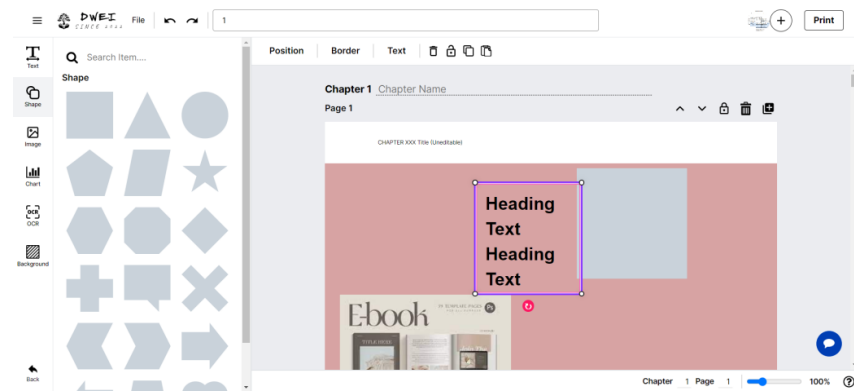


Figure 5.3.2.5: eBook Design View

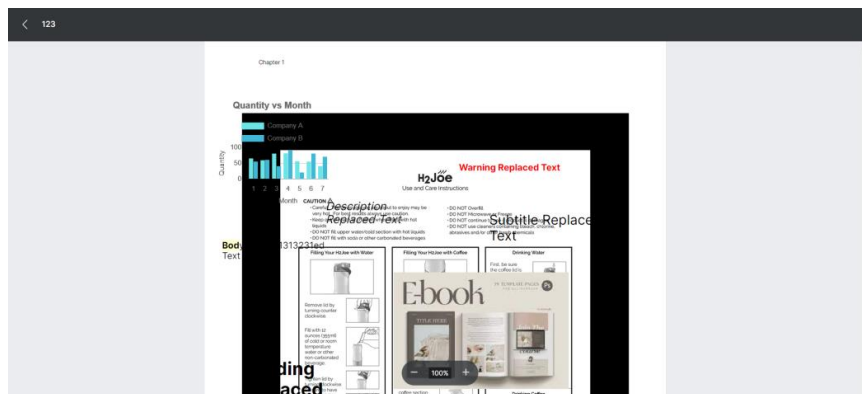


Figure 5.3.2.6: eBook Published View

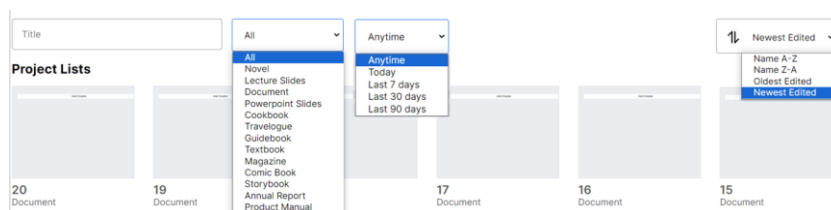
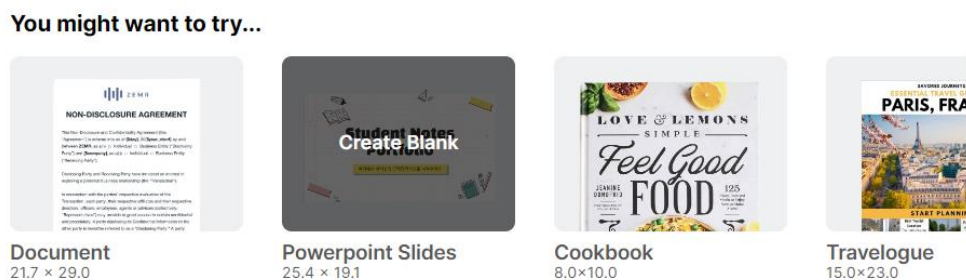


Figure 5.3.2.7: Filter List Available Options

Figure 5.3.2.8: Paginated List

5.3.3 eBook Creation Flow

The eBook creation flow is initiated with creating an eBook step which is available through two methods. The first method involves accessing the recommendation list in home section as shown in Figure 5.3.3.1 to select their preferred eBook type and clicking the eBook. The sizes provided are recommended sizes commonly used in the market. Subsequently, it will automatically fill in the information such as "Untitled Design" as its title, a general description, and extract the type and size from the selected content, then create the eBook. This convenient feature allows users to initiate the eBook creation process seamlessly, enabling them to quickly start working on new projects without navigating through multiple pages or sections. Another method is clicking the highlighted section in Figure 5.3.3.2 which will prompt the create eBook form as displayed in the Figure 5.3.3.3 to allow the user to fill in the information like title, description, type, and the size of eBook with the basic rule of non-nullable input. There are also finer rules for each input like a maximum of 200 characters for the title and prohibiting non-numerical input in the width and height with a minimum of 50 mm size eBook as shown in the Figure 5.3.3.4. After revising all the details, the users can click the create button which will then create an eBook according to the input. Either way will prompt them to the design page as shown in Figure 5.3.3.5.

**Figure 5.3.3.1:** Create eBook through Dashboard Recommendation List**Figure 5.3.3.2:** Create eBook through Create Button in Dashboard Header

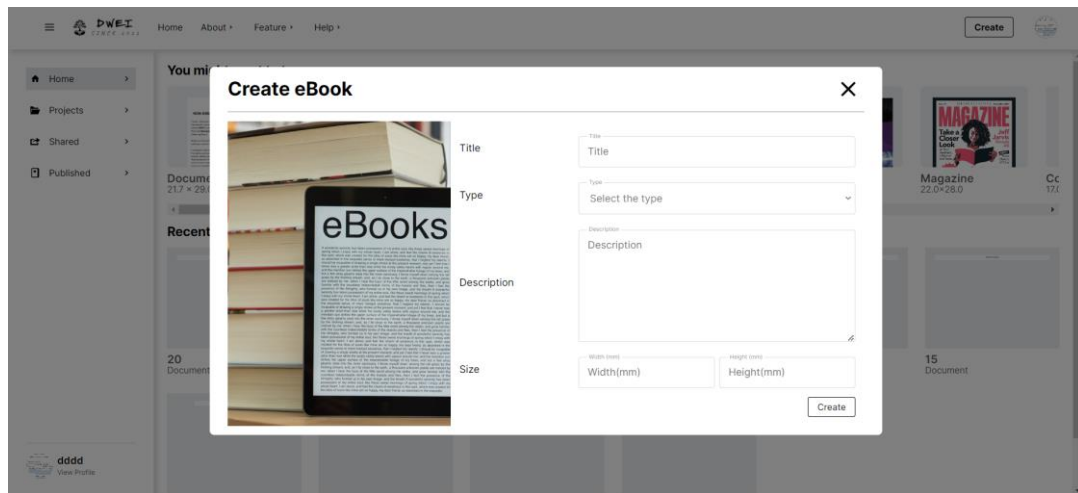


Figure 5.3.3.3: Create eBook UI

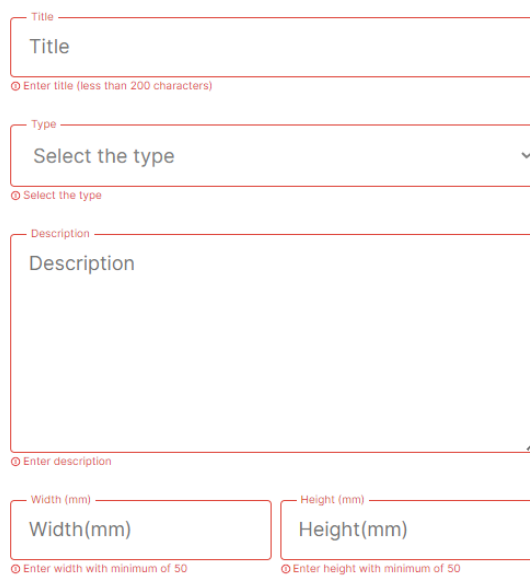


Figure 5.3.3.4: Error Input in Create eBook Form

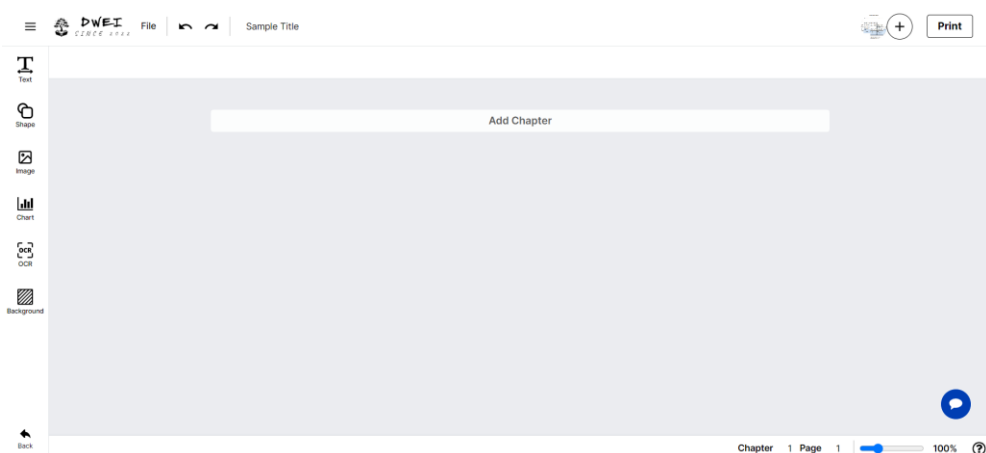


Figure 5.3.3.5: eBook Created in Design Page

After creating the eBook, the users can proceed to design the contents for their eBook through the tools provided on the eBook Maker website. The first step is to click the “Add Chapter” button as shown in Figure 5.3.3.6 which will add a new chapter to the eBook as displayed in the Figure 5.3.3.7. It will automatically add one page for the chapter since it is impossible to have zero pages in a chapter. Therefore, the chapter will be automatically deleted when there are no pages within it. Moreover, not providing a delete chapter button is also a safety measure to avoid deleting the entire chapter, including the page within it which is a irreversible action. For updating chapter related information, users can only update the chapter name by clicking and focusing the dashed input and update the chapter name as shown in Figure 5.3.3.7.

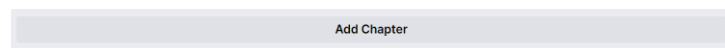


Figure 5.3.3.6: Design Add Chapter Button

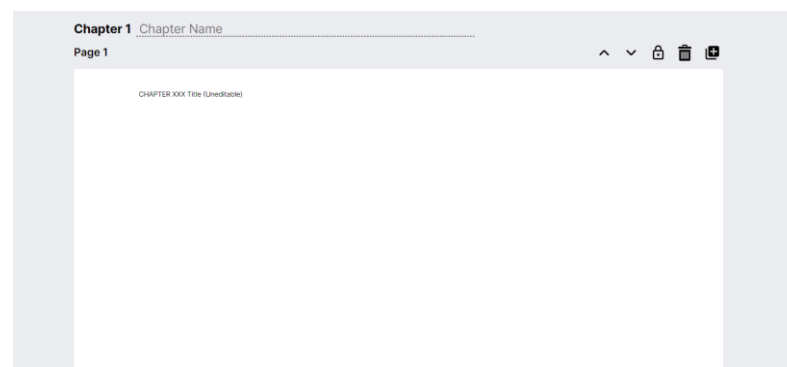


Figure 5.3.3.7: Chapter Added in the eBook

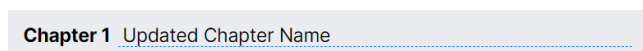


Figure 5.3.3.8: Updating Chapter Name

Subsequently, the users are provided with several actions as shown in Figure 5.3.3.9 including moving the page upward, moving the page downward, toggling the lock status of the page, deleting the page and adding a page accordingly. The first two buttons will exchange the sequence of the page as illustrated in Figure 5.3.3.9. The “Move page upward” button will exchange the sequence with the above and the current page whereas the “Move page downward” button will exchange the sequence with the one below and the current page as shown in the Figure 5.3.3.10. Toggling the lock icon button will lock the content on the page which make the element within it

non-editable and prohibiting from addition of the new elements. However, users can still conduct the action as shown in Figure 5.3.3.9. Clicking the unlock button as shown in Figure 5.3.3.11 will toggle the lock status of the page so that the user can continue their designing work. Moreover, the delete button will delete the entire page including the elements as shown in Figure 5.3.3.12. Lastly, the add page button will add a page below this page as shown in Figure 5.3.13.



Figure 5.3.3.9: Page Action List

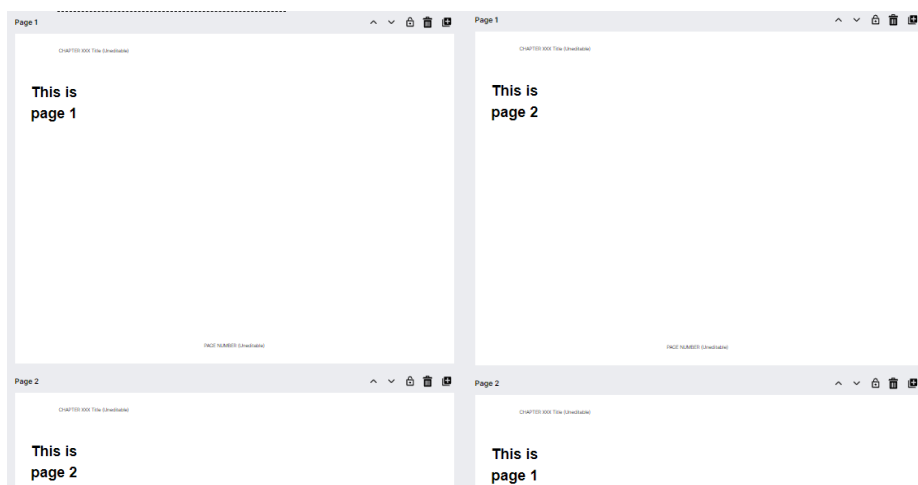


Figure 5.3.3.10: Before and After Clicking Moving Page Downward Button



Figure 5.3.3.11: Toggle of Lock and Unlock icon

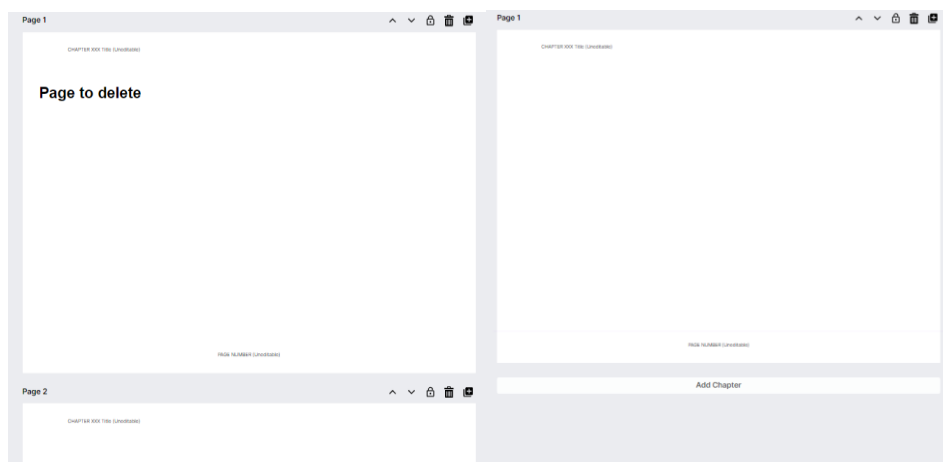


Figure 5.3.3.12: Before and After Clicking Deleting Page Button

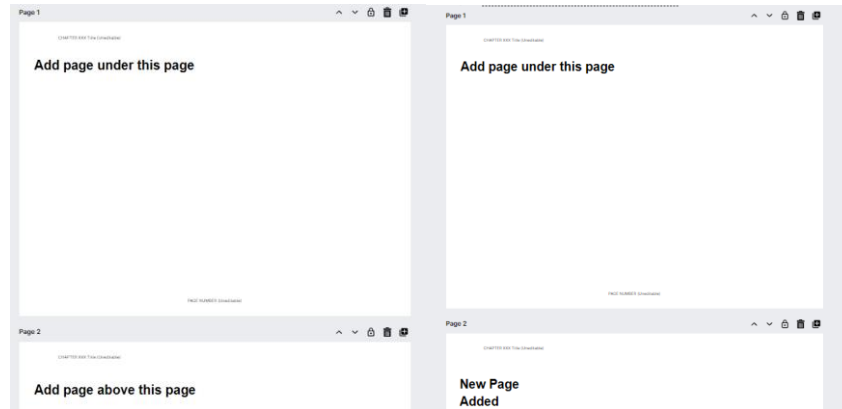


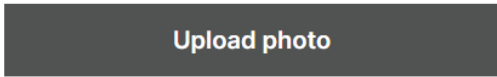
Figure 5.3.3.13: Before and After Clicking Add Page Button

Afterwards, users can access the design sidebar as illustrated in Figure 5.3.3.14 which provides the options for adding element, OCR functionality and back button. The OCR functionality as shown in the Figure 5.3.3.15. becomes available after clicking the OCR button. Initially, the OCR page is empty and prompts a message of “No photo has been uploaded”. After loading the image, the system will scan through the image, extract the text and print it out at the result section. For example, after uploading the sample image in Figure 5.3.3.16, the uploaded image and scanned result are displayed in the result section as shown in Figure 5.3.3.17. Meanwhile, the back button redirects the user to the dashboard page to continue the other tasks.



Figure 5.3.3.14: Design Sidebar Element List

Optical Character Recognition



Result

No photo has been uploaded

Figure 5.3.3.15: OCR sidebar

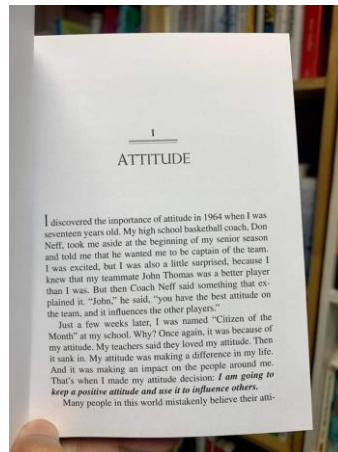
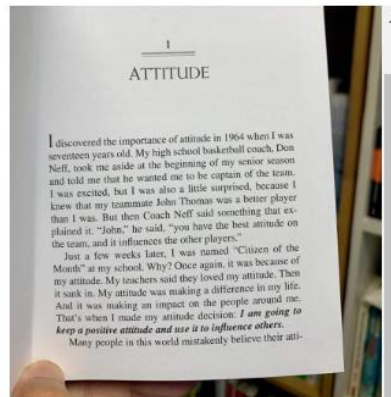


Figure 5.3.3.16: Sample OCR Image

Result



]

1

ATTITUDE

I discovered the importance of attitude in 1964 when I was seventeen years old. My high school basketball coach, Don Neff, took me aside at the beginning of my senior season and told me that he wanted me to be captain of the team. I was excited, but I was also a little surprised, because I knew that my teammate John Thomas was a better player than I was. But then Coach Neff said something that explained it. "John," he said, "you have the best attitude on the team, and it influences the other players."
 Just a few weeks later, I was named "Citizen of the Month" at my school. Why? Once again, it was because of my attitude. My teachers said they loved my attitude. Then it sank in. My attitude was making a difference in my life. And it was making an impact on the people around me. That's when I made my attitude decision: *I am going to keep a positive attitude and use it to influence others.*
 Many people in this world mistakenly believe their atti-

Figure 5.3.3.17: Sample OCR Result

For adding elements, the website employs the mechanism where users can click on elements to add them to the page rather than dragging since it is may not be user friendly for mobile users. Furthermore, the website also provides convenience to the user by automatically detecting the page to which the element should be added based to the scrolling progress. Not only that but, the users can also manually choose the desired page by clicking on it if they are not no satisfied with the auto-selected page.

Afterwards, the users can proceed to add element such as text, shapes, images, charts, and backgrounds. The text sidebar provides the options for adding different styles of text like heading, subtitle, body, description, warning and also the commonly used default text as shown in the Figure 5.3.3.18. After clicking on the text, the text element corresponding to the selected style will be added to the page as shown in the Figure 5.3.3.19. Furthermore, it can also utilize the filter engine to search for the specific text they want as demonstrated in the Figure 5.3.3.20.

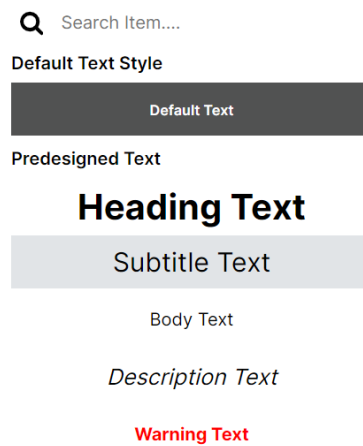


Figure 5.3.3.18: Add Text Sidebar

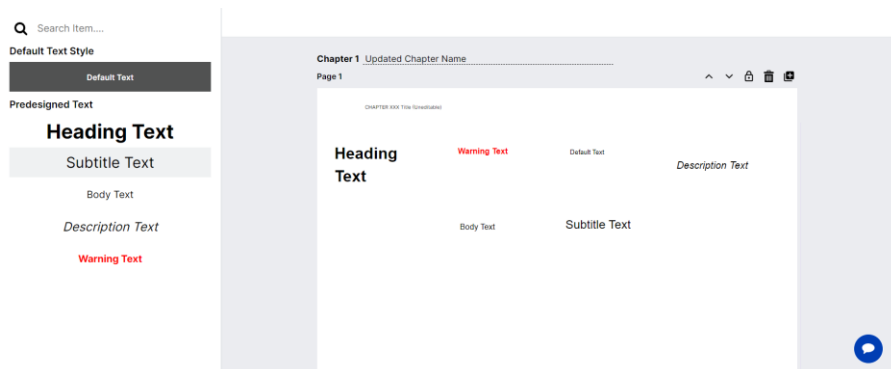


Figure 5.3.3.19: Page After Adding the Text

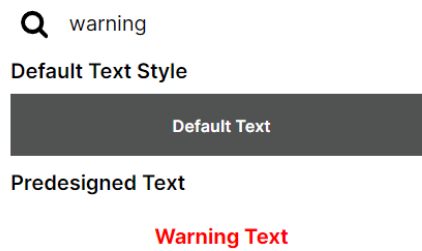


Figure 5.3.3.20: Filter Text Results

Other than the text elements, users can also implement the shape in their eBook which shown in Figure 5.3.3.21. The shape sidebar provides various type of shapes like polygon with a default style. Users can click the shape that they intended to add in to the page as shown in Figure 5.3.3.22. Moreover, it also has the same filter system which helps user to speed up the searching process as shown in Figure 5.3.3.23



Figure 5.3.3.21: Add Shape Sidebar

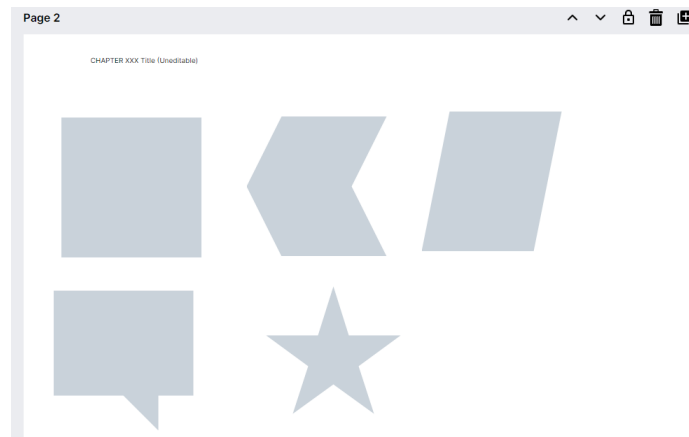


Figure 5.3.3.22: Page After Adding the Shape

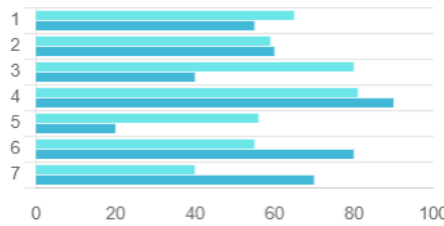
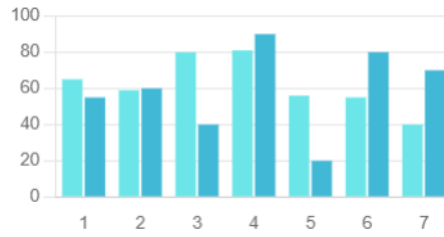


Figure 5.3.3.23: Filter Shape Results

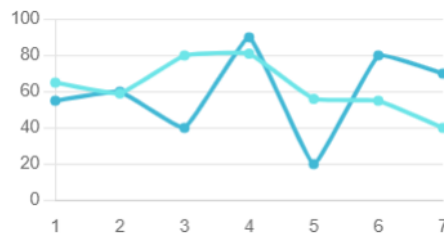
Moreover, users can also incorporate the charts into their eBook as illustrated in Figure 5.3.3.24. The website offers different types of charts including bar, line, radar, polar area and pie charts each with different specifications. For example, user can choose between horizontal bar chart and vertical bar charts as well as pie chart and doughnut charts. In addition, users can easily add the chart element by just clicking on it and it will be added to the page as shown in the Figure 5.3.3.25. The filter mechanism allows the user to narrow down the options as displayed in the Figure 5.3.3.26 and select the suitable chart type for their eBooks.

