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KING ABDULLAH II SCHOOL OF INFORMATION TECHNOLOGY
Graduation Project

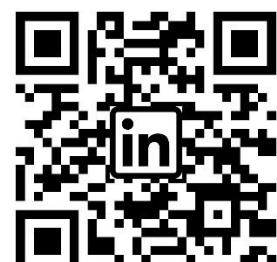
ILM-Verse

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Abstract

The ILM-Verse project aims to modernize the traditional learning process at Thinking Flares School (TFS) through an innovative e-learning platform tailored to students, parents, teachers, and administrators. This platform digitizes key educational and administrative processes, creating a user-friendly environment for personalized learning, and efficient management.

The system addresses existing challenges in educational platforms by integrating interactive tools for assignments, quizzes, and progress tracking while involving parents through detailed reports. Additionally, it incorporates marketing features to promote school achievements and events.

By bridging the gap between traditional and digital learning, the ILM-Verse platform enhances educational quality and collaboration, and supports the evolving needs of the school community.

Acknowledgment

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List of Abbreviations

Abbreviation	Full Name
TFS	Thinking Flares School
JD	Jordanian Dinar
JIS	Jordanian International Schools
HTML	Hyper Text Markup Language
CSS	Cascading Style Sheet
JS	Java Script
SHA	Secure Hash Algorithm
HTTPS	Hyper Text Transfer Protocol Secure
UI	User Interface
UX	User Experience
RAM	Random Access Memory
ROI	Return on Investment
OOAD	Object Oriented Analysis And Design
ORM	Object Relational Mapping
ERD	Entity Relationship Diagram
JSON	Java Script Object Notation
DBMS	Database Management System
RDB	Relational Database
NRDB	Non-Relational Database
EERD	Enhanced Entity Relationship Diagram

Table 1 Abbreviations

1.0 Introduction

1.1 Motivation

The main motivation of the ILM-Verse project is to support the traditional learning process in Thinking Flares School (TFS) by transforming and digitizing various learning aspects into an E-Learning Website that supports all participants in the educational process, including teachers, students, parents, and administrators. The system aims to manage both educational and non-educational outcomes, provide a more personalized and convenient learning environment, facilitate easier and more efficient, and save time and effort for all stakeholders.

1.2 Statement

The objective of this project is to design, develop, and implement a comprehensive and dynamic E-Learning System that enhances the educational experience for all stakeholders. The system will digitize key learning processes, support remote and blended learning environments, and provide tools for managing educational content (assignments, assessments, and feedback). Additionally, Parents will also be able to monitor their children's progress and performance, enabling them to stay actively involved in the educational process. The system aims to be user-friendly, scalable, and adaptable to the evolving needs of the school, that will bridge the gap between traditional and modern educational techniques while saving time and effort.

1.3 Aim and Objectives

Project Aim:

The main aim of this project is to develop E-Learning systems that improve the educational process in all aspects. Also, Our Aim have 4 main goals:

1. **Educational Goals:** by digitizing a lot of physical processes into technical aspects inside the website such as (Assignments, Recorded Lectures, quizzes, WorkSheets etc.). which will save a lot of time and effort for the teachers and gives more space for the students and their parents to have the maximum benefit of learning aspects.
2. **Monitoring Goals:** by involving the parents directly in the educational processes they will be able to monitor their children's marks, progress and performance by reports that generated by teachers and administrators.
3. **Marketing Goals:** by adding sections inside the website that reflects the environment of the School, Events and any activity that supports the marketing side
4. **Administrative Goals:** by giving a large area for administrators to monitor the teachers and students.

Project Objectives:

1. User-Friendly Interface:

Ensure that the system is intuitive and easy to navigate for all users, including students, teachers, parents, and administrators.

Ensure the system works smoothly across all platforms and devices, including laptops, tablets, and smartphones.

2. Integrated Back-End System:

Design a robust, scalable, and secure database to store user information, academic records, and other data.

Ensure seamless integration between the front-end interface and back-end systems for smooth operation.

Include APIs to enable integration with third-party educational tools and platforms.

3. Provide Learning Management Tools:

Provide tools for creating, organizing, and delivering educational content, including multimedia resources and quizzes.

Implement features for automated grading and feedback to save time for teachers.

4. The ability of Monitoring and Tracking Progress:

Develop dashboards for parents that track students' academic progress, attendance and performance feedback.

5. Enhance Scalability and Adaptability:

Design the system to support an increasing number of users and data as the school grows.

Ensure that the system can adapt to changing educational needs and technological advancements.

6. Include Marketing Features:

Add sections for showing school events, achievements, and non-educational activities to attract more students.

Include a gallery section to highlight the school facilities and environment.

7. Ensure Security and Privacy:

Implement user authentication and role-based access control(authorization) to ensure data security.

Encrypt sensitive information to achieve user privacy.

Use an ORM to simplify database interactions by mapping models to tables, enabling secure and efficient data management.

1.4 Scope

The ILM-Verse project aims to develop a secure, interactive, and user-friendly e-learning platform tailored for Thinking Flares School (TFS). The platform will include:

1. **Educational Features:** Provide tools for managing assignments, quizzes, recorded lectures, and worksheets, ensuring consistency in teaching styles
2. **Parental Involvement:** Offer detailed progress reports on marks, attendance, and behavior.

3. **Unified Access:** Consolidate all essential educational data into one platform for easy access and navigation.
4. **Marketing Features:** Showcase school achievements, events, and facilities to attract and retain more students.
5. **Accessibility:** Support cross-platform access on web browsers bearing in mind that English Language is just accepted.

1.5 Software and Hardware Requirements

#	Resource	Quantity	Unit Price (JD)	Total Price
HD1	Laptops with minimum 8GB RAM	4	500	2000
HD2	High-speed internet connection	1(monthly)	50	50
HD3	Server	1(annual)	1500	1500
SW4	VS Code	for(free)	0	0
SW5	Node.js (Express.JS)	for(free)	0	0
SW6	Supabase (PostgreSQL)	for(free)	0	0
SW7	Git and GitHub	for(free)	0	0
SW8	Figma	1(monthly)	25	25
SW9	Postman	1(free)	0	0
SW10	Host name	1	25	25
SW11	JotForms	1(free)	0	0
SW12	Canva	1(free)	0	0
SW13	Atlas (MongoDB)	1 (free)	0	0
Total				3600

Table 2 Software and Hardware Requirements

1.6 Expected output

The successful completion of this project is expected to deliver the following outputs:

1. Comprehensive E-Learning System:

An easy-to-use e-learning system designed for TFS simplifies learning, teaching, and progress tracking for everyone involved in the educational process. that must be cross-platform.

2. Secure and Scalable Platform:

A secure system with encrypted data and role-based access control, designed to handle an increasing number of users and data.

3. Digitized Learning Tools:

Features for creating and managing assignments, quizzes, recorded lectures, and other educational resources.

4. Progress Tracking Dashboards:

Interactive dashboards for students, parents, teachers and administrators to monitor academic performance, attendance, and progress.

5. Announcements System:

Including official updates and important news. This makes accessing the news easier.

6. Marketing Sections:

sections showing the school's achievements, events, and facilities to attract new students and parents as well as the old ones.

7. Blended and Remote Learning Support:

Tools and features to support both in-person and remote educational environments.

1.7 Limitations

While the ILM-Verse project is designed to offer a wide range of features, it has some constraints:

1. **Technical:** The platform will not include real-time classes (e.g., live video lectures) or native mobile applications in the initial phase.
2. **Financial:** The project must operate within a budget not exceeding (**15000 JD**). As a result, features such as payment gateways and advanced AI-driven analytics are excluded due to governmental constraints.
3. **AI Features:** The platform will not include AI-driven tools such as automated FAQs or AI Assistants to assist students in their studies. These features may be considered in future phases but are excluded from the initial scope due to technical and financial constraints.
4. **User:** The platform is specifically designed for TFS and may not meet the needs of other schools due to differences in administrative structures and hierarchies between schools. Additionally, basic training for parents and teachers will be required to use the platform effectively.

1.8 Project Schedule

ID	Description	Days	DP
T1	Gather user requirements from school staff	6	None
T2	Define the website's objectives and scope	4	T1(M1)
T3	Conduct feasibility study	4	T2(M2)
T4	Gather and analyze system requirements	14	T2(M2)
T5	Design the user interface	14	T4(M3)
T6	Develop the database schema	5	T4(M3)
T7	Design system functionalities	9	T4, T6 (M4)
T8	Develop the frontend	14	T5, T7 (M5)
T9	Implement the backend with database integration	16	T6, T7 (M6)
T10	Integrate frontend with backend functionality	12	T8, T9 (M7)
T11	Perform functional testing	5	T10 (M8)
T12	Conduct user acceptance testing with stakeholders	4	T11 (M9)

Table 3 Project Schedule

Phase 1: Project Initiation and Task Preparation (1 Week)

Week 1 (Mar 1 – Mar 7):

- Start and complete Gather user requirements from school staff (T1).

Phase 2: Sequential Task Execution and Dependencies (8 Weeks)

Week 2 (Mar 8 – Mar 12):

- Start and complete Define the website's objectives and scope (T2), dependent on Gather user requirements from school staff (T1).

Week 3 (Mar 13 – Mar 17):

- Start and complete Conduct feasibility study (T3), dependent on Define the website's objectives and scope (T2).
- Start and continue Gather and analyze system requirements (T4), dependent on Define the website's objectives and scope (T2) (extends to Week 4).

Week 4 (Mar 18 – April 1):

- Complete Gather and Analyze system requirements (T4).
- Start Develop the database schema (T6), dependent on Gather and analyze system requirements (T4) (extends to Week 5).
- Start and continue Design the user interface (T5), dependent on Gather and analyze system requirements (T4) (extends to Week 6).

Week 5 (April 2 – April 8):

- Complete Develop the database schema (T6).

- Start and continue Design system functionalities (T7), dependent on Design the user interface (T5) and develop the database schema (T6) (extends to Week 6).

Week 6 (April 9 – April 15):

- Complete Design the user interface (T5).
- Complete Design system functionalities (T7).
- Start and continue Develop the frontend (T8), dependent on Design the user interface (T5) and Design system functionalities (T7) (extends to Week 8).
- Start and continue Implement the backend with database integration (T9), dependent on Develop the database schema (T6) and Design system functionalities (T7) (extends to Week 8).

Week 7 (April 16 – April 22):

- Continue Developing the frontend (T8).
- Start and continue Integrate frontend with backend functionality (T12), dependent on Develop the frontend (T8) and implement the backend with database integration (T9) (extends to Week 9).

Week 8 (April 23 – April 29):

- Complete Develop the frontend (T8).
- Complete Implement the backend with database integration (T9).
- Start and complete Perform functional testing (T10), dependent on Integrate frontend with backend functionality (T12).

Phase 3: Finalization and Closure (2 Weeks)

Week 9 (April 30 – May 6):

- Complete Integrate frontend with backend functionality (T10).
- Start and complete Conduct user acceptance testing with stakeholders (T11), dependent on Perform functional testing (T10).

Week 10 (May 7 – May 11):

- dependent on Conduct user acceptance testing with stakeholders (T12).

Total Project Duration: 10 Weeks (Approximately 2.5 Months)

Pert diagram:

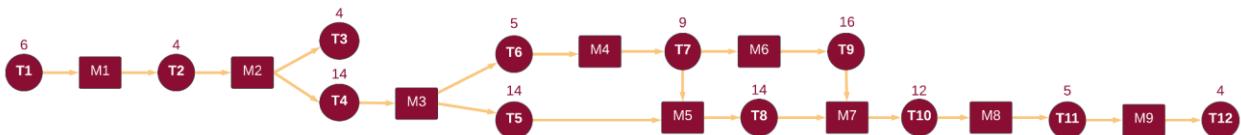


Figure 1 Pert diagram

1.9 Report Outline:

Chapter one shows the project motivation in Section 1.1; in addition, the problem statement is stated in Section 1.2, and Section 1.3 lists the project aim and objectives. In contrast, the project scope is identified in section 1.4; Section 1.5 provides the project software and hardware requirement, and the project's expected output is addressed in Section 1.6. Furthermore, highlights the project limitation in Section 1.7, whereas the project is scheduled in Section 1.8, and the report outline is finally present in Section 1.9.

Chapter two the existing system is elaborated in Section 2.1; in addition, the overall problems of the current system are stated in Section 2.2, Section 2.3, general solution approach.

