

**Online Private Tutor Finder System**

BY

HENG JIE YOU

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF INFORMATION SYSTEMS (HONOURS) BUSINESS INFORMATION  
SYSTEMS

Faculty of Information and Communication Technology

(Kampar Campus)

MAY 2023

## REPORT STATUS DECLARATION FORM

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\_\_\_\_\_  
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\_\_\_\_\_  
(Supervisor's signature)

**Address:**

31, Lorong 1

Bagan Sekinchan

45400 Sekinchan

Selangor

Cik Ana Nabilah Binti Sa'uadi

Supervisor's name

**Date:** 15 September 2023 \_\_\_\_\_

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**FACULTY/INSTITUTE\* OF INFORMATION AND COMMUNICATION TECHNOLOGY**  
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**SUBMISSION OF FINAL YEAR PROJECT /DISSERTATION/THESIS**

It is hereby certified that **Heng Jie You** (ID No: **20ACB02340**) has completed this final year project/ dissertation/ thesis\* entitled “*Online Private Tutor Finder System*” under the supervision of Cik Ana Nabilah Binti Sa’audi (Supervisor) from the Department of Information Systems, Faculty/Institute\* of Information and Communication Technology.


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## DECLARATION OF ORIGINALITY

I declare that this report entitled “**ONLINE PRIVATE TUTOR FINDER SYSTEM**” is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

Signature :  \_\_\_\_\_

Name :  Heng Jie You \_\_\_\_\_

Date :  15/09/2023 \_\_\_\_\_

## **ACKNOWLEDGEMENTS**

I would like to express my sincere thanks and appreciation to my supervisors, Cik Ana Nabilah Binti Sa'uadi who has given me this bright opportunity to engage in this online private tutor finder system project. She is very patience and give me valuable opinions and guidance throughout my final year project. A million thanks to you.

Besides, I want to thank my parents as they always support and encourage me. Without them, I would not be complete my final year project and might lost direction in this project.

At last, I would like to thank my friends who willing to help me and contribute their opinions to me. With their companion, I have the motivation to complete this final year project.

## **ABSTRACT**

This project is to build an online private tutor finder system for academic purposes. The system will be built as a native mobile application which includes the development of the frontend and backend, with incorporation of external APIs to build a whole functioning application. The application will need to support three parties which are students, parents, and tutors. At first, through researching in the existing market of the relevant application, there are five problems that have been found which are most of the application does not support the learning of students with learning disorders, lack of time management system, lack of location approximation, lack of mini game section, and lack of a proper payment system. The research is conducted through reading journal articles, checking on the statistics of the students with special needs through the Malaysian Government Website, and personally testing and reviewing the existing application in the market. Then later in the project, the method of development is written as a proposal to building the application from scratch, where building the frontend design of the application then incorporate it with backend programming later in the project, which allow get and fetch of the data through database, and a proper payment system that is proposed to be added into the application

# TABLE OF CONTENTS

<b>TITLE PAGE</b>	<b>I</b>
<b>REPORT STATUS DECLARATION FORM</b>	<b>II</b>
<b>SUBMISSION OF FINAL YEAR PROJECT /DISSERTATION/THESIS</b>	<b>III</b>
<b>DECLARATION OF ORIGINALITY</b>	<b>II</b>
<b>ACKNOWLEDGEMENTS</b>	<b>III</b>
<b>ABSTRACT</b>	<b>IV</b>
<b>TABLE OF CONTENTS</b>	<b>V</b>
<b>LIST OF FIGURES</b>	<b>XII</b>
<b>LIST OF TABLES</b>	<b>XXI</b>
<b>LIST OF ABBREVIATIONS</b>	<b>XXIII</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1    Problem Statement	2
1.2    Motivation	4
1.3    Objectives	4
1.4    Project Scope and Direction	4
1.5    Contributions	5
1.6    Report Organization	5
<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>6</b>
2.1    Introduction on Literature Review	6
2.2    Smart Tutor App	6
2.2.1    Advantages of The System	6
2.2.1.1    Has Implemented a Tutoring Management System	6
2.2.1.2    Has a Student Dashboard	8
2.2.2    Disadvantages of The System	10
2.2.2.1    Unable to Join the Started Meeting	10
2.2.2.2    Unable to Search for Tutor Through Search Query	12

2.2.2.3	Unable to Join More Than One Class of the Same Subject	13
2.2.3	Limitation of The System	14
2.2.3.1	Lack of a Payment System	14
2.2.3.2	Lack of a Time Management Function Being Implemented	14
2.3	Tutor Finder	15
2.3.1	Advantages of The System	15
2.3.1.1	Has Community Function	15
2.3.1.2	Implementation of Ways To Check the Tutor's Quality	16
2.3.1.3	Functional Social Media Liked System	19
2.3.2	Disadvantages of The System	19
2.3.2.1	No Clear Distinction of Each Functions in Home Page	19
2.3.2.2	Unable to Leave a Quick Comment Under Each Post	19
2.3.3	Limitation of The System	21
2.3.3.1	There is No Tutor Management System	21
2.3.3.2	Lack of a Regulated Payment System	22
2.3.3.3	Has No Student Specific Platform	22
2.4	Pak Tutor	23
2.4.1	Advantages of The System	23
2.4.1.1	Has Filters Incorporate with Search	23
2.4.2	Disadvantages of The System	23
2.4.2.1	The Location Service is Not Functioning	23
2.4.3	Limitation of The System	25
2.4.3.1	Has no Payment System	25
2.5	Proposed Solution	25
2.5.1	Add constraint to filter courses that is for either student with special needs or regular student.	25
2.5.2	Add a management system built into the system for each user type	25
2.5.3	Implement a GPT chat system	26
2.6	Features Table Comparison	26
2.6.1	Justification of Features for Proposed Application	27
2.6.1.1	Has Tutoring Management System	27
2.6.1.2	Has Student Dashboard	27



2.6.1.3	Social Media Liked Function	27
2.6.1.4	Community Function	27
2.6.1.5	Tutor Quality Check	27
2.6.1.6	Filtering Search Function	28
2.6.1.7	Able to Find Tutor for Learning Disordered	28
2.6.1.8	Has GPT chat module built in	28
2.6.1.9	Has children management system	28
<b>CHAPTER 3 SYSTEM METHODOLOGY/APPROACH</b>		<b>29</b>
3.1	System Requirement	29
3.1.1	Hardware	29
3.1.2	Tools and Technologies Involved	29
3.2	Methodology	30
3.3	User Requirement	33
3.4	Verification Plan	34
3.5	Implementation Issues and Challenges	34
3.6	Logical Design	34
3.6.1	Use Case Diagram of Online Private Tutor Finder System	34
3.6.2	Login	35
3.6.3	Register	36
3.6.4	View Course Management System	37
3.6.5	View Tutor Management System	38
3.6.6	Create Course	40
3.6.7	Apply for Teaching Special Needs	41
3.6.10	Look for Tutor	42
3.6.11	Create Student Account	43
3.6.12	Approve tutor's application form	44
3.7	Activity Diagram of Online Private Tutor Finder System	45
3.7.1	Activity Diagram of User Authentication	45
3.7.2	Activity Diagram of Tutor Module	46
3.7.2.1	Activity Diagram of Tutor Add Subject	46
3.7.2.2	Activity Diagram of Tutor Apply for Teaching Special Needs	47
3.7.2.3	Activity Diagram of Tutor Management	48

3.7.3	Activity Diagram of Parent Module	49
3.7.3.1	Activity Diagram of Parent Look for Tutors	49
3.7.3.2	Activity Diagram of Parent Create Student Accounts	49
3.7.4	Activity Diagram of Student Module	50
3.7.5	Activity Diagram of Admin Module	51
3.8	Timeline	52
<b>CHAPTER 4 SYSTEM DESIGN</b>		<b>53</b>
4.1	Wireframe Design	53
4.1.1	Authentication Page	53
4.1.1.1	Login Page	53
4.1.1.2	Register Page	54
4.1.1.3	Forgot Password Page	57
4.1.2	Default Home Page	58
4.1.2.1	Home Page Before Login	58
4.1.3	Loading	60
4.1.4	Admin Module	61
4.1.4.1	Admin Home Page	61
4.1.4.2	Admin Approve Tutors' Application Page	62
4.1.5	Parent Module	63
4.1.5.1	Parent Home Page	63
4.1.5.2	Parent Setting Page	64
4.1.5.3	Parent Manage Children Page	67
4.1.5.4	Parent View of Children Profile	69
4.1.5.5	Parent View Enrolled Course	70
4.1.5.6	Parent View of Tutor Profile	73
4.1.5.7	Parent View Course to Enroll	74
4.1.6	Student Module	75
4.1.6.1	Student Home Page	75
4.1.6.2	Student Setting Page	75
4.1.6.3	Student GPT Page	77
4.1.6.4	Student View of Activities	78
4.1.6.5	Student View of Learning Materials	81

4.1.6.6	Student View of Subject	82
4.1.7	Tutor Module	82
4.1.7.1	Tutor Dashboard	82
4.1.7.2	Tutor Setting Page	83
4.1.7.3	Tutor Add Activity Page	86
4.1.7.4	Tutor Add Learning Material Page	87
4.1.7.5	Tutor Add New Subject Page	88
4.1.7.6	Tutor Add Schedule Page	93
4.1.7.7	Tutor Application Form Page	94
4.1.7.8	Tutor View Activity Page	97
4.1.7.9	Tutor View Learning Material Page	100
4.1.7.10	Tutor View Schedule Page	101
4.1.7.11	Tutor View Student Enrolment Page	102
4.1.7.12	Tutor View Student Profile Page	102
4.1.7.13	Tutor View Subject Page	103
4.2	System Architecture Design	106
4.3	Entity Relationship Diagram (ERD)	107
<b>CHAPTER 5 SYSTEM IMPLEMENTATION</b>		<b>109</b>
5.1	Hardware Setup	109
5.2	Software Setup	109
5.3	Setting and Configuration	109
5.4	System Operation	110
5.4.1	Authentication	111
5.4.2	Tutor Module	117
5.4.3	Parent	138
5.4.4	Student	148
5.4.5	Admin	157
5.5	Implementation Issue	159
<b>CHAPTER 6 SYSTEM EVALUATION AND DISCUSSION</b>		<b>160</b>
6.1	System Testing and Performance Matrix	160
6.2	Testing Setup and Result	160

6.2.1	Authentication Module	160
6.2.1.1	Registering as a Parent	161
6.2.1.2	Registering as a Tutor	162
6.2.1.3	Logging in as a Parent	162
6.2.1.4	Logging in as a Tutor	163
6.2.1.5	Logging in as an Admin	163
6.2.1.6	Registering a Student Account	163
6.2.1.7	Logging in as Student	164
6.2.2	Tutor Module	165
6.2.2.1	Add New Subject	165
6.2.2.2	Add New Activity	165
6.2.2.3	Add New Schedule	166
6.2.2.4	Add New Learning Materials	166
6.2.2.5	Change Learning Materials Publish Status	166
6.2.2.6	Delete Activities	167
6.2.2.7	Delete Course	167
6.2.2.8	Change Banner Image	167
6.2.2.9	Change Profile Picture	168
6.2.2.10	Change Phone Number	168
6.2.2.11	Change Password	168
6.2.3	Parent Module	169
6.2.3.1	Enroll Courses	169
6.2.3.2	Give Rating	169
6.2.3.3	Cancel Enrollment	169
6.2.3.4	View Student Performance	170
6.2.3.5	Change Profile Picture	170
6.2.3.6	Change Phone Number	170
6.2.3.7	Change Password	171
6.2.4	Student Module	172
6.2.4.1	View Enrolled Course	172
6.2.4.2	View Activities	172
6.2.4.3	Use StudentGPT	173

6.2.3.4	Change Profile Picture	173
6.2.3.5	Change Password	173
6.2.5	Admin Module	174
6.2.5.1	Approve Tutor's Application	174
6.3	Objective Evaluation	175
<b>CHAPTER 7 CONCLUSION AND RECOMMENDATION</b>		<b>176</b>
7.1	Conclusion	176
7.2	Recommendation	177
<b>REFERENCES</b>		<b>178</b>
<b>WEEKLY LOG</b>		<b>180</b>
<b>POSTER</b>		<b>193</b>
<b>PLAGIARISM CHECK RESULT</b>		<b>194</b>
<b>CHECKLIST FOR FYP2 THESIS SUBMISSION</b>		<b>197</b>

## LIST OF FIGURES

<b>Figure Number</b>	<b>Title</b>	<b>Page</b>
Figure 2.1	Screenshot of a Segment in Tutoring Management System	7
Figure 2.2	Screenshot of the Student List	7
Figure 2.3	Screenshot of the Student Dashboard	8
Figure 2.4	Screenshot of the Available Subjects in View Subjects	9
Figure 2.5	Screenshot of the Available Teachers in Search Teacher	9
Figure 2.6	Screenshot of New Classroom Creation Form	10
Figure 2.7	Screenshot of the Created Meeting	11
Figure 2.8	Screenshot of the Subject Page in Student's Perspective	11
Figure 2.9	Screenshot of Subject Page in Tutor's Perspective	12
Figure 2.10	Screenshot of Search Teacher Tab	13
Figure 2.11	Screenshot of Available Subjects Tab	14
Figure 2.12	Screenshot of a Segment in Community Posts	15
Figure 2.13	Screenshot of The Community Posts Function and Post with Image	15
Figure 2.14	Screenshot of a Segment in My Posts Section	16
Figure 2.15	Screenshot of a Segment in Community Profile	16
Figure 2.16	Screenshot of the Message Indicates Community Score Being Added	17
Figure 2.17	Screenshot of the Community Score Earned	17
Figure 2.18	Screenshot of a Segment in the Tutor Want Section	17
Figure 2.19	Screenshot of a Tutor's Profile	18
Figure 2.20	Screenshot of the Comment Tab Under the Tutor's Profile	18
Figure 2.21	Screenshot of the Three Tabs under Home Page	19
Figure 2.22	Screenshot of the Comment Section in the Community Page	20
Figure 2.23	Screenshot of a Post	20
Figure 2.24	Screenshot of Comment Section in a Post	21
Figure 2.25	Screenshot of WBLE in UTAR	22
Figure 2.26	Screenshot of the Quick Filter in Home Page	23

Figure 2.27	Screenshot of the Setup in Account Number 2	24
Figure 2.28	Screenshot of the Setup in Account Number 1	24
Figure 2.29	Screenshot of an Endless Loop of Loading	24
Figure 3.2.1	System Prototype	31
Figure 3.6.1.1	Use Case Diagram	34
Figure 3.7.1.1	Activity diagram for user authentication	45
Figure 3.7.2.1.1	Activity diagram for tutor module (add subject)	46
Figure 3.7.2.2.1	Activity diagram for tutor module (apply for teaching special needs)	47
Figure 3.7.2.3.1	Activity diagram for tutor module (tutor management)	48
Figure 3.7.3.1.1	Activity diagram for parent module (look for tutors)	49
Figure 3.7.3.2.1	Activity diagram for parent module (create student accounts)	49
Figure 3.7.4.1	Activity diagram for student module	50
Figure 3.7.5.1	Activity diagram for admin module	51
Figure 3.8.1	Timeline	52
Figure 4.1.1.1.1	Wireframe sketch of login page	53
Figure 4.1.1.2.2	Wireframe sketch of register page 1	54
Figure 4.1.1.2.3	Wireframe sketch of register page 2	54
Figure 4.1.1.2.3	Wireframe sketch of register page 3	55
Figure 4.1.1.2.4	Wireframe sketch of register page 4	55
Figure 4.1.1.2.5	Wireframe sketch of register page 5	56
Figure 4.1.1.3.1	Wireframe sketch of forgot password page	57
Figure 4.1.2.1.1	Wireframe sketch of default home page	58
Figure 4.1.2.1.2	Wireframe sketch of default home page (Active)	59
Figure 4.1.3.1	Wireframe sketch of loading page	60
Figure 4.1.4.1.1	Wireframe admin home page 1	61
Figure 4.1.4.1.2	Wireframe design of admin home page 2	61
Figure 4.1.4.1.3	Wireframe design admin log out modal	62
Figure 4.1.4.2.1	Wireframe design of admin approve tutors' application page	62
Figure 4.1.5.1.1	Wireframe design of parent home page	63

Figure 4.1.5.1.2	Wireframe design of parent home page (without available tutors)	63
Figure 4.1.5.2.1	Wireframe design of parent setting page	64
Figure 4.1.5.2.2	Wireframe design of parent setting page (Pressed on phone number)	64
Figure 4.1.5.2.3	Wireframe design of parent setting page (Pressed on change password)	65
Figure 4.1.5.2.4	Wireframe design of parent setting page (Pressed on change profile picture)	65
Figure 4.1.5.2.5	Wireframe design of parent setting page (Uploaded profile picture)	66
Figure 4.1.5.3.1	Wireframe design of parent manage children page	67
Figure 4.1.5.3.2	Wireframe design of add children account (Form One)	67
Figure 4.1.5.3.3	Wireframe design of add children account (Form Two)	68
Figure 4.1.5.3.4	Wireframe design of add children account (Form Two –with special need)	68
Figure 4.1.5.3.5	Wireframe design of add children account (Form Two – with special need Active)	69
Figure 4.1.5.4.1	Wireframe design of children profile (Without special need)	69
Figure 4.1.5.4.2	Wireframe design of children profile (With special need)	70
Figure 4.1.5.5.1	Wireframe design of view student enrolled course	70
Figure 4.1.5.5.2	Wireframe design of view student performance on enrolled course	71
Figure 4.1.5.5.3	Wireframe design of give rating on enrolled course	71
Figure 4.1.5.5.4	Wireframe design of give rating on enrolled course (Active)	72
Figure 4.1.5.5.5	Wireframe design of cancel course enrolment	72
Figure 4.1.5.6.1	Wireframe design of view tutor profile	73
Figure 4.1.5.6.2	Wireframe design of view tutor rating	73
Figure 4.1.5.7.1	Wireframe design of view offered course	74
Figure 4.1.5.7.2	Wireframe design of view offered course (Active)	74
Figure 4.1.6.1.1	Wireframe design of student home page	75
Figure 4.1.6.2.1	Wireframe design of student setting page	75



Figure 4.1.6.2.2	Wireframe design of student setting page (pressed on change profile picture)	76
Figure 4.1.6.2.3	Wireframe design of student setting page (profile picture uploaded)	76
Figure 4.1.6.2.4	Wireframe design of student setting page (pressed on change password)	77
Figure 4.1.6.3.1	Wireframe design of student GPT page	77
Figure 4.1.6.4.1	Wireframe design of student view of activities page	78
Figure 4.1.6.4.2	Wireframe design of student view of completed activities page - 1	78
Figure 4.1.6.4.3	Wireframe design of student view of completed activities page – 2	79
Figure 4.1.6.4.4	Wireframe design of student view of uncompleted activities page	79
Figure 4.1.6.4.5	Wireframe design of student view of uncompleted activities page (submission)	80
Figure 4.1.6.4.6	Wireframe design of student view of uncompleted activities page (Selecting MCQ answer)	80
Figure 4.1.6.5.1	Wireframe design of student view of learning materials (Exercise)	81
Figure 4.1.6.5.2	Wireframe design of student view of learning materials (Teaching Note)	81
Figure 4.1.6.6.1	Wireframe design of student view of subject	82
Figure 4.1.7.1.1	Wireframe design of tutor dashboard	82
Figure 4.1.7.1.2	Wireframe design of tutor dashboard (without subject offered)	83
Figure 4.1.7.2.1	Wireframe design of tutor setting page	83
Figure 4.1.7.2.2	Wireframe design of tutor setting page (pressed on change phone number)	84
Figure 4.1.7.2.3	Wireframe design of tutor setting page (pressed on change profile picture)	84

Figure 4.1.7.2.4	Wireframe design of tutor setting page (profile picture uploaded)	85
Figure 4.1.7.2.5	Wireframe design of tutor setting page (pressed on change password)	86
Figure 4.1.7.3.1	Wireframe design of tutor add activity page (multiple choices question)	86
Figure 4.1.7.3.2	Wireframe design of tutor add activity page (short answer question)	87
Figure 4.1.7.4.1	Wireframe design of tutor add learning material page	87
Figure 4.1.7.4.2	Wireframe design of tutor add learning material page (file uploaded)	88
Figure 4.1.7.5.1	Wireframe design of tutor add new subject page	88
Figure 4.1.7.5.2	Wireframe design of tutor add new subject page (active)	89
Figure 4.1.7.5.3	Wireframe design of tutor add new subject page (active dropdown open) – 1	89
Figure 4.1.7.5.4	Wireframe design of tutor add new subject page (active dropdown open) – 2	90
Figure 4.1.7.5.5	Wireframe design of tutor add new subject page (special need)	90
Figure 4.1.7.5.6	Wireframe design of tutor add new subject page (active special need) – 1	91
Figure 4.1.7.5.7	Wireframe design of tutor add new subject page (active special need) – 2	92
Figure 4.1.7.6.1	Wireframe design of tutor add schedule page	93
Figure 4.1.7.6.2	Wireframe design of tutor add schedule page (active dropdown open)	93
Figure 4.1.7.7.1	Wireframe design of tutor application form page	94
Figure 4.1.7.7.2	Wireframe design of tutor application form page (active dropdown open)	95
Figure 4.1.7.7.3	Wireframe design of tutor application form page (apply) - 1	95
Figure 4.1.7.7.4	Wireframe design of tutor application form page (apply) - 2	95

Figure 4.1.7.7.5	Wireframe design of tutor application form page (apply selected) – 1	96
Figure 4.1.7.7.6	Wireframe design of tutor application form page (apply selected) – 2	96
Figure 4.1.7.8.1	Wireframe design of tutor view activity page - 1	97
Figure 4.1.7.8.2	Wireframe design of tutor view activity page - 2	97
Figure 4.1.7.8.3	Wireframe design of tutor view activity page (MCQ)	98
Figure 4.1.7.8.4	Wireframe design of tutor view activity page (MCQ [active] )	98
Figure 4.1.7.8.5	Wireframe design of tutor view activity page (Short Answer)	99
Figure 4.1.7.8.4	Wireframe design of tutor view activity page (Short Answer [active] )	99
Figure 4.1.7.9.1	Wireframe design of tutor view learning material page (Exercise)	100
Figure 4.1.7.9.2	Wireframe design of tutor view learning material page (teaching note)	100
Figure 4.1.7.10.1	Wireframe design of tutor view schedule page (week view) – 1	101
Figure 4.1.7.10.2	Wireframe design of tutor view schedule page (week view) – 2	101
Figure 4.1.7.11.1	Wireframe design of tutor view student enrolment page	102
Figure 4.1.7.12.1	Wireframe design of tutor view student profile page	102
Figure 4.1.7.13.1	Wireframe design of tutor view subject page – 1	103
Figure 4.1.7.13.2	Wireframe design of tutor view subject page – 2	103
Figure 4.1.7.13.3	Wireframe design of tutor view subject page – 3	104
Figure 4.1.7.13.4	Wireframe design of tutor view subject page – 4	104
Figure 4.1.7.13.5	Wireframe design of tutor view subject page (with special needs)	105
Figure 4.2.1	System architecture design of online private tuition system	106
Figure 4.3.1	Entity Relationship Diagram of online private tuition system	107

Figure 5.4.1	Screenshot of a fresh new system	110
Figure 5.4.1.1	Screenshot of sign in page of the application	111
Figure 5.4.1.2	Screenshot of Sign-up page (Form one)	112
Figure 5.4.1.3	Screenshot of Sign-up page (Form one – Filled)	112
Figure 5.4.1.4	Screenshot of Sign-up page (Form two)	113
Figure 5.4.1.5	Screenshot of Sign-up page (Form Two – Filled)	114
Figure 5.4.1.6	Screenshot of tutor home page once signed up	114
Figure 5.4.1.6	Screenshot of selecting user type of parent	115
Figure 5.4.1.7	Screenshot of Parent Home Page screen	116
Figure 5.4.1.8	Screenshot of user logging into the system	116
Figure 5.4.1.9	Screenshot of forgot password page	117
Figure 5.4.2.1	Screenshot of Add New Subject page	118
Figure 5.4.2.2	Screenshot of Add New Subject page (Filled)	118
Figure 5.4.2.3	Screenshot of Add New Subject page (Additional Content – Filled)	119
Figure 5.4.2.4	Screenshot of loading page when subject is submitting	119
Figure 5.4.2.5	Screenshot of Tutor Home Page after submitting a subject	120
Figure 5.4.3.6	Screenshot of Subject Editing Page	120
Figure 5.4.2.7	Screenshot of View Learning Material Page (Teaching Note)	121
Figure 5.4.2.8	Screenshot of the View Learning Material Page (Exercise)	121
Figure 5.4.2.9	Screenshot of the View Learning Material with a hidden special need	122
Figure 5.4.2.10	Screenshot of Add Learning Materials page	123
Figure 5.4.2.11	Screenshot of Add Learning Materials page (File uploaded)	123
Figure 5.4.2.12	Screenshot of successful upload of new learning material	124
Figure 5.4.2.13	Screenshot of newly added learning material in Teaching note	124
Figure 5.4.2.14	Screenshot of newly added learning material in Exercise	125
Figure 5.4.2.15	Screenshot of Student Enrollment Page	125
Figure 5.4.2.16	Screenshot of View Activity page	126
Figure 5.4.2.17	Screenshot of adding new activity	127

Figure 5.4.2.18	Screenshot of adding MCQ activity	127
Figure 5.4.2.19	Screenshot of adding Short Answer question	128
Figure 5.4.2.20	Screenshot of pop-up Alert to notify the activity is uploaded	128
Figure 5.4.2.21	Screenshot of newly added activities	129
Figure 5.4.2.22	Screenshot of option menu shown	129
Figure 5.4.2.23	Screenshot of view activities page (MCQ)	130
Figure 5.4.2.24	Screenshot of view activities page (Activity)	130
Figure 5.4.2.25	Screenshot of edit MCQ question	131
Figure 5.4.2.26	Screenshot of edit Short Answer Question	131
Figure 5.4.2.27	The pop-up alert asking for double confirm	132
Figure 5.4.2.28	Screenshot of View Schedule Page	133
Figure 5.4.2.29	Screenshot of Add New Schedules	133
Figure 5.4.2.30	Screenshot of newly added schedules in View Schedule	134
Figure 5.4.2.31	Screenshot of change banner image pop-up	134
Figure 5.4.2.32	Screenshot of banner image uploaded	135
Figure 5.4.2.33	Screenshot of changes of banner image.	135
Figure 5.4.2.34	Screenshot of delete pop-up	136
Figure 5.4.2.35	Screenshot of Tutor Setting Page	136
Figure 5.4.2.36	Screenshot of Application Form Page	137
Figure 5.4.2.37	Screenshot of Application Form Page (Selecting types)	137
Figure 5.4.2.38	Screenshot of application is submitted.	138
Figure 5.4.3.1	Screenshot of Parent Home Page	139
Figure 5.4.3.2	Screenshot of Parent Setting Page	139
Figure 5.4.3.3	Screenshot of Manage Children Page	140
Figure 5.4.3.4	Screenshot of Children Register Page	140
Figure 5.4.3.5	Screenshot of Children Register Page (Form One – Filled)	141
Figure 5.4.3.6	Screenshot of Children Register Page (Form Two – No Special Needs)	141
Figure 5.4.3.7	Screenshot of Children Register Page (Form Two – Filled)	142
Figure 5.4.3.8	Screenshot of Manage Children Page after registering a children account	142
Figure 5.4.3.9	Screenshot of tutor profile with offered courses	143

Figure 5.4.3.10	Screenshot of tutor profile with review	143
Figure 5.4.3.11	Screenshot of applying courses	144
Figure 5.4.3.12	Screenshot of enrollment alert after applied	144
Figure 5.4.3.12	Screenshot of enrollment alert after applied.	145
Figure 5.4.3.13	Screenshot of children enrolled course	145
Figure 5.4.3.14	Screenshot of parent management system	146
Figure 5.4.3.15	Screenshot of view children performance	146
Figure 5.4.3.16	Screenshot of rating modal in give rating	147
Figure 5.4.3.17	Screenshot of review uploaded successfully.	147
Figure 5.4.3.18	Screenshot of enrollment cancellation	148
Figure 5.4.4.1	Screenshot of Student Home Page	148
Figure 5.4.4.2	Screenshot of the selected course to be view	149
Figure 5.4.4.3	Screenshot of the learning materials (Teaching Note)	150
Figure 5.4.4.4	Screenshot of the learning materials (Exercises)	150
Figure 5.4.4.5	Screenshot of selecting all learning materials to be downloaded	151
Figure 5.4.4.6	Screenshot of download completed message	151
Figure 5.4.4.7	Screenshot of files zipped when downloaded	152
Figure 5.4.4.8	Screenshot of view activities modules	152
Figure 5.4.4.9	Screenshot of questions given by tutors	153
Figure 5.4.4.10	Screenshot of student answering the questions	153
Figure 5.4.4.11	Screenshot of confirmation when submitting answer	154
Figure 5.4.4.12	Screenshot of answer submitted successfully	154
Figure 5.4.4.13	Screenshot of showing automatic mark computation after refreshing	155
Figure 5.4.4.14	Screenshot of activity reviews	155
Figure 5.4.4.15	Screenshot of StudentGPT	156
Figure 5.4.4.16	Screenshot of StudentGPT at work	156
Figure 5.4.5.1	Screenshot of Admin Home Page	157
Figure 5.4.5.2	Screenshot of viewing tutor's application form	158

## LIST OF TABLES

<b>Table Number</b>	<b>Title</b>	<b>Page</b>
Table 2.6.1	Comparison between proposed application with others existing reviewed application	26
Table 3.3.1.1	Specifications of laptop	29
Table 3.1.2.1	Description of tools and technology	29
Table 3.3.1	Functional requirement	33
Table 3.3.2	Non-functional requirement	33
Table 3.6.2.1	Use Case Description: Login	35
Table 3.6.3.1	Use Case Description: Register	36
Table 3.6.4.1	Use Case Description: View Course Management System	37
Table 3.6.5.1	Use Case Description: View Tutor Management System	38
Table 3.6.6.1	Use Case Description: Create Course	40
Table 3.6.7.1	Use Case Description: Apply for teaching special needs	41
Table 3.6.10.1	Use Case Description: Look for tutor	42
Table 3.6.11.1	Use Case Description: Create student account	43
Table 3.6.7.1	Use Case Description: Apply for approve tutor's application	44
Table 5.1.1	Specifications of Android Mobile Phone	109
Table 6.2.1.1.1	Unit Testing – Registering as a Parent	161
Table 6.2.1.2.1	Unit Testing – Registering as a Tutor	162
Table 6.2.1.3.1	Unit Testing – Logging in as a Parent	162
Table 6.2.1.4.1	Unit Testing – Logging in as a Tutor	163
Table 6.2.1.5.1	Unit Testing – Logging in as a Admin	163
Table 6.2.1.6.1	Unit Testing – Registering a Student Account	163
Table 6.2.1.7.1	Unit Testing – Logging in as a Student	164
Table 6.2.2.1.1	Unit Testing – Add New Subject	165
Table 6.2.2.2.1	Unit Testing – Add New Activity	165
Table 6.2.2.3.1	Unit Testing – Add New Schedule	166
Table 6.2.2.4.1	Unit Testing – Add New Learning Materials	166
Table 6.2.2.5.1	Unit Testing – Change Learning Materials Publish Status	166

Table 6.2.2.6.1	Unit Testing – Delete Activities	167
Table 6.2.2.7.1	Unit Testing – Delete Course Table	167
Table 6.2.2.8.1	Unit Testing – Change Banner Image	167
Table 6.2.2.9.1	Unit Testing – Change Profile Picture	168
Table 6.2.2.10.1	Unit Testing – Change Phone Number	168
Table 6.2.2.11.1	Unit Testing – Change Password	168
Table 6.2.3.1.1	Unit Testing – Enroll Courses	169
Table 6.2.3.2.1	Unit Testing – Give Rating	169
Table 6.2.3.3.1	Unit Testing – Cancel Enrollment	169
Table 6.2.3.4.1	Unit Testing – View Student Performance	170
Table 6.2.3.5.1	Unit Testing – Change Profile Picture	170
Table 6.2.3.6.1	Unit Testing – Change Phone Number	170
Table 6.2.3.7.1	Unit Testing – Change Password	171
Table 6.2.4.1.1	Unit Testing – View Enrolled Course	172
Table 6.2.4.2.1	Unit Testing – View Activities	172
Table 6.2.4.3.1	Unit Testing – Use StudentGPT	173
Table 6.2.3.4.1	Unit Testing – Change Profile Picture	173
Table 6.2.3.5.1	Unit Testing – Change Password	173
Table 6.2.5.1.1	Unit Testing – Approve Tutor’s Application	174



## LIST OF ABBREVIATIONS

<i>ADHD</i>	Attention Deficit Hyperactivity Disorder
<i>AI</i>	Artificial Intelligence
<i>CRUD</i>	Create, Read, Update, Delete
<i>GPT</i>	Generative Pre-trained Transformer
<i>PWD</i>	people with disabilities
<i>UI/UX</i>	User Interface and User Experience
<i>RAM</i>	Random Access Memory

# Chapter 1 Introduction

Getting a tutor for children is a headache for parents throughout the decades. Parents need to venture out every place to look for a qualified tutor and register for their children to enroll in the courses. Creating an online private tutor finder system can help in resolving this problem as much to reduce the extra efforts for parents to venture out through allowing using the mobile phones to look for qualified private tutors for every subject. As far as today, there are only 39 relevant applications that are available in Google Play Store [1]. In Malaysia, private tutor is a norm within the culture of parenting, parents want their children to be more competent in the future. Parents are very much willing to give the children the education they deserve and allow them to get a better head start in terms of education with the added advantage of private tutors.

In another point of view, tutors also have a hard time especially for those newcomers in the market. Just like the other occupations in old times, before the digital revolution, all newcomers need a long time to adapt to the market and find their own way in promoting their business. Basically, it takes a generous amount of time to get their business up and running like how they wanted it to be. However, after the digital revolution, there are many things that have been digitalized and moved towards information technology as well as education. As well for private tutoring, from marketing the business in physical form, with the help of private tutor finder system, private tutor can ease their work and go online to promote themselves and get a much easier way to start their business, they get to also increase their longevity of business too [2]. Besides, the existing application such as “Wyzant – Find Expert Tutors” [3] [4], has proven to be helpful for the private tutors when conducting their session through the application and helped them to manage their business effectively.

From the perspective of students, private tutor finder meant a lot for them as it gives them a clear head start when comparing to the others. Private tutoring is not only subjected to learning topics that have been taught in schools, but rather it is a choice of freedom where the students get to choose whatever subject they wanted to learn. However, in the context of this project, private tutoring is referring to academic purposes. Students can enhance their academic performance through receiving private tutoring as the tutor get to teach them in a more personalized fashion instead of the way tutors teach in schools where they need to teach a large group of students, implies on the way of teaching need to be generalized and equal. In addition,

with online private tutor finder system, students also get the advantage of choosing the subject they wanted to improve through the application and get their hands on extra study materials and guidance.

## **1.1 Problem Statement**

Although the existing application are serving their purposes in fulfilling the objective of the application, there are still problems that can be found in them both in terms of technical and non-technical. The applications in this field are found not mature enough for the current market and there are times when it cannot fulfill everyone's needs. Below shows the problem that can be found after researching the relevant applications and studies:

### **1. Lack of coping method towards the learning disordered.**

Learning disorder is someone that has learning difficulties in study. In general, there are five major types of learning disorders, which are Dyslexia, Attention Deficit Hyperactivity Disorder (ADHD), Dyscalculia, Dysgraphia, and Dyspraxia [5]. Having mentioned learning disorders greatly affect the students in learning. Without a proper guided education system, these users could not be what they wanted to be, where this is to ensure even the minority of society needed to be taken care of, given if it is able to be helped. Given the current special needs school under the management of Malaysia government has only 34 schools throughout the whole country [6], while the registered students under the special needs category are at 162,018 students as of 2019 according to the Minister of Education [7]

Hence emphasizing the importance of having a feature that allows this group to access the learning materials and the right to get educated as a human being, but the existing application does not provide the feature that is needed for these group. This created a problem towards this field of users, especially the parent of the disordered, whereby the parents need to educate and guide the children by themselves which causes stress to build up quickly. Since the existing application solely provide the services to the normal students, there is a great opportunity for an application providing option for the learning disordered a chance to receive specialize education system; rather forcing them to take the classes like the other normal students. One increases the number of system users; one decreases the stress of the needy students.

In Malaysia alone, as of 2017 there are 453,258 registered people with disabilities (PWD) and from it there are 34.8% of PWD is registered under learning disabilities [8]. While limiting the sample size in Malaysia, it is a great opportunity to allow these students to join in to learn. Everyone deserves to learn and gain knowledge, and it should not be limited due to the congenital disadvantage of the children.

## **2. Lack of “all in one” platform that integrate the core activities of online private tuition system.**

From the reviewed application, there are not much application that provides an all-in-one platform solution that can fully serve the purpose of conducting online private tuition. Aside from using Google’s proprietary products, and Microsoft Teams which is designed for large organizations. An application that provides services to allow users to manage everything without exiting will be a great plus. Giving tutors functions such as course management system, allow students to get a student management system, and a children management system for parents as a package would benefit the users without having the hustle to open different application to perform different activities.

As in today's world, there is too much software that serves different purposes, but most of the existing software focuses only on one function instead of the minor details that can greatly impact the user experience towards the software. As per said in user experience, it is not about the aesthetical standpoint of the application, instead it is the functionalities of the application. If one application is able to focus on one main function but also having the minor features to support the user throughout the use of the application, it will be a great experience for the user.

## **3. Lack of tools that enhance student learning environment.**

With the current movement of technology, Artificial Intelligence and Machine Learning brought a lot to the table. Specifically, generative AI such as ChatGPT [9] has brought a lot of benefits to humankind. It helps everyone no matter the user is a student, workers or anyone else. It acted as a source of idea that can be a key to inspire people and come up with great ideas in solving problems. Same goes for student who are struggling with their coursework, sometimes “Google-ing” the answer may not be as good as prompting ChatGPT or any other GPT services. Using the new technology can increase the effectiveness of searching for answer and the efficiency in learning process. The new trend needs to be integrated with the application

just to allow the students to get more interactive learning environment with implementing a GPT into the system

## **1.2 Motivation**

With all the problem that persist in the existing online private tutor finder system, it is crucial to integrate new technology into the education in general. Plus getting involvement of AI in education will not totally harm the student, instead guiding them to properly use them as a tool to assist in completing hard tasks. GPTs are not perfect, but the beauty of the AI is that it allows blooms of idea whereby a response from GPT may get the students to think of a new idea or way to solve the problem.

## **1.3 Objectives**

The aim of the project is to contribute to the field of private tutor. Private tutoring has been a culture norm in Asia culture, especially in Malaysia. Those who got the spending power will allow their children to enroll in private tuition, taking their extra academic session with the private tutors. With the proposed application, all parties from parents, students, and tutors get benefits from it. Parents will get to ease their workload when looking for a reputable, and suitable tutor to guide their children in academic study and hopefully excel in exams. For the tutors, it provides one additional platform to market themselves in the private tutor field. It is true especially for the newcomers to this market. Due to the digitalization of every business sector, setting head start in online platform will be a great choice to find success in near future. At last, online private tutor system would greatly help students to either increase their academic performance through the flexibility of getting education online. Student can get their course material anytime and anywhere, as well as having a flexible study time.

In addition to that, with a well featured online private tutor finder system, the user based will have a reason to maintain their active status within the application and get to increase the longevity of the program.

## **1.4 Project Scope and Direction**

This project is expected to complete the online private tutor finder system, which is capable for finding a private tutor, a student management system, a GPT system for students, and features to provide quality-of-life for the user. The project is targeting the parents, students, and tutors that require a platform to achieve their aims effectively and efficiently.

## **1.5 Contributions**

The proposed application equipped with a GPT model, a channel for tutors conducting activity with the students, an essential modules time management system, and the most important is to allow every student from different difficulties to get their right in educations. Through the strategy and the problem that exist in current systems, the proposed system will be a way to compromise and solve all the existing problems.

The things that made the application better is the additional of a specialized section towards the students with learning disorder. After researching the existing applications from Google Play Store, I would say there are no private tutor application yet to aid the needy person who need specialized teachings method. By creating a system to cope them is beneficial not only the needy students but also to encourage and inform the public where the importance of the right of receiving education for all human being.

## **1.6 Report Organization**

The details of this project are shown in the following chapters. In Chapter 2, some similar systems are reviewed. In Chapter 3, a list system development approach. Then, Chapter 4 describes the system design of the online private tutor finder system. Chapter 5 describes the development of the system. In Chapter 6, system evaluation will be described with testing. Lastly, Chapter 7 will cover the conclusion of the project.

# Chapter 2 Literature Review

## 2.1 Introduction on Literature Review

Although there are many online private tutor finder systems available in the Google Play Store, after conducting research and review on all the system, five system are selected among them all to be specifically reviewed for their advantages, disadvantages, and limitation. These five systems are “Smart Tutor App” [10], “Tutor Finder” [11],and “Pak Tutor” [12]. At the end of this chapter, proposed solution will be given to tackle the common problem within these system as an improve the proposed application from the weakness and limitation of these system. As a side note, there are many systems that cannot be reviewed either with reasons of the stopping of service in the application and unsupported region of the application.

## 2.2 Smart Tutor App

In this application, two accounts have been created to review the application because there is no active user currently in the system.

### 2.2.1 Advantages of The System

#### 2.2.1.1 Has Implemented a Tutoring Management System

From the perspective of a tutors, it is important that an online tutor finder application can provide functions such as a tutoring management system where allow them to upload subject materials. In this application there exist a tutoring management system that able the tutors to upload course materials, access to list of enrolled students, and uploading after class activity as shown in figure 2.1.

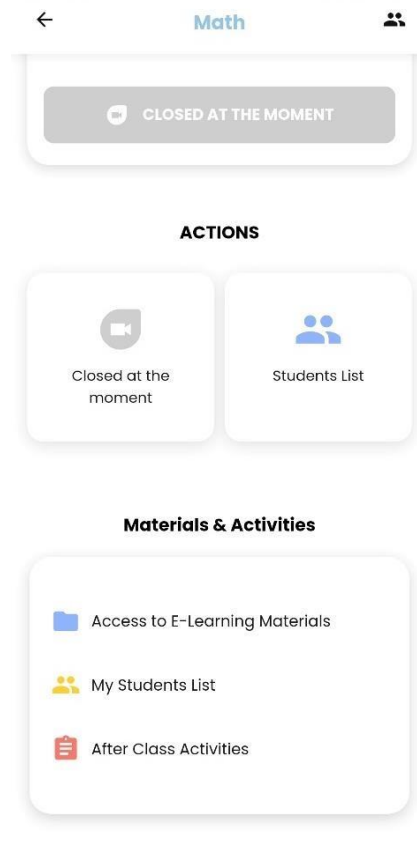


Figure 2.1 Screenshot of a Segment in Tutoring Management System

In this system, tutors are also able to remove any enrolled student, and view student profile through the “Students List” tab as shown in figure 2.2.