Q Search Item....

Bar Chart



Line Chart



Radar Chart

Figure 5.3.3.24: Add Chart Sidebar



Figure 5.3.3.25: Page After Adding the Chart

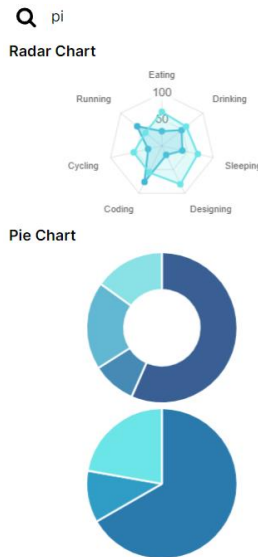


Figure 5.3.3.26: Filter Chart Results

Besides, the users can access image elements as shown in the Figure 5.3.3.27. The image sidebar is divided into 2 sections which are uploading their own photo or implementing the recommended images. In the first section, users can upload their image and will be automatically added to the page. For instance, after uploading the sample image shown in Figure 5.3.3.16, it is added to the page with original image size as depicted in Figure 5.3.3.28. The second section will recommend some sample images for users to add as alternative option. Furthermore, users can filter the recommended image with phrases to find their target image and added to the page as illustrated in Figure 5.3.3.29.

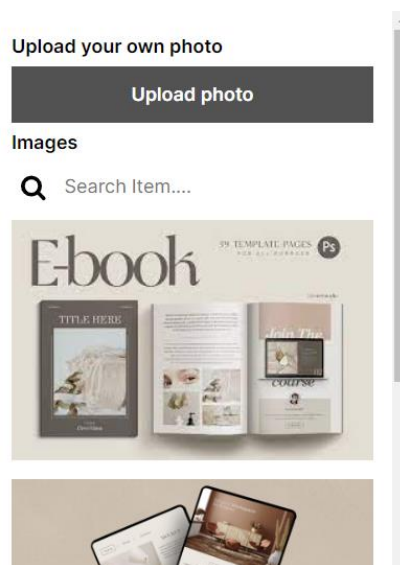


Figure 5.3.3.27: Add Image Sidebar

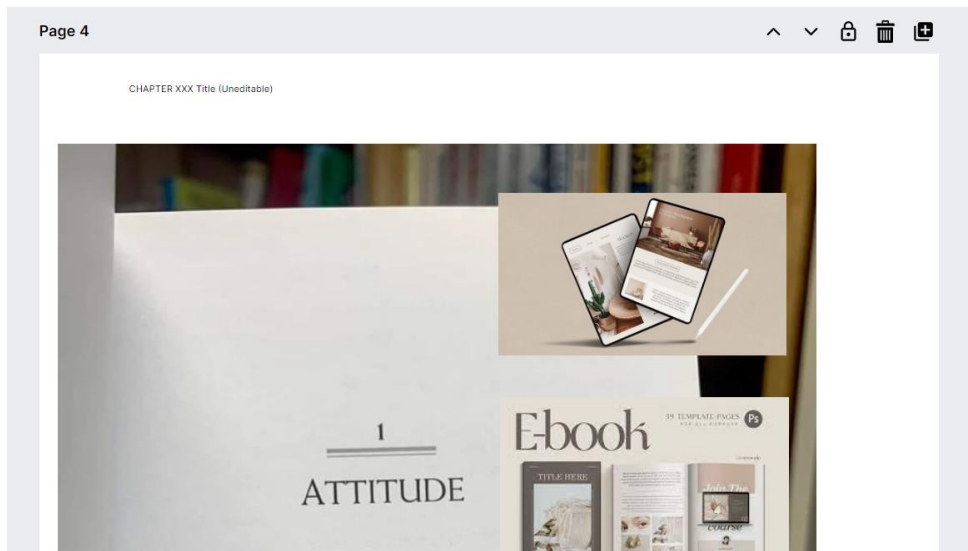


Figure 5.3.3.28: Page After Adding the Images



Figure 5.3.3.29: Filter Image Results

More than that, the users can customize the page background as illustrated in Figure 5.3.3.30. The website provides the options for a solid colour or background image. For the background image, users can choose from recommended backgrounds or upload their own photos with properties such as cover, centre, and no repeat.. In addition to the solid colours, it offers the colour picker tool as shown in Figure 5.3.3.31 to provide flexibility in choosing the background colour. Figure 5.3.3.32 and Figure 5.3.3.33 display the results of replacing the background for the page. Undoubtedly, users can also filter the background options using keyword as shown in the Figure 5.3.3.34.

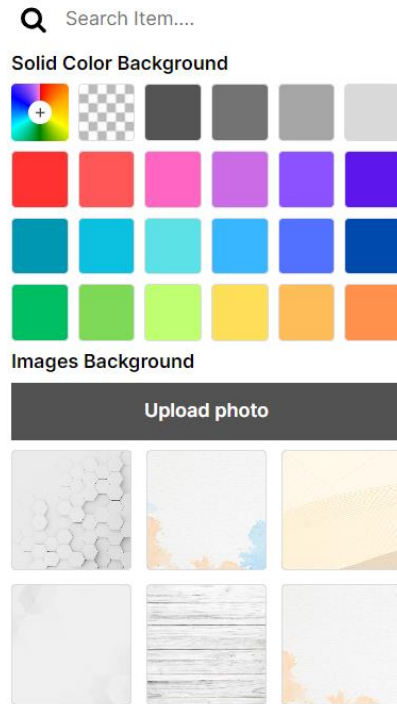


Figure 5.3.3.30: Add Background Sidebar

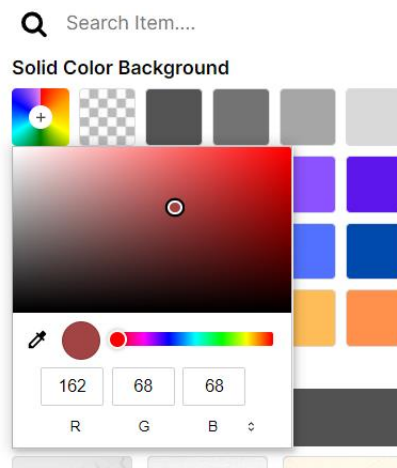


Figure 5.3.3.31: Add Background Colour Picker

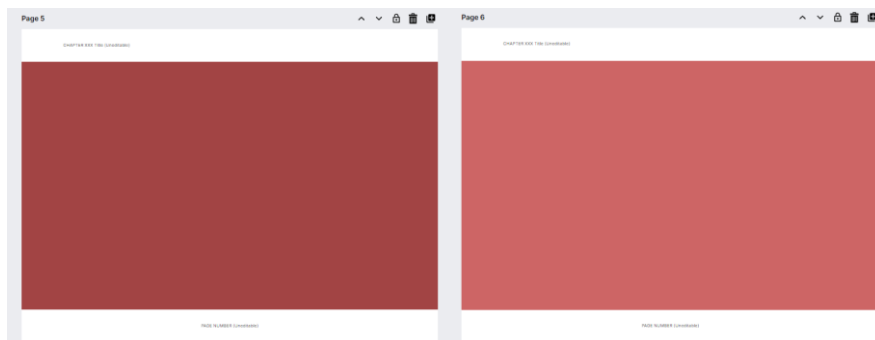


Figure 5.3.3.32: Page After Replacing the Solid Colour Background



Figure 5.3.3.33: Page After Replacing the Background Image

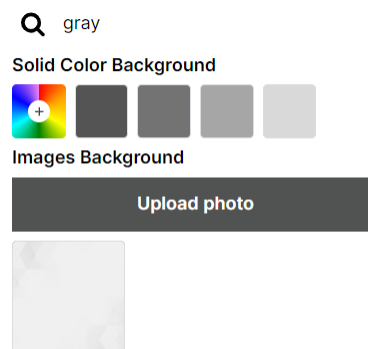


Figure 5.3.3.34: Filter Background Results

Furthermore, the websites also offer the “selection” functionality which is directly related to the “Element Edit” function. To select an element, the prerequisite is to hover over the element as depicted in Figure 5.3.3.35 where the element is surrounded by a purple colour border to indicate the element is being hovered over. Once hovered, users can click on the hovered element to select the element to make it enter “selected” state which make it as the top element as shown in Figure 5.3.3.36. Upon selection, four pointers and a rotation handle are added to the element which are used for resizing and rotation functions. The resizing function as shown in Figure 5.3.3.37 requires users drag on the pointer which will resize the element based on the cursor movement. Meanwhile, the position of the pointer like top left, top right, bottom left, and bottom right decides the enlarging, diminishing and resizing direction. Furthermore, resizing is limited to a minimum size to prevent issues such as elements becoming invisible as shown in Figure 5.3.3.38. Moreover, the rotation function follows a similar rule to resizing where dragging the rotation handle cause the element to rotate based on the cursor movement as illustrated in Figure 5.3.3.39. Not only that,

dragging the element move it across the page shown in Figure 5.3.3.40. The system also includes a foolproof mechanism to prevent users to move the element out of the page container as shown in Figure 5.3.3.40.



Figure 5.3.3.35: Element Hover State

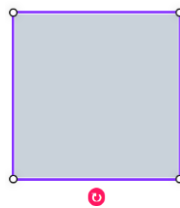


Figure 5.3.3.36: Element Selected State

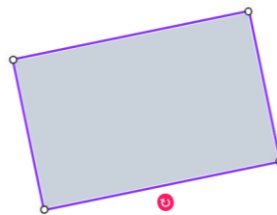


Figure 5.3.3.37: Resize the Element



Figure 5.3.3.38: Resize Limitations

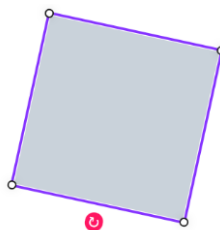


Figure 5.3.3.39: Rotate the Element

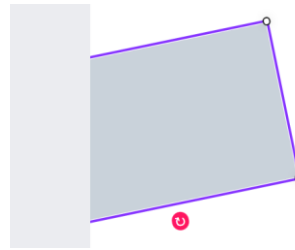


Figure 5.3.3.40: Move the Element to Edge of Page Container

Other than basic positioning functions on the element, the platform also provides more advanced editing capabilities which catering to each element's unique properties. Therefore, the website offers the different editing options for each element type. For instance, options for adjusting position, text properties, and shape attributes are available for shape elements, as shown in Figure 5.3.3.41. Similarly, options for adjusting position, borders, and text properties are provided for text elements, as depicted in Figure 5.3.3.42. Additionally, users can modify position and borders for image elements, as illustrated in Figure 5.3.3.43, and adjust position and chart properties for chart elements, as demonstrated in Figure 5.3.3.44. The top tab list container also contains the delete button to delete the selected element.

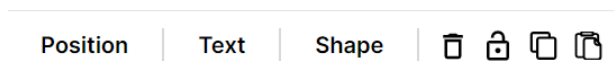


Figure 5.3.3.41: Shape Advanced Edit Options



Figure 5.3.3.42: Text Advanced Edit Options

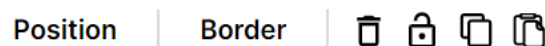


Figure 5.3.3.43: Image Advanced Edit Options

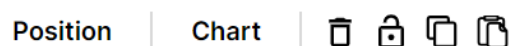


Figure 5.3.3.44: Chart Advanced Edit Options



After clicking the position button, it will become grey to indicate selection, prompting the edit position sidebar as shown in Figure 5.3.3.45. The sidebar will

Bachelor of Information Systems (Honours) Information Systems Engineering
Faculty of Information and Communication Technology (Kampar Campus), UTAR

display the elements values including width, height, position X, position Y and the rotation angle. The “Arrange” section contains buttons to move the element forward and backward in the stacking order. Moreover, the changes made in the corresponding input fields are immediately reflected on the element. For the width and height inputs, there are minimum size requirements as mentioned earlier. Meanwhile, position X and position Y inputs ensure that the element remains within the page container. The rotation input is limited to values between 0 to 2π . Undoubtedly, all input variables only accept numerical values.

Edit Position

Arrange

 Forward
 Backward

Advanced

X (px)	Y (px)	Rotate (rad)
443	94	0

Container Size

Width	Height
200	200

Figure 5.3.3.45: Advanced Position Edit Options



Figure 5.3.3.46: Before and After Moving Element Forward and Backward

For the shape button, it will become grey to indicate selection, prompting the edit shape sidebar as shown in Figure 5.3.3.47. The shape sidebar will display the current shape colour at the rectangle button, and it contains only one functionality

which is changing the shape colour by clicking the solid colour or using the colour picker as shown in the Figure 5.3.3.48.

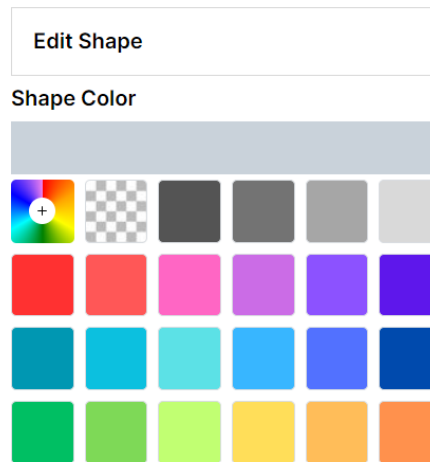


Figure 5.3.3.47: Advanced Shape Edit Options



Figure 5.3.3.48: Before and After Changing Colour of Shape

For the element with text properties, clicking once more on the element can activate the text editing function which allow the user to input text as shown in the Figure 5.3.3.49. After activating the text editor function, users can click the text button to prompt the text editor sidebar as demonstrated in Figure 5.3.3.50. The text editor function can be divided into three aspects which are text style, style format and text format. The text style provides the default heading style available from heading 1 to heading 6 and also normal text as displayed in Figure 5.3.3.51 Furthermore, the style format can format the text like font type and font size which available in Figure 5.3.3.52 and 5.3.3.53. Moreover, the text format comprises more refined options like changing the text and background colour as shown in Figure 5.3.3.54, bold, strikethrough, italic, underline, subscript, superscript, text direction like from left to right or right to left, text alignment like align left, align right, centre and justify, list options like dot, number and tick symbol, quote, code block, clean format and

mathematical formula as shown in Figure 5.3.3.55. The complete text editing results is shown in the Figure 5.3.3.56.

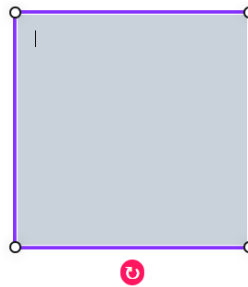


Figure 5.3.3.49: Activation of Text Editor Function

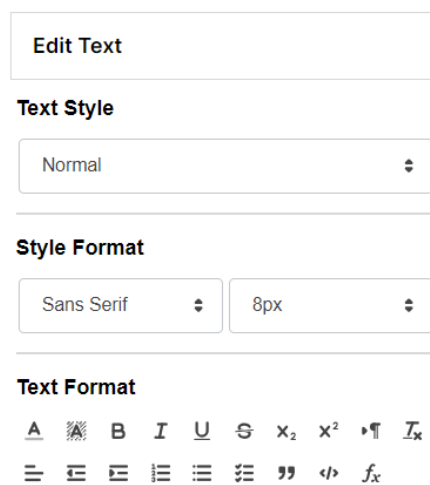


Figure 5.3.3.50: Advanced Text Edit Options

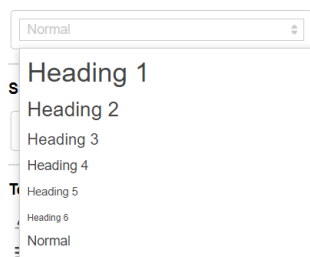


Figure 5.3.3.51: Default Text Style Options

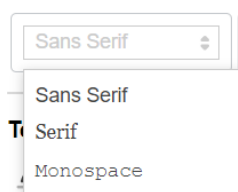


Figure 5.3.3.52: Text Font Type Options

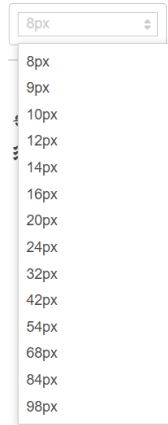


Figure 5.3.3.53: Text Font Size Options



Figure 5.3.3.54: Text Colour and Background Options

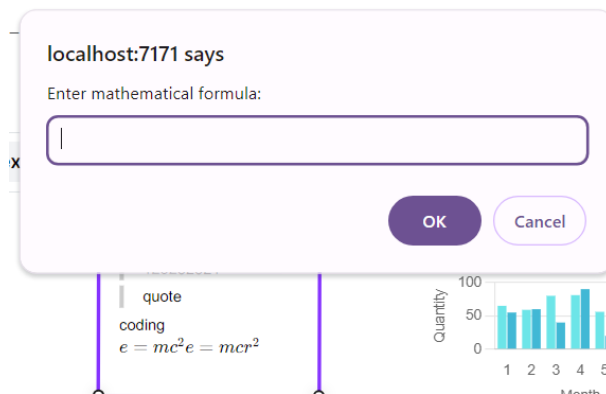


Figure 5.3.3.55: Mathematical Equation Input

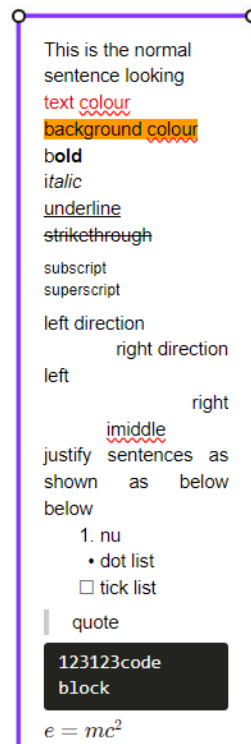


Figure 5.3.3.56: Edit Text Results

Not only that but, clicking the border button will turn it grey indicating it has been selected and display the advanced edit border sidebar as shown in Figure 5.3.3.57. It is divided into three sections which are properties, style and border colour. The “width” means the border thickness whereas “roundness” indicates the border’s curvature. Both parameters only accept numerical input with non-negative integer value. Furthermore, the style section can customize the border type, offering options such as solid, dashed, double, dot and none. Obviously, the “border colour” section enable users to change the border colour with the available options and a colour picker. The successful editing border results is illustrated in Figure 5.3.3.58

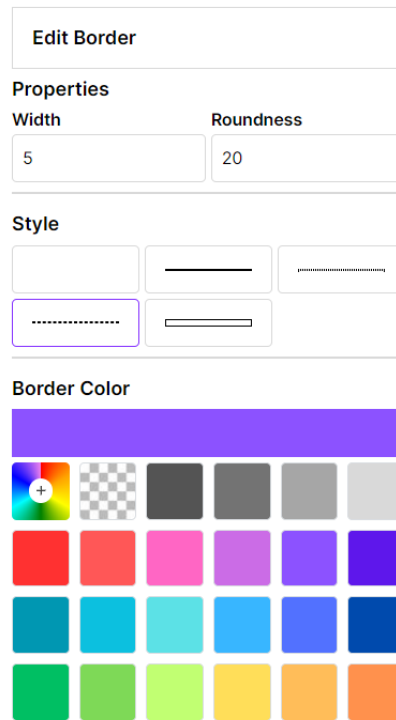


Figure 5.3.3.57: Advanced Border Edit Options

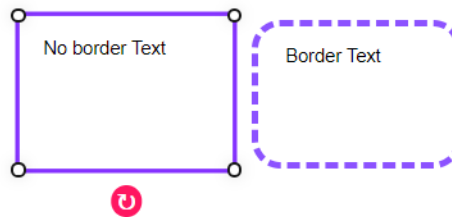


Figure 5.3.3.58: Editing Border Results

For the chart element, users can hover over the data to show the data labels and their values as illustrated in Figure 5.3.3.59. Not only that but, click on the label will toggle the visible of the data as shown in Figure 5.3.3.59. After clicking the chart button as shown in Figure 5.3.3.44, it will change the colour into grey which means it has been selected. Moreover, it will display the advanced chart editing options as shown in Figure 5.3.3.60 and 5.3.3.61. Single dataset charts like the pie chart and polar area chart have editing options displayed in Figure 5.3.3.60 while multiple dataset charts like line, bar, radar area charts have the editing options shown in Figure 5.3.3.61.

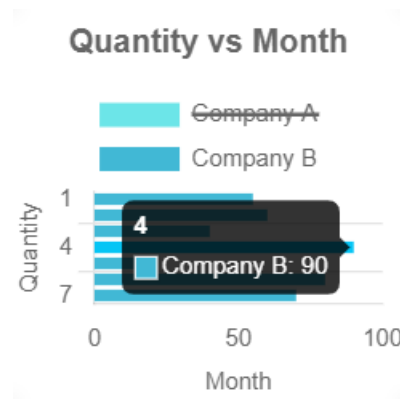


Figure 5.3.3.59: Chart Hover and Clicked Functionalities

Edit Chart

Chart Information

Favourite Colour

Labels

■	Red	🗑
■	Green	🗑
■	Yellow	🗑
■	Grey	🗑
■	Blue	🗑

Add label row

Data

1	11
2	16
3	7
4	3
5	14

Setting

Show title

Show legend

Figure 5.3.3.60: Single Dataset Chart Edit Options

Edit Chart

Chart Information

<input type="checkbox"/>	Quantity vs Month
X	Month
Y	Quantity

Labels

1	1	🗑️
Add label row		

Data

■	Company A	🗑️
1	65	
■	Company B	🗑️
1	55	
Add dataset		

Setting

Show title

Show legend

Show gridline

Show axis title

Figure 5.3.3.61: Multiple Dataset Chart Edit Options

Both types divide the section into four parts which are chart information, labels, data and settings. Chart information represents the general information like chart background colour and title. Multiple datasets charts have two additional inputs which are x axis title and y-axis title. The background colour can be changed through the UI as shown in Figure 5.3.3.62. Hence, users can update their chart information as shown in Figure 5.3.3.63. The labels represent dataset names in the chart. Users can update the label by focusing the label name and change the input name as shown in Figure 5.3.3.64. Not only that but, one can click the “Add label row” button to add a label which will automatically add the one data row for single dataset chart and one dataset for multiple datasets chart as shown in Figure 5.3.3.66 and 5.3.3.68 respectively. Clicking the delete button at the same row will delete the whole label with its related data as shown in Figure 5.3.3.69 and 5.3.3.70. For the single dataset, users can change the colour through the label section whereas for the multiple datasets, they can change the colour through the data section at each title header as shown in Figure 5.3.3.71. The data section represents the data values. Additionally, only the multiple datasets can add the dataset as shown in Figure 5.3.3.72 and delete the dataset in data section as shown in Figure 5.3.3.73. Like both chart types, both can update the data value as displayed in Figure 5.3.3.74 As for the last part, both charts

can toggle the visibility of title and legend as shown in Figure 5.3.3.75 but only gridline and axis title are additionally for line chart and bar chart only as shown in Figure 5.3.3.76 and 5.3.3.77.

