

**KINDERGARTEN MANAGEMENT SYSTEM**

By

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A REPORT

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## **ABSTRACT**

The Kindergarten Management System (KMS) project aims to improve administrative efficiency in kindergartens by addressing the limitations of manual record-keeping, ineffective communication, and lack of digital payment options. Most kindergartens still use old-fashioned methods, which often lead to delays, mistakes, and things running less smoothly day to day. This project seeks to enhance an existing KMS by incorporating better communication tools, stronger security measures, and online payment integration.

The new system will add messaging, email alerts, and virtual meetings to make it easier for teachers, parents, and school staff to stay connected and communicate smoothly. Multimedia support for announcements and Q&A sections will provide clearer and more engaging communication. To ensure data security, the project will implement Multi-Factor Authentication (MFA), password encryption, CAPTCHA verification, and automated backups, protecting sensitive school information from unauthorized access. A safe online payment system makes collecting fees easier and faster, so there's less manual work and payments come in on time.

This project builds upon existing KMS platforms by addressing their weaknesses and incorporating advanced features. The result will be a more efficient, secure, and user-friendly system that improves communication, strengthens security, and simplifies administrative tasks in kindergartens.

Area of Study (Minimum 1 and Maximum 2): Educational Management Systems, Information Security in School Administration

Keywords (Minimum 5 and Maximum 10): Kindergarten Management System, School Administration, Data Security, Online Payment System, Multi-Factor Authentication, Virtual Meetings.

# TABLE OF CONTENTS

<b>ABSTRACT.....</b>	<b>IV</b>
<b>TABLE OF CONTENTS .....</b>	<b>V</b>
<b>LIST OF FIGURES .....</b>	<b>VII</b>
<b>LIST OF TABLES .....</b>	<b>X</b>
<b>LIST OF SYMBOLS .....</b>	<b>XI</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>XII</b>
<b>CHAPTER 1 INTRODUCTION .....</b>	<b>1</b>
1.1            Problem Statement and Motivation.....	1
1.2            Objectives.....	2
1.3            Project Scope and Direction .....	3
1.4            Contributions.....	3
1.5            Report Organization .....	4
<b>CHAPTER 2 LITERATURE REVIEW .....</b>	<b>5</b>
2.1            Intellect Kindergarten Management System .....	5
2.2            An An Kindergarten Management System .....	6
2.3            Kindergarten Management System Master .....	8
2.4            Proposed Solution .....	10
2.5            Comparison of Previous System .....	10
<b>CHAPTER 3 PROPOSED METHOD/APPROACH .....</b>	<b>13</b>
3.1 Methodology .....	13
3.2 System Architecture Diagram.....	13
3.3 Timeline .....	15
<b>CHAPTER 4 SYSTEM DESIGN .....</b>	<b>17</b>
4.1 ERD Diagram .....	17
4.2 Use Case Diagram.....	20
4.3 Use Case Description.....	21
4.4 Activity Diagram .....	56

<b>CHAPTER 5 SYSTEM IMPLEMENTATION .....</b>	<b>85</b>
5.1            System Requirement .....	85
5.2            Setting and Configuration .....	86
5.3            System Operation .....	87
5.4            Implementation Issue and Challenges .....	114
<b>CHAPTER 6 SYSTEM EVALUATION AND DISCUSSION .....</b>	<b>116</b>
6.1            Testing Setup and Test Result.....	116
6.2            Project Challenges.....	124
6.3            Objectives Evaluation .....	125
<b>CHAPTER 7 CONCLUSION AND RECOMMENDATION.....</b>	<b>127</b>
7.1            Conclusion.....	127
7.2            Recommendation.....	127
<b>REFERENCES.....</b>	<b>129</b>
<b>POSTER.....</b>	<b>130</b>

## LIST OF FIGURES

Figure 2.2 An An Kindergarten Management System.....	8
Figure 2.3 Kindergarten Management System Master .....	9
Figure 3.2 System Architecture Diagram .....	14
Figure 3.3.1 FYP 1 Timeline .....	15
Figure 3.3.2 FYP 2 Timeline .....	16
Figure 4.1 ERD Diagram .....	19
Figure 4.2 Use Case Diagram .....	21
Figure 4.4.1 Dashboard page – Parent Role Activity Diagram .....	57
Figure 4.4.2 Class Announcements page – Parent Role Activity Diagram .....	58
Figure 4.4.3 School Announcements page – Parent Role Activity Diagram.....	59
Figure 4.4.4 Chat with Teacher page – Parent Role Activity Diagram .....	60
Figure 4.4.5 Scheduled Meetings page – Parent Role Activity Diagram .....	61
Figure 4.4.6 Child’s Activity Log page – Parent Role Activity Diagram .....	62
Figure 4.4.7 Student Timetable page – Parent Role Activity Diagram .....	62
Figure 4.4.8 Profiles page – Parent Role Activity Diagram .....	63
Figure 4.4.9 Student Bills page – Parent Role Activity Diagram.....	64
Figure 4.4.10 Dashboard page – Teacher Role Activity Diagram.....	65
Figure 4.4.11 My Class page – Teacher Role Activity Diagram.....	66
Figure 4.4.12 Attendance page – Teacher Role Activity Diagram.....	66
Figure 4.4.13 Make Announcement page – Teacher Role Activity Diagram .....	67
Figure 4.4.14 School Announcement page – Teacher Role Activity Diagram .....	68
Figure 4.4.15 Announcement Q&A page – Teacher Role Activity Diagram.....	69
Figure 4.4.16 Student Activity Log page – Teacher Role Activity Diagram .....	70
Figure 4.4.17 Track Performance page – Teacher Role Activity Diagram .....	71
Figure 4.4.18 Chat with Parent page – Teacher Role Activity Diagram .....	72
Figure 4.4.19 Manage Meetings page – Teacher Role Activity Diagram .....	73
Figure 4.4.20 My Profile page – Teacher Role Activity Diagram.....	74
Figure 4.4.21 Dashboard page – Admin Role Activity Diagram .....	75
Figure 4.4.22 Make Announcement page – Admin Role Activity Diagram .....	76
Figure 4.4.23 Announcement Q&A page – Admin Role Activity Diagram .....	77
Figure 4.4.24 Manage Bill page – Admin Role Activity Diagram.....	78
Figure 4.4.25 Manage Payment page – Admin Role Activity Diagram.....	79

Figure 4.4.26 Arrange Timetable page – Admin Role Activity Diagram .....	80
Figure 4.4.27 Manage Class page – Admin Role Activity Diagram .....	81
Figure 4.4.27 Student Annual Report page – Admin Role Activity Diagram.....	82
Figure 4.4.28 Manage Users page – Admin Role Activity Diagram.....	82
Figure 4.4.29 Login page – All Users Activity Diagram.....	83
Figure 4.4.30 Logout page – All Users Activity Diagram.....	84
Figure 5.2.1 XAMPP with Apache and MySQL .....	86
Figure 5.2.2 Database Tables in phpMyAdmin .....	86
Figure 5.2.3 Extension Used.....	87
Figure 5.3.1 Login Page.....	88
Figure 5.3.2 Registration Page.....	88
Figure 5.3.3 Forgot Password Page .....	88
Figure 5.3.4 Email link to Reset Password Page .....	89
Figure 5.3.5 Reset Password Page .....	89
Figure 5.3.6 Parent Dashboard Page.....	90
Figure 5.3.7 Class Announcement Page – Parent Role .....	90
Figure 5.3.8 Chat with Teacher Page – Parent Role .....	91
Figure 5.3.9 Scheduled Meeting Page – Parent Role.....	91
Figure 5.3.10 Activity Log Page – Parent Role .....	92
Figure 5.3.11 Timetable Page – Parent Role .....	92
Figure 5.3.12 Student Bills Page – Parent Role.....	93
Figure 5.3.13 Student Bills Status – Parent Role.....	93
Figure 5.3.14 View Bill Page – Parent Role .....	93
Figure 5.3.15 View Bill Page – Parent Role.....	94
Figure 5.3.13 Profiles Page – Parent Role .....	95
Figure 5.3.14 Edit Parent Info Page – Parent Role .....	95
Figure 5.3.15 Edit Child Info Page – Parent Role .....	95
Figure 5.3.16 School Announcement Page – Parent Role .....	96
Figure 5.3.17 Teacher Dashboard Page .....	96
Figure 5.3.18 My Class Page – Teacher Role.....	97
Figure 5.3.19 Student Daily Attendance Page – Teacher Role.....	98
Figure 5.3.20 School Announcement Page – Teacher Role .....	98
Figure 5.3.21 Make Announcement Page – Teacher Role .....	99



Figure 5.3.22 Class Announcement Email Notification – Teacher Role.....	99
Figure 5.3.23 Student Activity Log Page – Teacher Role .....	100
Figure 5.3.24 Upload Student Activity Log Page – Teacher Role .....	100
Figure 5.3.25 Track Performance Page – Teacher Role .....	101
Figure 5.3.26 Chat with Parent Page – Teacher Role .....	101
Figure 5.3.27 Chat with Parent Email Notification – Teacher Role.....	101
Figure 5.3.28 Manage Meetings Page – Teacher Role .....	102
Figure 5.3.29 My Profile Page – Teacher Role .....	102
Figure 5.3.30 Edit Profile Page – Teacher Role .....	103
Figure 5.3.31 Search Page – Teacher Role .....	103
Figure 5.3.32 Announcement Q&A Page – Teacher Role.....	104
Figure 5.3.33 Admin Dashboard Page.....	105
Figure 5.3.34 Announcement Q&A Page– Admin Role .....	105
Figure 5.3.35 Make Announcement Page – Admin Role .....	105
Figure 5.3.36 Select Receiver Type – Admin Role .....	106
Figure 5.3.37 School Announcement Email Notification – Admin Role.....	106
Figure 5.3.38 Arrange Timetable Page– Admin Role .....	107
Figure 5.3.39 Manage School Activities Page – Admin Role .....	107
Figure 5.3.40 Manage Class Page – Admin Role .....	108
Figure 5.3.41 Class Student List Page – Admin Role.....	108
Figure 5.3.42 Student Annual Report Page – Admin Role.....	109
Figure 5.3.43 Manage Users Page – Admin Role.....	110
Figure 5.3.44 Manage Bill Page – Admin Role.....	111
Figure 5.3.45 Bill Information Page – Admin Role.....	111
Figure 5.3.46 New Bill Template – Admin Role.....	112
Figure 5.3.47 List of Students to Create Bills – Admin Role.....	112
Figure 5.3.48 Bill Form Page – Admin Role .....	112
Figure 5.3.49 Manage Payment Page – Admin Role.....	113
Figure 5.3.50 System Backup Page – Admin Role.....	114

## LIST OF TABLES

Table 2.5.1 Comparison of Previous System.....	10
Table 4.3.1 View Child Performance Report – Parent Role Use Case Description ....	21
Table 4.3.2 View Class Announcements – Parent Role Use Case Description.....	22
Table 4.3.3 View School Announcements – Parent Role Use Case Description .....	23
Table 4.3.4 View Messages – Parent Role Use Case Description.....	24
Table 4.3.5 View Scheduled Meetings – Parent Role Use Case Description.....	26
Table 4.3.6 View Children Activity Log – Parent Role Use Case Description.....	27
Table 4.3.7 View Timetable & Teacher Info – Parent Role Use Case Description ....	28
Table 4.3.8 View Profile & Child’s Profile – Parent Role Use Case Description.....	29
Table 4.3.9 View Bill – Parent Role Use Case Description .....	30
Table 4.3.10 View Class Timetable – Teacher Role Use Case Description.....	32
Table 4.3.11 Record Attendance – Teacher Role Use Case Description.....	33
Table 4.3.12 Announcement Q&A – Teacher Role Use Case Description .....	34
Table 4.3.13 View School Announcement – Teacher Role Use Case Description ....	35
Table 4.3.14 Send Announcement – Teacher Role Use Case Description.....	36
Table 4.3.15 Upload Media – Teacher Role Use Case Description .....	37
Table 4.3.16 Record Weekly Performance – Teacher Role Use Case Description.....	39
Table 4.3.17 Send Message – Teacher Role Use Case Description .....	40
Table 4.3.18 Schedule Meeting – Teacher Role Use Case Description .....	41
Table 4.3.19 View Profile – Teacher Role Use Case Description.....	42
Table 4.3.20 Search Profile – Teacher Role Use Case Description.....	43
Table 4.3.21 Send Announcement– Admin Role Use Case Description.....	44
Table 4.3.22 Announcement Q&A – Admin Role Use Case Description.....	45
Table 4.3.23 Create Timetable – Admin Role Use Case Description .....	46
Table 4.3.24 View Class Teachers – Admin Role Use Case Description .....	47
Table 4.3.25 View Student Annual Performance Report – Admin Role Use Case Description.....	48
Table 4.3.26 Manage Users – Admin Role Use Case Description .....	49
Table 4.3.27 Manage Bill – Admin Role Use Case Description .....	51
Table 4.3.28 System Backup – Admin Role Use Case Description .....	53
Table 4.3.29 Login – All Users Use Case Description .....	54
Table 4.3.30 Logout – All Users Use Case Description.....	55

Table 5.1.1 Specifications of laptop .....	85
Table 5.1.2 Software Used.....	85

## **LIST OF SYMBOLS**

# **LIST OF ABBREVIATIONS**

## CHAPTER 1 INTRODUCTION

In this chapter, we present the background, introduction, problem statement and contribution to the kindergarten management system. Through the background of research, users can have an understanding on the advantage of implementing and developing the kindergarten management system. Through defining the problem statement of this project, user can understand what are the main feature that are going to advance in this project and the limitations of current kindergarten management systems. While through the contributions, user can know more about those feature and module included in this kindergarten management system.

### Introduction

Running a kindergarten means staying organized with things like student records, tracking attendance, and keeping in touch with parents. It's all about having a smooth system in place. Most kindergartens still do things by hand, using paper, books, and simple tools to handle daily chores. These old-school methods are often slow, can easily make mistakes, and sometimes lead to data getting lost or being wrong. As a result, administrators and teachers face difficulties in maintaining records, tracking student progress, and communicating with parents.

A Kindergarten Management System (KMS) can solve these problems by providing a digital platform for storing and managing important information. The system will include features such as messaging, virtual meetings, and online reports to improve communication between teachers, parents, and administrators. It will also have strong security features, including password hashing, captcha verification, and role-based access control, to protect sensitive data [1]. An online payment system will make it simpler and more convenient to collect fees.

#### 1.1 Problem Statement and Motivation

Schools often face major issues with communication, data management, and financial operations. Inefficient interactions among teachers, parents, and administrative staff cause delays in tracking student performance and hinder decision-

making. Parents find it hard to stay informed because of their busy schedules, while staff do not have a single platform for easy collaboration and messaging.

Continued use of manual processes or basic digital tools for handling student records, attendance, and especially billing makes data prone to loss and security breaches. Not having a combined billing module leads to time-consuming manual transactions, mistakes in processing, and frustration for everyone involved. Additionally, without strong authentication measures and a dependable data backup system, important information—such as financial records, student health data, and academic reports—can be at risk of being compromised, hacked, or permanently lost.

These problems highlight the need for a better, all-in-one solution. A comprehensive Kindergarten Management System (KMS) could bring data together, improve communication through integrated messaging and announcements, and add a secure, automated billing module to lessen administrative work and mistakes. By providing detailed performance monitoring reports and ensuring data integrity with better security and automated backups, a KMS would help schools protect valuable information, ease administrative burdens, and concentrate more on supporting students' academic growth.

### **1.2 Objectives**

#### **1. Improve Interaction Among Stakeholders and Integrate Billing Module**

The system will make it easier for teachers, parents, and school staff to stay in touch. It'll include tools like messaging, virtual meetings, announcements and query resolution section. This will ensure that important information is conveyed effectively and in a timely fashion, reducing misunderstandings and allowing for faster response to students' needs. Furthermore, the integrated billing module will make fee collection easier and cut down on manual processing mistakes. This lightens the load for school staff.

#### **2. Student Performance Monitoring**

The system is designed to cut down on needing manual record-keeping by bringing records together and making common admin tasks easier to handle. With enhanced data availability, staff members will be able to work more efficiently. Detailed reports on how students are doing will be created every week and month.

These updates will give teachers and parents a clearer picture of how students are progressing, making it easier to support and keep track of their growth. Further, the online payment system will simplify fee collection, reduce manual processing faults, and offer a more convenient and secure payment experience for parents.

### **3. Improve System Security and System Data Backup**

For the security of sensitive school information, the system will implement secure login mechanisms, including strong password protection and authentication methods. Backup feature will let administrators create encrypted copies of all system data whenever needed. These backups can be stored off-site to ensure business continuity and avoid data loss.

## **1.3 Project Scope and Direction**

The project aims to propose a Kindergarten Management System (KMS) to streamline administrative tasks and boost engagement for everyone involved. The main focus will be on developing and implementing the communication module, student performance module, billing and payment module, and security module. The security module includes user authentication and access control, along with a manual backup feature that allows administrators to create encrypted data copies whenever needed. This system will serve administrators, teachers, and parents. Additionally, there will be some extra minor features to improve user experiences. For instance, a dashboard module, attendance tracking module, and announcement module will help users perform essential tasks efficiently within the system.

## **1.4 Contributions**

This project focuses on making school management better by improving the current Knowledge Management System (KMS). It'll make things easier for teachers, staff, and parents by adding new features that help everything run more smoothly and save time.

The system makes it easier to stay in touch with features like chat messages inside the app, email alerts, and built-in video calls. This helps users communicate better and get updates when they need them [2]. To bolster security, the project will implement Multi-Factor Authentication (MFA), password hashing, and CAPTCHA

verification, thereby safeguarding sensitive school data. Data encryption and regular backups will further ensure the protection of critical records [3].

A safe online payment system will be set up to make it easier for parents to pay fees, and it will send automatic reminders to help prevent late payments. The system will also provide enhanced student tracking through the provision of monthly and weekly progress reports, enabling teachers and parents to monitor student performance closely [4].

This project is all about making the KMS better—more secure, stronger, and easier for people to use. It'll make school operations run smoother, cut down on mistakes, and save a lot of time.

### **1.5 Report Organization**

Chapter 1 provides an introduction, encompassing the problem statement, motivation, objectives, project scope, contributions, and the report's structure. Chapter 2 presents a literature review, analyzing the features, strengths, and weaknesses of existing kindergarten management systems and comparing them with the proposed solution. Chapter 3 details the proposed methodology, system architecture, and project timeline. Chapter 4 covers the system design, illustrated with an ERD diagram, use case diagram, use case description, and activity diagram. Chapter 5 discusses the system implementation, including hardware and software requirements, settings and configuration, system operations, and the challenges encountered. Chapter 6 involves system evaluation, detailing the testing setup and results for each user site, overall project challenges, and an evaluation of how the objectives were met. Finally, Chapter 7 concludes the project and offers recommendations for future improvements.



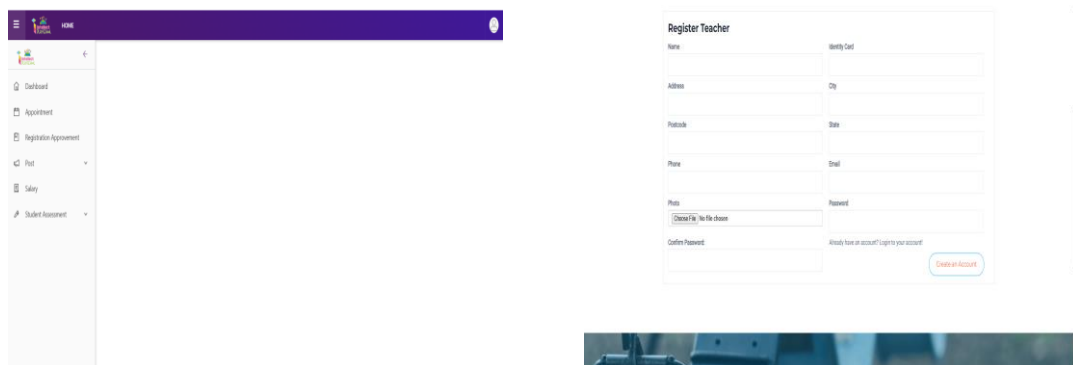
## CHAPTER 2 LITERATURE REVIEW

### 2.1 Intellect Kindergarten Management System

The Intellect Kindergarten Management System is a website that helps teachers and parents stay connected and organize things smoothly in a kindergarten. The system has two main roles: Teacher and Parent, and each one has different features.

The system is built using PHP, HTML, JavaScript, and CSS, ensuring responsiveness across different devices. Parents can access their dashboard to view announcements, monitor their child's activity involvement, check fee payment status, track attendance, edit their profile, and update their child's COVID-19 status. This makes it easier for the school and parents to stay connected and open with each other.

On the other hand, teachers have access to a dashboard where they can manage class overviews, schedule appointments with parents, accept or reject student registration requests, post announcements, view salary details, and assess student performance. These features make it easier to handle the paperwork and communicate better, making things run smoother in the kindergarten.



## CHAPTER 3

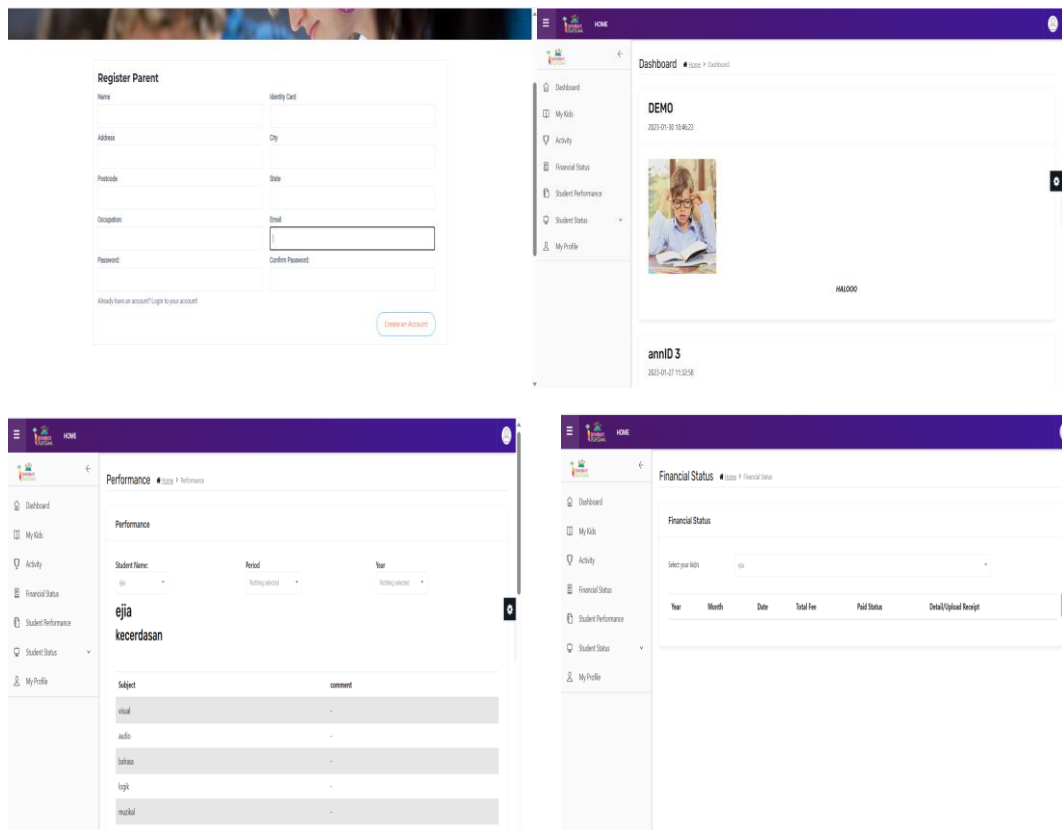


Figure 2.1 Intellect Kindergarten Management System

### 2.1.1 Strength & Weakness

Its best feature is its fantastic parent-teacher communication feature and mobile-friendliness, with ease of access to announcements, attendance, and COVID-19 status notifications. But it is not strong in its minimal two-role design (with no administrative tiers), absence of multi-school feature, and lean health tracking features beyond basic COVID-19 tracking.

### 2.2 An An Kindergarten Management System

An An Kindergarten Management System is a web-based platform designed for managing kindergarten operations. Unlike the Intellect Kindergarten Management System, this system is not responsive, meaning it may not be optimized for different screen sizes. The system is built using HTML, JavaScript, and CSS and provides three user roles: Teacher, Headmaster, and Admin.

## CHAPTER 3

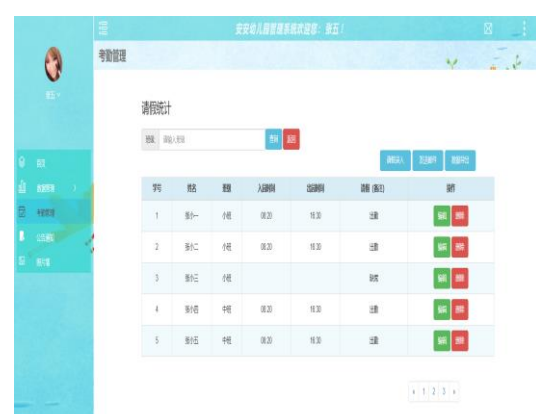
Teachers can see details about their department, class, and students. They can also update or remove these records if needed. They can also manage student attendance, with options to add records, send emails, or print reports. Teachers can also sort attendance records by class to keep things more organized. The system allows teachers to post announcements, either for specific classes or for the entire school, and to upload pictures of kindergarten activities, which can also be filtered by class.

The Headmaster role encompasses all the functionalities of a teacher, with an added feature to manage staff information. Meanwhile, the Admin has the highest level of control, with access to all features available to both teachers and headmasters. The admin can also control who has access, deciding to give, change, or take away permissions for each user.

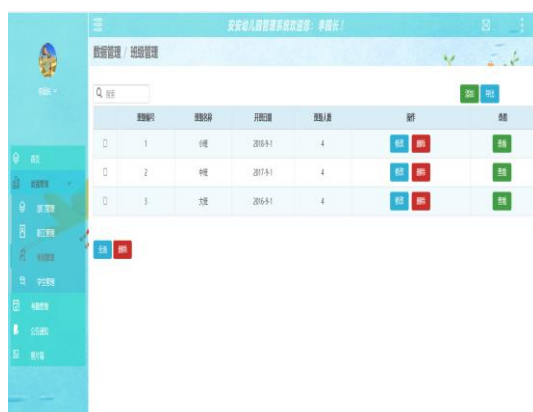
Overall, An An Kindergarten Management System provides a structured approach to kindergarten management, offering comprehensive features for teaching, administration, and user access control. Its slow response makes it harder to use smoothly on various devices.



部门名称	部门	员工姓名	员工ID	操作
办公室	行政部	1		添加 编辑 删除
教学部	教学部	3		添加 编辑 删除
财务部	财务之账房会计	1		添加 编辑 删除
安保部	保安队长	2		添加 编辑 删除
食堂	厨房负责人	1		添加 编辑 删除
后勤部	保洁员	0		添加 编辑 删除



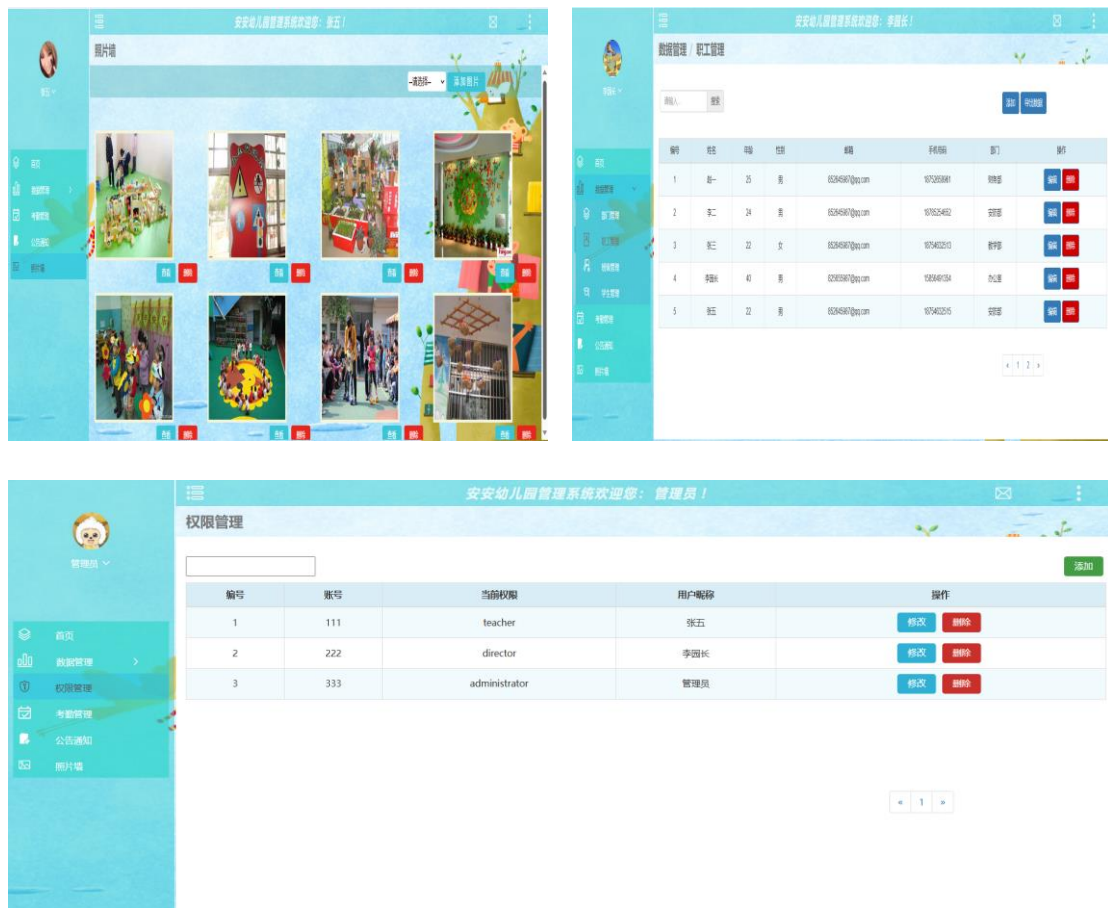
班	班名	教师	学号	出勤情况	日期	操作
1	第一	小	张	10.10	出勤	添加 编辑 删除
2	第二	小	张	10.10	出勤	添加 编辑 删除
3	第三	小	张	10.10	出勤	添加 编辑 删除
4	第四	中	张	10.10	出勤	添加 编辑 删除
5	第五	中	张	10.10	出勤	添加 编辑 删除



班	班名	教师	学号	出勤情况	日期	操作
1	第一	小	张	2016-10-10	出勤	添加 编辑 删除
2	第二	小	张	2017-10-10	出勤	添加 编辑 删除
3	第三	小	张	2016-10-10	出勤	添加 编辑 删除



班	班名	教师	学号	出勤情况	日期	操作
1	第一	小	张	2016-10-10	出勤	添加 编辑 删除
2	第二	小	张	2017-10-10	出勤	添加 编辑 删除
3	第三	小	张	2016-10-10	出勤	添加 编辑 删除



**Figure 2.2 An An Kindergarten Management System**

### 2.2.1 Strength & Weakness

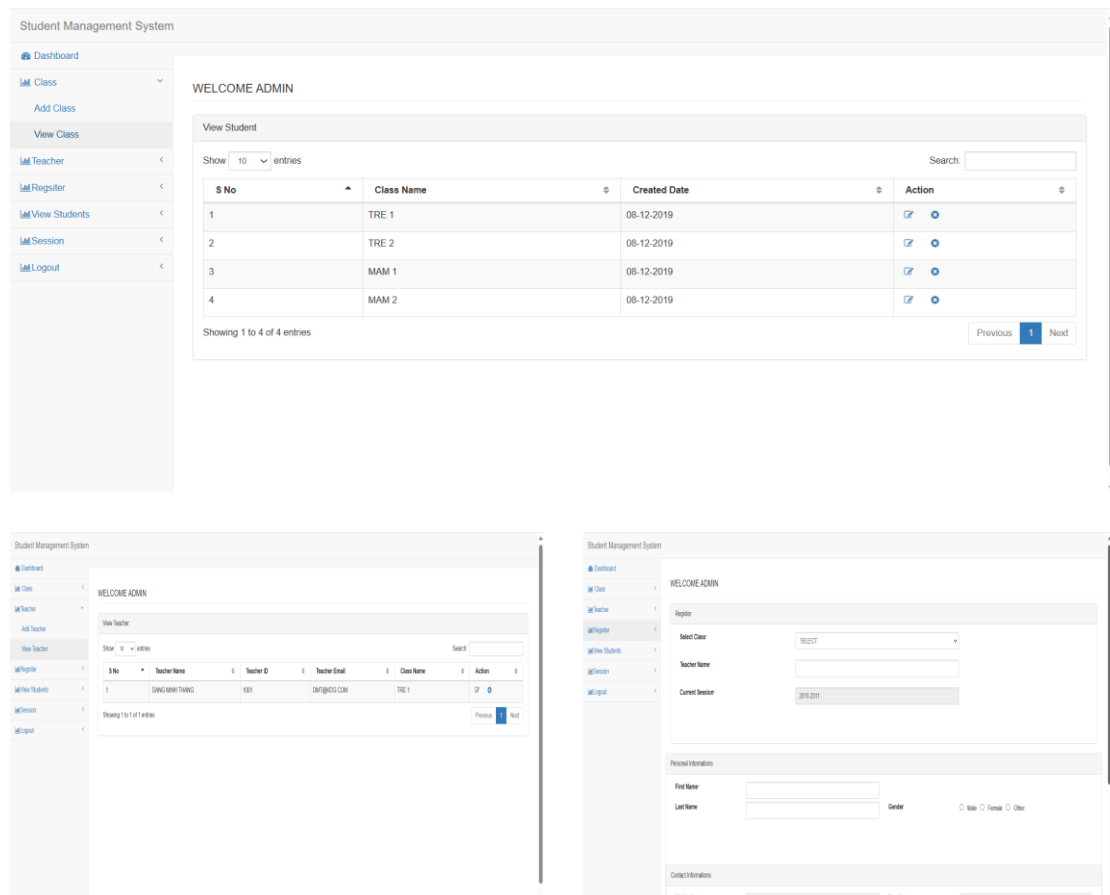
Its greatest advantage is its complete three-tier role system (Teacher/Headmaster/ Admin) with detailed permission controls and heavy-duty attendance management features like filtering and reporting. Its greatest drawbacks are the lack of mobile responsiveness, no separate parent portal for direct data access, and missing health tracking features that would be valuable in a kindergarten environment.

### 2.3 Kindergarten Management System Master

Kindergarten Management System Master is a responsive web-based platform designed for kindergarten administration. It is developed using PHP, JavaScript, and Hack. This platform only has one user role: Admin, unlike the older systems.

## CHAPTER 3

The admin has full control over the system, with the ability to add and view class, teacher, and student information. This centralized control simplifies management but may limit the system's flexibility compared to multi-role platforms. The system has a session feature, but it's not really clear what it does exactly. It may relate to user authentication, session tracking, or managing specific time-based activities.