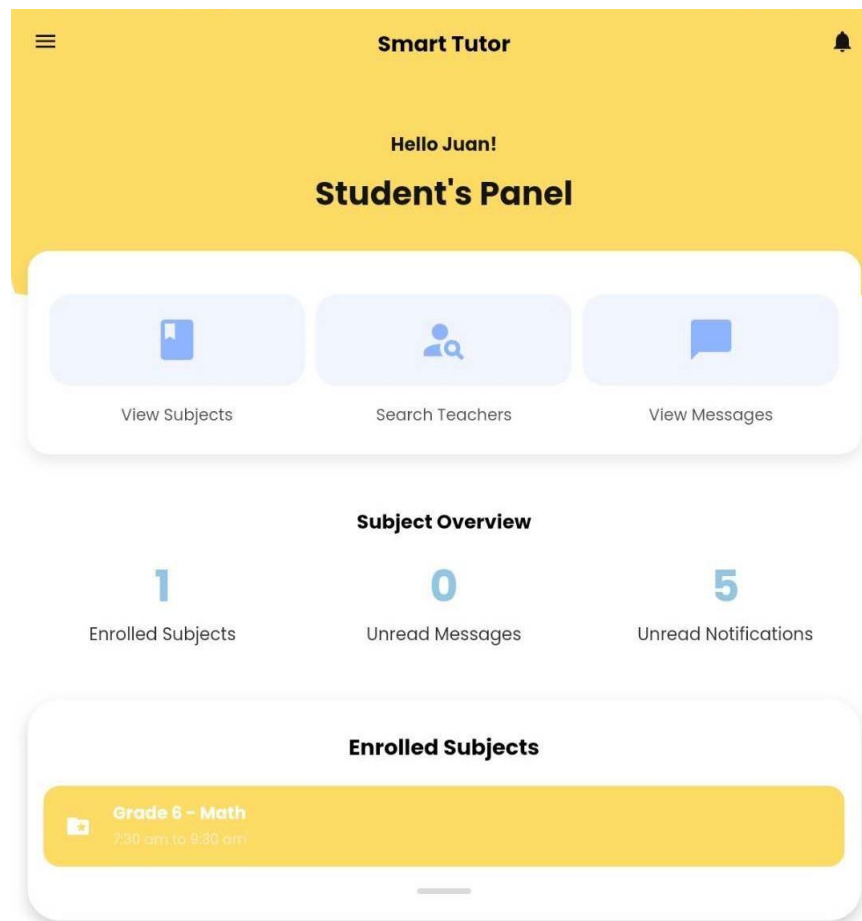


Figure 2.2 Screenshot of the Student List



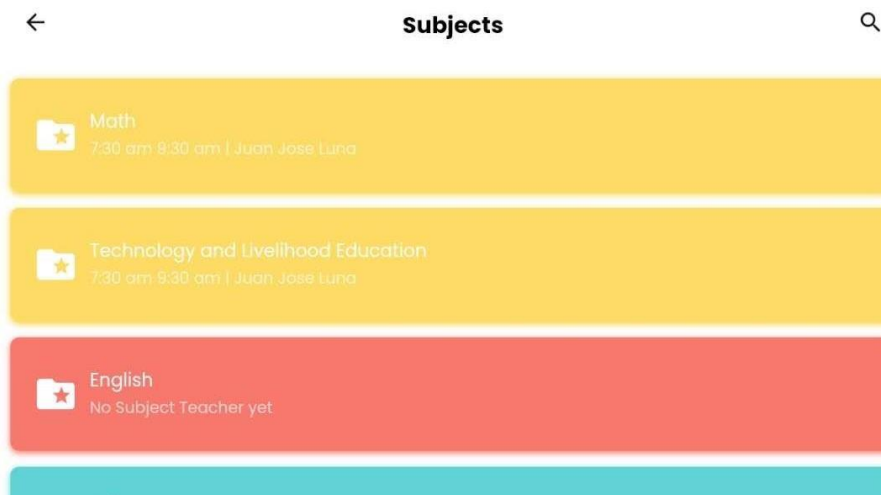
### 2.2.1.2 Has a Student Dashboard

In the perspective of students, having a student dashboard can help in managing all course in a single page which is a convenience feature to be implemented in the system. Figure 2.3 shows the student dashboard with the essentials being shown in the screen which are the subjects enrolled, messages received, search teachers, and notifications.

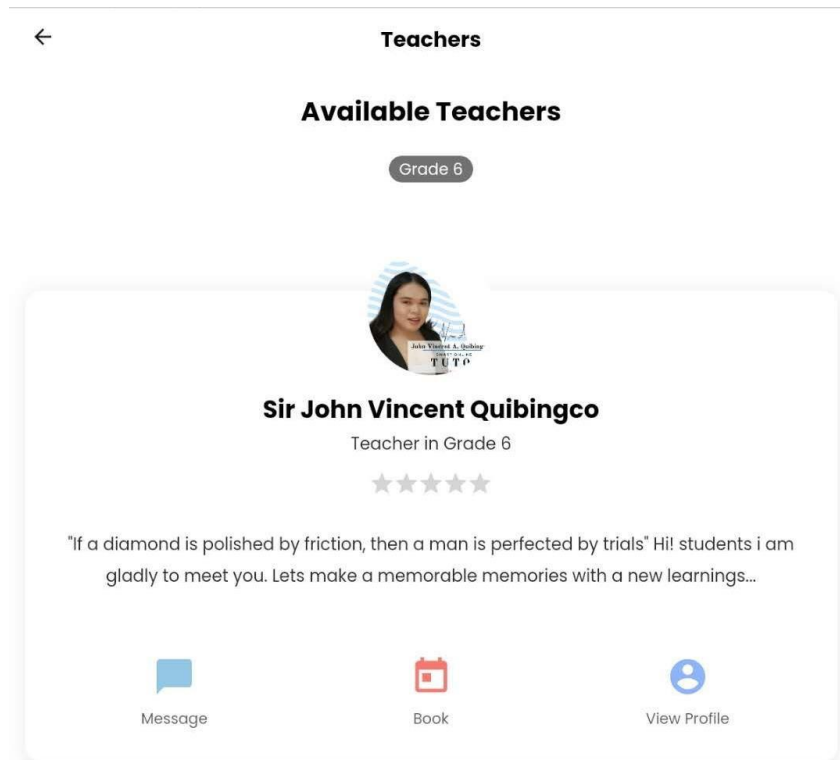


*Figure 2.3 Screenshot of the Student Dashboard*

In the student dashboard, student can click on the “View Subjects” to view the available subjects that are listed as shown in figure 2.4, and “Search Teachers” direct the user to search for available teachers in the platform as shown in figure 2.5.



*Figure 2.4 Screenshot of the Available Subjects in View Subjects*

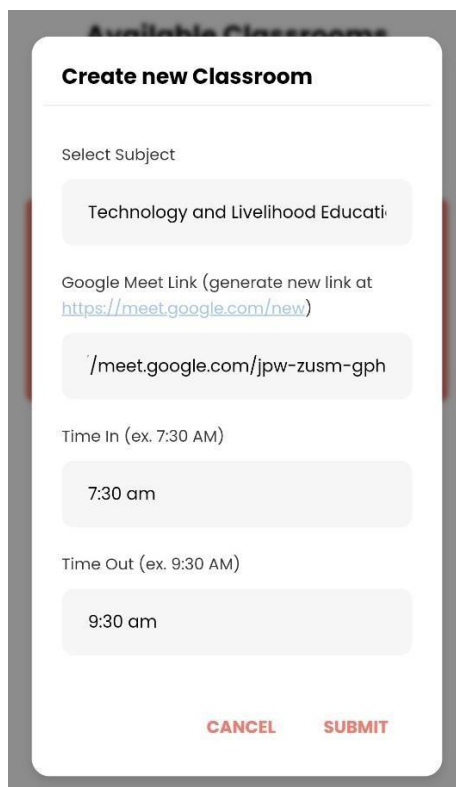


*Figure 2.5 Screenshot of the Available Teachers in Search Teacher*

## 2.2.2 Disadvantages of The System

### 2.2.2.1 Unable to Join the Started Meeting

In the creation of a new subject, a valid google meet link is required to enter the form as shown in figure 2.6.



The screenshot shows a mobile application interface for creating a new classroom. The form is titled "Create new Classroom" and contains the following fields:

- Select Subject:** A dropdown menu with the selected option "Technology and Livelihood Educati".
- Google Meet Link:** A text input field with a placeholder "(generate new link at <https://meet.google.com/new>)" and the entered link "/meet.google.com/jpw-zusm-gph".
- Time In:** A text input field with the value "7:30 am".
- Time Out:** A text input field with the value "9:30 am".

At the bottom of the form are two buttons: "CANCEL" and "SUBMIT".

*Figure 2.6 Screenshot of New Classroom Creation Form*

Upon entering the Google Meet link, the user is still unable to enter the meeting even if the meeting host has started the meeting as shown in figure 2.7, figure 2.8, and figure 2.9. The Google Meet join button is greyed out and showed with text "Closed at the moment", indicating the meeting has not been started. If this case only appear in the tutor side of the application can still be a small issue, but it also appears in the student side of the page. Then it caused the student unable to join courses they enrolled

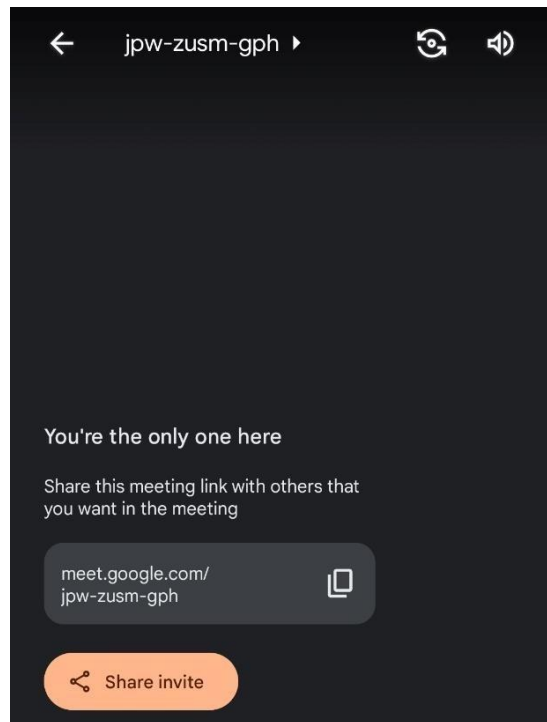


Figure 2.7 Screenshot of the Created Meeting

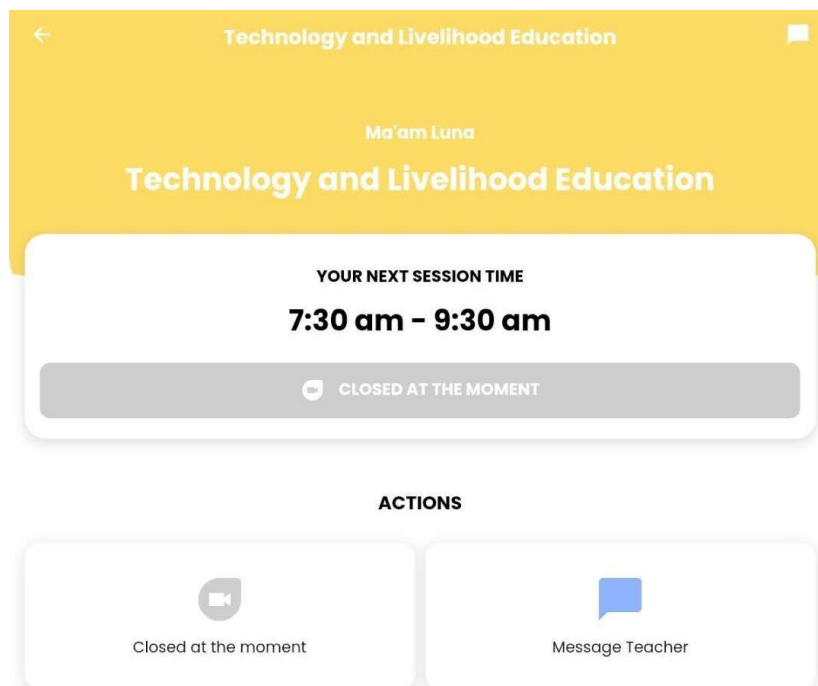
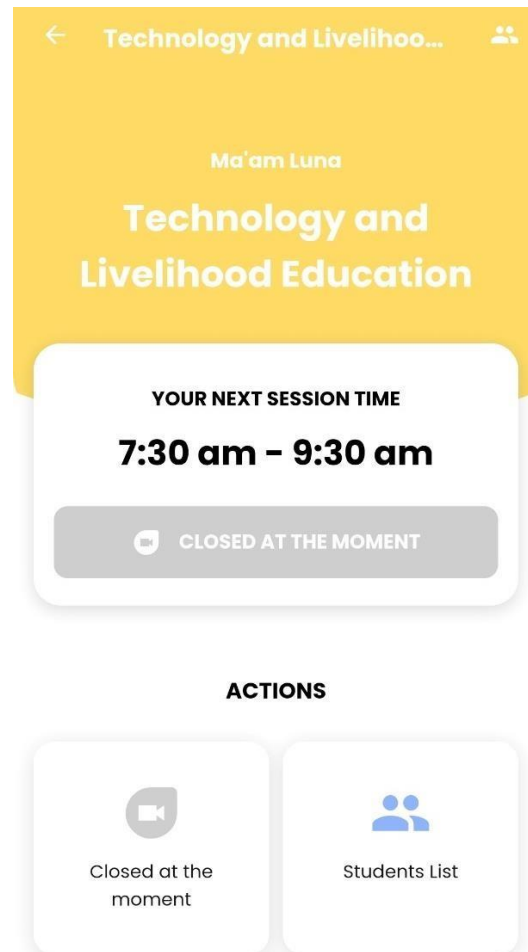


Figure 2.8 Screenshot of the Subject Page in Student's Perspective



*Figure 2.9 Screenshot of Subject Page in Tutor's Perspective*

### **2.2.2.2 Unable to Search for Tutor Through Search Query**

In “Search Teachers” function, there are no option allowing the user to search for a specific teacher through a search query as shown in figure 2.10. If given a scenario, where a teacher is recommended to a student by another person, and the name of the teacher is given to the student. When the student trying to find through a large group of registered teachers in the system, he/she will have a hard time in searching through all the teacher and might missed in first sight due to eye constraint.

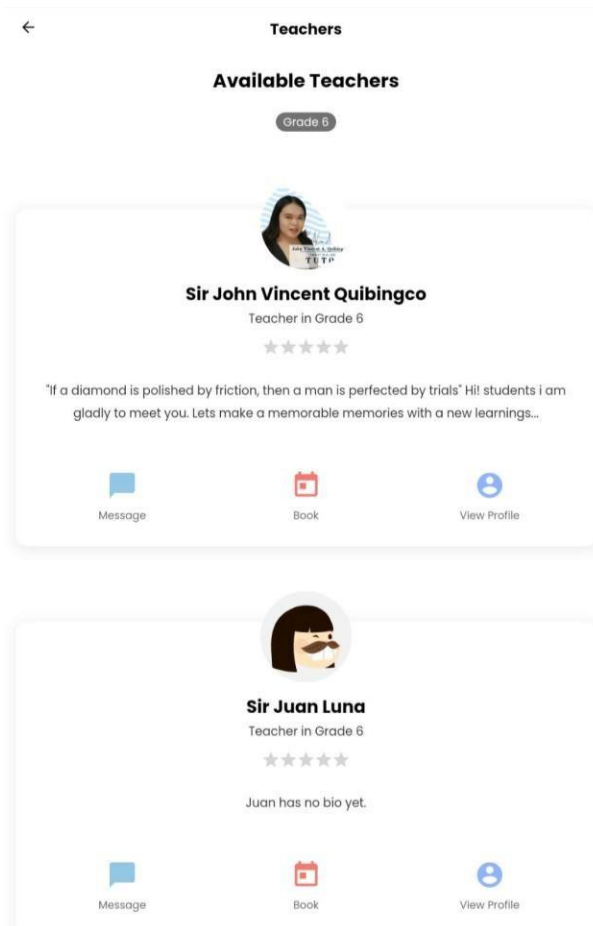
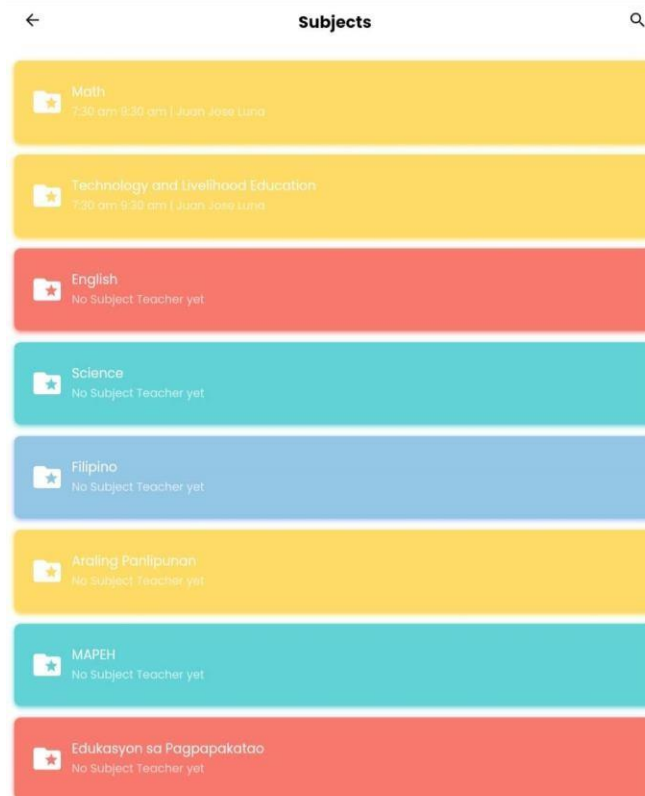


Figure 2.10 Screenshot of Search Teacher Tab

### 2.2.2.3 Unable to Join More Than One Class of the Same Subject

There is no other way for a student to join a different class of same subject in the system. This will be a disadvantage for those students who wanted to enrol themselves in the same subject and get the materials and teaching from different tutors to improve their knowledge in the subject. In figure 2.11 shows the “Available Subjects” tab as only one Math class can be existed in the subject and no other Math class that is offered in the tab.



*Figure 2.11 Screenshot of Available Subjects Tab*

## **2.2.3 Limitation of The System**

### **2.2.3.1 Lack of a Payment System**

Without a payment system being implemented in the system, it will be a point of rejection for private tutors who is looking for a living. Without this feature, it is a strong demotivation factor for the tutors, and it made the system more like a charity platform were giving everyone free education.

### **2.2.3.2 Lack of a Time Management Function Being Implemented**

For this system, it is important to have a time management function to be implemented. Given this system is targeting students from Grade 1 to Grade 6 (Grade 1 is equivalent to Malaysia's Standard 1, and Grade 1 to Grade 6 is like Standard 1 to Standard 6), a time management function is suitable to incorporated in the system due to it can allow the students to have a proper scheduling of their tasks. This can help them to build a good behaviour and practices when it comes to education.

## 2.3 Tutor Finder

Same as the previous application, two accounts have been created to review the application because there is no active user currently in the system.

### 2.3.1 Advantages of The System

#### 2.3.1.1 Has Community Function

The application has implemented a page for the community, acting as a mini social media for the users as been seen in figure 2.12. Each user is able to like and comment each post by clicking on the buttons under each post.



Figure 2.12 Screenshot of a Segment in Community Posts

There is also a plus button that can allow the user to click and rate it as “helpful” post. Since the application is not running currently where there are no active userbase, it can be assumed this is the site where allow the members in the community to share knowledges and tighten the relationship between the members. The user can also post images as a content with captions as been seen in figure 2.1.

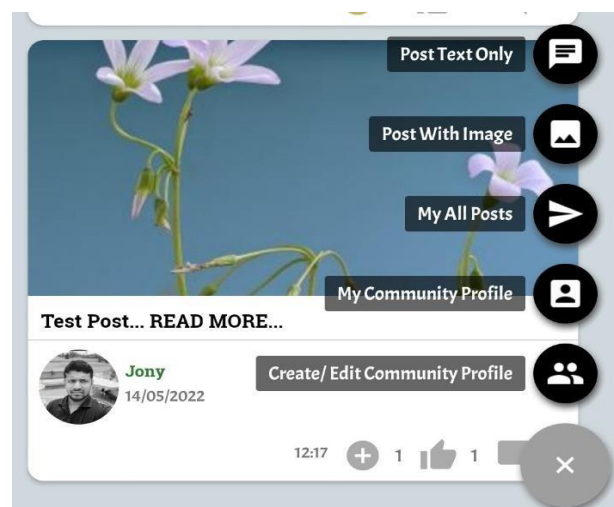


Figure 2.13 Screenshot of The Community Posts Function and Post with Image



From the functions shown in figure 2.13, the user gets to choose what they want to do with their community posts and profile. If the user wanted to delete a post of his/her, then he/she will need to go into the “My All Posts” section to delete as shown in figure 2.14.

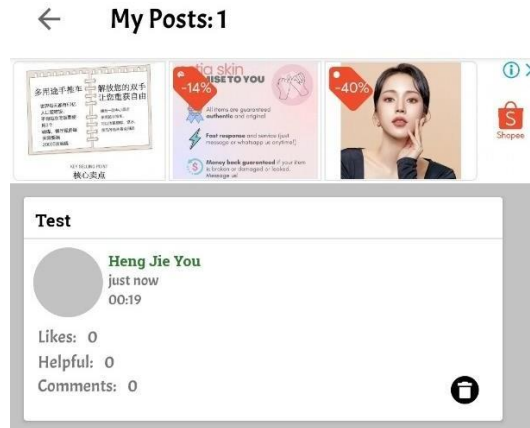


Figure 2.14 Screenshot of a Segment in My Posts Section

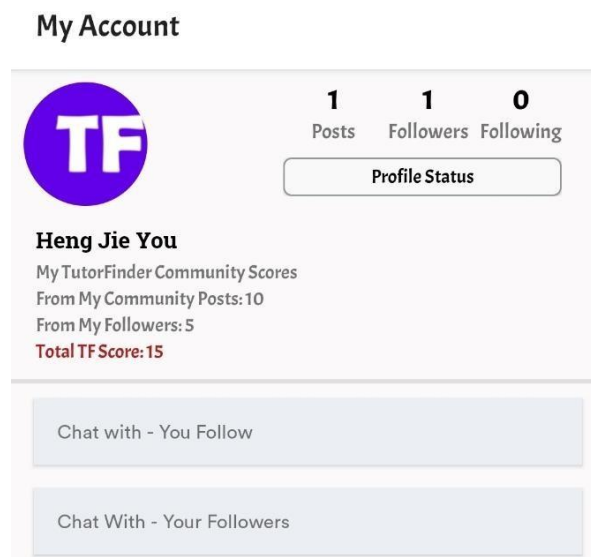


Figure 2.15 Screenshot of a Segment in Community Profile

### 2.3.1.2 Implementation of Ways To Check the Tutor’s Quality

The implementation of community score in the system is one way to show the credibility and qualification of one tutor. Scores can be earned through getting new followers and “helpful in community posts as shown in figure 2.16.

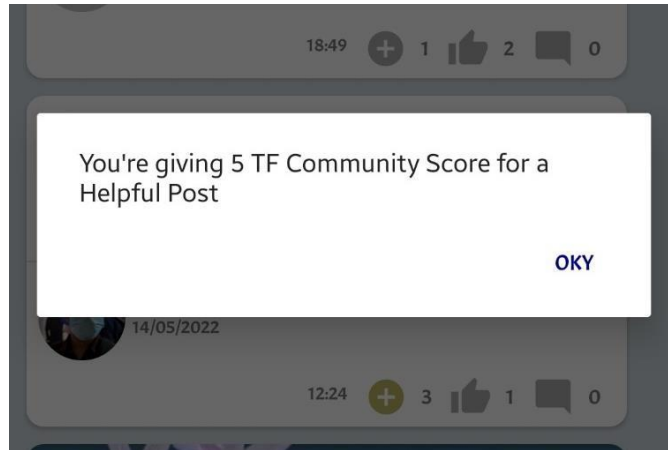


Figure 2.16 Screenshot of the Message Indicates Community Score Being Added

The user can also check their scores in their own community profile, under the profile picture as seen in figure 2.17.



Figure 2.17 Screenshot of the Community Score Earned

Under the “Tutor Want” tab, in the home page, there will be a list of available tutors in the system, with their subject that being offered to teach. There will also be location and comments shown in the bottom of each section as shown in figure 2.18.

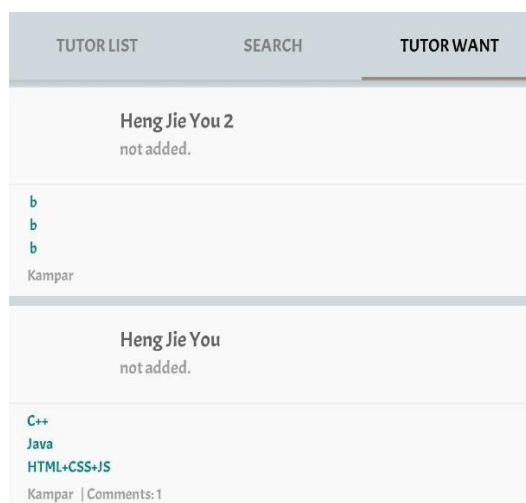


Figure 2.18 Screenshot of a Segment in the Tutor Want Section

The user can click on the profile and check the details of the tutors as shown in figure 2.19. Then under the comment tab, users can check on the comment the tutor gained from the public as shown in figure 2.20. This functioned as another way to indicate the quality of the tutor



Figure 2.19 Screenshot of a Tutor's Profile

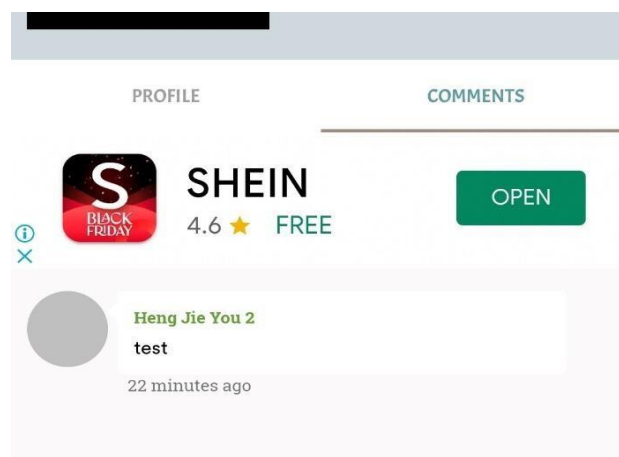


Figure 2.20 Screenshot of the Comment Tab Under the Tutor's Profile

### 2.3.1.3 Functional Social Media Liked System

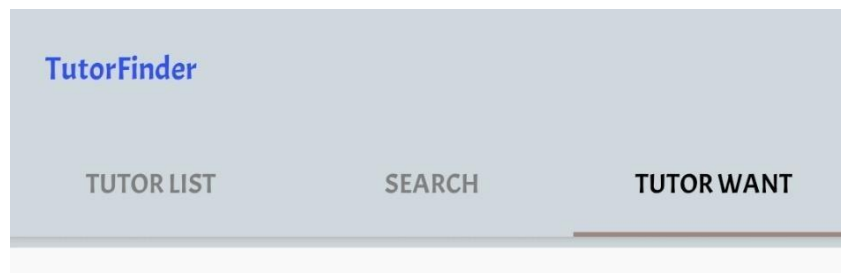
A social media liked system is successfully implemented in the system as one of its core functions. User has their own community profile, and each keep track of their number of posts, followers, following, and My TutorFinder Community scores as shown in figure 2.15.

### 2.3.2 Disadvantages of The System

Although the application has many innovative advantages, there are also some disadvantages persist in it. Some of them has already affect the usage of the users ranging from students, parents, and tutors.

#### 2.3.2.1 No Clear Distinction of Each Functions in Home Page

There are three tabs contributed under the Home Page of the application, which are “Tutor List”, “Search”, and “Tutor Want” as shown in figure 2.21. Although there is no clear distinction between the tab “Tutor List” and “Tutor Want”, it will confuse the user whether which tab there should be going to.



*Figure 2.21 Screenshot of the Three Tabs under Home Page*

#### 2.3.2.2 Unable to Leave a Quick Comment Under Each Post

The community page is great but with flaws, as one of it is the crucial part for a social media liked system, which is commenting. Allowing user to comment under a post is important, and the system have that, but it need the user to perform many steps before getting into the comment section. Although there is a button to show the comment available under the post as shown in figure 2.22, but users cannot add comment directly under the section. Instead, the user needs to click into the post and click on the comments above to access the comment section of the post as shown in figure 2.23 and figure 2.24.

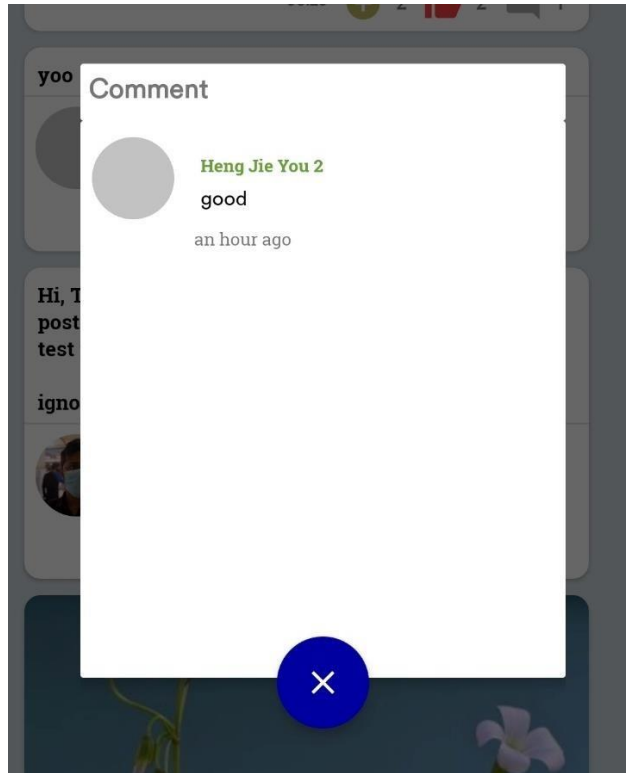
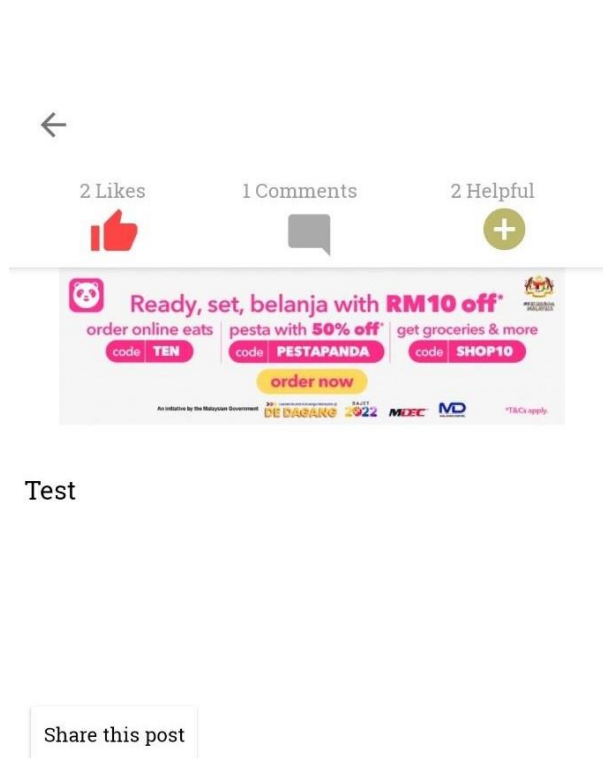


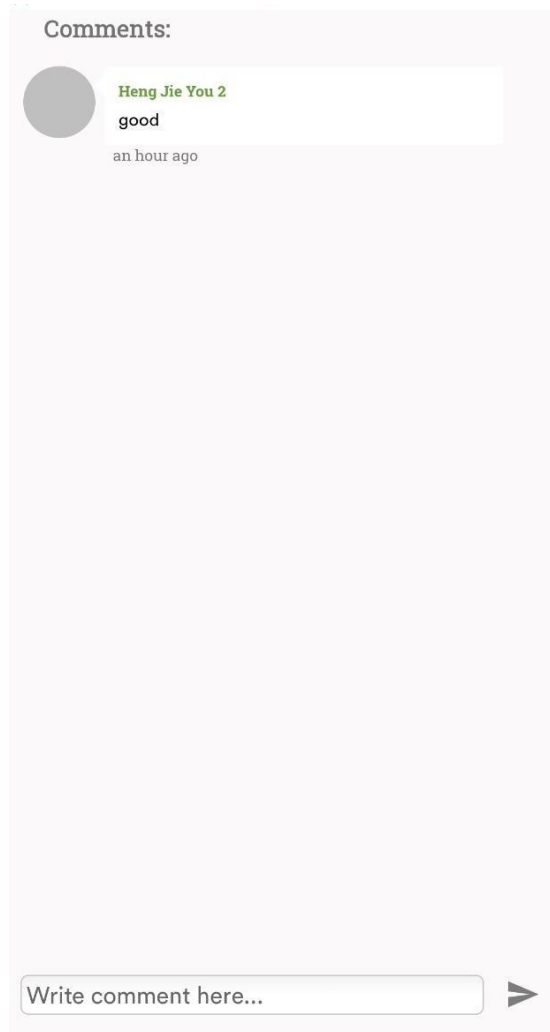
Figure 2.22 Screenshot of the Comment Section in the Community Page



Test

Share this post

Figure 2.23 Screenshot of a Post



*Figure 2.24 Screenshot of Comment Section in a Post*

### **2.3.3 Limitation of The System**

#### **2.3.3.1 There is No Tutor Management System**

As a tutor it is best to have a management system when a student enrolled into the course, it can be useful in aiding the tutor to manage the coursework and progress of each student. The figure 2.25 shows an example of a tutor management system which is capable to assigned courses to students, post coursework, notes, and announcement [14].

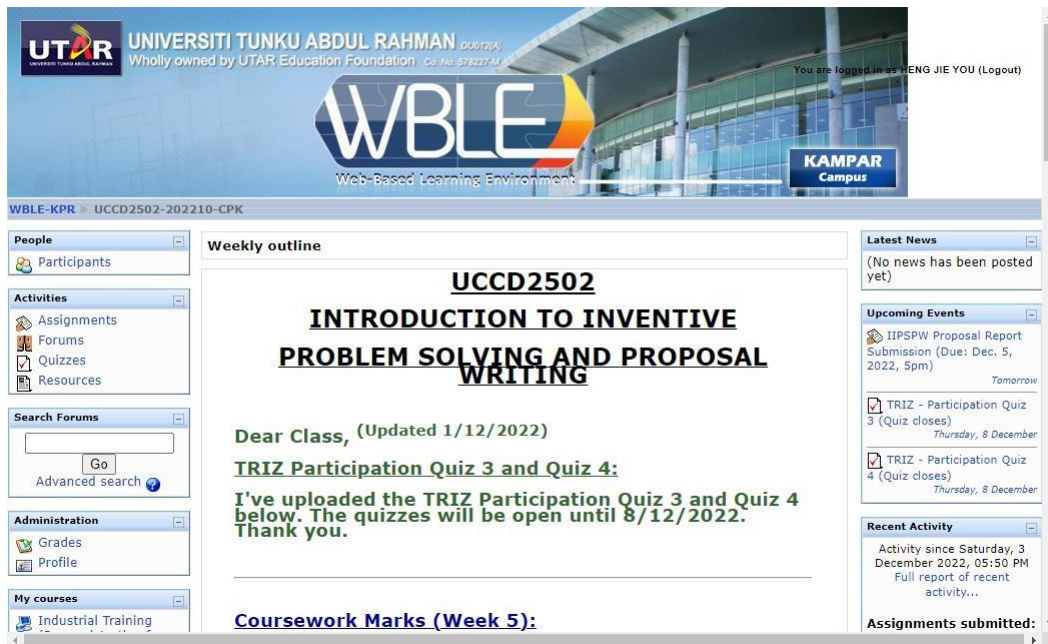


Figure 2.25 Screenshot of WBLE in UTAR

### 2.3.3.2 Lack of a Regulated Payment System

There is no payment system being implemented into the system where it is one of the crucial functions to be implemented in the private tutor finder system. Each party will need to be paying and get paid by each other as private tutoring is a kind of service being offered by the tutors. In today technology, there are many payment methods available, for example, debit/credit payment, e-wallet payment, and FPX payment. Implementing any one of these can help the users in building confidence and allow the tutors to earn a living in a secure platform. It is also one way to regulate the transaction between parties as the system can keep track of the service in terms of paying the tuition fees for each course.

### 2.3.3.3 Has No Student Specific Platform

In the students' perspective, there are no platform for students to get their subject related notes and exercises. Besides from the course materials, there is no section that can allow the student to keep track on the tuition they enrolled in, and even there is no way for them to enroll in courses as a follow up to the disadvantage stated in section 2.3.2.1. Student can only apply for courses through getting in touch with the tutor in chat and before that, the student will still need to get the request before the chat function is enabled. Hence making the main purpose of the application irrelevant and making it biased to a mini social media application for private tutors.

## 2.4 Pak Tutor

As the usual, two account has been registered to test the application, one registered as a tutor, and one is registered as student. Since the application does not seems like working properly, review of the software is greatly limited.

### 2.4.1 Advantages of The System

#### 2.4.1.1 Has Filters Incorporate with Search

A good search engine must have filter implemented to help the user in narrowing the field of search when there is a large collection of tutors being offered in the application. As in figure 2.26, the home page of the application has the filter as a button to quickly allow the user to narrow down the search once they entered the application.

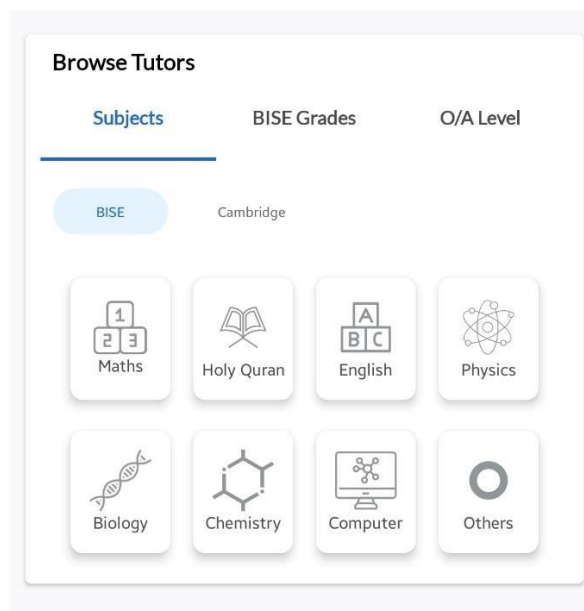


Figure 2.26 Screenshot of the Quick Filter in Home Page

There is also quick filter in other tabs, same as the one in “Subjects” tab. When the user clicked any one of the quick filters, and they get to start searching for the tutors available.

### 2.4.2 Disadvantages of The System

#### 2.4.2.1 The Location Service is Not Functioning

After the tutor profile is created in test account number two, and the region of both profile is setup in the same location, the system still unable to detect the second account, which result in the faulty of location-based service. The setup of both accounts can be seen in figure 2.27 and



figure 2.28, and the query will not show any result even in the same location as shown in figure 2.29.

### Teacher Details

Name	Test Subject
Gender	Female
Age	20
City	Rawalkot
Location	N/A
Can Travel	No, I can not travel for tuition

Figure 2.27 Screenshot of the Setup in Account Number 2

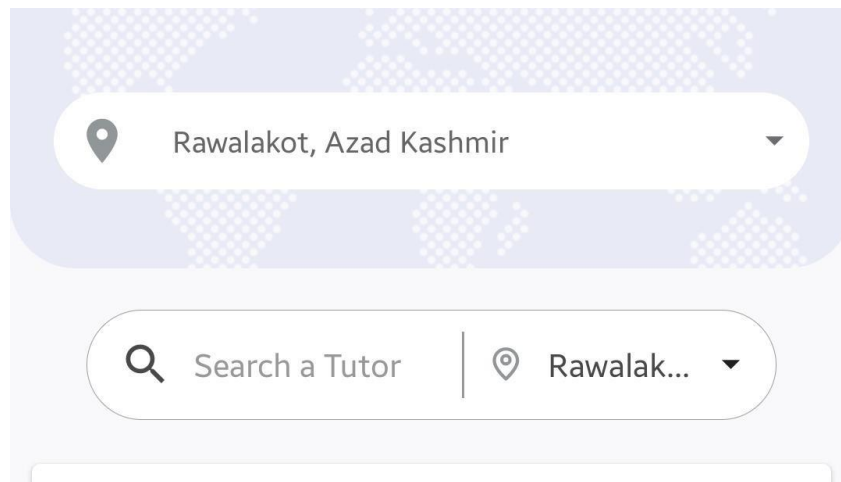


Figure 2.28 Screenshot of the Setup in Account Number 1

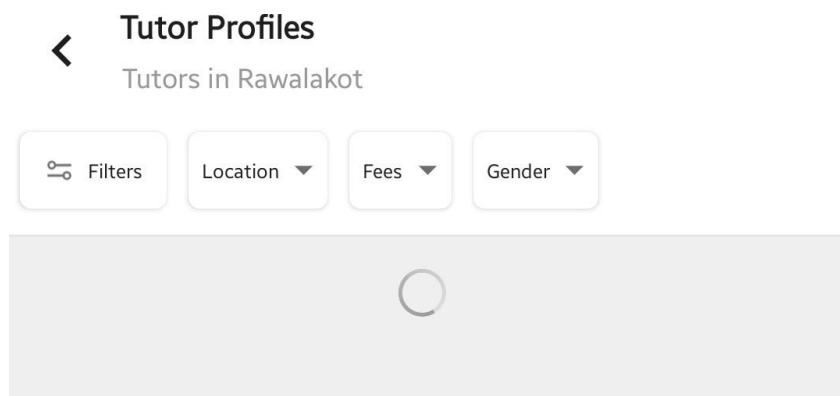


Figure 2.29 Screenshot of an Endless Loop of Loading

### **2.4.3 Limitation of The System**

#### **2.4.3.1 Has no Payment System**

Although there are a option to allow tutor to put in the cost of the course, there are no valid payment system that allow transaction to be done within the system. Without this, students will have no other choice to hand the fees to the tutor in person or through other way such as online banking by themselves. Which brings up the safety issue that no one can ensure if the tutor is a scammer.