Chapter three establishes the Feasibility Study in Section 3.1. The requirements gathering techniques defined in Section 3.2. The targeted users are stated in Section 3.3, Functional requirements definition specifications are identified in Section 3.4, and Section 3.5 defines the non-functional requirements. In Addition, Usability and user experience goals in Section 3.6.

Chapter four shows the Architecture Diagram in Section 4.1. The ERD defined in Section 4.2. The Use case diagrams established in Section 4.3. Sequence Diagrams drawn in Section 4.4. Also, the database design is shown in Section 4.5.

Chapter Five This chapter presents all aspects of the system implementation including the database implementation, graphical user interface implementation/high fidelity prototype, and any details pertaining the implementation tools used.

Chapter Six: This chapter presents the system testing and installation aspects including the heuristic evaluation, cooperative evaluation, system installation, and user manual.

Chapter Seven This chapter presents the project conclusions and future work including the overall weaknesses and strengths, and future directions.

2.0 Related Existing Systems

This section includes existing related works, their problems and what are the solutions for these problems, bearing in mind the scope and limitations of work.

2.1 Overview about existing systems:

1. [JoAcademy](#): General Platform Provides online educational material including lectures, Quizzes, exams and slides. All these materials about the Jordanian educational programs.
2. [Open-Emis](#): Governmental Platform includes the student's data (Marks, Absences), it's compulsory for each school to enter these data for all the students every semester. Also, the students or parents can see these data either through the [Open-Emis](#) website or through [Sanad Platform](#).
3. [JIS Website, Kings Academy](#): Customized Websites for Jordanian Schools, the websites provide an overall view about the school's achievements, facilities and events.

2.2 Problems of existing systems:

- The Generality of the JoAcademy Platform make a lot of problems to the students specifically about lectures because the students will miss confused when studying from more than one resource ,for example the student feel comfortable about the school teacher teaching style but when he decide to make revision about a topic(for example) the Platform teacher will have another teaching style which will make misunderstanding for the student. Also, it doesn't have the interactivity between the student and the teacher as well as with the parent and the teacher. In Addition, there's no monitoring side for parents.

- Open-Emis Platform allows parents and students to view marks and absences only, with no additional features to monitor overall student performance through detailed reports. Moreover, data entry by teachers is limited to a short 14-day period (effectively 10 working days) after the semester ends. This means teachers must complete all data entry during the holidays, creating a high-pressure environment. With 7,500 schools and 170,000 teachers entering data simultaneously for around 2.5 million students [\[1\]](#), the system experiences significant stress and workload during this brief window.
- JIS, King Academy or any other school website considered as a general just for marketing purposes, there's no interactions for parents or teachers or students across the website, due to that the students, parents and teachers won't gain any benefit from that website.

2.3 Proposed solutions

Developing an interactive website focuses mainly on the interactions between all Participants in the educational process, whether directly or indirectly, involving the parents inside the educational process by giving them reports about their children's behavior. Also, to avoid the confusion of learning from Multiple sources the same teacher who teaches the student at the school is the same at the website .Also, all the data needed for any one will be in one place so when the parent wants to know something about his children it will be at the same website.

This website collects all the needed functionalities for anyone inside the educational process rather than show it from different resources.

3.0 SYSTEM REQUIREMENTS ENGINEERING AND ANALYSIS

This Chapter includes all the Feasibility study sides (Technical, Operational, Economic and Legal). Also, we defined the Stakeholders and the functional-nonfunctional requirements with a brief description about them.

3.1 Feasibility Study

3.1.1 Technical Feasibility

The successful implementation of ILM-Verse depends on a comprehensive assessment of the technical resources, infrastructure, and compatibility with the school's existing IT environment.

This section outlines the key components required to ensure that the proposed solution is not only technically feasible but also scalable, secure, and adaptable to future needs

Technology Stack

The following technologies have been selected to ensure the E-Learning system for Thinking Flares School is robust, user-friendly, and capable of meeting the educational needs of all stakeholders:

Category	Technologies Used
Frontend Technologies	HTML, JavaScript, tailwind, React
Backend Technologies	Node.js, Express.js
DBMS	PostgreSQL (Supabase), MongoDB (Atlas)
Security Technologies	SHA Algorithms, ORM

Table 4 Technology Stack

3.1.2 Operational Feasibility

The ILM-Verse project is operationally feasible, as it aligns with the school's goals, simplifies daily tasks. Its user-friendly design and scalability make it a practical solution for TFS bearing in mind these criteria:

1. Alignment with School Operations:

The ILM-Verse project is designed to streamline and enhance the educational process at TFS. The system integrates smoothly into daily operations by:

1. Digitizing assignments, quizzes, and lectures, reducing manual tasks for teachers.
2. Providing parents the progress and marks reports and Announcements tools, enhancing involve them inside the educational process.
3. Offering administrators tools to monitor and manage school activities efficiently, rather than manual management.

2. Ease of Use for Stakeholders:

The system provides a user-friendly interface designed for:

1. Teachers: Simplified content creation, grading, reporting tools.
2. Students: Easy access to lessons, quizzes, and progress tracking.
3. Parents: Clear and timely updates on their children's performance as well as access to all materials that their children's study.
4. Administrators: Comprehensive monitoring, management and Announcements tools.

3. Resource Availability:

The project must use just the available resources, including:

1. Development tools like Node.js, PostgreSQL (Supabase).
2. Existing school infrastructure such as laptops and internet connections.

4. Training and Support:

Minimal training is required due to the intuitive design of the system. Custom user manuals and video tutorials will be provided for each stakeholder group.

5. Scalability and Maintenance:

The system must be scalable to accommodate the growing needs of the school. Regular updates and maintenance plans will ensure the platform remains functional and relevant.

3.1.3 Legal Feasibility

1. Following Education Rules:

The ILM-Verse project must follow Jordanian Ministry of Education rules. It should:

1. Match the Jordanian school curriculum (Collins Curriculums).
2. Protect student information like Marks and attendance.

2. Protecting Data and Privacy:

The project must keep personal information safe and private by:

1. Encrypting sensitive data like personal information using SHA Algorithms.
2. Using strong passwords and role-based access to ensure only authorized users (parents, students, teachers, and administrators) can view their data.
3. Getting clear user permission before collecting or using personal data.
4. Use ORM, to prevent SQL Injections as well as build the relations in a better way.

3. Protecting Content:

1. The design, code, and learning materials should be protected under copyright laws.
2. Use only approved or self-created educational content to avoid legal issues.

4. Contracts and Work Agreements:

1. Ensure agreements state who owns the rights to the materials created. Bearing in mind that most of the educational content must be owned by the school itself

5. Honest Advertising:

1. Avoid false claims about the platform's benefits.
2. Ensure all marketing is accurate and follows local laws.

3.1.4 Economical Feasibility

Development costs

Personnel development costs:

Roles	Num of Employees	Cost (Whole Project)
Project manager	1	1,750 JD
Developers	4	4,000 JD
Testers	2	1,200 JD
UI/UX design	2	1,000 JD
Database admin	1	1,500 JD
Total person cost		9,450 JD

Table 5 Personnel development costs

Hardware and Software Development Costs:

Hardware & Software Components	Quantity	Cost
Laptops with minimum 8GB RAM	4	2,000 JD
Total		2,000 JD

Table 6 Hardware and Software Development costs

Operating costs:

Services	Quantity	Cost per Year
Internet Connection	1	600 JD
Server	1	1500 JD
Figma	1	300 JD
Host name	1	300 JD
Total		2,700 JD

Table 7 Operating costs

Fixed and Variable costs:

Fixed costs (Yearly):

Service	Quantity	Cost per Year
Internet Connection	1	600 JD
Host name	1	300 JD
Total		900 JD

Table 8 Fixed costs

Constant costs (for one time):

Service	Quantity	Cost
Development Team	1	9,450 JD
Laptops with minimum 8GB RAM	4	2,000 JD
Figma	1	300 JD
Server	1	1500 JD
Total		13250 JD

Table 9 Constant costs

For the Launching Year (Year 0) The Overall initial cost will be 14150 JD, after that the yearly fixed cost will be 900 JD. Also, the maintenance agreement will be 2000 JD for the first year after that each year the maintenance cost will increase 20%.

Benefits

Tangible Benefits:

Benefits	Description	Cost Per Year
Reduced Paper Costs	Transition to digital resources reduces expenses on printing, paper, and textbooks.	≈ 3,000 JD
Time and Effort Saving	Automation of grading, reporting, and administrative tasks increases productivity.	-
Marketing Benefits	Attracts new students with enhanced marketing features.	≈ 7,000 JD
Total		≈ 10000 JD

Table 10 Tangible Benefits

Intangible Benefits:

- Enhanced Educational Quality: Improved teaching and learning processes through consistent access to digital resources and tools.
- Parent Engagement: Increased parental involvement with progress tracking and communication features.
- Efficiency and Convenience: Simplified workflows for teachers, parents and administrators reduce manual effort.
- Reputation Building: Establishes Thinking Flares School as a modern and innovative institution, enhancing its competitive edge.

Payback Analysis:

This Schedule includes the Payback analysis, each cost in this table considered as **JD** as well as each () value considered as minus.

Year	Initial Costs	Operating Costs (Fixed)	Maintenanc e	Tangible Benefits	Cumulative Benefits	Net Benefit	Cumulative Net Benefit
Year 0	14,150	0	0	0	0	(14,150)	(14,150)
Year 1	0	(900)	(2,000)	10,000	10,000	7,100	(7,050)
Year 2	0	(900)	(2,400)	10,000	20,000	6,700	(350)
Year 3	0	(900)	(2,880)	10,000	30,000	6,220	5,870
Year 4	0	(900)	(3,456)	10,000	40,000	5,644	11,514
Year 5	0	(900)	(4,147)	10,000	50,000	5,953	17,467

Table 11 Payback Analysis

Over the First 5 Years:

Total benefits= 50000, Total Cost =33,533.

$ROI \approx ((\text{Total benefits} - \text{Total Cost}) / \text{Total cost}) * 100$

ROI $\approx 49.1\%$.

Conclusion of Payback analysis:

- The **payback period** is **3 years** because the cumulative net benefit becomes positive after Year3.
- The Return on Investment over 5 years is almost **49.1%**.

3.2 Requirements gathering techniques

3.2.1 Interviews

The goal of the interviews is to understand the expectations of school administrators regarding the ILM-Verse system and gather insights into the administrative processes, challenges, expectations and desired outcomes. This will ensure the system meets their needs effectively.

1. General Expectations

- What are your primary expectations from the ILM-Verse system?
- What are the main challenges you currently face in managing the school's operations?
- How do you think the system improves communication among administrators, teachers, parents and students?

2. Administrative Processes

- Are there specific administrative tasks that are time-consuming or inefficient?
- How do you currently monitor the performance of teachers and students?
- Can you describe the current workflow for managing:
 1. Student Records?
 2. Teacher Schedules?

3. Communication and Collaboration

- How should the system handle announcements or urgent updates to stakeholders?

4. Tracking and Monitoring

- How do you currently track student performance (e.g., Marks, attendance)?
- How do you track student engagement and participation in classes?
- What data points are the most important for you to track on a regular basis?

5. User Roles and Permissions

- How would you like to define user roles and Privileges within the system?
- Are there any specific actions that you'd like to restrict to certain roles?

6. Desired Features

- What features would you consider essential for the ILM-Verse system?
- What level of customization do you need for reports or system functionality?

7. Technical Considerations

- How comfortable is your team with using digital platforms? Do you foresee a need for training?
- Do you have specific preferences regarding system scalability and security?

8.Teaching Workflows

- How do you currently record attendance, grades, and lesson plans?
- Are there any manual tasks you'd like the system to automate?
- Do you think it's more efficient to generate Online Quizzes with an Auto correct system rather than the traditional way of quizzes?
- How do you share resources (worksheets, videos, notes) with students?

9.Assessment & Reporting

- What kind of grading system or performance tracking would be ideal?
- How often do you generate these reports, and who are they shared with (e.g., students, parents, administrators)?