**Figure 2.3 Kindergarten Management System Master**

### 2.3.1 Strength & Weakness

Its main benefit is the simplicity and total responsiveness of the system, and it is suitable for small businesses with uncomplicated needs that are controlled by admins. Its main drawbacks are its restrictive single-role (Admin-only) configuration, absence of parent-teacher communication tools, and lack of detailed attendance or performance tracking features found in more complex systems.

### 2.4 Proposed Solution

The scopes of the project include improving communication, enhancing security, enabling online payments, and improving student performance tracking in the Kindergarten Management System (KMS). The system must be easier to use, safer, and more helpful for schools.

To improve communication, the system will include messaging so teachers, parents, and administrators can talk easily. A virtual meeting feature will allow real-time discussions. The announcements and Q&A section will also support pictures and videos, making information sharing easier.

For security, the system will have Multi-Factor Authentication (MFA) to prevent unauthorized logins. Password hashing will protect user passwords, and captcha verification will stop bots from logging in. Data encryption will secure student records, attendance, and payments. Backup solutions will keep important data safe if the system crashes.

A double-verification process will ensure payment accuracy before processing. The system will support multiple payment methods, including credit and debit cards, bank transfers, and digital wallets. Automated fee reminders will be sent by email, and a complete payment history will be available for both parents and administrators. Once payment is processed successfully, the system will confirm it immediately.

The system's backup procedure will require the administrator to regularly export data from phpMyAdmin and compress system files into a zip folder. These backups will be stored in both on-site and cloud locations to ensure data preservation. A strong disaster recovery plan will allow for the restoration of services if the system fails, with regular recovery testing to check backup quality. All backup data will be encrypted to meet security standards.

For reporting, the system will track student performance. It will generate monthly reports to show progress over time. Weekly reports will provide details on what students have learned. These reports will help teachers and parents give better support.

### 2.5 Comparison of Previous System

**Table 2.5.1 Comparison of Previous System**

### CHAPTER 3

Features	Intellect KMS	An An KMS	KMS Master
User Roles	Teacher, Parent	Teacher, Headmaster, Admin	Admin
Responsive Design	✓	✗	✓
Student Attendance Tracking	✓	✓	✓
Class Info	✓	✓	✓
Timetable Management	✓	✗	✗
Chat	✗	✗	✗
Announcements & Discussion	✓	✓	✗
Student Activity Log	✓	✓ (Photo Upload)	✗
Salary Management	✓ (Salary Detail)	✗	✗
Users Management	✗	✓ (Staff)	✓ (Staff)
Dashboard	✓	✓	✓
Profile Management	✓	✓	✗
Bill Generation	✗	✗	✗
Payment Management	✓ ( Fee Status)	✗	✗
Health & Safety Features	✓ (COVID-19 Status)	✗	✗
Virtual Meetings	✗	✗	✗

### CHAPTER 3

Security & Data Protection	✓(Password Hashing)	✓(Captcha Verification for Login)	✗
Data Backup	✗	✗	✗
Reports	✗	✓(Attendance Report)	✗
Student Assessment Evaluation	✓	✗	✗
Login & Logout	✓	✓	✓



## CHAPTER 3 PROPOSED METHOD/APPROACH

### 3.1 Methodology

We'll use the Swift Application Development (RAD) approach to create the Kindergarten Management System. This way, we can quickly put together and improve working prototypes as we go. This way, you can quickly set up important parts of the system, like secure user logins, class schedules, managing announcements, and billing parents. After building an initial prototype, feedback from teachers, parents, and administrators will be gathered to improve functionality and usability, with continuous iteration to enhance the system. Once the prototype works well for users, the final system will go live, making sure the software matches what users want. RAD's quick and flexible approach makes it great for changing needs and helps create a system that's easy for users to navigate.

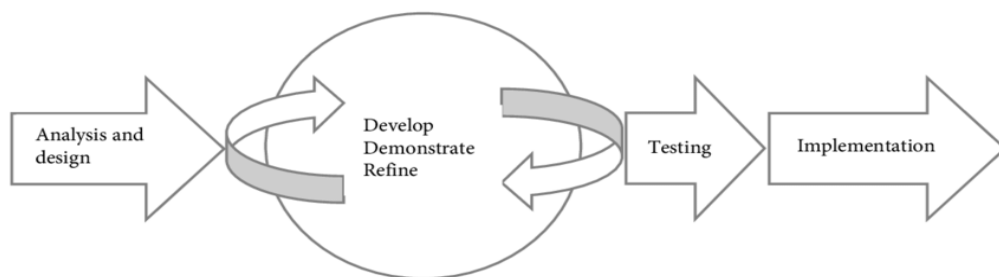
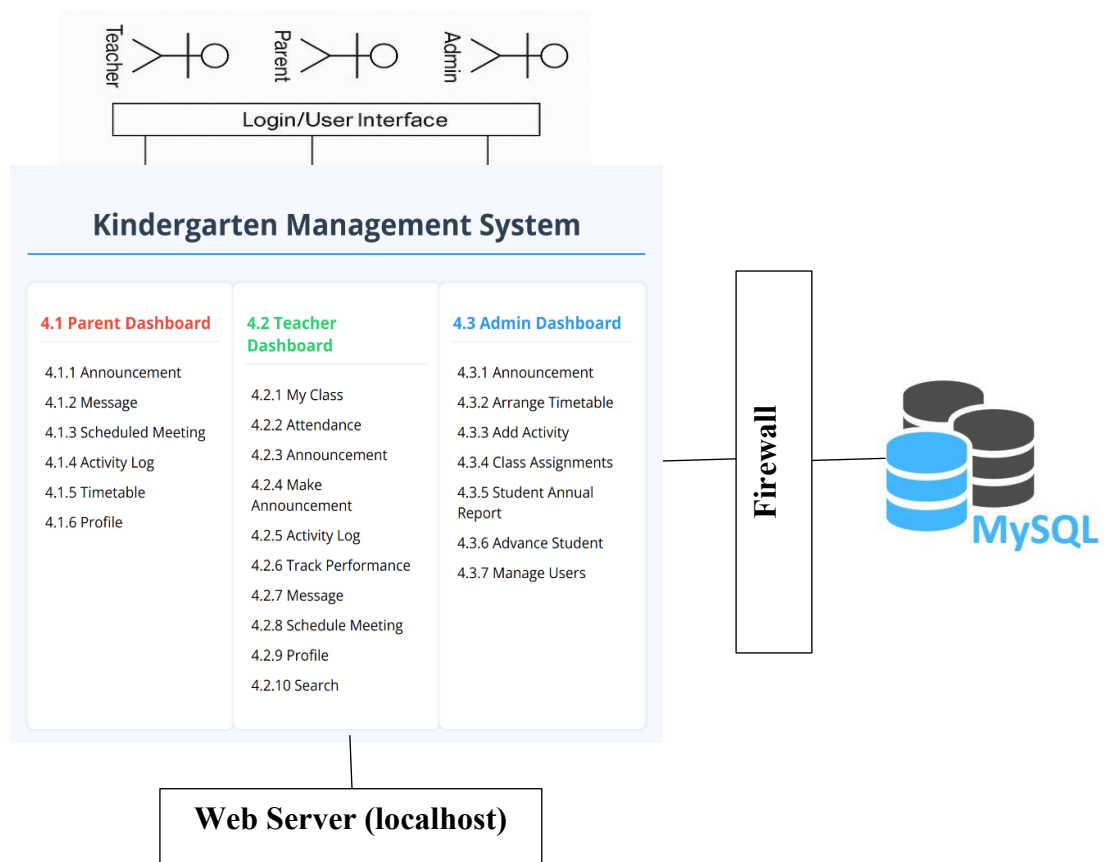


Figure 3.1 Rapid Application Development (RAD) Model

### 3.2 System Architecture Diagram



**Figure 3.2 System Architecture Diagram**

## CHAPTER 3

### 3.3 Timeline

ID	Task	1	2	3	4	5	6	7	8	9	10	11
<b>1</b>	<b>Chapter 1: Introduction</b>	✓										
1.1	Problem Statement	✓										
1.2	Objective	✓										
1.3	Project Objective	✓										
1.4	Project Scope and Direction	✓										
1.5	Contribution	✓										
1.6	Report Organization	✓										
<b>2</b>	<b>Chapter 2: Literature Review</b>		✓									
2.1	Analyze each similar system		✓									
2.2	Resolve weaknesses of each system		✓									
2.3	Compare similar systems		✓									
<b>3</b>	<b>Chapter 3: Methodology and System Design</b>			✓	✓	✓	✓	✓	✓			
3.1	Define methodology			✓								
3.2	Define system hardware and software				✓							
3.3	Develop Diagram					✓	✓	✓				
<b>4</b>	<b>Chapter 4: Implementation and Testing</b>				✓	✓	✓	✓	✓	✓	✓	
4.1	Implementation module				✓	✓	✓	✓				
4.2	Design poster								✓			
4.3	User testing									✓	✓	
4.4	Finalize report & report submission										✓	✓

**Figure 3.3.1 FYP 1 Timeline**

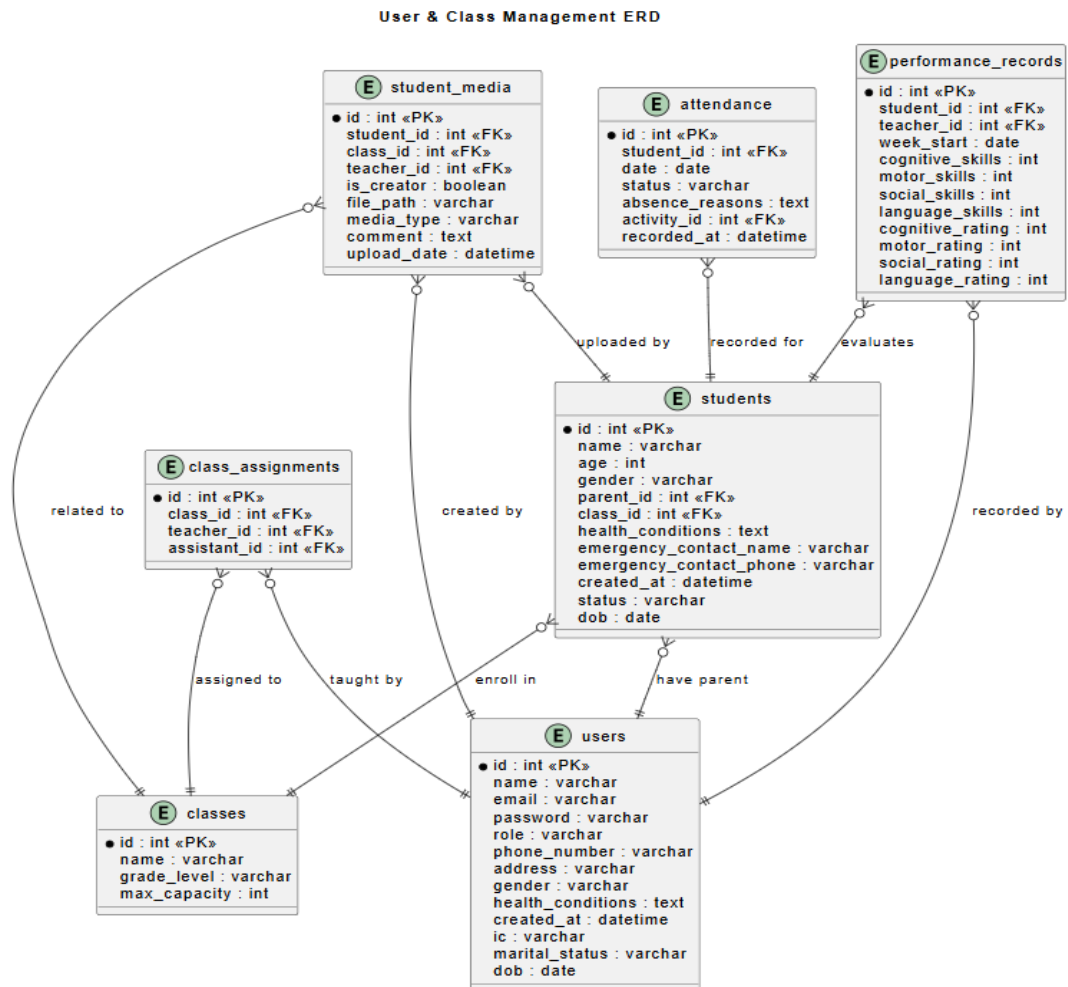
## CHAPTER 3

ID	Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1-3	Chapters 1-3 (Same as FYP1)	✓	✓												
4	CHAPTER 4: SYSTEM DESIGN	✓	✓	✓	✓										
4.1	ERD Diagram	✓													
4.2	Use Case Diagram		✓												
4.3	Use Case Description			✓											
4.4	Activity Diagram				✓										
5	CHAPTER 5: SYSTEM IMPLEMENTATION					✓	✓	✓	✓						
5.1	System Requirement					✓									
5.2	Setting and Configuration						✓	✓							
5.3	System Operation								✓						
5.4	Implementation Issue and Challenges								✓						
6	CHAPTER 6: SYSTEM EVALUATION AND DISCUSSION									✓	✓	✓			
6.1	Testing Setup and Test Result									✓					
6.2	Project Challenges										✓				
6.3	Objectives Evaluation											✓			
7	CHAPTER 7: CONCLUSION AND RECOMMENDATION												✓	✓	✓
7.1	Conclusion												✓		
7.2	Recommendation													✓	
7.3	Finalize FYP2 Report												✓		
7.4	FYP2 Report Submission												✓		
7.5	Demonstration														✓

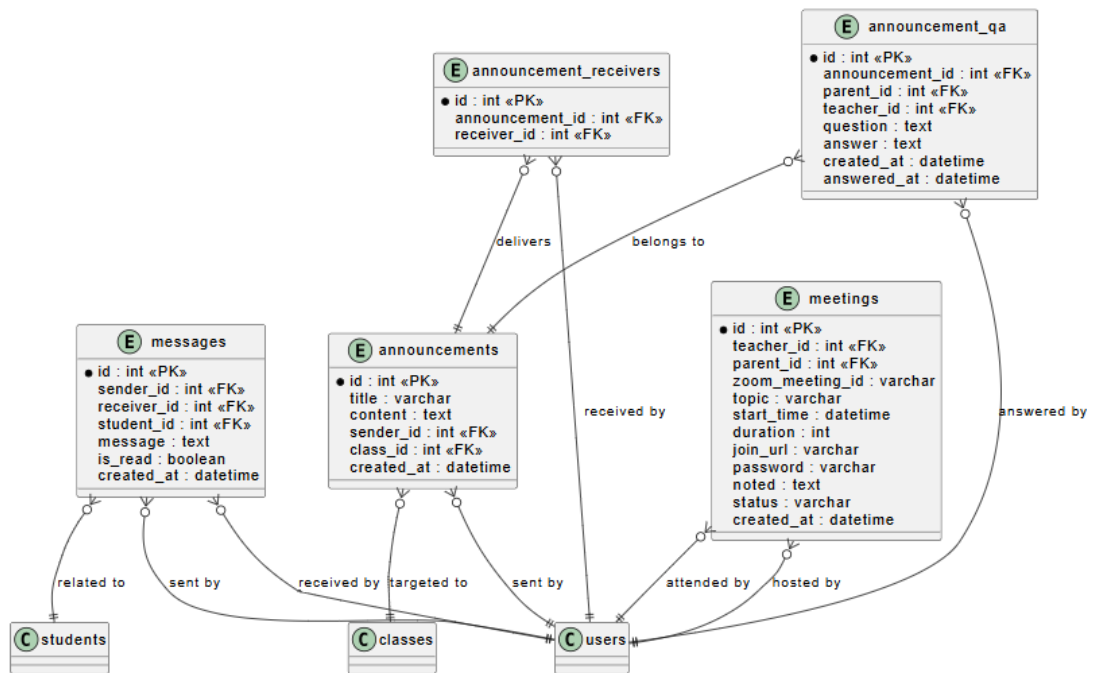
**Figure 3.3.2 FYP 2 Timeline**

## CHAPTER 4 SYSTEM DESIGN

### 4.1 ERD Diagram



Announcements &amp; Communication ERD



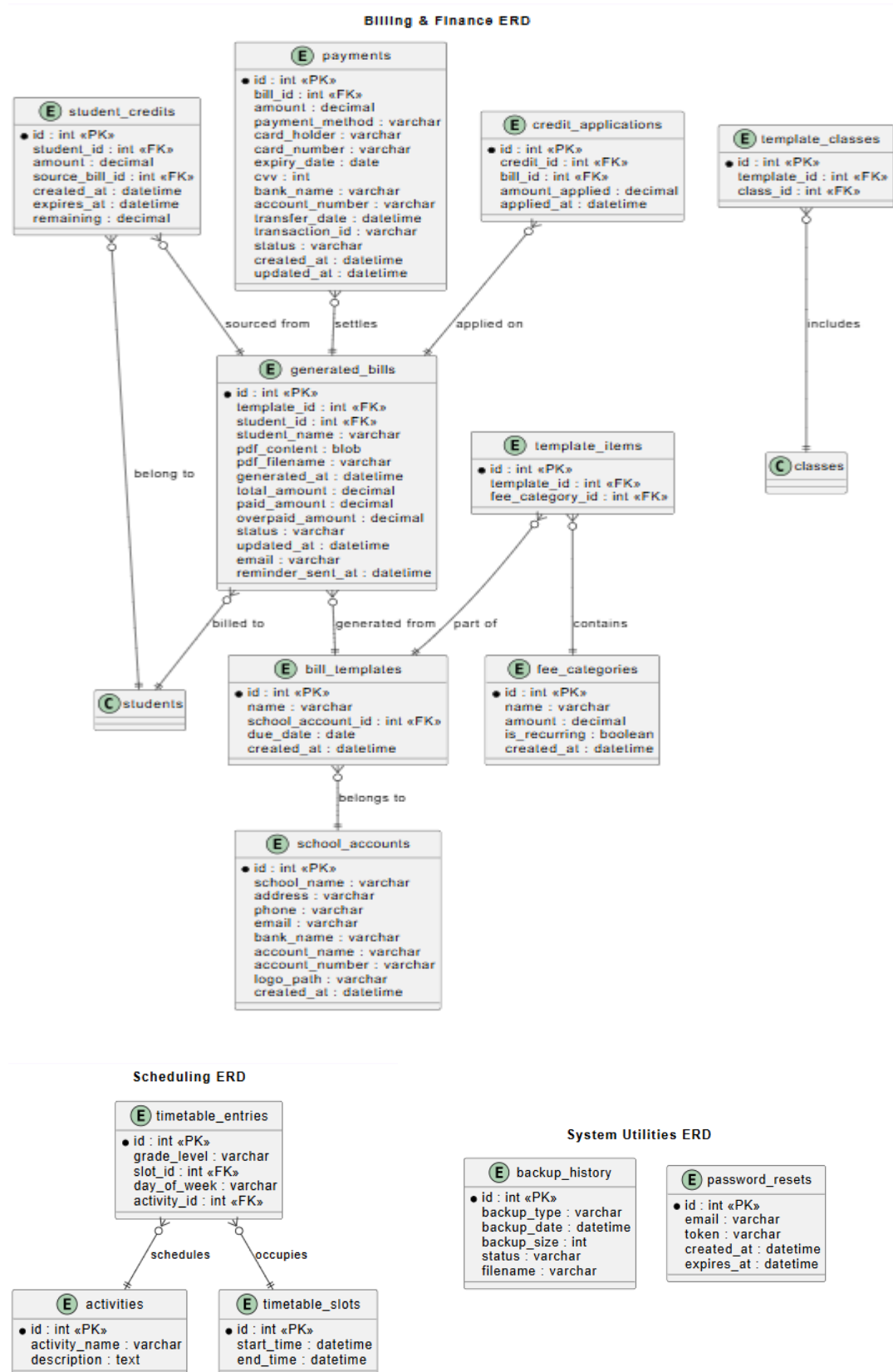
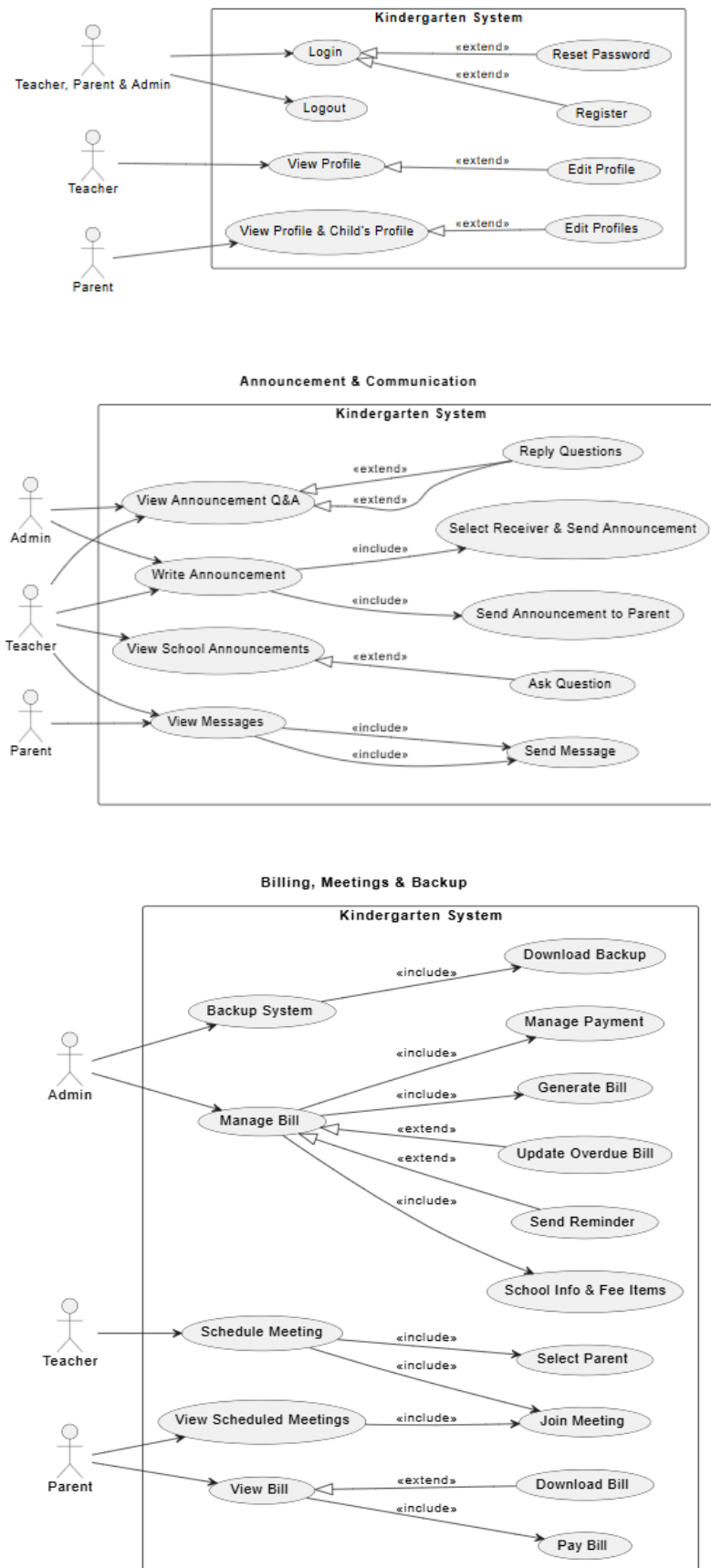


Figure 4.1 ERD Diagram

## 4.2 Use Case Diagram





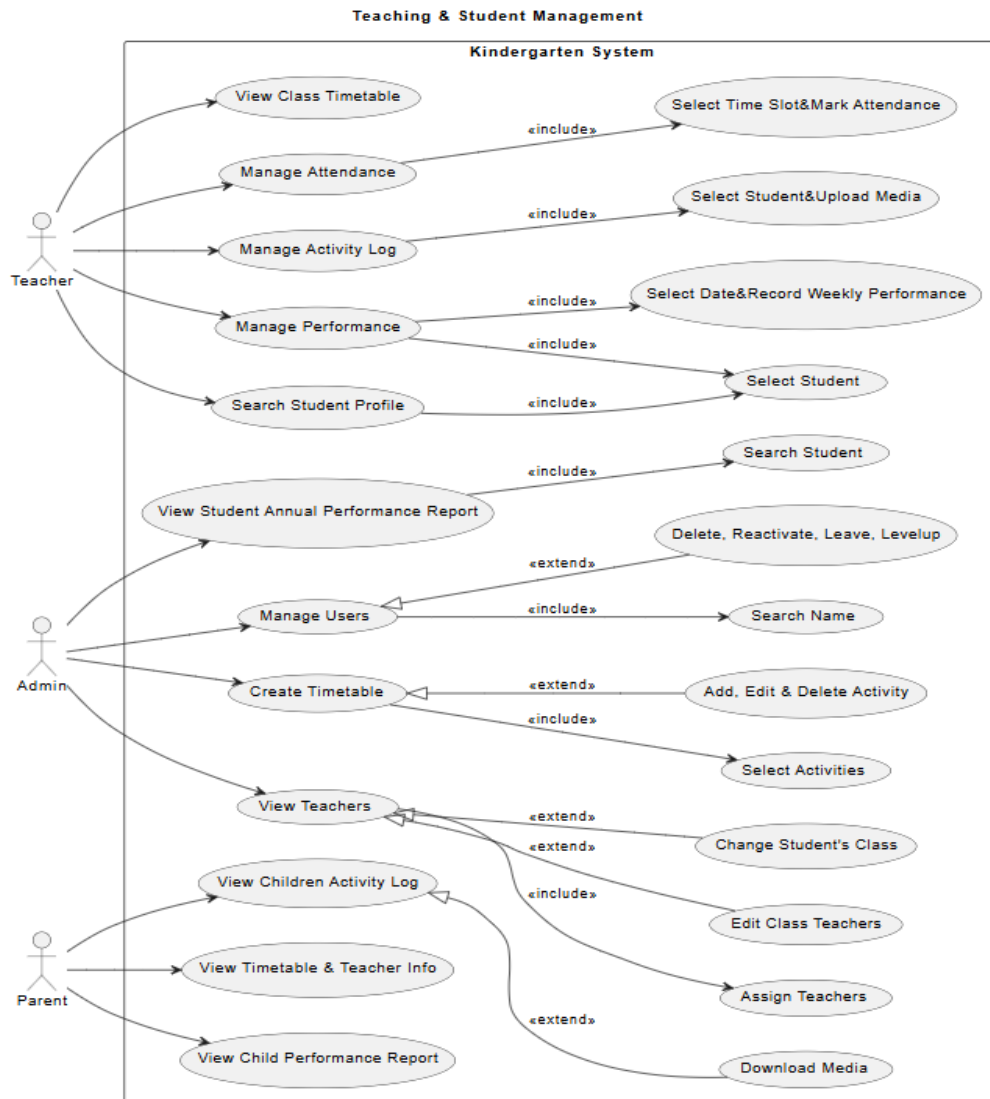


Figure 4.2 Use Case Diagram

### 4.3 Use Case Description

#### 4.3.1 View Child Performance Report – Parent Role

Table 4.3.1 View Child Performance Report – Parent Role Use Case Description

USE CASE DESCRIPTION
<b>Name</b> – View Child Performance Report
<b>Brief Description</b> – Allow parents to view their child's performance report.
<b>Actors</b> - Parent

<b>Relationships –</b>  <b>Association:</b>  <b>Include:</b>  <b>Extends: -</b>  <b>Generalization:</b>
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow –</b>  1. The report is stored and displayed on the first page the parent sees.  2. System displays the report to parent.
<b>Alternate Flows –</b>  Parent access profile details  1. Parent click on the 'View Details' button.  2. System redirect to profile page.
<b>Exception Flows –</b>  1. User not a parent will be redirect to login page.  2. Displaying an error message or skipping affected sections when database error while fetching children or reports.
<b>Post Conditions</b> – Performance report is displayed to the parent.

#### 4.3.2 View Class Announcements – Parent Role

**Table 4.3.2 View Class Announcements – Parent Role Use Case Description**

USE CASE DESCRIPTION
<b>Name</b> – View Class Announcements

<b>Brief Description</b> – Allow parents to view important announcements from the teacher.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> Ask question  <b>Generalization:</b> -
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent selects “Class Announcement” from the navigation bar.  2. System retrieves all announcements of the class.  3. Announcements are displayed to the parent.
<b>Alternate Flows</b> – Parent may submit questions to the teacher.
<b>Exception Flows</b> –  1. The system detects an unauthorized and redirects to login page, terminating the use case.  2. displays an error message when database connection failure.  3. The system detects no announcements and displays a message: "You haven't received any announcements yet."
<b>Post Conditions</b> – Class announcements are read and understood by parents.

#### 4.3.3 View School Announcements – Parent Role

**Table 4.3.3 View School Announcements – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
-----------------------------

<b>Name</b> – View School Announcements
<b>Brief Description</b> – Allow parents to view important announcements from the admin.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> Ask question  <b>Generalization:</b> -
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent selects “School Announcement” from the navigation bar.  2. System retrieves all announcements made by the admin.  3. Announcements are displayed to the parent.
<b>Alternate Flows</b> – Parent may submit questions to the admin.
<b>Exception Flows</b> –  1. The system detects an unauthorized and redirects to login page, terminating the use case.  2. displays an error message when database connection failure.  3. The system detects no announcements and displays a message: "You haven't received any announcements yet."
<b>Post Conditions</b> – Announcements are read and understood.

#### 4.3.4 View Messages – Parent Role

**Table 4.3.4 View Messages – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Send Messages
<b>Brief Description</b> – Allow parents to send messages to teachers.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b>  <b>Include: Send Message</b>  <b>Extends:</b>  <b>Generalization: -</b>
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent selects “Messages” from the navigation bar.  2. Parent writes a message in the chat box and clicks Send.  3. The system stores the message in the database and refreshes the chat window to display the new message.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not a parent gets redirect to login page. 2. If no text is entered, the system shows “ <i>Message cannot be empty</i> ” and stays on the same page. 3. If no assigned teacher is found, the system shows “ <i>Invalid message recipient</i> ” and does not send the message. 4. If a database error occurs, the system shows “ <i>An unexpected error occurred...</i> ” and does not save the message.
<b>Post Conditions</b> – Message is sent to the teacher.

## 4.3.5 View Scheduled Meetings – Parent Role

Table 4.3.5 View Scheduled Meetings – Parent Role Use Case Description

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – View Scheduled Meetings
<b>Brief Description</b> – Allow parents to view scheduled meetings with teachers.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> Join Meeting  <b>Generalization:</b> -
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent navigates to "Scheduled Meetings".  2. System displays a list of upcoming meetings.  3. Parent views meeting details.
<b>Alternate Flows</b> –  Parent may join meetings  1. Parent click on the join meeting button.  2. System redirects to zoom application.

<b>Exception Flows –</b> <ol style="list-style-type: none"> <li>"Appointments cannot be loaded due to a system error." Shows alert.</li> <li>"You have no scheduled appointments." Displays empty-state message.</li> <li>User is not logged in or is not a parent gets redirect to login page.</li> <li>"You have no scheduled appointments." Displays empty-state message.</li> <li>"Meeting link is invalid or expired." Shows error if <code>join_url</code> is empty/malformed.</li> </ol>
<b>Post Conditions –</b> Scheduled meetings are displayed for the parent.

#### 4.3.6 View Children Activity Log – Parent Role

**Table 4.3.6 View Children Activity Log – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> View Children Activity Log
<b>Brief Description –</b> Allow parents to view logs of children's activities.
<b>Actors -</b> Parent
<b>Relationships –</b>  <b>Association: -</b>  <b>Include: -</b>  <b>Extends: Download Image or Video</b>  <b>Generalization: -</b>
<b>Preconditions –</b> Parent must be logged into the system.
<b>Basic Flow –</b> <ol style="list-style-type: none"> <li>Parent navigates to "Activity Log".</li> <li>System retrieves and displays the activity records.</li> <li>Parent browses through activities.</li> </ol>

<p><b>Alternate Flows –</b></p> <p>Parent want to save the image or video</p> <ol style="list-style-type: none"> <li>1. Parent click on download button.</li> <li>2. System starts to download the image or video.</li> </ol>
<p><b>Exception Flows –</b></p> <ol style="list-style-type: none"> <li>1. User is not logged in or is not a parent gets redirect to login page.</li> <li>2. Terminates when unable to load your children's data due to database error. Error message will be displayed.</li> <li>3. Terminates when \$children is empty, "No children found associated with your account."</li> <li>4. "Image not found." Shows placeholder text when file_exist() fails.</li> </ol>
<p><b>Post Conditions –</b> Scheduled meetings are displayed for the parent.</p>

#### 4.3.7 View Timetable & Teacher Info – Parent Role

**Table 4.3.7 View Timetable & Teacher Info – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> View Timetable & Teacher Info
<b>Brief Description –</b> Allow parents to view the class timetable and information about teachers.
<b>Actors -</b> Parent
<p><b>Relationships –</b></p> <p><b>Association: -</b></p> <p><b>Include: -</b></p> <p><b>Extends:</b></p> <p><b>Generalization: -</b></p>



<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent navigates to "Timetable".  2. Parent view class timetable.  3. System displays the timetable and teachers in charge.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not a parent gets redirect to login page. 2. No child found: "No child found for this parent." 3. No timetable slots found: "No timetable data available." 4. No teachers assigned: "No teacher or assistant assigned to this class." 5. Missing timetable entries: Shows "Free" for empty slots; no error message.
<b>Post Conditions</b> – Timetable and teacher details are shown to the parent.

#### 4.3.8 View Profile & Child's Profile – Parent Role

**Table 4.3.8 View Profile & Child's Profile – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – View Profile & Child's Profile
<b>Brief Description</b> – Allow parents to view their personal and child's profile information.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -

<b>Extends:</b> Edit Parent Profile, Edit Child's Profile  <b>Generalization:</b> -
<b>Preconditions</b> – Parent must be logged into the system.
<b>Basic Flow</b> –  1. Parent navigates to "Profiles".  2. System displays parent profile and child's information.
<b>Alternate Flows</b> –  Edit their profile  1. Parent click on the edit button then go to edit page.  2. After done editing click on save changes button. Click cancel if do not need to edit.  Edit child's profile  1. Parent click on the edit button then go to edit page.  2. After done editing click on save button. Click cancel if do not need to edit.
<b>Exception Flows</b> –  1. User is not logged in or is not a parent gets redirect to login page. 2. Terminates with PDOException error if queries fail. 3. Parent data not found: "Profile data unavailable." 4. No children found: "No children registered yet." 5. Missing info will display message accordingly.
<b>Post Conditions</b> – Profiles are displayed.