### **2.5 Proposed Solution**

#### **2.5.1 Add constraint to filter courses that is for either student with special needs or regular student.**

Since the existing system does not have included this subset of students, I would proposed to add a section to ask the users whether the children of his/ her is under one of the learning disorders. This interaction can be done during children registration and prompt the user to choose the type of disorder the children is facing. Then from the data collected, the system will be showing the courses that are specifically offered for these children to help them build the foundation of their future.

In the tutor side of the application, after registering as a tutor, he/she can proceed with another application which will be prompted with the specialize field of teaching which allow the tutor to choose does, he/she specialized in teaching the learning disordered students.

After tutor submitted the application form and approved by admin, he/she can then proceed to create a new course that only accepts the types that the user registered to. While at the parent side of application, parent can only enroll the student in which has the same result as the special need tag.

#### **2.5.2 Add a management system built into the system for each user type**

Adding a management system to allow the users to manage and perform CRUD operations, especially on the primary core function of the system. Tutor will have their management platform in which to manage all course content, publishing courses, manage course schedules, activities, and also delete selected course. Parent in the other hand, they will be provided a simple management system that allowed parents to add children either with or without special needs, manage children enrolment, view student performance, and give rating to tutors. While

students will also get their management system, in which they will be able to view and access files uploaded by tutors, act in activity posted by tutors.

### 2.5.3 Implement a GPT chat system

It is crucial to implement a good location approximator for the tutor finder application as it eases the experience of the user as being stated before. There are a lot of APIs that can be used in the existing market but selecting a good and accurate one will be challenging. Android has its own geo location API that can be used for developing application but that is not recommended due to the disadvantage of it when comparing to Google’s Location Service. Google Location Service will be used when building the location approximation where it allows the user to set a predetermined range that is acceptable for the user to fetch their children to the tutors and allow also the tutors to set an acceptable range that they wanted to drive their way to work. When the user creates an account at the initial phase, the user will be prompted to enter their current location and asked for permission to allow the use of GPS of their devices. Then, after the user complete registering the account, the user will be recommended with the suitable tutors and allow them to search for the one they wanted accordingly to the distance.

## 2.6 Features Table Comparison

Table 2.6.1 Table of comparison between proposed application with others existing reviewed application

Application Features	Smart Tutor App	Tutor Finder	Pak Tutor	Proposed Application (Pomelo Tuition)
Has tutoring management system	✓	×	×	✓
Has student dashboard	✓	×	×	✓
Social media liked function	×	✓	×	×
Community function	×	✓	×	×
Tutor quality check	×	✓	×	✓
Filtering search function	×	×	✓	×

Able to find tutor for learning disordered	×	×	×	✓
Has GPT chat module	×	×	×	✓
Has children management system	×	×	×	✓

## 2.6.1 Justification of Features for Proposed Application

### 2.6.1.1 Has Tutoring Management System

In my proposed project, there will be a tutoring management system, which is similar to UTAR WBLE. Tutor can upload notes and set questions for students.

### 2.6.1.2 Has Student Dashboard

Student can view summarized information of his/her account such as number of courses enrolled, new announcement or activity from the hired tutors, and calendar with all the tasks and course time that has been configured in time management module. It also acts as a home page of the student's course management module.

### 2.6.1.3 Social Media Liked Function

It is not relevant and not suitable for the proposed application. Since the targeted student are primary school students, they are too small to use social media.

### 2.6.1.4 Community Function

It is not relevant and not suitable for the proposed application. The proposed system is to create an online private tutor system whereby the only existing relationship is between a student and a tutor. There will be no need to have a community function to group all students.

### 2.6.1.5 Tutor Quality Check

Each parent can rate the tutors after children enrolled into the course. Then the given rating will be processed as to average out all the ratings given by others and add it as a tag to the tutor. Then each tutor will see their rating changes up or down as time goes by. Through this feature, the tutors can get a quality check on their performance, as it will indirectly affecting them in increasing their tutoring and material quality.

#### **2.6.1.6 Filtering Search Function**

Categories and tag will be added to each registered tutor. When parents looking for a tutor, they can select the desired category or tag such as teaching styles' tag or tutoring subject categories.

#### **2.6.1.7 Able to Find Tutor for Learning Disordered**

Each tutor can register to tutor the learning disordered students after they have completed the registration. After submitting the application form, the system admin will check for their eligibility and once it is verified, the tutor will be added a tag to indicate he/she is a tutor that can teach the disordered well.

#### **2.6.1.8 Has GPT chat module built in**

Utilizing GPT Model built in to be a helper for students. This feature encourages students to look for answer themselves and helps in stimulating the students' thought process in journey of searching for answers.

#### **2.6.1.9 Has children management system**

As a parent, he/she will be dealing directly with the children account. When a parent user wants to enroll his/her children into a course, he/she will need to create an account for the children. In extend of the account creation, parent will be given a management system to monitor the children performances in each course. Allowing parents to cancel the enrollment of the children from the course

# Chapter 3 System Methodology/Approach

## 3.1 System Requirement

### 3.1.1 Hardware

The hardware involved in this project is computer and android mobile device. A computer is used to do coding. A mobile device is used for testing and deploying the performance of this tutor finder application.

Table 3.1.1.1 Specifications of laptop

Description	Specifications
Model	Dell Latitude 3520
Processor	11th Gen Intel(R) Core (TM) i5-1135G7 @ 2.40GHz 1.38 GHz
Operating System	Windows 11 Pro
Graphic	Intel Iris Xe Graphics
Memory	16GB RAM
Storage	1TB SATA HDD

### 3.1.2 Tools and Technologies Involved

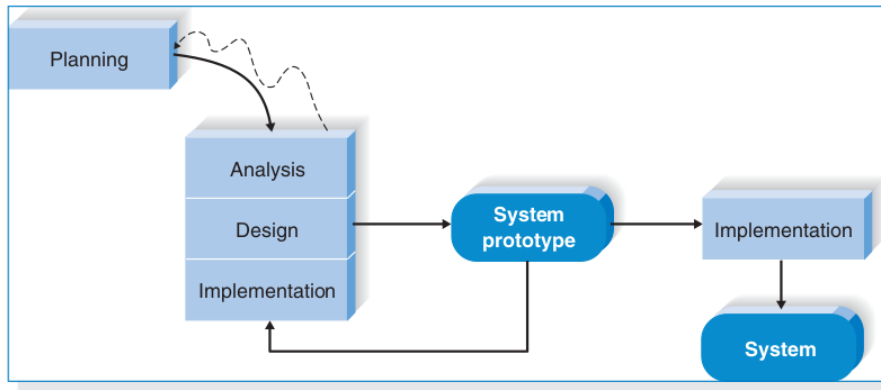
Table 3.1.2.1 Description of tools and technology

Tools and Technologies	Description
React Native	<ul style="list-style-type: none"><li>- Programming language framework that will be used for developing the native mobile application.</li><li>- Support many libraries allow to create better functioning application.</li><li>- Cross platform codebase which supports not only Android and IOS devices without the need to rework on the code.</li></ul>
Node.js	<ul style="list-style-type: none"><li>- Used for backend programming.</li><li>- Support for cross platform application.</li><li>- As a server runtime framework</li></ul>

	- It is flexible with the provided package manager to download library from the open-source community
ExpressJs	- A NodeJs framework that allow much quicker and easier development of API and middleware
RestAPI	- API with conform of a set of rules that uses HTTP request to fetch and post data to the server. - Used to connect client application to the server to act as a bridge with database,
Ngrok	- A public hosting service
MySQL	- Used as the database for the application
Visual Studio Code	- Act as development tool. - It is a lightweight, multi-purposes compiler that allow user code in any languages
Expo	- Act as development tool. - Used for its extensive library and its ability in supporting cross-platform development.
Android Studio	- Act as development tool - It is to utilize its android emulator for easing the development

### 3.2 Methodology

Prototyping-based methodology will be used in this project to develop online private tutor finder system. By using prototype model, the development of the project will become simpler through various reason. The first reason is prototyping-based methodology made bugs and errors easier to be discovered. The second reason is when new requirement is introduced, the three phases (Analysis, design, and implementation phase) can be repeated to resolve the new requirement and bugs.



*Figure 3.2.1 System Prototype [15]*

The prototype model has following six phases:

### **Phase 1: Planning**

In this phase, start planning of online private tutor finder system by collecting users' requirement and identifying end-user.

### **Phase 2: Analysis**

In this phase, literature review is done to find out the strengths, weaknesses, functions and features, limitations of existing systems. Through comparison between the reviewed systems, general user requirement will be listed out for the development of the application. A comparison is done between the proposed application and reviewed system.

### **Phase 3: Design**

In this phase, logical design of the system will be done by referring to the analysed result from analysis phase. General design is produced to develop online private tutor finder system. With the logical design, it will be further used for building system prototype.

### **Phase 4: Implementation**

In this phase, with the proposed design, the system will be built with the tools and hardware prepared for this project. All the proposed design will be implemented into the system following the user requirement.



**Phase 5: Build system prototype**

During this stage, a prototype system is produced and to be evaluated. Few things that will be evaluated during this phase is to check whether the system is following the user requirement and proposed design, the system will also be checked for any errors and bugs, and new user requirement and feedback will also be considered to build a new prototype, and phase 2 to 4 will be reinitiated to refine the prototype.

**Phase 6: Final Implementation**

After the prototyped system has satisfied all the requirement and no new requirement and bugs are introduced, all the completed error-free module will be compiled and implemented into one whole online tutor finder system.

### 3.3 User Requirement

Table 3.3.1 Functional Requirement

<b>Functional Requirement</b>	<b>Description</b>
Able to upload notes	- Allow tutor to upload notes.
Able to view available course	- Allow tutor to view available course.
Able to check enrolled students	- Allow tutor to check enrolled students.
Able to set questions	- Allow tutor to set questions.
Able to view schedules	- Allow tutor to view set schedules.
Able to view student performance	- Allow tutor and parents to view scores after student complete the questions.
Able to apply for eligibility to tutor students with special need	- Allow tutor to apply for teaching students with special needs
Able to add and manage children	- Allow parents to add new children and manage their enrollment
Able to view offered courses	- Allow parents to view offered courses by tutors
Able to view and give ratings	- Allow parents to view rating when searching for course - Allow parents to give rating to tutors

Table 3.3.2 Non-Functional Requirement

<b>Non-Functional Requirement</b>	<b>Description</b>
Availability	-The system is always up and online.
Performance	-Response time of each user interaction is less than few seconds. -Transaction between the application and database is responsive.
Usability	-The system can be easily understood.
Operation	-Operate in cross-platform environment such as Android and iOS.

### 3.4 Verification Plan

Verification and validation are done during this plan. Test account for each user type (Tutor, Parent, Student, Admin) will be created for testing purpose. Each individual components and modules for respective user type will be tested. During verifying the system, expectation of different unexpected input will be tested.

### 3.5 Implementation Issues and Challenges

One of the issues and challenges might face during implementation phase is to handle file upload if too many transactions occurred concurrently. For example, multiple tutors upload files concurrently, user might experience slower upload speed. Another issue that arises is the need of user to refresh the page when changes occurred due to the nature of RestAPI.

### 3.6 Logical Design

#### 3.6.1 Use Case Diagram of Online Private Tutor Finder System

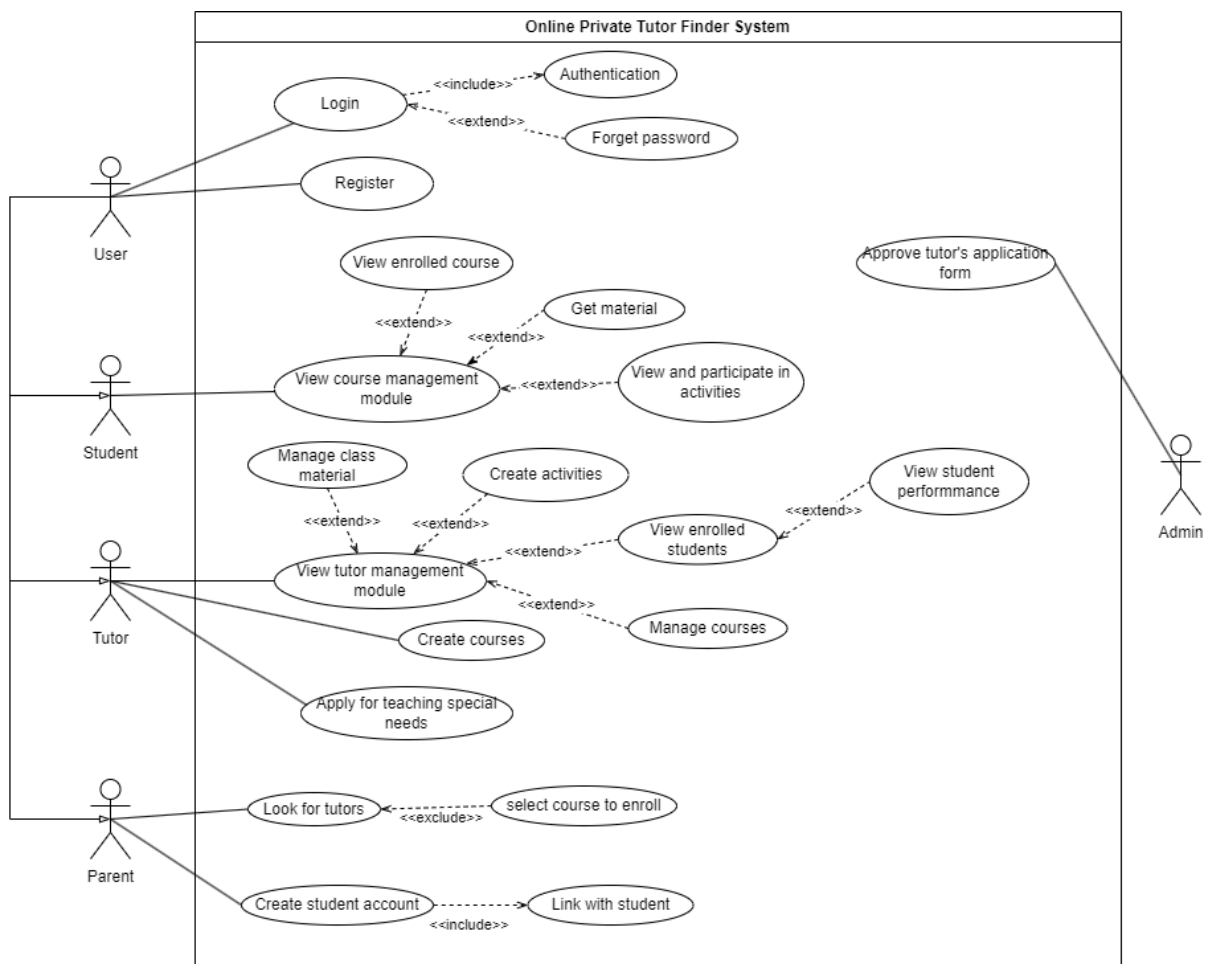


Figure 3.6.1.1 Use Case Diagram

### 3.6.2 Login

Table 3.6.2.1 Use Case Description: Login

Use Case Name: Login	ID: 1	Importance Level: High
Primary Actor: User (Student, Parent, Tutor)	Use Case Type: Details, Essentials	
Stakeholders and Interests: Student: Login to student management system Tutors: Login to tutor management system Parents: Login to search for suitable tutors and manage linkage with students		
Brief Description: This use case describes how users login to the system		
Trigger: User enter the system Type: Internal		
Relationships: Association: User Extend: Authentication, Forget password Include: None Generalization: None		
Normal Flows of Events: <ol style="list-style-type: none"> <li>1. The user enters the system.</li> <li>2. The user selects user type to login to the system.</li> <li>3. The user enters email and password.</li> <li>4. Email and password are validated.</li> <li>5. The user enters the system.</li> </ol>		
SubFlows: 3a. The user forget password, user press forget password. 3b. The user reset the password		
Alternate/Exceptional Flows: 4a. The user entered the wrong email or password. 4b. The user prompted to re-enter the email and password.		

### 3.6.3 Register

Table 3.6.3.1 Use Case Description: Register

Use Case Name: Register	ID: 2	Importance Level: High
Primary Actor: User (Student, Parent, Tutor)	Use Case Type: Details, Essentials	
Stakeholders and Interests: User: Register a new account to use all functions of the system		
Brief Description: This use case describes how users register into the system		
Trigger: User enter the system Type: Internal		
Relationships: Association: User Extend: None Include: None Generalization: None		
Normal Flows of Events: <ol style="list-style-type: none"> <li>1. The user enters the system.</li> <li>2. The user selects user type to register to the system.</li> <li>3. The user enters required information.</li> <li>4. The information will be validated.</li> <li>5. The user successfully registered as a user of the system.</li> </ol>		
SubFlows:		
Alternate/Exceptional Flows: <ol style="list-style-type: none"> <li>3a. The user entered the wrong confirm password.</li> <li>3b. The user is prompt to re-enter the correct password.</li> </ol>		

### 3.6.4 View Course Management System

Table 3.6.4.1 Use Case Description: View Course Management System

Use Case Name: View course management system	ID: 3	Importance Level: High
Primary Actor: Student	Use Case Type: Details, Essentials	
Stakeholders and Interests: Student: To access the available course materials, activities, and view enrolled course		
Brief Description: This use case describes how student uses the system in whole		
Trigger: Student logged into the system Type: Internal		
Relationships: Association: Student Extend: View enrolled course, get material, and act on activities, Include: None Generalization: None		
Normal Flows of Events: 1. The student log into the system 2. Students select the function of the module		
SubFlows: 2.1: Student select view enrolled course 1. List of enrolled courses is shown to the user 2.3: Student select get material 1. Student select a course that would be used to get material 2. Students tap on the download button to download materials to own device 2.4: Student select activity module 1. Student select the activity to act on		
Alternate/Exceptional Flows: None		

### 3.6.5 View Tutor Management System

Table 3.6.5.1 Use Case Description: View Tutor Management System

Use Case Name: View tutor management system	ID: 4	Importance Level: High
Primary Actor: Tutor	Use Case Type: Details, Essentials	
Stakeholders and Interests: Tutor: To add/ manage courses, notes, classroom activities, and students.		
Brief Description: This use case describes how tutors will perform their duties with given tools		
Trigger: Tutor logged into system Type: Internal		
Relationships: <ul style="list-style-type: none"> <li>Association: Tutor</li> <li>Extend: Manage class material, create activities, view enrolled students, and manage courses</li> <li>Include: None</li> <li>Generalization: None</li> </ul>		
Normal Flows of Events: <ol style="list-style-type: none"> <li>1. The tutor selects the courses to be work on.</li> <li>2. If the tutor select notes option. Execute sub-flow 2.1.</li> <li>3. If the tutor select games option. Execute sub-flow 2.3.</li> <li>4. The system shows enrolled student of each course</li> </ol>		
SubFlows: <ol style="list-style-type: none"> <li>1.1: Tutor select delete <ul style="list-style-type: none"> <li>1. The selected course will be deleted</li> </ul> </li> <li>1.2: Tutor selects edit <ul style="list-style-type: none"> <li>1. The tutor enter new information to update the course</li> <li>2. The new information will be updated once submit is pressed</li> </ul> </li> <li>1.3: Tutor selects configure <ul style="list-style-type: none"> <li>1. The tutor will be prompted to view available functions for the respective course</li> </ul> </li> <li>2.1: Tutor select to manage notes</li> </ol>		

<ol style="list-style-type: none"><li>1. Tutor can press notes to enable or disable the publication</li><li>2. Tutor can add notes into the system</li></ol> <p>2.2: Tutor select to manage activities</p> <ol style="list-style-type: none"><li>1. Tutor can press activities to enable or disable the publication</li><li>2. Tutor can add new activities into the system</li></ol>
Alternate/Exceptional Flows: None



### 3.6.6 Create Course

Table 3.6.6.1 Use Case Description: Create Course

Use Case Name: Create course	ID: 5	Importance Level: High
Primary Actor: Tutor	Use Case Type: Details, Essentials	
Stakeholders and Interests: Tutor: To create a new course		
Brief Description: This use case describes how tutors will be creating a new course		
Trigger: Tutor submit a new course		
Type: Internal		
Relationships:  Association: Tutor Extend: None Include: None Generalization: None		
Normal Flows of Events:  1. The tutor completes the registration and account setup. 2. The tutor can select create a new course and publish to the system.		
SubFlows:  None		
Alternate/Exceptional Flows:  None		

### 3.6.7 Apply for Teaching Special Needs

Table 3.6.7.1 Use Case Description: Apply for teaching special needs

Use Case Name: Apply for teaching special needs	ID: 6	Importance Level: High
Primary Actor: Tutor	Use Case Type: Details, Essentials	
Stakeholders and Interests: Tutor: To apply for eligibility to teach students with special needs.		
Brief Description: This use case describes how tutors will be eligible for tutoring special needs' student		
Trigger: Tutor opt into the getting verified to teach students with special needs Type: Internal		
Relationships: Association: Tutor Extend: None Include: None Generalization: None		
Normal Flows of Events: <ol style="list-style-type: none"> <li>1. The tutor enters the application page.</li> <li>2. The tutor enters the information of teaching experience.</li> <li>3. The tutor uploads evidence of certification.</li> <li>4. The tutor will wait for approval to be verified.</li> </ol>		
SubFlows: None		
Alternate/Exceptional Flows: 4a: Tutor is eligible for teaching students with special needs. 4b: Tutor is not eligible for teaching students with special needs.		

### 3.6.10 Look for Tutor

Table 3.6.10.1 Use Case Description: Look for tutor

Use Case Name: Look for tutor	ID: 9	Importance Level: High
Primary Actor: Parent	Use Case Type: Details, Essentials	
Stakeholders and Interests: Parent: To look for nearby suitable tutors to be hired		
Brief Description: This use case describes how parent will look for nearby tutor		
Trigger: Parent search for nearby tutor. Type: Internal		
Relationships: Association: Parent Extend: Select course to enroll Include: None Generalization: None		
Normal Flows of Events: 1. Parent search for suitable tutors. 2. Parent selects the suitable tutors to be hired. 3. Parent place application to join		
SubFlows: None		
Alternate/Exceptional Flows: None		

### 3.6.11 Create Student Account

Table 3.6.11.1 Use Case Description: Create student account.

Use Case Name: Create student account	ID: 9	Importance Level: High
Primary Actor: Parent	Use Case Type: Details, Essentials	
Stakeholders and Interests: Parent: To create and link a student account under the parent's guidance		
Brief Description: This use case describes how parent create a student account for their children		
Trigger: Parent create student account to link to their account Type: Internal		
Relationships: Association: Parent Extend: Link with student Include: None Generalization: None		
Normal Flows of Events: 1. Parent press on create student account. 2. Parent enters information of the student. 3. Parent creates the student profile to allow their children log into a student account.		
SubFlows: None		
Alternate/Exceptional Flows: None		

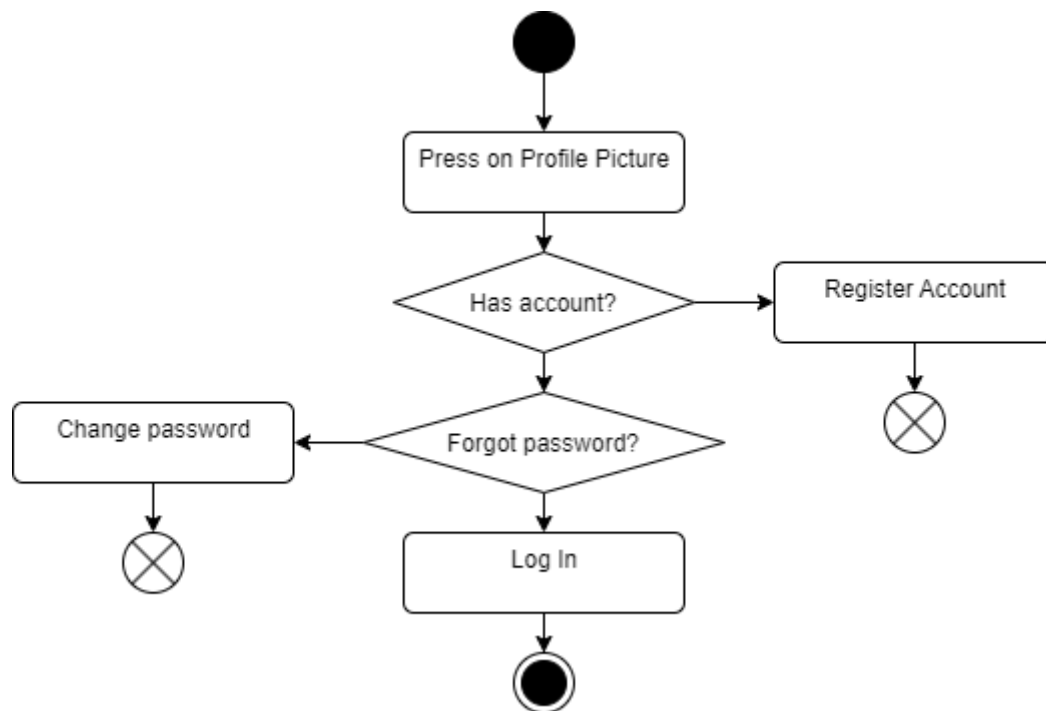
### 3.6.12 Approve tutor's application form

Table 3.6.7.1 Use Case Description: Apply for approve tutor's application

Use Case Name: Apply for teaching special needs	ID: 6	Importance Level: High
Primary Actor: Tutor	Use Case Type: Details, Essentials	
Stakeholders and Interests: Tutor: To apply for eligibility to teach students with special needs.		
Brief Description: This use case describes how tutors will be eligible for tutoring special needs' student		
Trigger: Tutor opt into the getting verified to teach students with special needs Type: Internal		
Relationships: Association: Admin Extend: None Include: None Generalization: None		
Normal Flows of Events: 1. The admin log into the home page. 2. The tutor press on the any tutors desired to be view. 3. The tutor press on approve to approve the workflow. 4. The tutor will wait for approval to be verified.		
SubFlows: None		
Alternate/Exceptional Flows: 4a: Tutor is eligible for teaching students with special needs. 4b: Tutor is not eligible for teaching students with special needs.		

### 3.7 Activity Diagram of Online Private Tutor Finder System

#### 3.7.1 Activity Diagram of User Authentication



*Figure 3.7.1.1 Activity diagram for user authentication*

When user press on the profile picture at the top right corner of home page, user can register an account. If the user already has an account, user can enter the email and password to log in to the system. User can change password if he presses forgot password.

### 3.7.2 Activity Diagram of Tutor Module

#### 3.7.2.1 Activity Diagram of Tutor Add Subject

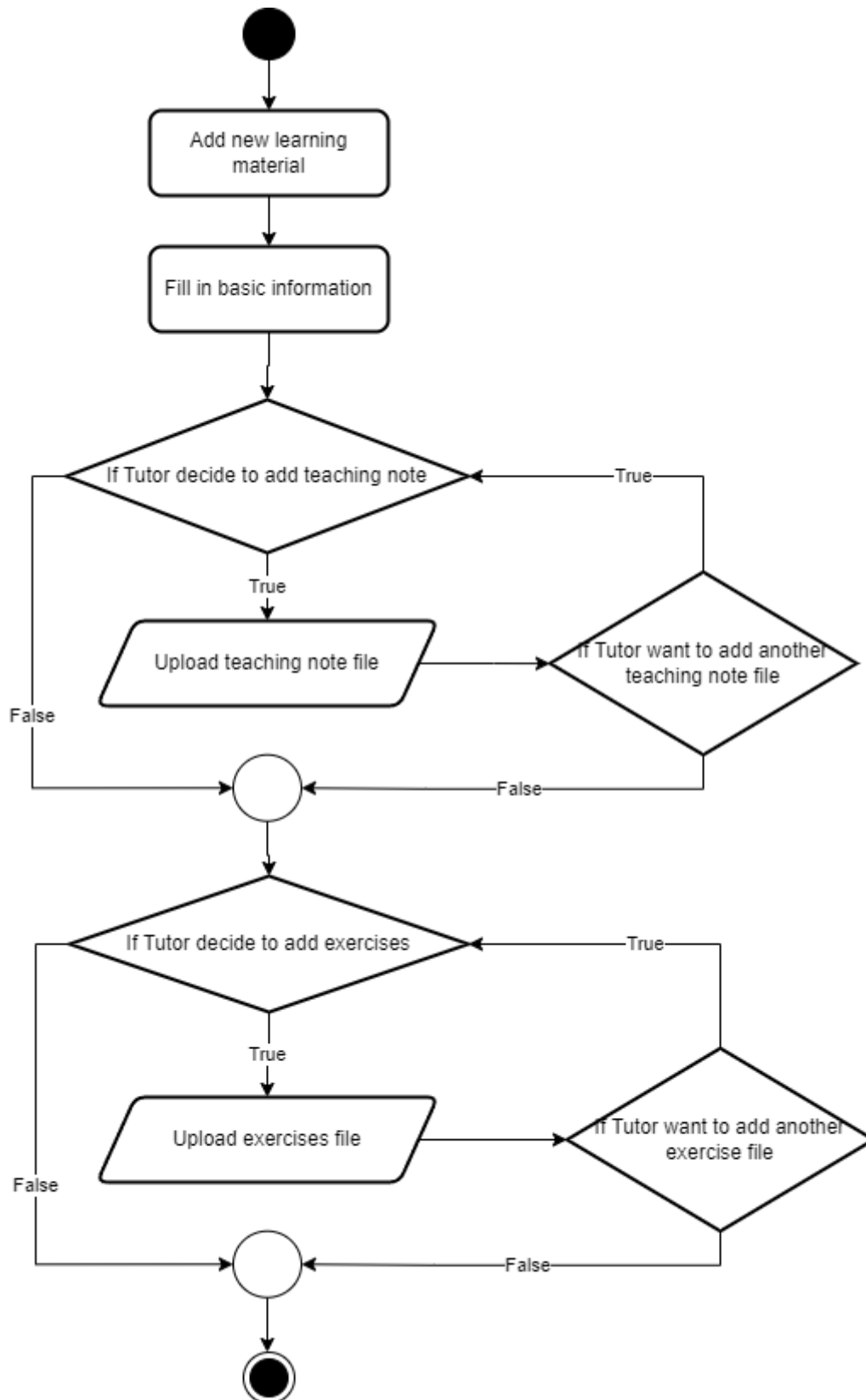
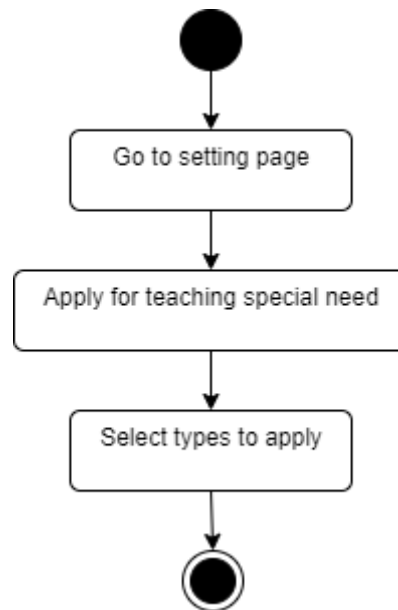


Figure 3.7.2.1.1 Activity diagram for tutor module (add subject)

Figure 3.7.2.1.1 above shows the activity diagram of tutor add subject. In tutor page, tutor can press add new learning materials. Then, tutor can fill in the basic information for that subject. If tutor wish to add new teaching note, he can upload the file at the teaching note block. He can add another file by pressing add button again. If tutor wish to add new exercise, he can upload the file at the exercise block. He can add another file by pressing add button again.

### 3.7.2.2 Activity Diagram of Tutor Apply for Teaching Special Needs



*Figure 3.7.2.2.1 Activity diagram for tutor module (apply for teaching special needs)*

When tutor wish to apply for teaching special needs, tutor can go to setting page. There is a apply for teaching special needs form. Tutor can select which type of special needs he want to teach.



### 3.7.2.3 Activity Diagram of Tutor Management

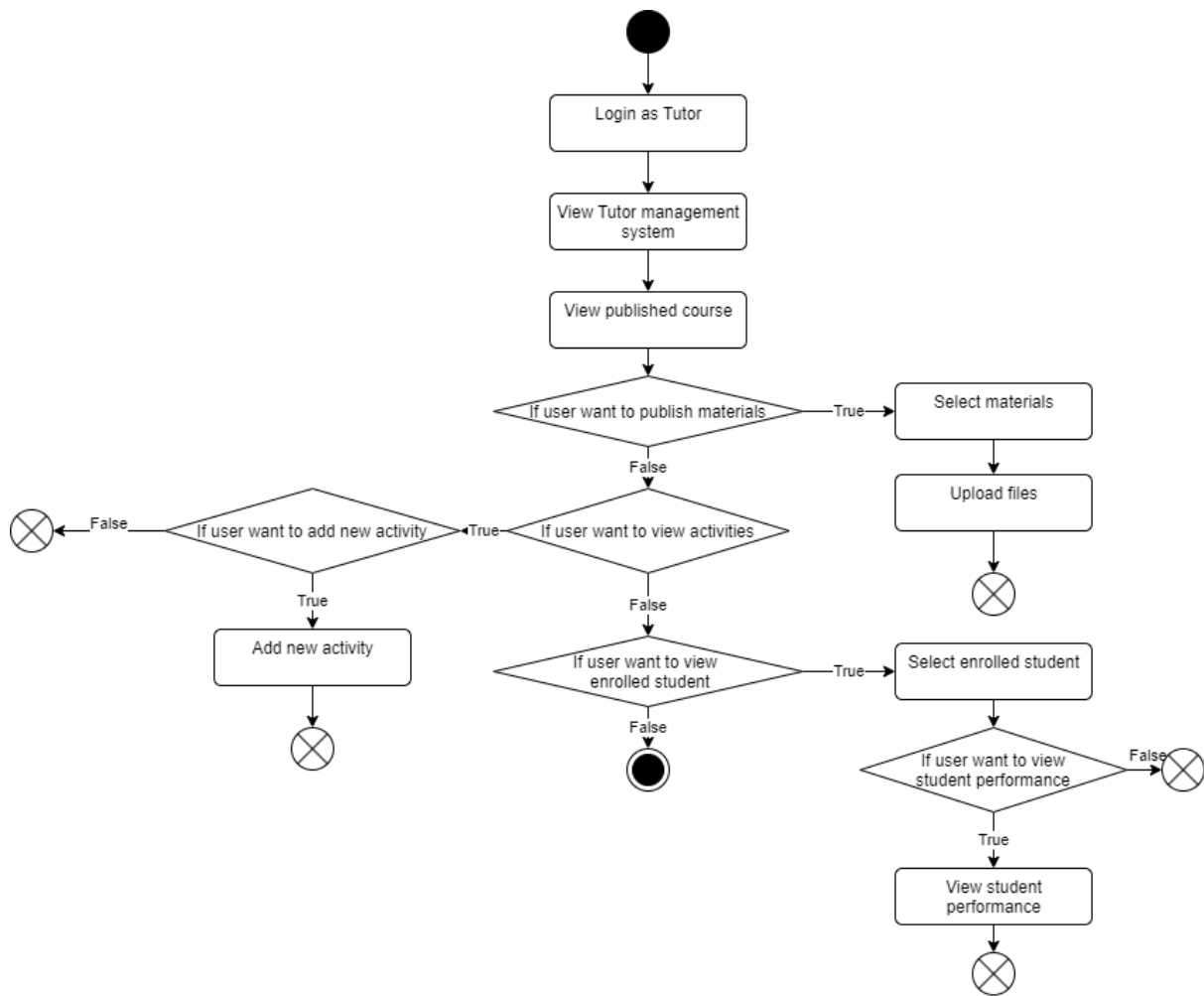


Figure 3.7.2.3.1 Activity diagram for tutor module (tutor management)

After login as tutor, tutor able to view tutor management system. Tutor can view publish materials, view activity, view enrolled student in tutor management system. In view publish materials, if tutor want to publish material, he can select materials and upload, if not, he can go to others feature. In view activities, if tutor wish to add new activity, he can press add new activity, fill in the details and submit, if not, he can go others feature. In view enrolled student, tutor can select enrolled student to view the list. Tutor also can view student performance in view of enrolled student.

### 3.7.3 Activity Diagram of Parent Module

#### 3.7.3.1 Activity Diagram of Parent Look for Tutors

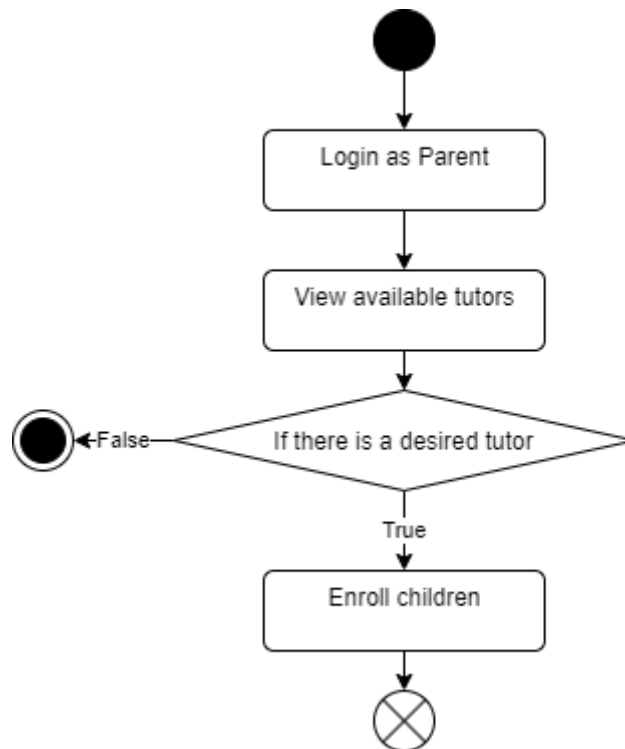


Figure 3.7.3.1.1 Activity diagram for parent module (look for tutors)

Figure above shows the activity diagram of parent look for tutors. In parent page, parent able to view available tutors, if there is a desired tutor, parent can enrol his children to that tutor. Else, parent can look for another tutor.

#### 3.7.3.2 Activity Diagram of Parent Create Student Accounts

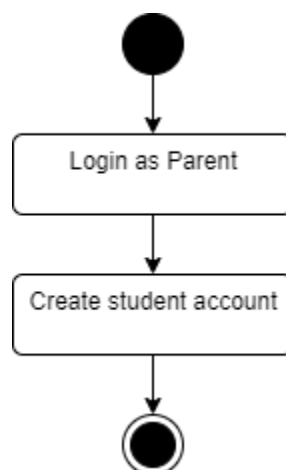


Figure 3.7.3.2.1 Activity diagram for parent module (create student accounts)

Figure above shows the flow of parent. Parent can create a student account for their children to log in.

### 3.7.4 Activity Diagram of Student Module

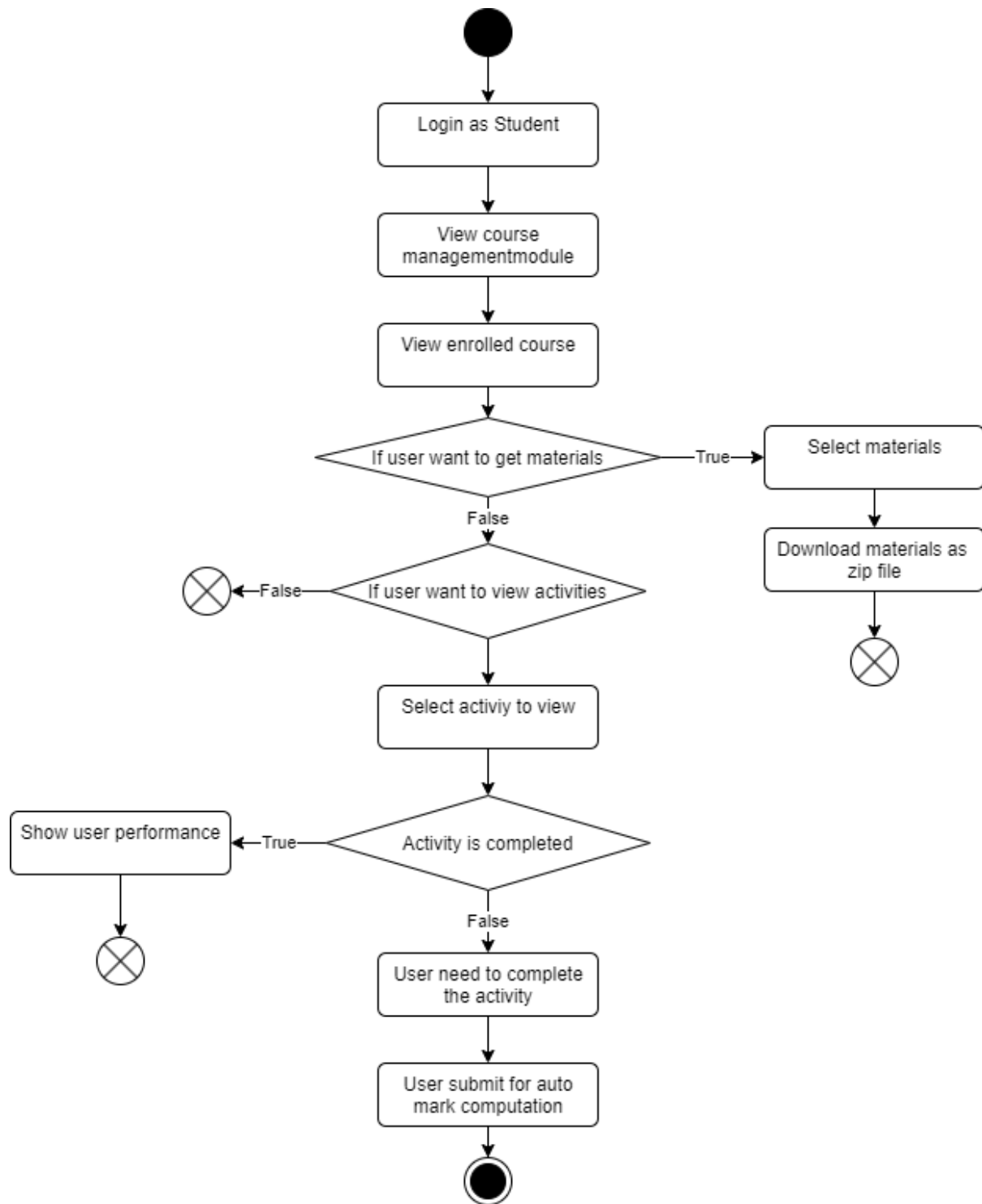
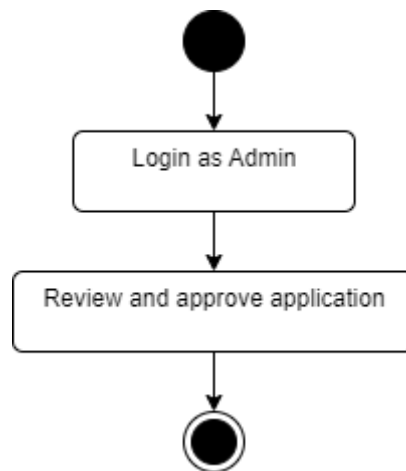


Figure 3.7.4.1 Activity diagram for student module

Student can use the student modules after logging into the system as Student. Once logged in the system will shows the enrolled courses. If the student wants to get learning materials, the student can go to materials, and select the materials to be downloaded in a zip file. If the user

wants to view activities, then the student can press activities to view. The student can also press on any specific activity to view, if the activity is completed, it will show the student performance, else it will asks the student to complete the activity and submit for automatic marks computation.