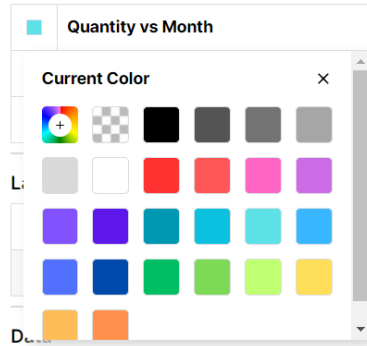


Figure 5.3.3.62: Chart Colour Options

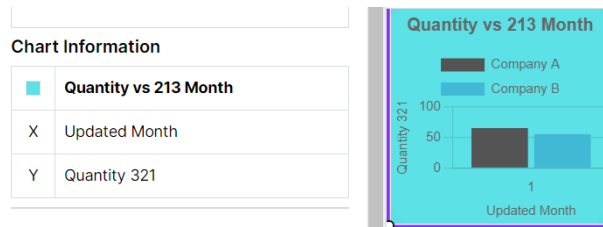


Figure 5.3.3.63: Updating Chart Information Results

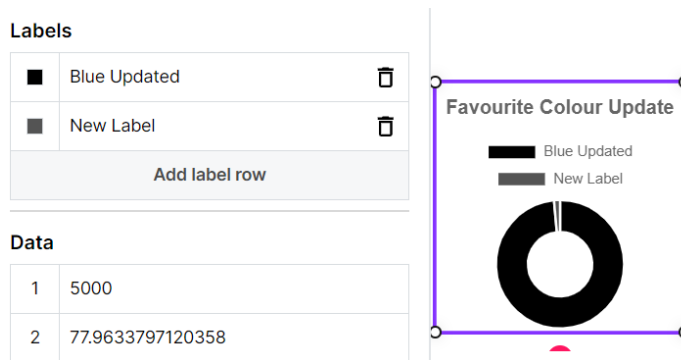


Figure 5.3.3.64: Updating Chart Label Results

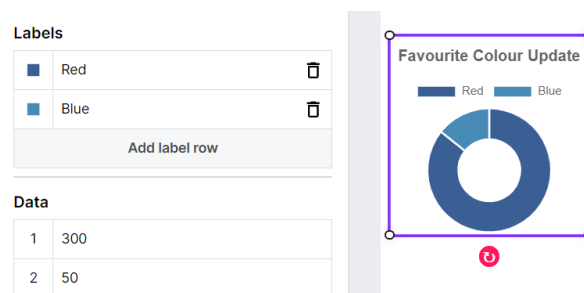


Figure 5.3.3.65: Single Dataset Chart Before Adding Label

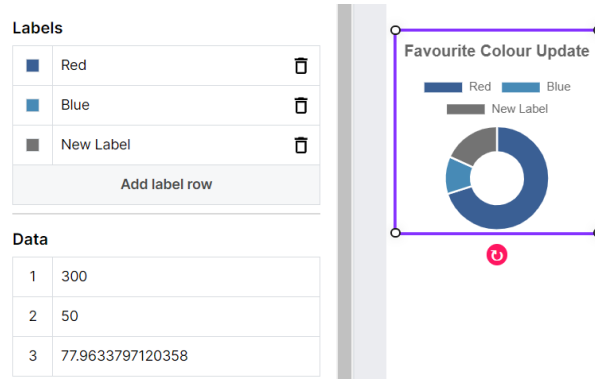


Figure 5.3.3.66: Single Dataset Chart After Adding Label

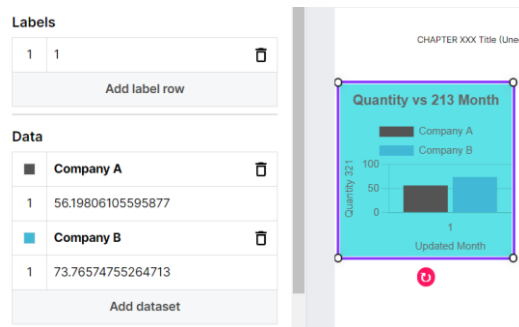


Figure 5.3.3.67: Multiple Dataset Chart Before Adding Label

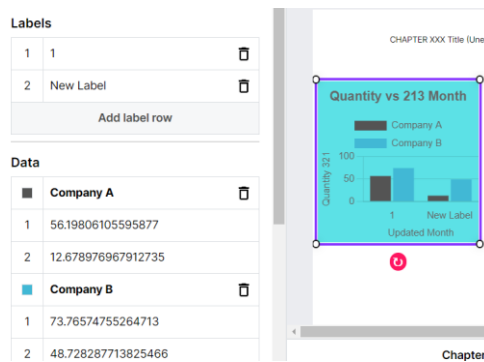


Figure 5.3.3.68: Multiple Dataset Chart After Adding Label

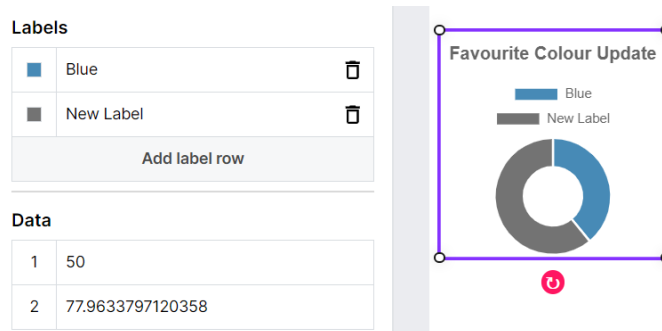


Figure 5.3.3.69: Single Dataset Chart After Deleting Label

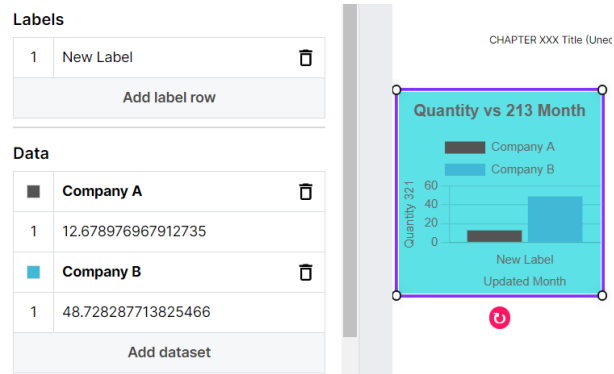


Figure 5.3.3.70: Multiple Dataset Chart After Deleting Label

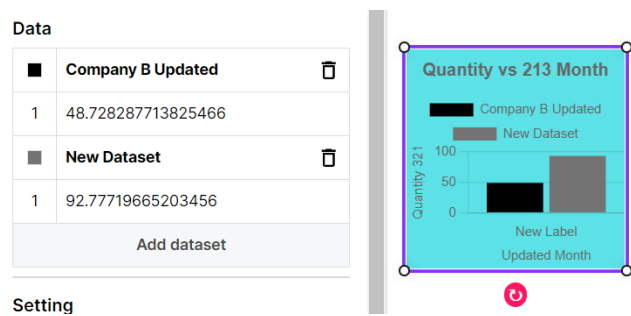


Figure 5.3.3.71: Multiple Dataset Chart After Updating the Title and Background Colour

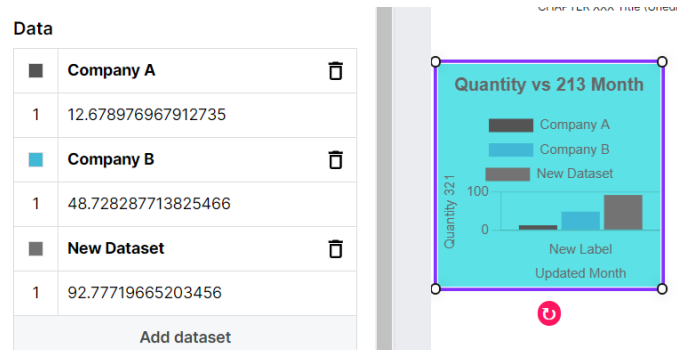


Figure 5.3.3.72: Multiple Dataset Chart After Adding the Dataset

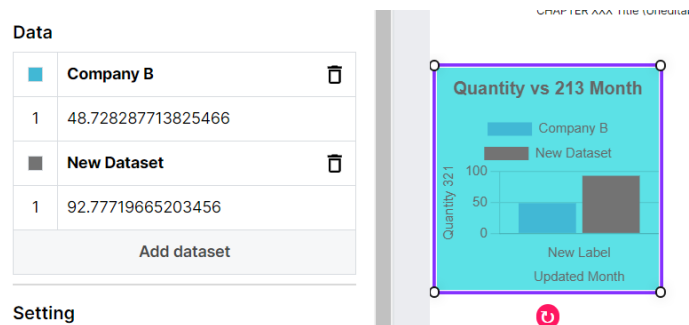


Figure 5.3.3.73: Multiple Dataset Chart After Deleting the Dataset

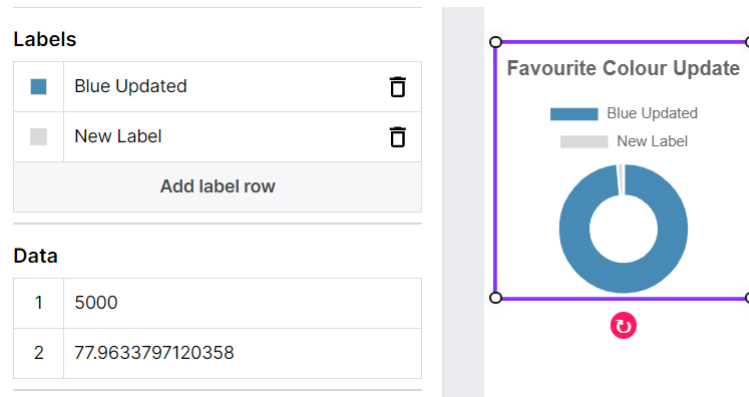


Figure 5.3.3.74: Updating the Data Value Results

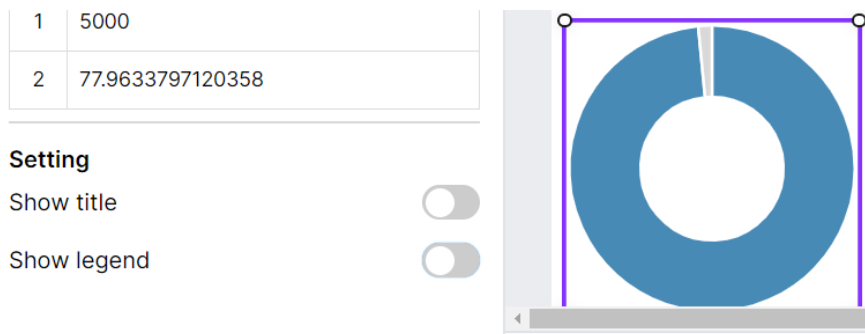


Figure 5.3.3.75: Deactivate the Setting for Pie Chart

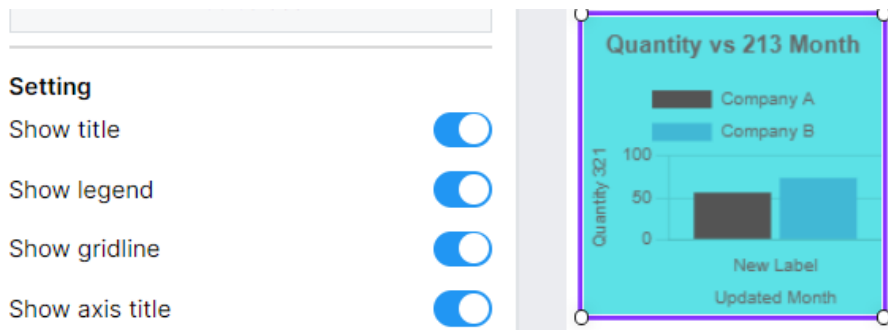


Figure 5.3.3.76: Activate the Setting for Bar Chart

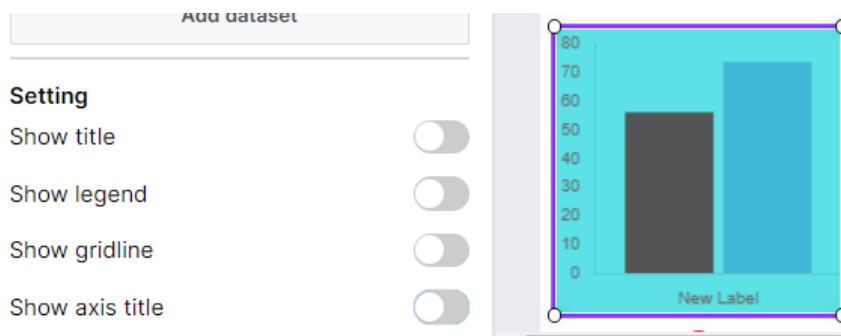


Figure 5.3.3.77: Deactivate the Setting for Bar Chart

5.3.4 Design Flow

Other than eBook creation action, there are still many available actions for the users. They can click the more option button in the design header as shown in Figure 5.3.4.1 to display the sidebar which enable them to navigate back to welcome page and access profile related settings as shown in Figure 5.3.4.2. Moreover, clicking or hovering over “File” can prompt the UI as shown in Figure 5.3.4.3. The expanded list offers options to redirect the user to file settings page and provides functionalities such as toggling the comment sidebar, finding and replacing text and printing.



Figure 5.3.4.1: Design Header Section

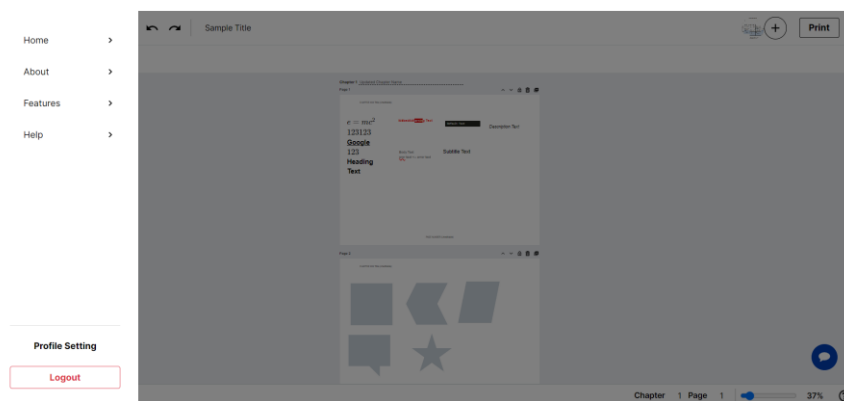


Figure 5.3.4.2: Design Header Sidebar

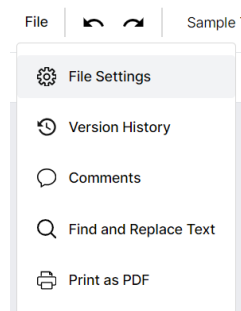


Figure 5.3.4.3: File Expanded List

In addition, the redo and undo buttons, depicted in Figure 5.3.4.1, allow users to retract actions such as element creation, deletion, and editing. However, these buttons are limited to a single undo action, meaning users can only revert to the previous state once. This limitation is due to the system storing only the last item state.

This feature enables users to correct mistakenly performed actions or revert to a previous state. Additionally, there is a title input provided as a quick shortcut for changing the eBook title, also shown in Figure 5.3.4.1.

Moreover, clicking the plus button as depicted in Figure 5.3.4.4 will reveal the collaboration container as displayed in Figure 5.3.4.5. It also acts as a shortcut for adding the collaboration through filling the target user's email address. Upon successful addition, a confirmation message will be displayed as shown in Figure 5.3.4.6. On the other hand, fail addition led to prompt the error messages as shown in Figure 5.3.4.7.

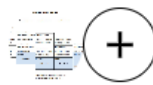


Figure 5.3.4.4: Design Plus Collaboration Button

Figure 5.3.4.5: Design Add Collaboration Container

Figure 5.3.4.6: Design Add Collaboration Success Message

Figure 5.3.4.7: Design Add Collaboration Fail Message

Additionally, clicking either the print button at the expanded list or header will prompt the system to open another blank page for printing the content as shown in Figure 5.3.4.8. At the same time, the JavaScript print confirm UI servers as the preview container for viewing the content. Clicking the save button will download the

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CHAPTER 5

file as PDF at the selected folder using the eBook title as the file name. The printed document is shown in Figure 5.3.4.9.

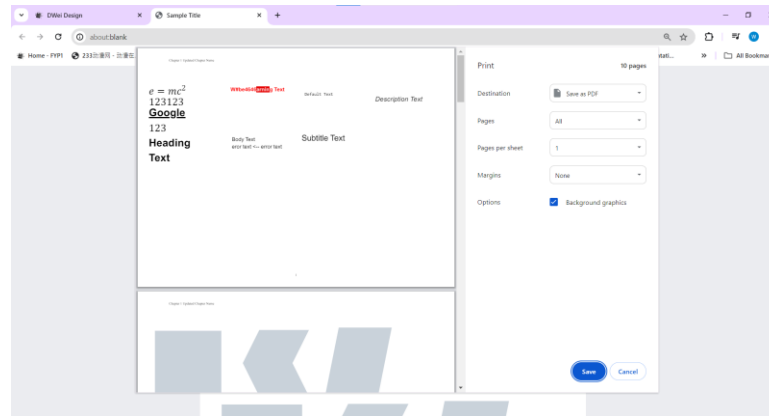


Figure 5.3.4.8: Print Preview Container

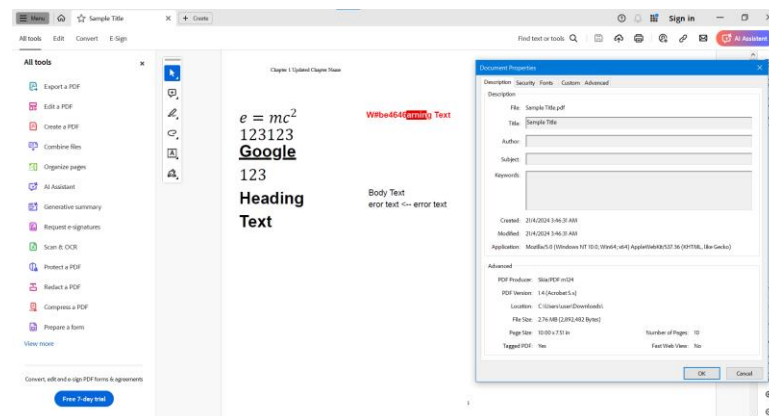


Figure 5.3.4.9: Printed Document View

As shown in Figure 5.3.4.10, three additional functions are explained which are toggling the element lock status and copy and paste functionalities. Clicking the lock button toggles the element lock status. If the element entering the lock state, it becomes uneditable, locking the relevant edit sidebar and move function and hide the pointer and rotation handle which shown in Figure 5.3.4.11. In addition, the users can copy the element state through clicking the copy button and paste the duplicated element by clicking the paste button. The pasted element will appear according to the scroll page instead of its original element location.



Figure 5.3.4.10: Top Tab Element Button List

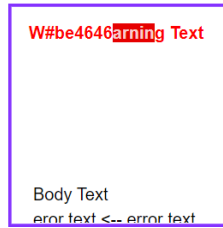


Figure 5.3.4.11: Element in Locked State

Moreover, users can prompt the find and replace text box as illustrated in Figure 5.3.4.12 through clicking the option as shown in Figure 5.3.4.3. The users need to input the find and replace input and click the “Replace All” button to trigger the function. Once triggered, it will search for the matching text and replace it as displayed in Figure 5.3.4.13 and 5.3.4.14.

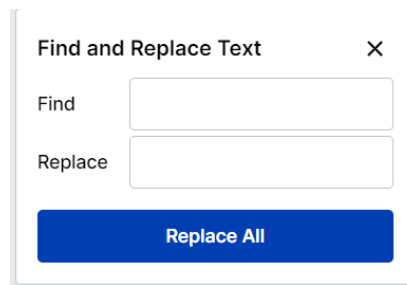


Figure 5.3.4.12: Find and Replace Text Function



Figure 5.3.4.13: Before Implementing Find and Replace Text Function

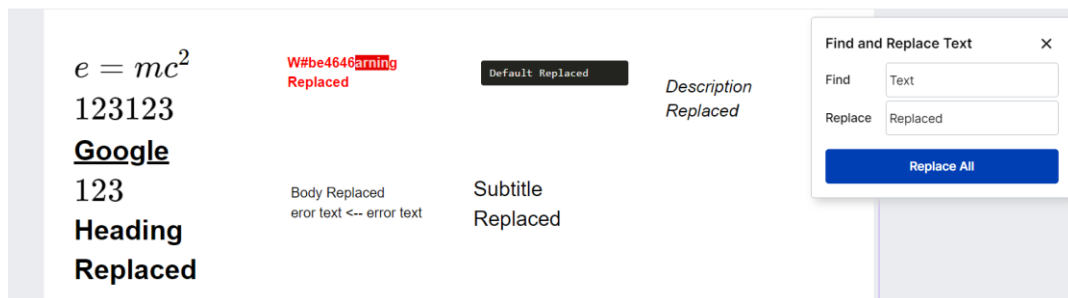


Figure 5.3.4.14: After Implementing Find and Replace Text Function

Additionally, users can access the scrolling and zooming features through the bottom tab list as shown in Figure 5.3.4.15. Apart from using the mouse to scroll or dragging the screen to move, there is an alternative method to navigate through the page by filling the chapter and page input field. If the user prompts the chapter input, then the system will validate the input to ensure it falls within the range of valid chapter indices, which is between 1 and the largest chapter index. It will correct the value to 1 if it is smaller than zero. Likewise, the system will set it to the maximum valid chapter index if it exceeds that value. After validation, the system will update the page number by taking the minimum value between the current page number and the maximum page index within the chapter. Similarly, when entering a page number, the system applies the same validation rule as for the chapter input. Furthermore, both inputs ensure only numerical value input is accepted. Successful input will result in the page being scrolled to the correct position. However, if no chapter is available, both inputs will be set to zero, and no element addition action will be allowed. Moreover, it provides the zooming functionality which can be adjusted through a scrollbar or a provided list as shown in Figure 5.3.4.15. Adjusting either will zoom the container according to the input value which is displayed in Figure 5.3.4.15.

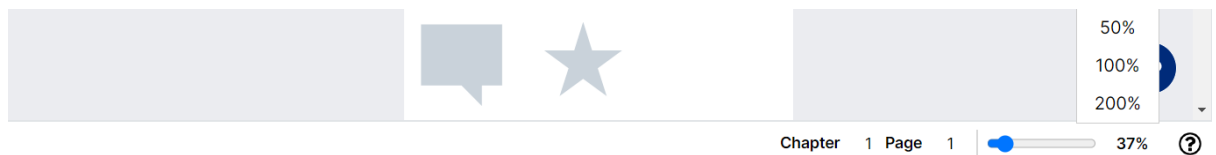


Figure 5.3.4.15: Design Bottom Tab List

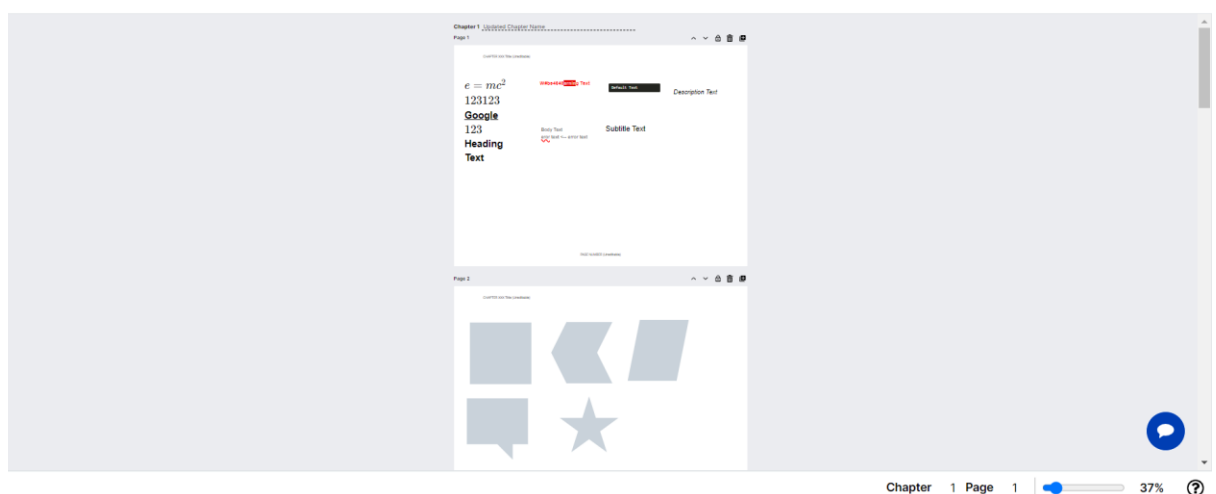


Figure 5.3.4.16: Container View After Zooming

Clicking the comment button at the bottom right or in the file expanded list will prompt the comment sidebar as shown in Figure 5.3.4.17. Furthermore, users can fill in the comments regarding the eBook and click the send button. Subsequently, it will create a message with the name, date, and comment. The display comment offers two options which are toggling the comment status such as marking it as resolved or unresolved as shown in Figure 5.3.4.18 and a delete button to remove the comment entirely.

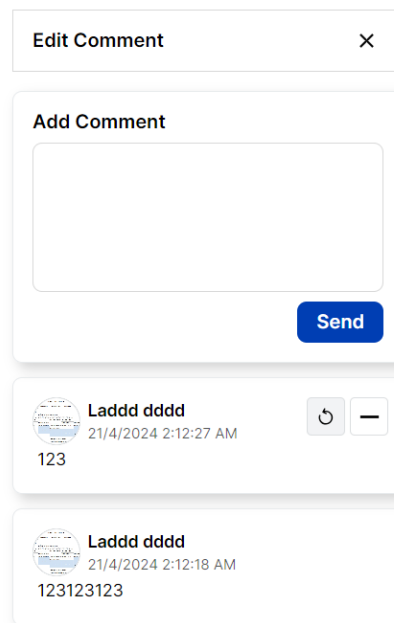


Figure 5.3.4.17: Comment Sidebar

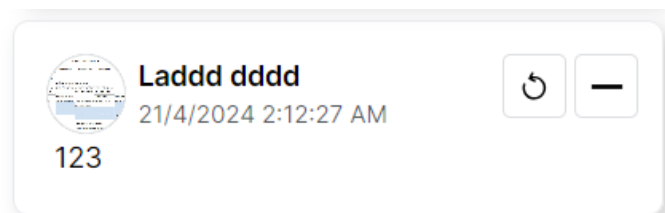


Figure 5.3.4.18: Resolved Comment

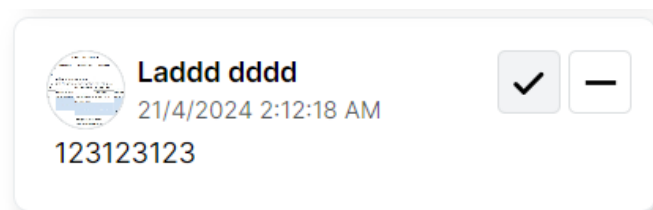


Figure 5.3.4.19: Unresolved Comment

Lastly, Quill Editor also provides a minimal capabilities of grammar detection as shown in Figure 5.3.4.20.