#### 4.3.9 View Bill – Parent Role

**Table 4.3.9 View Bill – Parent Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – View Bill
<b>Brief Description</b> – Allow parents to view billing information and make payments.
<b>Actors</b> - Parent
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Pay Bill  <b>Extends:</b> Download Bill  <b>Generalization:</b> -
<b>Preconditions</b> –  1. Parent must be logged into the system.  2. Bills have been generated for the student.
<b>Basic Flow</b> –  1. Parent navigates to "Billing".  2. The system displays a list of generated bills for the parent's child, showing bill details and due dates.  3. The parent selects a bill to view.  4. The parent chooses to make a payment.  5. The parent enters payment details (credit card or bank transfer) and submits.  6. The system validates the details and payment amount.  7. The system updates the bill's status.
<b>Alternate Flows</b> –

<p>Download bill</p> <ol style="list-style-type: none"> <li>1. Parent click on the View button.</li> <li>2. System displays print window.</li> <li>3. Bill is printed.</li> </ol> <p>Overdue bill</p> <ol style="list-style-type: none"> <li>1. If the bill is past the due date, the parent must wait until a new bill is generated.</li> </ol>
<p><b>Exception Flows –</b></p> <ol style="list-style-type: none"> <li>1. User is not logged in or is not a parent gets redirect to login page.</li> <li>2. If the payment amount is empty, invalid, or exceeds the balance, the system shows “<i>Invalid payment amount.</i>”</li> <li>3. If required credit card or bank transfer details are missing/invalid, the system rejects the payment with an error message.</li> <li>4. If payment is attempted more than 30 days past due, the system rejects it with “<i>This bill is overdue. Please contact administrator for late payment options.</i>”</li> <li>5. Terminates with PDOException error if queries fail.</li> </ol>
<p><b>Post Conditions –</b> Payment records are stored in the database.</p>

#### 4.3.10 View Class Timetable – Teacher Role

**Table 4.3.10 View Class Timetable – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> View Class Timetable
<b>Brief Description –</b> Allows the teacher to view the timetable of the class they are assigned to.
<b>Actors -</b> Teacher

<b>Relationships –</b>  <b>Association: -</b>  <b>Include: -</b>  <b>Extends: -</b>  <b>Generalization: -</b>
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow –</b>  1. Teacher navigates to "My Class".  2. System displays the timetable for the teacher's assigned classes.
<b>Alternate Flows –</b>
<b>Exception Flows –</b>  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. No assigned class: “No class assign to you.” 4. No timetable slots: "No timetable slots found." 5. No timetable entries: Displays "Free" for all slots. 6. Calendar time error: Shows empty time display.
<b>Post Conditions</b> – Timetable is displayed.

#### 4.3.11 Record Attendance – Teacher Role

**Table 4.3.11 Record Attendance – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Record Attendance
<b>Brief Description</b> – Allow teacher to record student attendance.
<b>Actors</b> - Teacher

<b>Relationships –</b>  <b>Association: -</b>  <b>Include:</b> Select Time Slot, Select Status  <b>Extends: -</b>  <b>Generalization: -</b>
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow –</b>  1. Teacher navigates to "Attendance".  2. Teacher selects the time slot.  3. Teacher selects the attendance status for each student.  4. System saves the attendance record.
<b>Alternate Flows –</b>
<b>Exception Flows –</b>  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. No assigned classes: Shows "No classes assigned". 4. No student in class: Shows empty attendance form. 5. No activities scheduled: Shows "No activities scheduled today". 6. Invalid class access: Shows "You are not assigned to this class". 7. Submission error: Shows error message. 8. Got invalid status then defaults to "Present".
<b>Post Conditions</b> – Attendance recorded and saved.

#### 4.3.12 Announcement Q&A – Teacher Role

**Table 4.3.12 Announcement Q&A – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
-----------------------------

<b>Name</b> – Announcement Q&A
<b>Brief Description</b> – Allow teacher to view class announcements created and the questions asked.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> Answer question  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "Announcement Q&A".  2. System displays all announcements.
<b>Alternate Flows</b> – Teacher may answer questions asked by parents.
<b>Exception Flows</b> –  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. No announcement found: Shows "No announcements available". 4. Got >10 announcements but only shows only latest 10 (silent truncation).
<b>Post Conditions</b> – Announcement can be viewed and question will be answered.

#### 4.3.13 View School Announcement – Teacher Role

**Table 4.3.13 View School Announcement – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
-----------------------------

<b>Name</b> – View School Announcement
<b>Brief Description</b> – Allow teacher to view announcements made by admin.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> Ask Question  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "School Announcement".  2. System displays a list of announcements made by admin.
<b>Alternate Flows</b> – Teacher may ask question if unclear.
<b>Exception Flows</b> –  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Empty history shows "No announcements available".
<b>Post Conditions</b> – School announcement is received and understood.

#### 4.3.14 Send Announcement – Teacher Role

**Table 4.3.14 Send Announcement – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Send Announcement
<b>Brief Description</b> – Allow teacher to send announcements to parents.



<b>Actors</b> - Teacher
<b>Relationships –</b>  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> -  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow –</b>  1. Teacher navigates to "Make Announcement".  2. Teacher composes and submits the announcement.  3. System stores announcement and sends email notification to receivers.
<b>Alternate Flows –</b>
<b>Exception Flows –</b>  1. User is not logged in or is not a teacher gets redirect to login page. 2. Title or content missing, show error message. 3. Transaction rolled back; display message: <i>"No students have registered parents."</i> 4. No parent emails, rollback, show: no parent emails available. 5. If email delivery fails, the system rolls back the transaction, displays an error message, and logs the issue. 6. Database Error, rollback, show database failure message.
<b>Post Conditions –</b>  1. Announcement is sent and saved. 2. Email notification is sent.

#### 4.3.15 Upload Media – Teacher Role

**Table 4.3.15 Upload Media – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Upload Media
<b>Brief Description</b> – Allow teacher to upload media files for students.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Select Student  <b>Extends:</b> -  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "Activity Log".  2. Teacher selects student.  3. Teacher uploads and submits media file.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Empty student list shows "No students assigned to you". 4. Empty picture list → Shows "No pictures/video uploaded yet". 5. Upload failure shows "Failed to upload picture". 6. No selected file shows "No picture selected". 7. Got mkdir failure, silently fails. 8. Rejected by browser when non-image upload.
<b>Post Conditions</b> – Media uploaded and linked to selected student's parent.

## 4.3.16 Record Weekly Performance – Teacher Role

Table 4.3.16 Record Weekly Performance – Teacher Role Use Case Description

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Record Weekly Performance
<b>Brief Description</b> – Allow teacher to record students' weekly performance.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Select Student, Select Date  <b>Extends:</b> -  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "Track Performance".  2. Teacher selects a student.  3. Teacher chooses a date.  4. Teacher inputs performance details.  5. System stores the performance entry.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Got invalid token, shows "Invalid form submission". 4. Got empty fields, shows "Please fill all required fields". 5. Rejects submission if got non-integer student_id.

<b>Post Conditions</b> – Weekly performance saved.
--

#### 4.3.17 Send Message – Teacher Role

**Table 4.3.17 Send Message – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Send Message
<b>Brief Description</b> – Allow teacher to send messages to parents.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Select Parent  <b>Extends:</b>  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "Chat".  2. Teacher selects the parent.  3. Teacher composes and sends a message.  4. System stores message and sends email notification to parents.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not a teacher gets redirect to login page. 2. If the parent is not linked to the student, the system shows “ <i>Invalid recipient.</i> ” 3. If the message is empty, it shows “ <i>Message cannot be empty.</i> ”

4.	If saving to the database fails, it shows “ <i>Failed to save message.</i> ”
5.	If the email fails to send, it shows “ <i>Failed to send message.</i> ”
6.	If the mail server is unreachable, it shows “ <i>Message sending failed due to mail server error.</i> ”
<b>Post Conditions</b> – Message sent and history updated.	

#### 4.3.18 Schedule Meeting – Teacher Role

**Table 4.3.18 Schedule Meeting – Teacher Role Use Case Description**

USE CASE DESCRIPTION
<b>Name</b> – Schedule Meeting
<b>Brief Description</b> – Allow teacher to schedule a meeting with parents.
<b>Actors</b> - Teacher
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Select Parent  <b>Extends:</b> Join Meeting  <b>Generalization:</b> -
<b>Preconditions</b> – Teacher must be logged into the system.
<b>Basic Flow</b> –  1. Teacher navigates to "Schedule Meeting".  2. Teacher selects a parent.  3. Teacher inputs meeting details.  4. System schedules the meeting.
<b>Alternate Flows</b> –  Teacher attends meeting

<ol style="list-style-type: none"> <li>1. Teacher clicks on the join meeting button.</li> <li>2. System will direct teacher to zoom application.</li> </ol> <p>Teacher deletes scheduled meeting</p> <ol style="list-style-type: none"> <li>1. Teacher clicks on the cancel button.</li> </ol>
<p><b>Exception Flows –</b></p> <ol style="list-style-type: none"> <li>1. User is not logged in or is not a teacher gets redirect to login page.</li> <li>2. Database error: Terminates with PDOException error.</li> <li>3. API error, shows "Failed to create appointment".</li> <li>4. Query failure, shows error message and redirects.</li> </ol>
<p><b>Post Conditions –</b> Meeting scheduled.</p>

#### 4.3.19 View Profile – Teacher Role

**Table 4.3.19 View Profile – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> View Profile
<b>Brief Description –</b> Allow teacher to view own profile.
<b>Actors -</b> Teacher
<p><b>Relationships –</b></p> <p><b>Association: -</b></p> <p><b>Include: -</b></p> <p><b>Extends: Edit Profile</b></p> <p><b>Generalization: -</b></p>
<b>Preconditions –</b> Teacher must be logged into the system.
<p><b>Basic Flow –</b></p> <ol style="list-style-type: none"> <li>1. Teacher navigates to "Profile".</li> <li>2. System displays teacher profile details.</li> </ol>

3. System displays all announcements.
<b>Alternate Flows –</b>  <b>Teacher edits personal information</b>  1. Teacher clicks on the edit button then get directed to edit profile page. 2. After done editing click on save changes button. Click cancel if do not need to edit.
<b>Exception Flows –</b>  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Got empty phone/address/health, shows "Not provided" fallback text. 4. Malformed text handled by htmlspecialchars().
<b>Post Conditions –</b> Profile displayed.

#### 4.3.20 Search Profile – Teacher Role

**Table 4.3.20 Search Profile – Teacher Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> Search Profile
<b>Brief Description –</b> Allow teacher to search student related information.
<b>Actors -</b> Teacher
<b>Relationships –</b>  <b>Association: -</b>  <b>Include:</b> Select Student  <b>Extends: -</b>  <b>Generalization: -</b>
<b>Preconditions –</b> Teacher must be logged into the system.

<b>Basic Flow –</b>  1. Teacher navigates to "Search". 2. Teacher enters student search query. 3. System displays matching results. 4. Teacher selects a student to view profile.
<b>Alternate Flows –</b>
<b>Exception Flows –</b>  1. User is not logged in or is not a teacher gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Empty selection, shows "No student selected" message. 4. Got unlinked parent, shows "Parent information not found".
<b>Post Conditions –</b> Student related information is displayed.

#### 4.3.21 Send Announcement – Admin Role

**Table 4.3.21 Send Announcement– Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> Send Announcement
<b>Brief Description –</b> Allow admin to send announcements.
<b>Actors -</b> Admin
<b>Relationships –</b>  <b>Association: -</b>  <b>Include:</b> Select Receiver  <b>Extends: -</b>  <b>Generalization: -</b>
<b>Preconditions –</b> Admin must be logged into the system.



<b>Basic Flow –</b>  1. Admin navigates to "Make Announcement". 2. Admin selects receiver type. 3. Admin composes and sends announcement. 4. System stores announcement and sends email notification to receivers.
<b>Alternate Flows –</b>
<b>Exception Flows –</b>  1. User is not logged in or is not an admin gets redirect to login page. 2. Required fields missing (title, content, or receiver selection) and show corresponding validation error. 3. Database error: transaction rolls back and system shows “ <i>Failed to save announcement</i> ”. 4. Email error: announcement is saved, but system logs the email failure and does not notify receivers via email.
<b>Post Conditions –</b>  1. Announcement is saved in the system. 2. Email notification is successfully sent to selected receivers.

#### 4.3.22 Announcement Q&A – Admin Role

**Table 4.3.22 Announcement Q&A – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Announcement Q&A
<b>Brief Description</b> – Allow admin to answer teachers’ or parents’ questions.
<b>Actors</b> - Admin
<b>Relationships –</b>  <b>Association:</b> -

<b>Include: -</b>  <b>Extends:</b> Answer Question  <b>Generalization: -</b>
<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow –</b>  1. Admin navigates to "Announcement Q&A".  2. System displays list of announcements made.
<b>Alternate Flows</b> – Admin may answer to teachers' or parents' questions.
<b>Exception Flows –</b>  1. User is not logged in or is not an admin gets redirect to login page. 2. Database error: Terminates with PDOException error.
<b>Post Conditions</b> – Announcement can be viewed and question will be answered.

#### 4.3.23 Create Timetable – Admin Role

**Table 4.3.23 Create Timetable – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Create Timetable
<b>Brief Description</b> – Allow admin to create class timetable.
<b>Actors</b> - Admin
<b>Relationships –</b>  <b>Association: -</b>  <b>Include:</b> Select Grade, Select Activities  <b>Extends: -</b>

<b>Generalization: -</b>
<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow –</b>  1. Admin navigates to "Timetable". 2. Admin selects grade. 3. Admin selects activities for the grade. 4. Timetable is saved.
<b>Alternate Flows –</b>  1. Go to “Manage Activities”. 2. Add a new activity, edit existing activity or delete an activity.
<b>Exception Flows –</b>  1. User is not logged in or is not an admin gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Invalid grade (not 1/2/3) → Defaults to Grade 1.
<b>Post Conditions</b> – Timetable created and saved.

#### 4.3.24 View Class Teachers – Admin Role

**Table 4.3.24 View Class Teachers – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – View Class Teachers
<b>Brief Description</b> – Allow admin to view and manage class assignments.
<b>Actors</b> - Admin
<b>Relationships –</b>  <b>Association: -</b>

<p><b>Include:</b> Select Teacher</p> <p><b>Extends:</b> Edit Teacher, Change Class</p> <p><b>Generalization:</b> -</p>
<p><b>Preconditions</b> – Admin must be logged into the system.</p>
<p><b>Basic Flow</b> –</p> <ol style="list-style-type: none"> <li>Admin navigates to "Class Assignments".</li> <li>Admin selects two teachers.</li> <li>System displays class assignments.</li> </ol>
<p><b>Alternate Flows</b> –</p> <p>Admin change teacher for a class</p> <ol style="list-style-type: none"> <li>Admin clicks on the edit button.</li> <li>Click on the save assignment button or cancel button if do not need to edit.</li> </ol> <p>Admin change class for a student</p> <ol style="list-style-type: none"> <li>Click on the change class button.</li> <li>Select a class to transfer.</li> </ol>
<p><b>Exception Flows</b> –</p> <ol style="list-style-type: none"> <li>User is not logged in or is not an admin gets redirect to login page.</li> <li>Database error: Terminates with PDOException error.</li> <li>Null teacher/assistant → Shows "Not assigned" placeholder.</li> </ol>
<p><b>Post Conditions</b> – Teachers added and shown.</p>

#### 4.3.25 View Student Annual Performance Report – Admin Role

**Table 4.3.25 View Student Annual Performance Report – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – View Student Annual Performance Report
<b>Brief Description</b> – Allow admin to view student performance reports.
<b>Actors</b> - Admin
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Search Student  <b>Extends:</b> -  <b>Generalization:</b> -
<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow</b> –  1. Admin navigates to "Student Annual Report".  2. Admin searches for student.  3. System displays report.
<b>Alternate Flows</b> –
<b>Exception Flows</b> –  1. User is not logged in or is not an admin gets redirect to login page. 2. Database error: Terminates with PDOException error. 3. Incorrect search info displays “No students found matching your search.”
<b>Post Conditions</b> – Report viewed.

#### 4.3.26 Manage Users – Admin Role

**Table 4.3.26 Manage Users – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – Manage Users
<b>Brief Description</b> – Allow admin to search, view, and manage student, parent, and teacher records.
<b>Actors</b> - Admin
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Search Name  <b>Extends:</b> Delete, Activate, Leave, Level Up  <b>Generalization:</b> -
<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow</b> –  1. Admin navigates to "Manage Users".  2. Admin types a name or ID in the search bar.  3. System searches and categorizes results into Student, Parent, and Teacher lists.  4. System displays the matching results for admin to manage.
<b>Alternate Flows</b> –  <b>Students:</b>  1. Admin sets status to <i>Leave</i> when a student takes leave.  2. Admin uses <i>Level Up</i> when the student finishes a grade level, promoting to the next class (or graduating if in final grade).  3. Admin uses <i>Delete</i> to remove a student record from the database.  4. Admin uses <i>Activate</i> to re-activate a student continuing studies.

<b>Parents &amp; Teachers:</b>  1. Admin uses <i>Delete</i> to remove a parent or teacher record from the database.
<b>Exception Flows –</b>  1. User is not logged in or is not an admin gets redirect to login page. 2. If a parent is deleted but still has associated students, it's an Error: "Cannot delete parent with associated students". 3. If a teacher is deleted but still has class assignments, it's an Error: "Cannot delete teacher with assigned classes". 4. Database error (PDOException or other) will rollback transaction and display error message. 5. If search input is empty, no results displayed.
<b>Post Conditions –</b> User records updated.

#### 4.3.27 Manage Bill – Admin Role

**Table 4.3.27 Manage Bill – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name –</b> Manage Bill
<b>Brief Description –</b> Allow admin to generate, update, and manage student bills and payments.
<b>Actors -</b> Admin
<b>Relationships –</b>  <b>Association: -</b>  <b>Include:</b> Generate Bill, Manage Payment, School Info & Fee Items  <b>Extends:</b> Send Reminder, Update Overdue Bill  <b>Generalization: -</b>

<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow</b> – <ol style="list-style-type: none"> <li>Admin navigates to "Manage Bill".</li> <li>Admin adds or edits fee items or school account info before generating bill templates.</li> <li>Admin generates a new bill template or view previous bills.</li> <li>Admin goes to “Manage Payment” to verify payment made by parents.</li> <li>System saves pdf bills and updates billing status.</li> </ol>
<b>Alternate Flows</b> – <ol style="list-style-type: none"> <li>In Manage Payment page, admin can send email reminders to parents for upcoming due bills.</li> <li>In Generate Bill, admin can regenerate bills if overdue or delete bills.</li> </ol>
<b>Exception Flows</b> – <ol style="list-style-type: none"> <li>User is not logged in or is not an admin gets redirect to login page.</li> <li>If no school account or fee items are found, then bill generation cannot proceed.</li> <li>Database error (e.g., PDOException): Display error and rollback transaction.</li> <li>If bill not found when verifying payment, then show “Bill not found” error.</li> <li>If no parent email exists, reminder cannot be sent, show error.</li> </ol>
<b>Post Conditions</b> – <ol style="list-style-type: none"> <li>Bill templates are created, updated, or deleted successfully.</li> <li>Payment records are verified and updated.</li> <li>Parents receive reminders for overdue bills.</li> </ol>

#### 4.3.28 System Backup – Admin Role



**Table 4.3.28 System Backup – Admin Role Use Case Description**

<b>USE CASE DESCRIPTION</b>
<b>Name</b> – System Backup
<b>Brief Description</b> – Allow admin to generate a full system backup and download the backup file for safekeeping.
<b>Actors</b> –Admin
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> Download backup file  <b>Extends:</b>  <b>Generalization:</b> -
<b>Preconditions</b> – Admin must be logged into the system.
<b>Basic Flow</b> –  1. Admin navigates to "System Backup".  2. Admin clicks on <b>Generate Backup</b> .  3. System creates a backup file and stores the details in backup history.  4. Admin downloads the generated backup file.
<b>Alternate Flows</b> –  1. If backup history exists, system displays previous backup records with file size and download option.  2. If no backup history exists, system displays “ <i>No backup records found</i> ”.
<b>Exception Flows</b> –  1. User is not logged in or is not an admin gets redirect to login page.

2. If system folder cannot be located → backup fails and system displays “*Unknown*” for system files.
3. If backup\_history table does not exist → system displays “*Backup history table does not exist*”.
4. If database query fails → system displays “*Error fetching backup history: [error message]*”.
5. If backup file is corrupted or missing, system prevents download and may display error.

**Post Conditions –**

1. Backup file is generated and available for download.
2. Backup details are stored in database.

#### 4.3.29 Login – All Users

**Table 4.3.29 Login – All Users Use Case Description**

USE CASE DESCRIPTION
<b>Name</b> – Login
<b>Brief Description</b> – Log in users to their page.
<b>Actors</b> – Parent, Teacher, Admin
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> reCAPTCHA Verification  <b>Extends:</b> Forgot Password, Register  <b>Generalization:</b> -
<b>Preconditions</b> – Users had registered their account.

<p><b>Basic Flow –</b></p> <ol style="list-style-type: none"> <li>5. User enters email and password.</li> <li>6. User completes reCAPTCHA challenge.</li> <li>7. User clicks on the "Login" button.</li> <li>8. System verifies credentials and reCAPTCHA.</li> <li>9. If valid, user is granted access to the system.</li> </ol>
<p><b>Alternate Flows –</b></p> <p>User clicks on 'Forgot Password':</p> <ol style="list-style-type: none"> <li>3. System sends password reset link to user's registered email.</li> <li>4. User clicks the link, is directed to reset password page.</li> <li>5. User enters new password and clicks "Reset Password" to complete process.</li> </ol> <p>User clicks on 'Register Here':</p> <ol style="list-style-type: none"> <li>1. User fills in required credentials and personal information.</li> <li>2. User clicks the "Register" button.</li> <li>3. System creates account and notifies user.</li> </ol>
<p><b>Exception Flows –</b></p> <ol style="list-style-type: none"> <li>3. Incorrect user input, account not found.</li> <li>4. Failed reCAPTCHA challenge.</li> </ol>
<p><b>Post Conditions –</b> User is logged into the system.</p>

#### 4.3.30 Logout – All Users

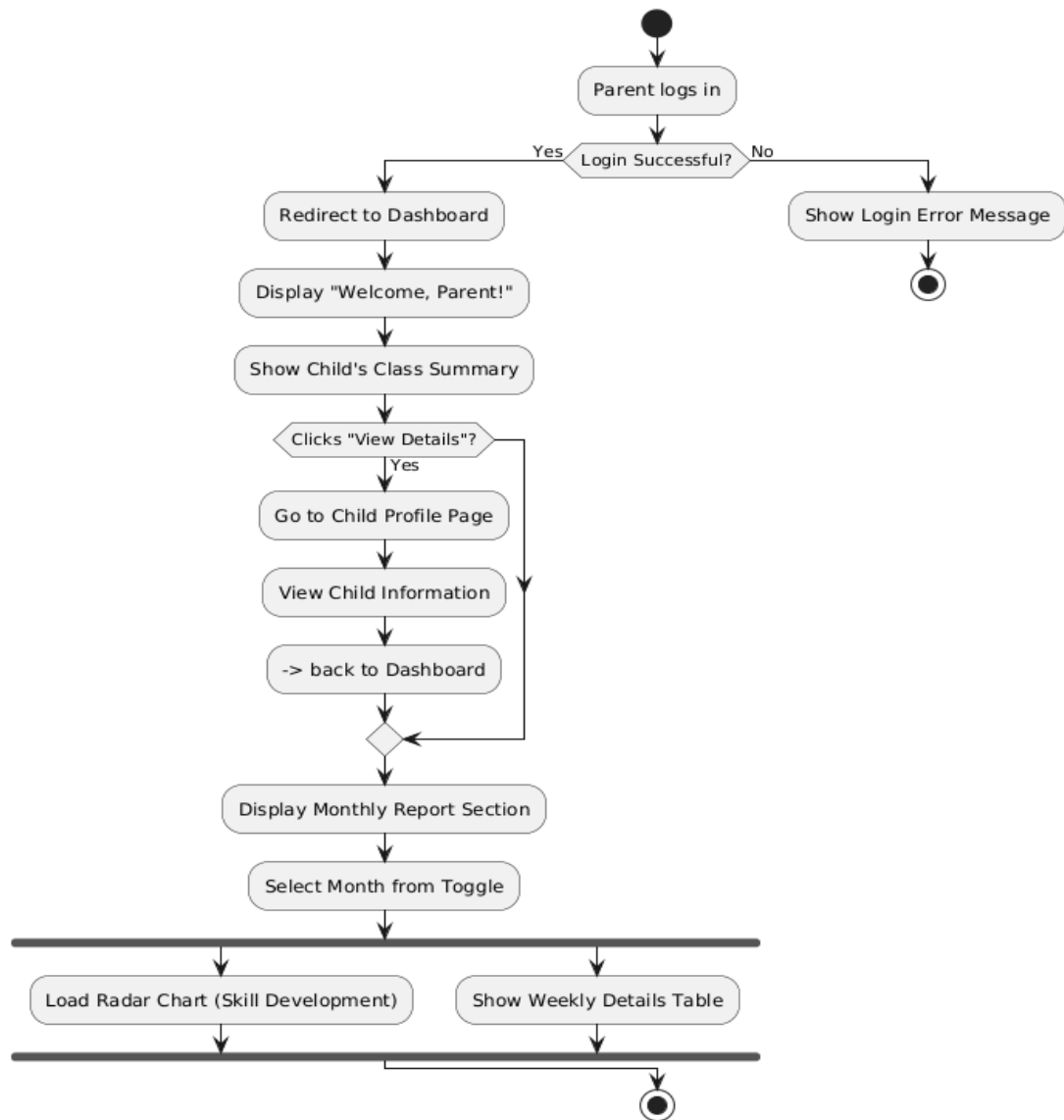
**Table 4.3.30 Logout – All Users Use Case Description**

<b>USE CASE DESCRIPTION</b>
-----------------------------

<b>Name</b> – Logout
<b>Brief Description</b> – Allow users to securely log out of the system.
<b>Actors</b> – Parent, Teacher, Admin
<b>Relationships</b> –  <b>Association:</b> -  <b>Include:</b> -  <b>Extends:</b> -  <b>Generalization:</b> -
<b>Preconditions</b> – User is logged in.
<b>Basic Flow</b> –  1. User clicks the "Logout" button.  2. System ends the session.  3. User is redirected to the login page.
<b>Alternate Flows</b> –
<b>Exception Flows</b> – Session already expired.
<b>Post Conditions</b> – User is logged out and returned to login page.

#### 4.4 Activity Diagram

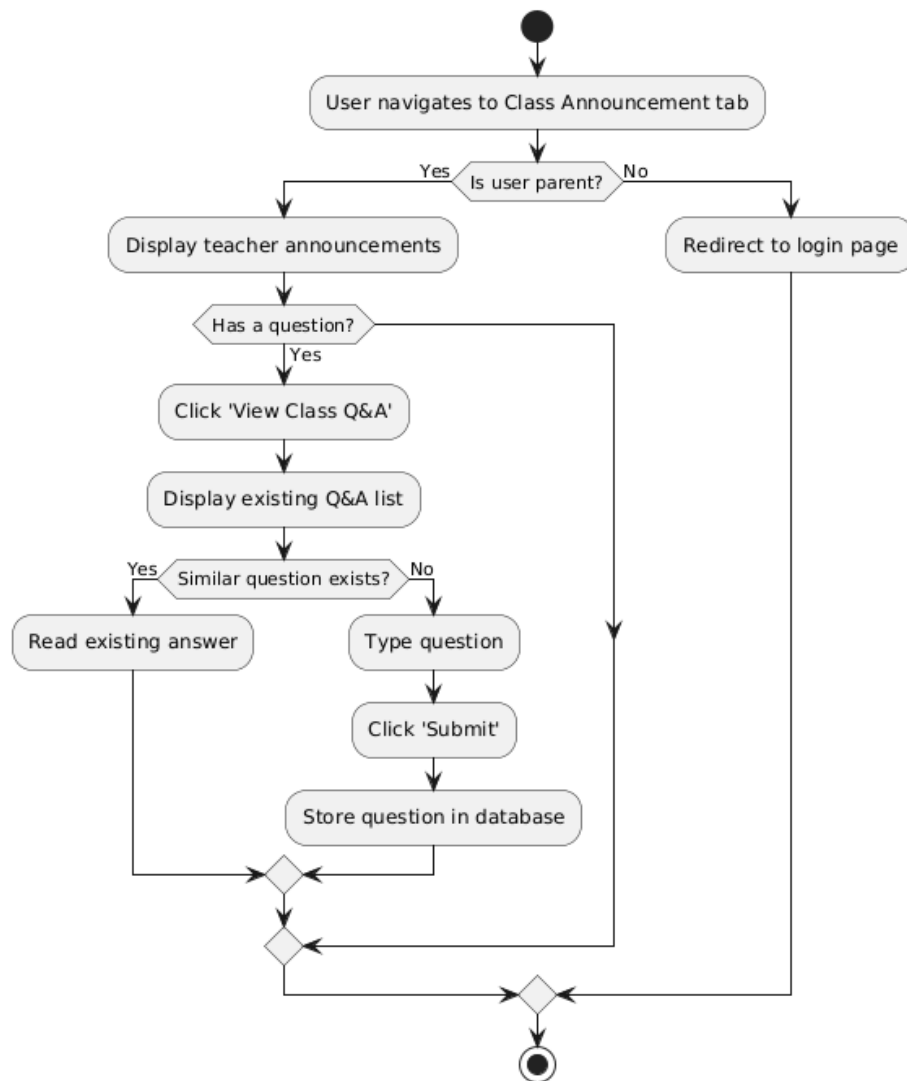
##### 4.4.1 Dashboard page – Parent Role Activity Diagram



**Figure 4.4.1 Dashboard page – Parent Role Activity Diagram**

After a parent log into the system successfully, they are directed to the Dashboard Page. At the top, there's a friendly greeting that says, "Welcome, Parent!" A summary card displays key information about the child's current class, such as the class name, teacher, and grade level. The parent can click a "View Details" button to go to the Child Profile Page for more information, including health, attendance, and background. Below this, the parent can interact with the Monthly Report Section. They can toggle or select a specific month, which dynamically updates the displayed content. A radar chart is shown to represent the child's overall skill development, such as cognitive, motor, and social skills. A detailed weekly breakdown table is also presented, which includes comments or scores for each week.

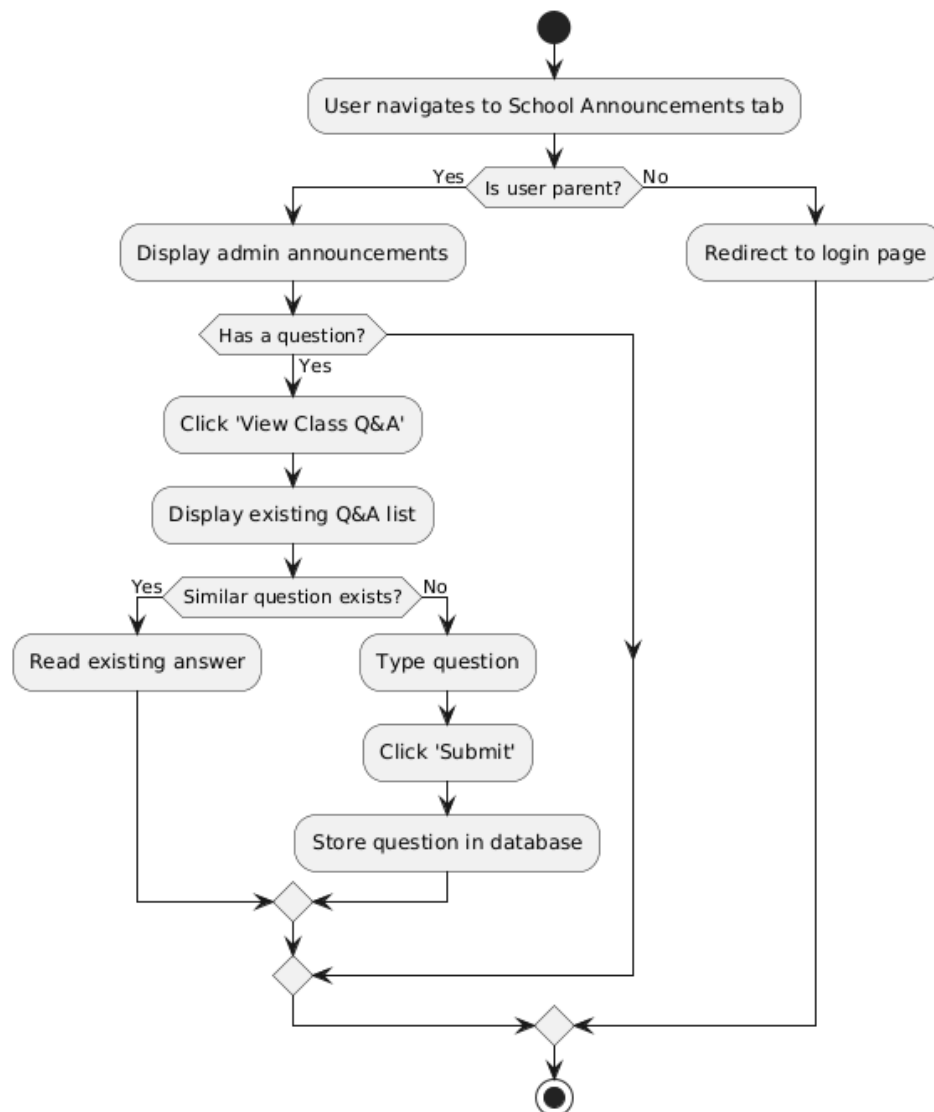
#### 4.4.2 Class Announcements page – Parent Role Activity Diagram



**Figure 4.4.2 Class Announcements page – Parent Role Activity Diagram**

When the user navigates to the class announcement tab, the system first checks if the user is a parent. If you're not a parent, you'll be taken to the login page. If the user is a parent, the system displays the class announcements made by the teacher. If the parent has a question, they can click on the "View Class Q&A" button to see previously asked questions and answers or to ask a new one. If there's already a similar question with an answer, they can just read that instead. If not, the parent can type their question into the provided input field and click the submit button. The system saves the question so the teacher can check it out or reply later.

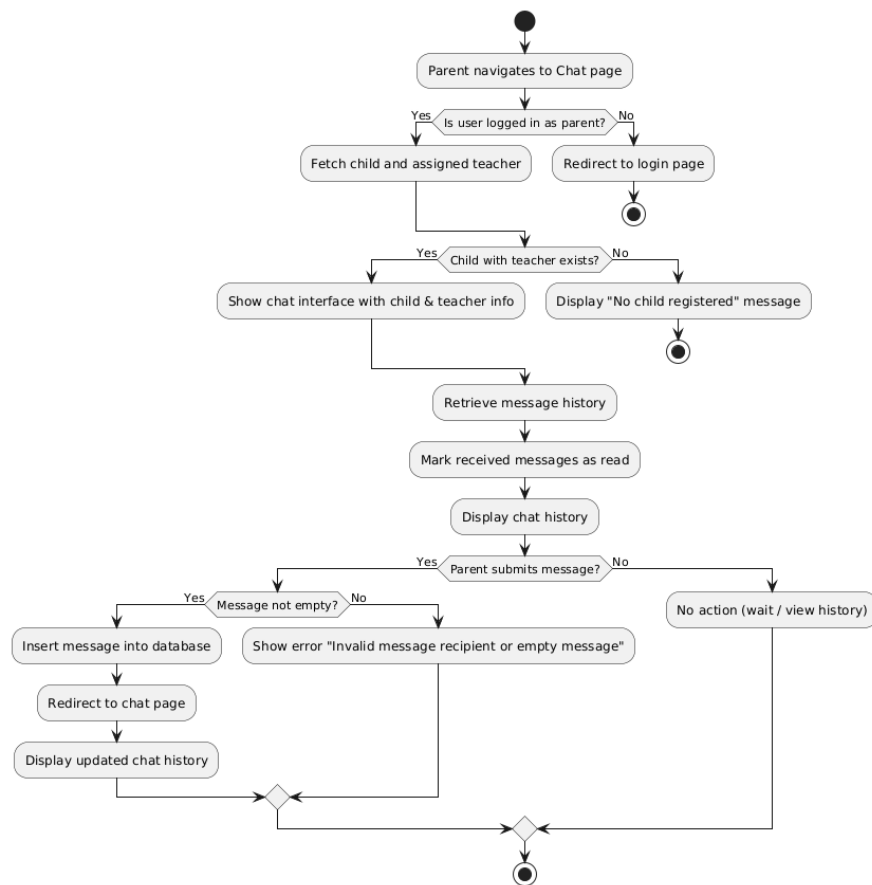
#### 4.4.3 School Announcement page – Parent Role Activity Diagram



**Figure 4.4.3 School Announcements page – Parent Role Activity Diagram**

When the user navigates to the School Announcements tab, the system first checks if the user is a parent. If the user is not a parent, they are redirected to the login page. If the user is a parent, the system displays the school-wide announcements made by the admin. If the parent has a question related to any announcement, they can click on the "View Class Q&A" button to see if similar questions have already been asked or to submit a new one. If a similar question comes up, they can check out the answer for it. If no relevant question exists, the parent can type their own question into the input field and click the submit button. The system saves the new question in the database so it can be checked later.