### 3.7.5 Activity Diagram of Admin Module



*Figure 3.7.5.1 Activity diagram for admin module*

After logging in as admin, the system will bring admin to admin page. Admin can review and approve the application for teaching special needs from tutors.

### 3.8 Timeline



Figure 3.8.1 Timeline

# Chapter 4 System Design

## 4.1 Wireframe Design

Wireframe design describes the client-side application design sketched to be developed. It acts as a frame for UI/UX design and development.

### 4.1.1 Authentication Page

#### 4.1.1.1 Login Page

**Sign In**  
Sign in to your account

Email

Password

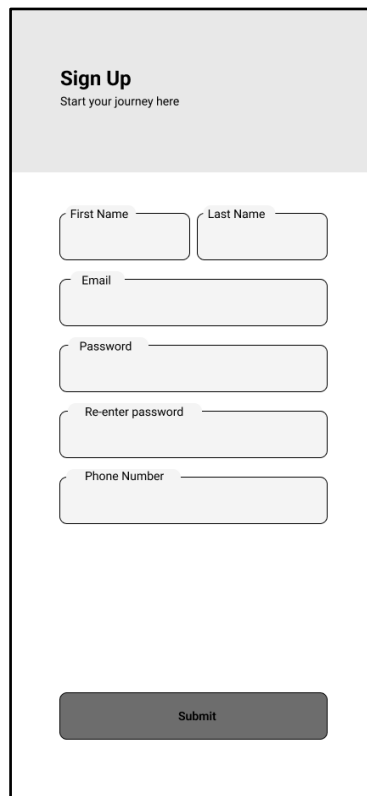
[Forgot password?](#)

**Login**

[Don't have an account? Sign up now](#)

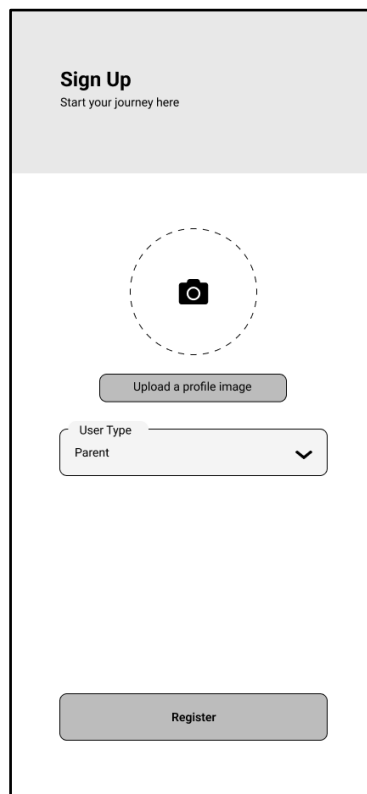
*Figure 4.1.1.1.1 Wireframe sketch of login page*

### 4.1.1.2 Register Page



The wireframe for the first page of the registration process is titled "Sign Up" with the subtitle "Start your journey here". It features a vertical stack of input fields: "First Name" and "Last Name" (two separate boxes), "Email", "Password", "Re-enter password", and "Phone Number". A dark grey "Submit" button is positioned at the bottom of the form.

Figure 4.1.1.2.2 Wireframe sketch of register page 1



The wireframe for the second page of the registration process is titled "Sign Up" with the subtitle "Start your journey here". It features a central dashed circle containing a camera icon, with an "Upload a profile image" button below it. Underneath is a "User Type" dropdown menu currently set to "Parent". A dark grey "Register" button is located at the bottom of the page.

Figure 4.1.1.2.3 Wireframe sketch of register page 2

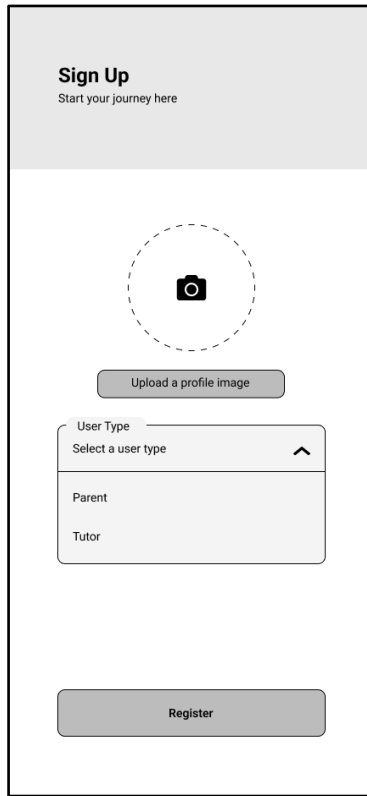


Figure 4.1.1.2.3 Wireframe sketch of register page 3

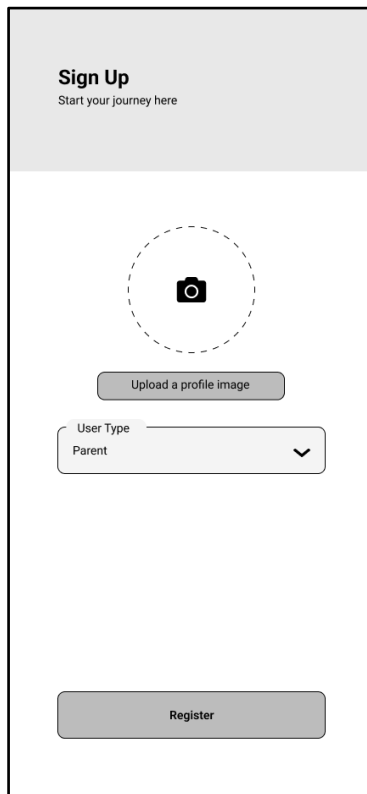
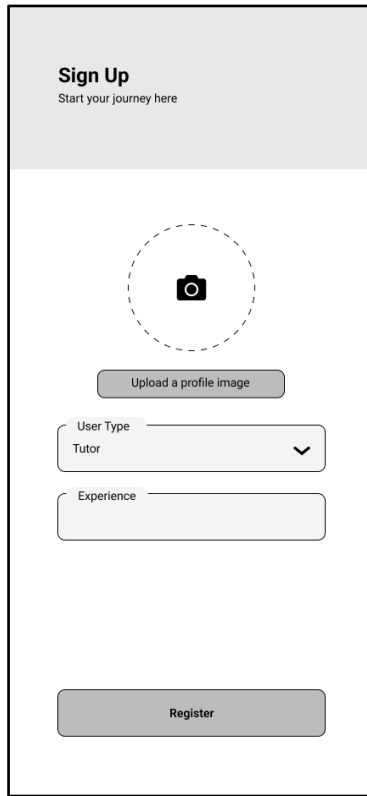


Figure 4.1.1.2.4 Wireframe sketch of register page 4





*Figure 4.1.1.2.5 Wireframe sketch of register page 5*

### 4.1.1.3 Forgot Password Page

**Forgot Password**  
No worries we got you

Email

Password

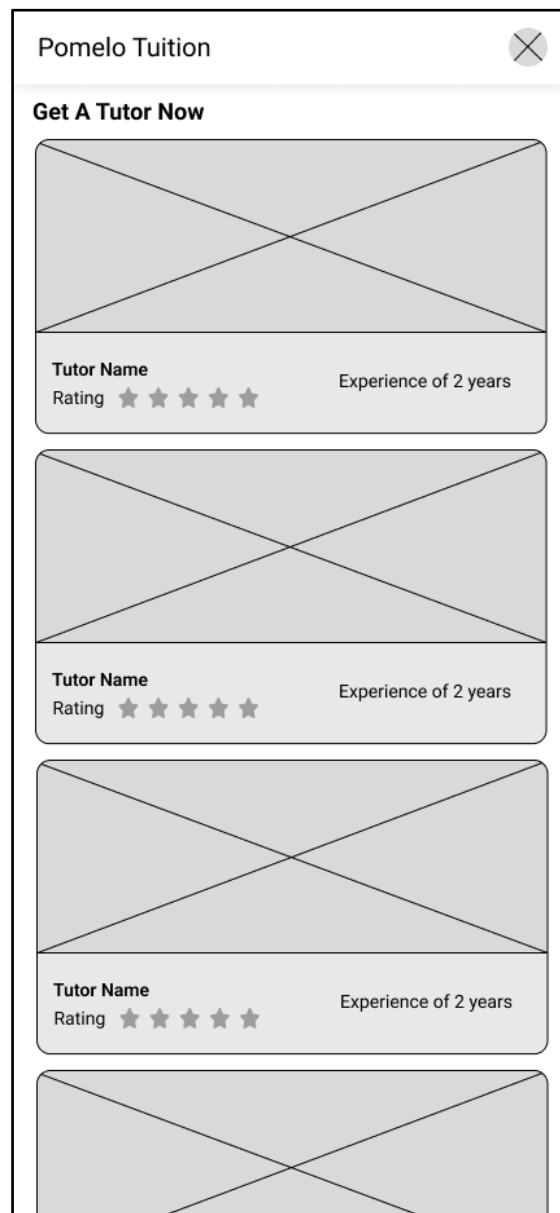
Confirm Your Password

Submit

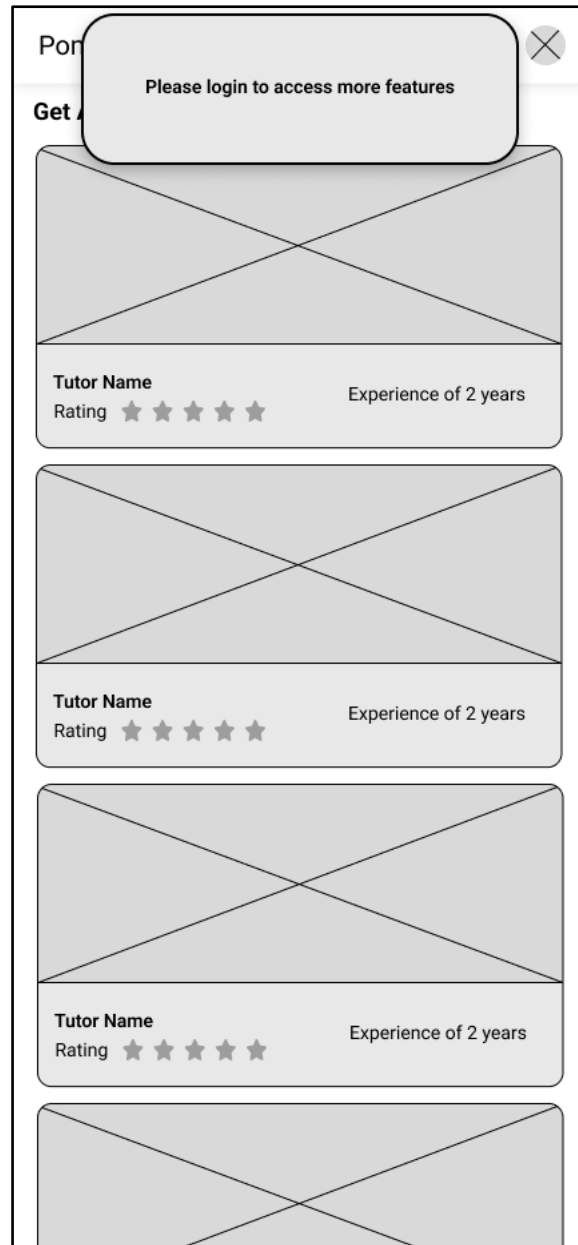
*Figure 4.1.1.3.1 Wireframe sketch of forgot password page*

## 4.1.2 Default Home Page

### 4.1.2.1 Home Page Before Login

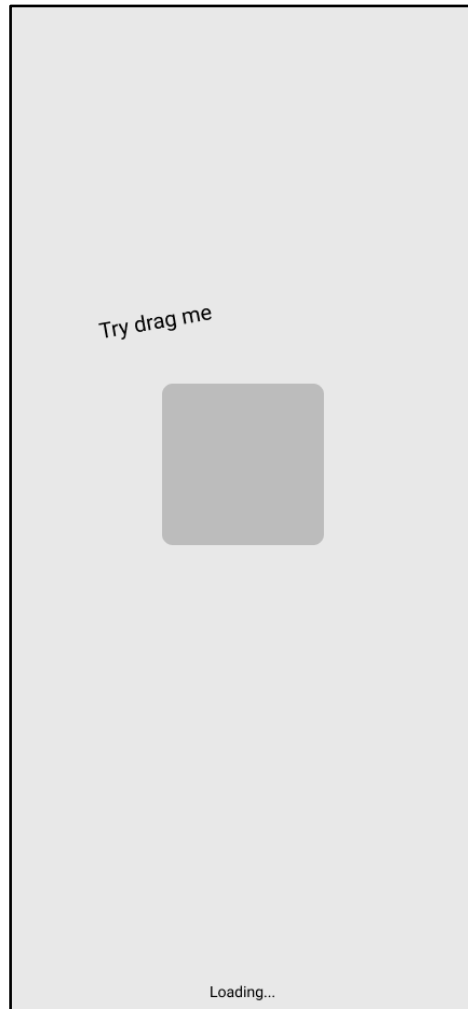


*Figure 4.1.2.1.1 Wireframe sketch of default home page*



*Figure 4.1.2.1.2 Wireframe sketch of default home page (Active)*

### 4.1.3 Loading



*Figure 4.1.3.1 Wireframe sketch of loading page*

## 4.1.4 Admin Module

### 4.1.4.1 Admin Home Page

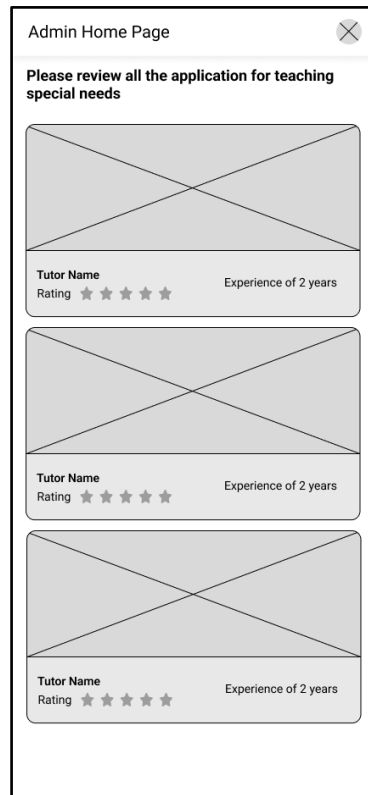


Figure 4.1.4.1.1 Wireframe admin home page 1

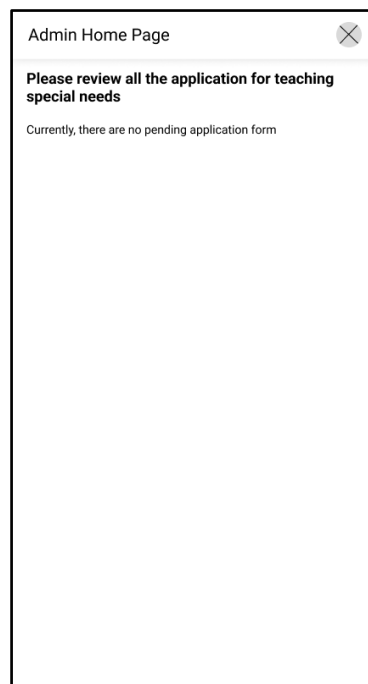


Figure 4.1.4.1.2 Wireframe design of admin home page 2

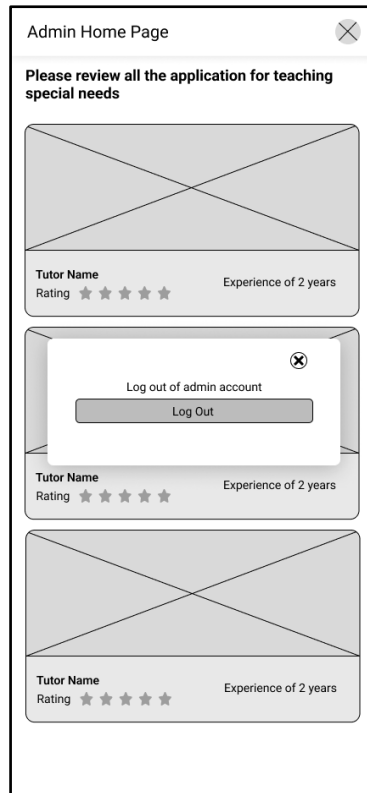


Figure 4.1.4.1.3 Wireframe design admin log out modal

#### 4.1.4.2 Admin Approve Tutors' Application Page



Figure 4.1.4.2.1 Wireframe design of admin approve tutors' application page

## 4.1.5 Parent Module

### 4.1.5.1 Parent Home Page

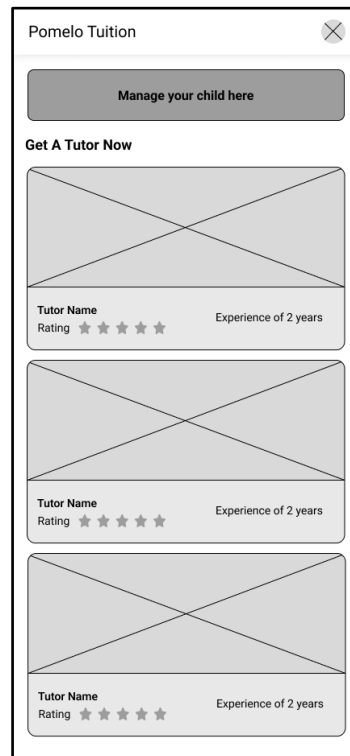


Figure 4.1.5.1.1 Wireframe design of parent home page

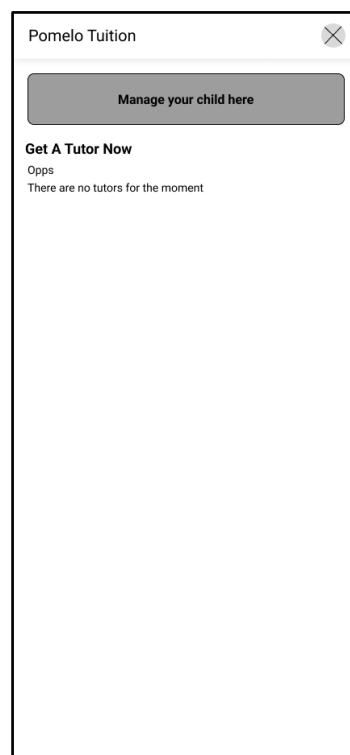


Figure 4.1.5.1.2 Wireframe design of parent home page (without available tutors)



#### 4.1.5.2 Parent Setting Page

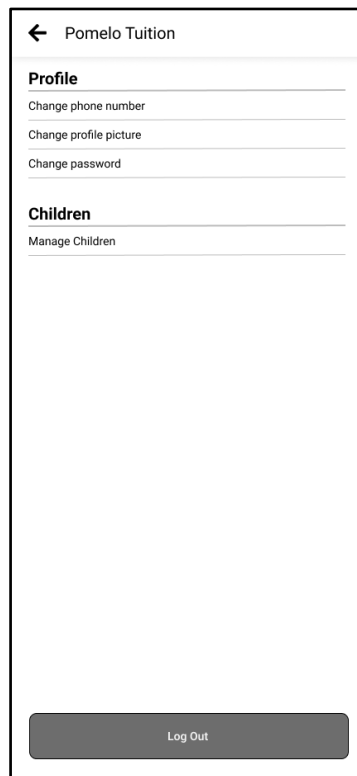


Figure 4.1.5.2.1 Wireframe design of parent setting page

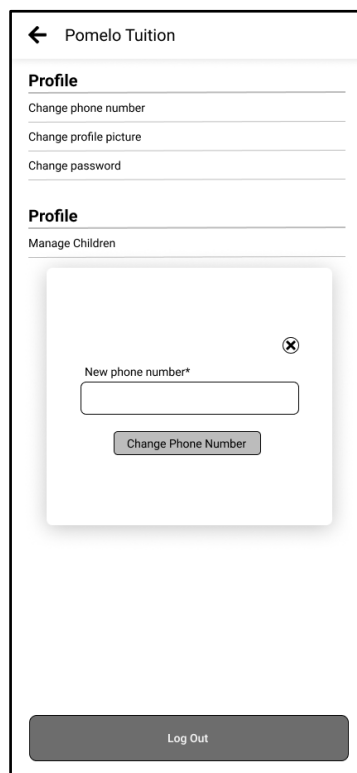


Figure 4.1.5.2.2 Wireframe design of parent setting page (Pressed on phone number)

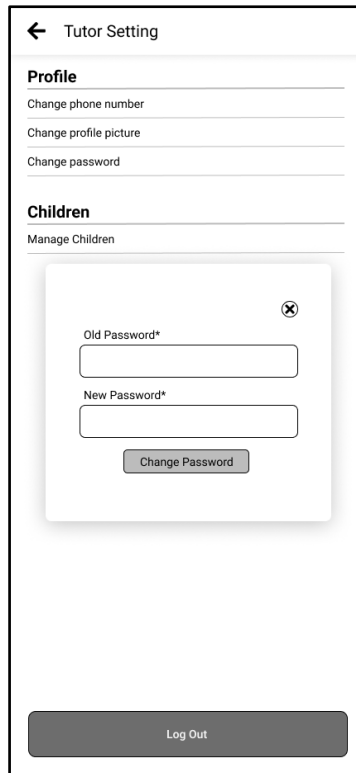
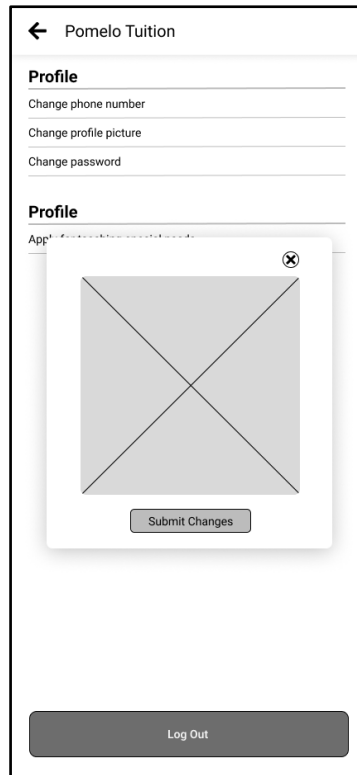


Figure 4.1.5.2.3 Wireframe design of parent setting page (Pressed on change password)



Figure 4.1.5.2.4 Wireframe design of parent setting page (Pressed on change profile picture)



*Figure 4.1.5.2.5 Wireframe design of parent setting page (Uploaded profile picture)*

### 4.1.5.3 Parent Manage Children Page

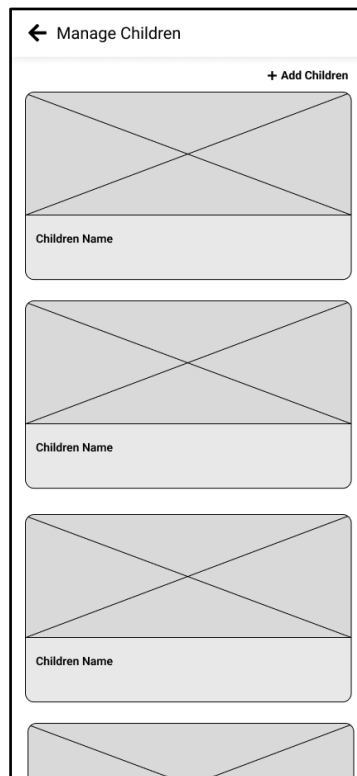


Figure 4.1.5.3.1 Wireframe design of parent manage children page

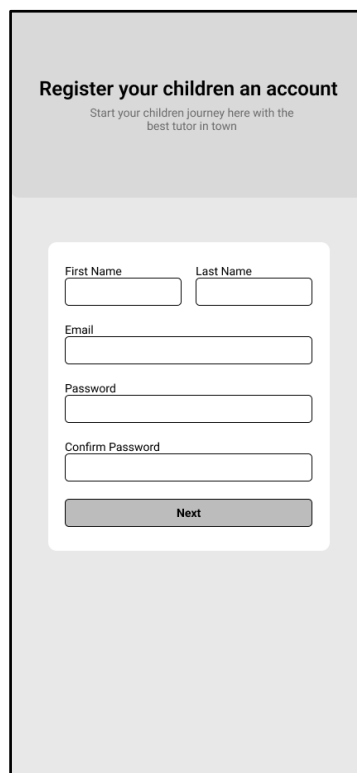


Figure 4.1.5.3.2 Wireframe design of add children account (Form One)

**Register your children an account**  
Start your children journey here with the best tutor in town

Does your child categorised under the special needs category

Yes

**Register**

*Figure 4.1.5.3.3 Wireframe design of add children account (Form Two)*

**Register your children an account**  
Start your children journey here with the best tutor in town

Does your child categorised under the special needs category

Yes

Please select the type that your child is in

Select the type ▼

**Register**

*Figure 4.1.5.3.4 Wireframe design of add children account (Form Two –with special need)*

**Register your children an account**  
 Start your children journey here with the best tutor in town

Does your child categorised under the special needs category  
 Yes

Please select the type that your child is in

Select the type ▼

- ADHD
- Dyscalculia
- Dysgraphia
- Dyslexia
- Dyspraxia

Figure 4.1.5.3.5 Wireframe design of add children account (Form Two – with special need Active)

#### 4.1.5.4 Parent View of Children Profile

←

**Children Name**  
 Enrolled Course

Course Name  
 Course Description

Course Name  
 Course Description

Course Name  
 Course Description

Figure 4.1.5.4.1 Wireframe design of children profile (Without special need)

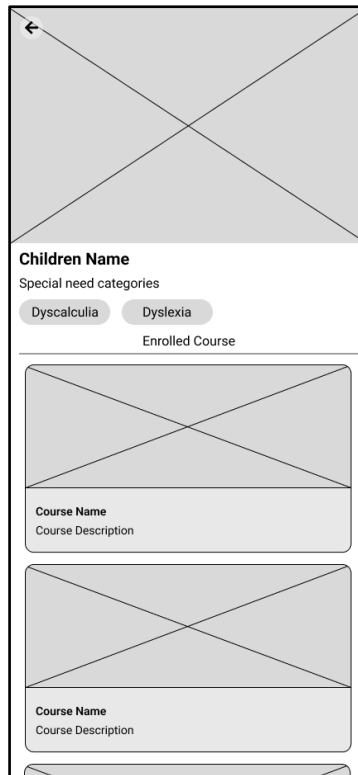


Figure 4.1.5.4.2 Wireframe design of children profile (With special need)

#### 4.1.5.5 Parent View Enrolled Course

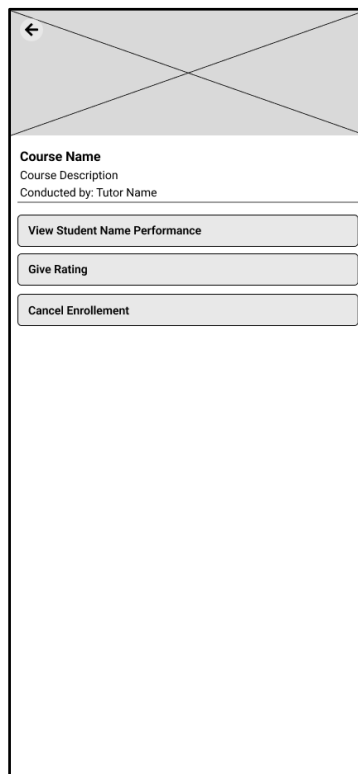


Figure 4.1.5.5.1 Wireframe design of view student enrolled course

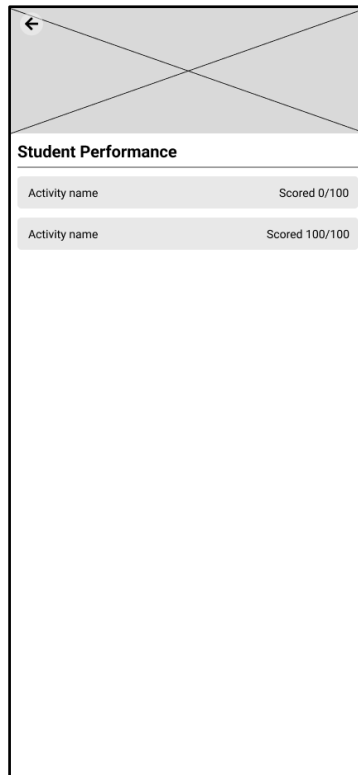


Figure 4.1.5.5.2 Wireframe design of view student performance on enrolled course

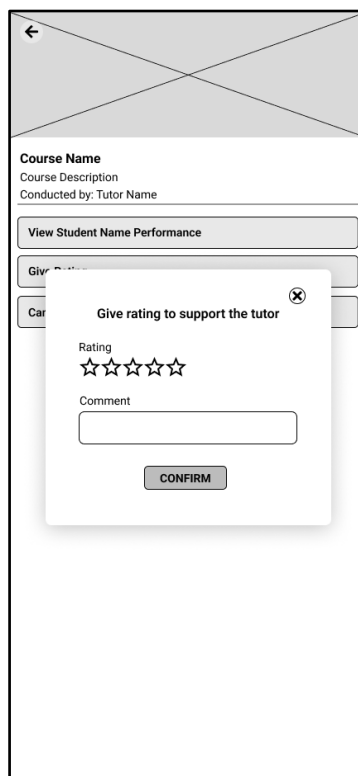


Figure 4.1.5.5.3 Wireframe design of give rating on enrolled course



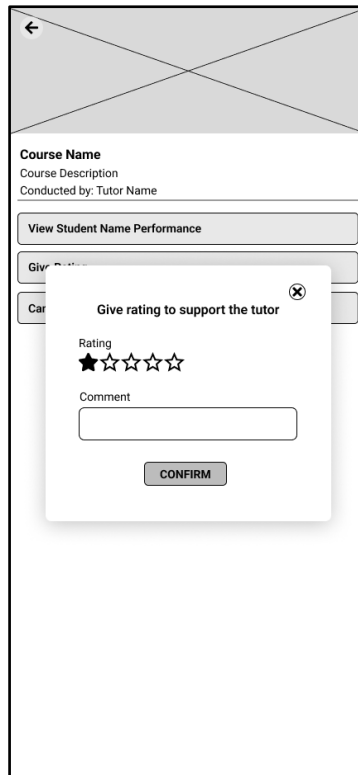


Figure 4.1.5.5.4 Wireframe design of give rating on enrolled course (Active)

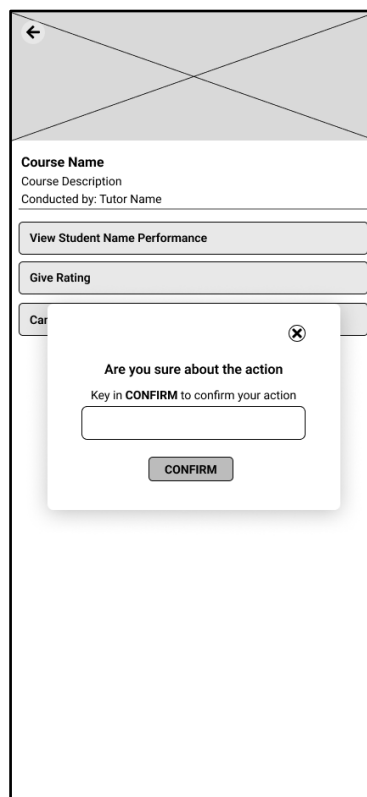


Figure 4.1.5.5.5 Wireframe design of cancel course enrolment

#### 4.1.5.6 Parent View of Tutor Profile

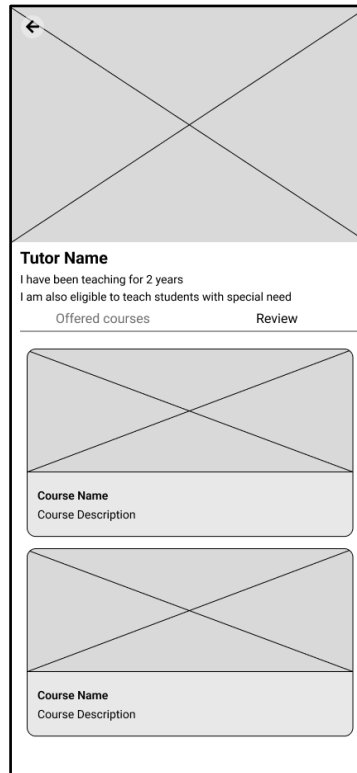


Figure 4.1.5.6.1 Wireframe design of view tutor profile

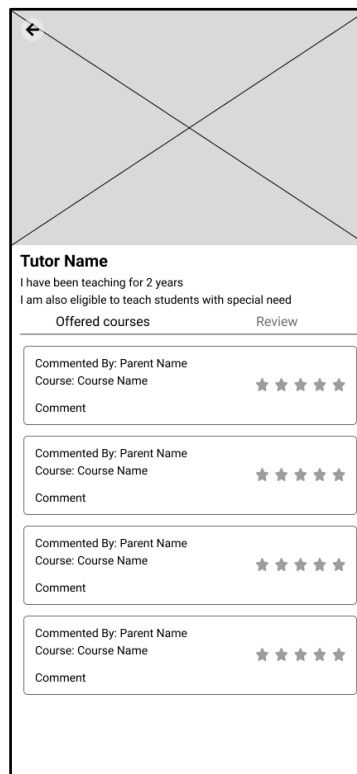
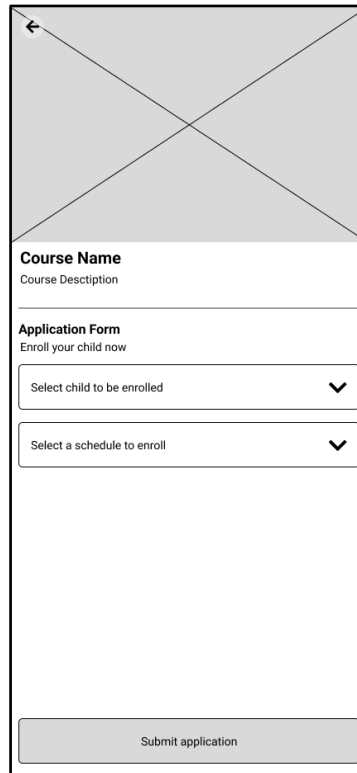


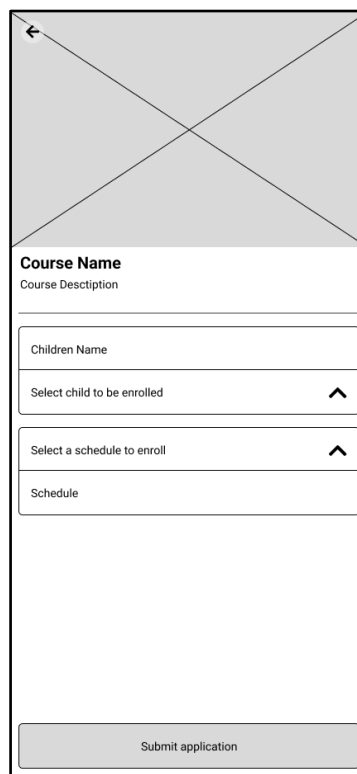
Figure 4.1.5.6.2 Wireframe design of view tutor rating

#### 4.1.5.7 Parent View Course to Enroll



A vertical wireframe for a mobile application screen. At the top left is a back arrow. Below it is a grey header area with a large 'X' across it. The main content area is white and contains the following elements from top to bottom: a section titled 'Course Name' with a 'Course Description' label; a section titled 'Application Form' with the text 'Enroll your child now'; two dropdown menus, the first labeled 'Select child to be enrolled' and the second 'Select a schedule to enroll', both with downward-pointing chevrons; and a grey button at the bottom labeled 'Submit application'.

Figure 4.1.5.7.1 Wireframe design of view offered course



A vertical wireframe for a mobile application screen, similar to Figure 4.1.5.7.1 but in an 'Active' state. It features a back arrow at the top left and a grey header with a large 'X'. The main content area is white and contains: a 'Course Name' section with 'Course Description'; a 'Children Name' label above a text input field; a dropdown menu labeled 'Select child to be enrolled' with an upward-pointing chevron; another dropdown menu labeled 'Select a schedule to enroll' with an upward-pointing chevron; a 'Schedule' label above a text input field; and a grey button at the bottom labeled 'Submit application'.