3.2.2 Questionnaires

Students' Section:

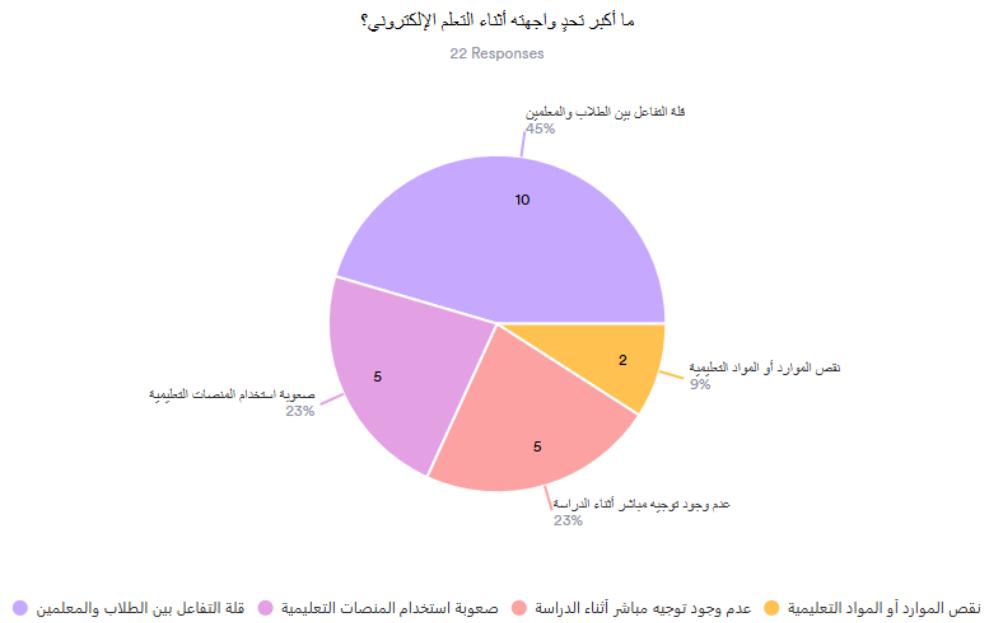


Figure 2 Questionnaires 1

(هل شعرت بألاك فقدت الدافع أثناء التعلم الإلكتروني مقارنة بالتعلم التقليدي؟)

12 Responses- 1 Empty

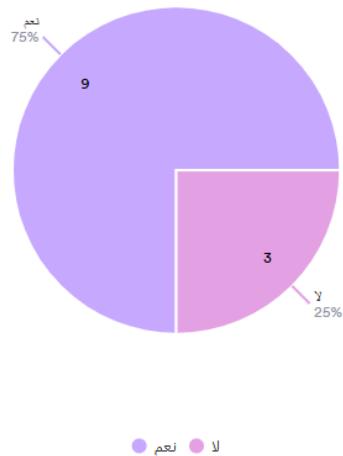


Figure 3 Questionnaires 2

هل واجهت أي مشاكل تقنية أثناء استخدام المنسقات التعليمية؟

12 Responses- 1 Empty

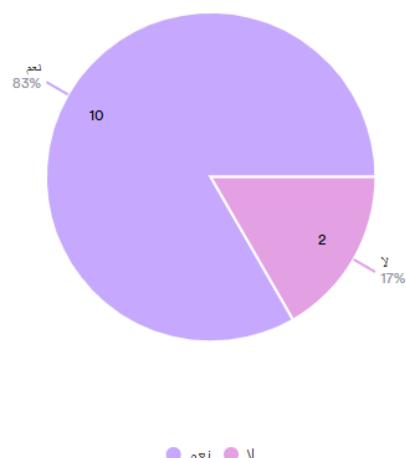


Figure 4 Questionnaires 3

ما مدى تأثير البنية المنزلية على تركيزك أثناء الدراسة الإلكترونية؟

9 Responses- 2 Empty



3.44

Avg. Response

9

Responses

Data	Response	%
★★★★★	2	22%
★★★★★	2	22%
★★★★★	3	33%
★★★★★	2	22%
★★★★★	0	0%

Figure 5 Questionnaires 4



3.89

Avg. Response

9

Responses

Data	Response	%
★★★★★	2	22%
★★★★★	4	44%
★★★★★	3	33%
★★★★★	0	0%
★★★★★	0	0%

Figure 6 Questionnaires 5

- Parents Questionnaires Section:

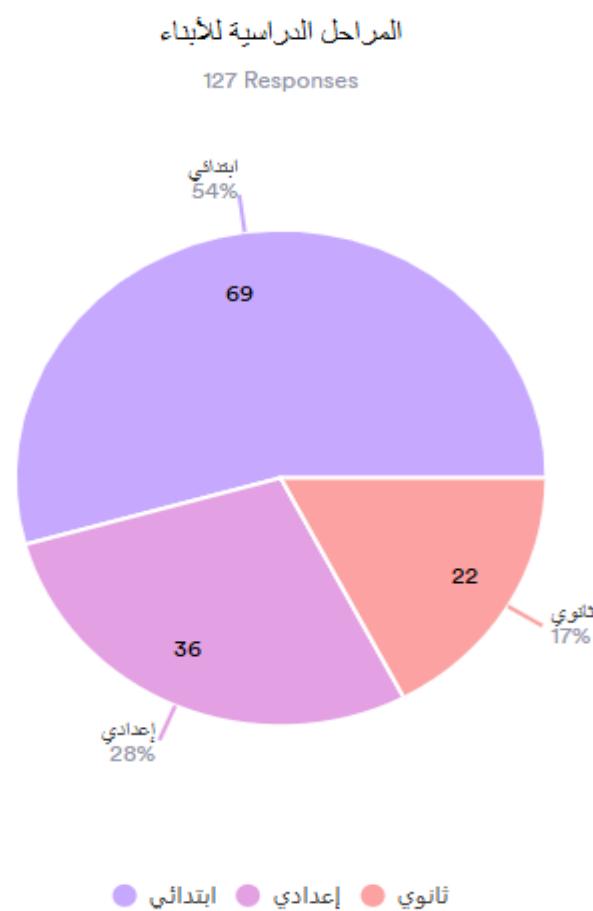


Figure 7 Questionnaires 6

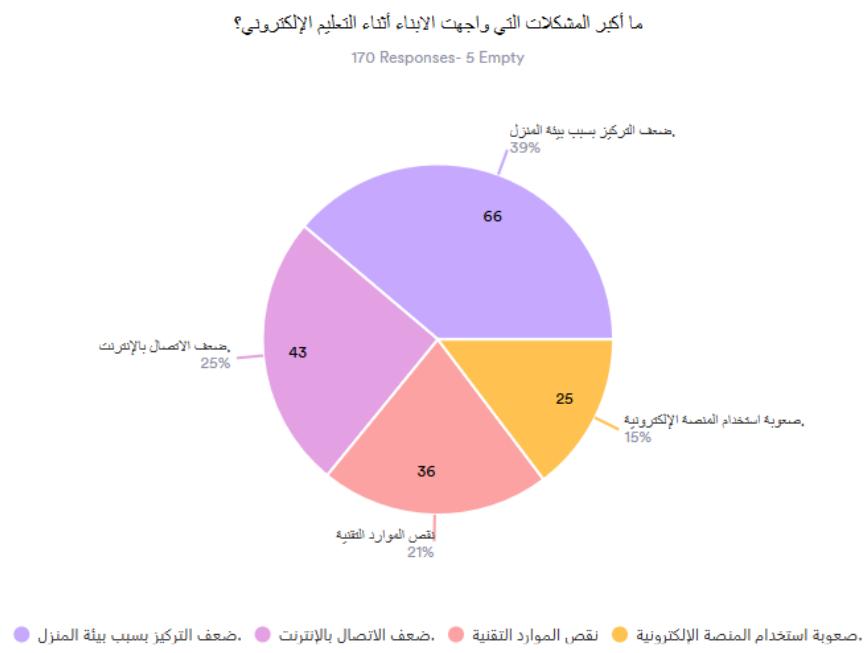


Figure 8 Questionnaires 7

هل لاحظت اختلافاً في أداء أبنائك الدراسي مقارنة بالتعليم التقليدي؟

93 Responses - 1 Empty

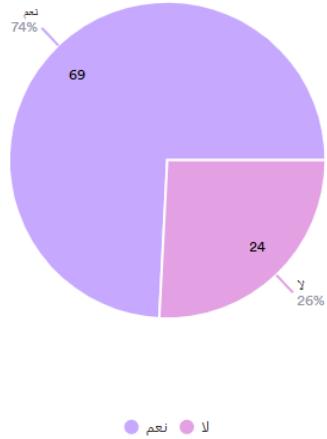


Figure 9 Questionnaires 8

هل تثقى تقارير دورية واضحة عن أداء أبدالك الأكاديمي عبر المنصة؟

91 Responses - 3 Empty

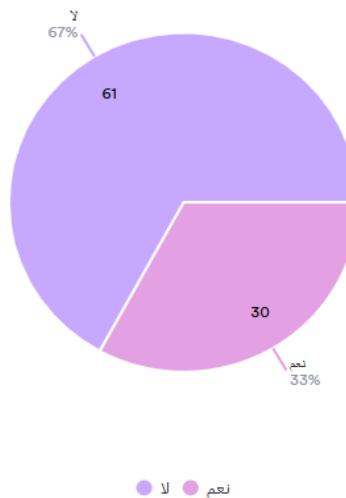


Figure 10 Questionnaires 9

هل تعتقد أن المنصة التعليمية تساهم في تحسين مستوى التعليم بشكل عام؟

93 Responses - 1 Empty

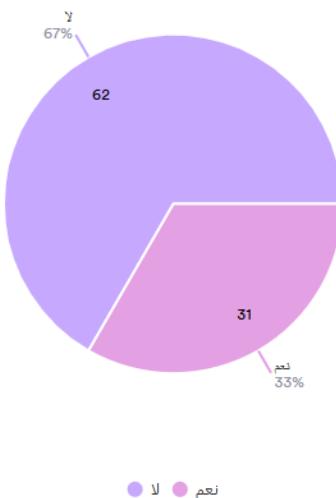


Figure 11 Questionnaires 10

ما مدى رضاك عن التفاعل بين أبنائك ومحبوبهم عبر المنصة؟

87 Responses - 7 Empty



2.55
Avg. Response

87
Responses

Data	Response	%
★★★★★	11	13%
★★★★★☆	9	10%
★★★★☆☆	21	24%
★★★★☆☆	22	25%
★★★★☆☆	24	28%

Figure 12 Questionnaires 11

3.3 The targeted users (Stakeholders)

1. Teachers (ST1):

- **Responsibilities:**

- Creating and managing lesson plans, assignments, and quizzes.
- Grading and providing feedback to students.

- **Features:**

- Content Management Tools (assignments, lectures, quizzes, worksheets).
- Grading and assessment system.

2. Parents (ST2):

- **Responsibilities:**

- Monitoring their child's academic progress and performance.
- Receiving regular progress reports and performance feedback.

- **Features:**

- Access to student performance dashboards.
- Weekly/Monthly Progress Reports.

3. Students (ST3):

- **Responsibilities:**

- Engaging with course materials, submitting assignments, and participating in assessments.
- Tracking academic progress and performance.

- **Features:**

- Access to lessons, assignments, and quizzes.
- Interactive feedback and grading systems.

4. Administrators (ST4): Have the Highest validity

- **Responsibilities:**

- Manage the resources of the whole website for any user or any functionality when needed.
- Adding the users and manage them into the system

- **Features:**

- The Ability to add, delete, manage any content or resource included in the website
- the ability to add, delete and manage any type of user accounts

3.4 functional requirements definition and specification

This table includes all main functional requirements with short description and notes for each one, all these functional requirements will be translated into use case diagrams after that the result use cases will be transformed into sequence diagrams with detailed description.