#### 4.4.4 Chat with Teacher page – Parent Role Activity Diagram

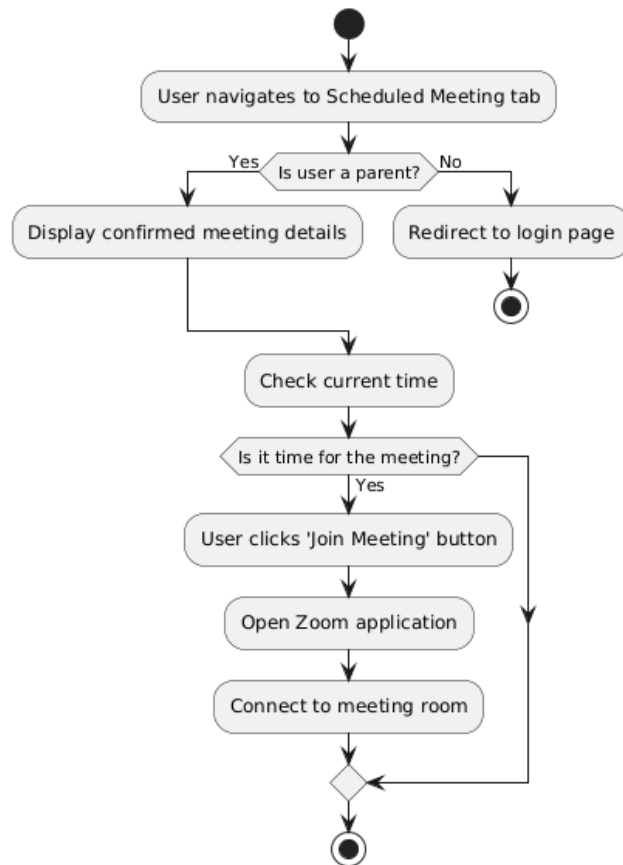


**Figure 4.4.4 Chat with Teacher page – Parent Role Activity Diagram**

When the parent goes to the Chat page, the system first checks if they are logged in as a parent. If they are not, the system redirects them to the login page. Once they are logged in, the system fetches the child's information and the assigned teacher, then shows the chat interface. The parent can send a message by typing their content and clicking the "Send" button. If the message is valid, it saves to the database and shows up in the updated chat history. If the parent submits an empty message, an error appears instead. If the parent does not send any message, they can just view the existing conversation history.

#### 4.4.5 Scheduled Meetings page – Parent Role Activity Diagram

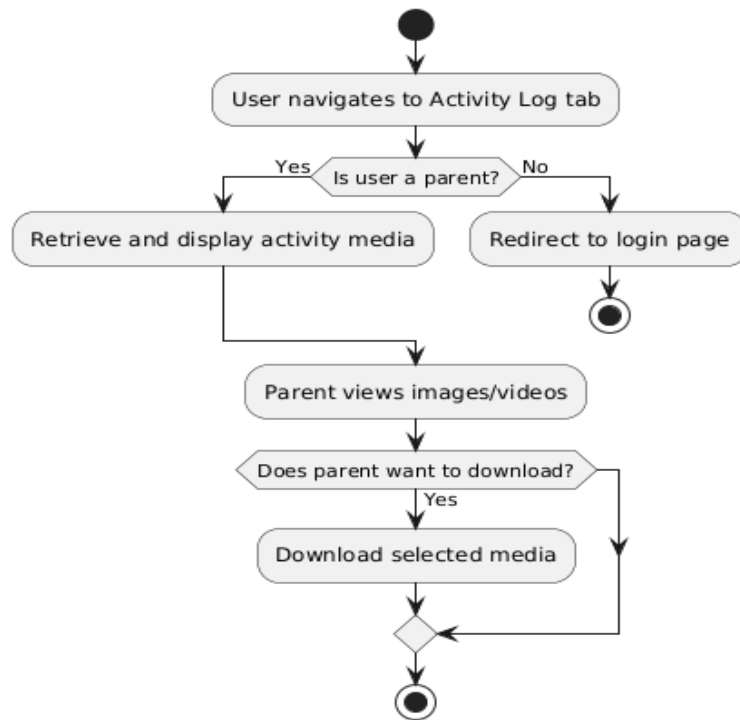




**Figure 4.4.5 Scheduled Meetings page – Parent Role Activity Diagram**

When the user navigates to the Scheduled Meeting tab, the system first checks if the user is a parent. If not, they are redirected to the login page. Once verified, the system displays the confirmed meeting details between the parent and the teacher. When the scheduled meeting time arrives, the parent can click the "Join Meeting" button, which opens the Zoom application and connects them to the meeting room.

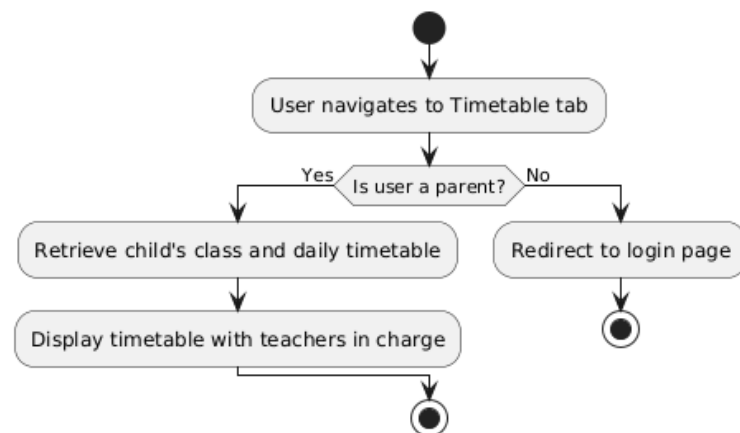
#### 4.4.6 Child's Activity Log page – Parent Role Activity Diagram



**Figure 4.4.6 Child's Activity Log page – Parent Role Activity Diagram**

When the user navigates to the Activity Log tab, the system first checks if the user is a parent. If not, they are redirected to the login page. Once verified, the system retrieves and displays school activities such as images or videos uploaded by the child's teacher. The parent can view this media directly within the system and has the option to download any media file they wish to keep.

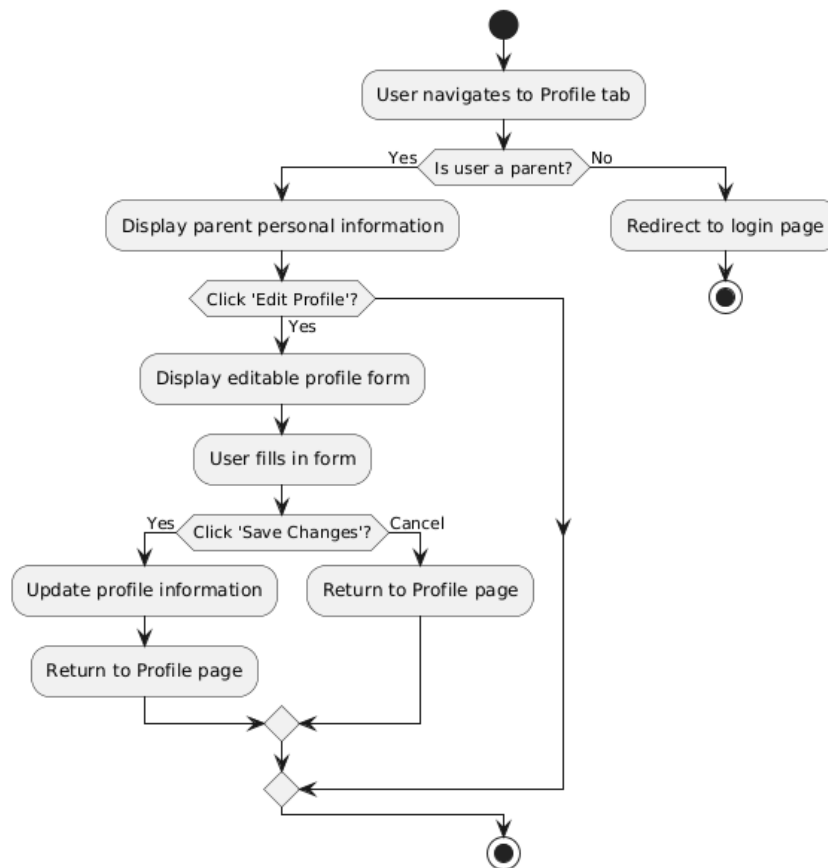
#### 4.4.7 Student Timetable page – Parent Role Activity Diagram



**Figure 4.4.7 Student Timetable page – Parent Role Activity Diagram**

When the user navigates to the Timetable tab, the system first checks if the user is a parent. If not, they are redirected to the login page. Once verified, the system retrieves the child's daily timetable, including the class name and the list of teachers responsible for each scheduled slot. This info is then shown to the parent so they can take a look.

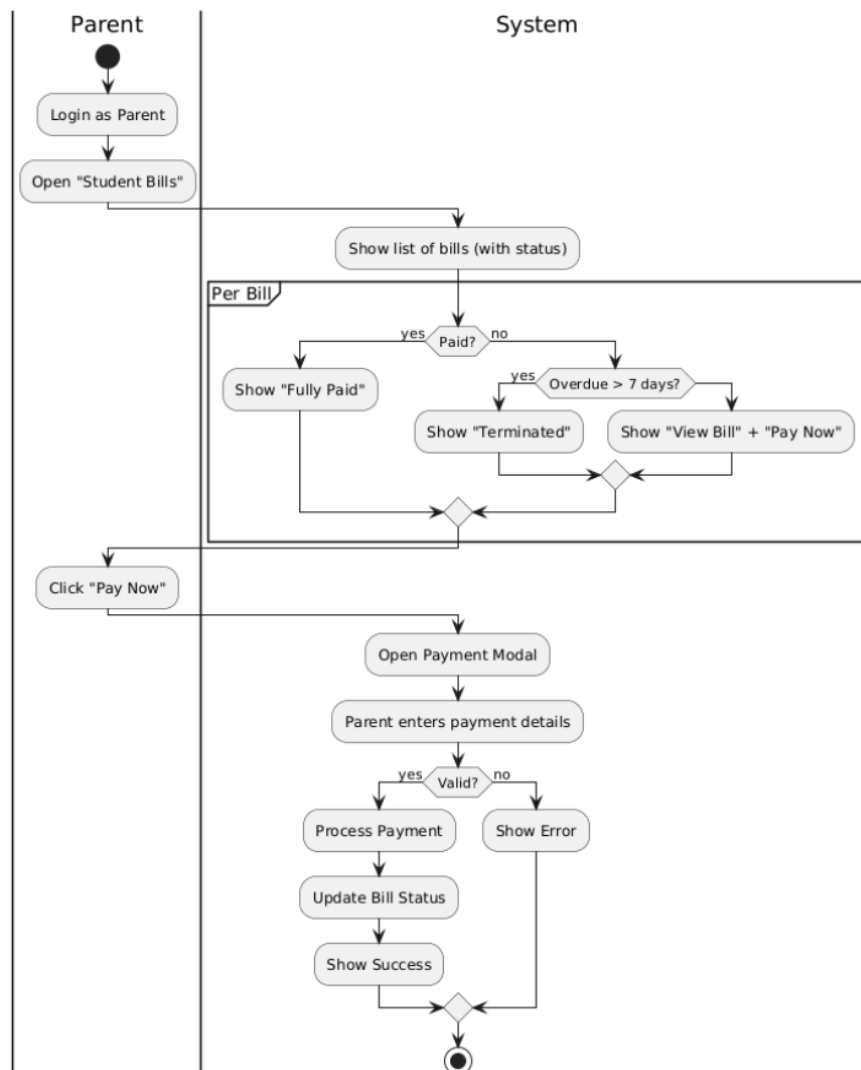
#### 4.4.8 Profiles page – Parent Role Activity Diagram



**Figure 4.4.8 Profiles page – Parent Role Activity Diagram**

When the user navigates to the Profile tab, the system first checks if the user is a parent. If not, they are redirected to the login page. Once it's verified, the system shows the parent's personal details. If the parent chooses to update their details, they can click the "Edit Profile" button, which navigates them to an editable form. After filling in the form, they can either save the changes, which updates their profile, or cancel the operation to return to the Profile page without making changes.

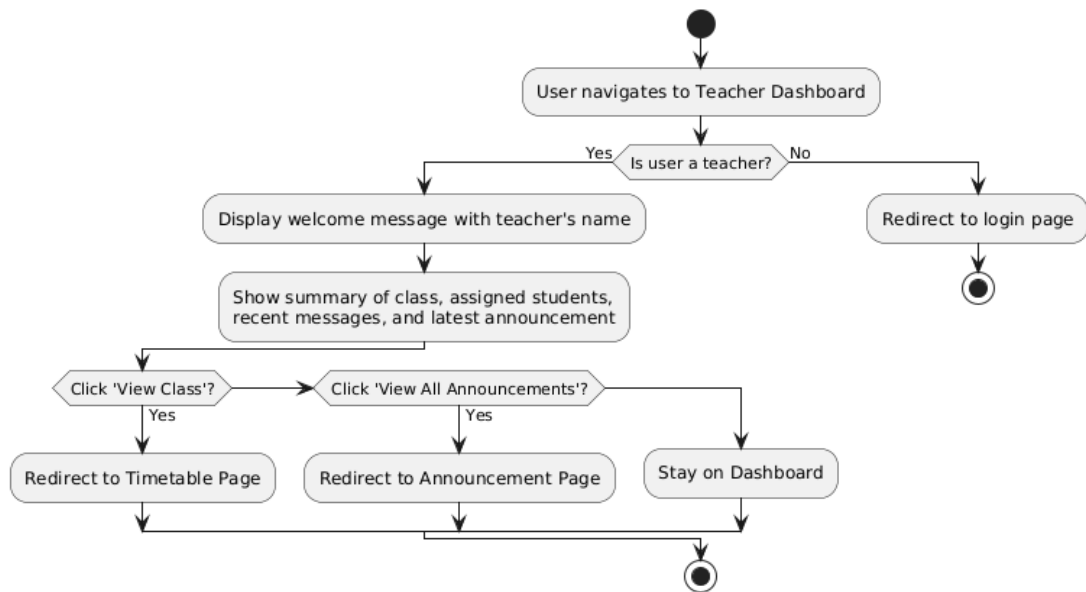
#### 4.4.9 Student Bills page – Parent Role Activity Diagram



**Figure 4.4.9 Student Bills page – Parent Role Activity Diagram**

The parent logs in and sees a list of bills. The system checks if each bill is fully paid, overdue, or still payable. If the bill is paid, the system displays “Fully Paid.” If it is overdue for more than seven days, it shows “Terminated.” Otherwise, the parent can choose to view or pay the bill. When the parent clicks “Pay Now,” the system opens a payment form, checks the details, and either processes the payment successfully or shows an error. This diagram illustrates the key steps of billing and payment without getting into technical details.

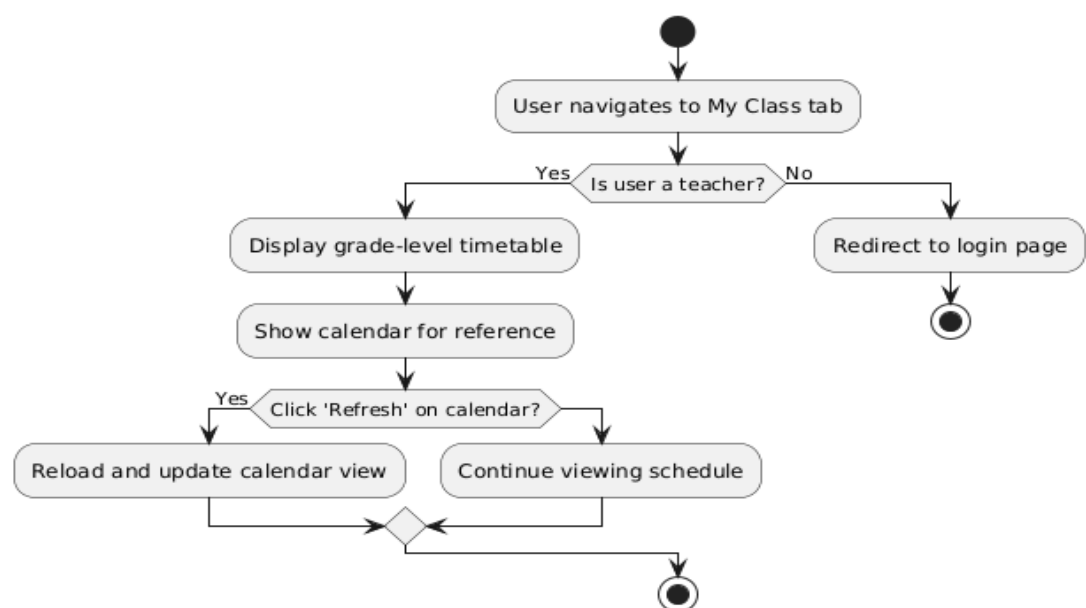
#### 4.4.10 Dashboard page – Teacher Role Activity Diagram



**Figure 4.4.10 Dashboard page – Teacher Role Activity Diagram**

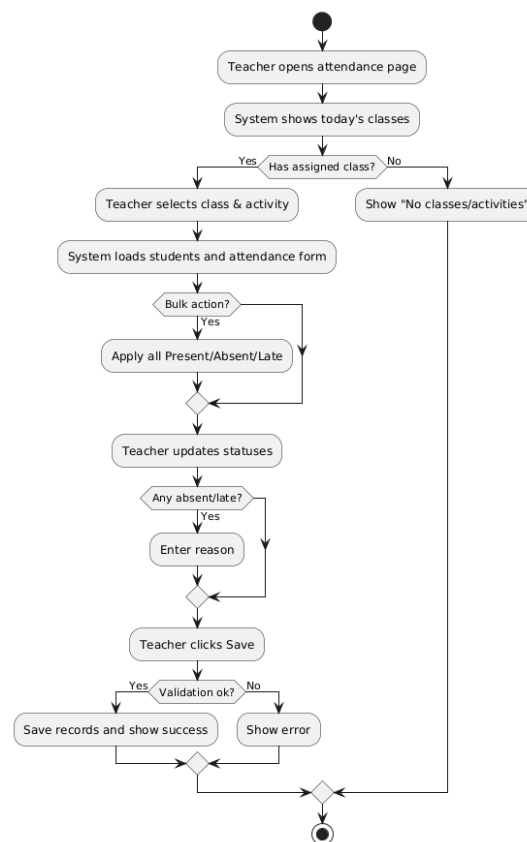
When the user navigates to the Teacher Dashboard, the system first checks if the user is a teacher. If not, they are redirected to the login page. If verified, the dashboard welcomes the teacher by name and displays a summary of their assigned class, students, recent messages, and the latest announcement. The teacher can click on the "View Class" button to access the timetable page or select "View All Announcements" to navigate to the full announcement page.

#### 4.4.11 My Class page – Teacher Role Activity Diagram



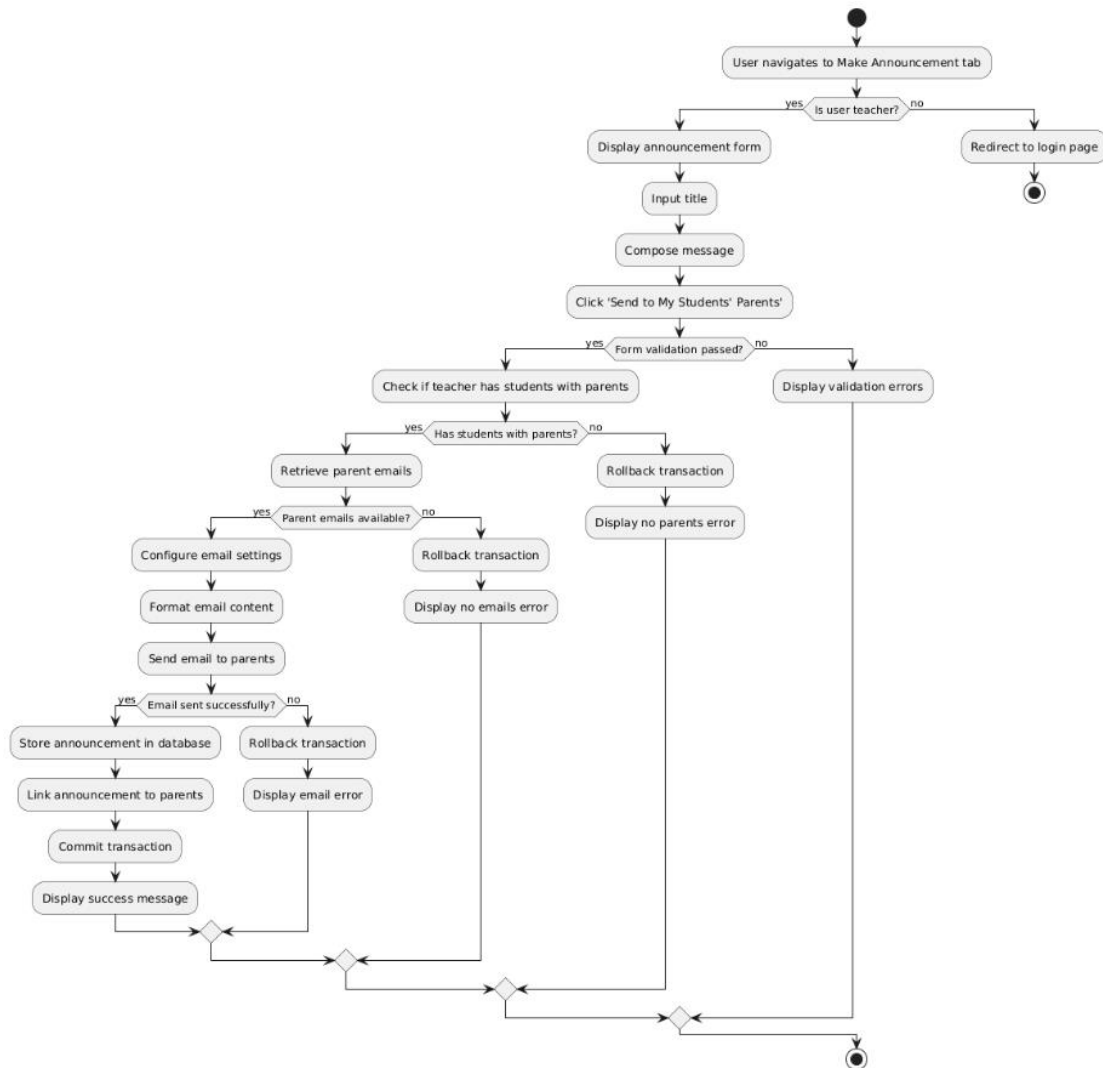
**Figure 4.4.11 My Class page – Teacher Role Activity Diagram**

When the user navigates to the My Class tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. If verified, the system displays the timetable created for the grade the teacher is assigned to. A simple calendar is also shown for reference. The teacher may click on the refresh button to update the calendar view if needed.

**4.4.12 Attendance page – Teacher Role Activity Diagram****Figure 4.4.12 Attendance page – Teacher Role Activity Diagram**

When the user navigates to the Attendance tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. If verified, the system displays the class name and allows the teacher to select a specific time slot. To simplify the process, the teacher can choose quick action buttons such as "All Attended", "All Absent", or "All Late". The teacher can still edit individual student statuses manually. If a student is marked as absent or late, a reason must be provided. Once the information is complete, the teacher clicks the "Save Attendance" button to submit the record.

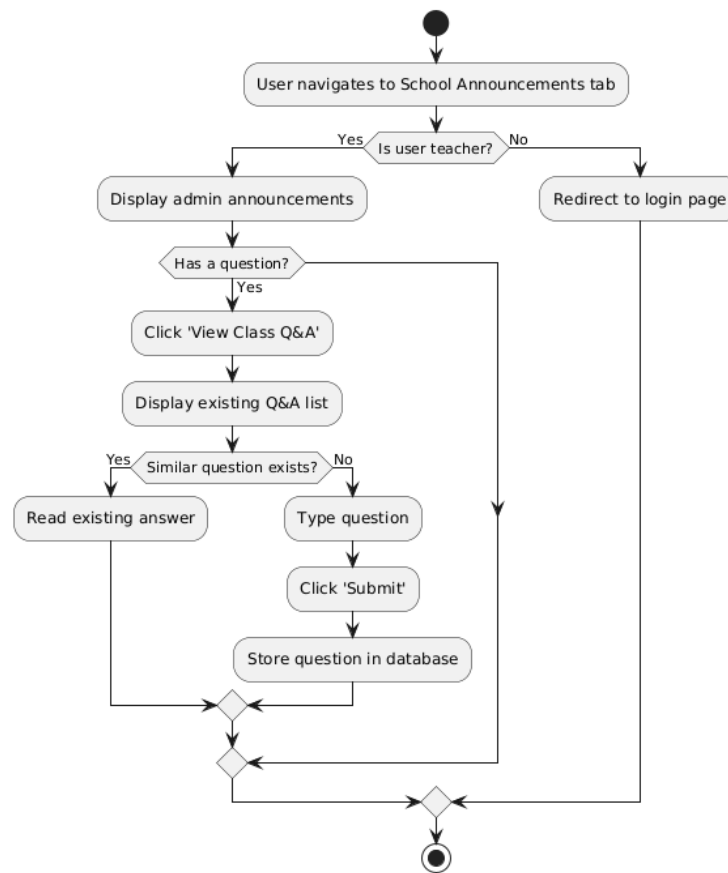
#### 4.4.13 Make Announcement page – Teacher Role Activity Diagram



**Figure 4.4.13 Make Announcement page – Teacher Role Activity Diagram**

When the user goes to the Make Announcement tab, the system first checks if the user is a teacher. If not, they are sent to the login page. If they are a teacher, the announcement form appears. The teacher then enters a title and writes the message before clicking the "Send to Parents" button. This action prompts the system to validate the input, check if the teacher has students with registered parents, gather the parents' emails, and send the email. Only after the email is sent successfully does the system store the announcement in the database, link it to the parents, and show a confirmation message that the announcement was delivered.

#### 4.4.14 School Announcement page – Teacher Role Activity Diagram

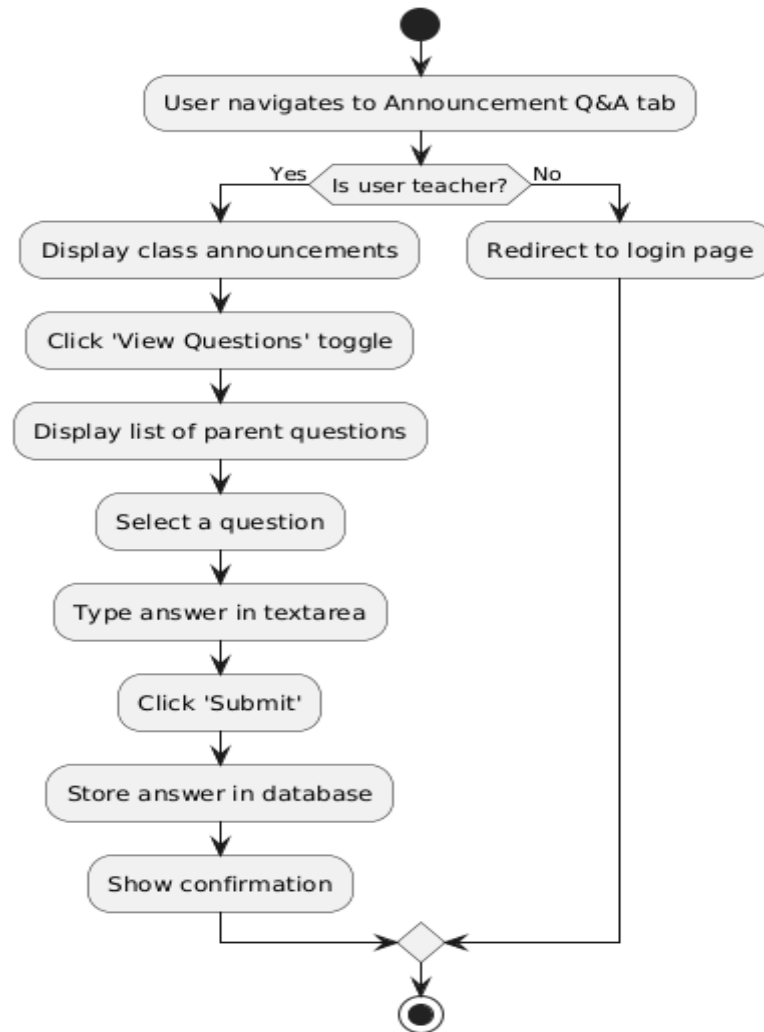


**Figure 4.4.14 School Announcement page – Teacher Role Activity Diagram**

When the user navigates to the School Announcements tab, the system first checks if the user is a teacher. If you're not a teacher, you'll be sent back to the login page. If the user is a teacher, the system displays the school-wide announcements made by the admin. If the teacher has a question related to any announcement, they can click on the "View Class Q&A" button to check if a similar question has already been asked or to submit a new one. If there's a similar question, they can see the answer given. If not, the teacher can type their question in the input field and click the submit button. The system then stores the new question in the database for further action or response.

#### 4.4.15 Announcement Q&A page – Teacher Role Activity Diagram

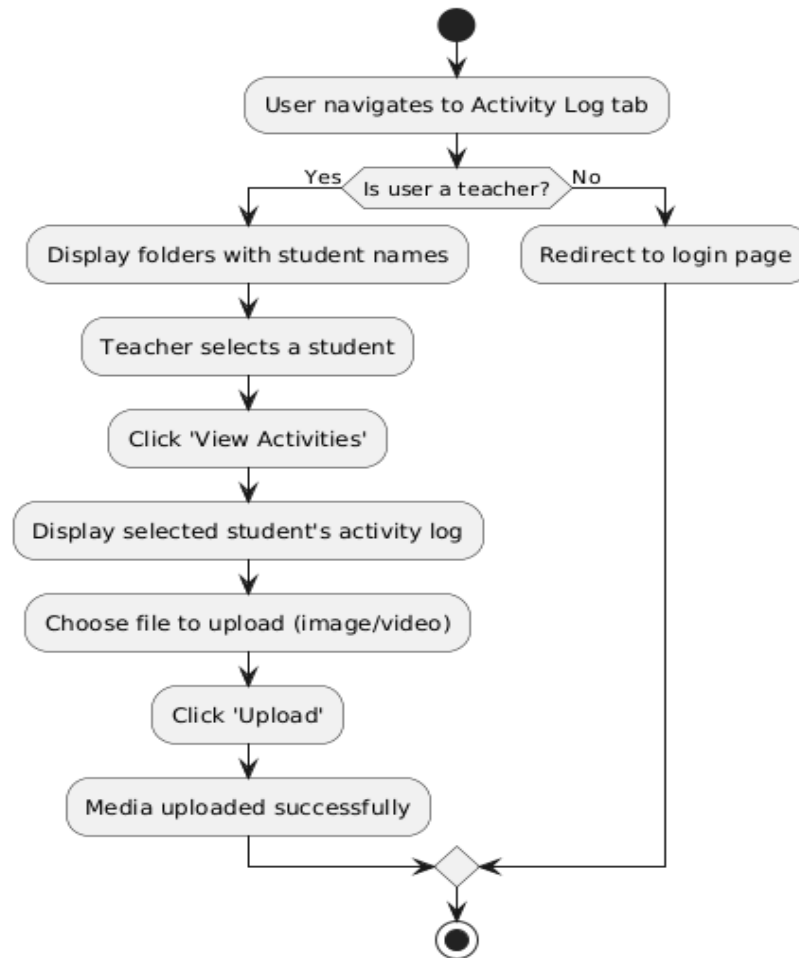




**Figure 4.4.15 Announcement Q&A page – Teacher Role Activity Diagram**

When the user navigates to the class announcement tab, the system first checks if the user is a teacher. If the user is not a teacher, they are redirected to the login page. If the user is a teacher, the system displays the class announcements. The teacher can then click on the "View Questions" toggle to view questions submitted by parents. After reviewing the list, the teacher selects a question, types an answer into the provided textarea, and clicks the submit button. The system then saves the teacher's response to the database and confirms that the answer has been submitted successfully.

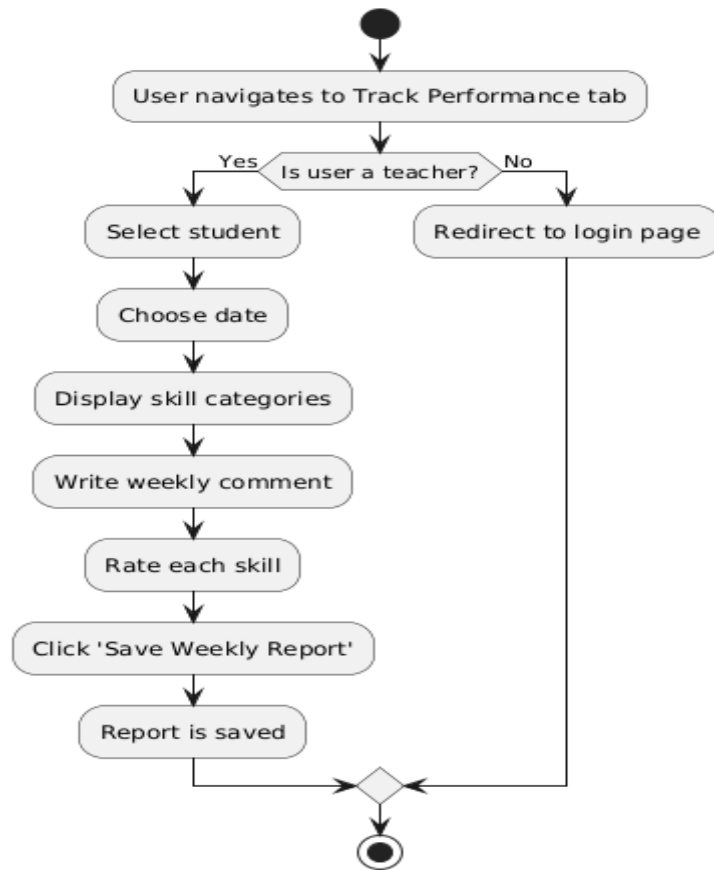
#### 4.4.16 Student Activity Log page – Teacher Role Activity Diagram



**Figure 4.4.16 Student Activity Log page – Teacher Role Activity Diagram**

When the user navigates to the Activity Log tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. Once verified, the system displays folders named after each student in the teacher's class. The teacher selects a student and clicks on "View Activities" to open that student's activity log. The teacher can then choose a file, such as an image or video, and upload it to share the student's activity with their parent.