Figure 4.1.5.7.2 Wireframe design of view offered course (Active)

## 4.1.6 Student Module

### 4.1.6.1 Student Home Page

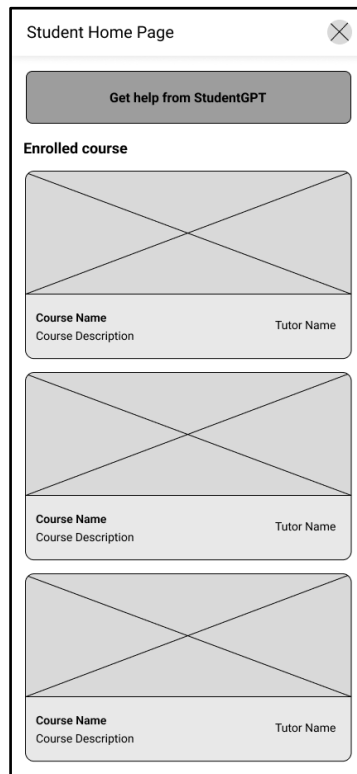


Figure 4.1.6.1.1 Wireframe design of student home page

### 4.1.6.2 Student Setting Page

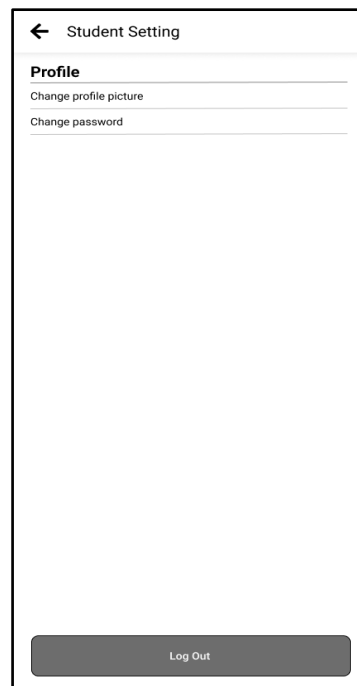


Figure 4.1.6.2.1 Wireframe design of student setting page



Figure 4.1.6.2.2 Wireframe design of student setting page (pressed on change profile picture)

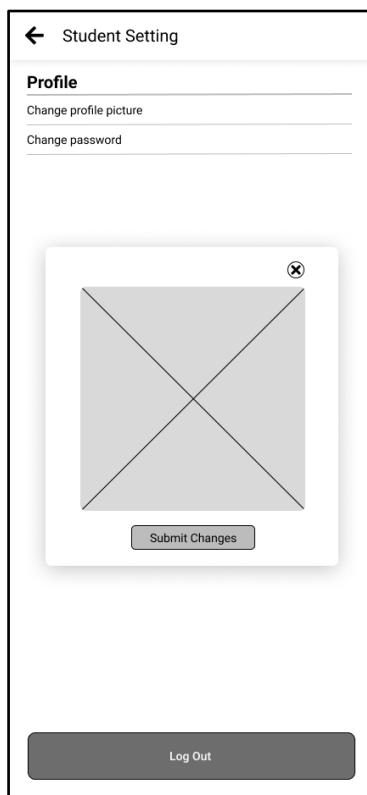


Figure 4.1.6.2.3 Wireframe design of student setting page (profile picture uploaded)

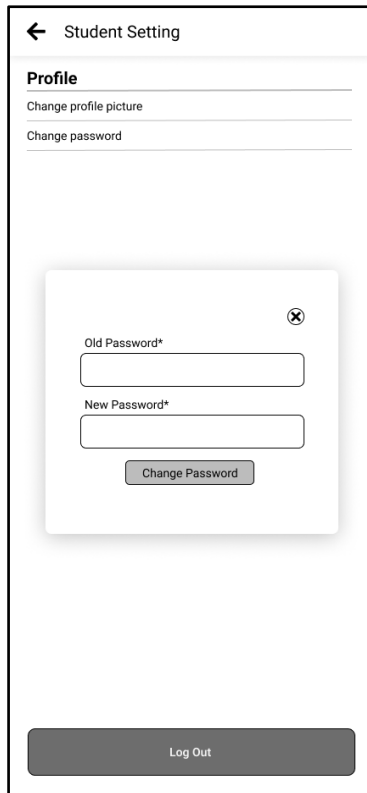


Figure 4.1.6.2.4 Wireframe design of student setting page (pressed on change password)

#### 4.1.6.3 Student GPT Page

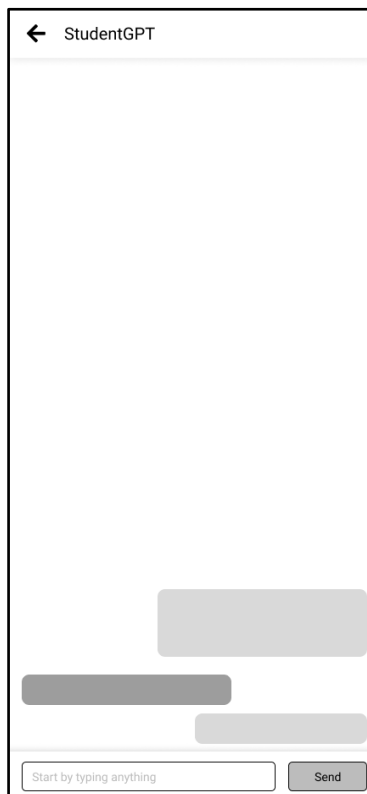


Figure 4.1.6.3.1 Wireframe design of student GPT page

#### 4.1.6.4 Student View of Activities

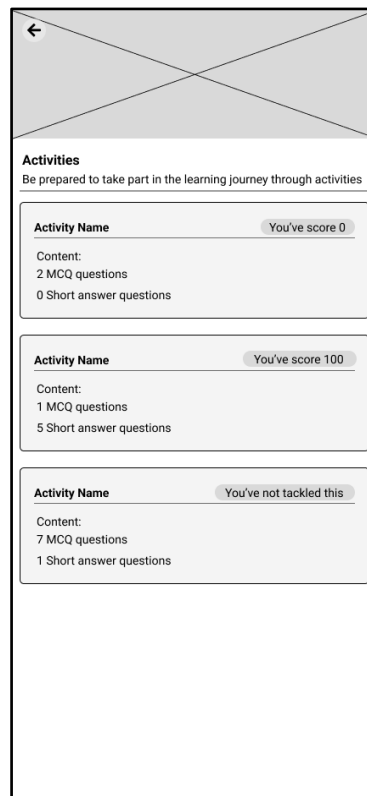


Figure 4.1.6.4.1 Wireframe design of student view of activities page

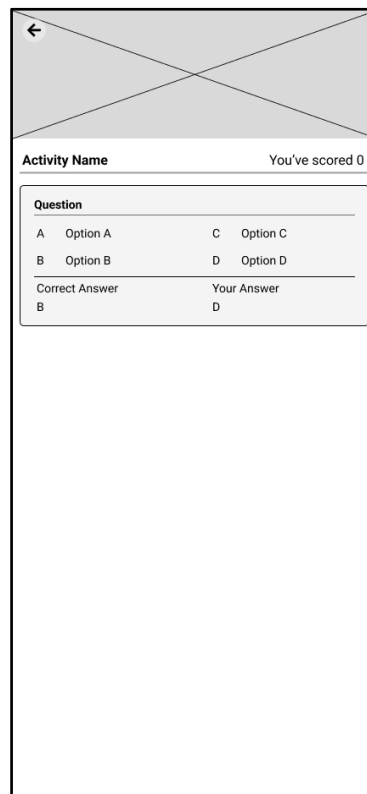


Figure 4.1.6.4.2 Wireframe design of student view of completed activities page - 1

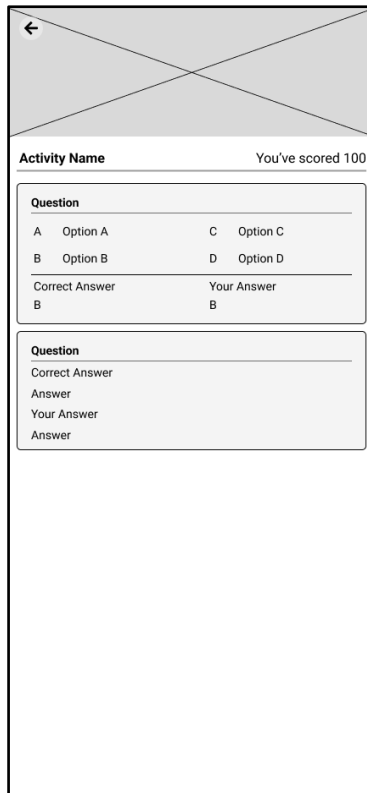


Figure 4.1.6.4.3 Wireframe design of student view of completed activities page – 2

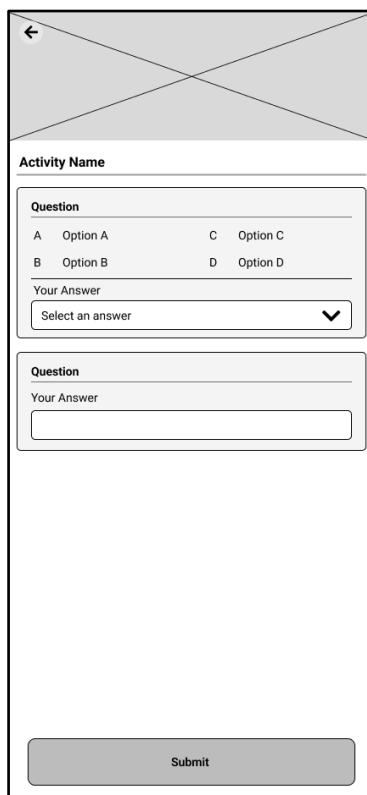


Figure 4.1.6.4.4 Wireframe design of student view of uncompleted activities page



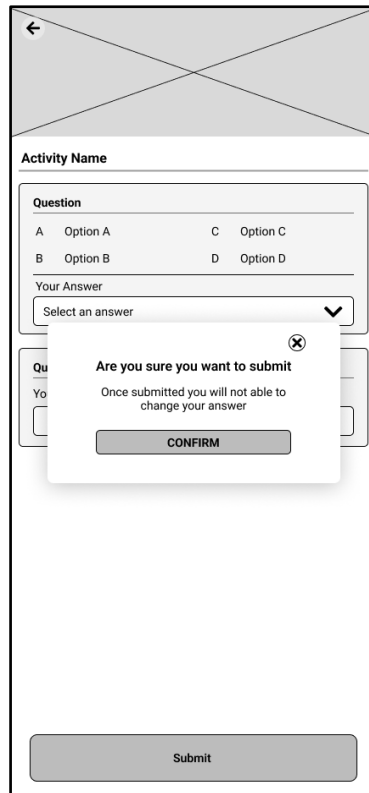


Figure 4.1.6.4.5 Wireframe design of student view of uncompleted activities page (submission)

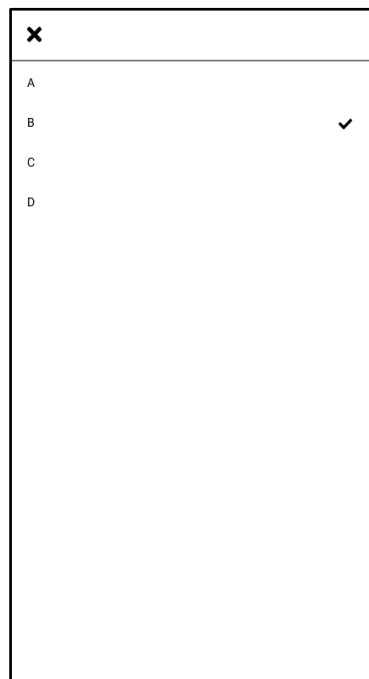


Figure 4.1.6.4.6 Wireframe design of student view of uncompleted activities page (Selecting MCQ answer)

#### 4.1.6.5 Student View of Learning Materials

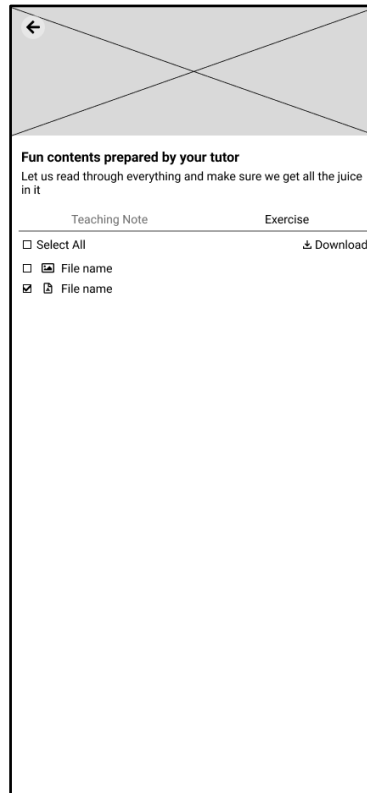


Figure 4.1.6.5.1 Wireframe design of student view of learning materials (Exercise)

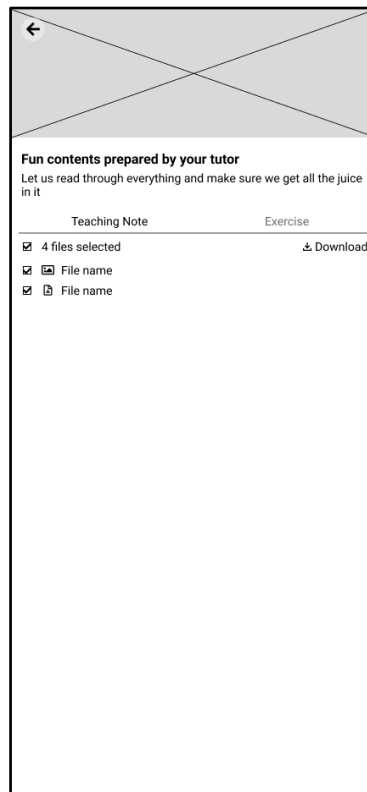


Figure 4.1.6.5.2 Wireframe design of student view of learning materials (Teaching Note)

#### 4.1.6.6 Student View of Subject

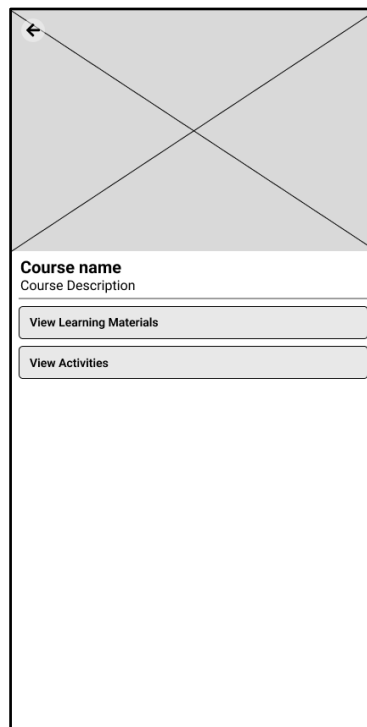


Figure 4.1.6.6.1 Wireframe design of student view of subject

#### 4.1.7 Tutor Module

##### 4.1.7.1 Tutor Dashboard

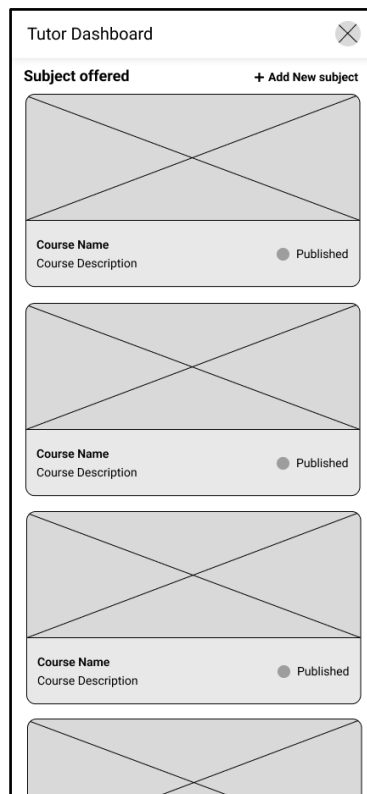
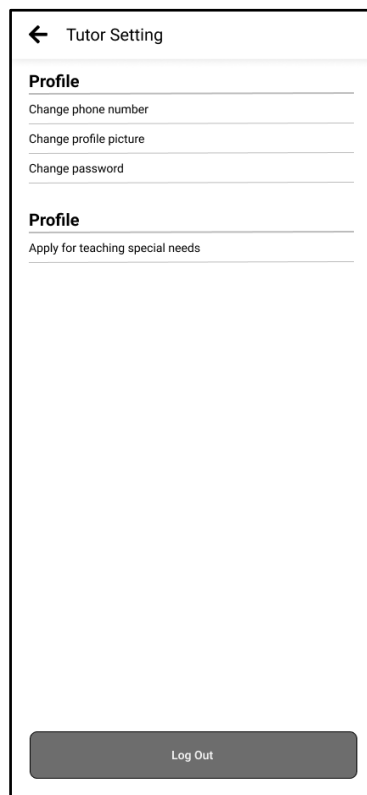


Figure 4.1.7.1.1 Wireframe design of tutor dashboard



*Figure 4.1.7.1.2 Wireframe design o tutor dashboard (without subject offered)*

#### 4.1.7.2 Tutor Setting Page



*Figure 4.1.7.2.1 Wireframe design of tutor setting page*

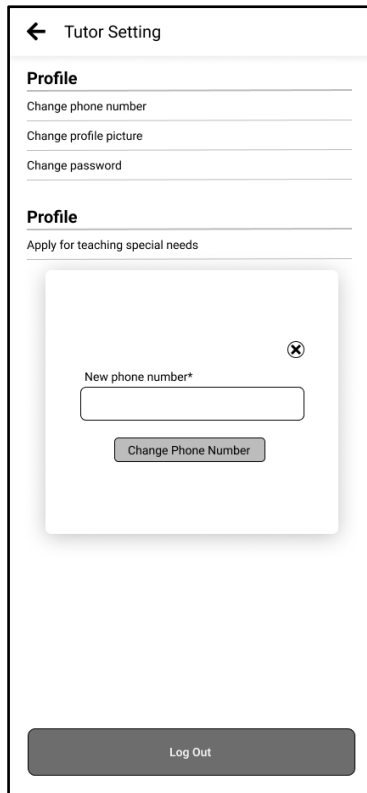
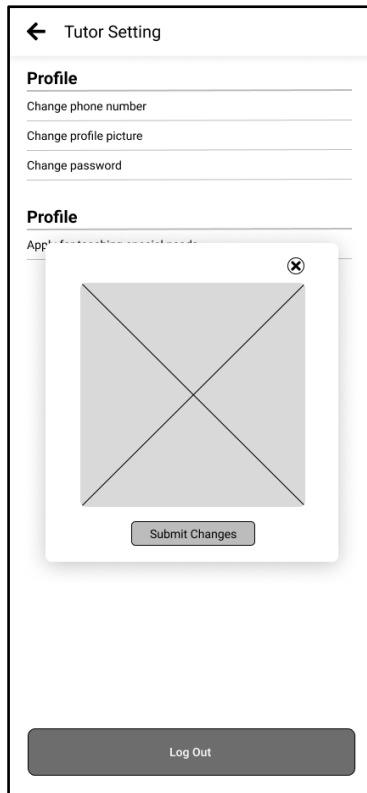


Figure 4.1.7.2.2 Wireframe design of tutor setting page (pressed on change phone number)



Figure 4.1.7.2.3 Wireframe design of tutor setting page (pressed on change profile picture)



*Figure 4.1.7.2.4 Wireframe design of tutor setting page (profile picture uploaded)*

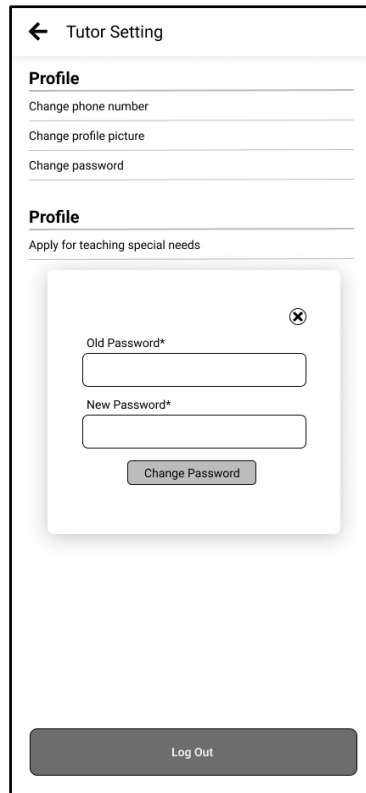


Figure 4.1.7.2.5 Wireframe design of tutor setting page (pressed on change password)

### 4.1.7.3 Tutor Add Activity Page

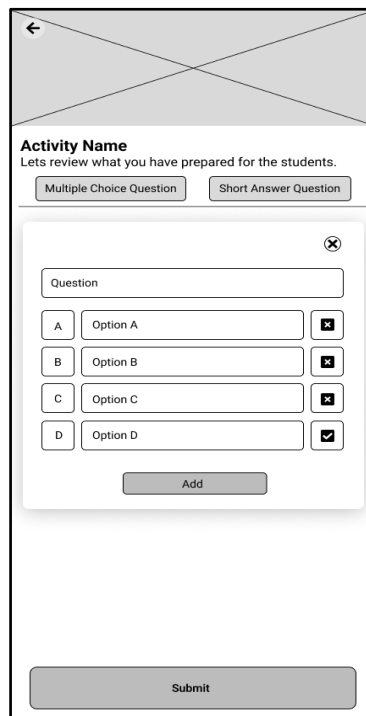


Figure 4.1.7.3.1 Wireframe design of tutor add activity page (multiple choices question)

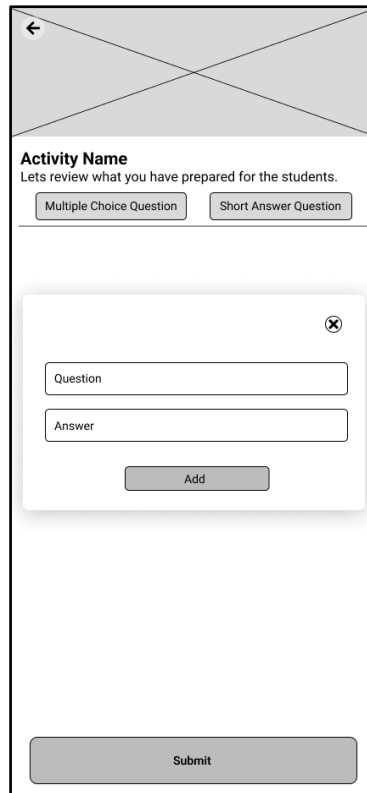


Figure 4.1.7.3.2 Wireframe design of tutor add activity page (short answer question)

#### 4.1.7.4 Tutor Add Learning Material Page

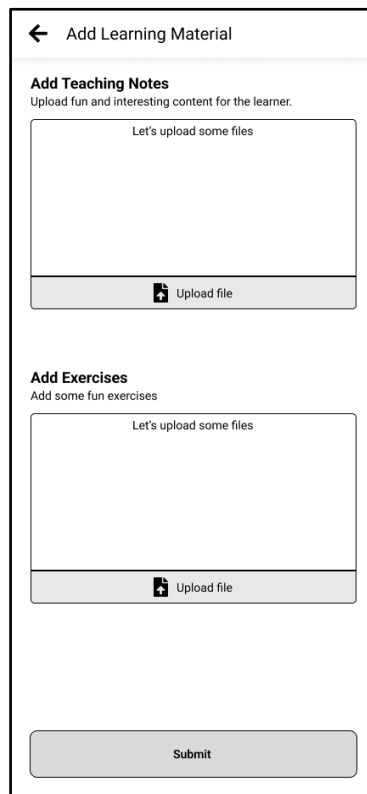


Figure 4.1.7.4.1 Wireframe design of tutor add learning material page



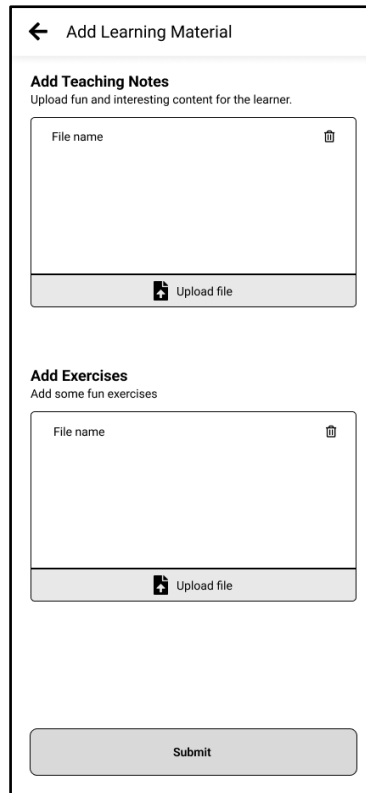


Figure 4.1.7.4.2 Wireframe design of tutor add learning material page (file uploaded)

#### 4.1.7.5 Tutor Add New Subject Page

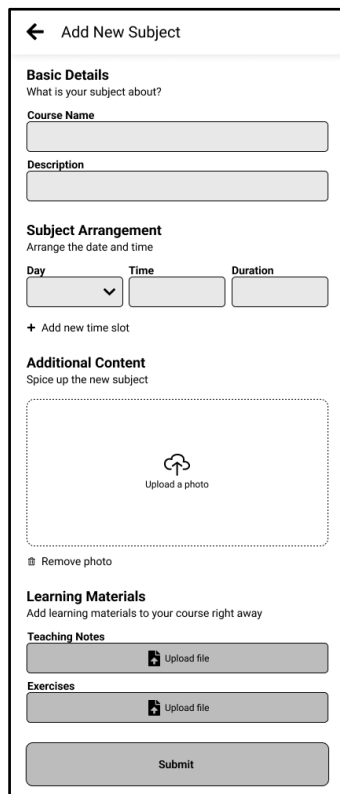


Figure 4.1.7.5.1 Wireframe design of tutor add new subject page

← Add New Subject

**Basic Details**  
What is your subject about?

**Course Name**  
[Text Input]

**Description**  
[Text Input]

**Subject Arrangement**  
Arrange the date and time

**Day** [Dropdown] **Time** [Text Input] **Duration** [Text Input]

**Day** [Dropdown] **Time** [Text Input] **Duration** [Text Input]

+ Add new time slot

**Additional Content**  
Spice up the new subject

[Image Placeholder]

Remove photo

**Learning Materials**  
Add learning materials to your course right away

**Teaching Notes**  
File name [Text Input] [Upload file]

**Exercises**  
File name [Text Input] [Upload file]

Submit

Figure 4.1.7.5.2 Wireframe design of tutor add new subject page (active)

Select a day

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday ✓

Figure 4.1.7.5.3 Wireframe design of tutor add new subject page (active dropdown open) – 1

✕	
ADHD	
Dyscalculia	✓

Figure 4.1.7.5.4 Wireframe design of tutor add new subject page (active dropdown open) – 2

← Add New Subject

**Basic Details**  
What is your subject about?

**Course Name**

**Description**

For student with special need

**Subject Arrangement**  
Arrange the date and time

<b>Day</b>	<b>Time</b>	<b>Duration</b>
<input type="text" value="▼"/>	<input type="text"/>	<input type="text"/>
<b>Day</b>	<b>Time</b>	<b>Duration</b>
<input type="text" value="▼"/>	<input type="text"/>	<input type="text"/>

+ Add new time slot

**Additional Content**  
Spice up the new subject

✕

Remove photo

**Learning Materials**  
Add learning materials to your course right away

**Teaching Notes**

File name 🗑

Upload file
📎

**Exercises**

File name 🗑

Upload file
📎

Submit

Figure 4.1.7.5.5 Wireframe design of tutor add new subject page (special need)

←
Add New Subject

**Basic Details**  
What is your subject about?

**Course Name**

**Description**

For student with special need

**Special Needs**  
Is this course for special needs student?

**Type**

**Subject Arrangement**  
Arrange the date and time

<b>Day</b> <input style="width: 100%;" type="text" value="▼"/>	<b>Time</b> <input style="width: 100%;" type="text"/>	<b>Duration</b> <input style="width: 100%;" type="text"/>
<b>Day</b> <input style="width: 100%;" type="text" value="▼"/>	<b>Time</b> <input style="width: 100%;" type="text"/>	<b>Duration</b> <input style="width: 100%;" type="text"/>

+ Add new time slot

**Additional Content**  
Spice up the new subject

Remove photo

**Learning Materials**  
Add learning materials to your course right away

**Teaching Notes**

File name 🗑

📎 Upload file

**Exercises**

File name 🗑

📎 Upload file

Submit

*Figure 4.1.7.5.6 Wireframe design of tutor add new subject page (active special need) – 1*

←
Add New Subject

**Basic Details**  
What is your subject about?

**Course Name**

**Description**

For student with special need

**Special Needs**  
Is this course for special needs student?

**Type**  
● Dyscalculia ▼

**Subject Arrangement**  
Arrange the date and time

<b>Day</b> <input style="width: 100%;" type="text" value="▼"/>	<b>Time</b> <input style="width: 100%;" type="text"/>	<b>Duration</b> <input style="width: 100%;" type="text"/>
<b>Day</b> <input style="width: 100%;" type="text" value="▼"/>	<b>Time</b> <input style="width: 100%;" type="text"/>	<b>Duration</b> <input style="width: 100%;" type="text"/>

+ Add new time slot

**Additional Content**  
Spice up the new subject

✕

Remove photo

**Learning Materials**  
Add learning materials to your course right away

**Teaching Notes**

File name 🗑

📎

**Exercises**

File name 🗑

📎

Submit

*Figure 4.1.7.5.7 Wireframe design of tutor add new subject page (active special need) – 2*

#### 4.1.7.6 Tutor Add Schedule Page

The wireframe shows a mobile application screen for adding a new schedule. At the top left is a back arrow. Below it is a header area with a large 'X' indicating a missing image. The main content area is titled "Add new schedule" with the subtitle "Add a schedule for the students". Below this is a section titled "Insert a new schedule" containing three input fields: "Day" with a dropdown menu showing "Select a day", "Time" with the value "10:00 am", and "Duration" with the value "1 hrs". A "Submit" button is located at the bottom of the screen.

Figure 4.1.7.6.1 Wireframe design of tutor add schedule page

This wireframe is identical to the previous one, but the "Day" dropdown menu is open, displaying a list of days: Sunday, Monday, Tuesday, Wednesday, and Thursday. The "Submit" button remains at the bottom.

Figure 4.1.7.6.2 Wireframe design of tutor add schedule page (active dropdown open)

### 4.1.7.7 Tutor Application Form Page

← Application Form

**Important things to know before apply**

Before applying please be sure that you have already experienced in teaching student with special needs.

We need your skills, expertise, and your patience to help the kids with special needs. They should get equal education as the others.

Types of special needs ▾

You may choose more than one to apply, but be sure to really commit in teaching the children, They really need your help.

Apply Now

Figure 4.1.7.7.1 Wireframe design of tutor application form page

← Application Form

**Important things to know before apply**

Before applying please be sure that you have already experienced in teaching student with special needs.

We need your skills, expertise, and your patience to help the kids with special needs. They should get equal education as the others.

Types of special needs ▾

- ADHD
- Dyscalculia
- Dysgraphia
- Dyslexia
- Dyspraxia
- Executive Functioning

You may choose more than one to apply, but be sure to really commit in teaching the children, They really need your help.

Apply Now

Figure 4.1.7.7.2 Wireframe design of tutor application form page (active dropdown open)

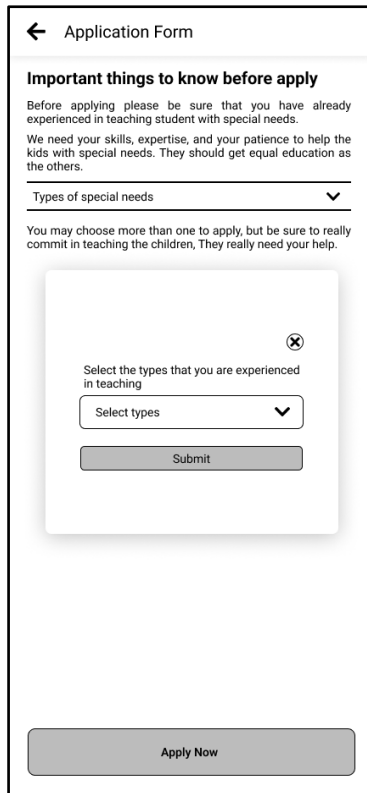


Figure 4.1.7.7.3 Wireframe design of tutor application form page (apply) - 1

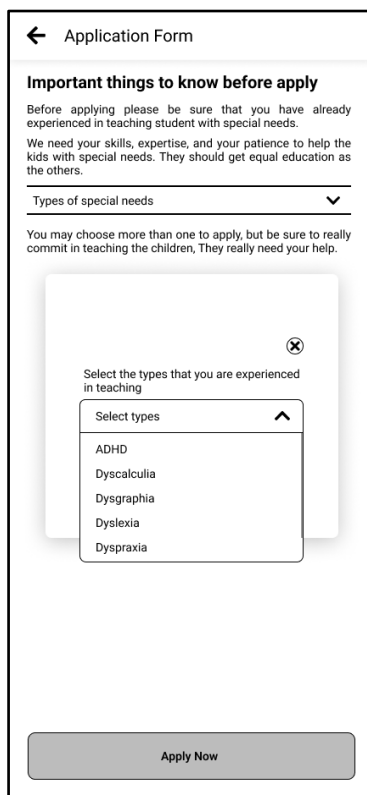


Figure 4.1.7.7.4 Wireframe design of tutor application form page (apply) - 2



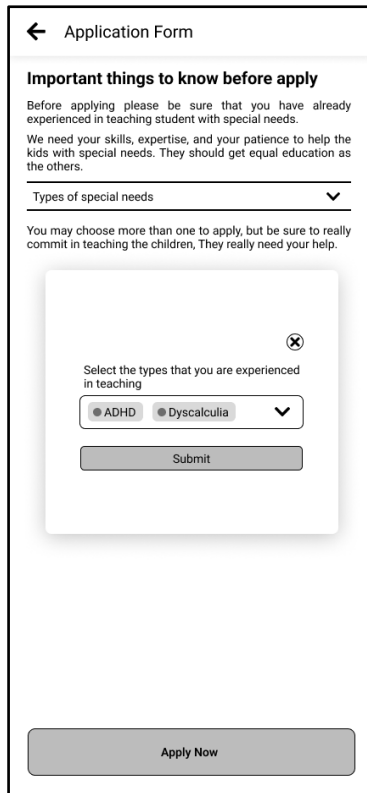


Figure 4.1.7.7.5 Wireframe design of tutor application form page (apply selected) – 1

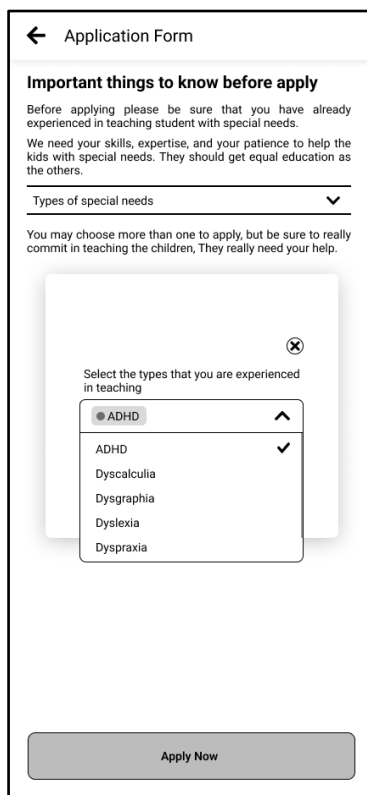


Figure 4.1.7.7.6 Wireframe design of tutor application form page (apply selected) – 2

#### 4.1.7.8 Tutor View Activity Page

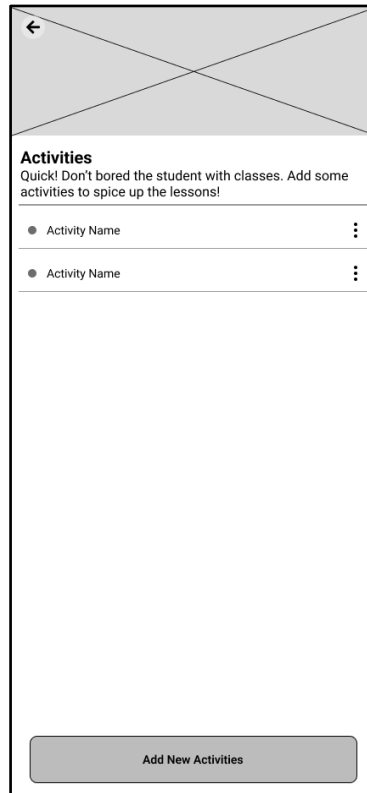


Figure 4.1.7.8.1 Wireframe design of tutor view activity page - 1

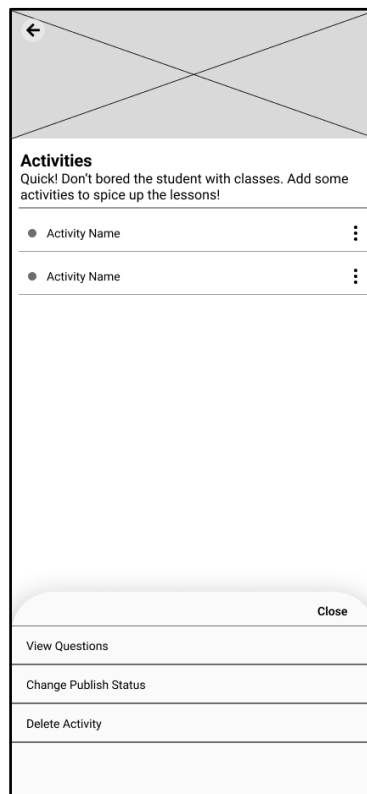


Figure 4.1.7.8.2 Wireframe design of tutor view activity page - 2

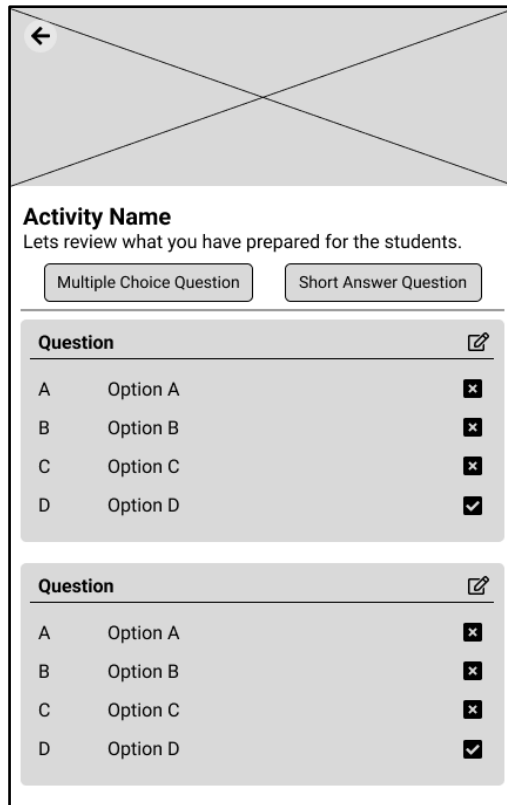


Figure 4.1.7.8.3 Wireframe design of tutor view activity page (MCQ)

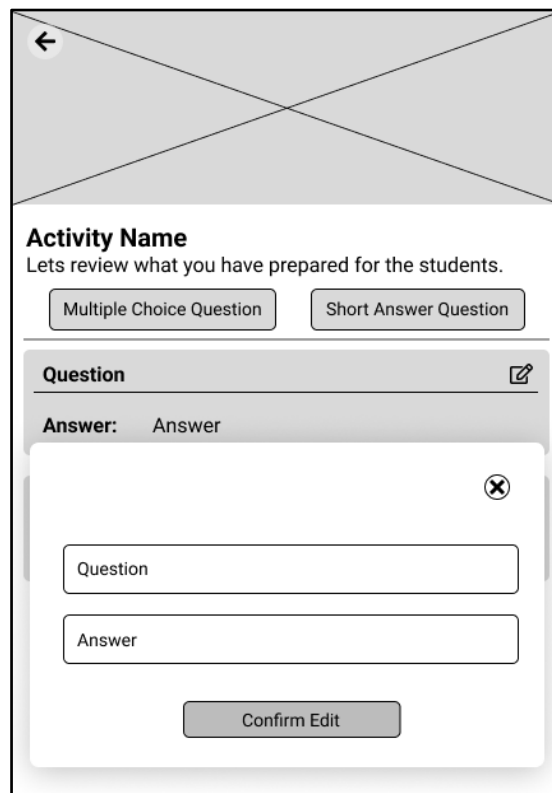


Figure 4.1.7.8.4 Wireframe design of tutor view activity page (MCQ [active] )

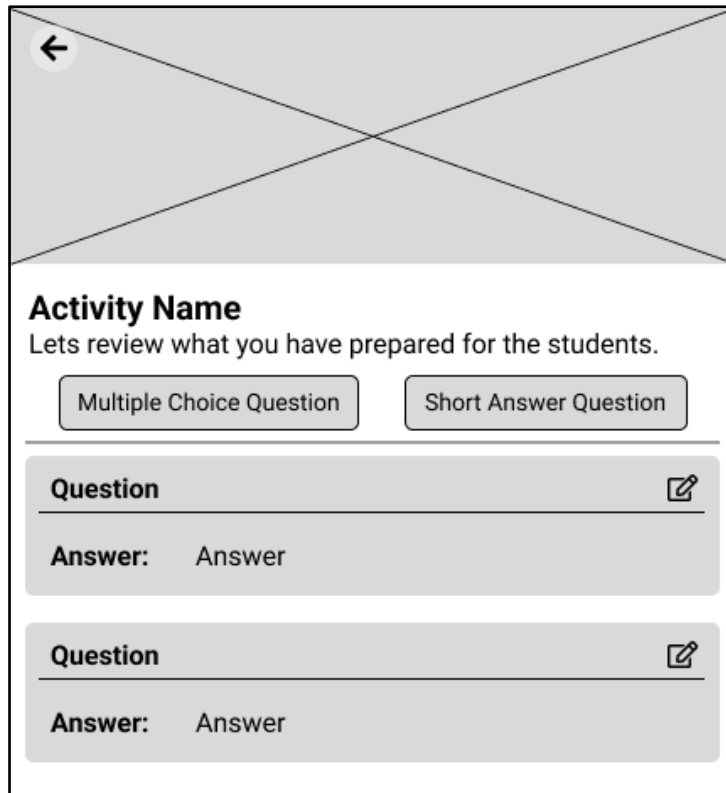


Figure 4.1.7.8.5 Wireframe design of tutor view activity page (Short Answer)

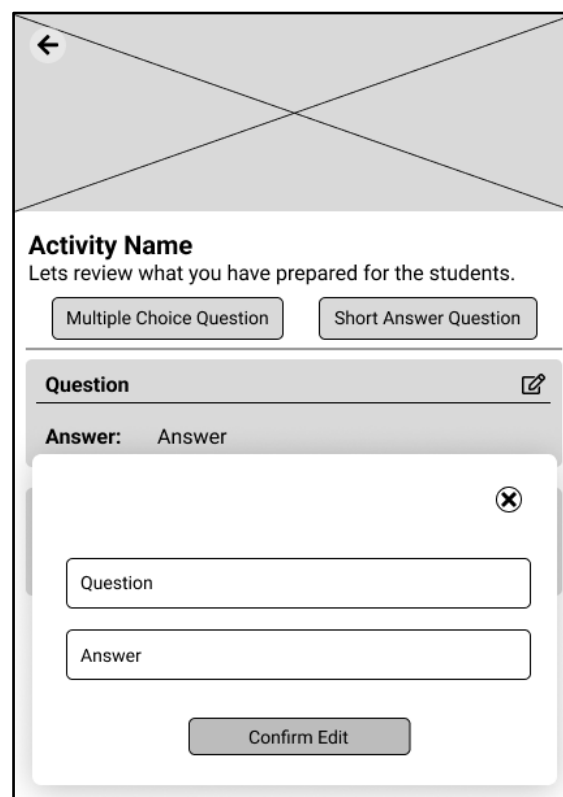


Figure 4.1.7.8.4 Wireframe design of tutor view activity page (Short Answer [active] )

#### 4.1.7.9 Tutor View Learning Material Page

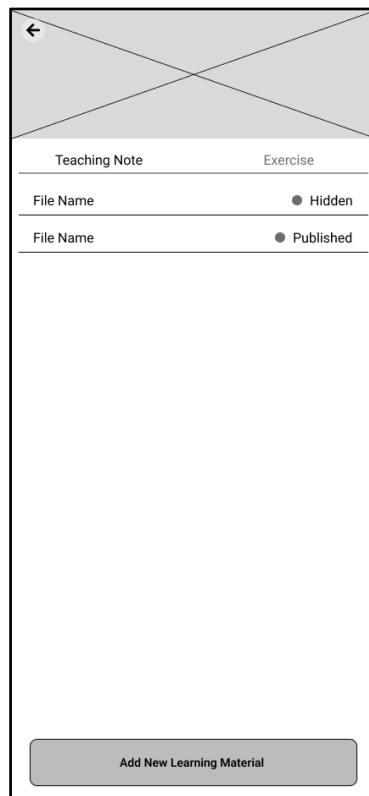


Figure 4.1.7.9.1 Wireframe design of tutor view learning material page (Exercise)

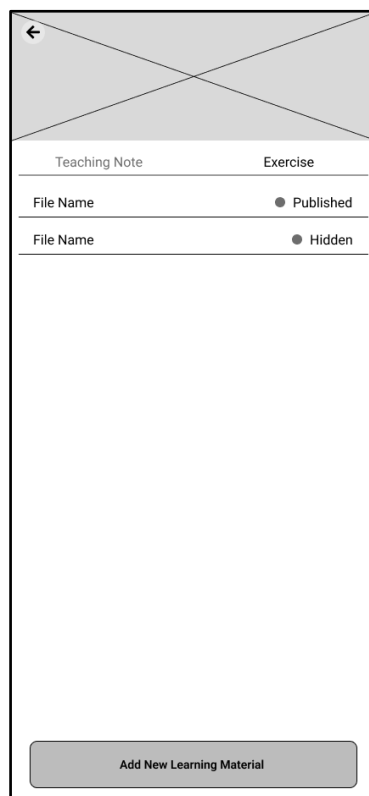


Figure 4.1.7.9.2 Wireframe design of tutor view learning material page (teaching note)