FR	Name	Stakeholders	Description	Notes
FR1	Log-in Staff	ST1, ST4	Filling in Email and Password blanks then the system will check if the email or password exist in the database then will determine what the User role is and based on that the User will be redirected to the role home page. If the password or the email is wrong an error will be appeared	We have 2 Roles: 1- Admins 2- Teacher
FR2	Add Administrator	ST4	The admins can add a new Administrator to the system bearing in mind fill all the required data for the other Admins. After creation a new record will be added in the Database	The Administrator Data Includes: 1- Full Name 2- Email 3- Password 4-Admin ID(Auto)
FR3	Log-out	All	By clicking on the logout button, the session will be destroyed, and the user will be redirected to the Log-in Page	
FR4	Add Teacher	ST4	The admins can add new Teachers, bearing in mind that all the teacher data should be included	Teacher data is: 1-full name 2-email 3-password 4-Department 5- Section. 6-Teacher ID(Auto)
FR5	Add Student	ST4	The Admins can add new Student, bearing in mind	Student data is: 1- full name 2-Student ID(Auto)

			that all the student data should be included	3-password 4- Parent 5-Grade 6-Section
FR6	Add Parent	ST4	The admins can add new Parent, bearing in mind that all the parent data should be included	Parent data is: 1- full name 2- Phone Number 3- password 4-Parent ID (Auto)
FR7	Delete Admin	ST4	The Admins Can Delete Existing Administrator by searching for Admin's name and choosing to delete it the admin will be immediately deleted	The Delete is permanent, the Administrator must be deleted if and only if the admin left the school.
FR8	Delete Teacher	ST4	The admins can Search for a teacher by name and could delete that teacher from the system, after the deletion the teacher can't use any of her functionalities and the teacher row in the Database will be deleted.	The Delete is permanent, the teacher must be deleted if and only if the teacher left the school.
FR9	Delete Parent	ST4	The admins can Search for parent by name and could delete that parent from the system, after the deletion the parent can't use any of his functionalities and the parent and his children records will be deleted from the Database.	The Delete is permanent, the parent must be deleted if and only if the parent's children left the school.
FR10	Delete Student	ST4	The Admins can Search for a student by name and could delete that student from the system, after the deletion the student can't use any of his functionalities and the	The Delete is permanent, the parent must be deleted if and only if the student left the school.

			student row in the Database will be deleted.	
FR11	Reset User Password	ST4	Admins can change passwords for All stakeholders except other Admins by searching for them based on their full names or primary keys.	
FR12	View Course	ST1, ST4	The Teacher can show her course/s, just the course which belongs to the teacher should appear; any other course the teacher can't view; after that the teacher will have the ability to add or delete functionalities based on the course. and the admin can view all the courses given in the school.	
FR13	Add Course	ST4	The admin can add a new course and choose which grade should take the course and Section and choose the teacher who is responsible for teaching the subject	course Data: 1- Course Name 2-Grade 3-Section 4-Teacher
FR14	Add Assignment	ST1	Teachers can upload posts including Assignment, with deadlines and description about the assignment and any multimedia needed. The assignment should appear to all the students in the course	
FR15	Add unit Content	ST1, ST4	Teachers can upload content containing files about worksheets, lectures, Summaries and any other content needed for the studying process. The content should appear to all the students in the course. The admins can also upload content for all courses.	Multimedia for the content can be: 1- Image 2- Audio 3- Video

FR16	Add Quiz	ST1	Teachers can upload Quizzes and determine its duration, content, starting time, the Marks for each question and the overall grade.	System shows quiz creation form with fields: a- Quiz Title b-Quiz Description c-Start date and Time d-Duration e-Total Points The Questions shape are: 1- Question Text(required) 2-answers options 3-correct answer selection 4- Points per question 5- delete Option
FR17	Delete unit Content	ST1, ST4	The Teacher and the Admins can delete any content from (lectures, files ... etc.) to a specific course, the teacher can only delete from her courses, and Admins can delete any courses.	The Departments Are: 1- KG 2- Primary 3- Intermediate Males 4- Intermediate Females.
FR18	Show Students	ST1, ST4	This functionality shows all the students who belong to the chosen course. After that the Teacher or can select the students to add reports or marks for that student.	
FR19	Add Marks	ST1, ST4	The Teacher or Admins can Add marks for a specific student in a specific course. Based on predefined formula for different age groups.	The Age Groups and their formulas are: 1-KG and Primary Stage: 20/20/20/40 2-Intermediate 4th-7th 20/20/20/40 3-Intermediate 8th – 10th 20/20/20/40

FR20	Add report	ST1, ST4	The Teacher or Admins can Fill In formula reports to specific students that belong to a specific course.	The Formula of The Report Includes: 1- Date: year/month/day 2- Description 3- Student Full Name 4- course name
FR21	Edit Marks	ST4	In this functionality The admins can edit any mark to any student who belongs to a specific course.	
FR22	Search Student	ST4	The admins can search for a specific student based on his full name or ID and after that the student data will be shown.	Student data includes: Table that contains all the courses for that student as rows, each row has 3 buttons: the first one to show the student marks at that course, the second one to show the reports for that student in that course. The third one to see the student absences
FR23	Search Teacher	ST4	The admins can search for a specific teacher based on his full name and after that the teacher data will be shown.	
FR24	Search Admin	ST4	The admins can search for a specific Admin based on his full name after which the admin data will be shown.	

FR25	Search Course	ST4	<p>The admins can search to A specific course as Follows:</p> <p>1- select the Class 2- select the Section 3- select the course</p> <p>When the class has been selected, a table of sections for that class will appear then the manager will choose the Section, after that a list of the courses which belong to that section will appear, then the manager will choose the course who wants.</p> <p>Bearing in mind that they can't search for courses that don't belong to their department.</p>	<p>1-The Classes will be retrieved as a table each row considered as one class, and each row has a button to show the sections of that class.</p> <p>2-The sections will be retrieved as a table; each row considered as a section and have a button to show the courses of that section.</p> <p>3-The courses also will be retrieved as a table each row considered as a course and have a button to show that course.</p>
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FR26	Forget Password	ST1, ST4	<p>Any user can change his password, and the process will be as follows:</p> <p>The User will fill in the Username Data that may be email or Phone.</p> <p>Then The System will determine the type of user and after that will send an OTP</p> <p>The OTP will be sent by Email to Managers, Admins and Teachers, or by phone number to the Parents.</p> <p>Then The User should fill the OTP, and the System must check if the OTP is correct or not if correct the user can change and confirm changing for his password if not an error will be appeared</p>	<p>The students can't change their password, the only way to change their password is through the Admin.</p> <p>The Error Message is: "Invalid OTP".</p>
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FR27	Send OTP	ST1, ST4	<p>the OTP will be sent to the teacher and the admin when they forget their passwords</p> <p>the OTP will be sent directly to their emails</p> <p>and they insert the OTP that is sent to their email in the website</p>	<p>OTP Format:</p> <p>6-digits which are a mix of small, capital letters and numbers</p>
FR28	Change Admin Password	ST4	The Admins can change their passwords by inserting their current password and their new password	<p>1-current password</p> <p>2-the new password</p> <p>3- Confirm new Password</p>
FR29	Change Admin Name	ST4	the admins can change his full name.	<p>format:</p> <p>1- First name</p> <p>2- Last name</p>

FR30	Student And Parent Login	ST2, ST3	<p>From home page the students or parents click on the login button, and redirect it to the login page that contains 2 fields:</p> <p>1- Email. 2- Password.</p> <p>After filling in the fields, the system will determine the user type (Parent or Student) and check if the user exists in the Database or not. If it exists the user will be redirected to his own home page, if not an error message will appear.</p>	<p>In successful login the user must be redirected to his home page based on his role, the student for student home page and the parent-to-parent home page.</p> <p>The Error Message is: “The Username or Password is Wrong”</p>
FR31	View Student Courses	ST2, ST3	<p>The Parents or Students can view the courses who belong to the student.</p> <p>The User should select the course who wants and after that he will be redirected to the course page.</p>	The courses will be retrieved as a table each row considered as a course and have a button to show that course.
FR32	upload File	ST3	The student can upload a file to the activities that require a submission by clicking on a button called “submit”.	The file format must be either pdf or word
FR33	Download File	ST2, ST3	The student can download the file uploaded by the teacher by clicking the “Download” button that appears below the file link	
FR34	View Marks	ST2, ST3	In the course page the student or parent can see the	Note that any non-filled data will be considered as 0

			Marks for that student in that course.	
FR35	View Reports	ST2	<p>The parent can view the reports that are written by the admins or the teachers to his children in the chosen course.</p> <p>The section's data includes:</p> <ul style="list-style-type: none"> 2- student reports include Data: a-course name b-Teacher or Admin name c-the Date of the report d-Report Title e- Actions (view report button) 	<p>1- Show reports</p> <p>2- The first Section includes the admin reports for the child</p> <p>3- the second section includes the Teacher reports for the child</p>
FR36	Show Absences	ST2	<p>The parent can view the Absences to his child from the starting date of the semester until the end of that semester</p>	<p>The absences data include:</p> <p>Number of absences</p> <p>A table contains all the absences, each row in that table considered as one absence and has the absence data.</p>

FR37	Send Announcement	ST4	<p>The Admins Can Send Announcements to a selected set of users or all the users.</p> <p>The set of users is considered as follows:</p> <p>1- 4 checkboxes:</p> <p>The first one is All, when this choice is selected all the other choices can't be chosen</p> <p>The second one is Teachers</p> <p>The third one is Parents</p> <p>The fourth one is Students</p> <p>After Selecting the targeted users also 4 checkboxes about the sections will appear:</p> <p>1- KG</p> <p>2- Primary</p> <p>3- Intermediate Males</p> <p>4- Intermediate Females</p> <p>The admin can choose just 3 choices.</p>	
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FR38	Delete Announcement	ST4	<p>the admins can delete any former announcements for any set of users or all the users</p> <p>based on what's in the checkboxes</p> <ul style="list-style-type: none"> 1- All users 2-Parents 3- Students 4-Teachers <p>and each one of the selected users there is a section that will appear as:</p> <ul style="list-style-type: none"> 1- KG 2- Primary 3- Intermediate Males 4- Intermediate Females <p>The admin can choose just 3 choices.</p>	
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FR39	View Announcement	All	<p>Each user can view the announcements that are sent by the admin based on his role for example</p> <p>Students: can see the announcement that is sent to All Sections or his Section.</p> <p>Parents: can see the announcements that are sent to All Sections or Their children Sections.</p> <p>Teachers: can see the announcements that are sent to all Sections or that are sent to their department.</p> <p>Admins: can see any announcements.</p>	
FR40	Add Absences	ST1, ST4	<p>The Admins and the Teachers can take the absence for the students by choosing the student and the date and by marking on the student's name then clicking on "Submit absence" the absences will be taken.</p>	<p>Admin Fields:</p> <ul style="list-style-type: none"> 1-Select Date 2-Select Grade 3-Select Section 4- Students List 5-Submit absence <p>Teacher Fields:</p> <ul style="list-style-type: none"> 1-Select Date 2-Student List 3-Submit absence
FR41	Involve Students	ST1	<p>The admins can involve all the students in a specific grade, Section inside a certain Course which is given to the section and grade. Makes the students able to see the course content.</p>	

FR42	Change course teacher	ST1	The admins can change the teacher who is giving a specific course and set another teacher to be the monitor on the course.	1-current teacher 2- select the teacher from the list.
FR43	Add Unit	ST1, ST4	The Staff can add a new unit and its lectures inside a specific Course by inserting the title and uploading the content file 1- the admin can add a unit in any course 2- The Teacher can add new units only in the courses under his Supervised.	1- Content Title 2- choose the file to upload.
FR44	Delete Unit	ST1, ST4	The staff can Delete a certain course in a specific course 1- the admin can delete a unit in any course 2-the teacher can delete a unit in the courses under his supervision.	1- confirmation message if you sure you want to delete the unit 2-unit deleted successfully
FR45	show course Units	All	All users can view Units in the courses 1- students: can only view the units in their courses 2-Parents: can only view the units in their children's courses 3-Teachers: can view only the units in the courses under their supervision 4- Admin can view all the units inside any course.	