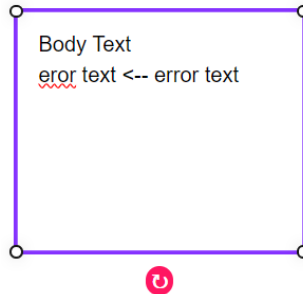


Figure 5.3.4.20: Text Grammar Detection

5.3.5 eBook Management Flow

After completing designing the eBook, users can manage their eBook through the file settings which is accessible in the file expanded list in design header as shown Figure 5.3.4.3. or by clicking the setting item on the content in the dashboard as depicted in Figure 5.3.5.1. In the file setting page, various contents like collaboration, file settings, and version details are initially hidden in a collapsible box as shown in Figure 5.3.5.2. Users can expand this box by clicking the expand button as demonstrated in Figure 5.3.5.3.

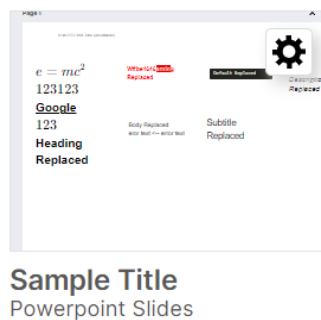


Figure 5.3.5.1: Dashboard Grid List Item Hovering State

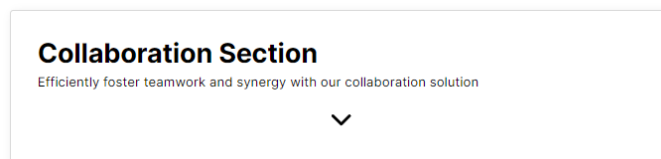


Figure 5.3.5.2: Collapsible File Setting Container

Collaboration Section
Efficiently foster teamwork and synergy with our collaboration solution

People with access

User email

memberA@hotmail.com
Laddd dddd Owner

corjackchin13@gmail.com
Updated Wei Di

^

Figure 5.3.5.3: Expanded File Setting Container

Moreover, it offers the basic eBook updating functions such as title, description and document types while the other feature are only viewable but not allowed to edit as demonstrated in Figure 5.3.5.4. Upon updating the information, the “last modified” timestamp will be automatically updated to current time and show a successful message at the top of the box as shown in Figure 5.3.5.5. Conversely, it will remain unchanged and prompt an error message from the backend as shown in Figure 5.3.5.6.

File Setting
Streamline file details and information management effortlessly with file setting

Title

Type

Description

Size

Status

Author

Last Modified Time

Figure 5.3.5.4: Updating File Setting Information

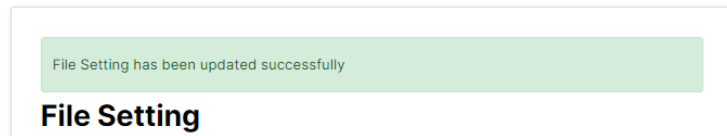


Figure 5.3.5.5: Successful Update File Setting Information

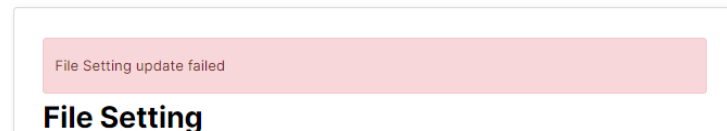


Figure 5.3.5.6: Failure in Updating File Setting Information

Moreover, the system also allows the user to delete the eBook through clicking the delete button. However, this action is irreversible and potentially risky. Therefore, the system will prompt a confirmation box as shown in Figure 5.3.5.7 which request the user to click the delete button for another time to confirm the action and prevent accidental deletion. Otherwise, the user can click the cancel button to abort the delete action.. If the action is successful, the user is redirected back to dashboard where a success message as shown in Figure 5.3.5.8 will be displayed for 5 seconds to notify the successful action.

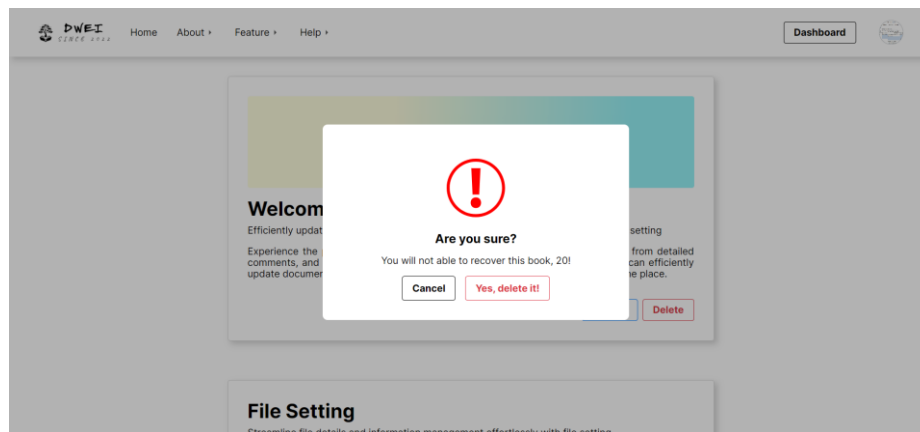


Figure 5.3.5.7: eBook Delete Confirmation Message Box

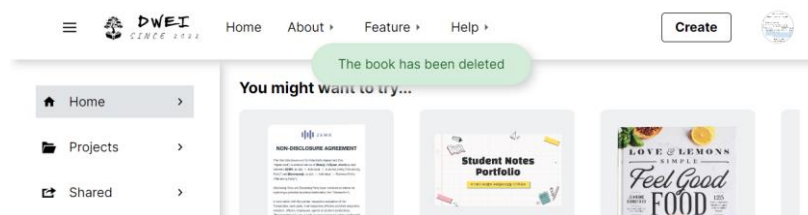


Figure 5.3.5.8: Successful Delete eBook Message in Dashboard

After confirming the details of the eBook and ensuring that it is error-free, users can click the “Publish” button to publish the “DRAFT” state eBook as shown in Figure 5.3.5.9 which will store the current eBook content, sends it to the management team for review, transitioning it to the “REVIEWED” state as shown in Figure 5.3.5.10. If the management team approve the eBook, it will transition to the “PUBLISHED” state as shown in Figure 5.3.5.11 and become visible in dashboard’s published content section for the others to read. Moreover, if the management team rejects the eBook, it will become “REJECTED” state which require the user to republish it as shown in Figure 5.3.5.12. Furthermore, the users can choose to unpublish the eBook and republish it again if they wish to modify the content as shown in Figure 5.3.5.12. Undoubtedly, all successful publish action will prompt the successful message as shown in Figure 5.3.5.13 whereas fail in updating prompt the message in Figure 5.3.5.14. Besides, the users can click the “View” button to access their published eBook content which is only available for eBooks in “REVEIWED”, “REJECTED” and “PUBLISHED” states. This button prompts users to view their published content as shown in Figure 5.3.5.15. Moreover, one can click the “Back” button to return to the file setting page. Not only that, but the platform also offers the zoom function as shown in Figure 5.3.5.16 to resize the eBook for optimal reading size.

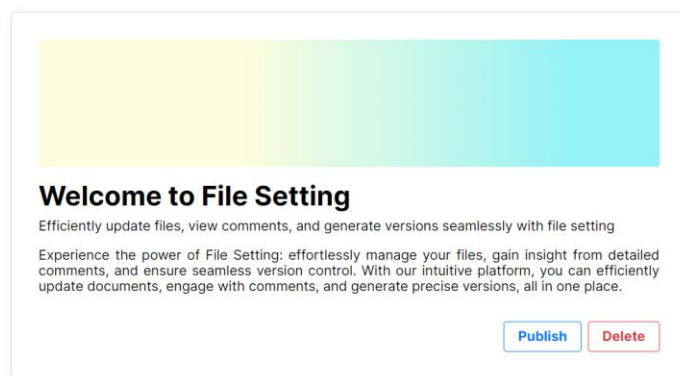


Figure 5.3.5.9: Publish and Delete File Setting Container

Welcome to File Setting

Efficiently update files, view comments, and generate versions seamlessly with file setting

Experience the power of File Setting: effortlessly manage your files, gain insight from detailed comments, and ensure seamless version control. With our intuitive platform, you can efficiently update documents, engage with comments, and generate precise versions, all in one place.



Figure 5.3.5.10: Reviewed State eBook

Welcome to File Setting

Efficiently update files, view comments, and generate versions seamlessly with file setting

Experience the power of File Setting: effortlessly manage your files, gain insight from detailed comments, and ensure seamless version control. With our intuitive platform, you can efficiently update documents, engage with comments, and generate precise versions, all in one place.



Figure 5.3.5.11: Published State eBook

Welcome to File Setting

Efficiently update files, view comments, and generate versions seamlessly with file setting

Experience the power of File Setting: effortlessly manage your files, gain insight from detailed comments, and ensure seamless version control. With our intuitive platform, you can efficiently update documents, engage with comments, and generate precise versions, all in one place.



Figure 5.3.5.12: Rejected State eBook



Welcome to File Setting

Figure 5.3.5.13: Successful Publishing eBook Information



Welcome to File Setting

Efficiently update files, view comments, and generate versions seamlessly with file setting

Figure 5.3.5.14: Failure in Updating File Setting Information

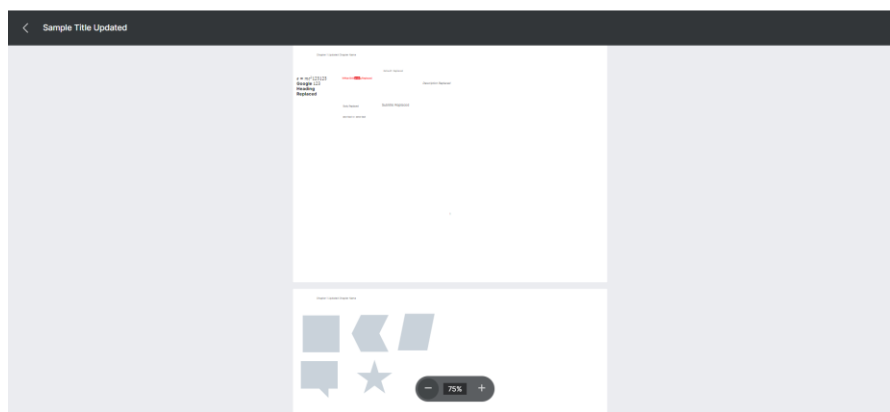


Figure 5.3.5.15: Published Content View Mode

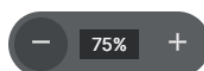


Figure 5.3.5.16: Published Content Zoom Input

Moreover, the file settings also offer the CRUD options for collaboration section. Previously added collaborations can be viewed in Figure 5.3.5.17, showing their email and name, with the owner indicated at the top of the list. Furthermore, there is an input section which allow users to input their intended collaborators. Null input will disable the click action of the “add” button. After clicking the “add” button, a successful action will prompt the successful message as shown in Figure 5.3.5.18. Meanwhile, the failure messages will be presented when backend errors occur such as invalid username, including author names and duplicate collaborations as seen in Figure 5.3.5.19, 5.3.5.20 and 5.3.5.21 respectively. If the users realize they have add the wrong person, they can immediately click the delete button to remove the them from editing the eBook as shown in Figure 5.3.5.22.

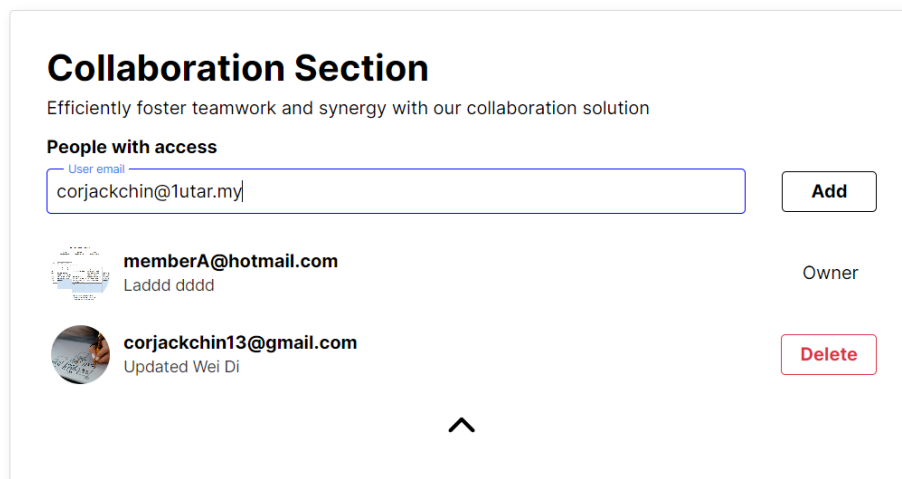


Figure 5.3.5.17: File Setting Collaboration Section

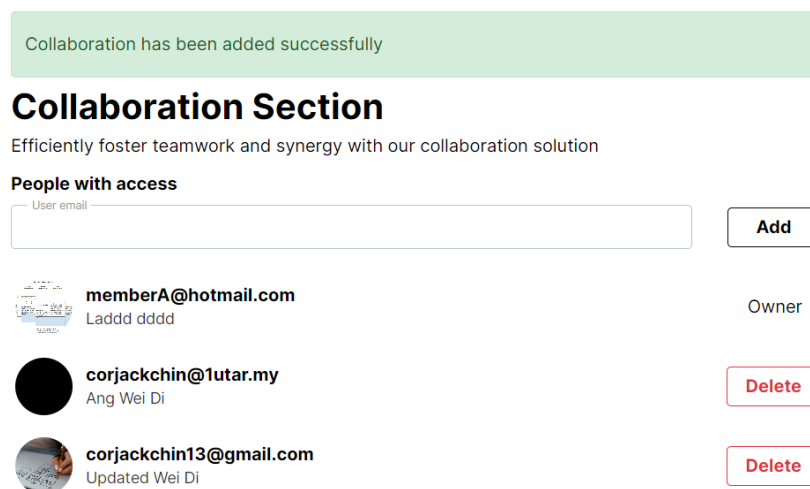


Figure 5.3.5.18: After Adding Collaboration Status

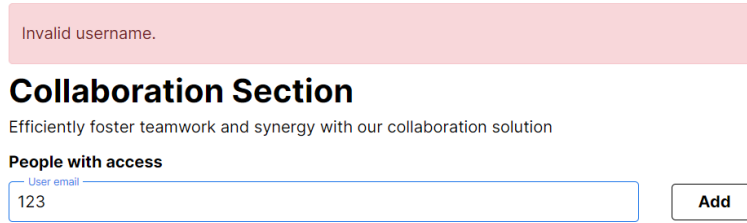


Figure 5.3.5.19: Error Collaboration Adding Message I

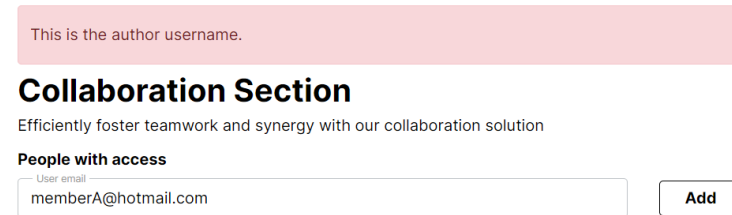


Figure 5.3.5.20: Error Collaboration Adding Message II

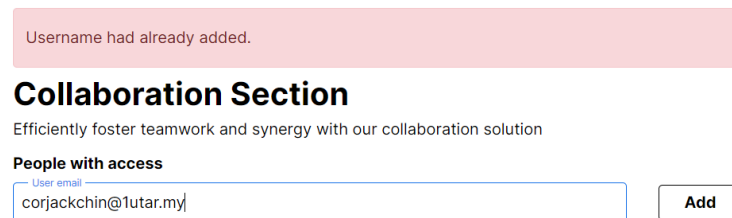


Figure 5.3.5.21: Error Collaboration Adding Message III

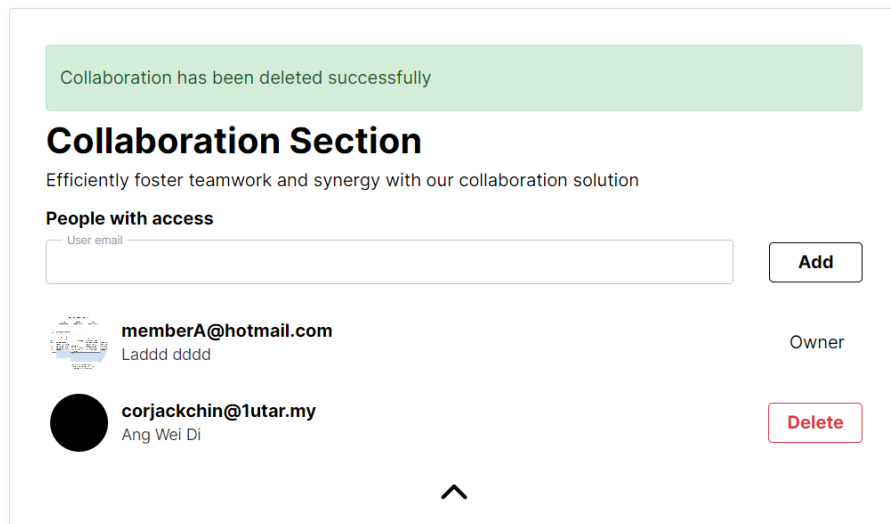


Figure 5.3.5.22: After Deleting Collaboration Status

Additionally, there is version section which enables the users to manage their versions similar to the collaboration section. It includes basic functions such as

viewing the version list, with the latest version listed at the top as shown in Figure 5.3.5.23. More than that, they can add a new version through filling in the version name as shown in Figure 5.3.5.24. Null input in the version name will disable the “add” button which serves as foolproof action. Unwanted version can be deleted through clicking the delete button, with the successful delete action can be viewed through Figure 5.3.5.25. Additionally, user can also edit the version name by changing the input and clicking the save button to update it as illustrated in Figure 5.3.5.26. If the null input is detected, then the system retains its previous name. Lastly, clicking the view button allows users to view the version content as displayed in Figure 5.3.3.27. The version content can be viewed with their content and also version title. There is also back button will return to the file setting whereas the zoom container provide optimal reading experience. Meanwhile, the failure message as viewed in Figure 5.3.3.28 will be prompted if any errors detected.

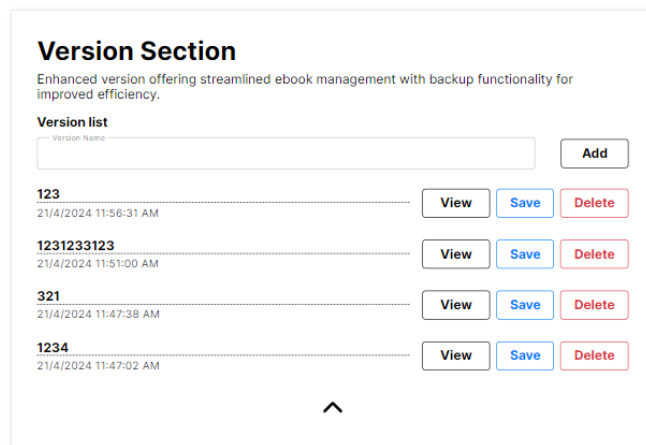


Figure 5.3.5.23: File Setting Version Section Container

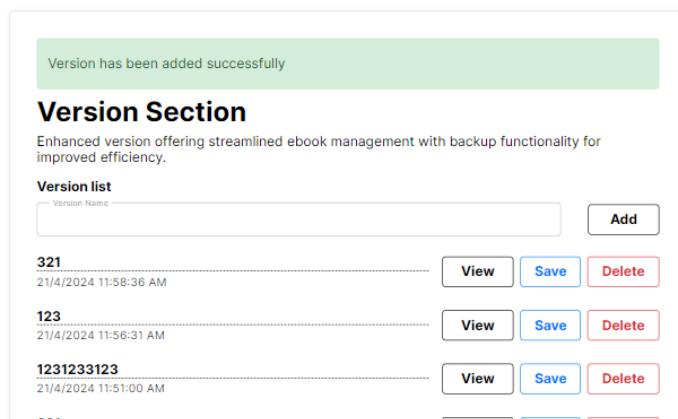


Figure 5.3.5.24: After Adding Version Status

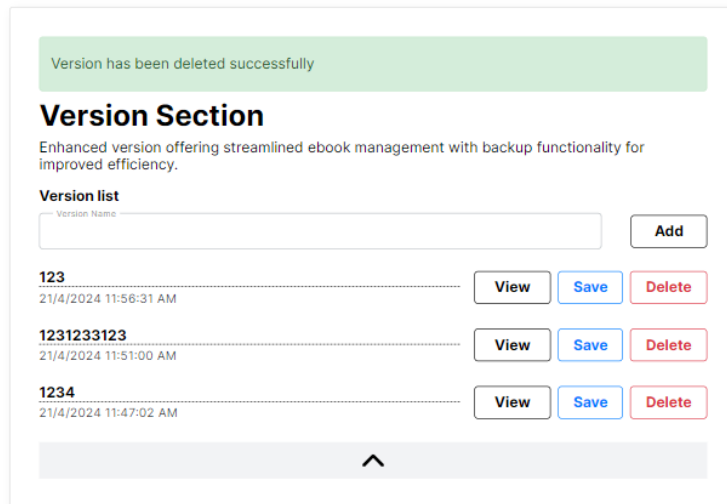


Figure 5.3.5.25: After Deleting Version Status

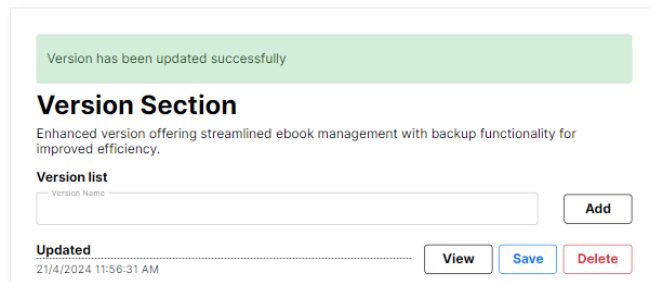


Figure 5.3.5.26: After Updating Version Status

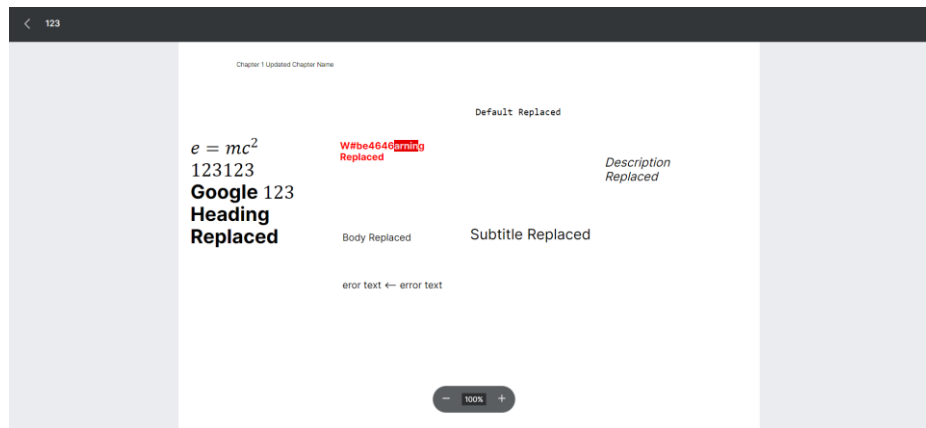


Figure 5.3.5.27: Version Content View Mode

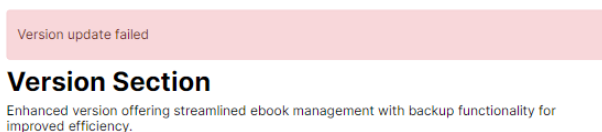


Figure 5.3.5.28: Failure in Updating Version Information

5.3.6 Top Management Flow

The top management flow is exclusive to the staff members with the role of reviewing eBook content. Regular users don't have the access to the management section in the dashboard. The reviewed projects are arranged based on their last modified time with the oldest listed on the top as depicted in Figure 5.3.6.1. In the top management flow, the primary task is to review eBooks and decide whether approve or reject their publication. Before making this decision, the management team can view the published eBook content through clicking the title to check appropriateness of the content. This action redirects them to view the published content as shown in Figure 5.3.6.2. Clicking The back button returns them to the management interface as shown in Figure 5.3.6.3. Upon successful updating the eBook status, a confirmation message like Figure 5.3.6.4 is displayed and the published eBook become visible to the public as shown in Figure 5.3.6.5. On the other hand, an error occurs during the update process, an error message in Figure 5.3.6.6 is shown. After completing the review action, the interface returns to the management section without any applied filters, which enhances the efficiency of the reviewing process.