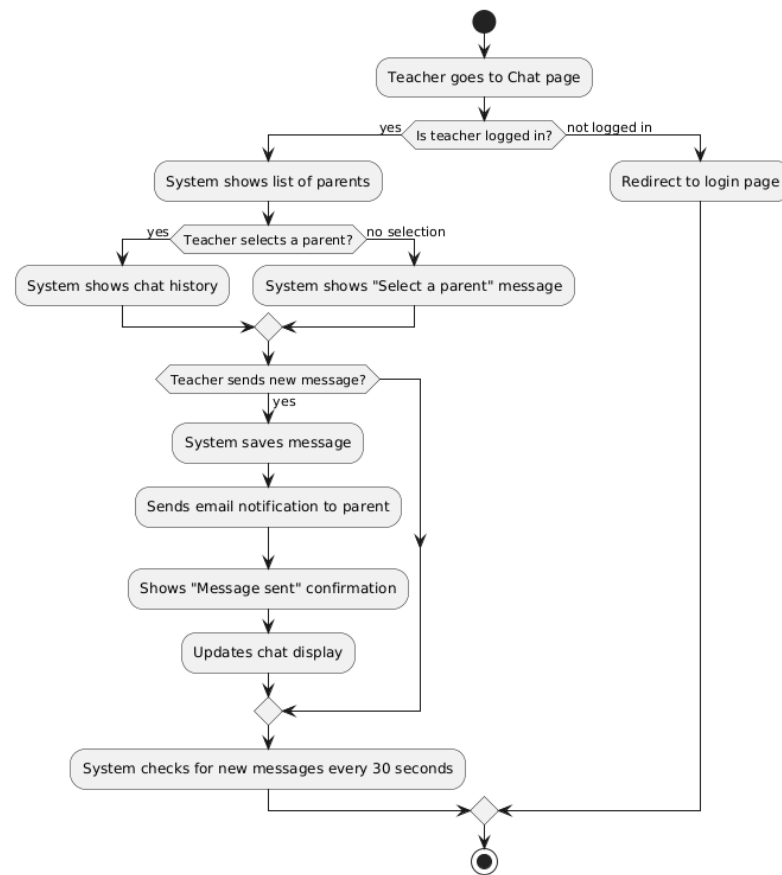
#### 4.4.17 Track Performance page – Teacher Role Activity Diagram



**Figure 4.4.17 Track Performance page – Teacher Role Activity Diagram**

When the user navigates to the Track Performance tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. Once it's approved, the teacher picks a student and sets a date. The system then displays performance categories including cognitive skills, motor skills, social skills, and language skills. The teacher writes a comment describing what the student learned during the week and selects a rating for each skill category using levels such as "Needs Improvement", "Developing", "Proficient", or "Exceeding". After completing the form, the teacher clicks the "Save Weekly Report" button to store the entry.

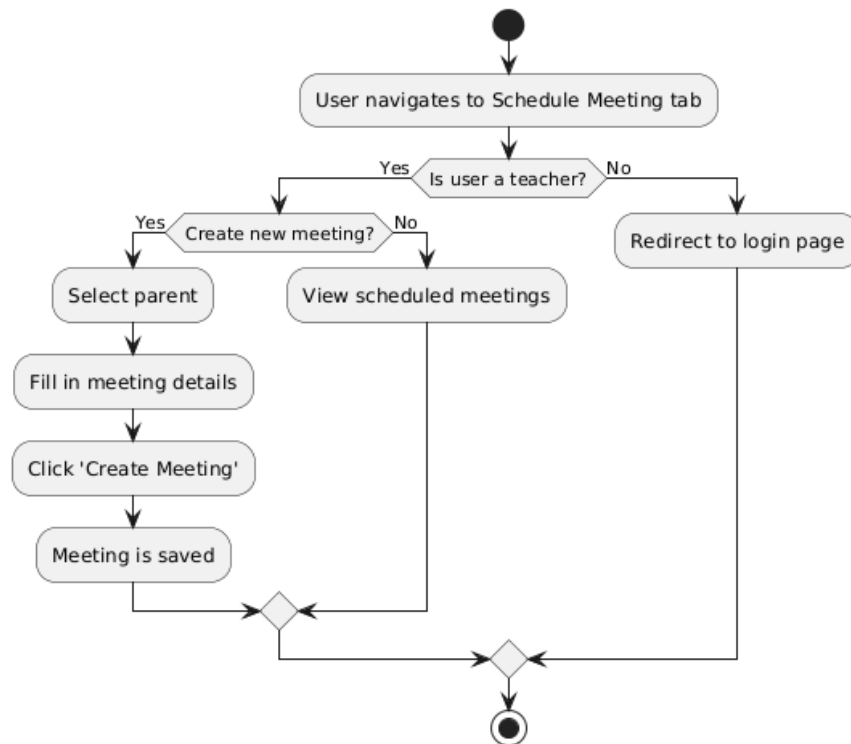
#### 4.4.18 Chat with Parent page – Teacher Role Activity Diagram



**Figure 4.4.18 Chat with Parent page – Teacher Role Activity Diagram**

When the user goes to the Chat page, the system first checks if they are a teacher or assistant. If they are not, the system sends them to the login page. After confirming their access, the system shows a list of parents from the teacher's assigned classes. The teacher picks a parent from the sidebar, and the system displays the chat history with that parent and identifies the student related to that parent. The teacher can type a new message and click the send button to deliver it. This action also sends an email notification to the parent. If the teacher just wants to look at past conversations, the chat automatically shows all historical messages in order without any extra filtering.

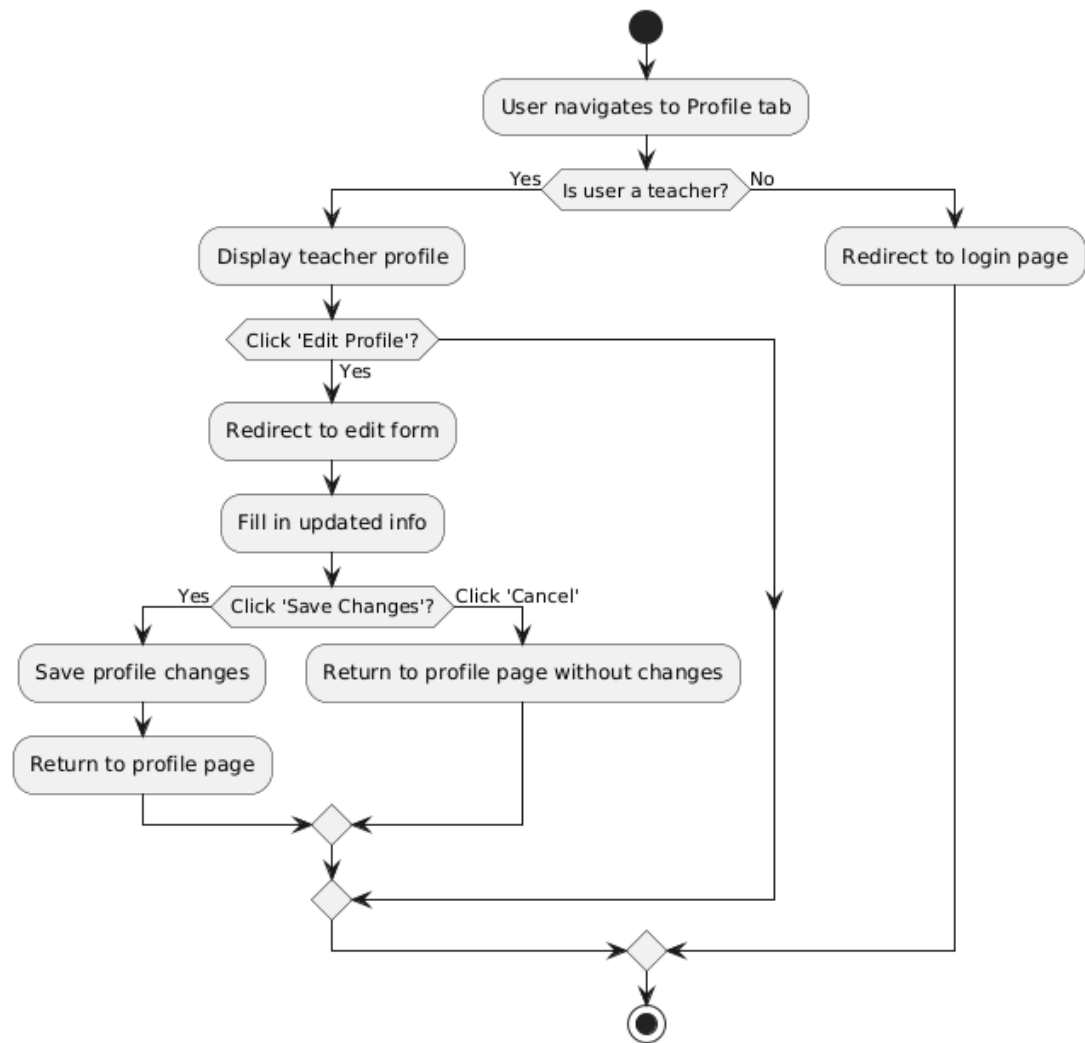
#### 4.4.19 Manage Meetings page – Teacher Role Activity Diagram



**Figure 4.4.19 Manage Meetings page – Teacher Role Activity Diagram**

When the user navigates to the Schedule Meeting tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. After validation, the teacher can create a new meeting by selecting a parent, filling in the meeting details (such as topic, date, time, and duration), and clicking the "Create Meeting" button. Alternatively, the teacher can view previously scheduled meetings in the scheduled meetings card section.

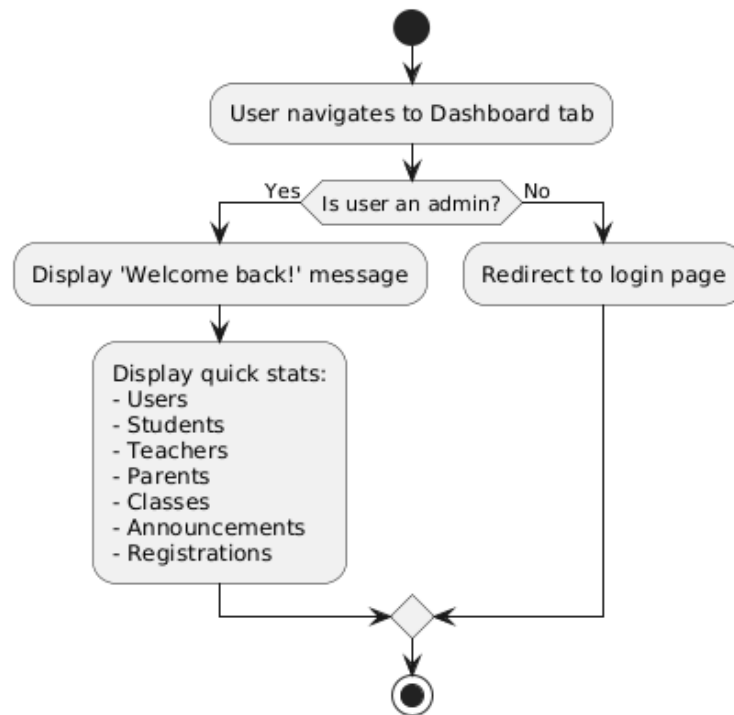
#### 4.4.20 My Profile page – Teacher Role Activity Diagram



**Figure 4.4.20 My Profile page – Teacher Role Activity Diagram**

When the user navigates to the Profile tab, the system first checks if the user is a teacher. If not, they are redirected to the login page. Once validated, the teacher can view their personal information. If they want to update it, they can click the "Edit Profile" button, which redirects them to the edit form. The teacher can then update the information and click "Save Changes" to apply the updates, or "Cancel" to return without making changes.

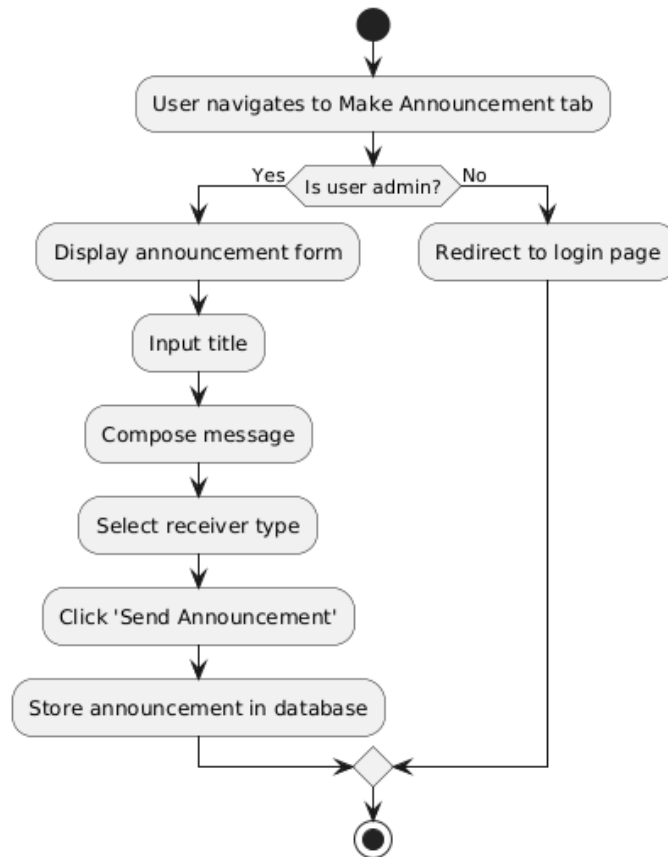
#### 4.4.21 Dashboard page – Admin Role Activity Diagram



**Figure 4.4.21 Dashboard page – Admin Role Activity Diagram**

When the user navigates to the Dashboard tab, the system first checks if the user is an admin. If not, they are redirected to the login page. Once successfully logged in and validated, the admin is welcomed with a "Welcome back!" message. The system then displays a quick overview of key statistics including the number of users, students, teachers, parents, classes, announcements, and registrations.

#### **4.4.22 Make Announcement page – Admin Role Activity Diagram**

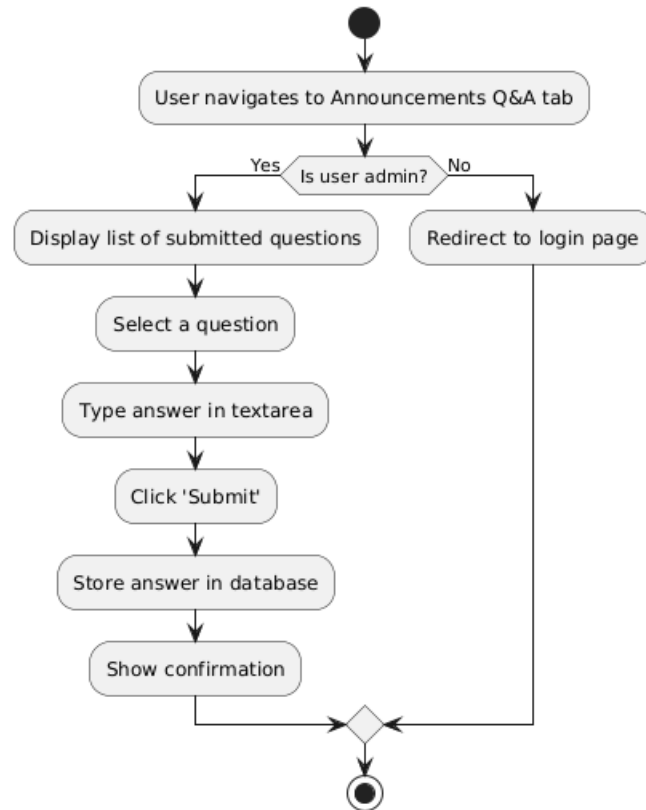


**Figure 4.4.22 Make Announcement page – Admin Role Activity Diagram**

When the user navigates to the make announcement tab, the system first checks if the user is an admin. If the user is not an admin, they are redirected to the login page. If you're an admin, you'll see the announcement form. The admin types in the title of the announcement and writes out the message. Once the message is done, the admin just clicks the "Send Announcement" button. The system then stores the announcement in the database and sends it to the respective receiver, followed by displaying a confirmation that the announcement was successfully delivered.

#### 4.4.23 Announcement Q&A page – Admin Role Activity Diagram

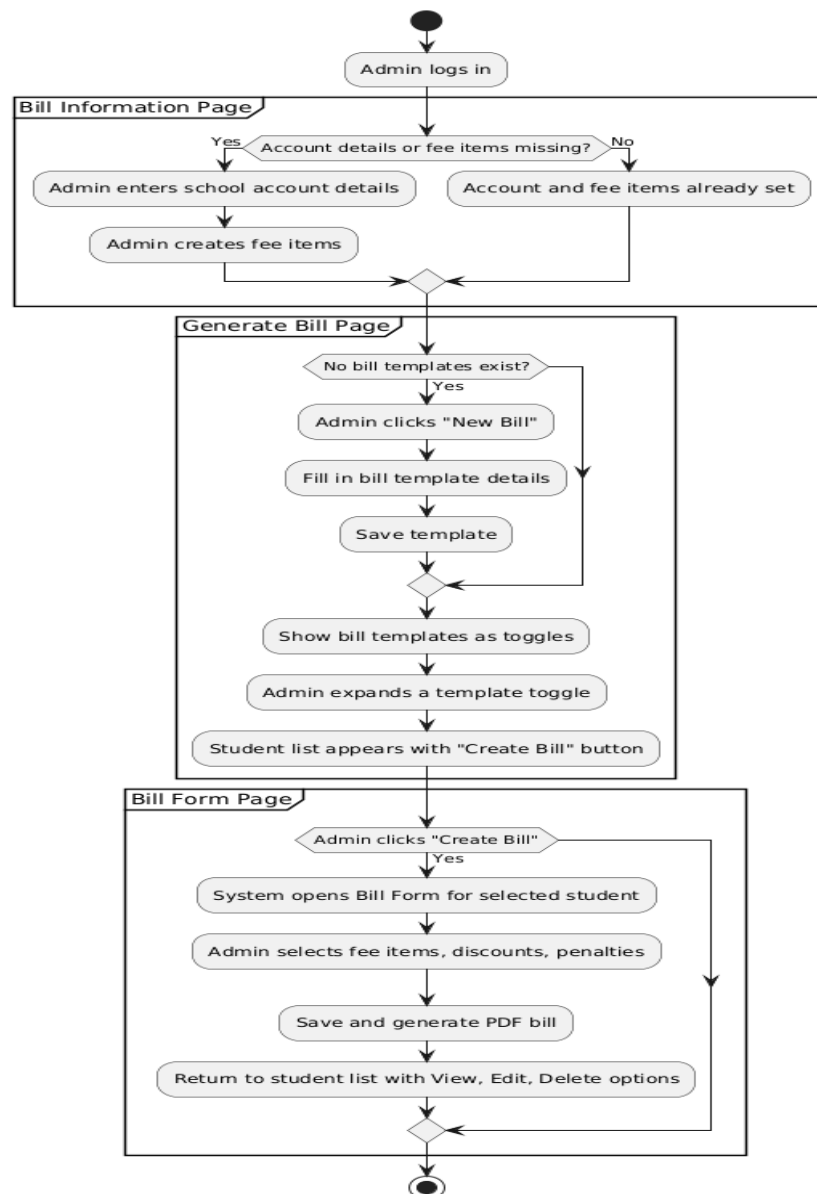




**Figure 4.4.23 Announcement Q&A page – Admin Role Activity Diagram**

When the user navigates to the Announcements Q&A tab, the system first checks if the user is an admin. If the user is not an admin, they are redirected to the login page. If the user is an admin, the system displays a list of questions submitted by parents or teachers related to school announcements. The admin can click on a specific question to view its details, type an answer into the provided textarea, and click the submit button. The system then stores the answer in the database and displays a confirmation message indicating that the response has been successfully submitted.

#### 4.4.24 Manage Bill page – Admin Role Activity Diagram



**Figure 4.4.24 Manage Bill page – Admin Role Activity Diagram**

When the admin goes to the Bill Information page, the system checks if the school account details and fee items are set up. If they are not, the admin must enter the account details and add fee items before continuing. Once this setup is complete, the admin can proceed to the Manage Bill page. The system then shows any existing bill templates. If there are no templates, the admin creates a new one by filling in the required details. Each template lists the students under it, and next to each student is a Create button. Clicking this button takes the admin to the Bill Form page, where they choose which fee items to include, add discounts or penalties if necessary, and then save the bill as a

PDF. After saving, the admin returns to the student list, which now shows View, Edit, and Delete options for each generated bill.

#### 4.4.25 Manage Payment page – Admin Role Activity Diagram

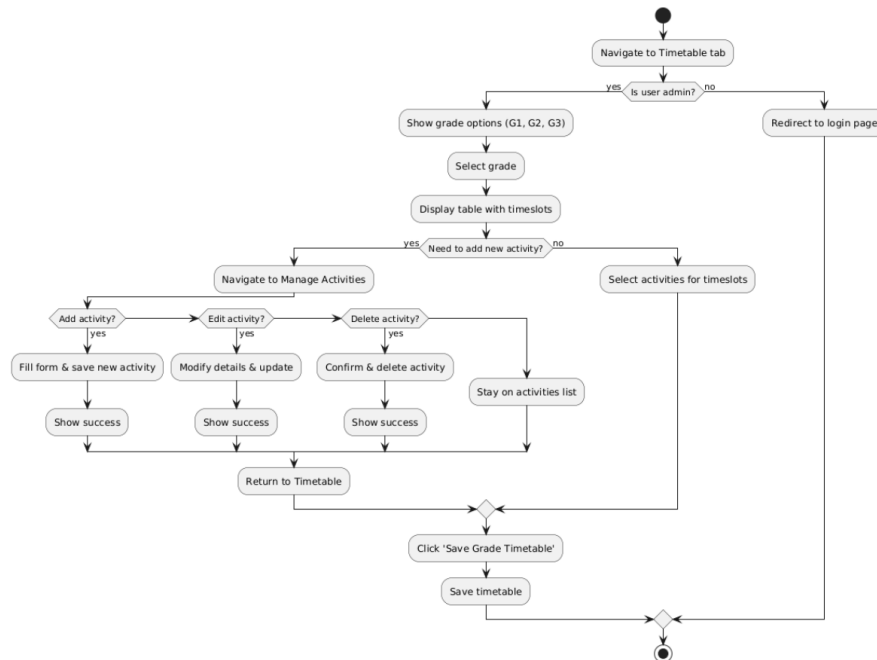


**Figure 4.4.25 Manage Payment page – Admin Role Activity Diagram**

When the admin opens the Manage Payment page, the system lists all student bills along with their current status. If a bill has 5 days left before the due date, the system displays a Send Reminder button so the admin can notify parents, and this action gets logged. If a bill goes past the due date, the system marks it with an Overdue badge, and the admin must generate an updated bill. If parents still don't pay within 7 days of the updated bill, the system removes the option to verify payments and instead shows a Terminate button. At that point, the admin can terminate the student, which updates their status

and blocks access. If payment is verified in time, the bill is marked as paid, and any overpayment turns into a credit balance.

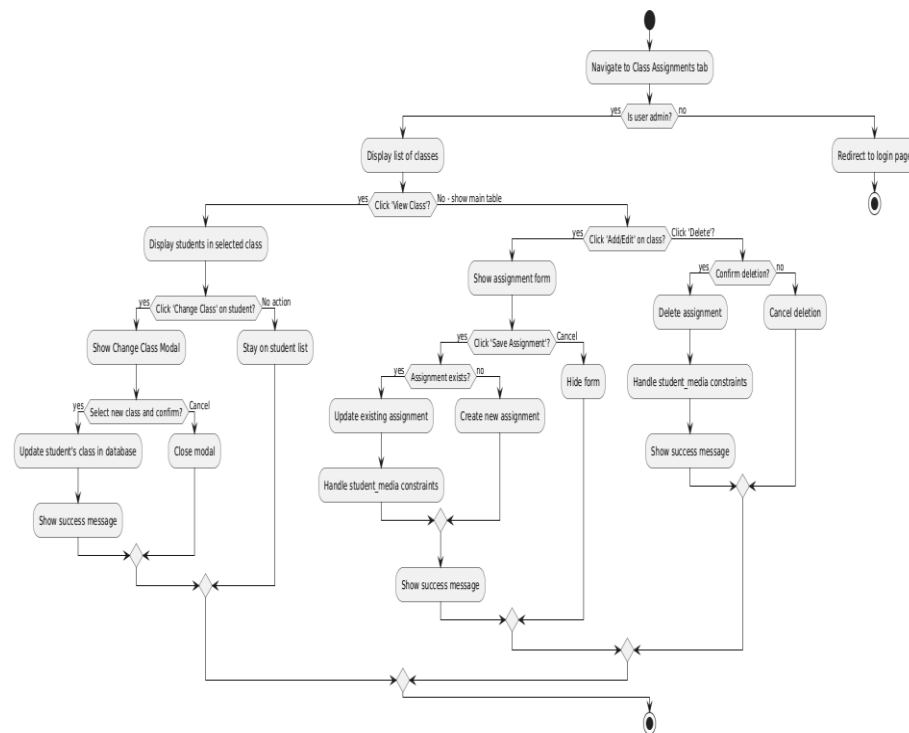
#### 4.4.26 Arrange Timetable page – Admin Role Activity Diagram



**Figure 4.4.26 Arrange Timetable page – Admin Role Activity Diagram**

When the user goes to the Timetable tab, the system first checks if they are an admin. If they are not, they get redirected to the login page. If they are an admin, they see options for grades (G1, G2, G3). When the admin selects a grade, a list of available timeslots shows up. If the admin wants to add, edit, or delete activities, they can go to the Activities tab. There, they can enter new activity names and descriptions, change existing activities, or remove activities from the list. After managing activities, the admin goes back to the Timetable tab, selects suitable activities for each timeslot, clicks the 'Save Grade Timetable' button, and the system saves the timetable, showing a success message.

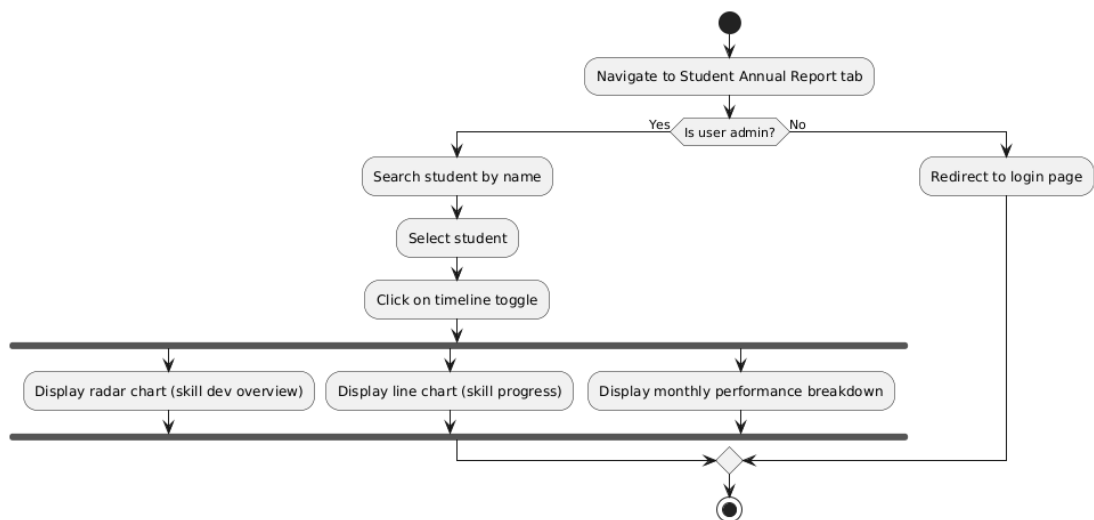
#### 4.4.27 Manage Class page – Admin Role Activity Diagram



**Figure 4.4.27 Manage Class page – Admin Role Activity Diagram**

When the user navigates to the Class Assignments tab, the system first checks if the user is an admin. If not, they are redirected to the login page. If you're an admin, you'll see a list of classes on the screen. The admin clicks the edit button next to a class, then selects one main teacher and one assistant teacher. The admin can either click the 'Save Assignment' button to confirm the changes or click 'Cancel' to discard the assignment.

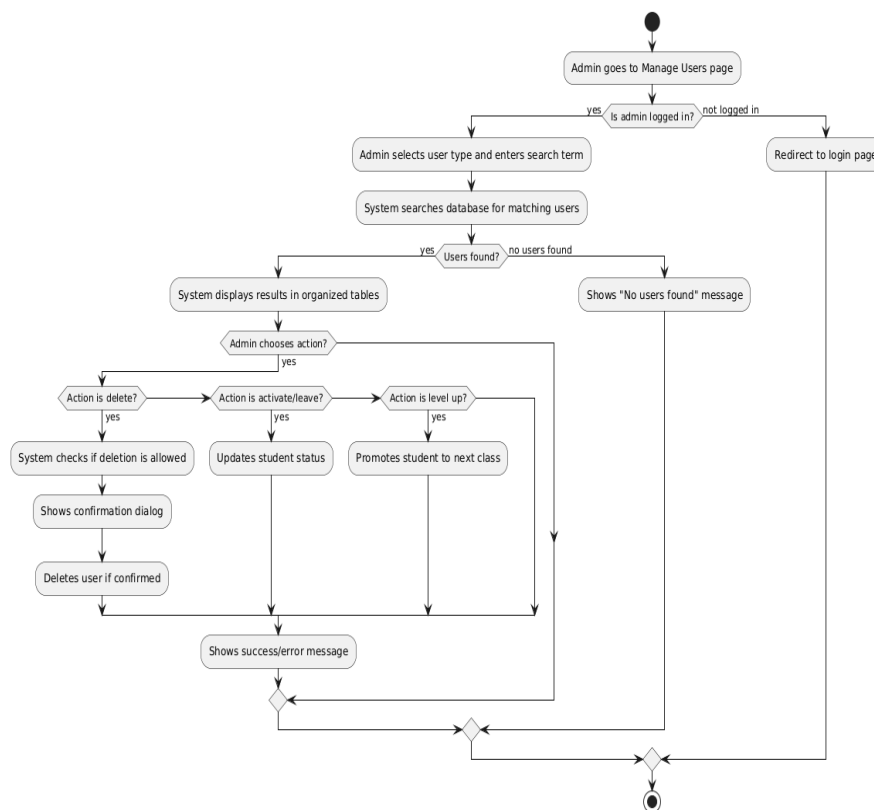
#### 4.4.27 Student Annual Report page – Admin Role Activity Diagram



### Figure 4.4.27 Student Annual Report page – Admin Role Activity Diagram

When the user navigates to the Student Annual Report tab, the system first checks if the user is an admin. If not, they are redirected to the login page. If the user is an admin, they can search for a student by name. Once a student is chosen, the admin just taps on the timeline toggle. At that point, the radar chart for skill development overview, the line chart for skill progress through the year, and the monthly performance breakdown are all displayed simultaneously.

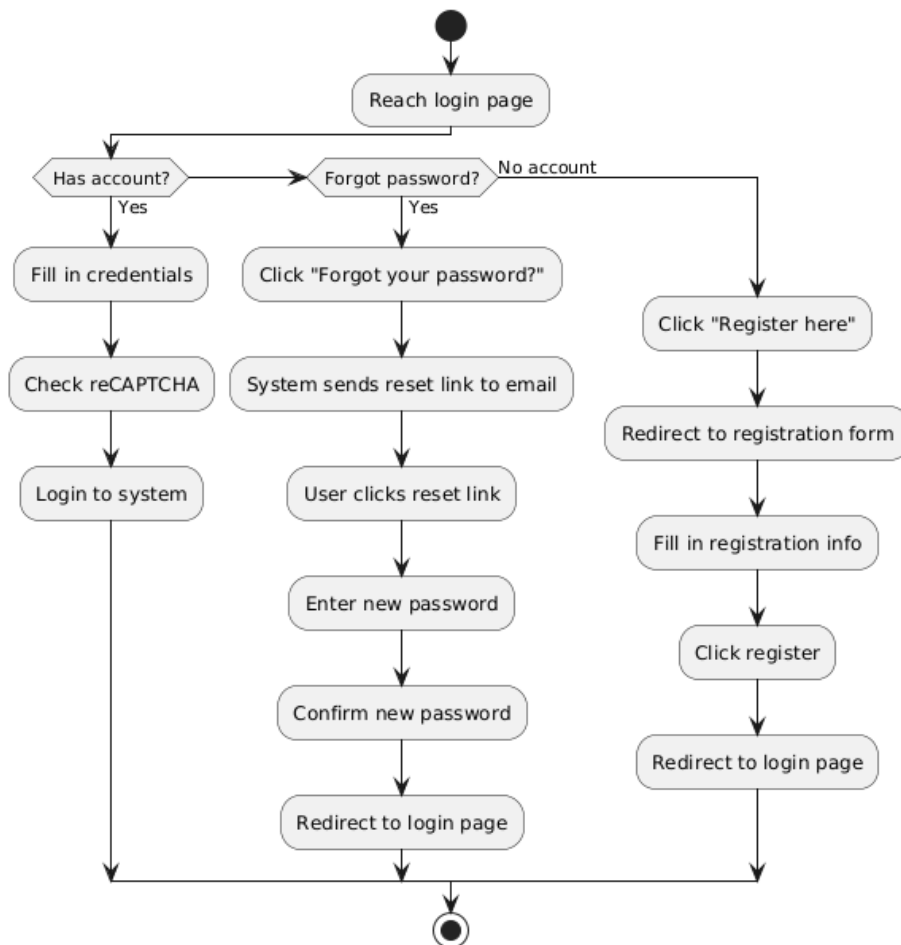
### 4.4.28 Manage Users page – Admin Role Activity Diagram



**Figure 4.4.28 Manage Users page – Admin Role Activity Diagram**

When the user goes to the Manage Users page, the system first checks if they are an admin. If they are not, they are sent back to the login page. If the user is an admin, they can select a user category, such as all users, students, teachers, or parents. The admin types in a name or ID to look for specific users. After the results appear in organized tables, the admin can choose to delete users (after proper validation checks), activate or deactivate student accounts, or promote students to the next grade level. Each action triggers a confirmation dialog and a status message.

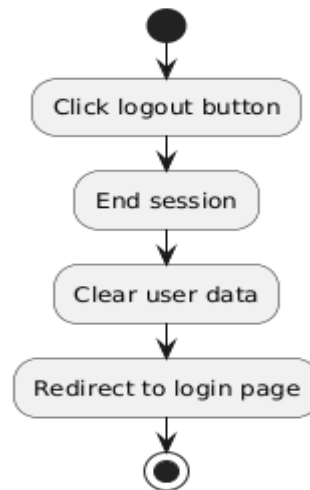
#### 4.4.29 Login page – All Users Activity Diagram



**Figure 4.4.29 Login page – All Users Activity Diagram**

When users reach the login page, they fill in their credentials and check the reCAPTCHA to log in. If they don't have an account, they can click on the "Register here" link, and the system redirects them to the registration form where they fill in their information and register. If someone forgets their password, they can just click on "Forgot your password?" link and the system sends an email containing a link to reset the password. They enter and confirm their new password, after which the system returns them to the login page.