FR46	Search Parent	ST4	<p>The admin can Search for a parent by: Parent name, ID and Phone number.</p> <p>and the above Data will be shown for the admin when he searches with any data from them.</p>	
FR47	Add Events	ST4	<p>The admin can Add a new Event from the events section by clicking on add new event.</p> <p>The event will be shown in the events section for the users.</p> <p>The event speaks about the school activities.</p>	<p>The Formula of The Event Includes:</p> <ul style="list-style-type: none"> 1-Event Title 2-Event Date 3- Location 4-Event Description 5- Event Media (Images, Videos).
FR48	Delete Events	ST4	<p>The admin can delete a specific Event from the events section.</p> <p>the events page for the admin contains a delete button over each event which give him the ability to delete the event and when clicking on it appears a Confirmation message if he's sure of the deletion operation.</p>	
FR49	Delete Report	ST4	<p>The admin can delete a certain Report that is written for a certain student</p> <p>The admin can delete both Teachers and Admins Reports from Actions.</p>	

FR50	Show Events	All	All the users and the Guests can view the school's events and see the Posts that are uploaded by the admin.	
FR51	Show Assignments	ST1, ST2, ST3	<p>Teacher and Student can show the assignments from the specific course</p> <p>the Parent: can view the assignment details but no Actions can be made.</p> <p>Teacher: can view the assignments date and the assignment files or delete the assignment.</p> <p>Student: can view the assignment and submit the solution file</p>	<p>The Formula of the assignments Includes:</p> <p>1- Teacher:</p> <ul style="list-style-type: none"> a- assignment Title b-assignment description c-assignment file d-Delete assignment e-Show Submissions f-assignment Due Date <p>2-Parent:</p> <ul style="list-style-type: none"> a- assignment title b-assignment due date c-assignment Status (Submitted or not) d-Actions <p>Student:</p> <ul style="list-style-type: none"> a- a- assignment title b-assignment due date c-assignment Status (Submitted or not) d- assignment view and submit

FR52	Check Assignment	ST1	<p>the Teacher can check the Students Submissions for the Assignments when view the assignments page for the students he can click on show submissions button and view the submissions and every student the teacher has already corrected his assignment he can check besides his name in the table</p>	
FR53	Delete Assignment	ST1	<p>The Teacher can delete an Assignment, and the deleted Assignment will be immediately Deleted from the parent and the students' pages within this course</p> <p>The teacher can see the delete button from the assignments page inside he courses itself and with many actions he can make a delete assignment operation</p>	
FR54	Submit Assignments	ST3	<p>The student will be able to submit his answers on the assignments and view the assignment file that is uploaded by the teacher.</p>	
FR55	Show Assignments Submission	ST1	<p>The Teacher can view the Submissions by students for their course assignments.</p> <p>He can view the students' submissions and their submission's date.</p>	

FR56	View Quizzes	ST1, ST2, ST3	<p>the Teacher, Parent and the Student will be able to view Quizzes of a certain course</p> <p>Teacher: will be able to view the quizzes and have some actions on any quiz of his course</p> <p>Parent: will be able to see the Quizzes of anyone of his children in their courses</p> <p>Student: will be able to view the quizzes of his courses</p>	<p>Data shown for each user:</p> <p>Teacher: will see</p> <ul style="list-style-type: none"> 1- quiz title and Date 2- Total marks 3- Availability time 4- number of actions <p>Parent and Student: will see a table of the quizzes of the course and the data are:</p> <ul style="list-style-type: none"> 1-quiz title 2-start date 3-Time 4-Duration 5-Total Points 6>Status 7-Action (Results not available, available)
FR57	Start Quiz	ST3	The student can attempt the quiz by clicking on Start Quiz here the questions will appear, and a timer starts counting down then he can answer the questions and can see the question's text, Options, points for each question.	
FR58	Submit Quiz	ST3	The student finishes the quiz appears a submit quiz button when submitting the answers he will not be able to know the mark until the teacher publishes the marks	

FR59	Edit Quiz	ST1	The Teacher will be able to Edit a certain quiz when shown one of the actions that he can edit the quiz and when he chooses to edit, he can add a new question or change the answers, Date, Marks, and the true and false answers.	
FR60	Publish Quiz	ST1	Teachers can Publish their Quizzes to be visible for the Parents and Children within this course Each quiz has a publish button to make them view answers and marks teacher can unpublish the quiz also after publishing	
FR61	Delete Quiz	ST1	The Teacher can delete a quiz, and the deleted quiz will be immediately Deleted from the parent and the students' pages within this course	

FR62	Show Quiz Submission (Student, Parent)	ST2, ST3	<p>Students and Parents can view quizzes submissions in a specific course and when clicking:</p> <p>Students: can see their marks, points on each question, their answers, and what's the wrong and right answer and each question appear in a set of one page</p> <p>Parents: can see the same page of the students but the difference is that the parent can view all his children's quizzes Submissions</p>	<p>data shown in the Quiz Submissions Page:</p> <p>1- Quiz Title 2-Student information 3-final mark of the quiz 4-questions (each one in a single page and he can move from one quiz to another) 5- Mark on each question 6-Questions Description 7- the true answer and false answers 8- Points earned from each question</p>
FR63	Show Quiz Submission (Teacher)	ST1	<p>Teachers can view the Quiz Submissions from the quizzes Page of a specific course</p> <p>When clicking on submissions the page reviews the students inside a certain course and their Submissions and Grades.</p>	<p>data shown in Teachers Quiz submissions page:</p> <p>1-quiz general data (title, duration, date, Total Points and description) 2-Submission statuses 3-quiz visibility (visible for students or not) 4- Student Submissions data: a table shows the:</p> <p>1- student ID 2- Student Name 3-Submissions status 4-Student's Marks 5-Date of Submission 6-Submission review Button (which moves the teacher to student quiz submission)</p>

FR64	Delete Course	ST4	<p>the admin can delete any course from the courses in the school by searching for a specific course name and delete it</p>	
FR65	Show Unit Content	All	<p>the admins and teachers can show unit content from a specific course</p> <p>Teachers can show unit content from their courses</p> <p>Admins can delete from any course in the school</p>	

Table 12 Functional Requirements definition and specification

3.5 Non-functional requirements

NFR ID	Description
NFR 1	Performance: The system should handle a growing number of users efficiently (students, teachers, parents, and administrators).
NFR 2	Scalability: The system must be scalable to support an increasing number of users and growing data over time without performance degradation. Should accommodate up to 500 concurrent users during peak usage times
NFR 3	Availability: The system should maintain a minimum up time of 99.5% to ensure continuous access for all stakeholders. Scheduled maintenance and downtime should be announced to all users at least 48 hours in advance.
NFR 4	Security: The system must ensure the highest level of security with encrypted data storage and transfer. Role-based access control (RBAC) must be implemented to limit access to sensitive information based on user roles (e.g., teacher, parent, student). The system must use an ORM to map models to database tables, simplifying data access and management. This helps enforce security policies consistently, including role-based access control. The ORM also supports data validation and safe query handling, reducing risks like SQL injections. Overall, it ensures secure, maintainable, and efficient interaction with the database.
NFR 5	Usability: The system should provide an intuitive and user-friendly interface that caters to users with varying levels of technical proficiency. The system must ensure a seamless experience across all platforms (web, mobile, tablets) with adaptive design for different screen sizes.

Table 13 Non-functional requirements

3.6 Usability and user experience goals.

Responsive Design:

Provide a responsive interface that adapts to various screen sizes (desktops, tablets, smartphones), ensuring that all functionalities are easily accessible regardless of the device used.

Accessibility:

Ensure that the website is flexible and user-friendly for all stakeholders, taking into account their diverse backgrounds and needs.

Error Handling and Feedback:

Offer clear, context-specific error messages and real-time feedback for actions such as form submissions, ensuring users can resolve issues efficiently.

Consistency:

Maintain a consistent look and feel across all sections of the system, including user interfaces, buttons, and form layouts, to provide a cohesive user experience.

Personalization:

Tailor the experience based on user roles (teachers, parents, students) by providing relevant data and actions in dashboards, based on role-based access and permissions.

4.0 SYSTEM DESIGN

This Chapter includes the design and analysis of ILM-Verse functionalities by dividing them into subsystems based on **OOAD**, the subsystems will be presented in **Architecture Diagram** then each subsystem will have **Use case Diagram**. After that, each functional requirement in each use case will have a **Table of Description and Sequence Diagram**. On the other hand, for databases we are going to use **Relational and non-Relational Databases**, due to the fact that the RDB needs **ERD** and the NRDB needs **JSON Models**.