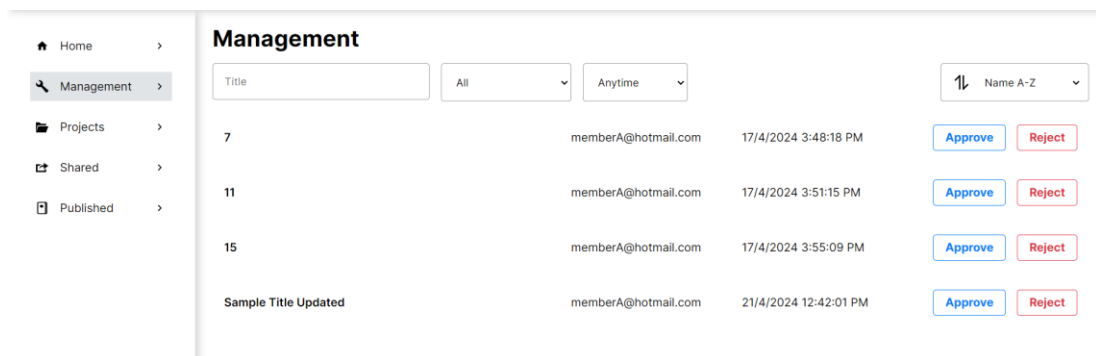


Figure 5.3.6.1: Dashboard Management Section

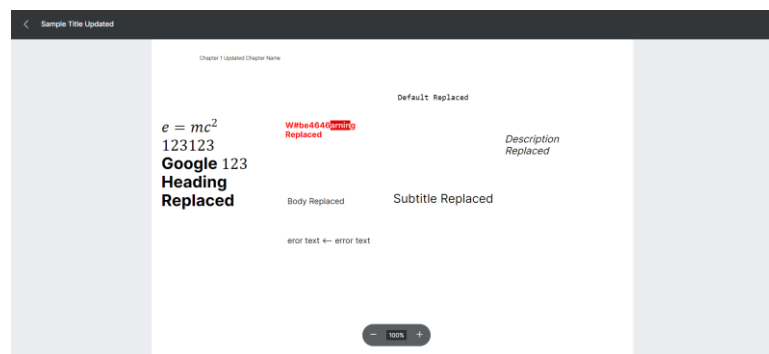


Figure 5.3.6.2: Published Content View Mode

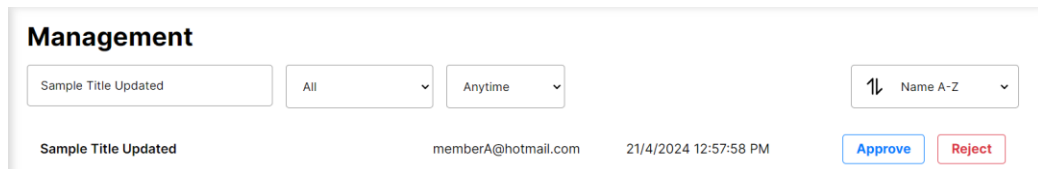


Figure 5.3.6.3: After Clicking Back Button in Published Content View Mode

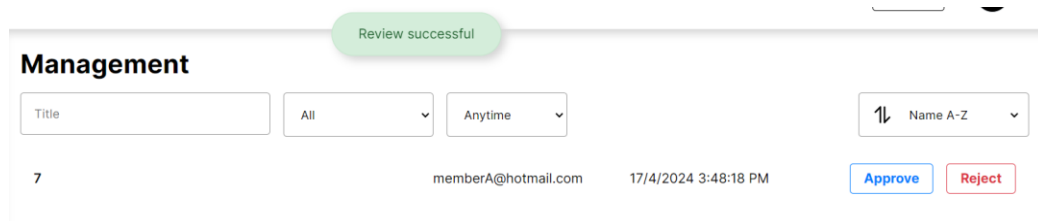


Figure 5.3.6.4: Review Confirmation Message

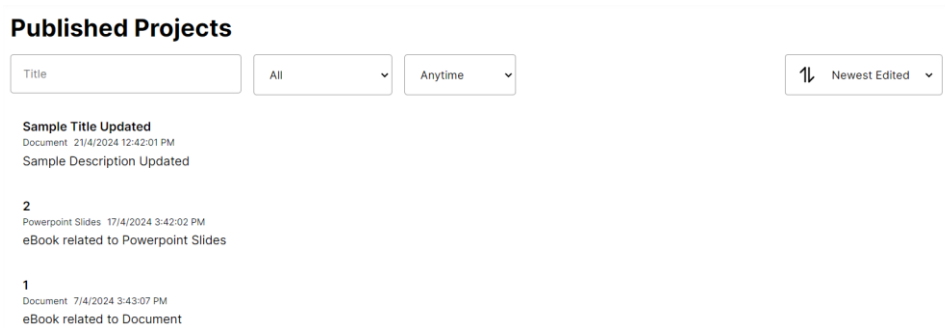


Figure 5.3.6.5: Successful eBook Publication

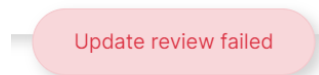


Figure 5.3.6.6: Update Reviewed Failed Message

5.4 Implementation Issues and Challenges

The major issue of development issue revolves around designing the user interface that possess the mobile responsive ability. It is mainly because of there are various resources available like mobile-responsive website template UIs which can be directly implemented. Therefore, it leads to almost zero experience in this field, causing less emphasis on this aspect. Not only that but, lacks experience also make it difficult to understand the most effective approach for optimizing the viewing experience for mobile users. The limited screen size of mobile devices further adds difficulties to design the mobile-responsive view which hard to synchronize with the

desktop view. Moreover, the mobile users don't have the keyboard shortcut key which further narrow down the development choices.

With limited development time, it become impractical for developers to build all the coding from scratch. Therefore, the development process heavily relied on libraries and frameworks available online like chart.js, interact.js, tesseract, Quill editor and KaTeX math libraries which have been employed in this project. On the other hand, the developers often encounter the implementation and integration issues. For example, inadequate documentation increases the complexity of understanding and makes it hard to seamlessly integrate these libraries into the system. Another issue arises from compatibility conflicts between different libraries sources. For example, certain libraries may crash with others which force the developers to abandon a particular library and search for alternative solution.. Other than that, most libraries come with their own standard frameworks so that the developers have low flexibility on customizing the library to align with their intended design or functionality.

During the development process, one requires to apply the AJAX approach to achieve the autosave function and avoid constant web page reloading causing dissatisfaction to the consumer. However, developers with limited experience often face challenges in understanding the web replies such as encountering HTTP POST 400 errors due to forget to include the CSRF token as the header in the POST request. Not only that, using AJAX introduces synchronization problems between the front end and back end. It is crucial to solve these issues meticulously to prevent the data discrepancy between the database records and front end data

Moreover, there are also challenges in coding for the design pages which comprised of substantial events like drag events for resizing, moving, rotation and text selection, click for selection and deselection, activation of function and many others. Therefore, with such complexity and high interconnected characteristics, it becomes a major challenge to the development work to avoid conflicts and crashes between them. Other than that, it also should handle different element types for the finer requirement like their unique properties. Moreover, it also should manage the occurrence of certain container to prohibit their simultaneous existence like the add and edit container and hide the edit container when transitioning from this element type to another element type that supports editing to another type that does not. In short, it requires a very

CHAPTER 5

detailed planning to avoid errors as each component is highly interrelated. Any minor errors contribute the huge issue in managing and fixing the bug.

In addition, numerous minor implementation issues have encountered such as content previewing for eBook in dashboard, printing service, email configuration for sending the email and handling charts with varying specifications which necessitate a more nuanced approach. Besides, inexperience to the database design which cause inconvenience to the subsequent function for the front end part. Database design complicates tasks like moving page upward and downward and arranging elements backward and forward. Furthermore, employing locking actions has proven challenging due to shortcomings in the front-end JavaScript design which make coding for such actions relatively difficult.

CHAPTER 6

System Evaluation and Discussion

In this chapter, it presents

6.1 Black Box Testing

Table 6.1.1: Test Scenario for Guest Header

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Enter the page as guest	Show this header	As expected	Success
	Click home at header	Redirect to home page	As expected	Success
	Click about at header	Redirect to about page	As expected	Success
	Click mission at header	Redirect to about page and scroll to mission section	As expected	Success
	Click vision at header	Redirect to about page and scroll to vision section	As expected	Success
	Click why choose us at header	Redirect to about page and scroll to why choose us section	As expected	Success
	Click feature at header	Redirect to feature page	As expected	Success
	Click products at header	Redirect to feature page and scroll to products section	As expected	Success
	Click services at header	Redirect to feature page and scroll to services section	As expected	Success
	Click capabilities	Redirect to feature	As expected	Success

	at header	page and scroll to capabilities section		
	Click help at header	Redirect to help page	As expected	Success
	Click guidance at header	Redirect to help page and scroll to guidance section	As expected	Success
	Click contact us at header	Redirect to help page and scroll to contact us section	As expected	Success
	Click login at header	Redirect to login page	As expected	Success
	Click sign up free at header	Redirect to register page	As expected	Success
	Click more option button	Guest sidebar is shown	As expected	Success
	Click home at sidebar	Redirect to home page	As expected	Success
	Click about at sidebar	Redirect to about page	As expected	Success
	Click feature at sidebar	Redirect to feature page	As expected	Success
	Click help at sidebar	Redirect to help page	As expected	Success
	Click login at sidebar	Redirect to login page	As expected	Success
	Click sign up free at sidebar	Redirect to register page	As expected	Success

Table 6.1.2: Test Scenario for Login Header

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Enter the page as guest	Show this header	As expected	Success
	Click logo at header	Redirect to home page	As expected	Success

	Click home at header	Redirect to home page	As expected	Success
	Click about at header	Redirect to about page	As expected	Success
	Click mission at header	Redirect to about page and scroll to mission section	As expected	Success
	Click vision at header	Redirect to about page and scroll to vision section	As expected	Success
	Click why choose us at header	Redirect to about page and scroll to why choose us section	As expected	Success
	Click feature at header	Redirect to feature page	As expected	Success
	Click products at header	Redirect to feature page and scroll to products section	As expected	Success
	Click services at header	Redirect to feature page and scroll to services section	As expected	Success
	Click capabilities at header	Redirect to feature page and scroll to capabilities section	As expected	Success
	Click help at header	Redirect to help page	As expected	Success
	Click guidance at header	Redirect to help page and scroll to guidance section	As expected	Success
	Click contact us at header	Redirect to help page and scroll to contact us section	As expected	Success
	Click dashboard at header	Redirect to dashboard page	As expected	Success
	Click profile image at header	Show profile expand container	As expected	Success

	Click more option button	Login sidebar is shown	As expected	Success
	Click home at sidebar	Redirect to home page	As expected	Success
	Click about at sidebar	Redirect to about page	As expected	Success
	Click feature at sidebar	Redirect to feature page	As expected	Success
	Click help at sidebar	Redirect to help page	As expected	Success
	Click profile setting at sidebar	Redirect to profile setting page	As expected	Success
	Click logout at sidebar	Logout the account and redirect to login page	As expected	Success

Table 6.1.3: Test Scenario for Profile Expand Container in Header

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click profile setting	Redirect to profile setting page	As expected	Success
	Click help center	Redirect to help page	As expected	Success
	Click privacy policy	Redirect to privacy page	As expected	Success
	Click logout	Logout the account and redirect to login page	As expected	Success

Table 6.1.4: Test Scenario for Footer

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click logo	Redirect to home page	As expected	Success
	Click privacy policy	Redirect to privacy page	As expected	Success

	Click term	Redirect to term page	As expected	Success
	Click Twitter icon	Redirect to Twitter	As expected	Success
	Click Instagram icon	Redirect to Instagram	As expected	Success
	Click Facebook icon	Redirect to Facebook	As expected	Success

Table 6.1.5: Test Scenario for Welcome Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click button at home hero section	Redirect to register page	As expected	Success
	Click button at home about us section	Redirect to about page	As expected	Success
	Click button at home feature section	Redirect to feature page	As expected	Success
	Click button at home help section	Redirect to help page	As expected	Success
	Enter the searching keyword at help search input	Filter the FAQ questions that match the search results.	As expected	Success
	Click at the FAQ question	Toggle the visibility of the FAQ answer	As expected	Success

Table 6.1.6: Test Scenario for Login Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the	Click logo	Redirect to home page	As expected	Success

CHAPTER 6

correct location	Click “Forget my password” link	Redirect to forget password page	As expected	Success
	Click “New user? Create an account” link	Redirect to register page	As expected	Success
	Click “Resend email confirmation” link	Redirect to the resent email confirmation page	As expected	Success
Sign in the account	Leave email address blank	Show a non-nullable error for email address	As expected	Success
	Enter a non-email address format	Show invalid format error for email address	As expected	Success
	Enter valid email address with correct format	Valid Input	As expected	Success
	Leave password blank	Show a non-nullable error for password	As expected	Success
	Enter a value for password field	Valid Input	As expected	Success
	Click the login button with email that is not registered	Show account has not registered error	As expected	Success
	Click the login button with email that has not been activated	Show email has not activated error	As expected	Success
	Click the login button with non-matching pair for email and password	Show invalid login attempt error.	As expected	Success
	Click the login button with non-matching pair for	Login the user and return them to home page	As expected	Success

	email and password with no return URL			
	Click the login button with non-matching pair for email and password with return URL	Login the user and return them to last access page	As expected	Success

Table 6.1.7: Test Scenario for Account Registration

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click logo	Redirect to home page	As expected	Success
	Click login page	Redirect to login page	As expected	Success
	Click back button	Hide current form and display previous form	As expected	Success
	Click next button	Hide current form and display next form	As expected	Success
Register the account	Leave first name input null	Show a non-nullable error for the first name input and turn it red.	As expected	Success
	Leave last name blank	Valid Input	As expected	Success
	Enter number or symbol for first name and last name input	Prohibit from typing number and symbol in first name and last name input	As expected	Success
	Enter name with letter for first name	Valid Input	As expected	Success
	Enter name with letter for last	Valid Input	As expected	Success

	name			
	Leave any month, day, and year blank	Show a non-nullable error for birthday and turn it red	As expected	Success
	Enter a year that is older than 100 years or younger than 18 years.	Show a birthday year error and turn it red	As expected	Success
	Enter a day that is invalid for the selected month	Show a birthday day error and turn it red	As expected	Success
	Enter a valid birthday date that fall within the range of 18 and 100 years old	Valid Input	As expected	Success
	Leave gender null	Show a non-nullable error for gender and turn it red	As expected	Success
	Select an option provided in gender	Valid Input	As expected	Success
	Leave email address blank	Show a non-nullable error for email address	As expected	Success
	Enter a non-email address format	Show invalid format error for email address	As expected	Success
	Enter a email that have been registered before	Show email duplication error for email address	As expected	Success
	Enter unique email address with correct format	Valid Input	As expected	Success
	Leave password blank	Show a non-nullable error for	As expected	Success

		password		
	Enter a password that is less than 8 characters long	Show a minimum length error for password	As expected	Success
	Enter a password with no combination of letter, symbol and number	Show a weak password error for password	As expected	Success
	Enter a value with a minimum 8 length which contains a combination of letters, symbols and numbers for password	Valid Input	As expected	Success
	Enter a value for the confirmation password that does not match the password	Show a non-matching error for confirm password field	As expected	Success
	Enter a matching value for the confirm password field with the password.	Valid Input	As expected	Success
	Uncheck either privacy policy or terms conditions checkbox	Show unchecked error for privacy policy and terms agreement	As expected	Success
	Click the register button	Hide the register form, show account registration confirmation message and prompt system to send the activation link to the account	As expected	Success
Activate the	Send the email with activation	Registered account email receives the	As expected	Success

account	link to the registered account from official account	activation link email		
	Users click the activation link after 15 minutes	Show email confirmation error	As expected	Success
	Users click the activation link within 15 minutes	Show email confirmation complete message and activate the email	As expected	Success

Table 6.1.8: Test Scenario for Resend Email Confirmation

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click logo	Redirect to home page	As expected	Success
	Click login page	Redirect to login page	As expected	Success
Resend activation link	Leave email address blank	Show a non-nullable error for email address	As expected	Success
	Enter a non-email address format	Show invalid format error for email address	As expected	Success
	Enter an email that has been activated	Show an email activation error for email address	As expected	Success
	Enter an email that does not exist	Show non-existed error for email address	As expected	Success
	Enter email that has not been activated	Valid Input	As expected	Success
	Click the send button	Send the activation link to the email	As expected	Success

Table 6.1.9: Test Scenario for Forget Password

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Redirect the user to the correct location	Click logo	Redirect to home page	As expected	Success
	Click login page	Redirect to login page	As expected	Success
Send the reset password link	Leave email address blank	Show a non-nullable error for email address	As expected	Success
	Enter a non-email address format	Show invalid format error for email address	As expected	Success
	Enter a valid email format address	Valid Input	As expected	Success
	Non-existed email	Redirect to forget password confirmation page and NOT send the reset password link	As expected	Success
	Existed email	Redirect to forget password confirmation page and send the reset password link	As expected	Success
	Administration account sends the reset password link to the input email address	The input email receives the reset password link	As expected	Success
Reset password	Users click reset password link	Redirect the user to the reset password form	As expected	Success
	Leave email address blank	Show a non-nullable error for email address	As expected	Success
	Enter a non-email	Show invalid	As expected	Success

	address format	format error for email address		
	Enter an email address with valid format	Valid Input	As expected	Success
	Leave password blank	Show a non-nullable error for password	As expected	Success
	Enter a password that is less than 8 characters long	Show a minimum length error for password	As expected	Success
	Enter a password with no combination of letter, symbol and number	Show a weak password error for password	As expected	Success
	Enter a value with a minimum 8 length which contains a combination of letters, symbols and numbers for password	Valid Input	As expected	Success
	Enter a value for the confirmation password that does not match the password	Show a non-matching error for confirm password field	As expected	Success
	Enter a matching value for the confirm password field with the password.	Valid Input	As expected	Success
	Clicking the reset button with valid input after token expiration	Redirect the user to view reset password failed message and show the respective error message	As expected	Success

	Click the reset button with non-matching email address before token expiration	Redirect the user to view reset password failed message and show the respective error message	As expected	Success
	Click the reset button with matching email address input before token expiration	Redirect the user to view reset password confirmation message and reset the password	As expected	Success

Table 6.1.10: Test Scenario for Profile Setting Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Ensure that only logged-in users can access the page.	Entering this page without login	Redirect to login page	As expected	Success
	Entering this page after login	Display all information related to the user model	As expected	Success
Update the personal information	Uploading the image file	Replace the original image and display it	As expected	Success
	Leave first name input null	Show a non-nullable error for the first name input and turn it red.	As expected	Success
	Leave last name blank	Valid Input	As expected	Success
	Enter number or symbol for first name and last name input	Prohibit from typing number and symbol in first name and last name input	As expected	Success
	Enter name with letter for first name	Valid Input	As expected	Success

CHAPTER 6

	Enter name with letter for last name	Valid Input	As expected	Success
	Leave any month, day, and year blank	Show a non-nullable error for birthday and turn it red	As expected	Success
	Enter a year that is older than 100 years or younger than 18 years.	Show a birthday year error and turn it red	As expected	Success
	Enter a day that is invalid for the selected month	Show a birthday day error and turn it red	As expected	Success
	Enter a valid birthday date that fall within the range of 18 and 100 years old	Valid Input	As expected	Success
	Click the submit button	The database is successfully updated, and a success message is displayed.	As expected	Success
	Click the submit button while a database error occurs	The database update fails due to the error, and an error message is prompted to the user.	As expected	Success
Update the password	Leave the password field blank	Show a non-nullable error for the null password	As expected	Success
	Enter a value in old password	Valid Input	As expected	Success
	Enter a password that is less than 8 characters long for new password	Show a minimum length error for new password	As expected	Success

	Enter a password with no combination of letter, symbol, and number for new password	Show a weak password error for new password	As expected	Success
	Enter a value with a minimum 8 length which contains a combination of letters, symbols and numbers for new password	Valid Input	As expected	Success
	Enter a value for the confirm password that does not match the new password	Show a non-matching error for confirm password field	As expected	Success
	Enter a matching value for the confirm password field with the password.	Valid Input	As expected	Success
	Click the submit button with the input of wrong old password	Show the incorrect password error message	As expected	Success
	Click the submit button with the change password	Show the change password error message	As expected	Success
	Click the submit button with valid input	The database is successfully updated, and a success message is displayed.	As expected	Success

Table 6.1.11: Test Scenario for Dashboard Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
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Ensure only authenticated users can access certain sections	Entering this page with guest role	Redirect to login page	As expected	Success
	Entering this page after login	Display all information except management sections	As expected	Success
	Entering this page with authenticated user	Display all information including management section	As expected	Success
Switch and show the correct section	Entering the page without "displayTab" parameter	Show home section and highlight the home sidebar tab	As expected	Success
	Entering the page with the value of "home" as the "displayTab" parameter"	Show home section and highlight the home sidebar tab.	As expected	Success
	Entering the page with the value of "management" as the "displayTab" parameter"	Show management section and highlight the management sidebar tab	As expected	Success
	Entering the page with the value of "published" as the "displayTab" parameter"	Show published section and highlight the published sidebar tab	As expected	Success
	Entering the page with the value of "shared" as the "displayTab" parameter"	Show shared section and highlight the shared sidebar tab	As expected	Success
	Entering the page with the value of "projects" as the "displayTab" parameter"	Show projects section and highlight the projects sidebar tab.	As expected	Success

	Click the home section at the sidebar	Show home section and highlight the home sidebar tab	As expected	Success
	Click the management section at the sidebar	Show management section and highlight the management sidebar tab	As expected	Success
	Click the published section at the sidebar	Show published section and highlight the published sidebar tab	As expected	Success
	Click the shared section at the sidebar	Show shared section and highlight the shared sidebar tab	As expected	Success
	Click the projects section at the sidebar	Show projects section and highlight the projects sidebar tab.	As expected	Success
Showing correct content for the section	Can view the recommended list at home section	Display the recommended list at home section	As expected	Success
	Can view the recent 10 modified eBook at recent part in home section	Display a maximum of 10 recently modified eBooks in the recent part of the home section.	As expected	Success
	Can view the maximum of 12 eBooks created by user in project section	Display the maximum of 12 recently modified eBook created by users with the most recent eBook displayed first	As expected	Success
	Can view the maximum of 12 eBooks shared	Display the maximum of 12 recently modified	As expected	Success

	with user in shared section	eBook shared with users with the most recent eBook displayed first		
	Can view the maximum of 12 published eBooks in published section	Display the maximum of 12 recently published eBook with the most recent eBook displayed first	As expected	Success
	Authenticated user can view the maximum of 12 eBooks awaiting review in management section	Display the maximum of 12 earliest eBooks waiting to be reviewed in the management section, with the oldest eBook displayed first	As expected	Success
Filter and sorting function	Change the title input field in filter list	Refresh the page and retrieve the eBooks for all sections other than home sections that match the title and display them to the user	As expected	Success
	Change the type in filter list	Refresh the page and retrieve the eBooks for all sections other than home sections that match the selected type, displaying them to the user.	As expected	Success
	Change the last modified time in filter list	Refresh the page and retrieve the eBooks for all sections other than home sections that were last modified within the requested time	As expected	Success

		frame, displaying them to the user..		
	Change the sorting list	Refresh the page and retrieve the eBooks for all sections other than home sections sorting them according to the selected sorting criteria before displaying them to the user.	As expected	Success
Paginated List Function	Zero contents for the sections	Disable the click for previous, next page button and page input field Show the value of "0 over 0" to indicate no content available.	As expected	Success
	There are at least 12 content items for the sections	Make it paginated and display the content when switching to that page.	As expected	Success
	There are at least 12 content items	Make it paginated and display it when switching to that page	As expected	Success
	Previous page not available	Enable the previous page button	As expected	Success
	Previous page available	Disable the previous page button	As expected	Success
	Next page not available	Enable the next page button	As expected	Success
	Next page available	Disable the next page button	As expected	Success

	Input less than 0 page index	Show the first page for the selected section	As expected	Success
	Input larger than the largest page index	Show the last page for the selected section	As expected	Success
	Input valid input	Show that specific page for the selected section	As expected	Success
	Click previous page button	Show previous page for the selected section	As expected	Success
	Click next button	Show next page for the selected section	As expected	Success
Create eBook	Click the content at recommendation part in home section	Create a default eBook according to the specification stored in the recommended item and redirect them to the design view for the eBook	As expected	Success
	Click at create button at header	Display the create eBook form	As expected	Success
	Leave the title blank	Display non-null error and turn it red	As expected	Success
	Enter title with length more than 200 characters	Display title too long error and turn it red	As expected	Success
	Enter title with length less than 200 character	Valid Input	As expected	Success
	Leave the type field blank	Display non-null error for the type and turn it red	As expected	Success
	Select a type	Valid Input	As expected	Success
	Leave the description blank	Display non-null error for the description and	As expected	Success

		turn it red		
	Enter a value for description field	Valid Input	As expected	Success
	Enter symbol and letters for width and size	Prohibiting inputting those input	As expected	Success
	Enter the value less than 50	Display too small size error and turn it red	As expected	Success
	Click create button	Create the eBook according to the specification input and redirect them to the design view	As expected	Success
Action for the content item in Home, Shared and Projects section	Hover over the content	Display the file setting icon	As expected	Success
	Click at the setting icon	Redirect the user to file setting page	As expected	Success
	Click at the title of content item	Redirect the user to design mode for the selected eBook	As expected	Success
Action for the content item in Published section	Hover over the content	Highlighted the whole content items	As expected	Success
	Click the highlighted section	Redirect the user to published content page for the eBook	As expected	Success
Action for the content item in Management section	Perform the action as a not authenticated user	Redirect to denied access page	As expected	Success
	Perform the action as an authenticated user	The action should be passed	As expected	Success
	Hover over the content	Highlighted the whole content items	As expected	Success
	Click the title	Redirect the user to review the	As expected	Success

		published content page for the eBook		
	Click the approve button	Update the book status to PUBLISHED state and display a confirmation message	As expected	Success
	Click the reject button	Update the book status to REJECTED state and display a confirmation message	As expected	Success
	Click either approve or reject button with database issues	The database is not updated and display a error message	As expected	Success