#### 4.4.30 Logout page – All Users Activity Diagram



**Figure 4.4.30 Logout page – All Users Activity Diagram**

When the user clicks the logout button from any page within the system, the system ends the current session, clears any active user data, and redirects the user back to the login page.



## CHAPTER 5 SYSTEM IMPLEMENTATION

### 5.1 System Requirement

#### 5.1.1 Hardware

The hardware used in this project is a laptop, which serves as the primary device for system development, testing, and deployment.

**Table 5.1.1 Specifications of laptop**

Description	Specifications
Model	Lenovo ideapad 330S- 14IKB
Processor	Intel(R) Core(TM) i5-8250U CPU @ 1.60GHz 1.80 GHz
Operating System	Windows 10
Graphic	Radeon™ 540 Graphics
Memory	4.00 GB RAM
Storage	260GB SSD

#### 5.1.2 Software

**Table 5.1.2 Software Used**

Software	Specification	Description
Operating System	Window 10 Pro	Environment for the execution of programs on the laptop.
Web Browser	Google Chrome	Acts as an interface to obtain and display the output of the system.
Visual Studio Code	Version 1.99.3	A code editor used to write, debug, and build the source code of the project.
Front-End	HTML, CSS, JavaScript, and PHP	The tools and programming languages employed while creating and designing the user interface (UI) of the site.
Database	MySQL Database	A relational database management system is employed for the storage,

		retrieval, and management of important information.
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## 5.2 Setting and Configuration

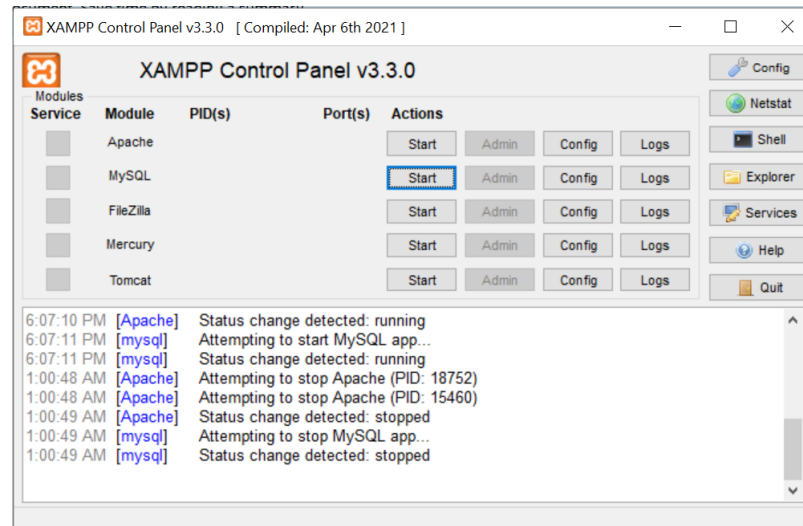


Figure 5.2.1 XAMPP with Apache and MySQL

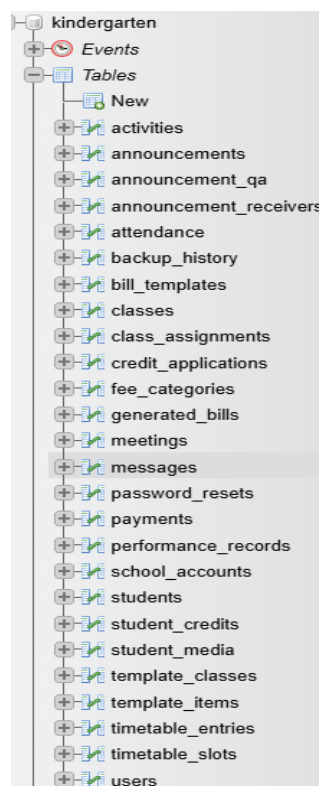
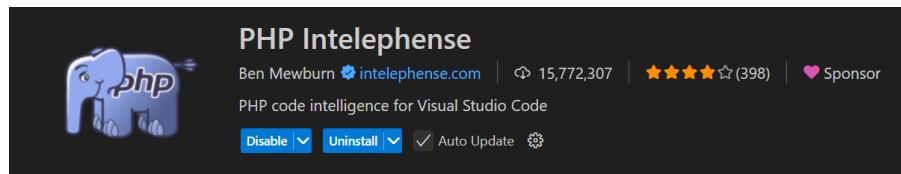


Figure 5.2.2 Database Tables in phpMyAdmin

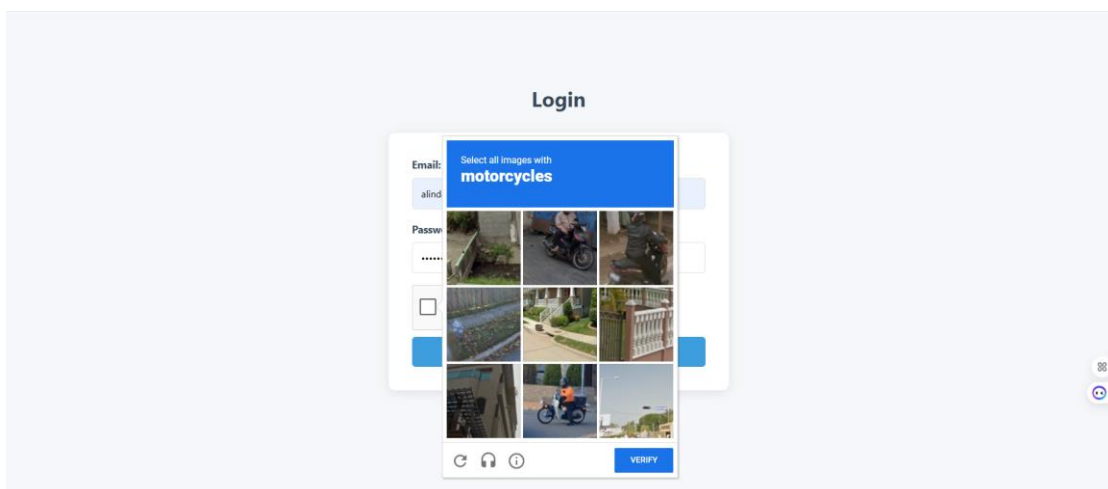
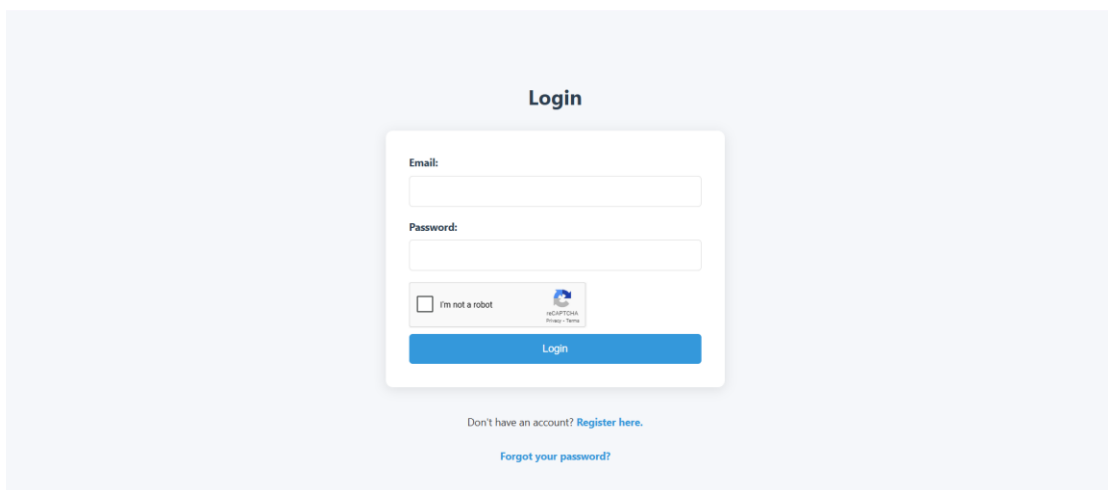


**Figure 5.2.3 Extension Used**

During the initial development phase, XAMPP served as the local server environment and ran both Apache and MySQL services (Figure 5.2.1). We designed and managed the database structure using phpMyAdmin (Figure 5.2.2). Visual Studio Code was the main development platform. We improved it with the PHP Intelephense extension to offer code assistance and support efficient PHP development (Figure 5.2.3).

## 5.3 System Operation

### 5.3.1 Login Page



### Figure 5.3.1 Login Page

All users must log in and complete a reCAPTCHA verification for security purposes.

### 5.3.2 Registration Page

The registration form is titled "Register" and is centered on a light blue background. It contains the following fields and instructions:

- Name:** A text input field.
- Email:** A text input field.
- Password:** A text input field.
- Password must contain:**
  - At least 12 characters
  - One uppercase letter (A-Z)
  - One lowercase letter (a-z)
  - One number (0-9)
  - One special character (!@#\$%^&\*; etc.)
- Role:** A dropdown menu with "Teacher" selected.
- Date of Birth:** A text input field.

### Figure 5.3.2 Registration Page

If you don't have an account, you can register by clicking the registration link.

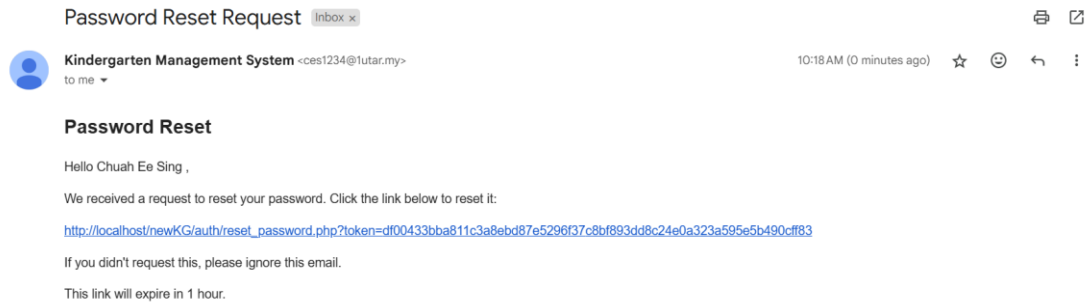
### 5.3.3 Forgot Password & Reset Password Page

The "Forgot Password" page features a success message and a form for requesting a password reset link:

- Forgot Password** (Section Header)
- Message:** "Password reset link has been sent to your email." (in a green box)
- Form:**
  - Enter your email address:** A text input field.
  - Send Reset Link** (Blue button)
- Footer:** "Remember your password? [Login here](#)"

### Figure 5.3.3 Forgot Password Page

## CHAPTER 5



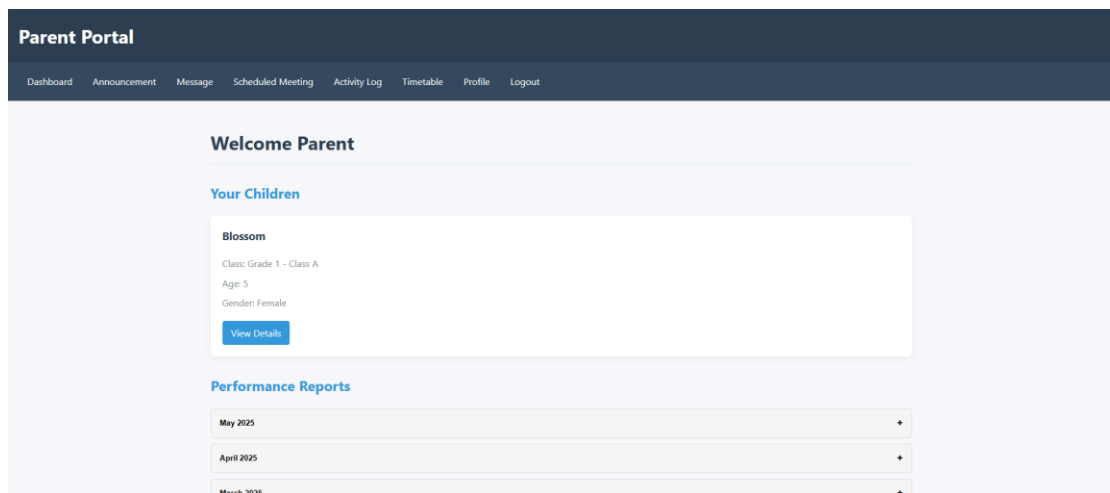
**Figure 5.3.4 Email link to Reset Password Page**

The image shows a web page titled 'Reset Password'. It features a central white form box on a light blue background. Inside the form, there is a label 'New Password:' followed by a text input field. Below the input field is a list of password requirements: 'At least 12 characters', 'At least one uppercase letter', 'At least one lowercase letter', 'At least one number', and 'At least one special character'. At the bottom of the form, there is a label 'Confirm New Password:' followed by another text input field.

**Figure 5.3.5 Reset Password Page**

If you've forgotten your password, enter your registered email address — the system will send you a link to reset it.

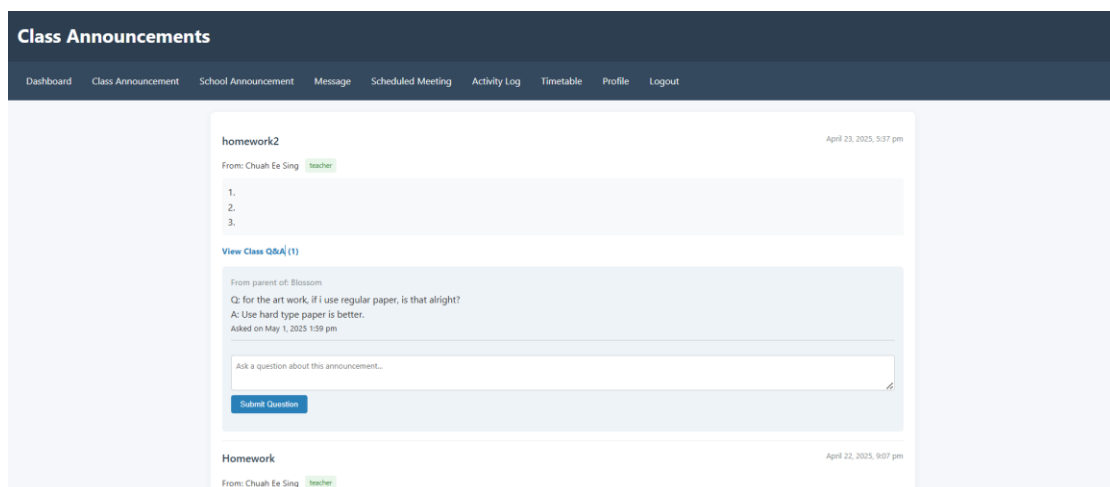
### 5.3.4 Dashboard - Parent



**Figure 5.3.6 Parent Dashboard Page**

After logging in, parents will see their dashboard, which provides a quick overview of their child's class information and access to performance reports.

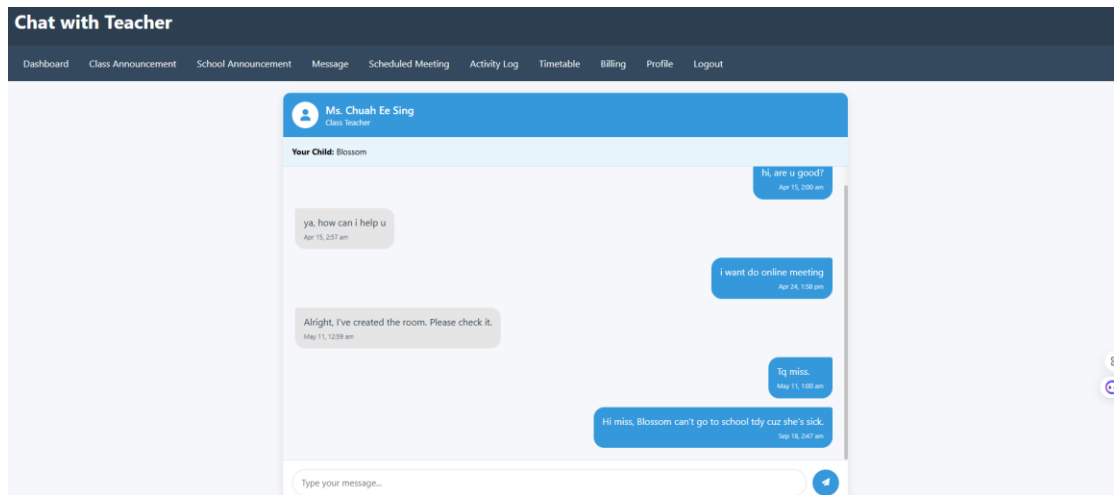
### 5.3.5 Class Announcement Page – Parent Role



**Figure 5.3.7 Class Announcement Page – Parent Role**

On the Class Announcement page, parents can view announcements posted by the teacher and take note of important updates. If anything is unclear, they can ask questions directly.

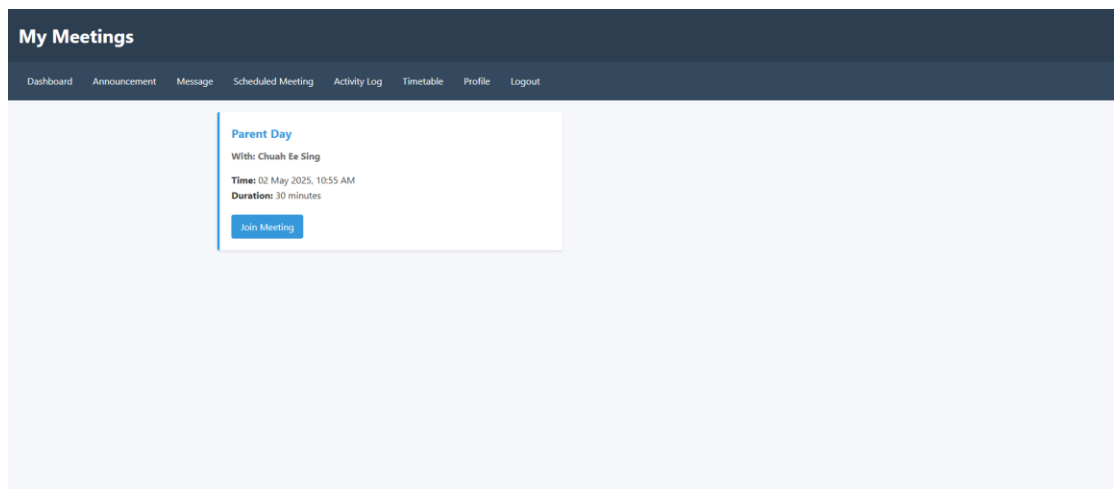
### 5.3.6 Chat with Teacher Page – Parent Role



**Figure 5.3.8 Chat with Teacher Page – Parent Role**

On the Chat page, parents can compose a message and send it to the respective teacher. Previous messages are displayed above.

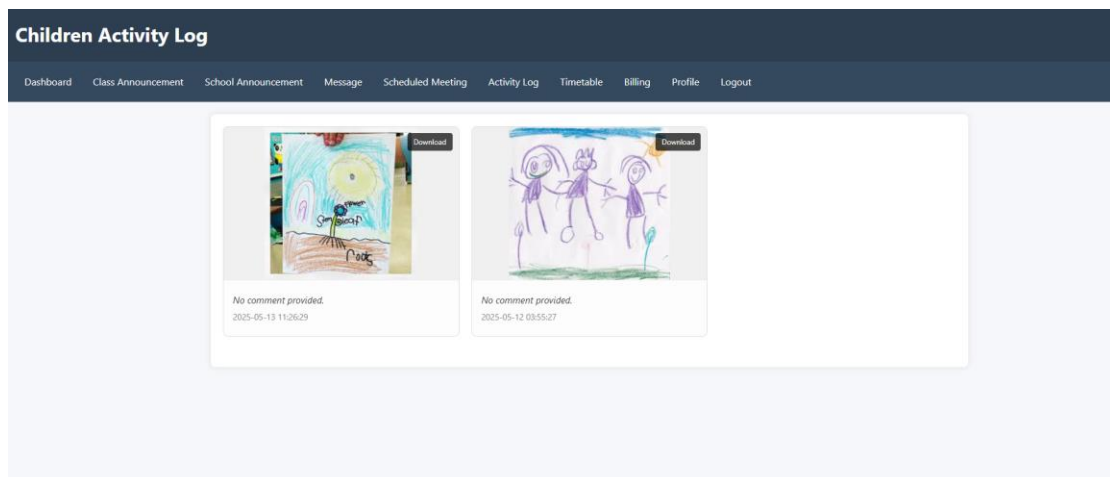
### 5.3.7 Scheduled Meeting Page – Parent Role



**Figure 5.3.9 Scheduled Meeting Page – Parent Role**

On the Scheduled Meeting page, parents can join meetings arranged by the teacher by clicking the “Join Meeting” button.

### 5.3.8 Activity Log Page – Parent Role



**Figure 5.3.10 Activity Log Page – Parent Role**

On the Activity Log page, parents can view pictures or videos of their child at school. All media files are available for download.

### 5.3.9 Timetable Page – Parent Role

The screenshot shows the 'Student Timetable' page. At the top is a dark blue navigation bar with links: Dashboard, Class Announcement, School Announcement, Chat, Scheduled Meeting, Activity Log, Timetable, Billing, Profile, and Logout. Below the navigation bar, there is a section for 'Child: Blossom' with 'Grade: Grade 2 - Class A'. Below this is a 'Timetable' section with a table showing the daily schedule.

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
09:00-09:30	Phonics & Pre-Reading	Math Explorers	Creative Arts	Story Circle	Library & Literacy
09:30-10:00	Math Explorers	Outdoor Learning	Science Discovery	Math Explorers	Science Discovery
10:00-10:30	Quiet Time	Quiet Time	Quiet Time	Quiet Time	Quiet Time
10:30-11:00	Nature Explorers	Science Discovery	Phonics & Pre-Reading	Puppet Show	Snacks
11:00-11:30	Story Circle	Relax Time	Movie	Music & Movement	Phonics & Pre-Reading
11:30-12:00	Snacks	Music & Movement	Nature Explorers	Relax Time	Creative Arts
12:00-12:30	Nature Explorers	Lunch	Cooking	Nature Explorers	Lunch

Below the timetable, there is a 'Teachers in Charge' section with two columns:

Class Teacher	Teaching Assistant
<b>Name:</b> Chuah Ee Sing <b>Phone:</b> 01234567899 <b>Email:</b> <a href="mailto:eleenchuah22@gmail.com">eleenchuah22@gmail.com</a>	<b>Name:</b> es <b>Phone:</b> 01234567899 <b>Email:</b> <a href="mailto:es1234@gmail.com">es1234@gmail.com</a>

**Figure 5.3.11 Timetable Page – Parent Role**

On the Timetable page, parents can check their child's daily learning schedule and see which teacher is responsible for each subject.



5.3.10 Student Bills Page – Parent Role

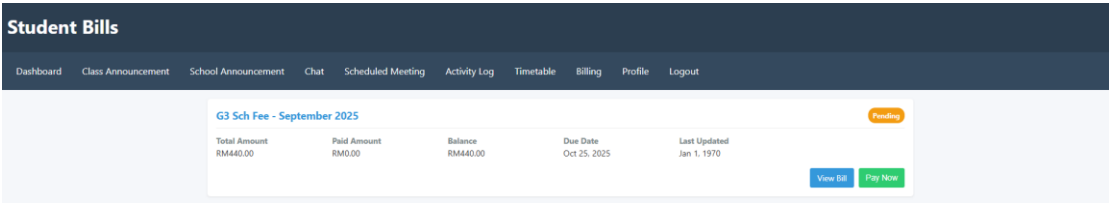


Figure 5.3.12 Student Bills Page – Parent Role

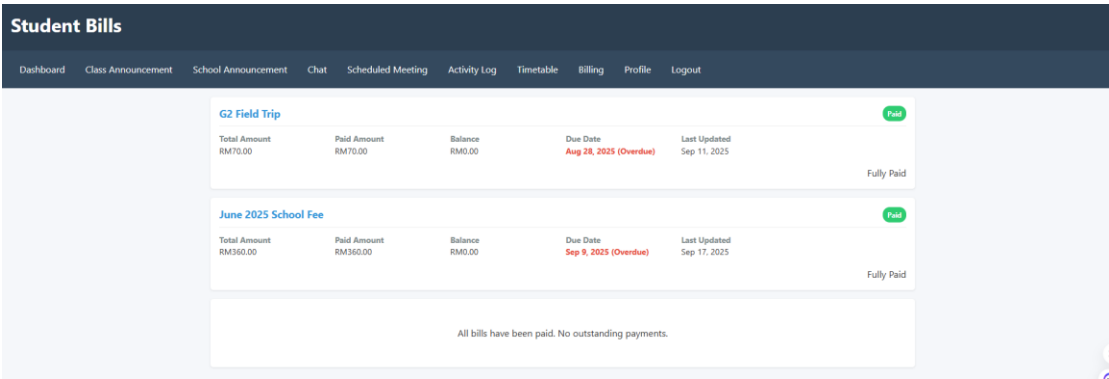


Figure 5.3.13 Student Bills Status – Parent Role

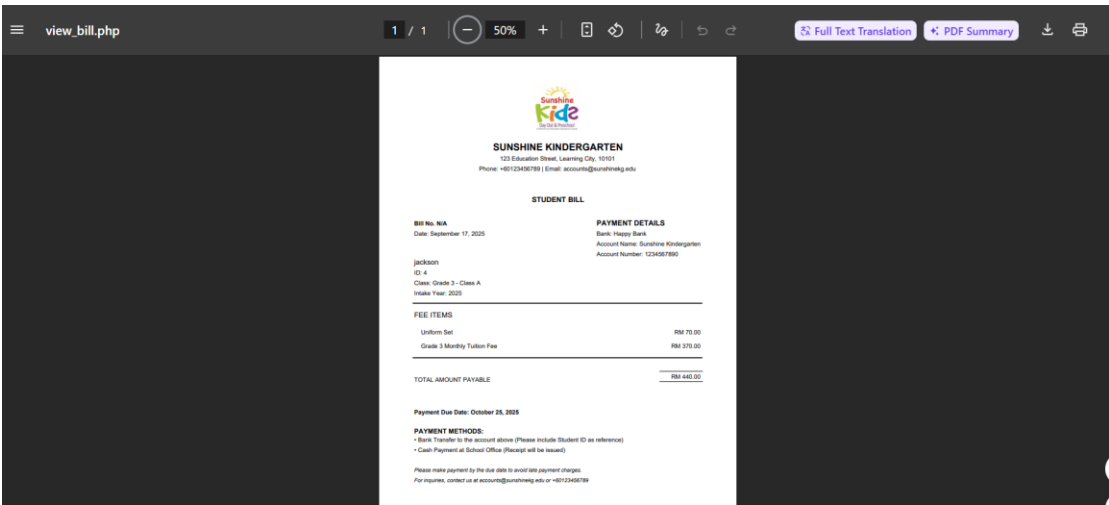


Figure 5.3.14 View Bill Page – Parent Role

**Student Bills**

Class Announcement School Announcement Chat Scheduled Meeting

**G3 Sch Fee - September 2025**

Total Amount	Paid Amount
RM440.00	RM0.00

**Payment Method**

**School Bank Account Details**

Bank: Maybank Malaysia  
 Account Name: Sunshine Kindergarten  
 Account Number: 1234-5678-9012  
 Reference: Please include Student ID in transfer description

Amount to Pay (RM)  
 440.00

☒ Credit Card ☐ Bank Transfer

Card Holder Name  
 John Doe

Card Number  
 1234 5678 9012 3456

Expiry Date (MM/YY) CVV  
 12/25 123

**Figure 5.3.15 View Bill Page – Parent Role**

On the Student Bills page, the parent can view or download the bill in PDF format. To make a payment, the parent clicks the Pay Now button, selects a payment method, and enters the required details. After successful payment, the system displays a Fully Paid status badge. If the bill is past the due date, the system displays an Overdue status instead.

### 5.3.11 Profile Page – Parent Role

The screenshot shows a web application interface with a dark blue header bar containing the title "Profiles" and a navigation menu with items: Dashboard, Class Announcement, School Announcement, Chat, Scheduled Meeting, Activity Log, Timetable, Billing, Profiles, and Logout. The main content area is divided into two side-by-side white panels. The left panel, titled "Parent Information", contains fields for Name (Lim Yeen Suang), Email (yeen8506@gmail.com), Phone (01234567899), IC Number, Gender (female), and Marital Status. The right panel, titled "Child Information", contains fields for Name (Blossom), Class (Grade 2 - Class A), Date of Birth (2025-09-01), Age (0 years), Gender (Female), and Marital Status.

Figure 5.3.13 Profiles Page – Parent Role

On the Profile page, parents can see their own information along with their child's details.

The screenshot shows the "Edit Parent Info" page. The header bar is dark blue with the title "Edit Parent Info" and a navigation menu: Dashboard, Class Announcement, School Announcement, Message, Scheduled Meeting, Activity Log, Timetable, Billing, Profile, and Logout. The main content area is a white form with fields for Full Name (Lim Yeen Suang), Email (yeen8506@gmail.com), IC, Phone Number (01234567899), Gender (Female), Marital Status (Married), Address (1187, jalan 1/2), and Health Conditions (none). There are "Save Changes" and "Cancel" buttons at the bottom right.

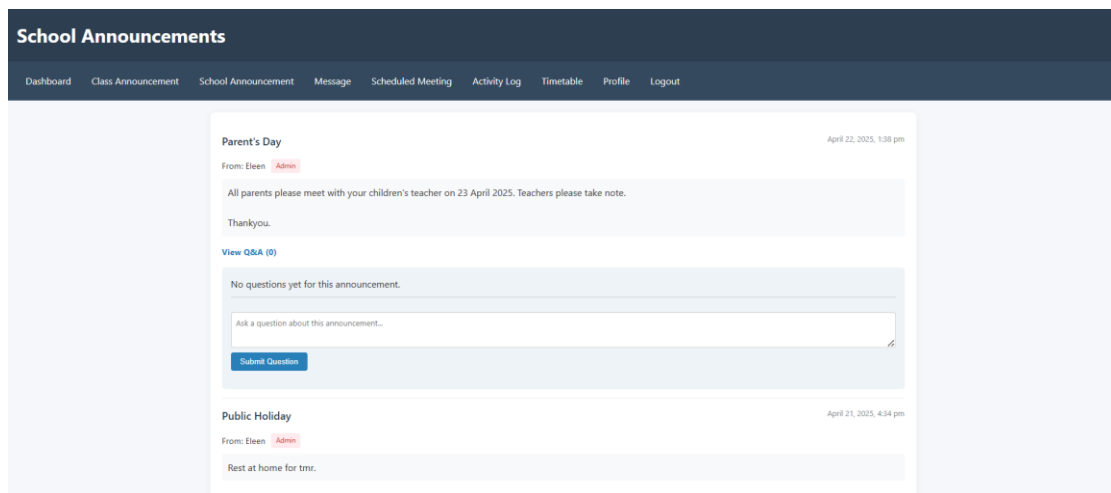
Figure 5.3.14 Edit Parent Info Page – Parent Role

The screenshot shows the "Edit Child Info" page. The header bar is dark blue with the title "Edit Child Info" and a navigation menu: Dashboard, Class Announcement, School Announcement, Message, Scheduled Meeting, Activity Log, Timetable, Billing, Profile, and Logout. The main content area is a white form with fields for Full Name (Blossom), Age (5), Gender (Male), Health Conditions (allergic to prawn), Emergency Contact Name (Chuah Boon), and Emergency Contact Phone (0123456789). There are "Save Changes" and "Cancel" buttons at the bottom right.

Figure 5.3.15 Edit Child Info Page – Parent Role

On both Edit Info pages, parents can update their own info as well as their child's details.

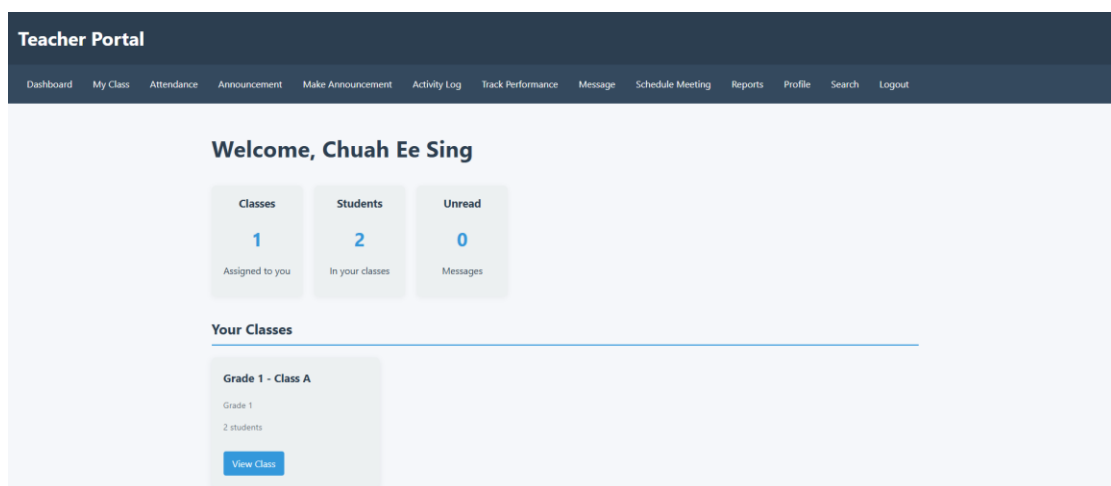
### 5.3.12 School Announcement Page – Parent Role



**Figure 5.3.16 School Announcement Page – Parent Role**

On the School Announcements page, parents can read announcements made by the admin for the entire school. They can ask questions if they need to, just like with class announcements.

### 5.3.13 Teacher Dashboard



**Figure 5.3.17 Teacher Dashboard Page**

## CHAPTER 5

After a successful login, teachers are directed to their dashboard, which provides a quick overview of their class, student information, and received messages.

### 5.3.14 My Class Page – Teacher Role

The screenshot shows the 'My Class' page for Grade 1 - Class A. The page features a navigation bar with links: Dashboard, My Class, Attendance, Announcement, Make Announcement, Activity Log, Track Performance, Message, Schedule Meeting, Reports, Profile, Search, and Logout. The main content area displays a weekly schedule table for the week of May 1st to 5th, 2025. The table lists activities for each time slot from 09:00 to 12:30. A calendar widget on the right shows the current date as Thursday, May 1st, 2025, with a 'Refresh' button.

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
09:00-09:30	Library	Art	Art	Cooking	Library
09:30-10:00	Nature Walk	Outdoor Play	Science	Science	Science
10:00-10:30	Show & Tell	Nature Walk	Math Games	Quiet Time	Math Games
10:30-11:00	Nature Walk	Phonics	Music	Puppet Show	Snacks
11:00-11:30	Phonics	Show & Tell	Movie	Phonics	Storytelling
11:30-12:00	Show & Tell	Storytelling	Nature Walk	Show & Tell	Show & Tell
12:00-12:30	Snacks	Show & Tell	Quiet Time	Music	Art

Figure 5.3.18 My Class Page – Teacher Role

On the My Class page, teachers can check their schedule for the day. A simple calendar is included for easy reference.