4.1 Architecture Design

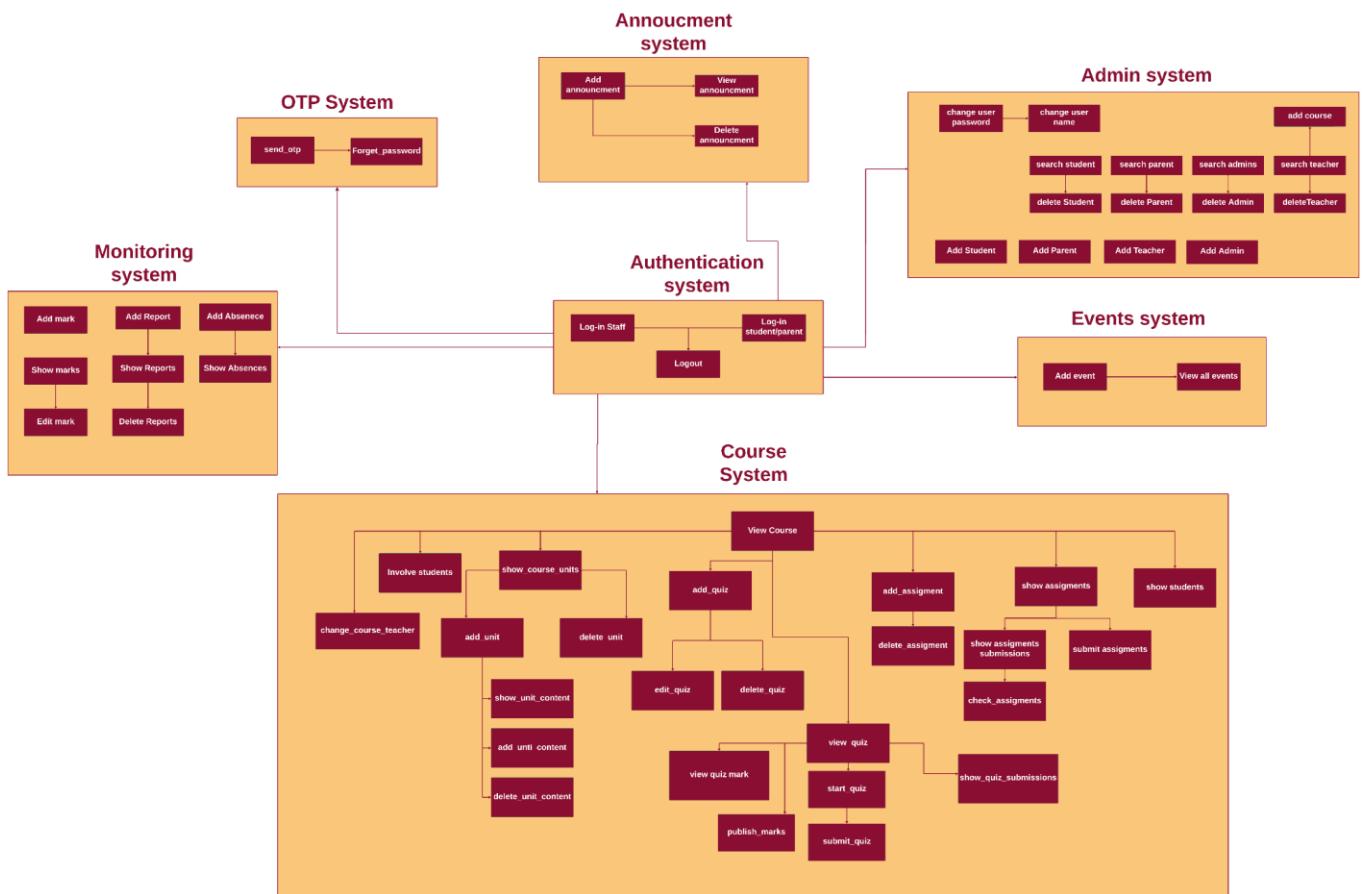


Figure 13 Architecture Diagram

4.2 Entity Relationship Diagram (ERD)

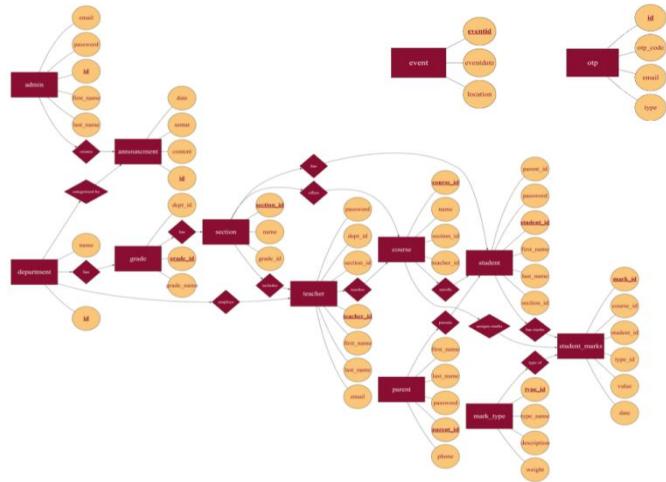


Figure 14 ERD

4.3 Enhanced Entity Relationship Diagram (EERD)

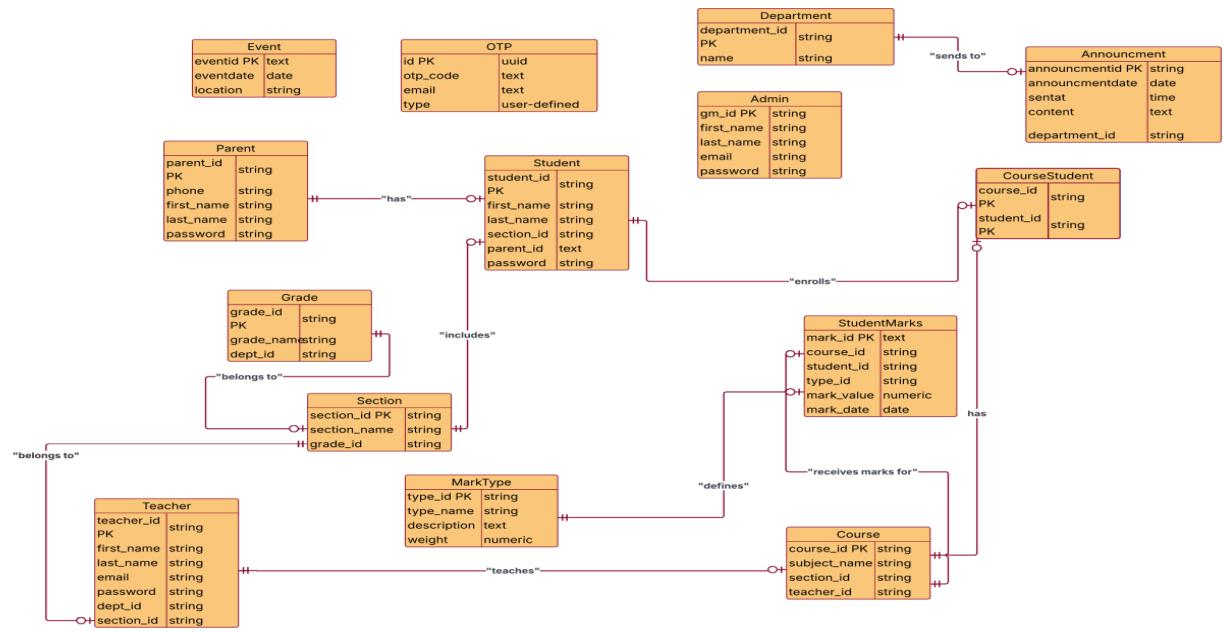


Figure 15 EERD

4.4 UML Use Case Diagram

1-Authentication System:

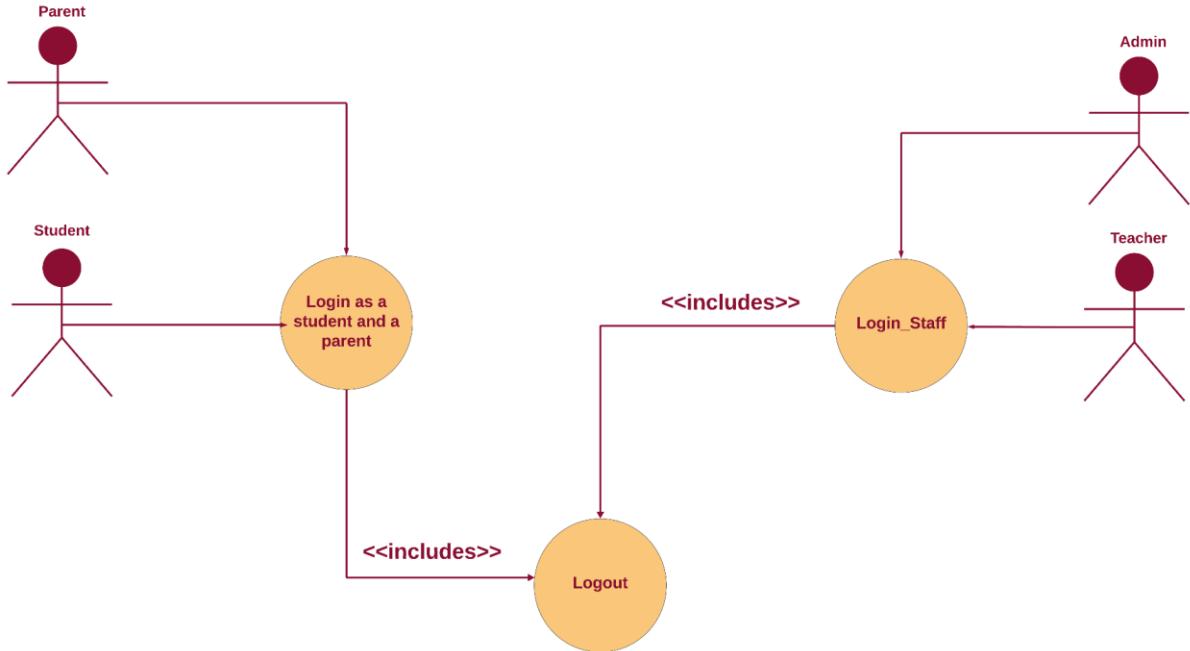


Figure 16 USE CASE 1 Authentication System

2-OTP-System:

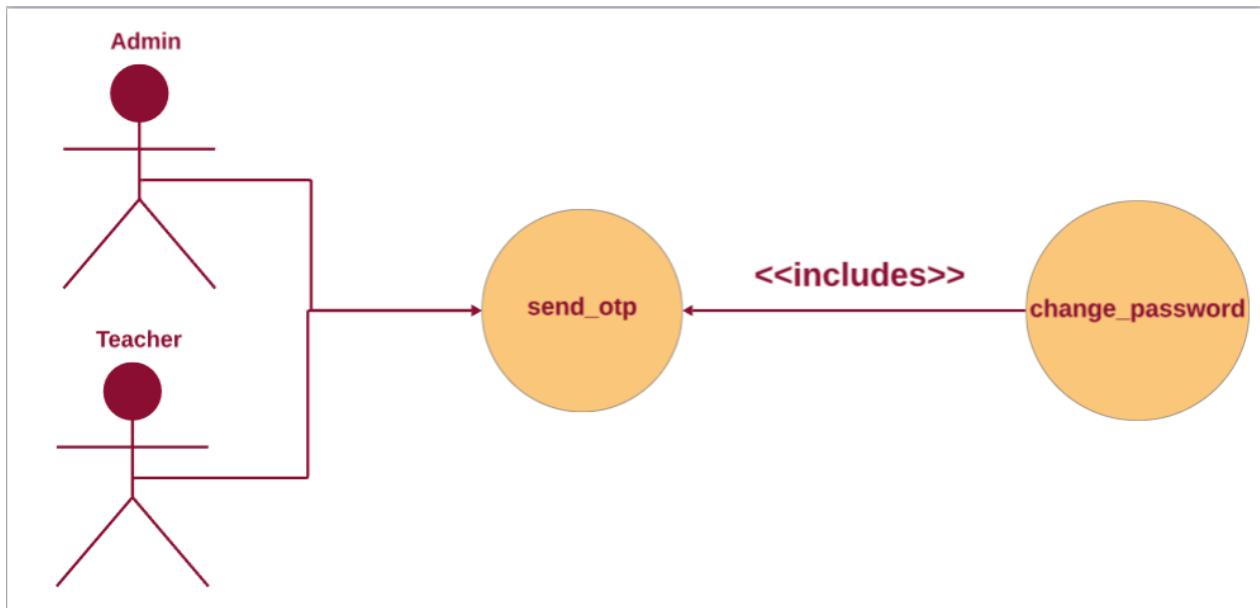


Figure 17 USE CASE 2 OTP System

3-Admin System:

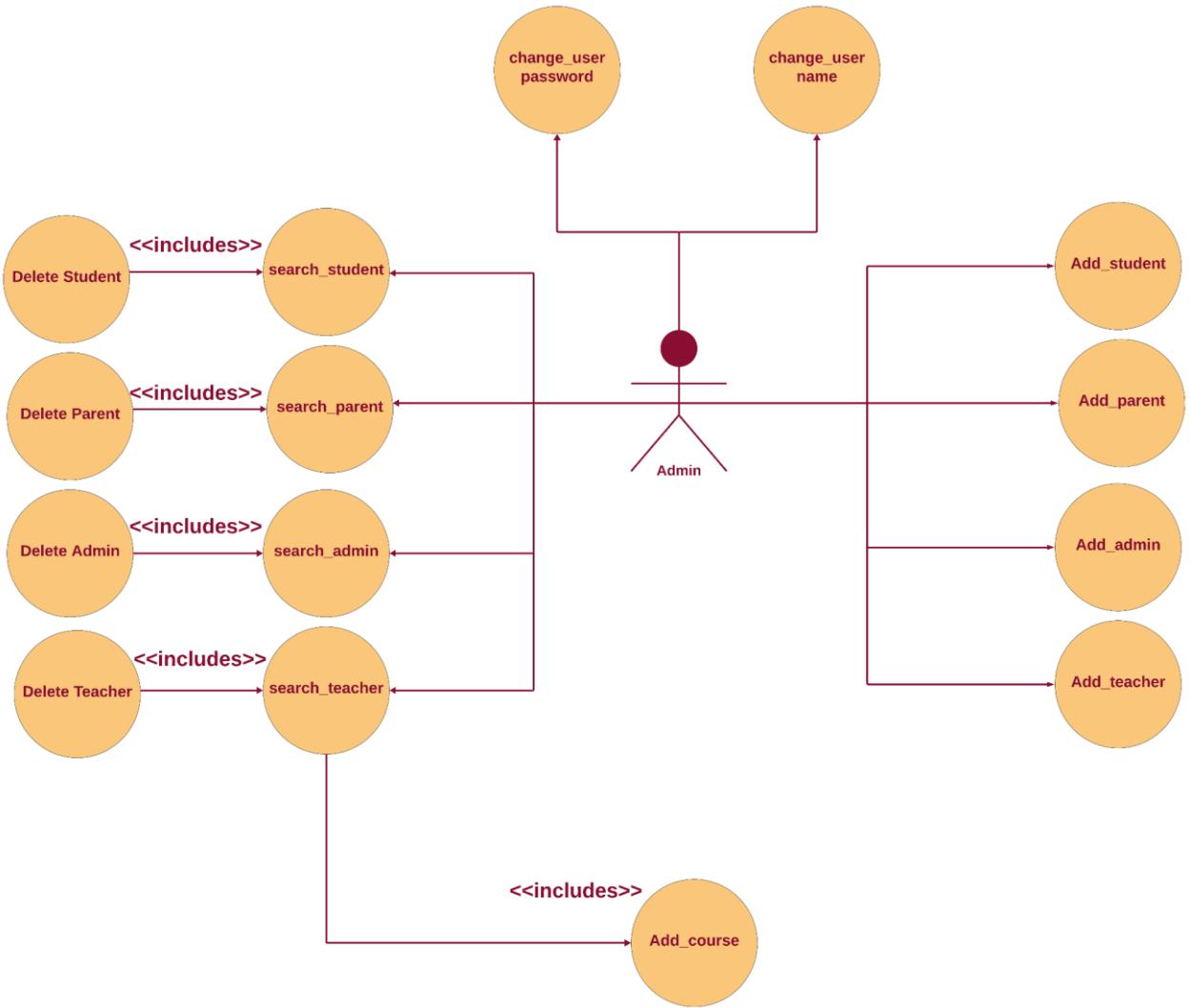


Figure 18 USE CASE 3 Admin System

4-Course System:

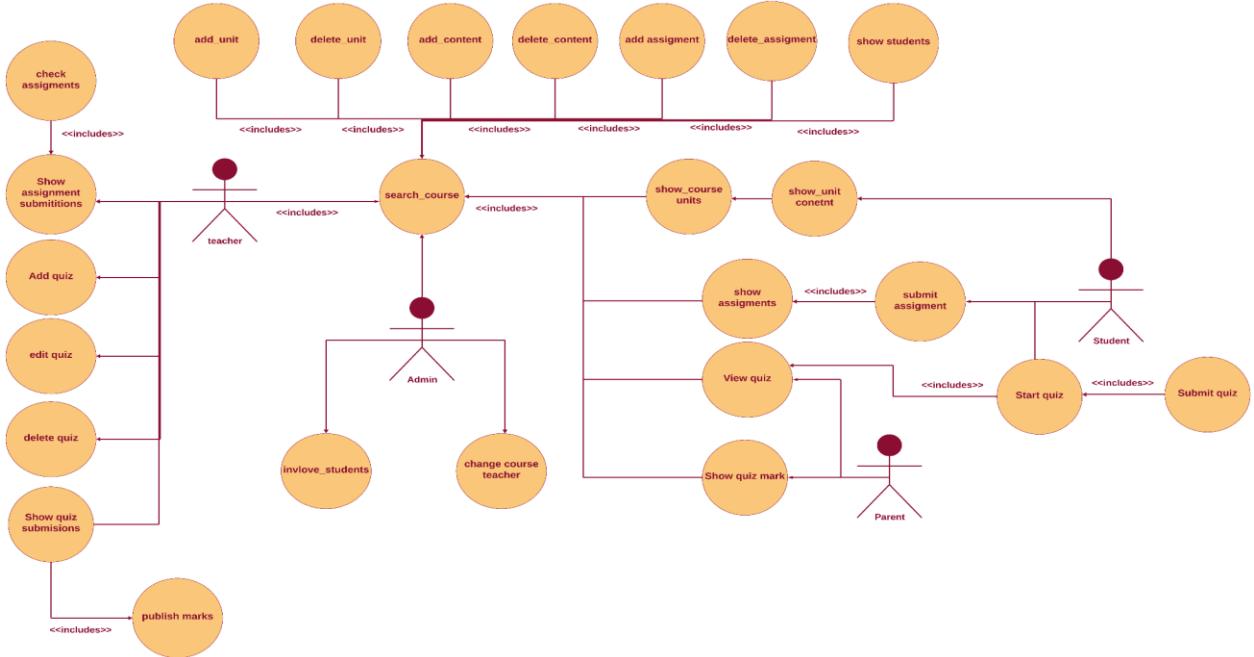


Figure 19 USE CASE 4 Cours System

5-Monitoring system:

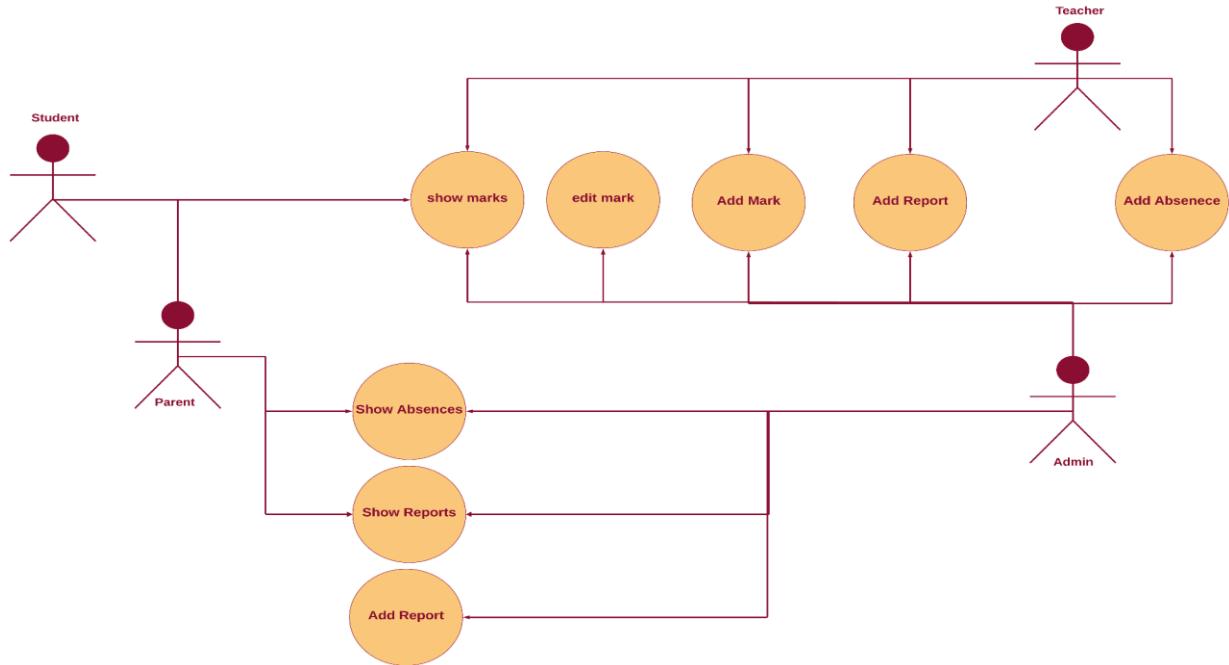


Figure 20 USE CASE 5 Monitoring System

6-Events system:

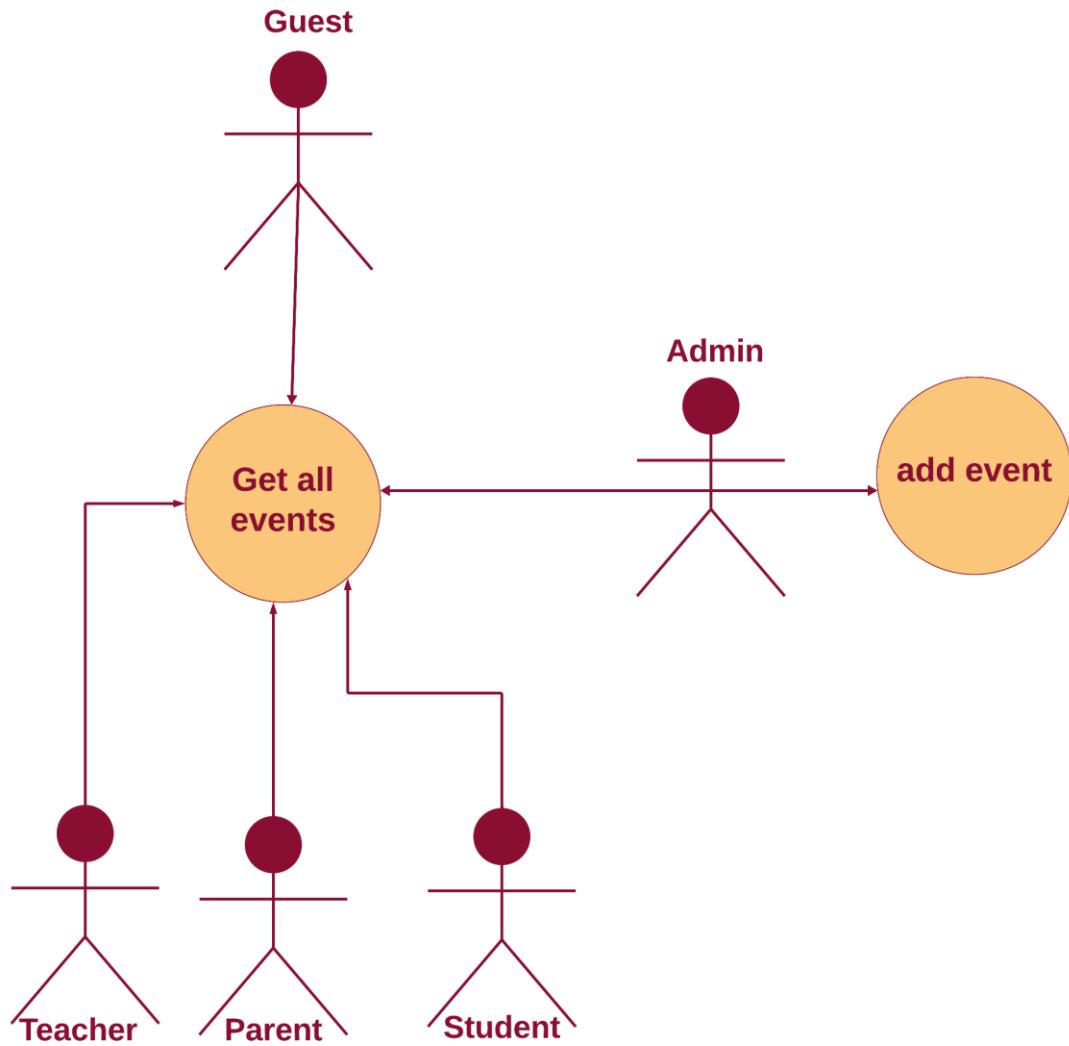


Figure 21 USE CASE 6 Events System

7-Announcements system:

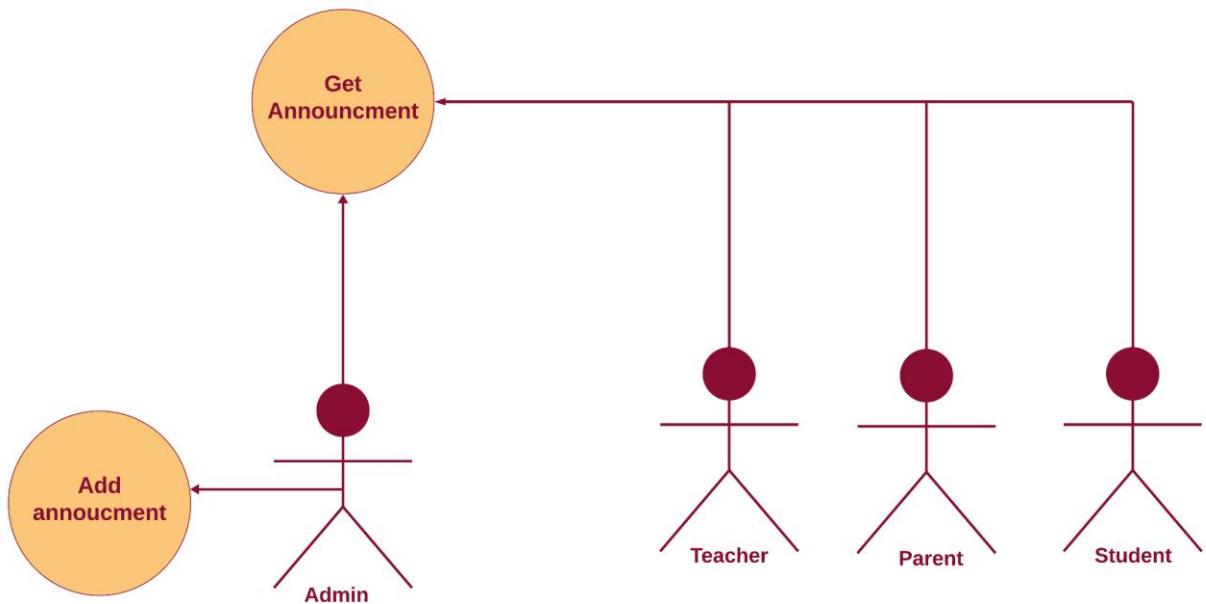


Figure 22 USE CASE 7 Announcements System

4.4 UML Sequence Diagram

G1: 1-Authentication System:

Log-in Staff	
Actors	Teacher, Admin
Description	The staff log-in functionality allows users to securely access the system by providing their email and password. The system validates these credentials by checking against the database. Upon successful authentication, the system identifies the user's role (Admin, Teacher, or Admin) and redirects them to their designated role-specific homepage. If the entered email or password is incorrect, an error message is displayed, prompting the user to re-enter valid credentials
Data	1- User Email 2-User Password 3-User Role (determined after authentication)
Stimulus	Users enter their email and password into the login form.
Response	1-If the credentials are valid, the user is logged in and redirected to the homepage corresponding to their role. 2-If the credentials are invalid, an error message ("Invalid email or password. Please try again.") is shown.
Scenarios	1-Successful Login: a-The user enters a valid email and password. b- The system verifies the credentials and determines the user's role. C-The user is redirected to their role-specific homepage. Login Failed: a-The user enters an incorrect email or password. b-The system displays an error message and prompts the user to re-enter their credentials. Account Does Not Exist:

	<p>a- The user enters an email not registered in the system.</p> <p>b- The system displays an error message indicating the account does not exist.</p> <p>Session Management:</p> <p>a-Ensure the login form has proper validation to prevent SQL injection or other malicious activities.</p> <p>b-Consider adding options for “Forgot Password” or “Register” to improve usability.</p> <p>c-The system should handle user roles dynamically, allowing for scalable role additions or changes.</p>
Comments	<p>1-Ensure the login form has proper validation to prevent SQL injection or other malicious activities.</p> <p>2-Consider adding options for “Forgot Password” or “Register” to improve usability.</p> <p>3-The system should handle user roles dynamically, allowing for scalable role additions or changes</p>