Table 6.1.12: Test Scenario for Design Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Ensure only authenticated users can access certain sections	Entering this page with guest role	Redirect to login page	As expected	Success
	Entering this page after login without enlisted as author or collaboration	Redirect to access denied page	As expected	Success
	Entering this page with collaborators role	Access control limited to viewing the eBook content only. Collaborators cannot edit, create, or delete chapters, pages, or elements. They can access comment CRUD, print, and collaboration	As expected	Success

CHAPTER 6

		functions.		
	Entering this page as author role	Full access control over the file	As expected	Success
Chapter Related Function	Click add chapter button	Create a chapter that contains one page	As expected	Success
	Change the chapter name	Update the current chapter title to the new input	As expected	Success
Page Related Function	Click the page upward if this is first page	Nothing happen.	As expected	Success
	Click the page upward if this is not the first page	Exchange this page and above page sequence	As expected	Success
	Click the page downward if this is last page	Nothing happened	As expected	Success
	Click the page upward if this is not the last page	Exchange this page and below page sequence	As expected	Success
	Click the lock button	Toggle the page lock status from lock to unlock or unlock to lock	As expected	Success
	Click the delete button	Delete the page	As expected	Success
	Click the add page button	Add the page below this page	As expected	Success
	Click the add element button	Nothing Happen	As expected	Success
	Select the element within the page	Nothing Happen	As expected	Success
Toggle the sidebar	Click the text element at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add	As expected	Success

		text container and hide all visible sidebars		
	Click the shape element at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add element container and hide all visible sidebars	As expected	Success
	Click the image element at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add image container and hide all visible sidebars	As expected	Success
	Click the chart element at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add chart container and hide all visible sidebars	As expected	Success
	Click the OCR at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add OCR container and hide all visible sidebars	As expected	Success
	Click the background at sidebar	Toggle tab-selected class to the clicked div, toggle the visibility of the add background container and hide all visible sidebars	As expected	Success
	Click the back at sidebar	Toggle tab-selected class to the clicked div and return to dashboard page	As expected	Success

	Click the comment floating fix button	Toggle tab-selected class to the comment floating fix button and comment at expanded list in header, toggle the visibility of the comment container and hide all visible sidebars	As expected	Success
	Click the comment at header	Toggle tab-selected class to the comment floating fix button and comment at expanded list in header, toggle the visibility of the comment container and hide all visible sidebars	As expected	Success
	Click the position at top tab list	Toggle tab-selected class to the clicked div, toggle the visibility of the edit position container and hide all visible sidebars	As expected	Success
	Click the chart at top tab list	Toggle tab-selected class to the clicked div, toggle the visibility of the edit chart container and hide all visible sidebars	As expected	Success
	Click the border at top tab list	Toggle tab-selected class to the clicked div, toggle the visibility of the edit border container and hide all visible sidebars	As expected	Success

	Click the text at top tab list	Toggle tab-selected class to the clicked div, toggle the visibility of the edit text container and hide all visible sidebars	As expected	Success
	Click the shape at top tab list	Toggle tab-selected class to the clicked div, toggle the visibility of the edit shape container and hide all visible sidebars	As expected	Success
OCR Function	Click the upload photo button	Open a file input dialog prompting the user to select a file which is limited to the jpg, jpeg and png format	As expected	Success
	Click the open button	Send the file to the system, conduct OCR, display the photo uploaded and print out the word extracted out from the image in the OCR sidebar	As expected	Success
Replace background for the page	Click at solid colour	Replace the current page with the selected solid colour and update the database	As expected	Success
	Click the upload photo button	Open a file input dialog prompting the user to select a file which is limited to the jpg, jpeg and png format	As expected	Success
	Click the open button	Send the file to the system, convert to base64 format,	As expected	Success

		replace for the current page with the properties of cover, no repeat and centre and update the database		
	Click the image	Replace the background with the clicked image and update the database	As expected	Success
	Click the colour picker input	Open the colour picker input	As expected	Success
	Input on the colour picker input	Replace the colour with selected colour and update the database	As expected	Success
	Enter value into filter background input	Filter the background option to match the entered search string	As expected	Success
Add Element	Click the text element in the add text container	Add the text with the clicked element's specification and update the database	As expected	Success
	Enter value into filter add text input	Filter the add text options to match the entered search string	As expected	Success
	Click the shape element in the add text container	Add the shape with clicked shape specifications and update the database	As expected	Success
	Enter value into filter add shape input	Filter the add shape option to match the entered search string	As expected	Success
	Click the chart element in the	Add the chart with clicked chart	As expected	Success

	add text container	specifications and update the database		
	Enter value into filter add chart input	Filter the add chart option to match the entered search string	As expected	Success
	Click the image element in the add text container	Add the image with clicked image specifications and update the database	As expected	Success
	Enter value into filter add image input	Filter the add image option to match the entered search string	As expected	Success
	Click the upload photo button in add image container	Open a file input dialog prompting the user to select a file which is limited to the jpg, jpeg and png format	As expected	Success
	Click the open button	Add the uploaded image to current page and update the database	As expected	Success
Common Element Basic Functions	Hover over the element	Element is surround with a purple colour border	As expected	Success
	Click the element	The element become selected state with 4 pointers and a rotation handle added	As expected	Success
	Drag the rotation handle	The element rotates according to the cursor movement	As expected	Success
	Drag the selected element to move it within the	The container moves according to the cursor movement,	As expected	Success

	container	dragging the element along		
	Drag the selected element to move it outside the container	If the element is dragged outside the container, the container stops at the edge	As expected	Success
	Drag the top left pointer	The element's size adjusts, with the top left corner moving according to the cursor movement	As expected	Success
	Drag the top right	The element's size adjusts, with the top right corner moving according to the cursor movement	As expected	Success
	Drag the bottom left	The element's size adjusts, with the bottom left corner moving according to the cursor movement	As expected	Success
	Drag the bottom right	The element's size adjusts, with the bottom right corner moving according to the cursor movement	As expected	Success
	Resizing to a minimum size	Resizing function stops when the element reaches a certain minimum size	As expected	Success
	Click anywhere to deselect the element	The element is deselected, and changes are updated in the database.	As expected	Success

CHAPTER 6

Display the correct button at top tab list container	Text element is selected	Display position, text, border, and element button list	As expected	Success
	Shape element is selected	Display position, text, shape, and element button list	As expected	Success
	Chart element is selected	Display position, chart, and element button list	As expected	Success
	Image element is selected	Display position, border, and element button list	As expected	Success
Common element functions	Click the delete button	Delete the element and update the database	As expected	Success
	Click the lock status	Toggle the element lock status and update the database	As expected	Success
	Click the copy button	Copy the content and state of the selected element	As expected	Success
	Click the paste button	Paste the element with exactly same state and content at the current page	As expected	Success
Edit Position	Click forward button if there is still an element in front of it	Move the element forward in the stacking order	As expected	Success
	Click forward button if there is no element in front of it	Nothing happens	As expected	Success
	Click backward button if there is still an element behind it	Move the element backward in the stacking order	As expected	Success
	Click backward button if there is	Nothing happens	As expected	Success

	no element behind of it			
	Change the value of X in edit position container	Update the position X of element with the input value	As expected	Success
	Change the value of Y in edit position container	Update the position Y of element with the input value	As expected	Success
	Change the value of angle in edit position container	Rotate the element with the input value	As expected	Success
	Change the value of width in edit position container	Update the element width with the input value	As expected	Success
	Change the value of height in edit position container	Update the element height with the input value	As expected	Success
	Input value of X smaller than the minimum value	Reset the value to minimum value and update position X of element	As expected	Success
	Input value of Y smaller than the minimum value	Reset the value to minimum value and update position Y of element	As expected	Success
	Input value of X exceed than the maximum value	Reset the value to maximum value and update position X of element	As expected	Success
	Input value of Y exceed than the maximum value	Reset the value to maximum value and update position Y of element	As expected	Success
	Input value of rotation angle is larger than 2π or smaller than 0	Reset the value to the angle range and rotate the element accordingly	As expected	Success
	Input value of width smaller	Reset the value to the minimum	As expected	Success

	than the minimum value	allowable value and update the width of the element.		
	Input value of height smaller than the minimum value	Reset the value to the minimum allowable value and update the height of the element.	As expected	Success
Edit Shape	View the current shape colour	Extract the current shape colour and display it in the rectangle container	As expected	Success
	Click the solid colour	Update the colour of the “current colour” container and shape with the selected colour	As expected	Success
	Click the colour picker input	Open the colour picker input	As expected	Success
	Input on the colour picker input	Update the colour of the “current colour” container and shape with the selected colour	As expected	Success
Edit Text	Click once again on the selected element which has text property	Activate the text editor function and disable the moving function	As expected	Success
	Input the text within the element	The text is written within the container	As expected	Success
	Select the text style	Format the selected text to the selected text style	As expected	Success
	Select the font type	Format the selected text to the selected font type	As expected	Success
	Select the font size	Format the selected text to the font size	As expected	Success

	Select the background or text colour	Open the colour picker	As expected	Success
	Click the colour in text colour	Format the selected text colour to the selected colour	As expected	Success
	Click the colour in background text colour	Format the selected background text colour to the selected colour	As expected	Success
	Click the colour picker input	Open the colour picker	As expected	Success
	Select the colour in the colour picker in text colour	Format the selected text colour to the selected colour	As expected	Success
	Select the colour in the colour picker in background text colour	Format the selected background text colour to the selected colour	As expected	Success
	Click the italic	Italic the selected text	As expected	Success
	Click the underline	Underline the selected text	As expected	Success
	Click the strikethrough	Strikethrough the selected text	As expected	Success
	Click the superscript	Superscript the selected text	As expected	Success
	Click the subscript	Subscript the selected text	As expected	Success
	Toggle the text direction	Toggle the text direction from right to left or left to right	As expected	Success
	Click the clean format	Clear the selected text format	As expected	Success
	Select the text	Format the selected	As expected	Success

	alignment	text to the select text alignment		
	Click the dot list	Format the selected text to dot list	As expected	Success
	Click the tick list	Format the selected text to tick list	As expected	Success
	Click the number list	Format the selected text to number list	As expected	Success
	Click the quote	Format the selected text to quote block	As expected	Success
	Click the code	Format the selected text to code block	As expected	Success
	Click the mathematical equation	Prompt the alert window asking for a mathematical equation input.	As expected	Success
	Click enter on the alert window	Insert the mathematical formula into the selected text location	As expected	Success
	Click cancel of mathematical equation alert window	Close the alert window without inserting the formula.	As expected	Success
Edit Border	Change the value of width	Update the border thickness with the input value	As expected	Success
	Change the value of roundness	Update the border curvature with the input value	As expected	Success
	Input value of width smaller than the minimum value	Reset the value to minimum value and update border thickness of element		
	Input value of roundness smaller than the	Reset the value to minimum value and update border	As expected	Success

	minimum value	curvature of element		
	Change the value of height in edit position container	Update the element height with the input value	As expected	Success
	Select the border style	Update the border style with the selected style	As expected	Success
	Select the solid colour	Update the current colour and border colour with the selected colour	As expected	Success
	Click the colour picker input	Open the colour picker	As expected	Success
	Select the colour in the colour picker	Update the current colour and border colour with the selected colour	As expected	Success
Edit Chart	Hover over the data	Show the relevant information like datasets name, labels name and data value as tooltips	As expected	Success
	Click at datasets/labels at canvas chart	It toggle the visibility of the data	As expected	Success
	Click the colour button	Open the colour grid list container	As expected	Success
	Click the colour picker input	Open the colour picker	As expected	Success
	Select the colour in the colour picker in chart information	Update the chart background colour to the selected colour	As expected	Success
	Select the solid colour in chart information	Update the chart background colour to the selected colour	As expected	Success

	Select the colour in the colour picker in labels	Update the chart labels colour to the selected colour	As expected	Success
	Select the solid colour in labels	Update the chart labels colour to the selected colour	As expected	Success
	Select the colour in the colour picker in datasets	Update the chart datasets colour to the selected colour	As expected	Success
	Select the solid colour in datasets	Update the chart datasets colour to the selected colour	As expected	Success
	Change the labels name	Update the labels name of charts with the input value	As expected	Success
	Click delete button at labels row	Delete the labels with its associated data in datasets in chart	As expected	Success
	Click add label row	Add the labels with its associate data with random value in datasets	As expected	Success
	Change the datasets name	Update the datasets name of chart with the input value	As expected	Success
	Click delete button at datasets header row	Delete the datasets in chart	As expected	Success
	Click add dataset row	Add the datasets in chart with random value	As expected	Success
	Change the data value	Update the data value with the input value in chart	As expected	Success
	Toggle show title setting	Toggle the visibility of title	As expected	Success
	Toggle show	Toggle the	As expected	Success

CHAPTER 6

	legend setting	visibility of legend		
	Toggle show gridline setting	Toggle the visibility of gridline	As expected	Success
	Toggle show axis title setting	Toggle the visibility of axis title	As expected	Success
Design header functionality	Click the more option button	Display the sidebar	As expected	Success
	Click the black screen which come along with the sidebar	Close the sidebar	As expected	Success
	Hover over or click the “File”	The file expanded list is shown	As expected	Success
	Click the file settings at the file expanded list	Redirect to the file setting of current eBook	As expected	Success
	Click the version history at the file expanded list	Redirect to the version history of file setting of current eBook	As expected	Success
	Click the find and replace text at the file expanded list	Display the find and replace text container	As expected	Success
	Click the print as PDF button at the file expanded list	Open another blank page which used as preview the print view and print the document	As expected	Success
	Click the print as button at design header	Open another blank page which used as preview the print view and print the document	As expected	Success
	Click the comment at header at the file expanded list	Toggle tab-selected class to the comment floating fix button and comment at	As expected	Success

		expanded list in header, toggle the visibility of the comment container and hide all visible sidebars		
	Click plus button at header	Display the add collaboration container	As expected	Success
Add collaboration	Enter value in collaboration input field	Valid Input	As expected	Success
	Click the send button with valid email	The collaboration is added and show a confirmation message	As expected	Success
	Click the send button with duplicate email	Display a duplicate username error	As expected	Success
	Click the send button with non-existent email	Display a non-existent username error	As expected	Success
	Click the send button with author email	Display a author username error	As expected	Success
	Click anywhere	Close the collaboration container	As expected	Success
Print Function	Click the save button	Prompt the user to select the directory to save the file with the default title name	As expected	Success
	Click the yes button	Download the file as PDF	As expected	Success
Find and Replace Text Function	Click the “X” button	Close the find and replace text container	As expected	Success
	Change the value	Valid Input	As expected	Success

	of find text			
	Change the value of replace text	Valid Input	As expected	Success
	Click replace all button	Search for the matching text, replace with the input value and update the database	As expected	Success
Comment Functions	Click the “X” button	Close the comment container	As expected	Success
	Enter value in add comment input field	Valid Input	As expected	Success
	Leave the comment input filed blank	Disable the send button	As expected	Success
	Hover over the comment	Display two resolved and delete buttons	As expected	Success
	Click the resolved toggle button	Toggles the comment status between resolved and unresolved	As expected	Success
	Click the delete button	Delete the comment	As expected	Success
Zooming	Change the scaling input	The design container is zoomed according to the input value	As expected	Success
	Click the zoom value	Toggle the visibility of the zooming size list	As expected	Success
	Select the zoom size list	The design container is zoomed according to the selected value	As expected	Success
Scrolling	Input non-numerical value	Prohibit non-	As expected	Success

CHAPTER 6

	in page and chapter input field	numerical value		
	Fill the chapter input field smaller than 1	Input is corrected to the minimum value.	As expected	Success
	Fill the chapter input field larger than the largest chapter index	Input is corrected to the maximum value.	As expected	Success
	Fill the chapter input field with valid input	No change occurs.	As expected	Success
	Fill the page input field smaller than 1	Input is corrected to the minimum value.	As expected	Success
	Fill the page input field larger than the largest chapter index	Input is corrected to the maximum value.	As expected	Success
	Fill the page input field with valid input	No change occurs.	As expected	Success
	Changes detected at chapter input field	Take the minimum value of current page input field value and maximum page index	As expected	Success
	Changes detected at page input field	Scroll to the target page	As expected	Success
	Scrolling function through the overflow bar	Auto update the current chapter and page value	As expected	Success
Grammar Error Detection	Fill text with error text	Show red underline it during the text editor activation	As expected	Success
Locked Element	Click the element	The element becomes selected	As expected	Success

		without pointer, rotation handle, or moving ability. Updating database, add and edit functionality are locked		
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Table 6.1.13: Test Scenario for File Setting Page

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Toggle the expandable container	Click at the button	Toggle the expandability and collapsibility of the container	As expected	Success
Updating File Setting	Leave the title input field blank	Show a non-nullable error for title	As expected	Success
	Enter a value for title input field	Valid Input	As expected	Success
	Leave the type blank	Show a non-nullable error for type	As expected	Success
	Select the type for type input field	Valid Input	As expected	Success
	Leave the description input field blank	Show a non-nullable error for description	As expected	Success
	Enter a value for description input field	Valid Input	As expected	Success
	Click the submit button	Update the eBook information in database and display a confirmation	As expected	Success

		message		
	Click the submit button with database issue persisted	Display a message indicating that the update failed.	As expected	Success
Delete eBook	Click the delete button at the welcome section	Display the delete confirmation dialog box	As expected	Success
	Click the cancel button in the dialog box	Close the dialog box	As expected	Success
	Click the delete button in the dialog box	Delete the whole eBook, redirects the user to dashboard, and display the confirmation message box	As expected	Success
Publishing eBook	Click the publish button	Update the eBook status to “REVIEWED” state and display a confirmation message	As expected	Success
	Click the unpublish button	Update the eBook status to “DRAFT” state and display a confirmation message	As expected	Success
	Click the republish button	Update the eBook status to “REVIEWED” state and display a confirmation message	As expected	Success
	Update the eBook status with database problem	The database update is unsuccessful and show an error message	As expected	Success
View eBook Published	Click the view button	Redirect to the published content page to view the	As expected	Success

Content		published		
View Collaboration	View the collaboration item	Display the version history without specific order	As expected	Success
Add Collaboration	Leave the title input field blank	Disable the add button action	As expected	Success
	Enter the value for email input field	Valid Input	As expected	Success
	Click the add button with valid email	The collaboration is added and show a confirmation message	As expected	Success
	Click the add button with duplicate email	Display a duplicate username error	As expected	Success
	Click the add button with non-existent email	Display a non-existent username error	As expected	Success
	Click the add button with author email	Display a author username error	As expected	Success
Delete collaboration	Click the delete button at collaboration item row	Delete the collaboration	As expected	Success
View Version History	View the version content	Display the version history according the created date	As expected	Success
Add Version history	Leave the title input field blank	Disable the add button action	As expected	Success
	Enter the value for email input field	Valid Input	As expected	Success
	Click the add button with valid name	The version is added and show a confirmation message	As expected	Success

Update the version name	Click the save button without changing the name	Update the database and show a confirmation message	As expected	Success
	Click the save button with null value	Nothing happens	As expected	Success
	Click the save button with valid version name	Update the database and show a confirmation message	As expected	Success
	Update the version history with database issue	The database update is unsuccessful and show an error message	As expected	Success
Delete the version history	Click the delete button at the same row of version history	Delete the version history	As expected	Success
View the version history	Click the view button at the same row of version history	Redirect to the version content page to view the version history	As expected	Success

Table 6.1.14: Test Scenario for Published Content

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Published Content Related Function	View the content published by eBook	Display the published eBook content with the title at the top tab	As expected	Success
	Click the plus button	Zoom the container by enlarging it	As expected	Success
	Click the minus button	Zoom the container by diminishing it	As expected	Success
	Change the input value	Zoom the container according to the input value	As expected	Success

	Change the input value to less than the minimum value	Zoom the container according to the minimum value	As expected	Success
	Change the input value to more than the maximum value	Zoom the container according to the maximum value	As expected	Success
	Click the return button from dashboard management section	Return to dashboard management section	As expected	Success
	Click the return button from dashboard published section	Return to dashboard published section	As expected	Success
	Click the return button from file setting page	Return to file setting page	As expected	Success

Table 6.1.15: Test Scenario for Version Content

Test description	Test-Cases	Expected Result	Actual Result	Test Outcome
Version Content Related Function	View the content in version history	Display the version content with the version name at the top tab	As expected	Success
	Click the plus button	Zoom the container by enlarging it	As expected	Success
	Click the minus button	Zoom the container by diminishing it	As expected	Success
	Change the input value	Zoom the container according to the input value	As expected	Success
	Change the input value to less than the minimum value	Zoom the container according to the minimum value	As expected	Success

	Change the input value to more than the maximum value	Zoom the container according to the maximum value	As expected	Success
	Click the return button	Return to file setting page	As expected	Success

6.2 User Testing

This purpose of conducting this survey is to collect the respondents' opinions on the system. The questionnaire consists of 10 questions designed to assess the achievement of objectives through their responses. These questions have been uploaded to a Google Form and distributed to the respondents. There are 20 respondents participate in this questionnaire. Before analysis and interpretation of the results, one must know the meaning of value for the scaling questions. The data range starts from the minimum value to the maximum value which is 1 to 5. 3 means the average standard. Any value lower than 3 is below average whereas any value higher than 3 is higher than average.

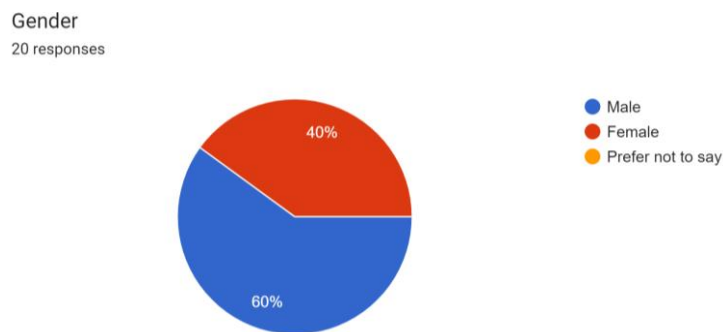


Figure 6.2.1: Gender Proportion Chart

As shown in Figure 6.2.1, there were 20 respondents participated in this questionnaire. 60% of respondents are male whereas 40% of them are female.

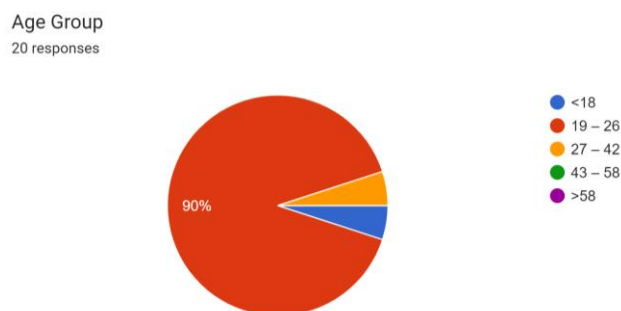


Figure 6.2.2: Age Proportion Chart

As demonstrated in Figure 6.2.2, 90% of respondents fall into the 19-26 age group, with the remaining 10% distributed among middle schoolers and Millennials. Therefore, the feedback gained through this survey will likely reflect more on Gen Z’s opinions.

Occupation
20 responses

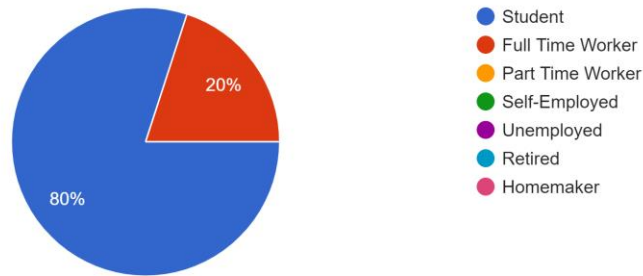


Figure 6.2.3: Occupation Proportion Chart

As depicted in Figure 6.2.3, four out of five respondents are students with remaining portion are full-time worker

Have you ever used an eBook Maker System? (eg. Microsoft Word, Microsoft Powerpoint, Canva)
20 responses

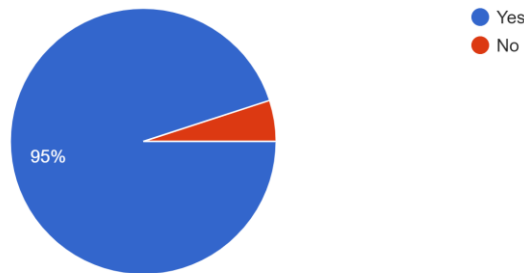


Figure 6.2.4: Chart for Percentage of eBook Maker System User

As seen in Figure 6.2.4, almost every person has used the eBook Maker System with only one identified as the novice user. The feedback from the novice user group holds particular significance since the system mainly aims to assess the effectiveness of guidance and user-friendliness.