### 5.3.15 Attendance Page – Teacher Role

The screenshot shows the 'Student Daily Attendance' page for Thursday, May 1, 2025. The page features a navigation bar with links: Dashboard, My Class, Attendance, Announcement, Make Announcement, Activity Log, Track Performance, Message, Schedule Meeting, Reports, Profile, Search, and Logout. The main content area displays a 'Class' dropdown menu set to 'Grade 1 - Class A'. Below it is a 'Select Activity' dropdown menu with a list of activities and their corresponding time slots. The activities listed are: Cooking (9:00 AM - 9:30 AM), Science (9:30 AM - 10:00 AM), Quiet Time (10:00 AM - 10:30 AM), Puppet Show (10:30 AM - 11:00 AM), Phonics (11:00 AM - 11:30 AM), Show & Tell (11:30 AM - 12:00 PM), and Music (12:00 PM - 12:30 PM). At the bottom, there are three buttons: 'All Absent', 'All Present', and 'All Late'.

Student Name	Attendance Status
Ava Jones	Present
Blossom	Present
Emma Johnson	Present
Isabella Rodriguez	Present
Liam Brown	Present
Mason Martinez	Present
Noah Smith	Present
Olivia Williams	Present
Sophia Miller	Present
William Garcia	Present

Buttons: Save Attendance, Cancel

**Figure 5.3.19 Student Daily Attendance Page – Teacher Role**

On the Attendance page, teachers select a time slot and mark each student's attendance status.

### 5.3.16 School Announcement Page – Teacher Role

**School Announcement**

Dashboard My Class Attendance School Announcement Announcement Q&A Make Announcement Activity Log Track Performance Message Schedule Meeting Profile Search Logout

**Parent's Day** April 22, 2025, 1:38 pm

From: Eleen Admin

All parents please meet with your children's teacher on 23 April 2025. Teachers please take note.

Thankyou.

**View Q&A (1)**

From: Chuah Ee Sing Teacher

Q: Can student leave school early?

(Not answered yet)

Asked on May 1, 2025 6:05 pm

Ask a question about this announcement...

Submit Question

**Public Holiday** April 21, 2025, 4:34 pm

From: Eleen Admin

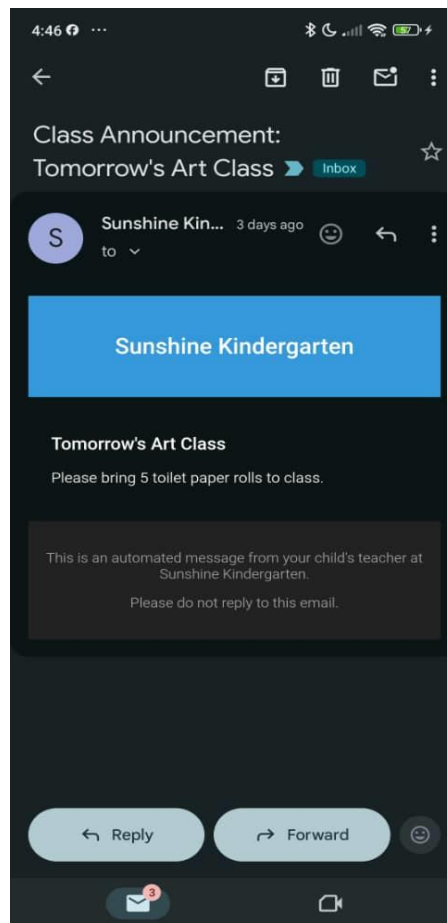
**Figure 5.3.20 School Announcement Page – Teacher Role**

On the School Announcements page, teachers can read announcements made by the admin. If anything is unclear, they can submit questions.

### 5.3.17 Make Announcement Page – Teacher Role

The screenshot shows a web application titled "Announcement to Parent". The navigation bar includes links: Dashboard, My Class, Attendance, School Announcement, Announcement Q&A, Make Announcement, Activity Log, Track Performance, Message, Schedule Meeting, Profile, Search, and Logout. The main content area features a "Send New Announcement" form with a "Title" field (placeholder: "Enter announcement title") and a "Message" text area (placeholder: "Write your announcement here"). A blue button labeled "Send to My Students' Parents" is at the bottom right of the form.

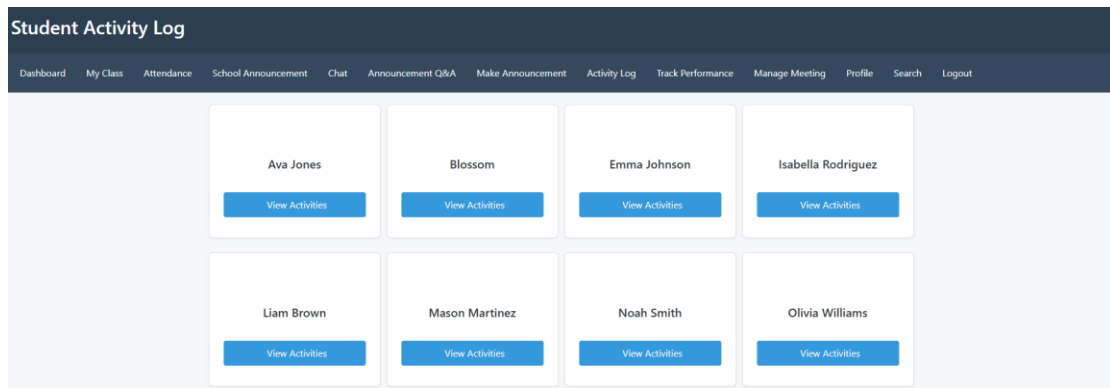
**Figure 5.3.21 Make Announcement Page – Teacher Role**



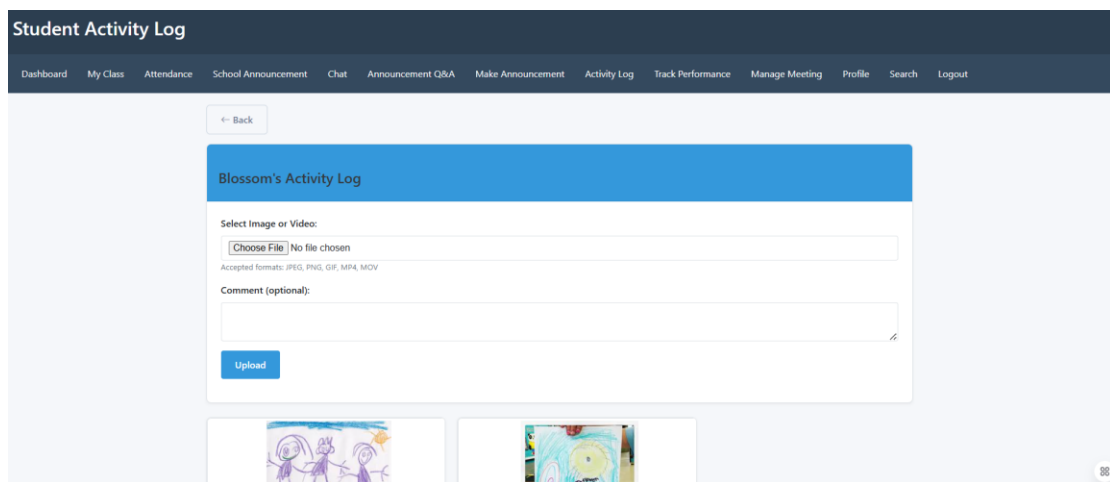
**Figure 5.3.22 Class Announcement Email Notification – Teacher Role**

Teachers can send announcements straight to parents from the Make Announcement page. Email notification is sent out as well (Figure 5.3.22).

### 5.3.18 Student Activity Log Page – Teacher Role



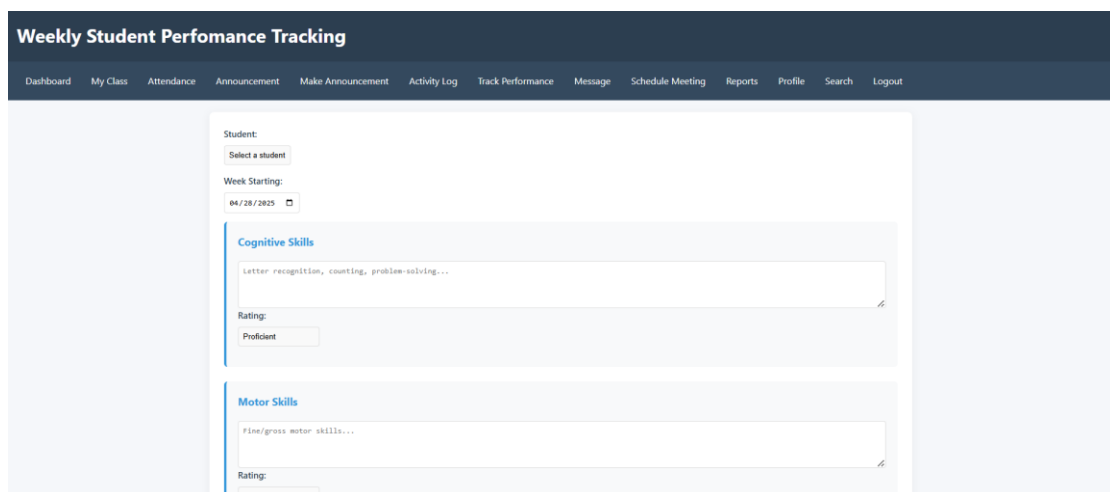
**Figure 5.3.23 Student Activity Log Page – Teacher Role**



**Figure 5.3.24 Upload Student Activity Log Page – Teacher Role**

On the Student Activity Log page, teachers can select a student and upload pictures or videos related to their school activities.

### 5.3.19 Weekly Student Performance Tracking Page – Teacher Role





### Figure 5.3.25 Track Performance Page – Teacher Role

On the Weekly Student Performance Tracking page, teachers can choose a student and record their weekly performance updates.

### 5.3.20 Chat with Parent Page – Teacher Role

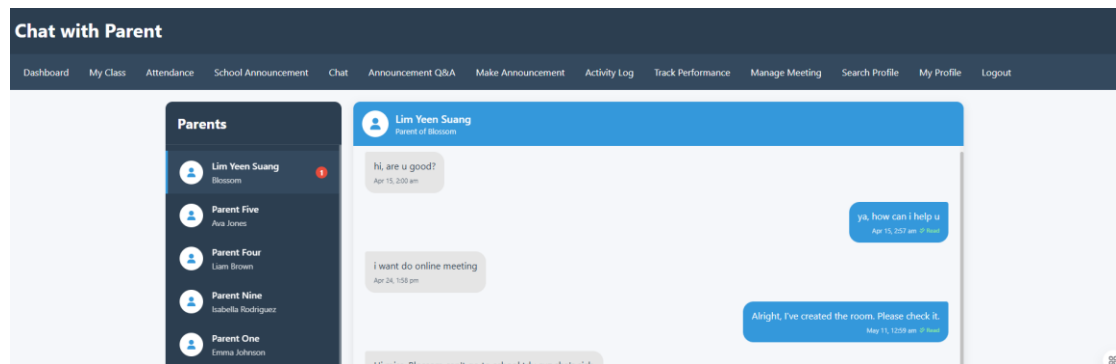


Figure 5.3.26 Chat with Parent Page – Teacher Role

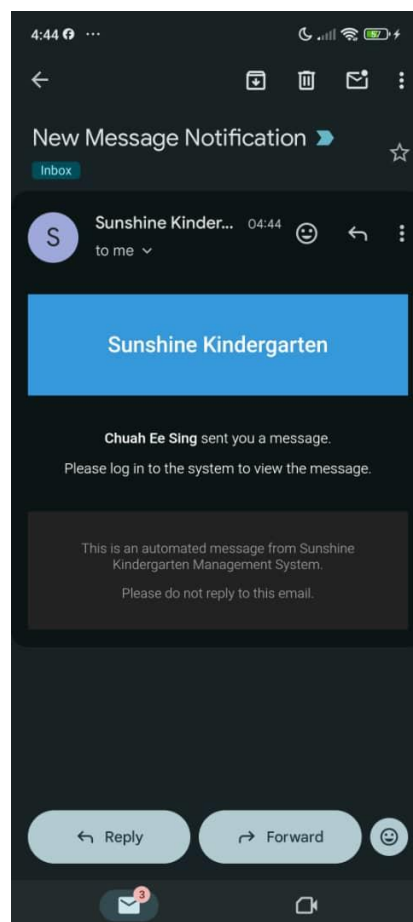


Figure 5.3.27 Chat with Parent Email Notification – Teacher Role

## CHAPTER 5

On the Message page, teachers select the parent they wish to contact, compose a message, and send it. Parent receives email notification (Figure 5.3.25).

### 5.3.21 Manage Meetings Page – Teacher Role

**Figure 5.3.28 Manage Meetings Page – Teacher Role**

Teachers can set up meetings with parents on the Manage Meetings page. Successfully scheduled meetings are shown on the right. When the time comes, they can join the meeting by clicking the “Join Meeting” button.

### 5.3.22 My Profile Page – Teacher Role

**Figure 5.3.29 My Profile Page – Teacher Role**

**Edit Profile**

Dashboard My Class Attendance School Announcement Chat Announcement Q&A Make Announcement Activity Log Track Performance Manage Meeting Profile Search Logout

Full Name: Chuah Ee Sing IC Number: 030205100134

Gender: ☐ Male ☒ Female Phone Number: 01234567899

Email: eleenchuah22@gmail.com

Address: 1187, jalan 1/2

Health Conditions: allergic to peanuts

Save Changes Cancel

**Figure 5.3.30 Edit Profile Page – Teacher Role**

On the Profile page, teachers can view their personal information and click the edit button to make updates.

### 5.3.23 Search Page – Teacher Role

**Search Profile**

Dashboard My Class Attendance School Announcement Chat Announcement Q&A Make Announcement Activity Log Track Performance Manage Meeting Search Profile My Profile Logout

Blossom Search

**Student Information**

ID: 3  
Name: Blossom  
Age: 5  
Gender: Female  
Health Conditions: allergic to prawn  
Emergency Contact: Chuah Boon (01234566789)

**Parent Information**

ID: 16  
Name: Lim Yeen Suang  
Email: yeen8506@gmail.com  
Phone: 01234567899  
Address: 1187, jalan 1/2  
Gender: female  
IC Number:  
Marital Status: married  
Health Conditions: none

**Figure 5.3.31 Search Page – Teacher Role**

On the Search page, teachers can look up student information, including details about their parents.

### 5.3.24 Announcement Q&A Page – Teacher Role

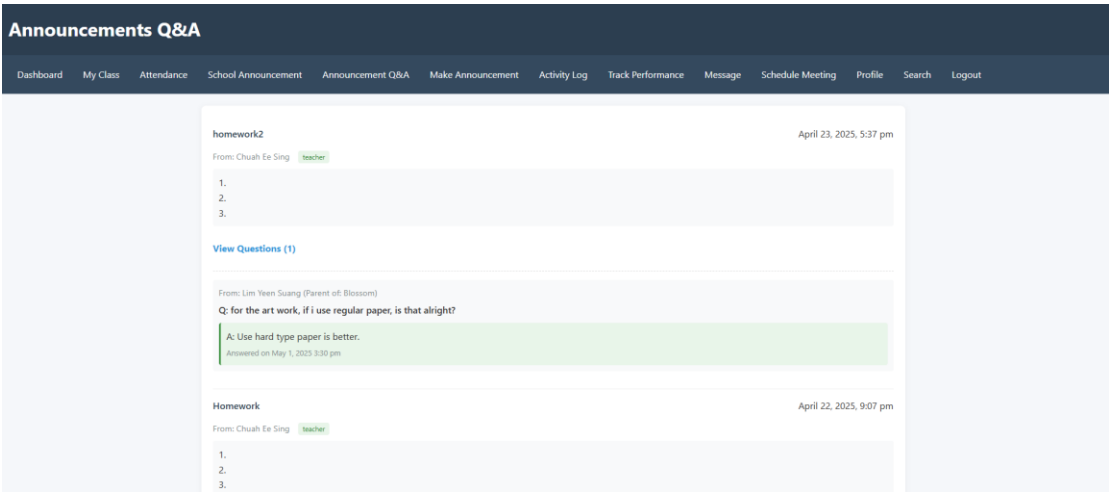
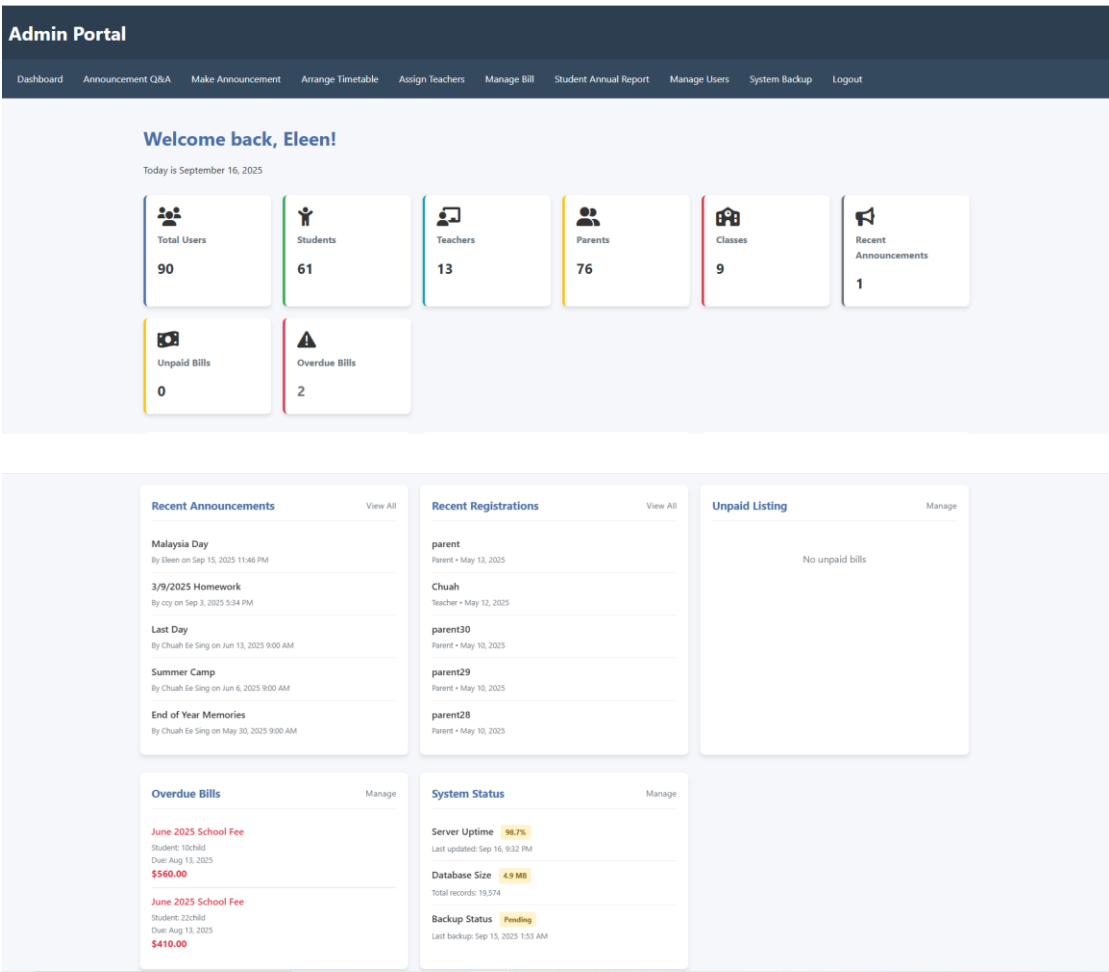


Figure 5.3.32 Announcement Q&A Page – Teacher Role

On the Announcement Q&A page, teachers can respond to questions submitted by parents regarding announcements.

5.3.25 Admin Dashboard



### Figure 5.3.33 Admin Dashboard Page

After a successful login, admin is directed to their dashboard, which provides a quick overview of users, announcements, new registrations, unpaid listing, overdue bills and system status.

### 5.3.26 Announcement Q&A Page– Admin Role

### Figure 5.3.34 Announcement Q&A Page– Admin Role

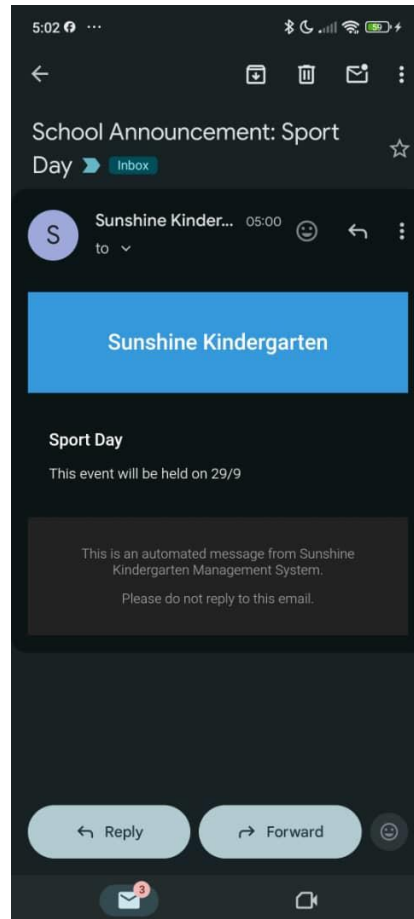
On the Announcement Q&A page, admin can respond to questions submitted by teachers or parents.

### 5.3.27 Make Announcement Page – Admin Role

### Figure 5.3.35 Make Announcement Page – Admin Role

Select receiver type
All Teachers and Parents
Teachers Only
Parents Only
Select receiver type

**Figure 5.3.36 Select Receiver Type – Admin Role**



**Figure 5.3.37 School Announcement Email Notification – Admin Role**

On the Make Announcement page, the admin can create announcements and choose the recipients. When the Send Announcement button is clicked, an email notification is also sent out (Figure 4.4.10).

### 5.3.28 Arrange Timetable Page – Admin Role

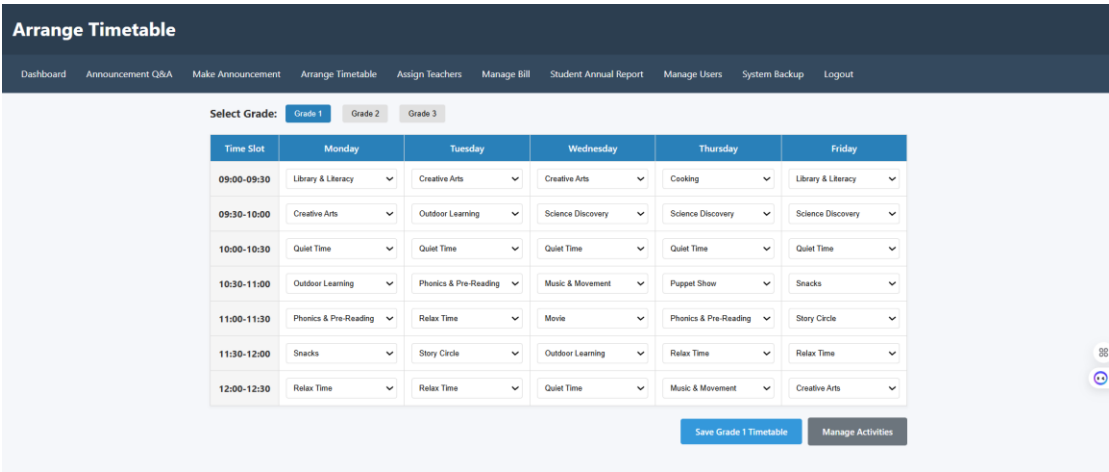


Figure 5.3.38 Arrange Timetable Page– Admin Role

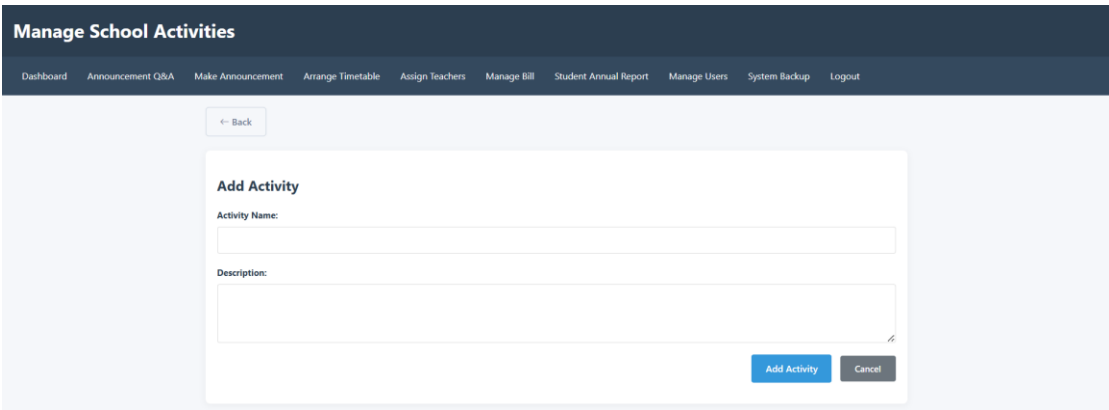
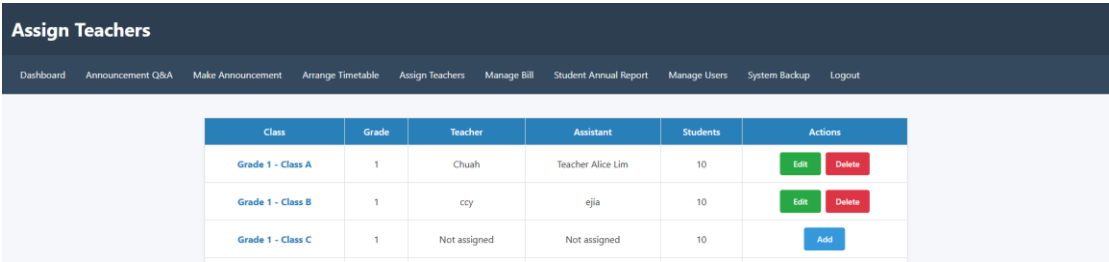
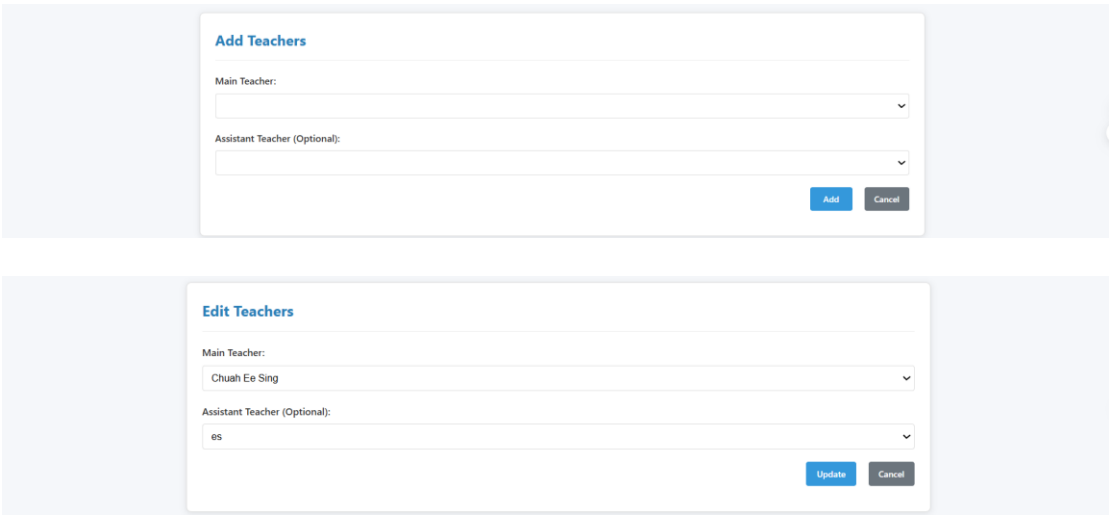


Figure 5.3.39 Manage School Activities Page – Admin Role

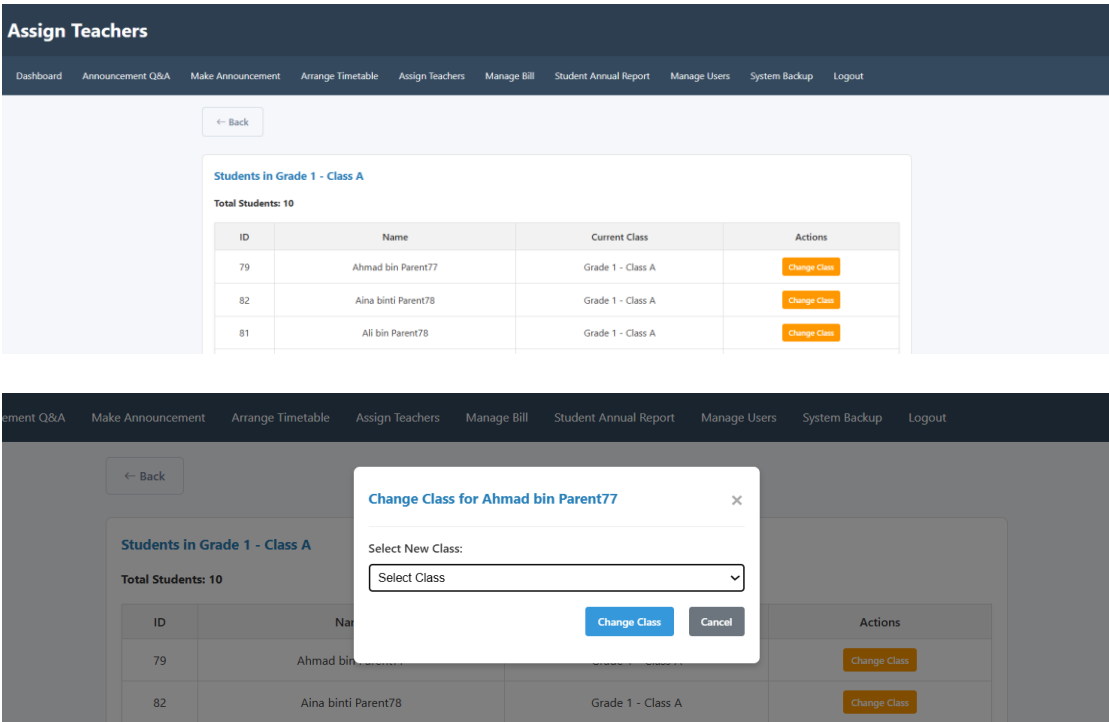
On the Arrange Timetable page, the admin can add activities to each timeslot to create class timetables for each grade. By clicking the ‘Manage Activities’ button, the admin is directed to the Manage School Activities page, where they can add, edit, or delete activities and their descriptions.

5.3.29 Manage Class Page – Admin Role





**Figure 5.3.40 Manage Class Page – Admin Role**

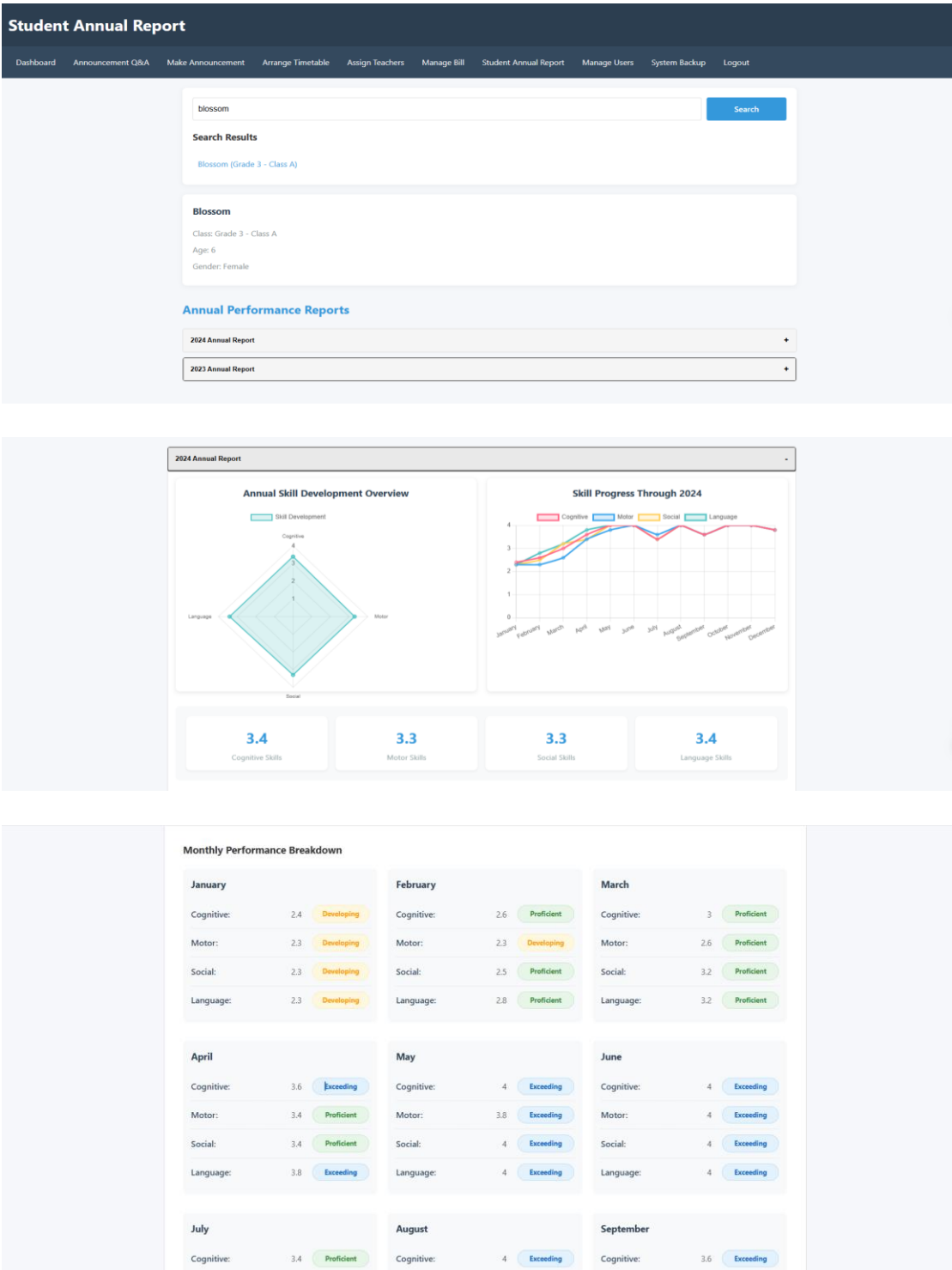


**Figure 5.3.41 Class Student List Page – Admin Role**

On the Assign Teachers page, the admin can assign or change the main teacher and assistant for each class. By clicking on a class, the admin can view the list of students in that class and, if necessary, change a student’s class assignment.

### 5.3.30 Student Annual Report Page – Admin Role





**Figure 5.3.42 Student Annual Report Page – Admin Role**

On the Student Annual Report page, the admin can review students’ yearly performance. To view a report, the admin types in the search bar, selects the student’s name, and the system displays the annual report.