#### 4.1.7.10 Tutor View Schedule Page

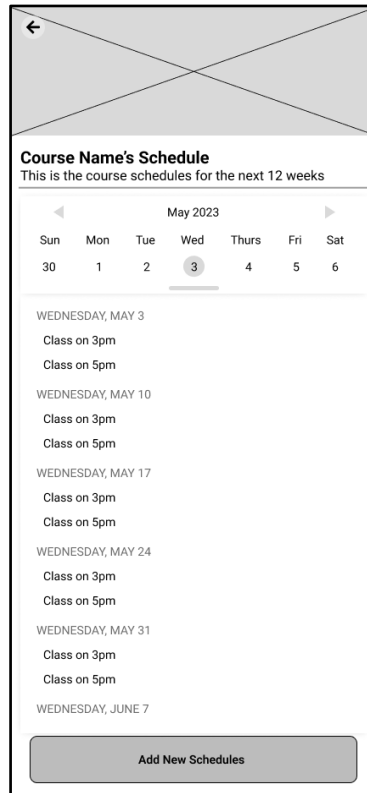


Figure 4.1.7.10.1 Wireframe design of tutor view schedule page (week view) – 1

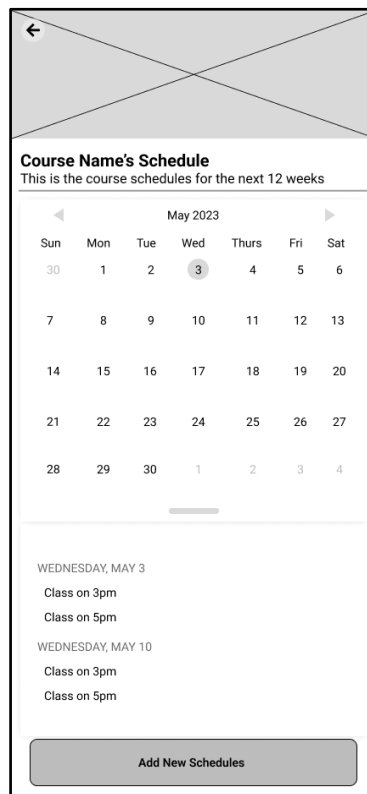


Figure 4.1.7.10.2 Wireframe design of tutor view schedule page (week view) – 2

#### 4.1.7.11 Tutor View Student Enrolment Page

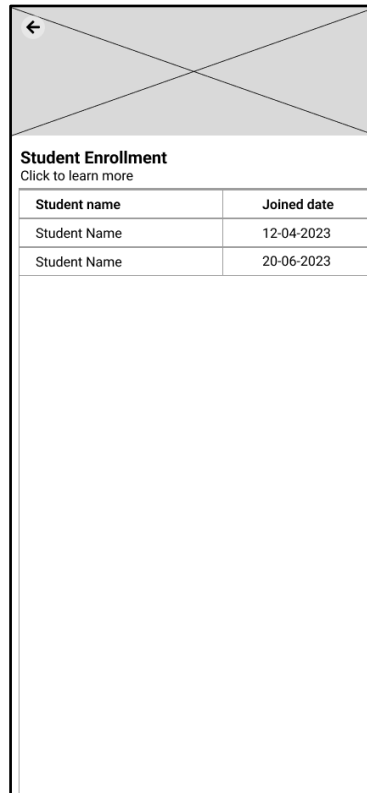


Figure 4.1.7.11.1 Wireframe design of tutor view student enrolment page

#### 4.1.7.12 Tutor View Student Profile Page

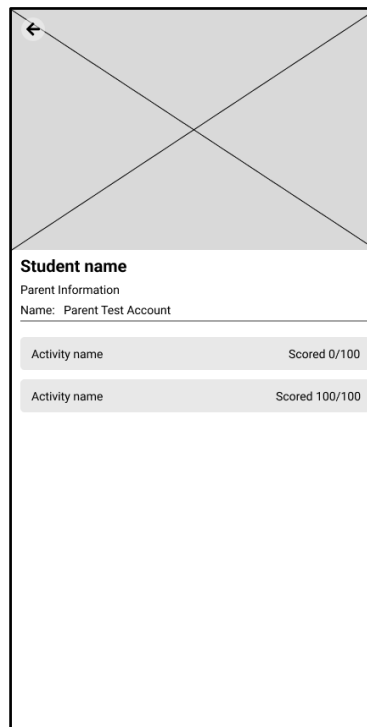


Figure 4.1.7.12.1 Wireframe design of tutor view student profile page

### 4.1.7.13 Tutor View Subject Page

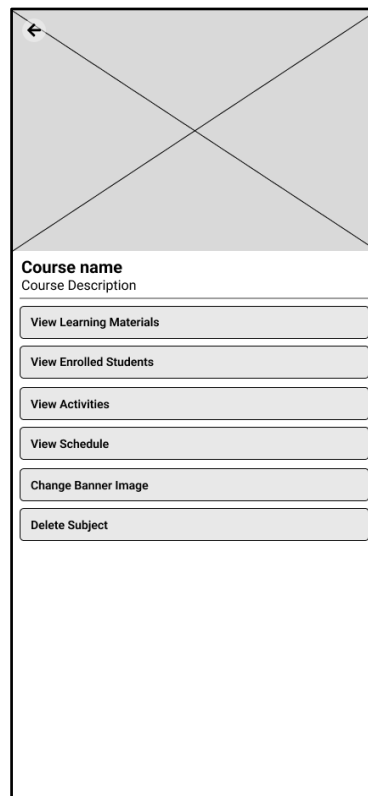


Figure 4.1.7.13.1 Wireframe design of tutor view subject page – 1

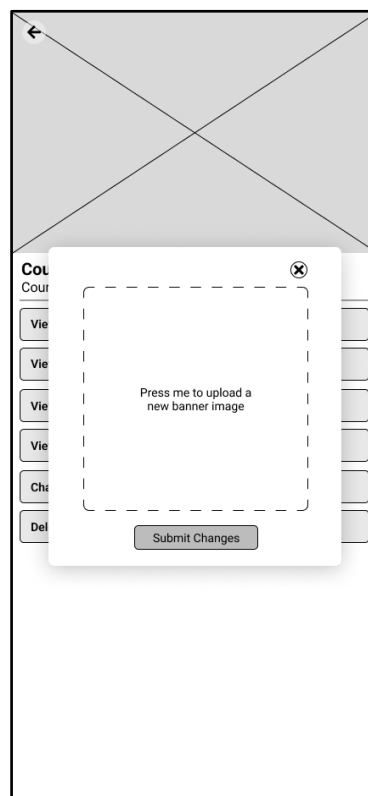


Figure 4.1.7.13.2 Wireframe design of tutor view subject page – 2



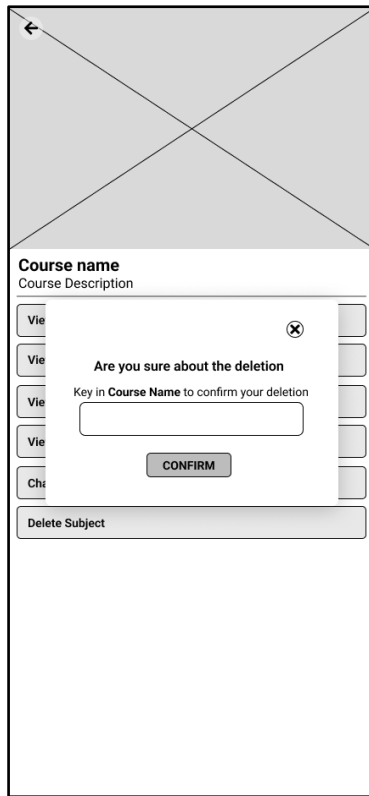


Figure 4.1.7.13.3 Wireframe design of tutor view subject page – 3

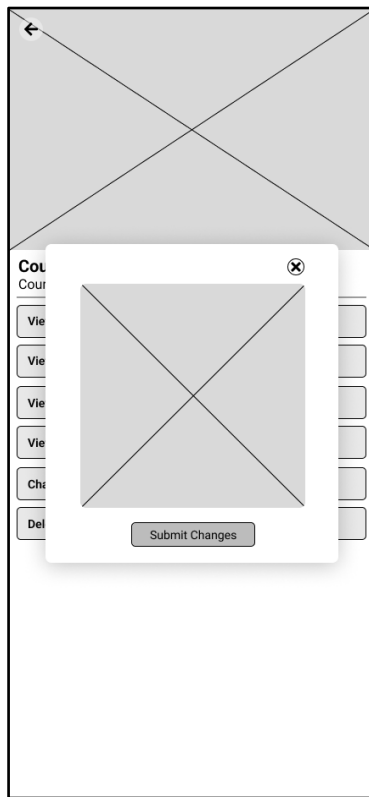
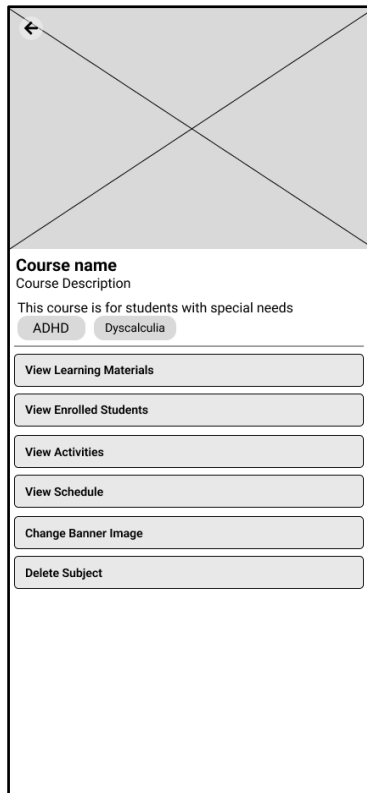
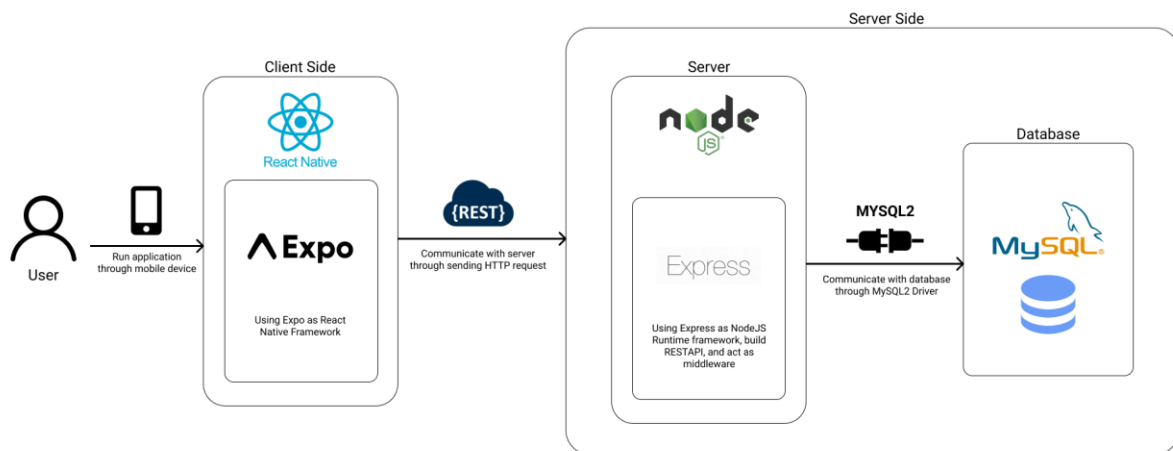


Figure 4.1.7.13.4 Wireframe design of tutor view subject page – 4



*Figure 4.1.7.13.5 Wireframe design of tutor view subject page (with special needs)*

## 4.2 System Architecture Design



*Figure 4.2.1 System architecture design of online private tuition system*

Starting from the user, the application is run on mobile device with user interface implemented through React Native. Within the client side of the application, Expo is used to build on top of the React Native codebase as a framework, in which fasten the development and reduce the need of developing native code to support some specifically required function.

The database is run on MySQL, every data is stored within the database and be used for processing any CRUD operation. The server is written with NodeJS server runtime framework with the use of ExpressJS as the framework in enhancing the development experience. The communication between the server and database is through an open-source driver called MySQL2.

At last, RestAPI is built with ExpressJS to enable the communication between the client and server.

### 4.3 Entity Relationship Diagram (ERD)

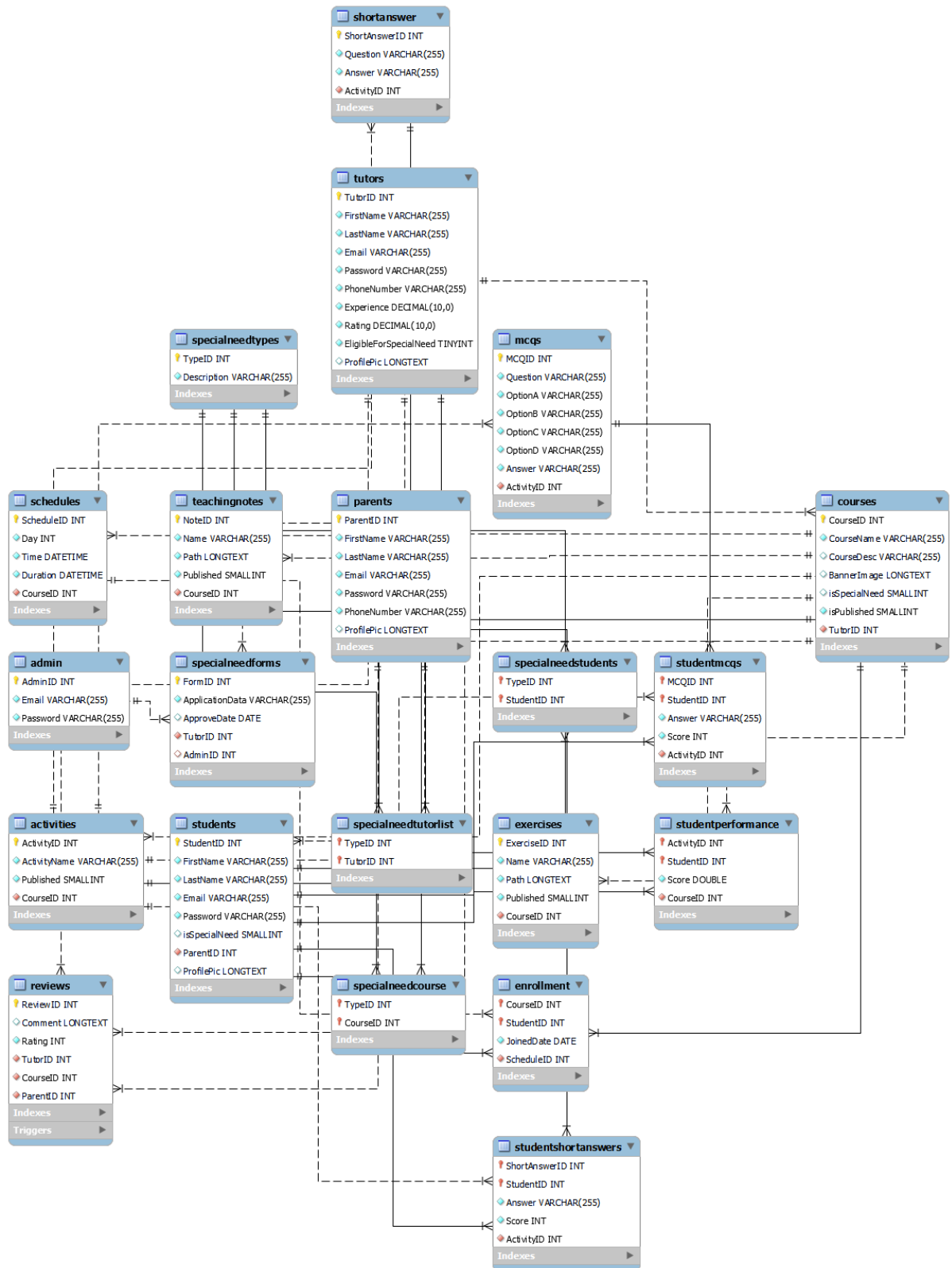


Figure 4.3.1 Entity Relationship Diagram of online private tuition system

The figure shows the Entity Relationship Diagram of the system, it is generated by MySQL workbench according to the database created.

There are four types of users which each of them will have their own table retaining their own information. Starting with the activities, each activity will have their own questions which are mcqs and shortanswer. When the tutor adds new activities, all the data will be stored into the mcqs and shortanswers. Then students will be able to access the activities with all the questions at the client side. Then once the students completed answering the activity, each of their answers will be stored in studentmcq and studentshortanswer as a record then use it to compute marks and store into studentperfromance. To allow file uploads and download, all the file path to the uploaded files is stored into each corresponding table such as teachingnotes, exercises, and profilepic in all user types. Then, all uploaded courses will be stored in courses and parents, tutors, and students will be able to use it. To allow the tutors to have teaching eligibility in multiple different special need types, each tutor that applied will be linked to a specialneedtutorlist and same goes to courses in which tied to the types that they are configured by the tutors.

# Chapter 5 System Implementation

## 5.1 Hardware Setup

The hardware used in the implementation of the project is a computer which is stated in Table 3.1.1.1, and an android mobile phone. The computer is used to develop the software and act as a server to host the backend services.

Table 5.1.1 Specifications of Android Mobile Phone

Description	Specification
Model	Realme GT Neo 2
Processor	Qualcomm SM8250-AC Snapdragon 870 5G
Operating System	Android 11, Realme UI 2.0
Memory	8GB
Storage	256GB

## 5.2 Software Setup

Due to the nature of development with Expo, development with physical phone require tunnel connection. By this, local server would not be reachable when using IP address such as localhost or 127.0.0.1, nor device's local IP address. Therefore, Ngrok comes into play as it will be used to host the Express server and the client application will be getting and posting data through the Ngrok server. Another software that is used during the development is VSCode which is the primary IDE in coding the React Native application.

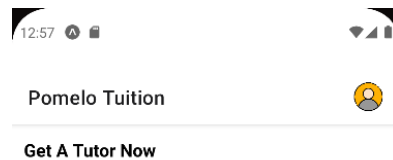
## 5.3 Setting and Configuration

In the real world, server would always be up and running with a static IP address, allowing all client to always connect to the server IP. Even if the server is down, there will still be some backup server act as a fallback service where their IP address will also be either coded into the program or configured to the server network to route the client.

But in our case, the server IP will need to be changed every time if the Ngrok server is closed. This is purely due to the reason stated before, tunnelling has made this a required step as to simulate a real server running. Then with the Ngrok server up and running, the server IP will then be pasted to the environment variable of the Expo application before starting Expo.

## 5.4 System Operation

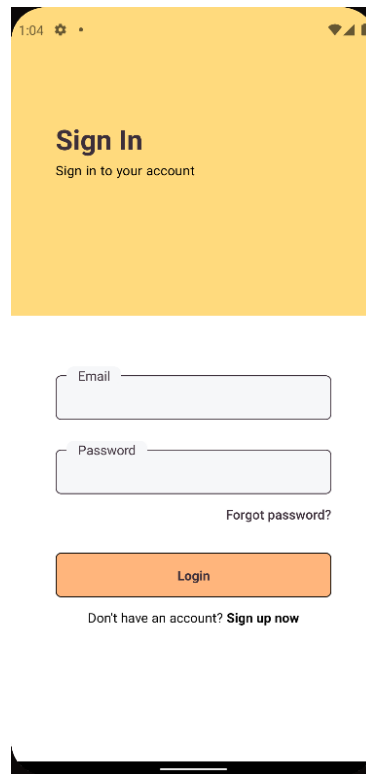
The online private tuition is named “Pomelo Tuition”. The theme of the application is to be cheerful and joyful. The software showcase will start in a fresh application state, where there will be no data in the system nor database.



*Figure 5.4.1 Screenshot of a fresh new system*

The system will be started through showcasing three main user types which are Tutors, Parents, and Students. Admin will be covered when we get to application for teaching students with special need later. We will start with creating four users, one tutor, one parent, and two students.

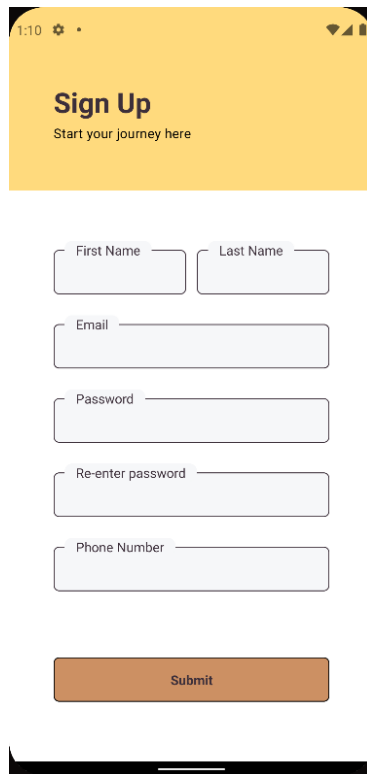
## 5.4.1 Authentication



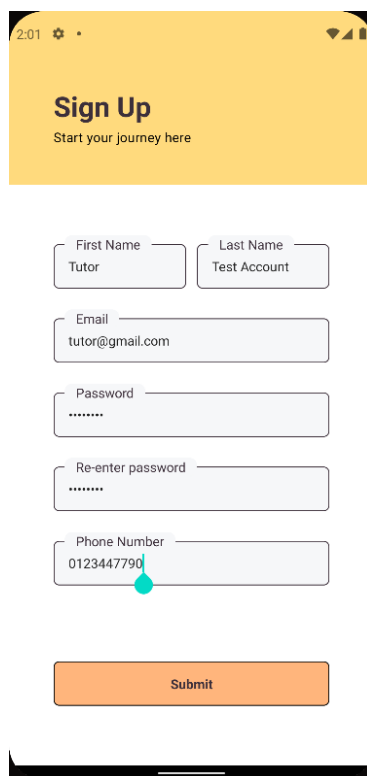
*Figure 5.4.1.1 Screenshot of sign in page of the application*

If the user does not have an account in the system, user can press on the **Sign up now** text to be redirected to the sign up page. Once pressed, the user will be redirected to the sign-up page which consist of two forms. The first form will be the basic information that will be required to fill in, while the second form will be an interface for them to upload a profile picture and select the desire user type to be registered.



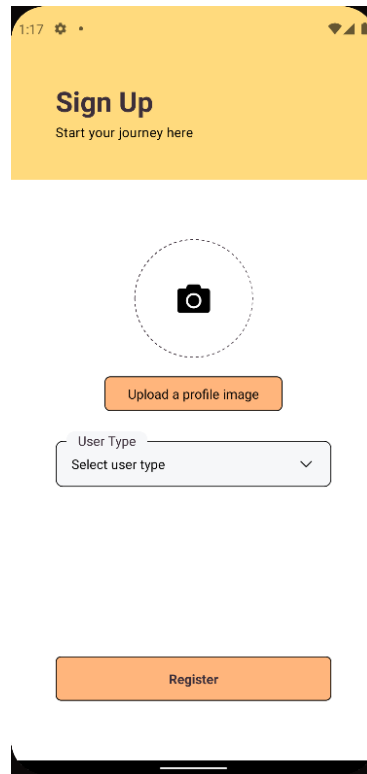


*Figure 5.4.1.2 Screenshot of Sign-up page (Form one)*



*Figure 5.4.1.3 Screenshot of Sign-up page (Form one – Filled)*

The user will not be able to submit the form without entering all the required information, as the button has been disabled and greyed out. In figure 5.4.1.3, the submit button is no longer grayed out and shows the first section is completed and allowed to proceed. Then application will ask the user to submit a profile picture and select the user type to be registered.



*Figure 5.4.1.4 Screenshot of Sign-up page (Form two)*

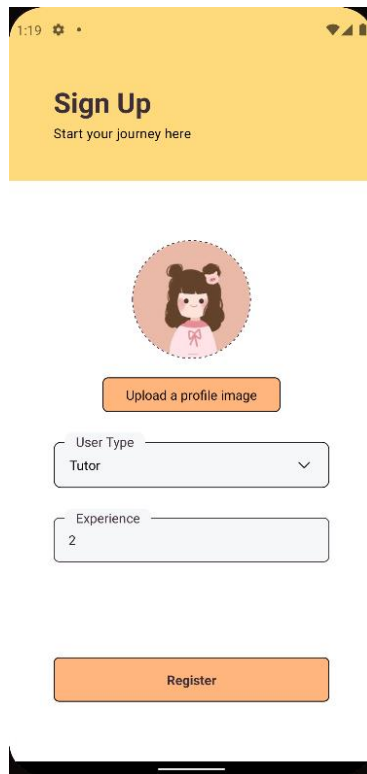


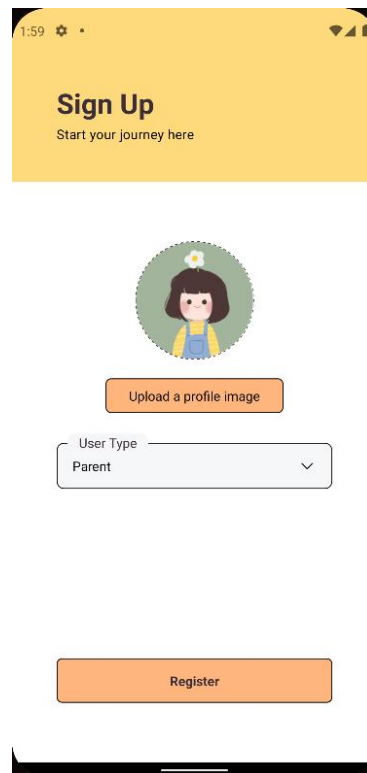
Figure 5.4.1.5 Screenshot of Sign-up page (Form Two – Filled)

Once the user press on the Register button, the user will be redirected to the corresponding home page for each user type. The first user created is tutor and it will be redirected to the Tutor Home Page.



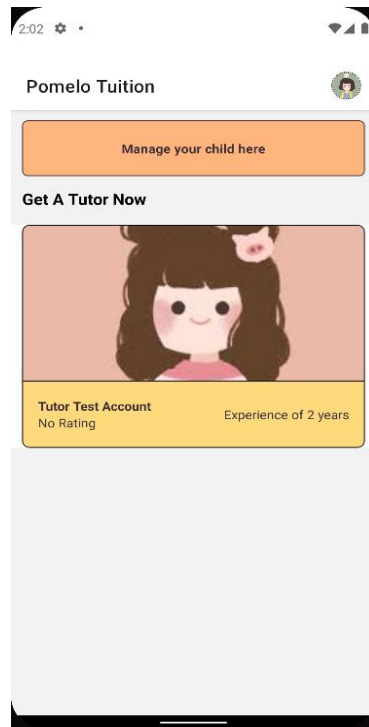
Figure 5.4.1.6 Screenshot of tutor home page once signed up

Then we will move the focus to create a user account of Parent type. The procedure in registering an account will be the same for both Tutor and Parent as both shares the same login and register page. Skipping forward to the second form after filling out all the required information in the first form.



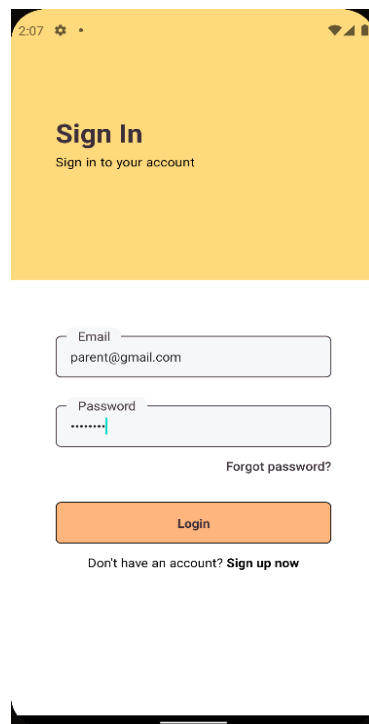
*Figure 5.4.1.6 Screenshot of selecting user type of parent*

After pressed on the Register button, the user will be redirected to the Parent Home Page which showcases the list of available tutors in the system.



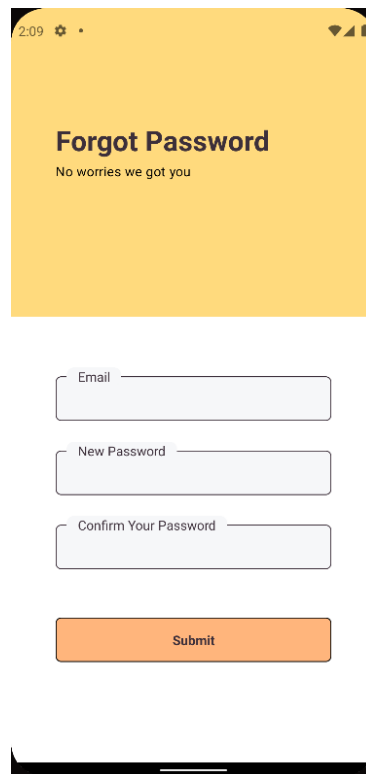
*Figure 5.4.1.7 Screenshot of Parent Home Page screen*

After two of the account are created, the user can login to their account through the sign in page shown in figure 5.4.1.1. In the figure below showcasing the parent account created earlier logging into the system.



*Figure 5.4.1.8 Screenshot of user logging into the system*

The system also allows users to change their password if they forgot their password. The user can press on the forgot password to change their password.



*Figure 5.4.1.9 Screenshot of forgot password page*

## **5.4.2 Tutor Module**

As stated, we will start from tutor modules. When tutor first logging into the system, the user will need to create a new subject as listing through the add new subject button. The tutor will then need to fill out the Basic Details section and arrange the subject's schedules. After filling out the first two sections, there are two additional sections that allow the tutor to upload three different types of files, a Banner Image, unlimited amount of Teaching Notes and Exercises.

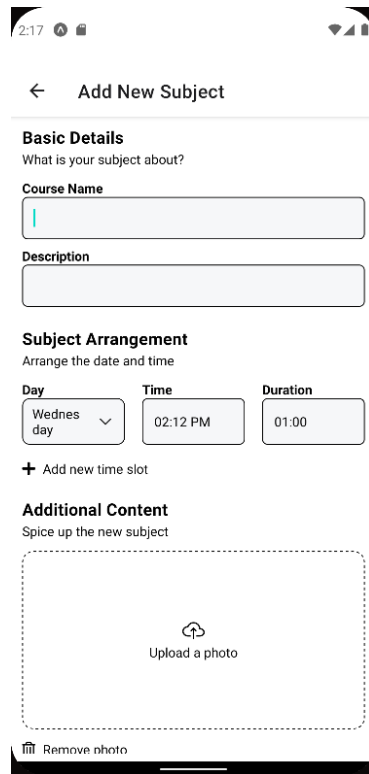


Figure 5.4.2.1 Screenshot of Add New Subject page

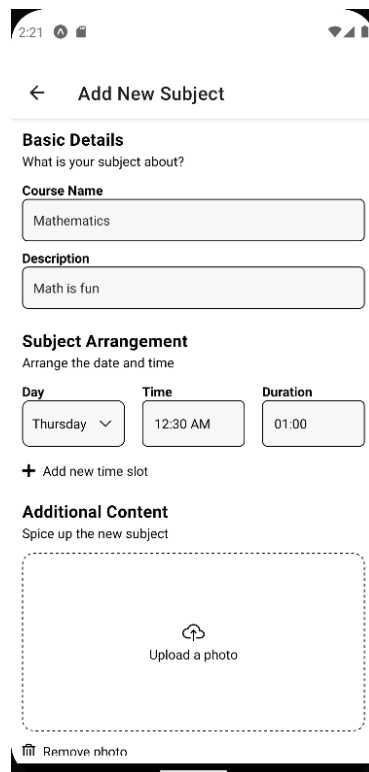


Figure 5.4.2.2 Screenshot of Add New Subject page (Filled)

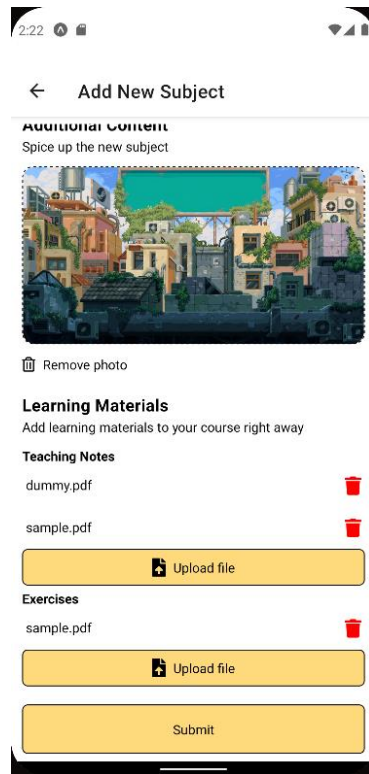


Figure 5.4.2.3 Screenshot of Add New Subject page (Additional Content – Filled)

Then the tutor can press submit once satisfied. A new subject will then be added into the database and every parent will be able to see it.



Figure 5.4.2.4 Screenshot of loading page when subject is submitting



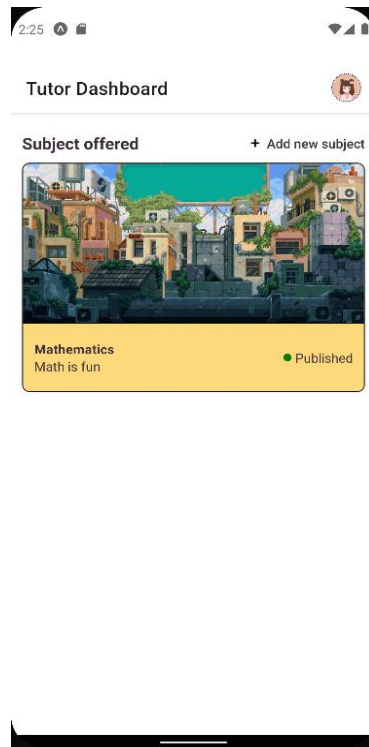


Figure 5.4.2.5 Screenshot of Tutor Home Page after submitting a subject

The tutor can then press on the subject added and perform action on the selected subject. Tutor can view the learning materials (Teaching Note and Exercises), view enrolled students, view activities, view schedules, change banner image, and delete subject.

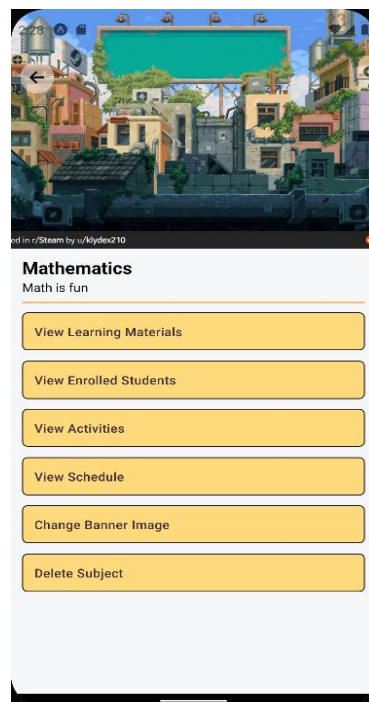


Figure 5.4.3.6 Screenshot of Subject Editing Page.

We will first start with managing the learning materials. Once tutor presses on the View Learning Material, there will be a list of files shown to the tutor, in which with the file type shown on the header of the list, list of filenames that you have downloaded, and the publish status of the learning materials.

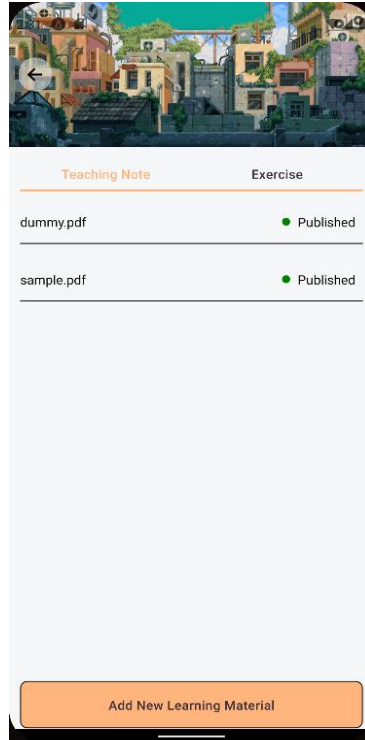


Figure 5.4.2.7 Screenshot of View Learning Material Page (Teaching Note)

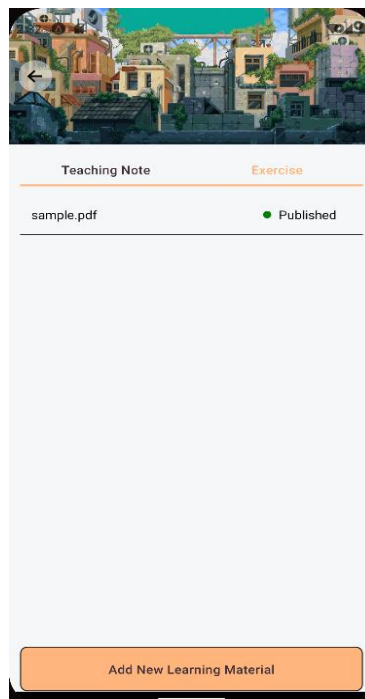


Figure 5.4.2.8 Screenshot of the View Learning Material Page (Exercise)

To change the state of the uploaded files, tutor can simply press on the Published or Not Published to change the availability of the files.



*Figure 5.4.2.9 Screenshot of the View Learning Material with a hidden special need.*

Tutor can also add new learning materials into the system by pressing on the Add New Learning Material button. Then the user can upload files to the server with uploads of different learning material types simultaneously.

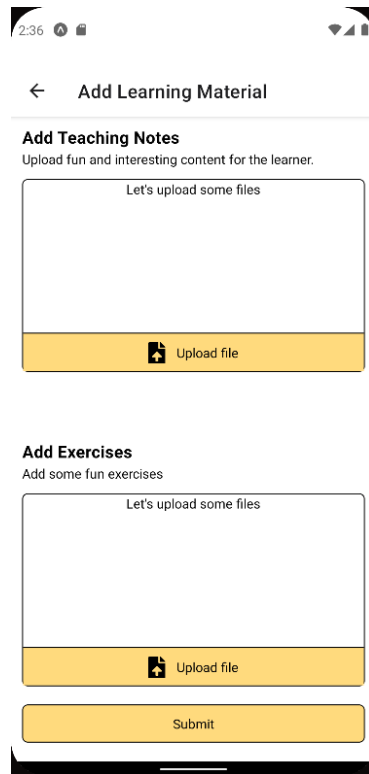


Figure 5.4.2.10 Screenshot of Add Learning Materials page

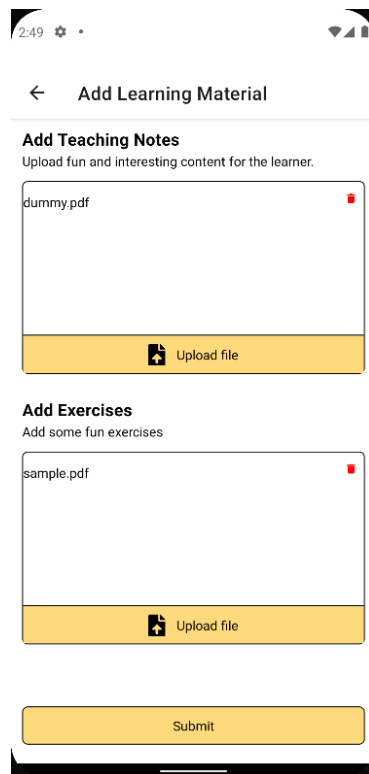


Figure 5.4.2.11 Screenshot of Add Learning Materials page (File uploaded)

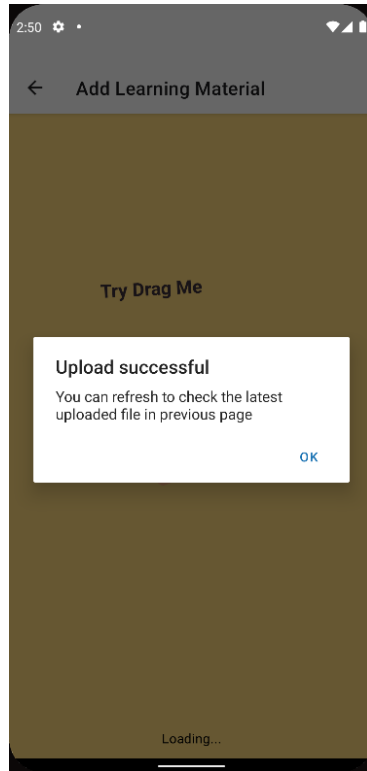


Figure 5.4.2.12 Screenshot of successful upload of new learning material

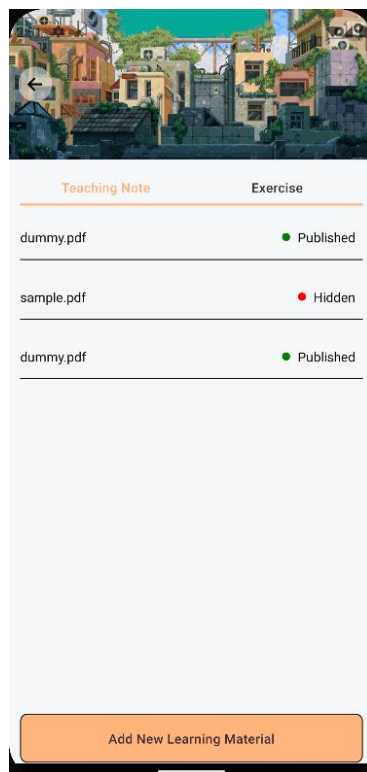
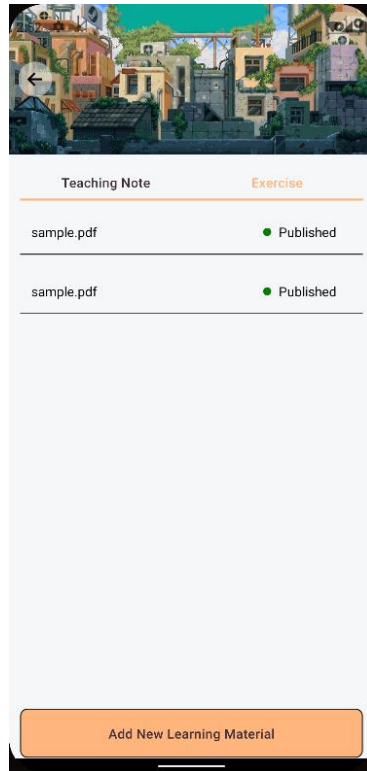
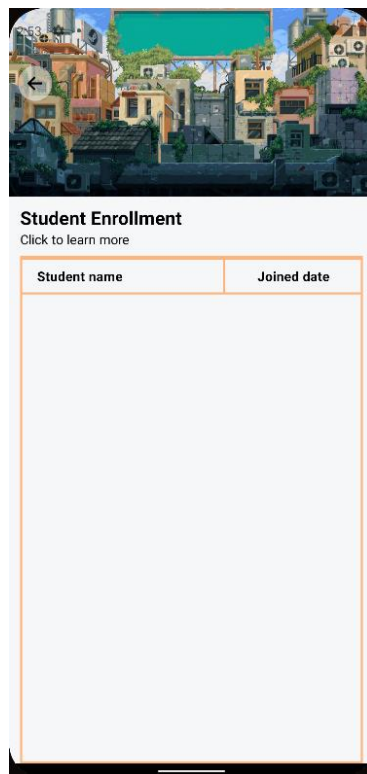


Figure 5.4.2.13 Screenshot of newly added learning material in Teaching note



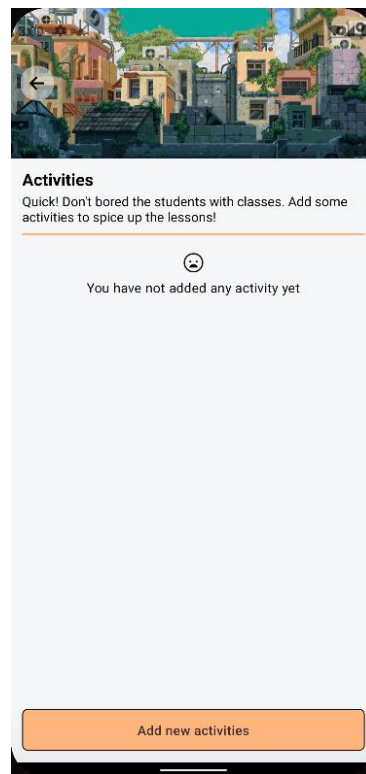
*Figure 5.4.2.14 Screenshot of newly added learning material in Exercise*

We will then look into the View Enrolled Student Page, which is currently empty due to no student are being enrolled to the system.



*Figure 5.4.2.15 Screenshot of Student Enrollment Page*

Then the tutor can proceed to the next function of the tutor management system, which is the View Activities button. Once pressed, the tutor will be redirected to the View Activities module for the system. Tutor able to view and manage the published activities into the database,



*Figure 5.4.2.16 Screenshot of View Activity page*

When user pressed on the add new activities button, the suer will be prompted to another screen to add new activities. The tutor will also need to fill in a name for the activity and add in questions out of all items.