Did you find the website's interface to be mobile-responsive?
20 responses

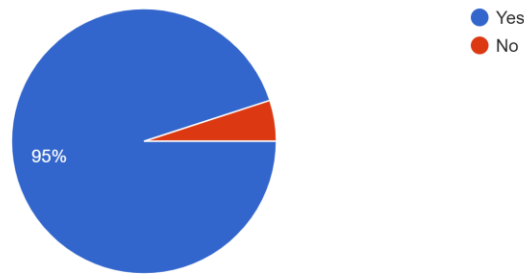


Figure 6.2.5: Chart for Mobile Responsiveness of Website Interface

This question investigates the users' opinions toward the website's UI mobile responsiveness capability. As observed in Figure 6.2.5, 95% of respondents reported that they found the website's interface to be mobile responsive while remaining 5% disagreed. Overall, the agreement is outweighing disagreement so that it indicates that the website possesses mobile responsiveness..

How would you rate the mobile responsiveness of our website?
20 responses

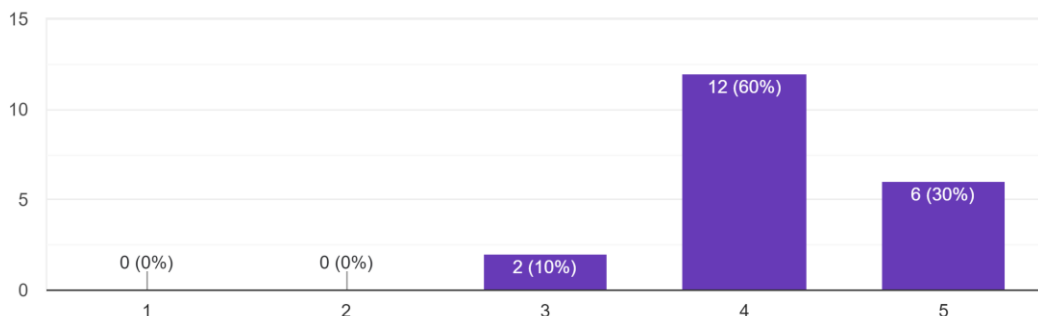


Figure 6.2.6: Mobile Responsiveness Rating Chart

Continuing from the last question, it explores deeper into satisfaction with the mobile responsiveness design. Even though the website possesses the mobile responsive, but the design may not always contribute to an optimal reading experience. As viewed in Figure 6.2.6, over 90% of respondents rated more than 4 with 30% of respondents vote for 5. It can be analysed that overwhelmingly positive perception of the website's mobile responsiveness performance which contribute to the good user experience.

How would you rate the ease of navigation on our website?

20 responses

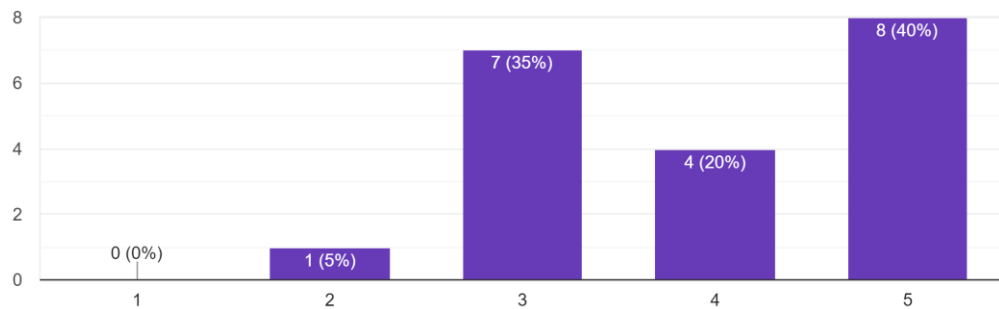


Figure 6.2.7: Navigation Ease Rating Chart

Moreover, this question aims to discuss about the navigation system of website to know the user friendliness and experience. As seen in Figure 6.2.7, over 50% of users voted more above average rating and 35% of respondents vote for average rating in these aspects. It can deduce that it achieves a positive result in terms of user-friendliness and experience.

How would you rate the accessibility of key features on our website

20 responses

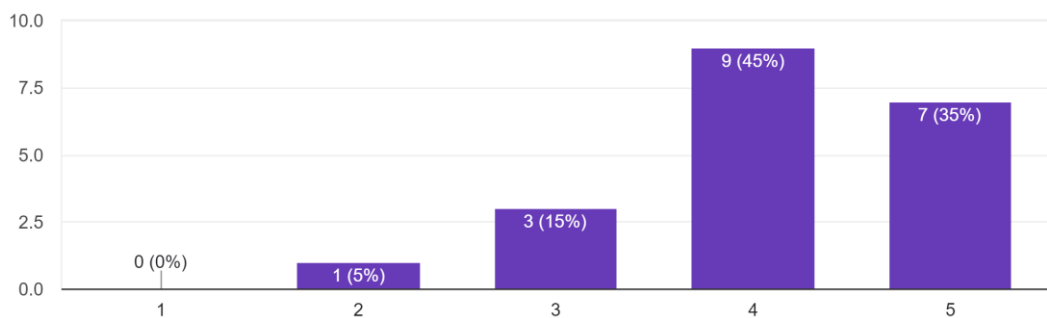


Figure 6.2.8: Key Feature Accessibility Chart

Additionally, this question intends to know the accessibility of key features, considering whether they are easy to find, use and obeying the 3 click rule. As displayed in Figure 6.2.8, 45% and 35% of respondents rated the accessibility with scores of 4 and 5 respectively. The remaining 20% of responses were minimal and can be considered negligible. Therefore, it can conclude that the tools accessibility is perceived as user-friendly with the features being easy to find and access.

How satisfied are you with the user-friendliness of our eBook-making website?
20 responses

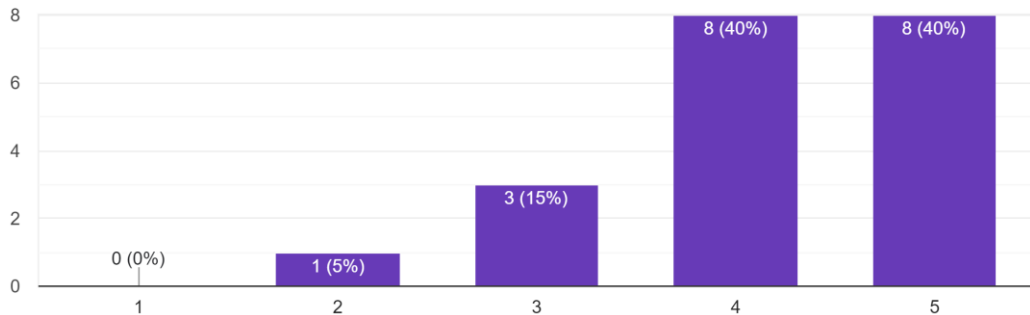


Figure 6.2.9: User-Friendliness Satisfaction Chart

Besides, this question collects the overall user-friendliness of the website. As presented in Figure 6.2.9, 80% of respondents rated above average score with 50% of respondents giving scores of 4 and 5 each. Hence, it can summarize that the website demonstrates a high level of user-friendliness.

Were you able to create an eBook without encountering any major difficulties?
20 responses

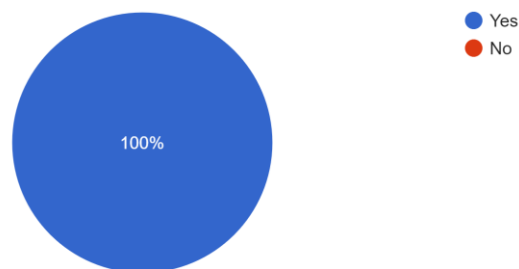


Figure 6.2.10: Chart for Ease of eBook Creation

In addition, this question gathers users’ opinions regarding whether first-time users encountered any major difficulties during the complete eBook creation process. As exhibited in Figure 6.2.10, all respondents voted for “yes, no major difficulties”. It means that the system possesses the ability to guide users effectively.

How would you rate the learning curve of our website?
20 responses

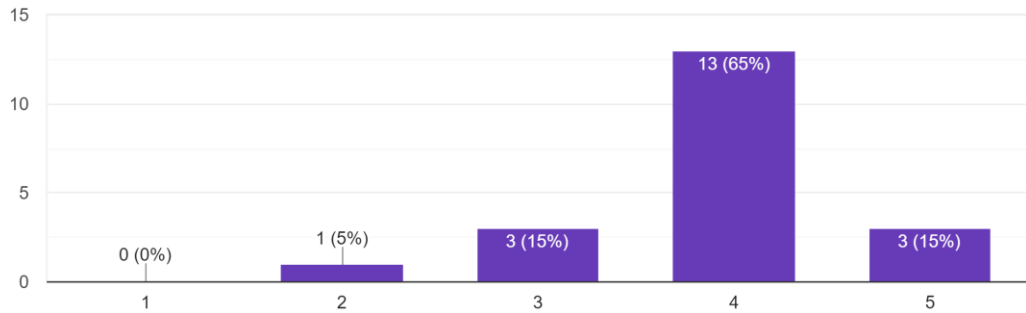


Figure 6.2.11: Learning Curve Rating Chart

Continuing from the last question, it delves deeper into the core issue to understand their perceived learning curve of this system. As indicated in Figure 6.2.11, 65% of respondents rated the learning curve of the website is gentle while 15% gave a rating of 3 and 5. So that, it can be inferred that this website is suitable for both novice users and senior citizens."

How would you rate the capability of our website to fulfill your eBook creation needs?
20 responses

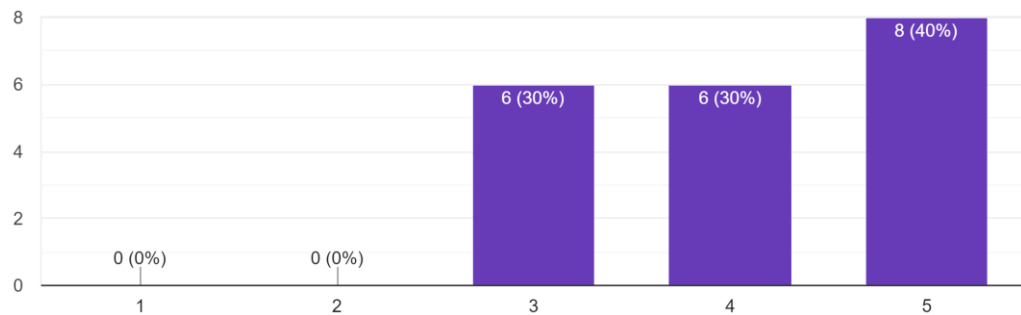


Figure 6.2.12: Website eBook Creation Capability Rating Chart

More than that, this question aims to assess the system capability to meet the user needs. As revealed in Figure 6.2.12, the ratings are distributed evenly ranging from 3 to 5. However, the overall rating still achieves a satisfactory result with an average rating over 4 validate the system's effectiveness and affirm its potential to provide users with a favourable experience while creating eBooks.

How likely are you to recommend our website to others interested in creating eBooks?
20 responses

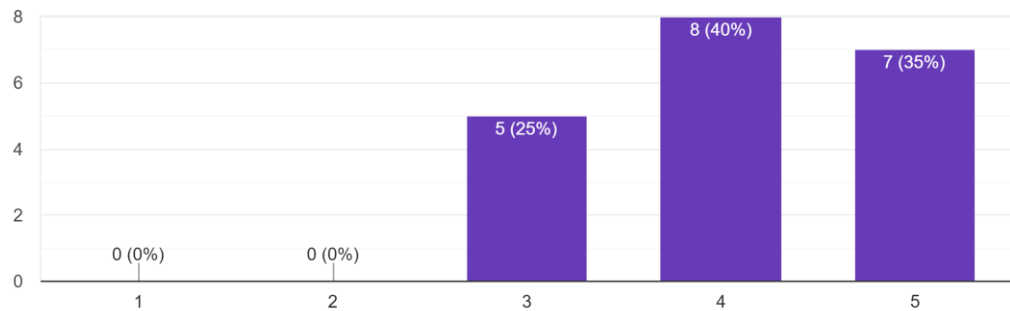


Figure 6.2.13: Recommendation Likelihood Chart

Additionally, this question aimed to gauge the likelihood of the respondents to recommend the website to other users. As shown in Figure 6.2.13, over 75% of respondents are likely to promote the website whereas the remaining 25% stay neutral on this question. Overall, the majority of respondents are inclined to recommend the website, indicating a positive likelihood of user advocacy.

How would you rate your overall experience using our eBook-making system?
20 responses

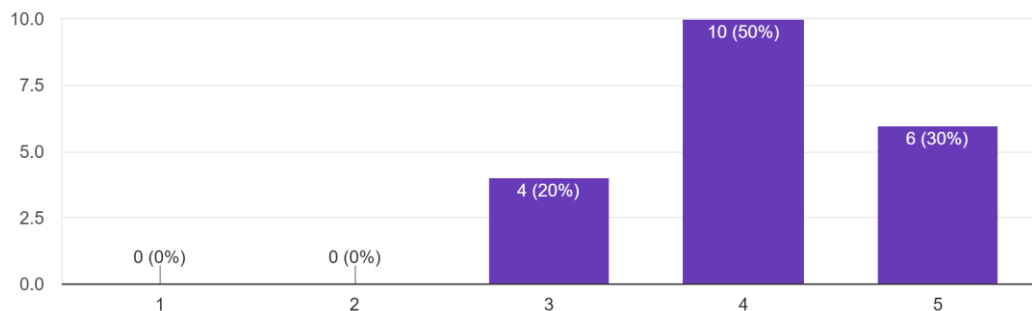


Figure 6.2.14: Overall Experience Rating

In the last question, it explores the overall user experience encompassing various aspects like functionalities, design, user-friendliness, ease of use, and many more. As demonstrated in Figure 6.2.14, the system gained an average rating of 4.1 which is above average results.

6.3 Objectives Evaluation

In this project, it got three main objectives which are **redesigning the eBook maker system to be more guidance based and user-friendly to the users, enhancing the existing eBook maker system and improve the user experience.**

Each objective has the distinct differences so that we will discuss the objective one by one.

For the first objective, it can primarily revolve around two aspects which are guidance properties and user-friendliness. It achieves this objective by utilizing the tooltips functionality in design page which provides information upon hovering over the elements. This feature serves as a form of guidance to the novice users and seniors to assist them at understanding the functionality. Its user-friendly nature allows users to stay within the page and find for the answer.

Additionally, the website adopts a minimalist approach by simplifying the operational interface, cutting down those advanced functionalities, and minimizing the operational step. This is evident in the consistent UI design for similar objects such as colour editing features in “Edit Shape”, “Add Background” and “Edit Chart”. Not only that but, consistency in design including the use of similar icons, enhances user-friendliness by gradually reducing the learning curve associated with the system. Moreover, the website also minimizes the advanced functionalities provided as more functionalities entail a steeper learning curve. By decreasing the options available to the user, it can significantly lessens the burden during the learning phase.

Furthermore, it also streamlines the operational step required such as implementing autosave features, introducing template designs, and eliminating the needs for input validation. These measures decreases the number of step required to complete the eBook creation enhancing user-friendliness. The system facilitates these actions by automatically saving user progress for the design page, pre-filling eBook content and providing error prompts or rectifying invalid input. Additionally, the system disables certain actions to prevent the users from proceeding when necessary. For example, clicking the "add" button with null input. Consequently, it decreases the needs of reading documentation and tutorial as they can learn through the practical way which is more user-friendly and convenience to them.

More than that, detailed tutorials in the help section contribute to the system's guidance-based properties. Not only that but, survey results for first-time users further validate this objective as evidenced by high ratings for the user-friendliness satisfaction, no reported difficulties during eBook creation process and a gentle learning curve which results in overall positive experience.

For the second objective, the website enhances the eBook Maker system by offering unique features in similar applications such as OCR functionality, chapter division capabilities and mathematical equations as an additional element type. Notably, competing platforms like Canvas, Visme, and Marq do not offer chapter division capabilities, giving our system a competitive edge in eBook creation. Our website's OCR functionality allows users to upload image and extract text which enhance user experience and workflow efficiency. Not only that but, the chapter division feature enables users to categorize pages, providing clearer organization and meaning within eBooks. Lastly, the website integrates with the Quill Editor and KaTeX to introduce the mathematical equation which cater to the user's needs for notetaking and report writing. The survey reveals that the website achieves an average rating score exceeding 4 which proof that the system has been significantly improved to better serve the user's needs.

The final objective of the project is to improve the user experience through designing a mobile responsive website, regardless of device type or screen width. The mobile responsiveness capabilities of website are validated by the high proportion of respondent's confirmation and its outstanding performance in the survey results. To achieve this, the website utilizes the mechanisms like the max device width feature to render the best resolution for different screens. Not only that but, the website also applies dynamic text for certain page like welcome, login and registration pages which further improve the user experience by adjusting font size for optimal readability. Moreover, the navigation system of the website is also well-designed, facilitating seamless movement across pages which supported by positing ratings for navigation case as illustrated in Figure 6.2.7. Lastly, the website design obeys the 3-click rule which decrease the accessibility difficulties and receive positive ratings for key feature accessibility as shown in Figure 6.2.8

In summary, the project successfully accomplished all three objectives with a high achieve rate. Consequently, it results in achieving the project goal which is producing an online eBook maker system that suitable for the novice users and senior citizens to generate their own eBook easily. The positive responses as presented in Figure 6.2.13 and 6.2.14 regarding the likelihood of recommending he website and overall experience further validate the project's success.

CHAPTER 7

Conclusion and Recommendation

7.1 Conclusion

eBooks emerged as a popular reading option after the COVID-19 pandemic period. The high marketability and usability of the eBooks are the main reasons that drive the launch of this project. However, the technology hadn't caught the trend. There are multiple problems discovered in the marketing eBook maker system like the inefficient conversion from existing works to formal eBooks, complicated eBook making process, unhandy operational interface and limited responsive web design. Therefore, the goal of this project is to produce an online eBook maker system that suitable for the novice users and senior citizens to generate their own eBook easily.

Following a comprehensive literature review and user requirements survey, the final systems proposed which consists of 4 modules including a builder module, interface module, tools module and security module. Furthermore, the development process is supported and elucidated through various diagrams like system architecture diagram to illustrate the system model, database design to describe the storage system, use case and activity diagram to explain user interactions and wireframe diagrams to illustrate the user interface of the website.

The builder module provides the essential functionalities for the users to create an eBook. For instance, editing, designing, and finalization through publishing or exporting. Afterwards, the tools module will be built to assist the author. Tools modules expect to provide the comment feature, find, and replace text function, OCR ability, work sharing feature and template provided. The interface module ensures smooth connectivity between functions, adhering to the 3-click rule for ease of use, while also prioritizing mobile responsiveness to enable usage across devices. Lastly, the security module provides the security function to protect the data like account verification, locking function, autosave and version history.

In conclusion, the final product has achieved an overwhelmingly positive response from user testing survey results. Furthermore, it also has garnered a high

success rate in meeting project objectives which further affirm the effectiveness of the system.. Therefore, the final system is marked as completed with comprehensive documentation.

7.2 Limitations

Numerous limitations have been identified within this project which can be categorized into three aspects like performance, design, and functionalities. The project exhibits low performance speed especially noticeable on the dashboard page because of the prolonged loading times. It is mainly caused by immature database design. The high normalization of the database design has led to an increase in join frequency which results in slow data retrieval speeds. Another possible reason is the development specification is inadequate for running the project. Furthermore, the previewing technique used in dashboard is ineffective since it employs iframes which are resources intensive. As a result, the dashboard not only needs to load its own content but also the eBook content which further contribute to the delay. This results in a significant waiting period for many preview containers to load, further delaying usability.

Afterwards, the design emerges as the second limitation, notably evident in the project's weak error handling mechanism. This is mechanism is considered as immature since it merely returns the error messages without proper handling which may increase the user frustration. Furthermore, in terms of aesthetics design, there is room for improvement particularly for the design page. The design page mainly revolves around the white colour with other colour used for decoration resulting in a bland and unattractive aesthetic appeal. Additionally, the login and registration design still have some minor weaknesses especially the lack of integration with Google and Facebook services for streamlined login. Hence, it will cause the user to create separate accounts for the same email address

Lastly, the functionalities of the website are insufficient to adapt to every situation. A crucial weakness involves limited collaboration functionality since the collaborators only possess auditor functionality which allow them to leave comment but not directly edit eBook content. Moreover, the redo and undo functionality have some major flaws as they cover a limited area only such as element creation, update and deletion and find and replace text function. Additionally, the system can only

revert to a maximum one previous state which is insufficient. Besides, the website has a low variety of templates design, element, text style, font types, images, shapes and exporting options. This lack of variety will limit the user design choices and cause poor user experience. Furthermore, it lacks the design mechanism that work like the Microsoft Word. Although current printing mechanism can prompt the preview container, but it lacks option to skip the preview process and directly download the file to the computer. Finally, lacks keyboard shortcut key worsens the user experience and bring inconvenience to the laptop and PC users.

7.3 Future Enhancement

For the future enhancement, this project can primarily resolve the limitations mentioned in Chapter 7.2. It should enhance the database design by optimizing the data storage to reduce normalization thereby decreasing the need for complex WHERE clauses which can increase the retrieval speed. Not only that but, the project can streamline operations by bypassing the joining process and directly extracting the required values to proceed to the next step. There is also another way to address the challenges which is implementing more efficient tiered services to support large processing workloads. More than that, it should employ more effective way to preview the containers like lazy loading method or replacing iframes with alternative approach. Undoubtedly, these enhancements can significantly improve the performance of website.

Moreover, it should build a robust error handling mechanism capable of interpreting error messages and automatically resolving issues without user intervention. Furthermore, for aesthetic design consistency, selecting a single base colour for the entire website and using other colours decorative elements based on webpage conditions can enhance visual appeal. The website should integrate the Google and Facebook as login and registration methods for users would streamline the login process. This integration allows users to utilize their Google or Facebook accounts to log in to the website. Therefore, it eliminates the need to create separate accounts for the same email address.

Besides, the crucial enhancement involves improving collaboration functionality through implementing real-time update and retrievals to address the concurrency errors which can be achieved using web sockets or by setting up an independence server. Therefore, this would expand collaboration beyond the auditor functionality, allowing both users to edit the eBook contents in real time. Moreover, the redo and undo functionality can be further improved through expanding its responsible area to page, chapter and even eBook levels, rather than being limited to certain functions only. Increasing the time available for reverting to a previous state in the undo actions would allow for more than just one undo. Besides, increasing the variety of templates designs, elements, text styles, font types, images, shapes and exporting options would enhance user experience by providing users with more options to choose from.. Furthermore, it should append Microsoft Word style design mechanism to the website especially for the document-type eBooks. It can also improve the printing mechanism to streamline the process and enable direct downloading to the computer. Finally, the website should add the keyboard shortcut key and utilizing right-click dialog boxes to serves as shortcut key to improve the user experience.

Moreover, the website should expand the user profile by storing additional variables related to their living area and nationality. The current approach of suggesting the published eBooks based on the last modified time may not be suitable, as it doesn't take the users' interest into considerations. Therefore, AI technology can take effects through making analysis and interpretation regarding their living area and nationality to understand their cultural background and interests. So that, it can achieve a more customized eBook recommendation tailored to the users. Moreover, after determining their nationality, the website can automatically change to their most used local language which enhance user- friendliness for countries where English is not the primary language. Undoubtedly, the system should provide the ability for users to manually change the language preferences. Moreover, AI technology can be employed beyond eBook recommendations, including enhancing security by detecting and blocking the suspicious users, suggesting suitable elements when users type in the filter input and also incorporating an AI-powered chat box to solve the user queries, replacing the FAQ section in tutorials for added convenience.

REFERENCES

- [1] J. Wilber, “A Brief History of eBooks”, *Turbofuture*, December 20, 2020. [Online]. Available: <https://turbofuture.com/consumer-electronics/The-History-of-eBooks#:~:text=The%20concept%20of%20an%20electronic,a%20movie%20that%20includes%20sound> [Accessed Dec. 2, 2022].
- [2] The BookScouter Team, “A Brief History of eBooks”, *BookScouter*, June 9, 2016. [Online]. Available: <https://bookscouter.com/blog/a-brief-history-of-ebooks/> [Accessed Dec. 2, 2022].
- [3] B. Lopez, “eBook Sales”, *UNSUITABLE*, 2017. [Online]. Available: <https://sites.duke.edu/unsuitable/ebook-sales/> [Accessed Dec. 2, 2022].
- [4] Statista Research Department, “Connected devices per person worldwide 2010-2020”, *statista*, October 1, 2016. [Online]. Available: <https://www.statista.com/statistics/681394/connected-devices-per-head-worldwide/> [Accessed: Dec. 2, 2022].
- [5] S. O’Dea, “Average number devices and connections per person worldwide in 2018 and 2023”, *statista*, February 28, 2022. [Online]. Available: <https://www.statista.com/statistics/1190270/number-of-devices-and-connections-per-person-worldwide/> [Accessed: Dec. 2, 2022].
- [6] Department of Statistics, “Malaysia Wages”, *TRADINGECONOMICS*, n.d. [Online]. Available: https://tradingeconomics.com/malaysia/wages_ [Accessed: Dec, 2, 2022].
- [7] D. McLoughlin, “40+ Ebooks Sales Statistics 2022”, *Wordsrated*, November 2, 2022. [Online]. Available: <https://wordsrated.com/ebooks-sales-statistics/> [Accessed: Dec. 2, 2022].
- [8] European Commission Team, “EU restrictions on certain single-use plastics”, *European Commission*, n.d. [Online]. Available: https://environment.ec.europa.eu/topics/plastics/single-use-plastics/eu-restrictions-certain-single-use-plastics_en [Accessed: Mar. 15, 2023].