### 5.3.31 Manage Users Page – Admin Role

**Manage Users**

Dashboard Announcement Q&A Make Announcement Arrange Timetable Assign Teachers Manage Bill Student Annual Report Manage Users System Backup Logout

All Users

**Students**

ID	Name	Status	Age	Gender	Class	Health Conditions	Emergency Contact	Parent Info	Actions
53	Abigail Lee	not active	5	Female	Grade 2 - Class C (Grade 2)	healthy	Parent Twenty-One 0111111131	<b>Name:</b> Parent Twenty-One <b>Email:</b> parent21@example.com <b>Phone:</b> 0111111131 <b>IC:</b> 000909091234	<input type="button" value="Delete"/>
40	Benjamin Davis	active	6	Male	Grade 3 - Class A (Grade 3)	healthy	Parent Eight 0111111118	<b>Name:</b> Parent Eight <b>Email:</b> parent8@example.com <b>Phone:</b> 0111111118 <b>IC:</b> 870808081234	<input type="button" value="Leave"/> <input type="button" value="Level Up"/> <input type="button" value="Delete"/>
3	Blossom	active	6	Female	Grade 3 -	allergic to prawn	Chuah Boon	<b>Name:</b> Lim Yeen Suang	<input type="button" value="Leave"/>

**Teachers**

ID	Name	Email	Phone	Assigned Classes	Address	IC	Actions
35	Brianna	eschuah0502@gmail.com	01234567899		1234, jalan sekyyen 1/4	123456789102	<input type="button" value="Delete"/>
98	Teacher Ben Wong	ben.wong@kindergarten.edu	0123456702		22 Learning Street	860202021234	<input type="button" value="Delete"/>

**Parents**

ID	Name	Email	Phone	Address	IC	Actions
20	BoonHong	andy1234@gmail.com	01234567899	1187, jalan 1/2	030205100134	<input type="button" value="Delete"/>

**Figure 5.3.43 Manage Users Page – Admin Role**

On the Manage Users page, admins can look up users by searching names and filtering by students, teachers, or parents. For students, admins can set the status to Leave when a student takes leave, use Level Up to promote the student to the next class or mark them as graduated if they are in the final grade, use Delete to remove a student record from the database, or use Activate to re-activate a student continuing their studies. For parents and teachers, admins can use Delete to remove their records from the database.

### 5.3.32 Manage Bill – Admin Role

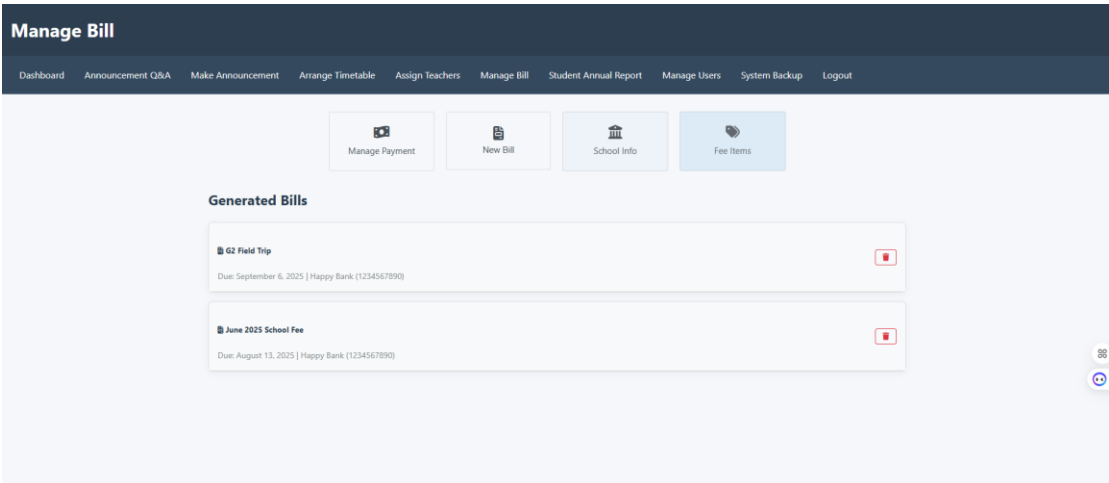


Figure 5.3.44 Manage Bill Page – Admin Role

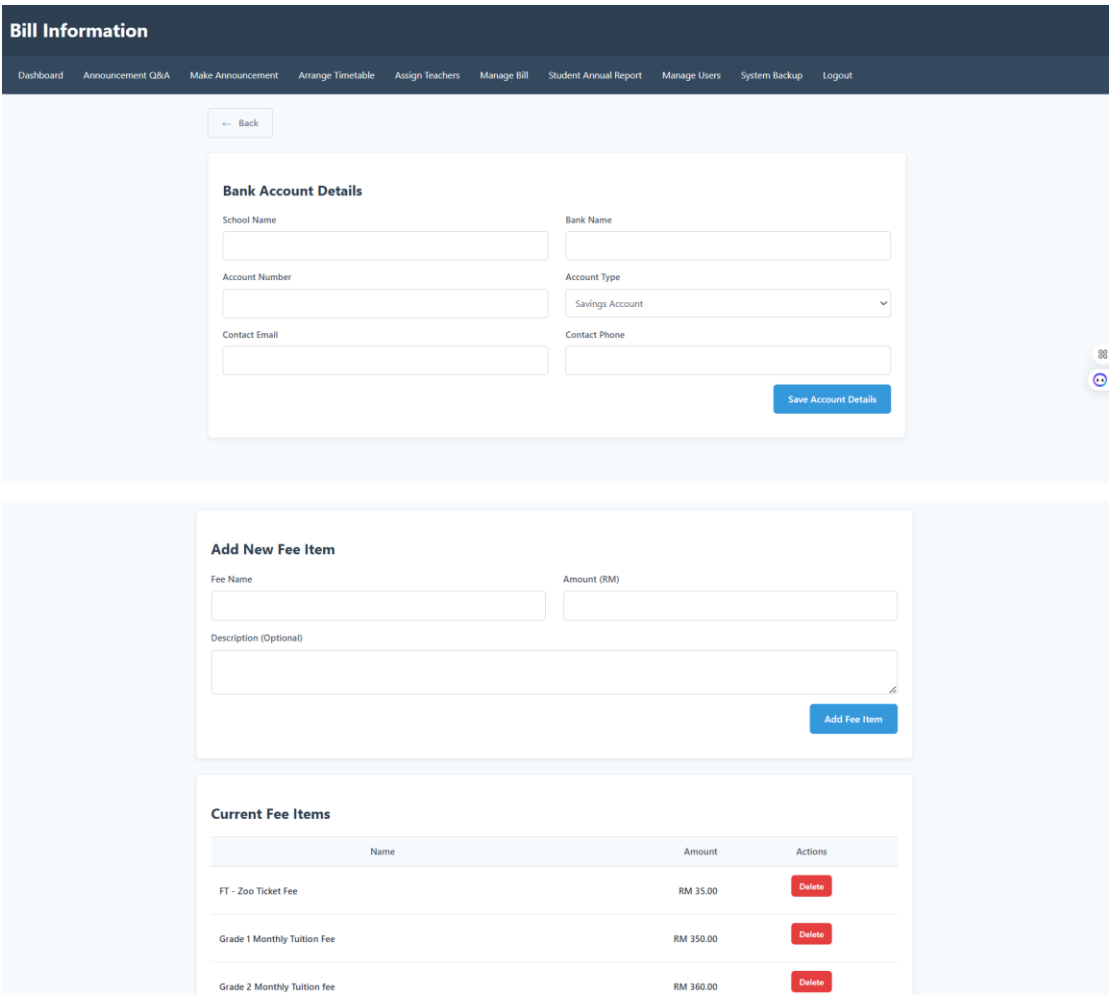


Figure 5.3.45 Bill Information Page – Admin Role

On the Manage Bill page, there are four buttons: Manage Payment, New Bill, School Info, and Fee Items. Before creating a new bill, the admin must first enter the school’s bank account information and define the fee items.

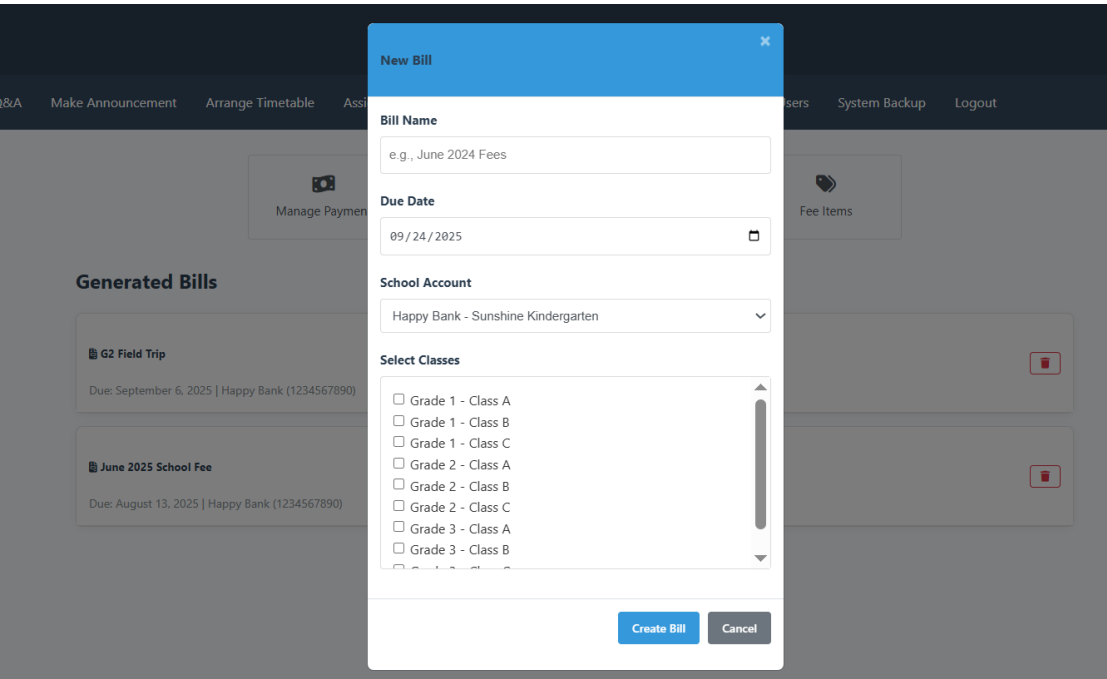


Figure 5.3.46 New Bill Template – Admin Role

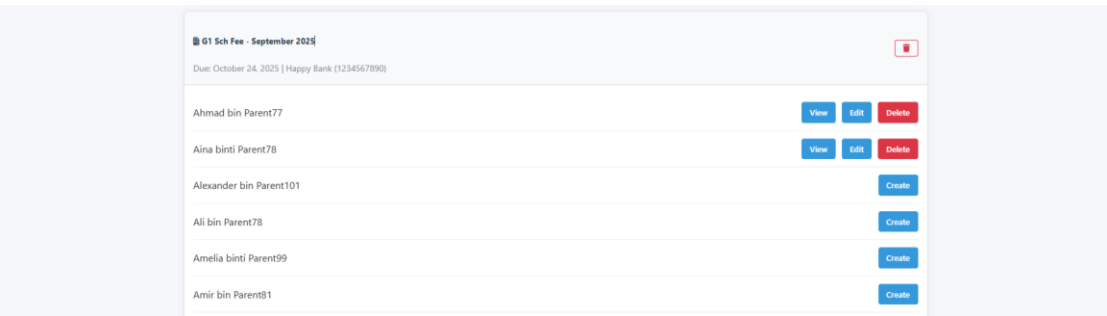


Figure 5.3.47 List of Students to Create Bills – Admin Role

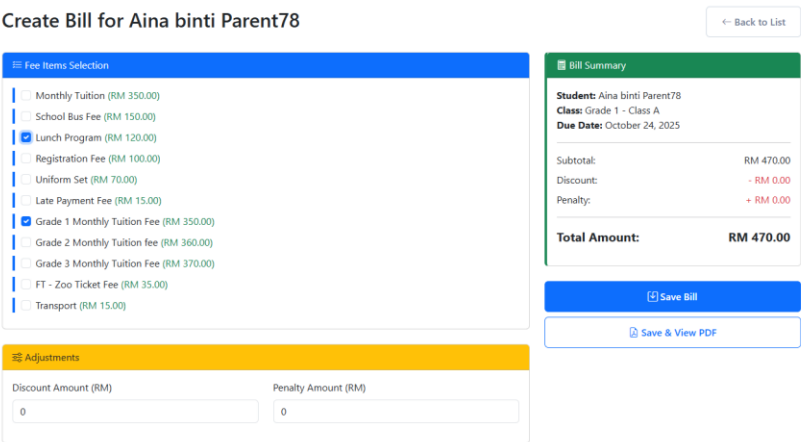


Figure 5.3.48 Bill Form Page – Admin Role

## CHAPTER 5

On the Manage Bill page, the system displays a toggle for bill templates, which contains a list of students awaiting bill creation. The admin can view, edit, or delete each bill as needed. When creating a bill, the admin selects the fee items to be included, and the system automatically calculates the total. An adjustments field is also provided for the admin to make necessary changes.

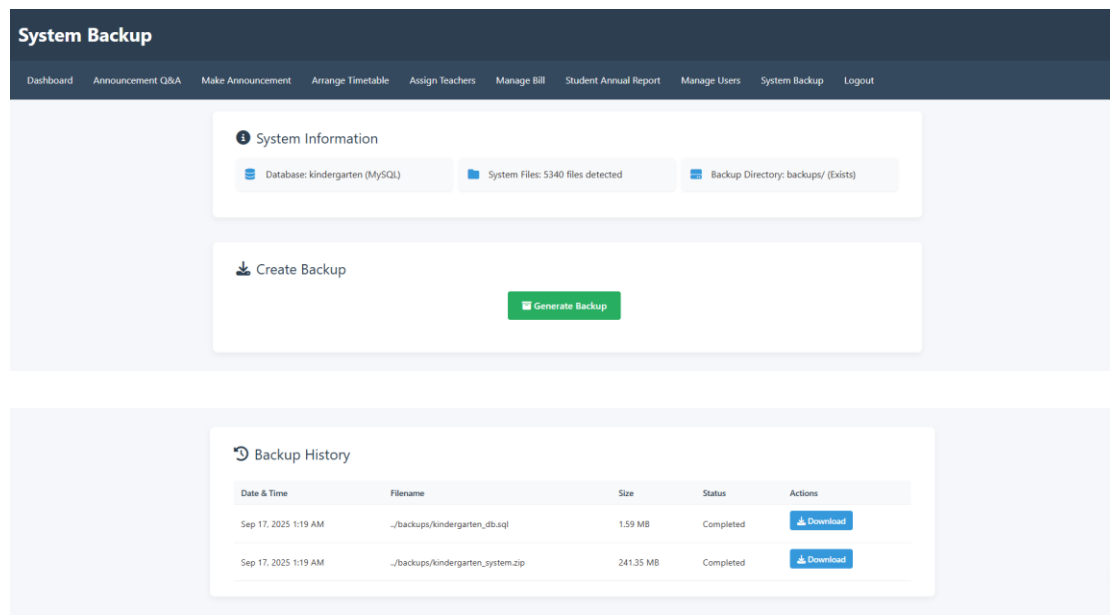
The screenshot shows the 'Manage Payment' interface with a navigation bar at the top containing links: Dashboard, Announcement Q&A, Make Announcement, Arrange Timetable, Assign Teachers, Manage Bill, Student Annual Report, Manage Users, System Backup, and Logout. Below the navigation bar is a 'Back' button. The main content area displays three bill templates:

- G1 Sch Fee - September 2025** (Due: October 24, 2025 | Happy Bank (1234567890)) - 0/3 paid. This template lists three parents: Ahmad bin Parent77 (Total: RM470.00, Paid: RM0.00, Due: RM470.00), Aina binti Parent78 (Total: RM470.00, Paid: RM0.00, Due: RM470.00), and Alexander bin Parent101 (Total: RM485.00, Paid: RM0.00, Due: RM485.00). Each entry has a 'Verify Payment' button.
- G2 Field Trip** (Due: September 6, 2025 | Happy Bank (1234567890)) - 3/3 paid. This template lists three children: 10child (Total: RM70.00, Paid: RM70.00, Due: RM0.00), 18child (Total: RM35.00, Paid: RM35.00, Due: RM0.00), and Blossom (Total: RM70.00, Paid: RM70.00, Due: RM0.00). Each entry is marked as 'Fully Paid'.
- June 2025 School Fee** (Due: August 13, 2025 | Happy Bank (1234567890)) - 2/6 paid (4 overdue). This template lists two children: 10child (Total: RM560.00, Paid: RM0.00, Due: RM560.00) and 13child (Total: RM510.00, Paid: RM0.00, Due: RM510.00). Each entry has a 'Terminate Student' button.

**Figure 5.3.49 Manage Payment Page – Admin Role**

On the Manage Payment page, the admin verifies payment amounts. If a payment is overdue by five days, the system displays a Send Reminder button. If the payment remains unpaid within seven days from the updated bill date, a Terminate Student button is shown.

### 5.3.33 System Backup Page – Admin Role



**Figure 5.3.50 System Backup Page – Admin Role**

On the System Backup page, the admin can back up the entire system and download the backup file for safekeeping.

#### 5.4 Implementation Issue and Challenges

One of the main technical challenges was creating a reliable manual backup system. At first, exporting the database through phpMyAdmin and manually compressing the system files was tedious and often led to mistakes. To simplify this in the application, I needed to create a solution that could automatically generate SQL dumps of the entire database and create ZIP archives of the system files whenever needed. This required writing complex functions to go through directories, manage large file operations, and address possible memory problems. Additionally, I had to make sure the system could handle errors, such as the ZipArchive extension being disabled or insufficient file permissions, while giving clear feedback to the admin. This added another layer of complexity to the project.

Another big challenge was generating and managing PDF bills. The formatting had to follow school standards while saving PDFs as BLOB data in the database raised performance and storage issues. Handling overpayments made things more complicated because it required extra tables to track student balances and automatically apply credits

to future bills. These problems were eventually solved through ongoing testing, better database indexing, and a strong credit allocation system that ensured accuracy and transaction integrity.

At the same time, the student promotion feature had a critical bug. The system was correctly increasing a student's age, but the `'class_id'` did not change. This meant students stayed in their original classes even as they got older. Fixing this took a lot of debugging and adjustments to database queries to include proper class transition logic. Additionally, creating detailed visual reports using Chart.js brought challenges related to data aggregation and real-time graph rendering. The system had to calculate complex monthly and yearly performance averages across cognitive, motor, social, and language areas. This required intricate SQL queries to provide useful insights for both parent and admin dashboards.

The communication module also had several issues. Teachers could only message the parents of students in their assigned classes, which involved multiple database joins across `'users'`, `'students'`, `'classes'`, and `'class_assignments'` tables. This made the relational structure very complex, which was hard to implement and maintain. Furthermore, real-time messaging had to track read/unread statuses and send email notifications using PHPMailer, adding another layer of difficulty. Keeping data accurate across these connected tables while also providing a user-friendly interface that clearly showed parent-student relationships and message statuses turned out to be one of the toughest parts of the project.

## CHAPTER 6 SYSTEM EVALUATION AND DISCUSSION

### 6.1 Testing Setup and Test Result

#### 6.1.1 Authentication Site

No.	Test Action	Test Result	Status
1.	Login with valid credentials	Login successful, admin/teacher/parent dashboard loads with correct menus and overview.	PASS
2.	Login with incorrect password	Login fails, error message "Incorrect password." is displayed.	PASS
3.	Login with non-existent email	Login fails, error message "Email not found." is displayed.	PASS
4.	Login without completing CAPTCHA	Login fails, error message "Please complete the CAPTCHA." is displayed.	PASS
5.	Login with incorrect password	Login fails, error message "Incorrect password." is displayed.	PASS
6.	Login as parent with no active students	Login fails, error "Your account is not associated with any active students." is displayed.	PASS
7.	Register as a Teacher or Admin	Account is created; user is redirected to login with a success message.	PASS
8.	Register as a Parent with a student	Parent and student accounts are created; user is redirected to login with a success message.	PASS
9.	Register with an email that is already in use	Error message: "Email already registered."	PASS



10	Register as a Parent when classes for the student's age are full	Error message: "All classes for age X are currently full..."	PASS
11	Submit a registration form with a weak password	Form is not submitted; client-side validation shows strength and lists unmet criteria.	PASS
12	Request a password reset with a registered email	A reset link is sent via email; success message is shown.	PASS
13	Click an expired reset link	Error message: "Invalid or expired token."	PASS
14	Set a new password that fails strength validation	Error message specifies the failed requirement.	PASS
15	Click on Logout button	Session is properly destroyed and user is redirected to login page.	PASS

### 6.1.1 Admin Site

No.	Test Action	Test Result	Status
1.	Access pages as a non-admin user	User is redirected back to the login page.	PASS
2.	View the admin dashboard	Dashboard loads, displaying statistics for users, students, bills, and system status.	PASS
3.	Navigate to "Arrange Timetable"	Shows table with timeslots and activity dropdowns.	PASS
4.	Select a different grade for the timetable (1, 2, 3)	Show the selected grade's schedule.	PASS
5.	Save the updated timetable	Timetable is saved to the database; a success message is displayed.	PASS
6.	Click on Manage Activities button	Page loads, showing a form to add/edit and a list of existing activities.	PASS

7.	Add a new school activity	New activity is saved to the database and appears in the activities list.	PASS
8.	Edit an existing activity	Form is pre-filled with activity data; updates are saved to the database.	PASS
9.	Delete an activity	Activity is removed from the database after user confirmation.	PASS
10.	Navigate to “Student Annual Report”	Search bar is displayed.	PASS
11.	Search for a student to generate a report	List of matching students is displayed.	PASS
12.	View a student's annual performance report	Report loads with charts, yearly averages, and a monthly breakdown for selected years.	PASS
13.	Navigate to “Manage Users”	A search bar with category filter is shown.	PASS
14.	Search for users (students, teachers, parents)	Search results are displayed in categorized tables.	PASS
15.	Delete a student, teacher, or parent	User is deleted after confirmation; error shown if they have associations.	PASS
16.	Change a student's status (Activate/Leave)	Student status is updated.	PASS
17.	Promote a student (Level Up)	Student is moved to the next class grade or marked as graduated.	PASS
18.	Navigate to “Manage Bill”	Show the existing bill templates and four buttons (Manage Payment, New Bill, School Information & Fee Items).	PASS
19.	Configure School Bank Account Information	Account details are saved successfully;	PASS

		success message is shown.	
20.	Add a new fee item (e.g., Tuition, Activity Fee)	Fee item is added to the list; success message is shown.	PASS
21.	Delete an existing fee item	Fee item is removed after confirmation; success message is shown.	PASS
22.	Create a new bill template	Template is created for selected classes and a due date; page redirects to the template's student list.	PASS
23.	Delete a bill template	Template and all associated student bills are deleted after confirmation; success message is shown.	PASS
24.	Select a bill template to view its student list	List of students in the template's classes is displayed, showing their bill status (Create/View/Edit).	PASS
25.	Create a bill for a specific student	Page loads with a form to select fee items and add adjustments (discount/penalty).	PASS
26.	Select/deselect fee items for a student bill	The bill summary updates in real-time to show the new subtotal.	PASS
27.	Save a student bill	Bill is saved to the database; student's status changes from "Create" to "Edit/View".	PASS
28.	Save and generate a PDF of the bill	Bill is saved and a PDF preview is generated and displayed.	PASS
29.	View a previously generated bill PDF	The saved PDF is opened in a new tab/window.	PASS

30.	Edit an existing student bill	The form is pre-filled with the previously saved items and adjustments.	PASS
31.	Delete an individual student's bill	That student's bill is deleted after confirmation; success message is shown.	PASS
32.	Navigate to "Manage Payment"	Directed to list of student bills awaiting for verification.	PASS
33.	Payment Processing	Verify payments and update payment status works correctly.	PASS
34.	Email Reminders	Email functionality works.	PASS
35.	Terminate a student with overdue bills	Student status correctly updated.	PASS
36.	Navigate to "Make Announcement"	Send announcement form is presented.	PASS
37.	Submit empty form	Error messages for empty fields.	PASS
38.	Create announcement with all fields filled	Announcement created successfully.	PASS
39.	Test different receiver types (all, teachers, parents)	All receiver types work correctly.	PASS
40.	Verify email sending works	Emails sent to selected recipients.	PASS
41.	View admin's announcements	Correctly shows admin's announcements.	PASS
42.	Answer questions from teachers/parents	Can submit answers to questions.	PASS
43.	View page with no announcements	Proper message when no announcements.	PASS
44.	Navigate to "System Backup"	Shows database, files, and directory info.	PASS
45.	Generate system backup	Backup process works with progress indicator.	PASS

46.	View backup history	Shows backup history correctly.	PASS
47.	Download backup files	Backup files can be downloaded.	PASS

### 6.1.2 Teacher Site

No.	Test Action	Test Result	Status
1.	Access pages as a non-teacher user	User is redirected back to the login page.	PASS
2.	View the teacher dashboard	Verify teacher information and statistics display correctly.	PASS
3.	Navigate to “School Announcement”	All admin announcements displayed correctly.	PASS
4.	Submit questions about announcements	Teachers can submit questions successfully.	PASS
5.	View existing questions and answers	Existing Q&A displayed with proper formatting.	PASS
6.	Navigate to “My Class”	Correct class and grade level displayed.	PASS
7.	Check timetable shows correct activities	Timetable shows proper activities for each time slot.	PASS
8.	Verify current day and time slot highlighting	Current day and time slot properly highlighted.	PASS
9.	Check calendar displays current date/time	Calendar shows current date and time correctly.	PASS
10.	Navigate to “Attendance”	Shows record attendance form.	PASS
11.	Verify assigned classes show in dropdown	Shows only assigned classes.	PASS
12.	Check activities for selected class/day	Filters activities by class and day.	PASS
13.	Submit attendance records	Records attendance correctly.	PASS
14.	Navigate to “Chat”	Shows Chat with Parents interface correctly.	PASS

15.	Verify parents of assigned students show	Shows parents of assigned students only.	PASS
16.	Send messages to parents	Messages sent and stored correctly.	PASS
17.	Verify email sent on message	Email sent to parent on new message.	PASS
18.	View chat history with parents	Chat history displays correctly.	PASS
19.	Check unread message counts	Unread counts show properly.	PASS
20.	Navigate to “Announcement Q&A”	Shows teacher's announcements only.	PASS
21.	Answer parent questions	Can answer parent questions.	PASS
22.	Navigate to “Make Announcement”	Show send announcement form correctly.	PASS
23.	Submit empty form	Requires title and content.	PASS
24.	Create valid announcement	Creates announcement successfully.	PASS
25.	Verify emails sent to parents	Sends emails to all parents.	PASS
26.	Navigate to “Profile”	Teacher’s information displayed correctly.	PASS
27.	Verify edit profile link works	Directed to edit profile form.	PASS
28.	Submit empty required fields	Requires name, IC number, gender, and email.	PASS
29.	Submit valid changes	Successfully updates profile information.	PASS
30.	Navigate to “Manage Users”	Search functionality works correctly for all user types.	PASS
31.	Test delete functionality for each user type	Delete operations work with proper confirmation dialogs.	PASS
32.	Test student status changes (activate/leave)	Student status transitions	PASS

		(activate/leave) function properly.	
33.	Test student level-up promotion	Level-up promotion works with class transitions and graduation.	PASS
34.	Verify error handling for protected deletions	Error handling prevents deletion of teachers with classes/parents with students.	PASS
35.	Navigate to “Track Performance”	Weekly performance form is correctly displayed.	PASS
36.	Verify student dropdown only shows assigned students and check date default (last Monday)	Teacher can only assess students from their assigned classes and week start date defaults to last Monday correctly	PASS
37.	Try submitting with missing required fields	Required field validation shows appropriate errors.	PASS

### 6.1.3 Parent site

No.	Test Action	Test Result	Status
1.	Access pages as a non-parent user	User is redirected back to the login page.	PASS
2.	View parent dashboard	Correctly retrieve child data and performance report.	PASS
3.	Navigate to “Activity Log”	Media retrieval and display works correctly.	PASS
4.	Download functionality	Download functionality works.	PASS
5.	Navigate to “Billing”	Bill display work correctly.	PASS
6.	Validation for different payment methods	Payment modal and validation works for both credit card and bank transfer.	PASS
7.	Navigate to “Chat”	Show interface correctly.	PASS
8.	Message sending and retrieval	Message display and formatting is proper.	PASS
9.	Read status indicators	Read/unread status indicators work.	PASS

10.	Teacher assignment	Receiver is class teacher.	PASS
11.	Navigate to “Class Announcement”	Announcements created by teacher is displayed correctly.	PASS
12.	Question submission	Can ask questions.	PASS
13.	Navigate to “Profiles”	Parent information and their child is correctly retrieved.	PASS
14.	Navigation to edit pages	Navigation links function properly	PASS
15.	Form functionalities	Form pre-population with existing data and data updates successfully.	PASS
16.	Navigate to “Scheduled Meetings”	Appointments are properly retrieved and displayed.	PASS
17.	Join meeting functionality	Join meeting links work properly.	PASS
18.	Navigate to “School Announcements”	Announcements display correctly with proper filtering.	PASS
19.	Question submission	Question submission process is working.	PASS
20.	Navigate to “Timetable”	Timetable data is properly retrieved and displayed.	PASS
21.	Teacher information display	Assigned teachers’ information is correctly shown.	PASS

## 6.2 Project Challenges

In delivering the Kindergarten Management System, one main issue was standardizing how we track developmental progress across teachers and classes. For instance, one teacher might evaluate a student's "Social Skills" based on their participation in group play, while another might focus more on sharing and communication. Even when observing the same behaviors, the terms and rating scales could vary. To make sure the automated report cards and performance dashboards gave consistent, fair, and reliable insights for parents, we needed to develop and enforce a common framework for assessment criteria. Getting all educators on the same page with this standard was complicated and took a lot of time.



Another challenge was meeting the different communication needs between parents and teachers. Communication in early childhood education is often subtle and context-specific. For example, a parent might want a quick update on their child's nap time, while a teacher might need to privately discuss a developmental concern. The messaging system needed to be designed to cover this range of interactions, from casual daily check-ins to formal reports, without causing confusion or overwhelming either party. Keeping the platform user-friendly while supporting these varied scenarios required careful attention to design.

Finally, a significant challenge was creating the billing and financial flexibility necessary for a preschool setting. Unlike typical invoicing, kindergarten billing must account for complex factors like pro-rated days for mid-month enrollments, sibling discounts, different tuition rates for various programs (like half-day versus full-day), and credits for extended absences. Designing a system that could automatically handle these details, process credits for overpayments, and produce clear, itemized statements for parents was quite complex. Merging the rigid structure of digital financial systems with the flexible, often unique nature of childcare billing was a major task.

### **6.3 Objectives Evaluation**

#### **6.3.1 Improve Interaction Among Stakeholders and Integrate Billing Module**

This goal has been successfully met with a complete communication and billing system. The messaging platform allows teachers, parents, and administrators to communicate directly. This setup helps share updates and reduces misunderstandings. It also includes automated email notifications for important events like new messages and payment reminders, keeping users informed even when they are not logged in. Features like announcements and a questions section improve engagement among all parties involved.

Moreover, the billing module automates the entire financial process. This includes generating fees, tracking payments, managing receipts, and handling credits for overpayments. This integration greatly cuts down on manual errors and reduces administrative work. By giving parents a clear portal to view their financial obligations

and payment history, the system builds trust and makes things easier while streamlining the fee collection process for the school.

### **6.3.2 Student Performance Monitoring**

The system meets this goal by centralizing and automating how we track student performance. Teachers can easily record and update student progress data, which is then combined into detailed weekly and monthly reports. These reports provide useful insights into student development in cognitive, motor, social, and language areas. This helps teachers and parents spot strengths and areas that need work. The availability of visual data like charts and progress graphs makes it easier to understand and support better decision-making. This feature decreases reliance on manual record-keeping, improves data accuracy, and encourages collaboration between educators and parents to promote student growth.

### **6.3.3 Improve System Security and System Data Backup**

This goal has been met by putting in place strong security measures and a working data backup tool. Role-based access control ensures that only authorized users can view sensitive information, while secure authentication protects against unauthorized access. The system has a manual backup feature that lets administrators create encrypted copies of important data, such as student records, financial transactions, and performance reports. Although the backup process must be started manually, it offers a reliable way to protect data from loss and supports business continuity. For future improvements, automating this process could further enhance data safety.

## CHAPTER 7 CONCLUSION AND RECOMMENDATION

### 7.1 Conclusion

This first phase of the Kindergarten Management System (KMS) project has laid a strong foundation for a digital solution that improves communication, performance monitoring, and administration in kindergarten settings. Key components such as user authentication, structured use case planning, communication modules, and performance tracking have been analyzed, designed, and partially developed to align with the project objectives.

Throughout this stage, emphasis was placed on understanding the system's requirements, defining use cases, designing user roles, and establishing secure and intuitive navigation flows for parents, teachers, and administrators. The project also explored relational and functional structures that will support future modules including performance report generation, announcement Q&A, attendance tracking, and meeting scheduling.

As this constitutes 30% of the full system development, the next semester will focus on the system's complete implementation, testing, optimization, and deployment. Planned updates involve finishing up all the create, read, update, and delete functions, adding real-time chat or messaging, introducing more detailed reporting options, and making sure everyone can access and work with the database properly, no matter what kind of user they are.

The work done this semester sets a good foundation so that the rest of the development can move forward smoothly and with a clear plan. The team is ready to move forward into the next stage and build a Kindergarten Management System that's strong, safe, and fully works.

### 7.2 Recommendation

First, the system needs to fundamentally change its parent-child relationship model. The current rule of linking only one child to a single parent account is a major flaw. It doesn't account for families with multiple kids at the same school. This issue forces

parents to create and manage separate accounts with different email addresses for each child, adding unnecessary complexity and frustration. The database structure and registration process should be redesigned to support a one-to-many relationship between parents and children. This would allow parents to manage all their children under a single account.

Second, the communication features between teachers and parents need to go beyond the current messaging system. While the chat function is a good start, parents would benefit from a more complete communication platform. This could include appointment scheduling for parent-teacher conferences, a central place for important documents like permission slips and curriculum outlines, and a notification system for urgent announcements. Adding these features would create a better and more efficient way to communicate, meeting the needs of both teachers and families.

Third, developing a dedicated mobile app should be a priority to improve accessibility and convenience for parents. Although the current website works well on mobile devices, a native app would offer better performance. It would also provide offline access to important information and integrate smoothly with device features like push notifications and calendar synchronization. This mobile app would help parents stay connected with their children's education and school activities, no matter where they are or what device they use.

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## Kindergarten Management System

A Kindergarten Management System (KMS) simplifies school operations by streamlining communication, enhancing security, enabling online payments, and tracking student progress.





### Improved Comm.

KMS facilitates communication between teachers, parents, and administration through the system.

### Enhanced Security

KMS offers secure access control and robust security measures to protect sensitive student and school information.





### Online Payments

KMS allows parents to conveniently pay school fees, tuition, and other expenses online using secure payment gateways.

### Student Tracking

KMS provides comprehensive student performance tracking tools, allowing teachers to monitor academic progress, attendance, and behavior.





## Kindergarten Help

KMS empowers kindergartens to improve communication, enhance security, facilitate online payments, and track student progress effectively, making school operations smoother and more efficient.