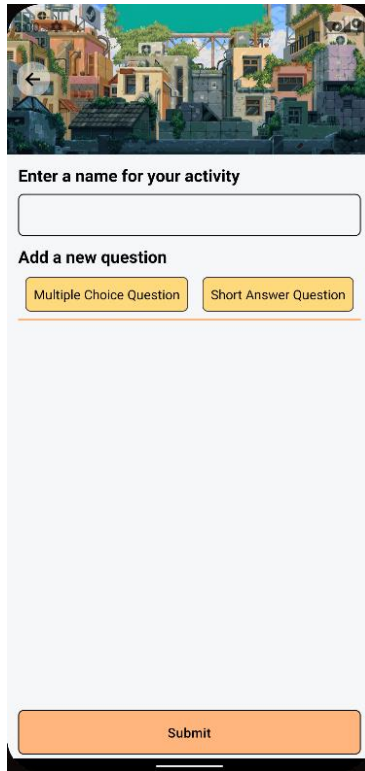


Figure 5.4.2.17 Screenshot of adding new activity

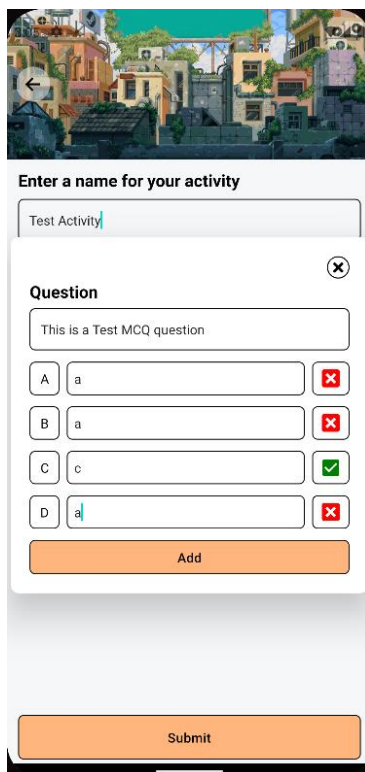


Figure 5.4.2.18 Screenshot of adding MCQ activity



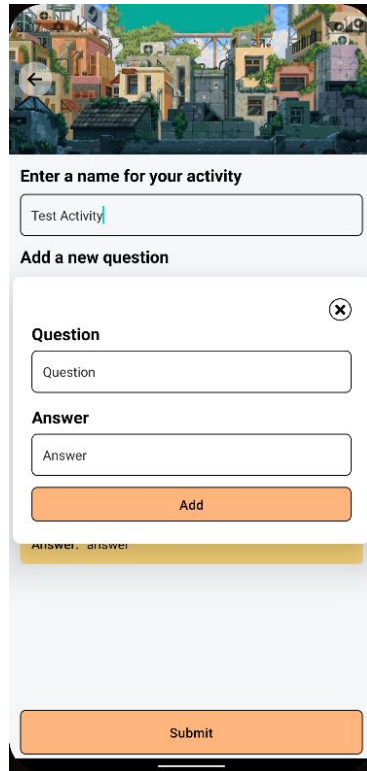


Figure 5.4.2.19 Screenshot of adding Short Answer question

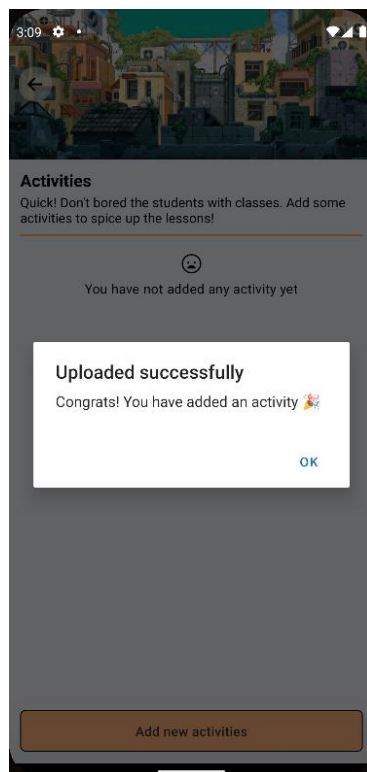


Figure 5.4.2.20 Screenshot of pop-up Alert to notify the activity is uploaded

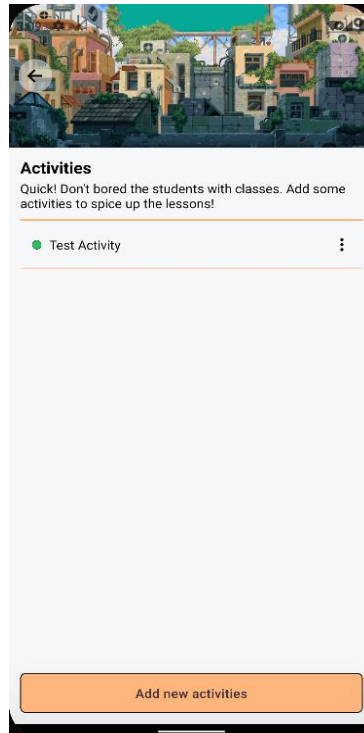


Figure 5.4.2.21 Screenshot of newly added activities

To edit the existing activities, tutor will need to press on the vertical three dot icon, the tutor can access more information and default action. Tutor can view the questions and edit the question; change publish status and delete the activity from the database.

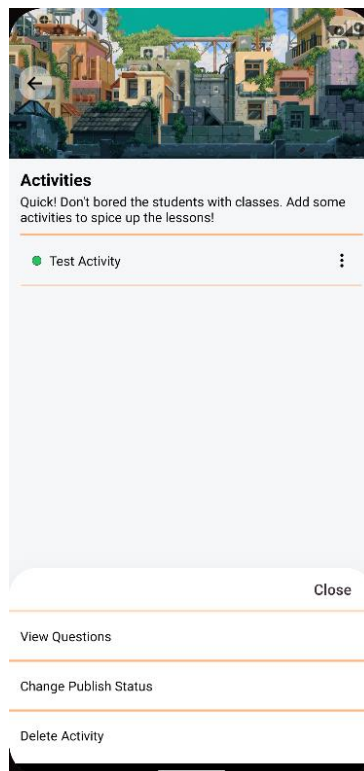


Figure 5.4.2.22 Screenshot of option menu shown

When getting into the activity page, tutors are given a list that separates MCQ questions and Short Answer questions.

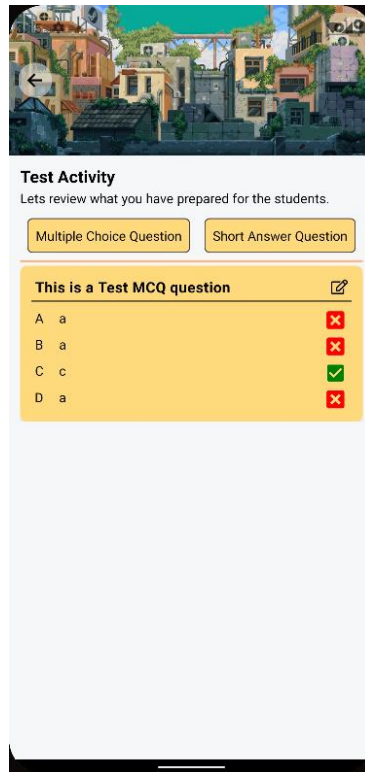


Figure 5.4.2.23 Screenshot of view activities page (MCQ)

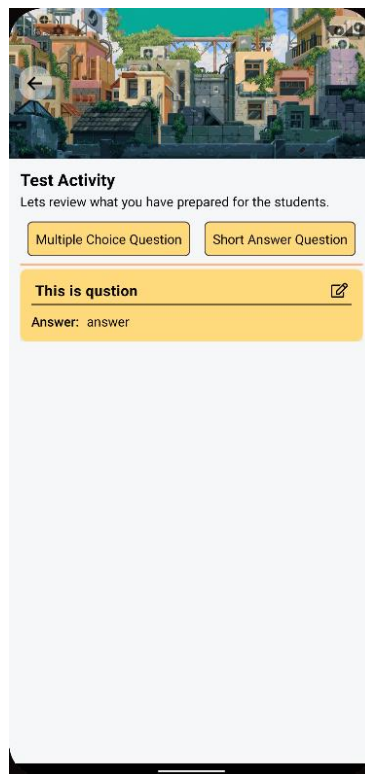


Figure 5.4.2.24 Screenshot of view activities page (Activity)

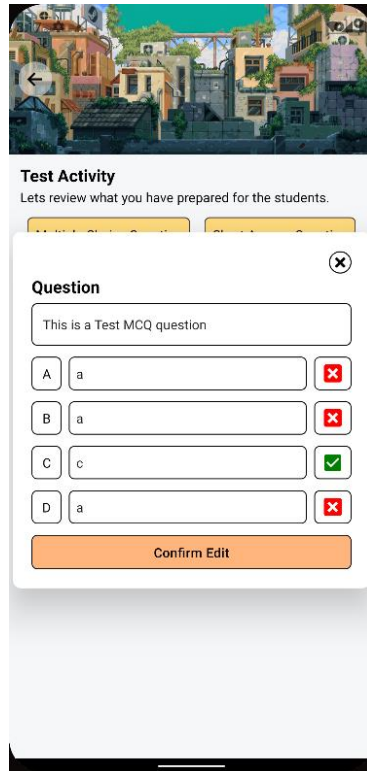


Figure 5.4.2.25 Screenshot of edit MCQ question

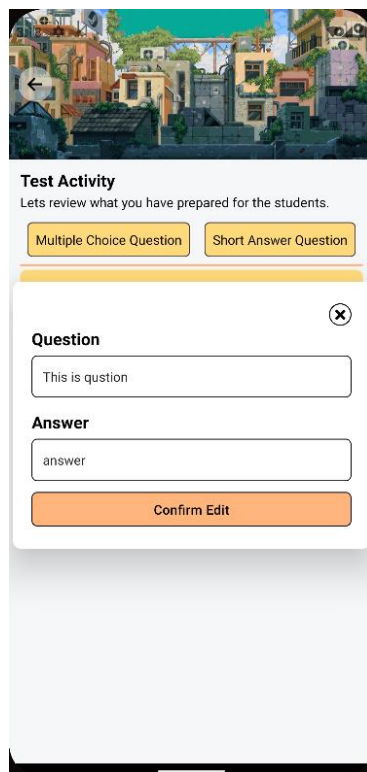
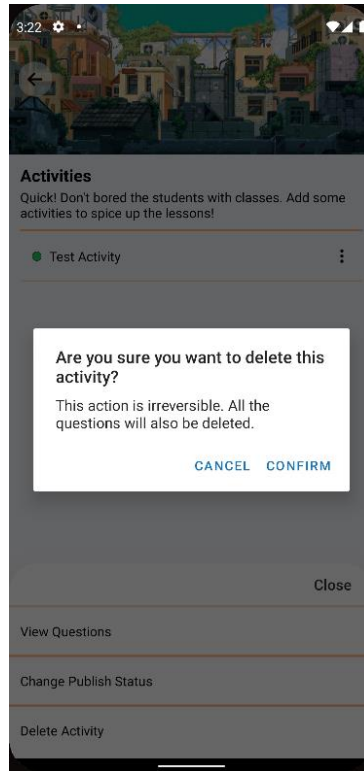


Figure 5.4.2.26 Screenshot of edit Short Answer Question

If the tutor decided to take down the published activities, the system will ask for the double confirmation on the action.



*Figure 5.4.2.27 The pop-up alert asking for double confirm*

In View Schedule, there will be a calendar and an agenda list that shows all the schedules in 12 weeks future so that the user can get a grasp on the day and time for each class. The tutor also can add a new schedule through pressing on add new schedule button.

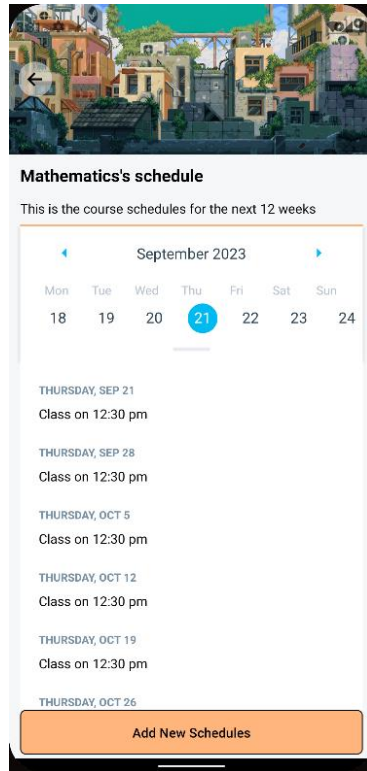


Figure 5.4.2.28 Screenshot of View Schedule Page

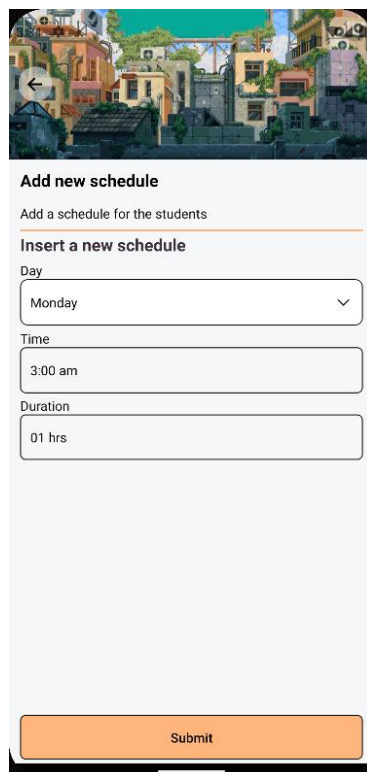
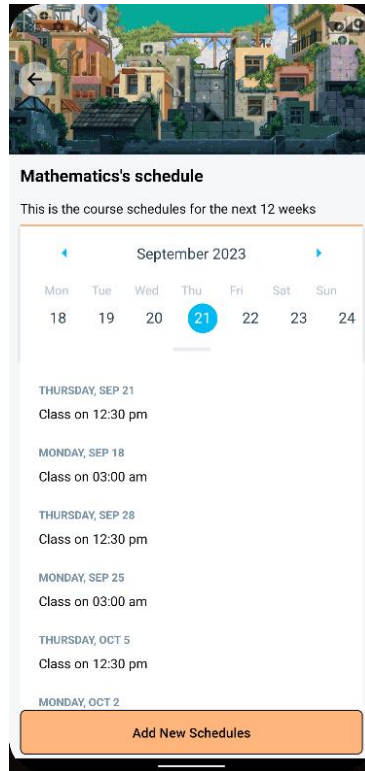
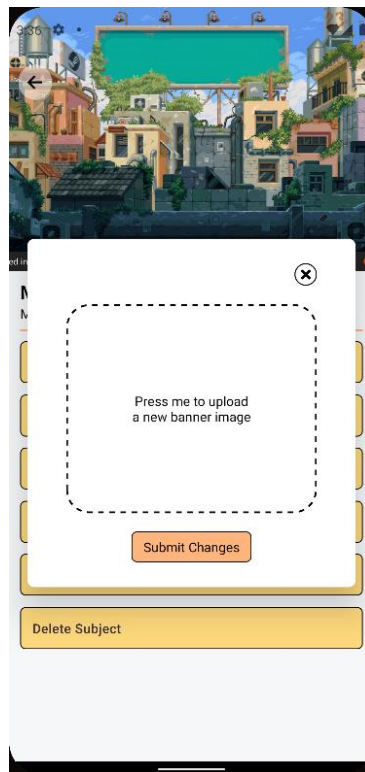


Figure 5.4.2.29 Screenshot of Add New Schedules



*Figure 5.4.2.30 Screenshot of newly added schedules in View Schedule*

The tutor also can change the banner image through Change Banner Image button.



*Figure 5.4.2.31 Screenshot of change banner image pop-up*

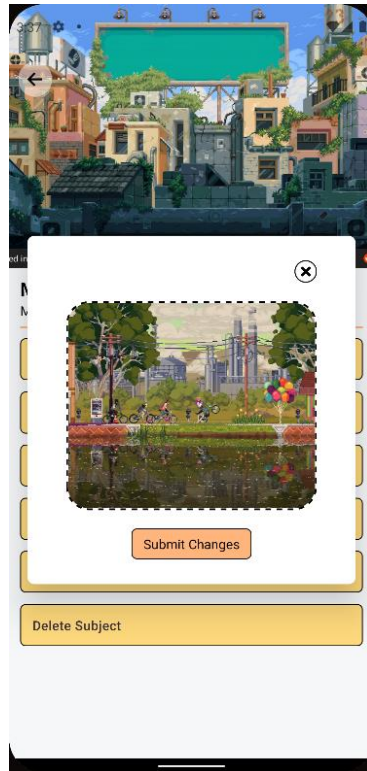


Figure 5.4.2.32 Screenshot of banner image uploaded

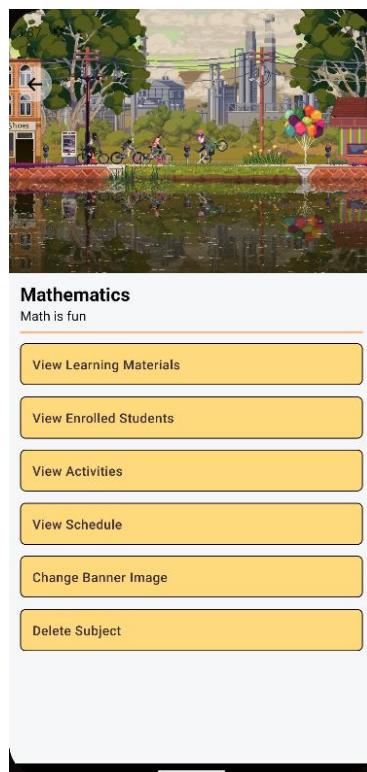


Figure 5.4.2.33 Screenshot of changes of banner image.

At the end of the button list, the tutor can delete the subject from database



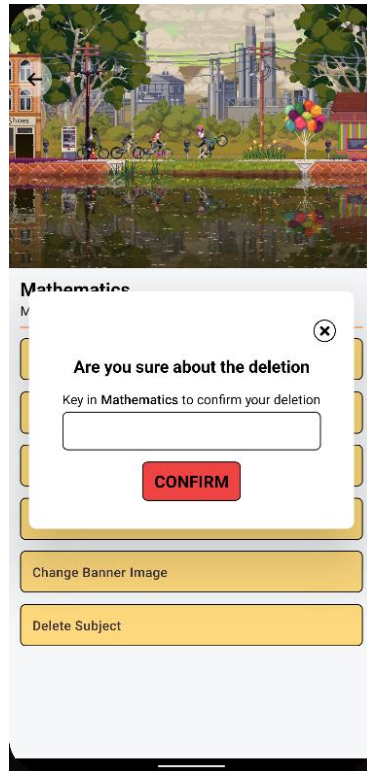


Figure 5.4.2.34 Screenshot of delete pop-up

After all the modules within the subject editing page, we will then move forward to the additional items in setting for tutors. Tutors are given a choice to apply for teaching special needs, in which will need to be applied through the setting page.

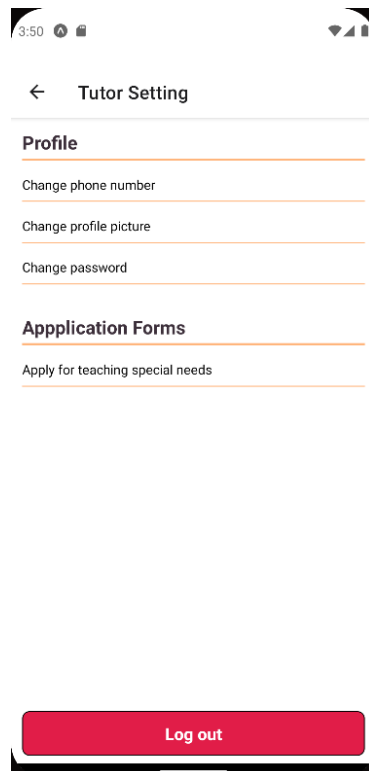


Figure 5.4.2.35 Screenshot of Tutor Setting Page

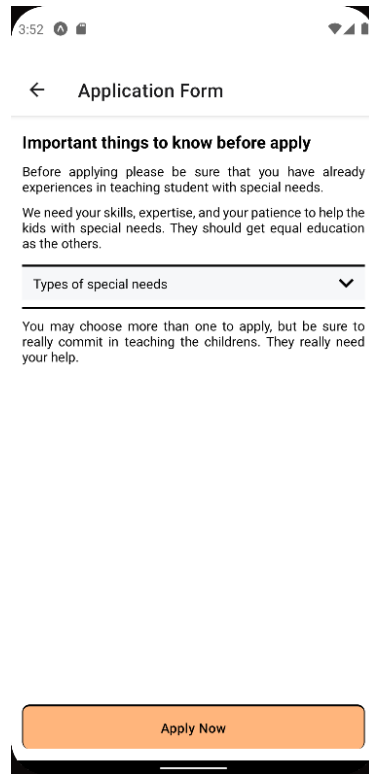


Figure 5.4.2.36 Screenshot of Application Form Page

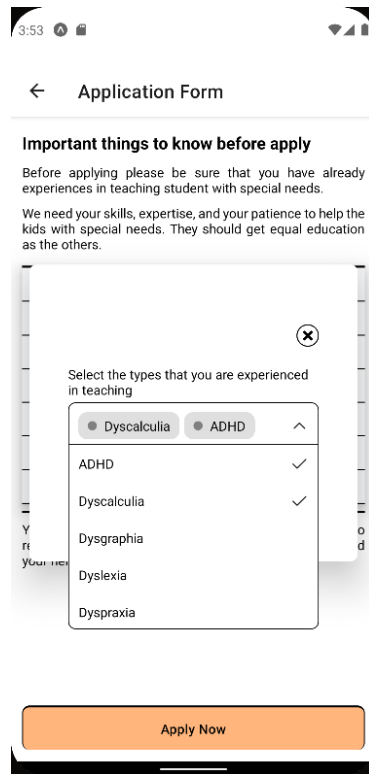
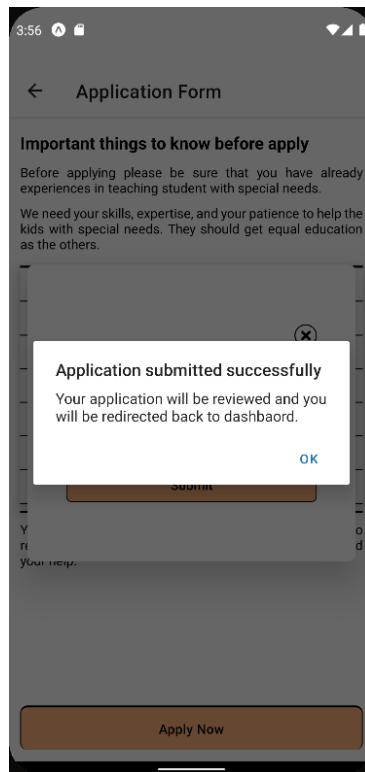


Figure 5.4.2.37 Screenshot of Application Form Page (Selecting types)



*Figure 5.4.2.38 Screenshot of application is submitted.*

### **5.4.3 Parent**

Before getting started into in the parent module, student account needs to be created to allow smooth showcase through in the parent module. Note that the student account can only be created by parents. To create a student account, parent need to navigate to manage children by pressing on Manage your child here button or through the manage children option in setting.

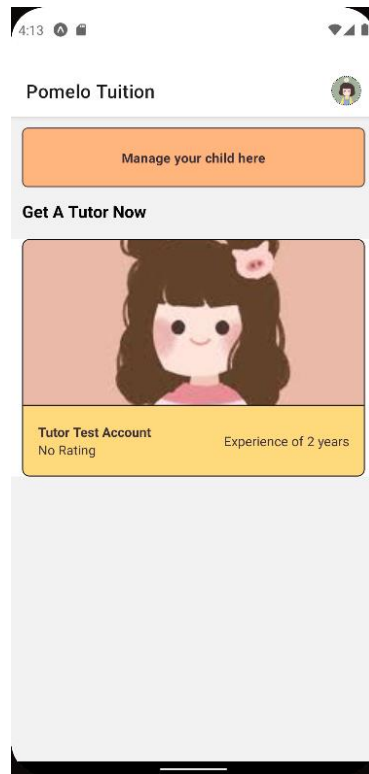


Figure 5.4.3.1 Screenshot of Parent Home Page

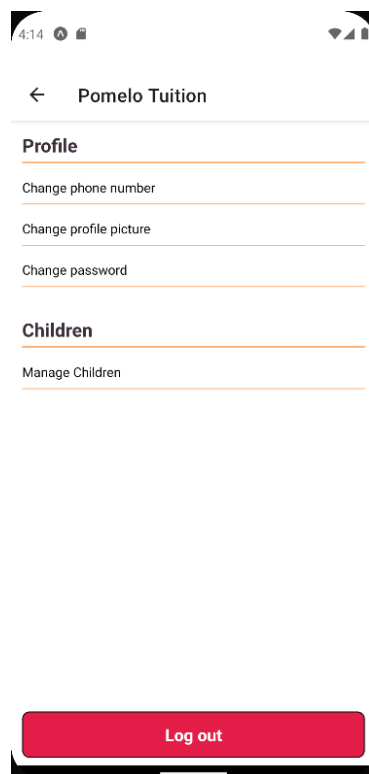
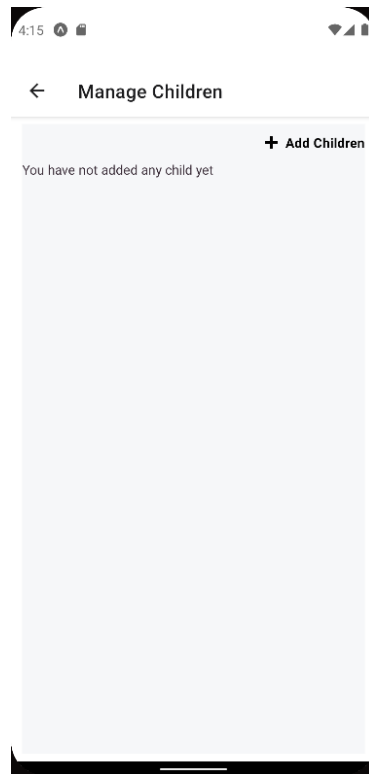
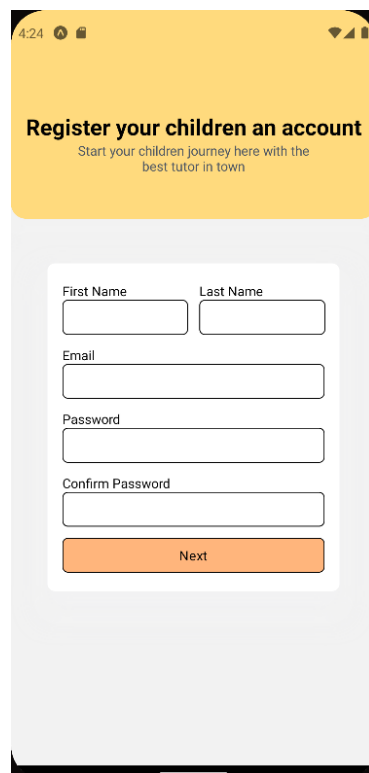


Figure 5.4.3.2 Screenshot of Parent Setting Page

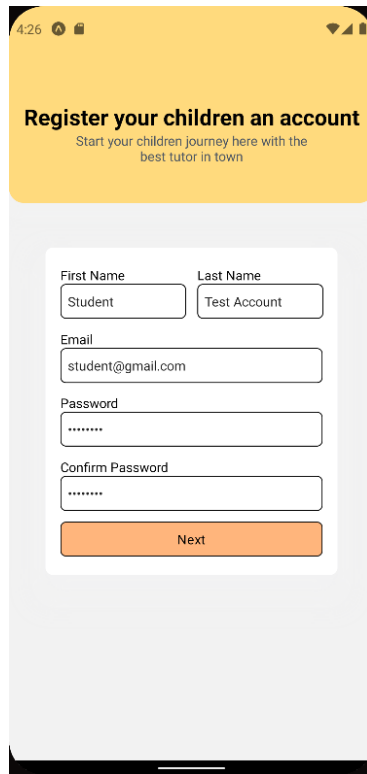


*Figure 5.4.3.3 Screenshot of Manage Children Page*

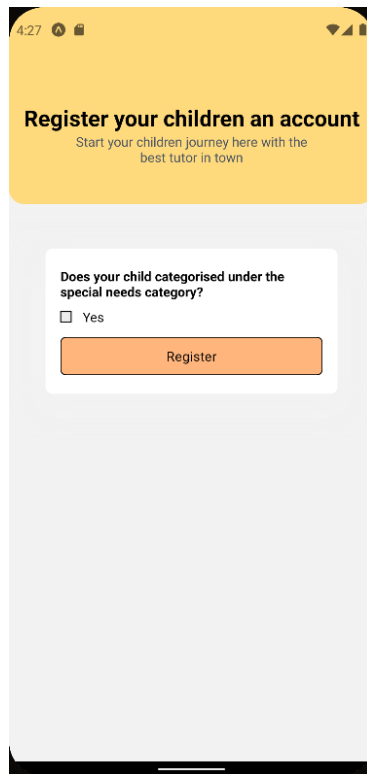
Then parent will need to press on the add children to register a new child. The registration form is essentially the same as in the Authentication module provided, and the only difference is the UI.



*Figure 5.4.3.4 Screenshot of Children Register Page*



*Figure 5.4.3.5 Screenshot of Children Register Page (Form One - Filled)*



*Figure 5.4.3.6 Screenshot of Children Register Page (Form Two – No Special Needs)*

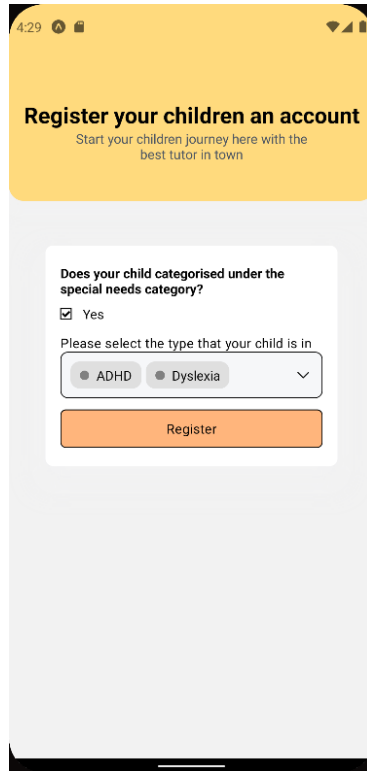


Figure 5.4.3.7 Screenshot of Children Register Page (Form Two – Filled)

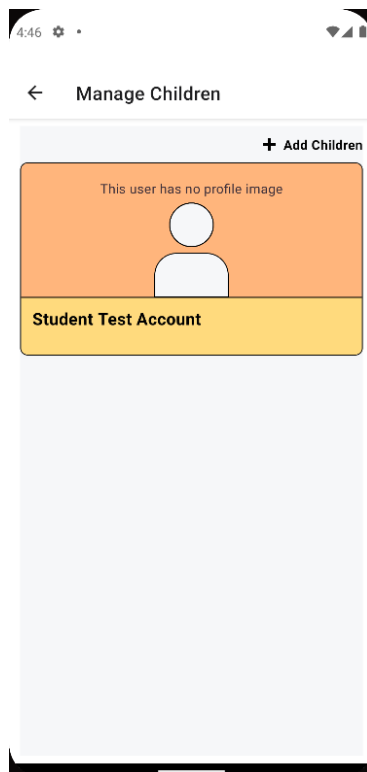


Figure 5.4.3.8 Screenshot of Manage Children Page after registering a children account

With the student account created, parent can go back to the home screen and start looking for any desired tutors to be selected. Once the desired tutor is selected, the system shows the tutor profile with the offered courses and reviews by the other parents.

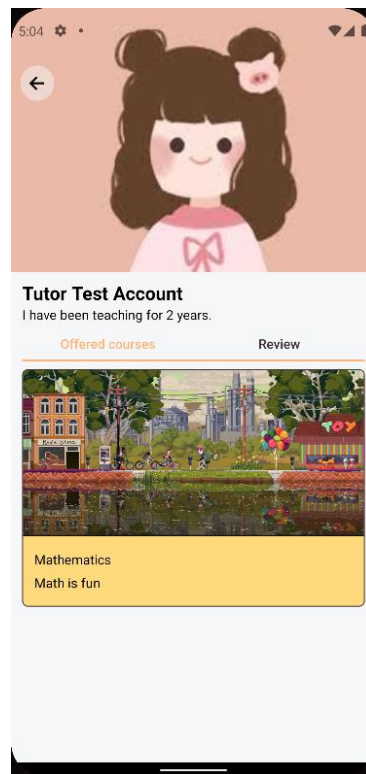


Figure 5.4.3.9 Screenshot of tutor profile with offered courses

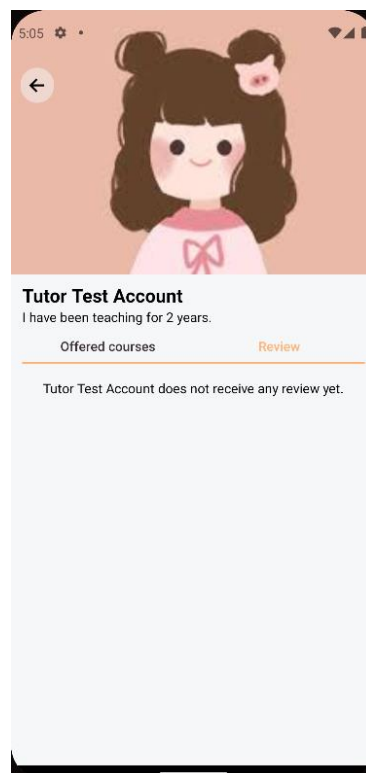


Figure 5.4.3.10 Screenshot of tutor profile with review



To enroll children into a course, parent can press on the course that desired to apply and select the children, and schedule to apply.

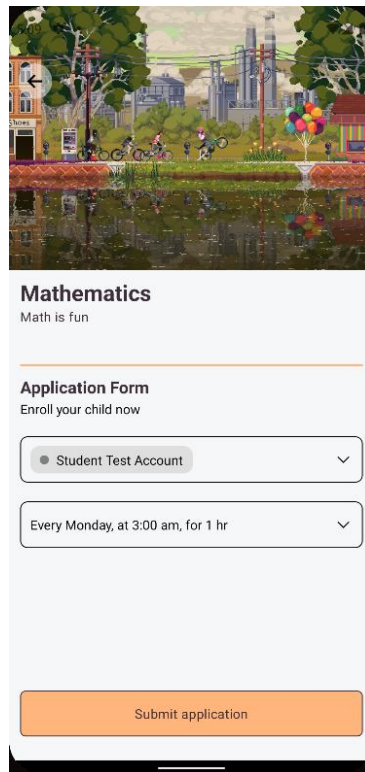


Figure 5.4.3.11 Screenshot of applying courses

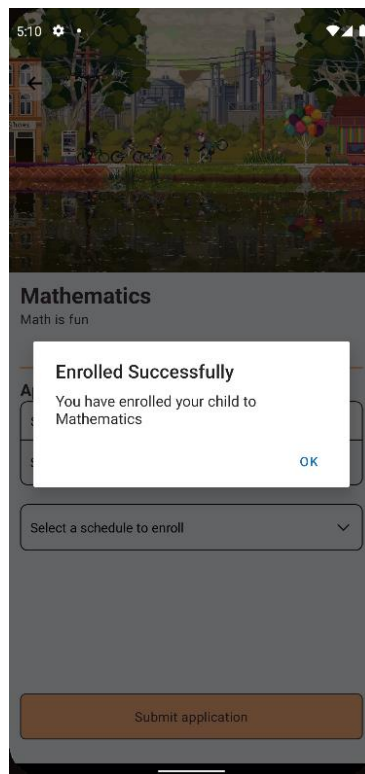


Figure 5.4.3.12 Screenshot of enrollment alert after applied.

Then the parent can view the children enrolled course in the Children management system.

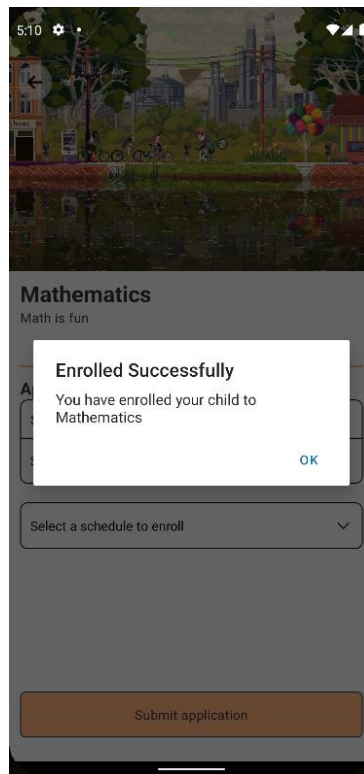


Figure 5.4.3.12 Screenshot of enrollment alert after applied.

Then the parent can view the children enrolled course in the system.

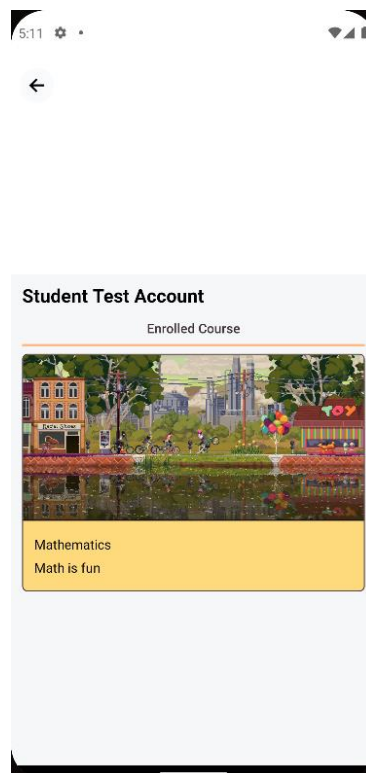
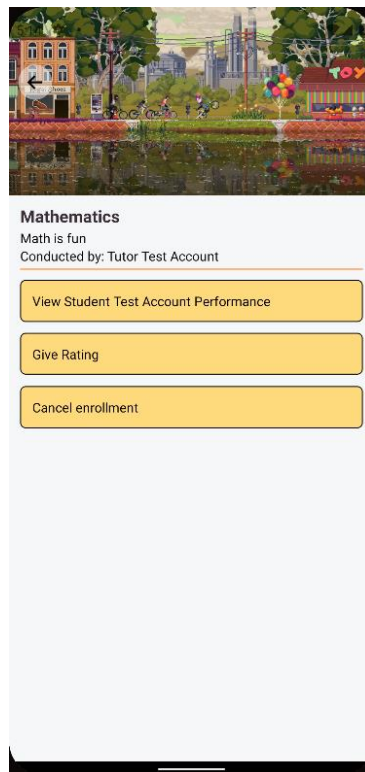
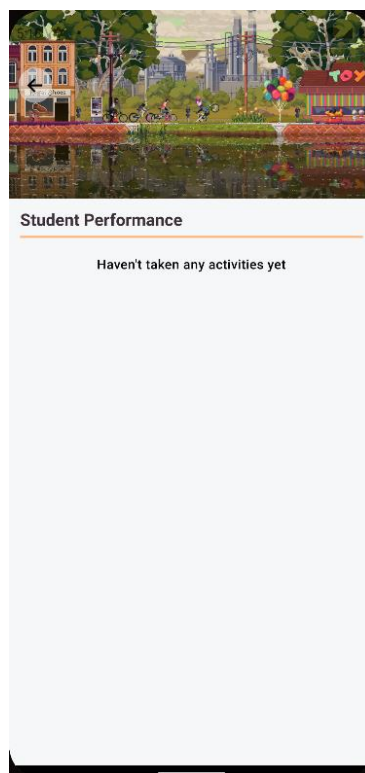


Figure 5.4.3.13 Screenshot of children enrolled course

Parent can press on each enrolled course to view student performances in the course, give rating to the course and cancel enrollment.



*Figure 5.4.3.14 Screenshot of parent management system*



*Figure 5.4.3.15 Screenshot of view children performance*

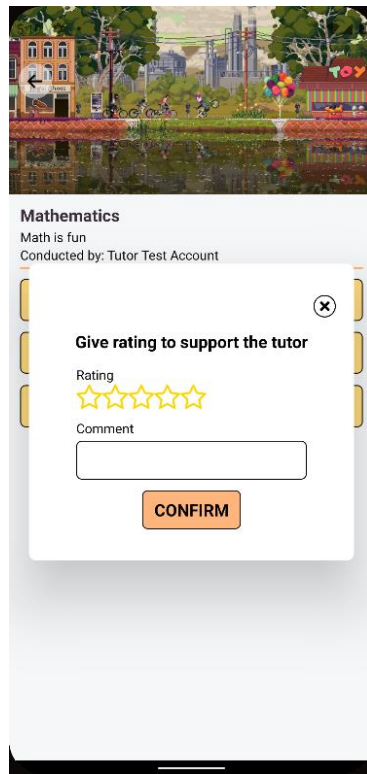


Figure 5.4.3.16 Screenshot of rating modal in give rating

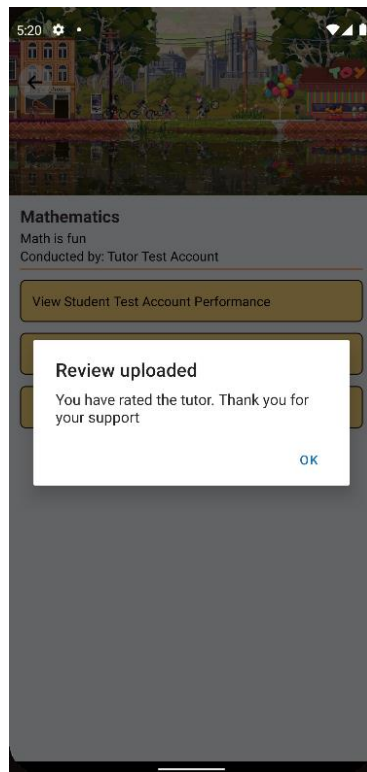


Figure 5.4.3.17 Screenshot of review uploaded successfully.

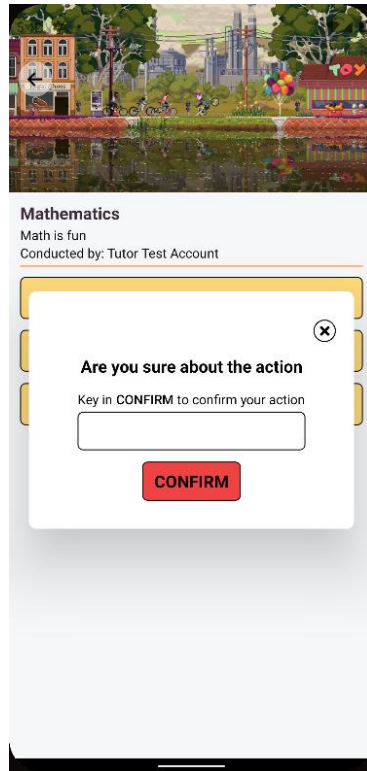


Figure 5.4.3.18 Screenshot of enrollment cancellation

#### 5.4.4 Student

After student getting enrolled by parent account, students will be able to see a list of enrolled courses in the home screen.