REFERENCES

- [9] Environment Agency, “More than 30 companies fined as part of efforts to reduce emissions”, *GOV.UK*, May 24, 2022. [Online]. Available: <https://www.gov.uk/government/news/more-than-30-companies-fined-as-part-of-efforts-to-reduce-emissions> [Accessed: Mar. 15, 2023].
- [10] R. Antoinette, “Deforestation: EU law bans goods linked to destruction of trees”, *BBC*, December 6, 2022. [Online]. Available: <https://www.bbc.com/news/world-europe-63872393> [Accessed: Mar. 15, 2023]
- [11] H. Mike, “Top 10 Advantages of eBooks Over Printed Books”, *KITABOO*, March 13, 2023. [Online]. Available: <https://kitaboo.com/top-10-advantages-of-ebooks-over-printed-books/> [Accessed: Mar. 15, 2023].
- [12] “Online Book Sales in the US - Market Size 2005–2028”, *IBISWorld*, March 30, 2022. [Online]. <https://www.ibisworld.com/industry-statistics/market-size/online-book-sales-united-states/> [Accessed: Dec. 02. 2022].
- [13] “E-BOOK MARKET - GROWTH, TRENDS, COVID-19 IMPACT, AND FORECASTS (2022 - 2027)”, *MordorIntelligence*, n.d. [Online]. <https://www.mordorintelligence.com/industry-reports/e-book-market> [Accessed: Dec 2, 2022].
- [14] H. Mike, “12 Mistakes Almost Every Publisher Makes while Creating an eBook”, *KITABOO*, June 21, 2018. [Online]. Available: <https://kitaboo.com/12-mistakes-to-avoid-while-creating-an-ebook/> [Accessed: Mar. 15, 2023].
- [15] Department of Census and Statistics Sri Lanka, “Computer Literacy Statistics – 2018 (Annual)”, *Department of Census and Statistics*, n.d. [Online]. Available: <http://www.statistics.gov.lk/Resource/en/ComputerLiteracy/Bulletins/AnnualBuletinComputerLiteracy-2018.pdf> [Accessed: Mar. 15, 2023].
- [16] IEEE Team, “Digital Literacy for Senior Citizens: Building ICT Competencies”, *IEEE*, December 14, 2022. [Online]. Available: <https://ctu.ieee.org/digital-literacy-for-senior-citizens-building-ict-competencies/> [Accessed: Mar. 15, 2023].

REFERENCES

- [17] A. Cody, “10 Essential Benefits of Responsive Web Design”, *keycdn*, March 16, 2017. [Online]. Available: <https://www.keycdn.com/blog/benefits-of-responsive-web-design> [Accessed: Mar. 15, 2023].
- [18] Canva Team, “EBook Creator”, *Canva*. [Online]. Available: <https://www.canva.com/create/ebooks/> [Accessed Dec. 2 , 2022].
- [19] Amazon Team, “Kindle Create”, *Amazon*. [Online]. Available: <https://www.amazon.com/Kindle-Create/b?ie=UTF8&node=18292298011> [Accessed Dec. 2 , 2022].
- [20] Kotobee Team, “kotobee author”, *kotobee*. [Online]. Available: <https://www.kotobee.com/en/products/author> [Accessed Dec. 2 , 2022].
- [21] Marq Team, “EBook Creator”, *marq*. [Online]. Available: https://app.marq.com/documents#/dashboard?folder_id=home [Accessed Dec. 2 , 2022].
- [22] Visme Team, “EBook Creator”, *Visme*. [Online]. Available: <https://www.visme.co/ebook-creator/> [Accessed Dec. 2 , 2022].
- [23] A. Dennis, B.H. Wixom and D. Tegarden, *Systems Analysis & Design : An Object-Oriented Approach With UML*, 6th ed. Hoboken, NJ : Wiley, 2021
- [24] Intellectsoft Team. “System Development Life Cycle: Basics to Know.” *Intellectsoft*, November 30, 2021. [Online]. Available: <https://www.intellectsoft.net/blog/what-is-system-development-life-cycle/> [Accessed: Mar. 15, 2023].
- [25] pp_pankaj, “Computer Aided Software Engineering (CASE)”, *geeksforgeeks*, January 3, 2023 [Online]. Available: <https://www.geeksforgeeks.org/computer-aided-software-engineering-case/> [Accessed: Mar. 15, 2023].
- [26] Lucid Content Team, “4 Phases of Rapid Application Development.” *Lucidchart*, August 10, 2018. [Online]. Available: <https://www.lucidchart.com/blog/rapid-application-development-methodology> [Accessed: Mar. 15, 2023].

REFERENCES

- [27] GitHub Community, “chart.js” *chart.js*. [Online]. Available: <https://www.chartjs.org/> [Accessed: Apr. 15, 2024].
- [28] Quill Team, “Quill” *Quill*. [Online]. Available: <https://quilljs.com/> [Accessed: Apr. 15, 2024].
- [29] GitHub Community, “interact.js” *interact.js*. [Online]. Available: <https://interactjs.io/> [Accessed: Apr. 15, 2024].
- [30] GitHub Community, “tesseract” *GitHub*. [Online]. Available: <https://github.com/sirfz/tesseract> [Accessed: Apr. 15, 2024].

APPENDIX

User Requirements Collection Questionnaires

Section A: Demographic Information Collection

1. Email

2. Gender

Male

Female

Prefer not to say

3. Age Group

<18

19 – 26

27 – 42

43 – 58

>58

4. Occupation

Student

Full Time Worker

Part Time Worker

Self-Employed

Unemployed

Retired

Homemaker

Other: _____

5. Have you ever used an eBook Maker System? (eg. Microsoft Word, Microsoft Powerpoint, Canva)

APPENDIX

- o Yes (Continue to the Section B)
- o No (Continue to the Section C)

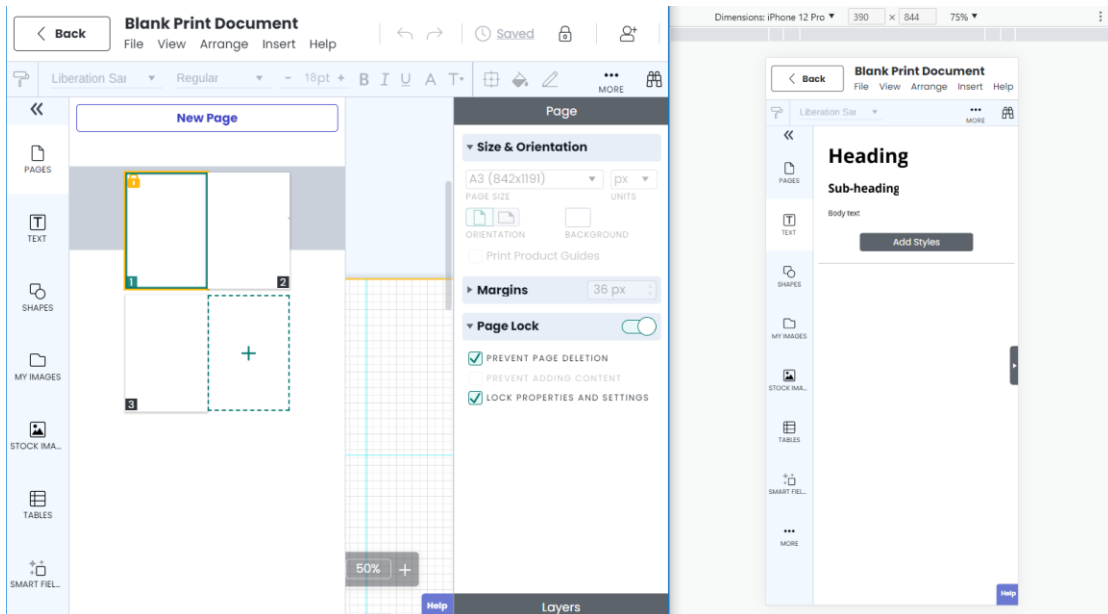
Section B: Data Collection

1. How frequent you use the eBook Maker System?

	1	2	3	4	5	
Never	o	o	o	o	o	Always

2. Rate your user experience while the website is not mobile responsive.

**Image below showing the website is not mobile responsive



	1	2	3	4	5	
Very Dissatisfied	o	o	o	o	o	Very Satisfied

3. Which type of documents that you have read before?

- Assignment Reports
- Research Reports
- Manuals
- Guidance
- Storybook

APPENDIX

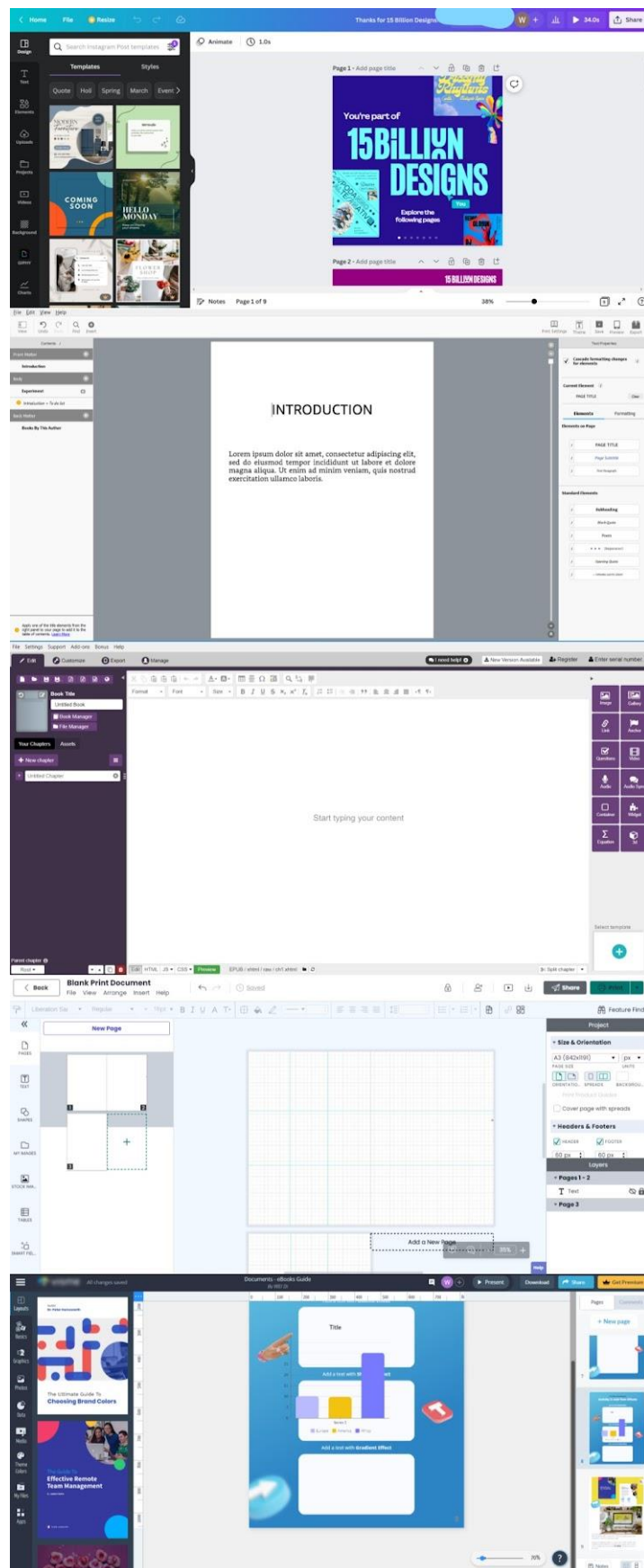
- Novel
- Handout
- Lecture Notes
- Other: _____

4. What kind of eBook did you created using the eBook maker system?

- Assignment Reports
- Research Reports
- Manuals
- Guidance
- Storybook
- Novel
- Handout
- Lecture Notes
- Other: _____

APPENDIX

5. Please rate the design below from top to bottom.



APPENDIX

	1	2	3	4	5
Design A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design B	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Design E	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. What is the security function required?

- Email Verification
- Role Granting
- Version History
- AutoSave
- Other: _____

7. Which format you usually exporting?

- PDF
- EPUB
- Kindle Create
- MOBI
- Other: _____

8. Rate the necessity of the collaborator feature.

	1	2	3	4	5	
Not necessary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Absolutely necessary

9. Which type of interactive elements is required when creating a eBook?

- Text
- Shape
- Image
- Chart
- Mathematical Equation

APPENDIX

Third-Party Application (Eg. Youtube, Google Map)

Other: _____

10. If you are novice user, which type of guidance is the most effective one?

Checklists

Tooltips

Infographics

Flowcharts

Mind maps

Sitemap

Other: _____

Section C: Appreciation

Thank you for filling the survey!

I would like to express my sincere gratitude for your participation in my research project. Your input and insights were extremely valuable and helped me to achieve my research goals. Thank you again for your time and dedication to this project.

Submit

User Testing Survey

Section A: Demographic Information Collection

1. Gender

- Male
- Female
- Prefer not to say

2. Age Group

- <18
- 19 – 26
- 27 – 42
- 43 – 58
- >58

3. Occupation

- Student
- Full Time Worker
- Part Time Worker
- Self-Employed
- Unemployed
- Retired
- Homemaker
- Other: _____

4. Have you ever used an eBook Maker System? (eg. Microsoft Word, Microsoft Powerpoint, Canva)

- Yes
- No

APPENDIX

Section B: Data Collection

Please answer the questions below.

1. Did you find the website's interface to be mobile-responsive?

- Yes
- No

2. How would you rate the mobile responsiveness of our website?

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

3. How would you rate the ease of navigation on our website?

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

4. How would you rate the accessibility of key features on our website?

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

5. How satisfied are you with the user-friendliness of our eBook-making website?

	1	2	3	4	5	
Very Dissatisfied	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Satisfied

6. Were you able to create an eBook without encountering any major difficulties?

- Yes
- No

7. How would you rate the learning curve of our website?

	1	2	3	4	5	
Steep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Gentle

APPENDIX

8. How would you rate the capability of our website to fulfill your eBook creation needs?

	1	2	3	4	5	
Limited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Extensive

9. How likely are you to recommend our website to others interested in creating eBooks?

	1	2	3	4	5	
Not Likely at All	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very Likely

10. How would you rate your overall experience using our eBook-making system?

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excellent

Section C: Appreciation

Thank you for filling the survey!

I would like to express my sincere gratitude for your participation in my research project. Your input and insights were extremely valuable and helped me to achieve my research goals. Thank you again for your time and dedication to this project.

Submit

Weekly Report

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 4
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Configure authorization and authentication for access control, login, register and logout action
- Complete register and login function
- Complete UI for home, dashboard, login and register page

2. WORK TO BE DONE

- Complete the UI for design page
- Configure AJAX post for backend synchronization
- Complete resize, rotate, move interact javascript
- Complete page and chapter related function

3. PROBLEMS ENCOUNTERED

- Don't understand about the mechanism of AJAX post
- Fix the bug faced at AJAX post in FYP1

4. SELF EVALUATION OF THE PROGRESS

- The progress is slightly lagging as the timeline proposed.



Supervisor's signature




Student's signature

FINAL YEAR PROJECT WEEKLY REPORT


(Project II)

Trimester, Year: Y3S3	Study week no.: 5
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.]</p> <ul style="list-style-type: none"> -Complete the UI for design page -Configure AJAX post for backend synchronization -Complete part of resize, rotate, move interact JavaScript -Complete page and chapter related function
<p>2. WORK TO BE DONE</p> <ul style="list-style-type: none"> -Configure JavaScript Interact function -Integrate Quill Editor as rich text editor function
<p>3. PROBLEMS ENCOUNTERED</p> <ul style="list-style-type: none"> -Decide to implement which type of libraries for the JavaScript function -Has zero understanding about rich text editor implementation logic
<p>4. SELF EVALUATION OF THE PROGRESS</p> <ul style="list-style-type: none"> -The progress is slightly lagging as the timeline proposed.



Supervisor's signature




Student's signature

FINAL YEAR PROJECT WEEKLY REPORT


(Project II)

Trimester, Year: Y3S3	Study week no.: 6
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.]</p> <ul style="list-style-type: none"> -Complete JavaScript interact function with interact.js -Enhance the overall user experience -Integrate Quill Editor as rich text editor function
<p>2. WORK TO BE DONE</p> <ul style="list-style-type: none"> -Fix the bug appeared -Synchronize the scroll movement with the page displayed -Add and edit element function
<p>3. PROBLEMS ENCOUNTERED</p> <ul style="list-style-type: none"> -Bug appear as the compatibility between interact.js and quill editor -Bug appear between resize and rotate function
<p>4. SELF EVALUATION OF THE PROGRESS</p> <ul style="list-style-type: none"> -The progress is slightly lagging as the timeline proposed.



 Supervisor's signature




 Student's signature

FINAL YEAR PROJECT WEEKLY REPORT


(Project II)

Trimester, Year: Y3S3	Study week no.: 7
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.]</p> <ul style="list-style-type: none"> -Fix the bug appeared -Successfully synchronize the scroll movement with the page displayed -Complete add and edit element function for text, image and shape
<p>2. WORK TO BE DONE</p> <ul style="list-style-type: none"> -Complete chart related function -Complete print function -Complete OCR function -Enhance quill editor user interface -Complete element lock function -Update the print function with margin for header and footer
<p>3. PROBLEMS ENCOUNTERED</p> <p>-None</p>
<p>4. SELF EVALUATION OF THE PROGRESS</p> <p>-The progress is on track.</p>



 Supervisor's signature



 Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 8
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.]</p> <ul style="list-style-type: none"> -Complete chart related function -Complete print function -Complete OCR function -Enhance quill editor user interface -Complete element lock function -Update the print function with margin for header and footer
<p>2. WORK TO BE DONE</p> <ul style="list-style-type: none"> -Complete the profile related function -Complete the file related function -Complete collaboration related function -Complete comment related function -Complete find and replace text function -Complete background related function -Complete version history related function
<p>3. PROBLEMS ENCOUNTERED</p> <p>-None</p>
<p>4. SELF EVALUATION OF THE PROGRESS</p> <p>-The progress is on track.</p>



Supervisor's signature




Student's signature

FINAL YEAR PROJECT WEEKLY REPORT


(Project II)

Trimester, Year: Y3S3	Study week no.: 10
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

<p>1. WORK DONE [Please write the details of the work done in the last fortnight.]</p> <ul style="list-style-type: none"> -Complete the profile related function -Complete the file related function -Complete collaboration related function -Complete comment related function -Complete find and replace text function -Complete background related function -Complete version history related function
<p>2. WORK TO BE DONE</p> <ul style="list-style-type: none"> -Complete mobile responsive UI -Complete version history and publish related function -Complete redo and undo function -Complete the testing for whole application
<p>3. PROBLEMS ENCOUNTERED</p> <p>-None</p>
<p>4. SELF EVALUATION OF THE PROGRESS</p> <p>-The progress is on track.</p>



Supervisor's signature



Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Y3S3	Study week no.: 12
Student Name & ID: Ang Wei Di 20ACB02314	
Supervisor: Dr Suthashini a/p Subramaniam	
Project Title: Online e-Book Maker	

1. WORK DONE

[Please write the details of the work done in the last fortnight.]

- Complete mobile responsive UI
- Complete version history and publish related function
- Complete redo and undo function
- Complete the testing for whole application

2. WORK TO BE DONE

-None

3. PROBLEMS ENCOUNTERED

-None

4. SELF EVALUATION OF THE PROGRESS

-The progress is completed.



Supervisor's signature



Student's signature

POSTER



UNIVERSITI TUNKU ABDUL RAHMAN
Faculty of Information and Communication Technology

ONLINE E-BOOK MAKER

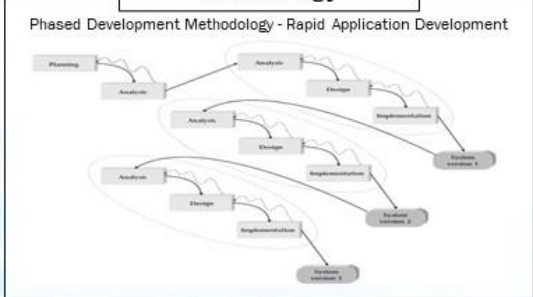
Problem Statement

First problem discovered in the existing system is unhandy and incapability system. The current system only doesn't fully possess mobile responsive ability. Inconvenience UI limit the freedom on working different types of devise. Furthermore, the system lacks OCR ability which limit the image-to-text translation. Second problem is complicated and confusing eBook process. Novice users unable to create the high-quality eBook since there are too many things to focus on. It is challenging for them to attend all of them. Lastly, senior citizens feel overwhelming because there are too many information to absorb in a short moment which is unfriendly to them.

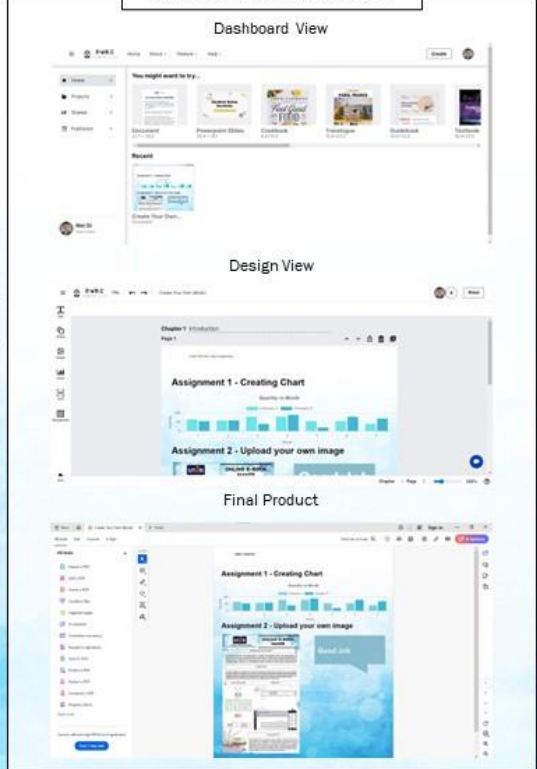
Objective

The primary objective is to redesign a user-friendly and guidance-based system. Therefore, all users can proficient the system without any difficulties. The novice and senior users will face less problem during the usage of system. The second objective is to enhance the existing system. The proposed system has the OCR ability to translate the image to text. Hence, it provides convenience to them since they don't require to find the external source or type by themselves. The last objective is to improve the user experience. The proposed system equips the mobile responsive ability which auto-render the suitable view according to the devices types.

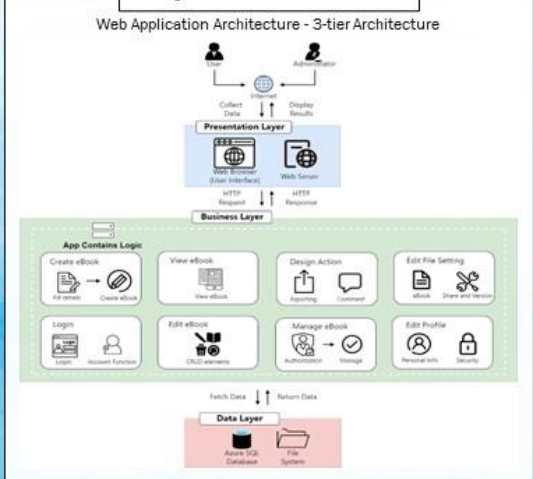
Methodology



Results and Discussion



System Architecture



System Evaluation

The project effectively revamped the eBook maker system to prioritize guidance and user-friendliness, introducing unique features such as OCR functionality and chapter division capabilities. Furthermore, it significantly enhanced user experience through mobile responsiveness, dynamic text, and streamlined navigation. Survey results confirmed high satisfaction levels across all objectives, indicating success in catering to novice users and senior citizens. The positive feedback underscores the system's usability and effectiveness, as demonstrated by the likelihood of recommendation and overall experience ratings.

Developer

Ang Wei Di

Supervisor

Dr Suthashini a/p Subramaniam

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Full Name(s) of Candidate(s)	ANG WEI DI
ID Number(s)	20ACB02314
Programme / Course	IA
Title of Final Year Project	ONLINE E-BOOK MAKER

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Signature of Supervisor

Signature of Co-Supervisor

Name: Ts Dr Suthashini a/p Subramaniam

Name: _____

Date: 24 April 2024

Date: _____

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**FACULTY OF INFORMATION & COMMUNICATION
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Student Name	Ang Wei Di
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