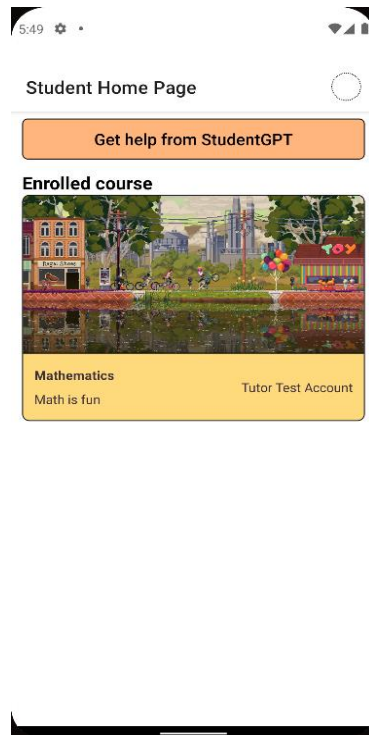
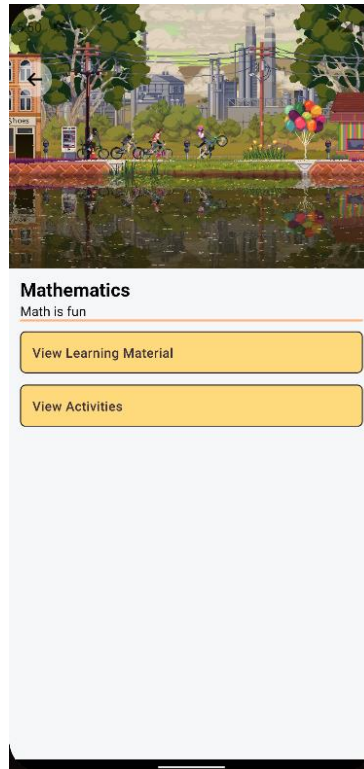


Figure 5.4.4.1 Screenshot of Student Home Page

Starting off, we will look into the action that can be done when pressing on each course, student will get to view the learning materials uploaded by the tutors, and activities created by the tutors.



*Figure 5.4.4.2 Screenshot of the selected course to be view*

When pressing on view learning material, students get to view all materials that have been uploaded by the tutors and student can selectively download them into the local devices.

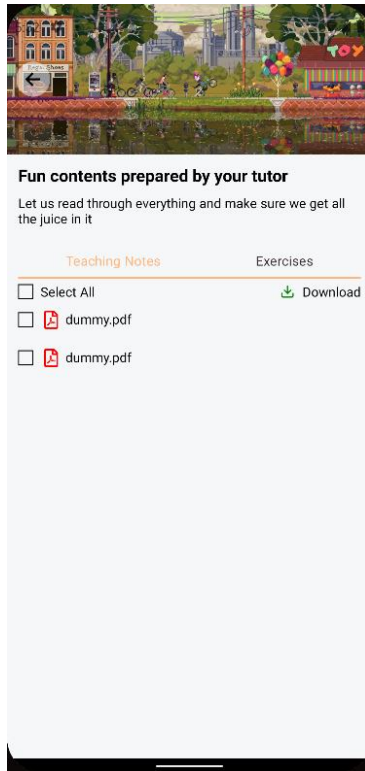


Figure 5.4.4.3 Screenshot of the learning materials (Teaching Note)

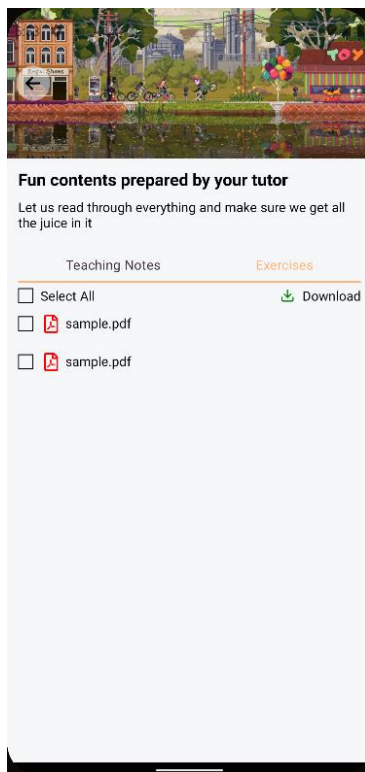


Figure 5.4.4.4 Screenshot of the learning materials (Exercises)

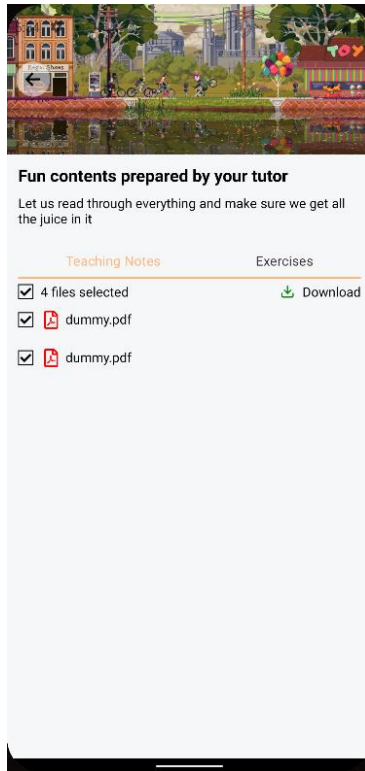


Figure 5.4.4.5 Screenshot of selecting all learning materials to be downloaded

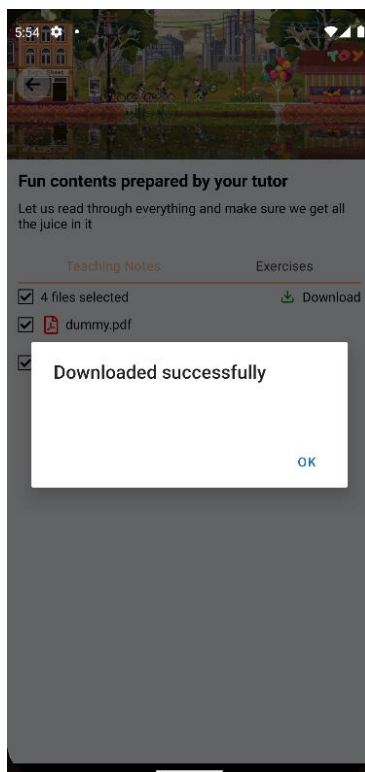


Figure 5.4.4.6 Screenshot of download completed message



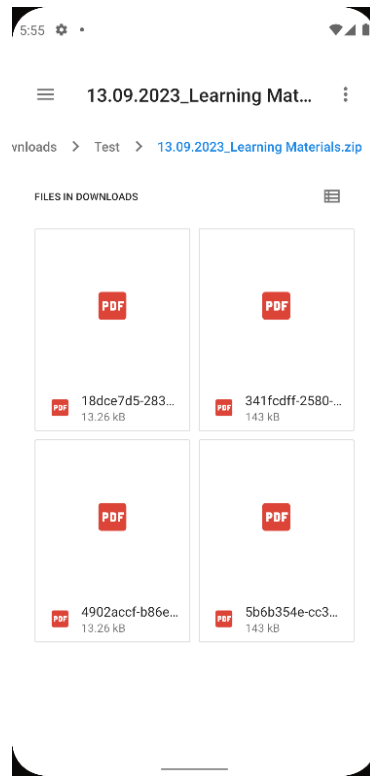


Figure 5.4.4.7 Screenshot of files zipped when downloaded

Besides from viewing learning materials, activities posted by tutors can be tackled by the students and marks will be automatically computed once its finished answering.

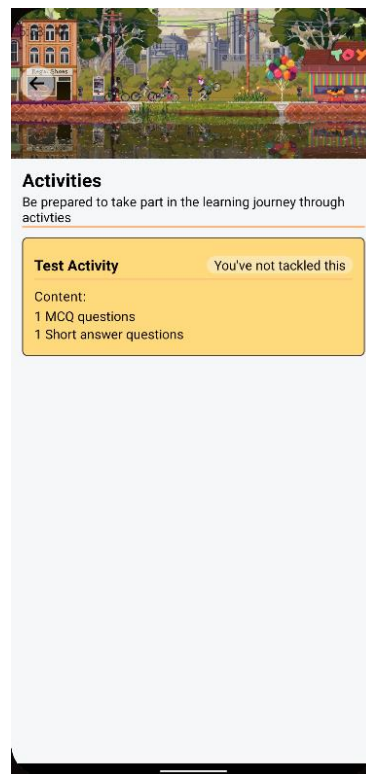


Figure 5.4.4.8 Screenshot of view activities modules

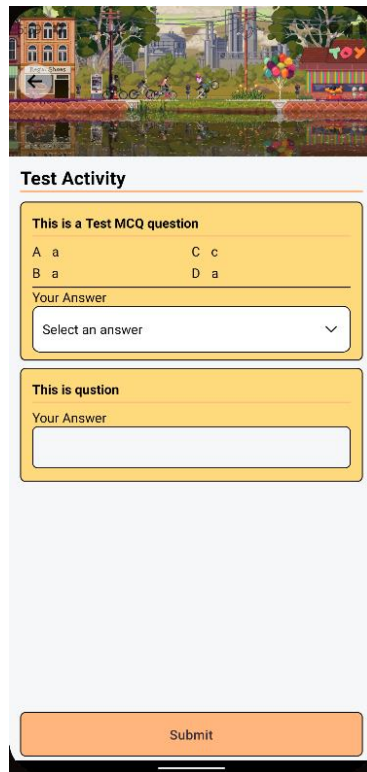


Figure 5.4.4.9 Screenshot of questions given by tutors.

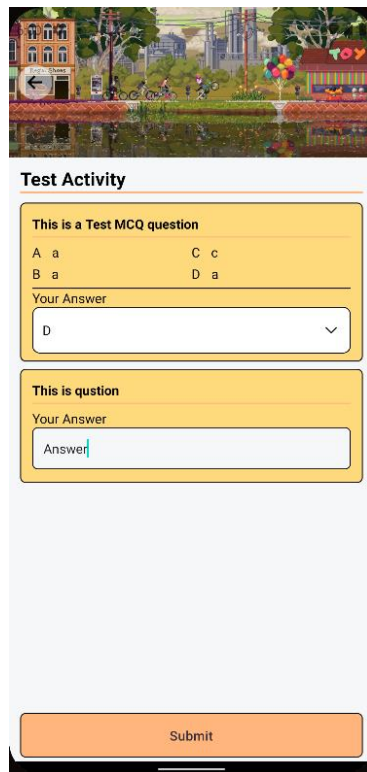


Figure 5.4.4.10 Screenshot of student answering the questions.

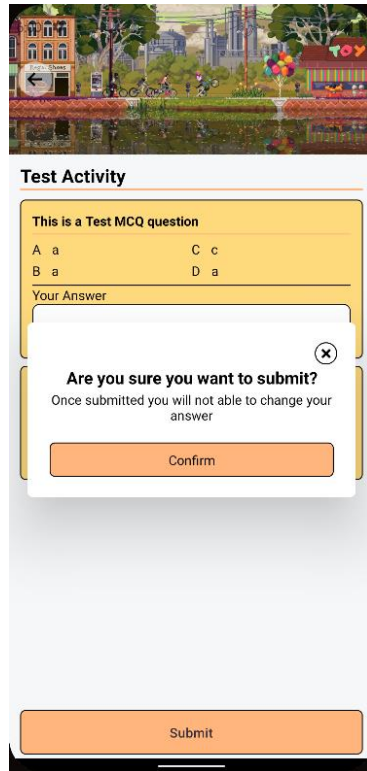


Figure 5.4.4.11 Screenshot of confirmation when submitting answer

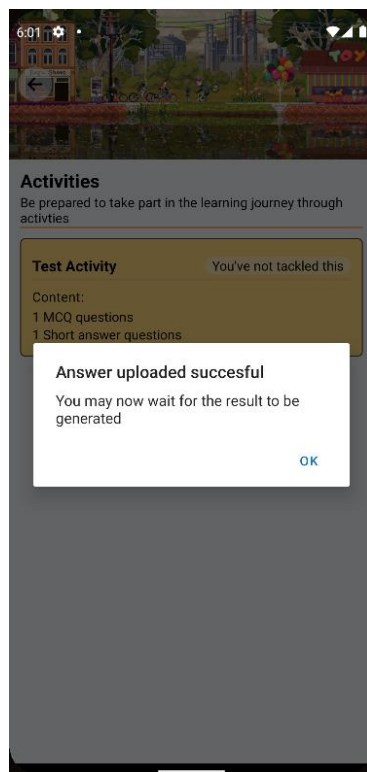


Figure 5.4.4.12 Screenshot of answer submitted successfully

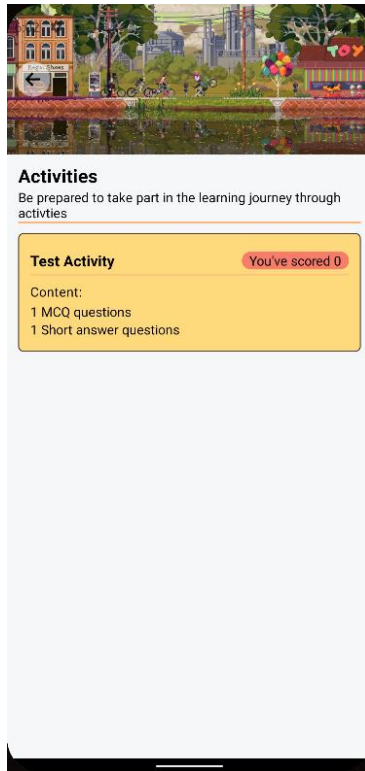


Figure 5.4.4.13 Screenshot of showing automatic mark computation after refreshing.

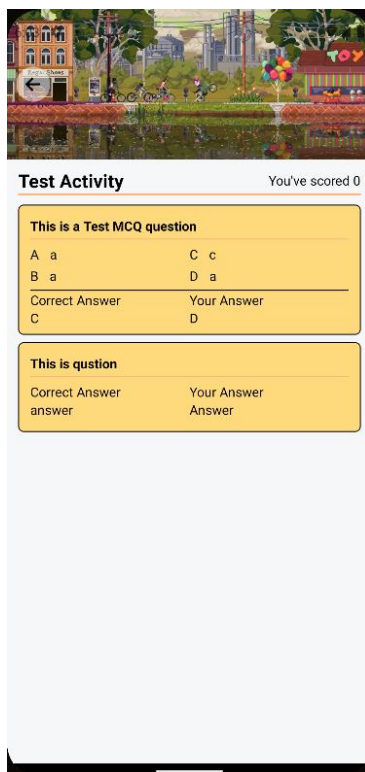


Figure 5.4.4.14 Screenshot of activity reviews

As aligning to the current technology trend, including a GPT model will be beneficial especially for students as they will need the GPT to get answers or ask questions. The student can navigate to the StudentGPT through the home page.

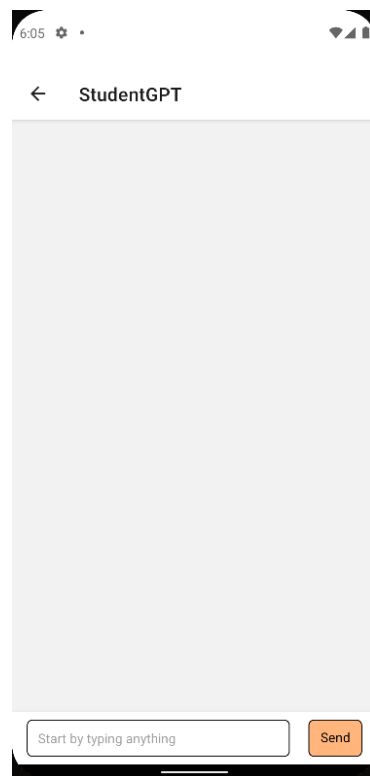


Figure 5.4.4.15 Screenshot of StudentGPT

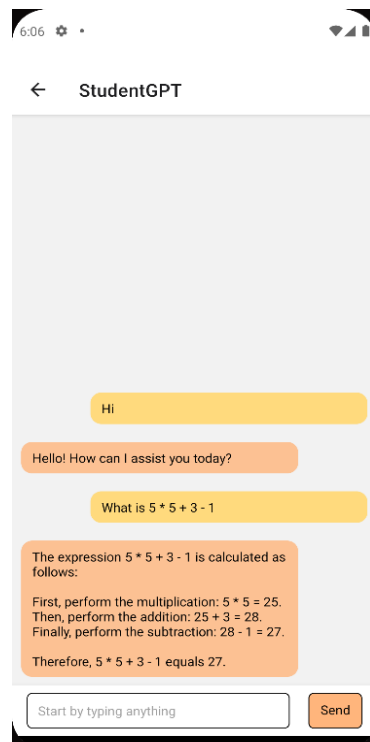
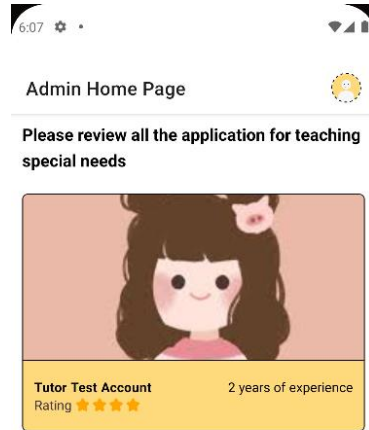


Figure 5.4.4.16 Screenshot of StudentGPT at work

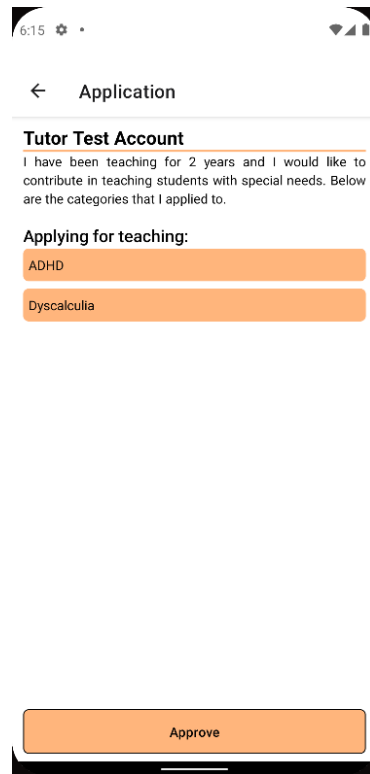
### 5.4.5 Admin

In this system, admin is in place to handle applications from tutors in whether to approve or not approve the tutors from teaching special needs students.



*Figure 5.4.5.1 Screenshot of Admin Home Page*

The admin can then click on the tutor profile and check their application forms. After checking, the admin can then choose to approve or ignore.



*Figure 5.4.5.2 Screenshot of viewing tutor's application form*

## 5.5 Implementation Issue

Due to the changes from Firrebase to self-hosted server, there is one downside of using self-hosted server architecture with expo go tunnel is the need of getting the tunneled device to connect to the local server in the laptop. The system in need to be start in a specific set of order and instruction to be able to allow the client application to connect to the Ngrok server. Such configuration solely depends on the public redirection IP generated by Ngrok.

Besides, with the self-hosted server, the file uploading requires secure path in which needs “https” to be able to work. During the development phase, the development is purely done using emulator. Therefore, at the final testing phase with physical mobile phones, the file upload module will not work at all. To resolve this issue, I also used Ngrok public which comes with SSL and had able to perform file upload and download.



# Chapter 6 System Evaluation and Discussion

## 6.1 System Testing and Performance Matrix

In this chapter, we will discuss the overall system testing methodology and performance matrices that will be used. In software testing, there are vast methodologies that can be used. For example, Black box testing, white box testing, sanity testing, smoke testing, user acceptance testing, integration testing, and black box testing. Each of them serves different purpose and each shines its value in different scenarios.

The methodology that is used is unit testing. Unit testing in general is essentially one of the important processes in which it verifies the working of the system as par to what is expected. Besides, it also verifies all functions are well implemented into the system and do not throw any system breaking error.

In this phase, there are a set of required minimum performance that is mandatory for the application to achieve,

- Low memory usage
- Fast API calls
- Overall application responsiveness

## 6.2 Testing Setup and Result

The application will be start fresh with a database without any data. The module we will be testing is the application module, all the modules involved with Tutors, Parents, and Student, then we will proceed to Admin module at the last part. Each testing will be done with a predefined input and expected output. The evaluation will be made according to the correctness of the output as according to what we have expected. In the meantime, the system performance will be evaluated through the integrated Expo performance monitor which will be shown in the top right corner of each figure.

### 6.2.1 Authentication Module

In authentication module, we will first start with registering one new user in both different user types.

### 6.2.1.1 Registering as a Parent

Table 6.2.1.1.1 Unit Testing – Registering as a Parent

Input	Description	Expected Output	System Output
NONE	This is to test if the system deny register when user input nothing.	Disable the submit button.	The system does not allow user to press the submit button.
Email: test	This is to test if the system successfully catches the wrongly formatted email.	Prompts email is wrongly formatted.	The system shows “Invalid email format”.
Password: password Re-enter password: pass	This is to test if the system recognised the passwords entered twice is the same.	Prompts passwords are different.	The system shows “The passwords entered is different”.
Leave profile picture empty	This is to test if the system prohibits the user to proceed without uploading profile picture.	Prompts profile picture is required	The system shows “Upload a profile image”
Users register a new parent account	This is to test if the user account has been created.	The database consists of the registrant and server has the profile image uploaded.	The database has stored the information of the registrant, and server has the profile image uploaded.

### 6.2.1.2 Registering as a Tutor

Table 6.2.1.2.1 Unit Testing – Registering as a Tutor

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Email: parent@gmail.com	This is to test if the system deny register when user input a taken email address	Prompt email has been taken	The system does not allow user to press the submit button.
Users register a new tutor account	This is to test if the user account has been created.	The database consists of the registrant and server has the profile image uploaded.	The database has stored the information of the registrant, and server has the profile image uploaded.

### 6.2.1.3 Logging in as a Parent

Table 6.2.1.3.1 Unit Testing – Logging in as a Parent

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Enter wrong credential	This is to test if the system deny access from public	Prompt wrong email or password	The system does not allow user to press the submit button.
Enter correct credential	This is to test if the system allows the tutor to enter the system and redirect the user to their corresponding page.	User able to login as Parent and redirected to Parent Home Page	The user successfully logged into Parent account and redirected to Parent Home Page

#### 6.2.1.4 Logging in as a Tutor

Table 6.2.1.4.1 Unit Testing – Logging in as a Tutor

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Enter wrong credential	This is to test if the system deny access from public	Prompt wrong email or password	The system does not allow user to press the submit button.
Enter correct credential	This is to test if the system allows the tutor to enter the system and redirect the user to their corresponding page.	User able to login as Tutor and redirected to Tutor Home Page	The user successfully logged into Tutor account and redirected to Tutor Home Page

#### 6.2.1.5 Logging in as an Admin

Table 6.2.1.5.1 Unit Testing – Logging in as a Admin

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Enter correct credential	This is to test if the system allows the admin to enter the system and redirect the user to their corresponding page.	User able to login as Admin and redirected to Admin Home Page	The user successfully logged into Admin account and redirected to Admin Home Page

#### 6.2.1.6 Registering a Student Account

Table 6.2.1.6.1 Unit Testing – Registering a Student Account

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Users register a new student account	This is to test if the user account has been created.	The database consists of the registrant	The database has stored the information of the registrant

### 6.2.1.7 Logging in as Student

Table 6.2.1.7.1 Unit Testing – Logging in as a Student

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Enter correct credential	This is to test if the system allows the tutor to enter the system and redirect the user to their corresponding page.	User able to login as Student and redirected to Student Home Page	The user successfully logged into Student account and redirected to Student Home Page

## 6.2.2 Tutor Module

### 6.2.2.1 Add New Subject

Table 6.2.2.1.1 Unit Testing – Add New Subject

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
NONE	This is to test if the system rejects when user does not provide any input	User will not be able to add new subject	The system does not allow the user to create new subject
Enter all required fill while leaving banner image, teaching note, and exercise blank	This is to test if the subject can be created with the minimal amount of information	Tutor able to create a new subject	The system allows the tutor to create new subject,
Enter all required fill and uploaded banner image, teaching note, and exercise	This is to test if the system supports submitting all information when creating new subject	Tutor able to create a new subject	The system allows the tutor to create new subject,

### 6.2.2.2 Add New Activity

Table 6.2.2.2.1 Unit Testing – Add New Activity

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
NONE	This is to test if the system rejects when user does not provide any input	User will not be able to add new activity	The system does not allow the user to create new activity
Enter activity name and insert questions	This is to test if the activities can be created	Tutor able to create a new activity	The system allows the tutor to create new activities,

### 6.2.2.3 Add New Schedule

Table 6.2.2.3.1 Unit Testing – Add New Schedule

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Fill up all the required input	This is to test if a new schedule can be created	Tutor able to create a new schedule	The system allows the tutor to create new schedule,

### 6.2.2.4 Add New Learning Materials

Table 6.2.2.4.1 Unit Testing – Add New Learning Materials

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Upload only teaching notes	This is to test if the system accepts only uploading one type of file	Tutor able to upload only a type of file	The system allows the tutor upload only teaching note
Upload only exercises	This is to test if the system accepts only uploading one type of file	Tutor able to upload only a type of file	The system allows the tutor upload only exercises
Upload both type of files and have upload multiple of them	This is to test if the system can handle multiple files upload	Tutor able to upload all the files	The system allows the tutor upload multiple files under different type.

### 6.2.2.5 Change Learning Materials Publish Status

Table 6.2.2.5.1 Unit Testing – Change Learning Materials Publish Status

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Change publish status	This is to test if the system changes the publish status of the materials once pressed	The publish status will change immediately	The system changes the publish status immediately

### 6.2.2.6 Delete Activities

Table 6.2.2.6.1 Unit Testing – Delete Activities

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Delete published activities	This is to test if the system able to delete the activities including everything that is linked to the activity	The system can delete every information that is linked to the activity	The system can delete every information that is linked to the activity

### 6.2.2.7 Delete Course

Table 6.2.2.7.1 Unit Testing – Delete Course

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Delete published course	This is to test if the system able to delete the course including everything that is linked to the activity	The system can delete every information that is linked to the course	The system can delete every information that is linked to the course

### 6.2.2.8 Change Banner Image

Table 6.2.2.8.1 Unit Testing – Change Banner Image

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Upload banner image	This is to change the banner image of the course	The system uploads the image to the database and the banner image will refresh once uploaded	The image is uploaded and the banner image need to be manually refreshed



### 6.2.2.9 Change Profile Picture

Table 6.2.2.9.1 Unit Testing – Change Profile Picture

Input	Description	Expected Output	System Output
Upload new profile picture	This is to change the profile picture of the tutor	The system uploads the image to the database and the profile picture will refresh once uploaded	The image is uploaded, and the profile picture can only be refreshed on next login

### 6.2.2.10 Change Phone Number

Table 6.2.2.10.1 Unit Testing – Change Phone Number

Input	Description	Expected Output	System Output
Change phone number	This is to change the phone number of the tutor	The system uploads the new phone number to the database	The system successfully uploads the new phone number to the database

### 6.2.2.11 Change Password

Table 6.2.2.11.1 Unit Testing – Change Password

Input	Description	Expected Output	System Output
Input different password	This is to test if the user rejects the change password request if the user input the wrong old password	The system rejects the request	The system rejects the request
Entered the correct old password	This is to allow the system to change password once verified	The system changes the password and take immediate effect on next login	The system successfully changed the password, and the new password will be used to validate the user at the next login

### 6.2.3 Parent Module

#### 6.2.3.1 Enroll Courses

Table 6.2.3.1.1 Unit Testing – Enroll Courses

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Fill in the application form	This is to test if the user able to enrol in course in accordance with the given schedules and nature of course	The system allows the user to enroll the children to the selected course	The system allows the user to enroll children to the selected course, and tutor will get update in student enrollment.
Student with special needs can only join courses designed for special needs	This is to check if the system has successfully filtered the students with special needs with the others	The system only allows students with special needs to join dedicated courses created by tutors	The system only allows students with special needs to join dedicated courses created by tutors

#### 6.2.3.2 Give Rating

Table 6.2.3.2.1 Unit Testing – Give Rating

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Parents give rating to the selected course with comments	This is to test if the rating is saved into the database and trigger the calculation	The system saved the rating into the database and the calculation is triggered	The system saved the rating into the database and the calculation is triggered

#### 6.2.3.3 Cancel Enrollment

Table 6.2.3.3.1 Unit Testing – Cancel Enrollment

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Key in CONFIRM to cancel the enrollment	This is to test if the user able to cancel the enrollment	The system allows the user to cancel the enrollment	The system allows the user to cancel the enrollment

### 6.2.3.4 View Student Performance

Table 6.2.3.4.1 Unit Testing – View Student Performance

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
View student activity performance in each course	This is to test the compute mark function that is implemented to auto calculate the earned mark	The system able to show the computed marks of each activity	The system shows the computed marks of each activity

### 6.2.3.5 Change Profile Picture

Table 6.2.3.5.1 Unit Testing – Change Profile Picture

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Upload new profile picture	This is to change the profile picture of the parent	The system uploads the image to the database and the profile picture will refresh once uploaded	The image is uploaded, and the profile picture can only be refreshed on next login

### 6.2.3.6 Change Phone Number

Table 6.2.3.6.1 Unit Testing – Change Phone Number

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Change phone number	This is to change the phone number of the parent	The system uploads the new phone number to the database	The system successfully uploads the new phone number to the database

### 6.2.3.7 Change Password

Table 6.2.3.7.1 Unit Testing – Change Password

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Input different password	This is to test if the user rejects the change password request if the user input the wrong old password	The system rejects the request	The system rejects the request
Entered the correct old password	This is to allow the system to change password once verified	The system changes the password and take immediate effect on next login	The system successfully changed the password, and the new password will be used to validate the user at the next login

## 6.2.4 Student Module

### 6.2.4.1 View Enrolled Course

Table 6.2.4.1.1 Unit Testing – View Enrolled Course

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
View enrolled course by parents	This is to test if the action from Parent account updates the enrollment courses in student account	The system will update the enrollments	The system shows the new enrollment and current enrollment

### 6.2.4.2 View Activities

Table 6.2.4.2.1 Unit Testing – View Activities

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
View list of activities	This is to test if activities published by tutors are updated to the student's side	The system will update the activities	The system shows all published activities by corresponding tutors
View completed activities	This is to allow user to view the completed activities in which test if the compute mark function works.	The completed activities will have their mark computed and display all the answer given by the student versus the correct answer	The completed activities will have their mark computed and display all the answer given by the student versus the correct answer
View uncompleted activities	This is to allow user to view the uncompleted activities and allow immediate action in which to complete them	Student can answer the questions directly through pressing on the activities	Student able to submit and complete the activities and the mark is computed immediately

### 6.2.4.3 Use StudentGPT

Table 6.2.4.3.1 Unit Testing – Use StudentGPT

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Prompt the GPT to get response	This is test if the OpenAI provided API working correctly	The system receives expected response from the API and display the message correctly	Responses from the API are correctly displayed in each chat bubbles.

### 6.2.3.4 Change Profile Picture

Table 6.2.3.4.1 Unit Testing – Change Profile Picture

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Upload new profile picture	This is to change the profile picture of the student	The system uploads the image to the database and the profile picture will refresh once uploaded	The image is uploaded, and the profile picture can only be refreshed on next login

### 6.2.3.5 Change Password

Table 6.2.3.5.1 Unit Testing – Change Password

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Input different password	This is to test if the user rejects the change password request if the user input the wrong old password	The system rejects the request	The system rejects the request
Entered the correct old password	This is to allow the system to change password once verified	The system changes the password and take immediate effect on next login	The system successfully changed the password, and the new password will be used to validate the user at the next login

## 6.2.5 Admin Module

### 6.2.5.1 Approve Tutor's Application

Table 6.2.5.1.1 Unit Testing – Approve Tutor's Application

<b>Input</b>	<b>Description</b>	<b>Expected Output</b>	<b>System Output</b>
Review and approve tutor's application	This is to test if the approval will be saved to the database and update the tutor status	The system will update the tutor status	The system updated the tutor status.

### **6.3 Objective Evaluation**

All and all, the objectives of the project are met with the implementation of all users into one system, and also giving the functionality of using management system in controlling all activities, For tutors, they can perform files upload, scheduling, activities creation, view student performance, and create new subjects for listing. While for parents, they are able to manage their children and courses. They also can view rating for choice analysis purposes when selecting the suitable tutors for the children. In addition, students account who are created by parent account, able to view subject information enrolled by parents. They can access the learning materials uploaded by tutors, they can view and download the files into a zip, they can also view the activities uploaded by tutors. If the student has uncompleted activities, then they can proceed with completing the question and get the computed mark instantly after refreshing the page. The student can also view the previous result of the completed activities.



# CHAPTER 7 Conclusion and Recommendation

## 7.1 Conclusion

The proposed system, Online Private Tutor Finder is a mobile application that support simultaneous usage of different user types. The purpose of this project is to develop a useful and convenient application mainly for the tutors, parents, and students as to satisfy each individual needs. As mentioned earlier in the report, The way of the program works is to allow the tutor to publish him/herself to the public by promoting their service as to attract parents to hire them. It does not only benefit the tutor for them to learn buckets of money, but it also benefits the parents as well when they are trying themselves looking for the best place to study. Meanwhile, the students would get to eliminate hassles in getting non-reputable private tutor and wasting money. It is also an known fact, whereby to someone, or any students in Malaysia, has been asked or “forced” to take extra academic classes to refine their knowledge, but with this application, parents, and student would get a chance to communicate which course the children are more interested in, as each course can be individually joined.

Through reviewing the existing system that exist in them market, I would say there are not much similar application that can be found in either Google Play Store or Apple App Store. Even if the similar application has been reviewed, according to the literature review in chapter 2, the reviewed applications are more than likely to be a barebone application that has very less function. Some of them are not even functionable as it has only the frontend be programmed to work. Therefore, it gave me a challenge in trying to deliver a completed online private tutor finder system.

The methodology that will be used during the development of the system is prototyping based, where analysis, design, and implementation will be worked simultaneously at the same time to produce a working prototype. Then the prototype will be examined again and again to check whether the system is following the user requirement and check for the defect of each module, as being said, the cost of repairing after the moment defect has been found will be keep on compounding until it will reach to a stage that it is too heavily costed to be repaired.

During the implementation of the project, where coding of the program phase starts, I have come across many different methods, API, and available library that can be used with react native framework to produce a quality mobile application. Since React Native is well known for its extensive libraries that can be installed, developing the application is quite hassle-free. Almost all the components can be built by utilizing the built-in libraries as React Native also

allow users to create their own components or customize API. At the end, I would say developing a real system alone can be very challenging especially when the system is huge.

Although there are many challenges met during the implementation phase, ranging from inexperience and the complexity of system in whole. I have learnt a lot when coming to mobile development and RestAPI development. When switching from Firebase to self-hosted server, I have panicked with a totally different environment, but I still managed to develop into a working server runtime. Long sentence short, I will keep on learning and applying helps a lot along the way of completing this project.

## **7.2 Recommendation**

Throughout the development and the time allocation in developing the project, I would say there is still a lot of room for the application to be improved. The application is not perfect out of the box, putting in the exception on the UI/UX design implementation, there are a lot of functionalities are still lacking in this project, I would say the current version is a workable first build application with all the basic functionalities and given that this project scope is large in terms of the number of types there are in user types. It would be best to implement a payment system of either using digital transaction or online banking to create a secure transaction between the tutors. If there is a budget allocation, I would also integrate online meeting services from Google, Microsoft or Zoom. Otherwise building a livestreaming platform with WebRTC would be another headache as another server will be needed dedicated to hosting and allowing the live stream event to be processed. With all that said, there are unlimited amount of options and features that can be implemented into the system, given the current time period, skills and experience, the current build is sufficient enough to provide basic functionalities to the user.

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## WEEKLY LOG

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 1</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'uadi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

### 1. WORK DONE

Do project timeline to plan the whole project.

### 2. WORK TO BE DONE

Revise FYP1 report and determine the changes.  
Complete introduction and literature review in FYP2 report.


### 3. PROBLEMS ENCOUNTERED

No problem encountered.

### 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
\_\_\_\_\_  
Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 2</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'uadi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

Completed introduction and literature review in FYP2 report.

## 2. WORK TO BE DONE

Revise FYP1 report and make improvement on FYP2 report.  
Complete System Methodology/ Approach chapter.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
\_\_\_\_\_  
Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: T1, Y3	Study week no.: 3
Student Name & ID: Heng Jie You 20ACB02340	
Supervisor: Cik Ana Nabilah Binti Sa'uadi	
Project Title: Online Private Tutor Finder System	

## 1. WORK DONE

improvement was made on FYP2 report.  
Completed System Methodology/ Approach chapter.

## 2. WORK TO BE DONE

- Improve the use case diagram.
- Draw the system's wireframe, architecture diagram, and ERD.
- Complete system design on FYP2 report.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
\_\_\_\_\_  
Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 4</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'uadi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

- Use case diagram was improved.
- Completed system's wireframe, architecture diagram, and ERD.
- Completed system design on FYP2 report.

## 2. WORK TO BE DONE

- Continue develop and improve the tutor module part from FYP1.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
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Student's signature



# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 5</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

60% of tutor module was completed.

## 2. WORK TO BE DONE

Continue to complete tutor module.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
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Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 6</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

Completed tutor module.

## 2. WORK TO BE DONE

Develop parent module.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 7</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'uadi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

50% of parent module was completed.

## 2. WORK TO BE DONE

Continue to develop the parent module.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
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Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 8</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

80% of parent module was completed.

## 2. WORK TO BE DONE

Continue to develop parent module.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
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Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 9</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

Completed parent module.

## 2. WORK TO BE DONE

Complete the development on student module.


## 3. PROBLEMS ENCOUNTERED

Unexpected issues occurred on backend part. The Firebase is exceeded the limit to use.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
\_\_\_\_\_  
Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 10</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

30% of student module was completed.

## 2. WORK TO BE DONE

- Continue to complete the student module.
- Solve the backend issues.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is on scheduled.

  
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Supervisor's signature

  
\_\_\_\_\_  
Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 11</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'uadi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

- 60% of student module was completed.
- Backend issues were solved.

## 2. WORK TO BE DONE

- Continue to complete student module.
- Complete admin module.
- Continue to write the report.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Project is not on scheduled and I had learnt the coding skills from websites to solve the bugs.

  
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Supervisor's signature

  
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Student's signature

# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: T1, Y3	Study week no.: 12
Student Name & ID: Heng Jie You 20ACB02340	
Supervisor: Cik Ana Nabilah Binti Sa'uadi	
Project Title: Online Private Tutor Finder System	

## 1. WORK DONE

- Student module was completed.
- Admin module was completed.
- Chapter 5: System Implementation was completed.

## 2. WORK TO BE DONE

- Do testing on the system to test the errors and make sure all the modules are no issue.
- Complete the whole system.
- Complete Chapter 6 and Chapter 7 in the report and finalized it.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Unexpected issues cause the timeline delay and think about what method is suitable for testing.

  
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Supervisor's signature

  
\_\_\_\_\_  
Student's signature



# FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

<b>Trimester, Year: T1, Y3</b>	<b>Study week no.: 13</b>
<b>Student Name &amp; ID: Heng Jie You 20ACB02340</b>	
<b>Supervisor: Cik Ana Nabilah Binti Sa'udi</b>	
<b>Project Title: Online Private Tutor Finder System</b>	

## 1. WORK DONE

- Chapter 6 and Chapter 7 in the report was completed.
- Unit testing of system was completed.
- Development of system was completed.
- Submit the finalised report.

## 2. WORK TO BE DONE

Prepare presentation.


## 3. PROBLEMS ENCOUNTERED

No problem encountered.

## 4. SELF EVALUATION OF THE PROGRESS

Need to have better time management and learn more skills about mobile application development.

  
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Supervisor's signature

  
\_\_\_\_\_  
Student's signature

## POSTER

# ONLINE PRIVATE TUTOR FINDER SYSTEM



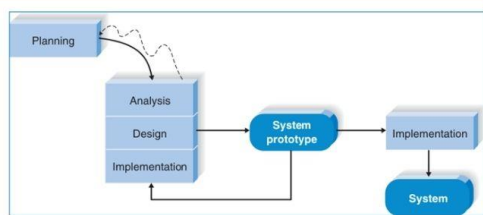
## Introduction

An private tutor finder application that benefits all tutors, students, and parents. Through allowing parents and tutor to ease their workloads in either looking for new customer or looking for a reputable tutors for their children. While student get the benefits to have flexible study period.

## Problem Statement

- Lack of coping method towards the learning disordered
- Lack of “all in one” platform that integrate the core activities of online private tuition system
- Lack of tools that enhance student learning environment

## Methodology



Prototyping methodology is used to complete this project due to it is easier for locating bugs and dealing with possible increment in user requirement

The analysis, design, and implementation phase are repeated again and again to look for the perfect implementation from a team.

## Objectives

- To contribute to the field of private tutor
- To ease the workload of parents
- To provide another way of conducting business to tutors
- To provide flexibility of study to student

## Project Discussion

The deliverable of the project could be a big hit since there are not much of such system exist and working in the market period. Getting this project completed could get a chance to compete in the real world market.



## Conclusion

The final system will be serving its purpose to benefits all three actor which are (Students, Tutors, and Parents). As the deliverable of this project will allow Parents to easily look for nearby private tutor to be hired.



Universiti Tunku Abdul Rahman

BACHELOR OF INFORMATION SYSTEMS (HONOURS) BUSINESS INFORMATION SYSTEM

Prepared by Heng Jie You (20ACB02340)

# PLAGIARISM CHECK RESULT

## Online Private Tutor Finder System

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TECHNOLOGY**

<b>Full Name(s) of Candidate(s)</b>	Heng Jie You
<b>ID Number(s)</b>	20ACB02340
<b>Programme / Course</b>	IB
<b>Title of Final Year Project</b>	Online Private Tutor Finder System

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***Based on the above results, I hereby declare that I am satisfied with the originality of the Final Year Project Report submitted by my student(s) as named above.***

  
\_\_\_\_\_  
Signature of Supervisor

Name:   Cik Ana Nabilah Binti Sa'uadi  

Date:   15/09/2023  

\_\_\_\_\_  
Signature of Co-Supervisor

Name: \_\_\_\_\_

Date: \_\_\_\_\_



**UNIVERSITI TUNKU ABDUL RAHMAN**  
**FACULTY OF INFORMATION & COMMUNICATION TECHNOLOGY**  
**(KAMPAR CAMPUS)**  
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Student Id	Heng Jie You
Student Name	20ACB02340
Supervisor Name	Cik Ana Nabilah Binti Sa'uadi

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	Your report must include all the items below. Put a tick on the left column after you have checked your report with respect to the corresponding item.
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✓	Signed form of the Declaration of Originality
✓	Acknowledgement
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✓	Table of Contents
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I, the author, have checked and confirmed all the items listed in the table are included in my report.

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