Table 14 Log-in Staff Description

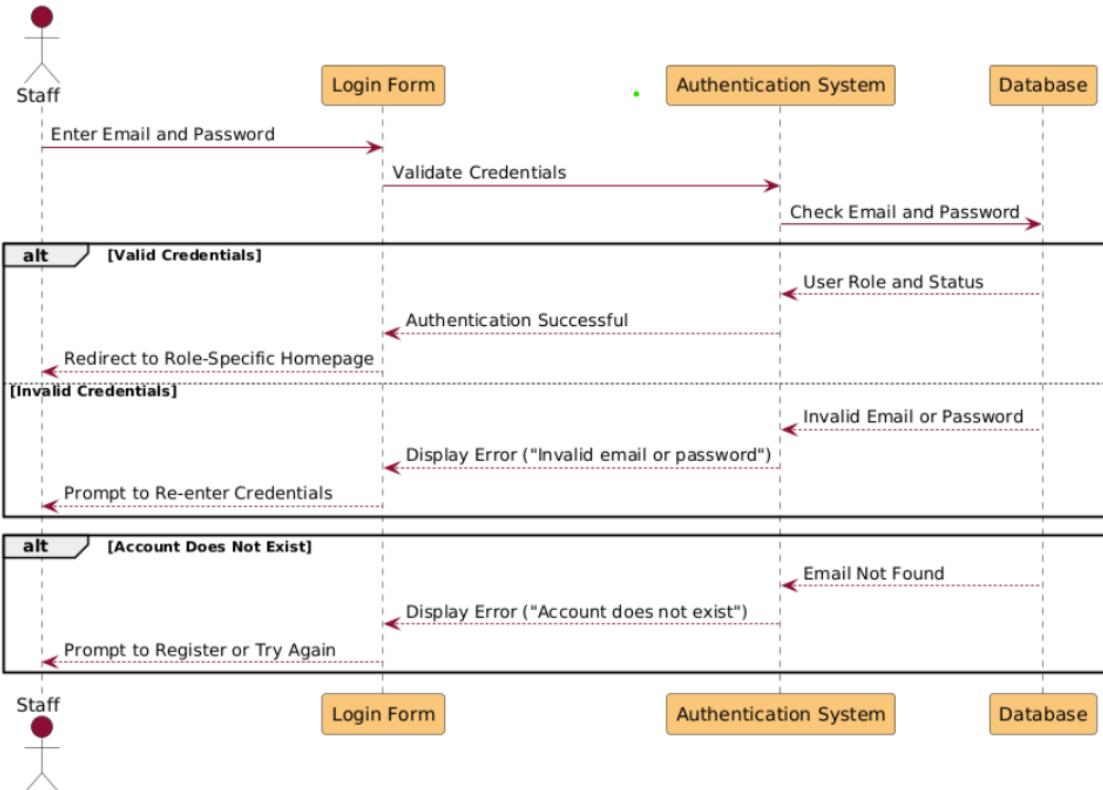


Figure 23 Sequence Diagram Login-Staff

Student And Parent Login	
Actors	Student, Parent
Description	This functionality allows students and parents to log in using their credentials (ID/Phone Number and Password) to access their respective portals
Data	ID/Phone Number, Password.
Stimulus	Student or parent enters the data and make the Login request
Response	On successful login: Redirect to the appropriate dashboard (Student or Parent). On failure: Display an error message such as "The Username or Password is Wrong."
Scenarios	<ol style="list-style-type: none"> 1. User navigates to the login page. 2. User enters their ID/Phone Number and Password. 3. User submits the form. 4. System verifies the credentials in the database. 5. On success, the system determines the user type and redirects them to their respective dashboard

Table 15 Student and Parent Log-in Description

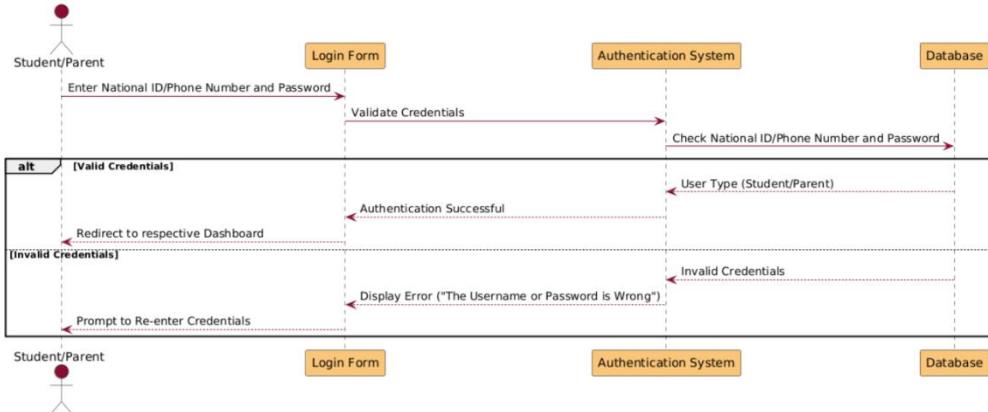


Figure 24 Sequence Diagram Student-Parent Log-in

Log-out	
Actors	User (Student, Teacher, Parent, or Admin)
Description	The user initiates the logout process by clicking the "Log Out" button. The system then destroys the user's session and redirects them to the login page.
Data	Session ID (used to identify and terminate the user session).
Stimulus	User clicks the "Logout" button.
Response	<ol style="list-style-type: none"> 1. Session is terminated. 2. User is redirected to the login page.
Scenarios	<ol style="list-style-type: none"> a. User clicks the "Logout" button. b. System destroys the session. c. User is redirected to the login page.
Comments	

Table 16 Log-out Description

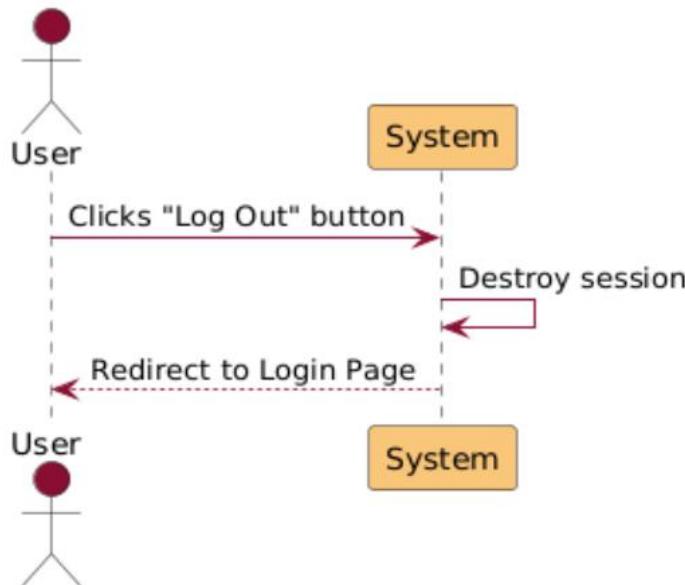


Figure 25 Sequence Diagram Log-out

G2: 1-Authentication System:

Send OTP	
Actors	Teacher, Admin
Description	This functionality sends a 6-digit alphanumeric OTP (mix of lowercase, uppercase letters, and numbers) to the email of teachers/admins who request a password reset. The user must enter the OTP on the website to proceed.
Data	<ul style="list-style-type: none"> • Email (registered in the system). • Generated OTP (e.g., A7b9Z2).
Stimulus	<ul style="list-style-type: none"> • Teacher or admin clicks "Forgot Password" and submits their registered email.
Response	<p>1. Valid Email:</p> <ul style="list-style-type: none"> ○ The system generates a 6-digit alphanumeric OTP. ○ OTP is sent to the user's email. ○ System displays: "<i>OTP sent to your email. Check your inbox.</i>" <p>2. Invalid Email:</p> <ul style="list-style-type: none"> ○ System displays: "<i>Email not registered. Contact support.</i>"

Scenarios	<p>User navigates to the "Forgot Password" page.</p> <ol style="list-style-type: none"> 1. User enters their registered email and submits. 2. System verifies the email: <ul style="list-style-type: none"> ○ If valid → Generates OTP, sends email, and prompts OTP entry. ○ If invalid → Displays error (see <i>Response</i>). 3. User enters the OTP received via email. 4. System validates OTP: <ul style="list-style-type: none"> ○ If correct → Redirects to "Reset Password" page. ○ If incorrect → Displays: "<i>Invalid OTP. Try again.</i>" (with retry limit).
Comments	<ul style="list-style-type: none"> ● OTP expires after 5 minutes. ● Max 3 attempts before account lockout (optional security measure).

Table 17 Send OTP Description

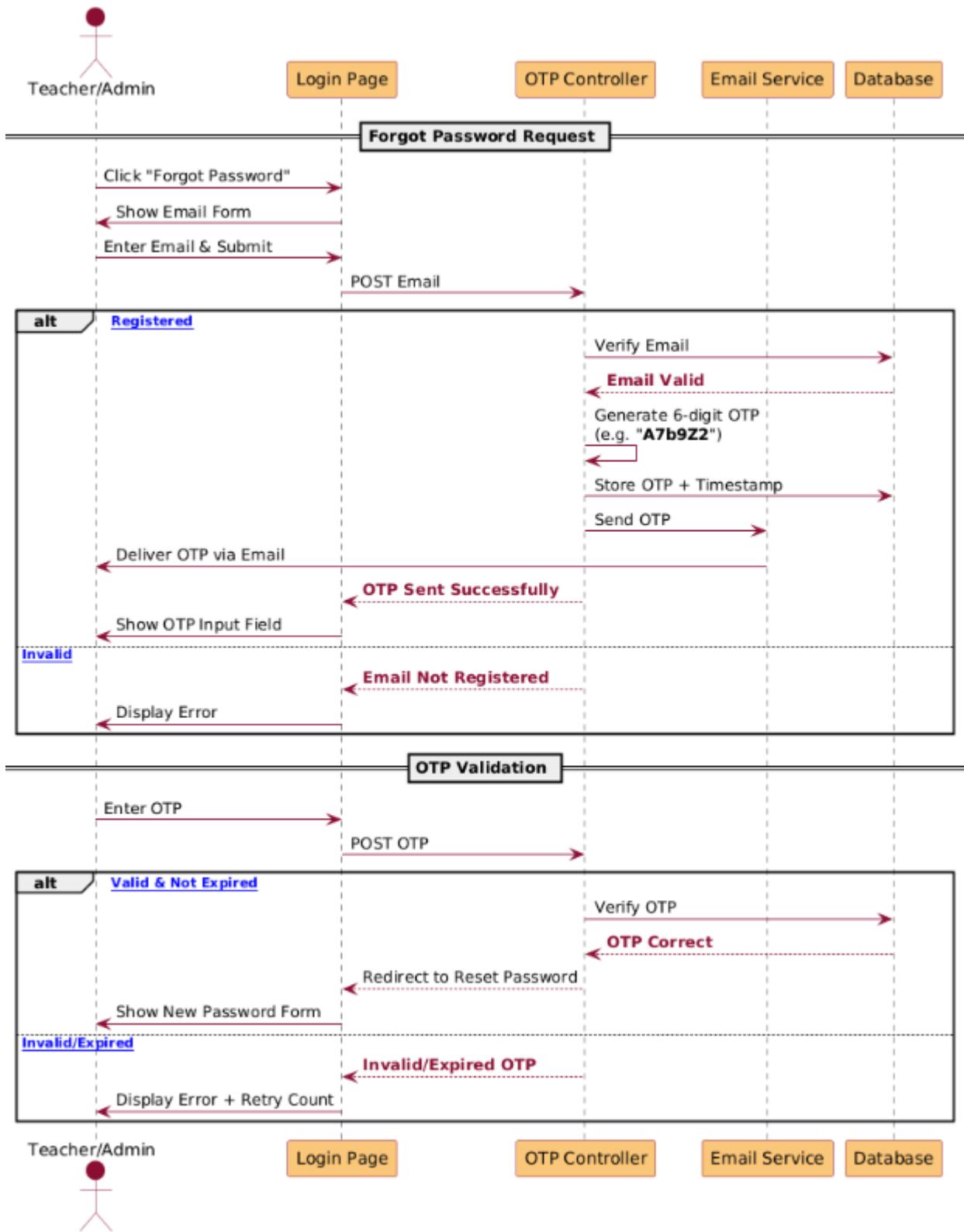


Figure 26 Sequence Diagram Send OTP

Forget Password	
Actors	Admin, Teacher.
Description	The user initiates a password reset by providing their email, receives an OTP, and sets a new password.
Data	<ol style="list-style-type: none"> 1. User credentials (email). 2. OTP (One-Time Password). 3. New Password.
Stimulus	User requests to reset their password by clicking "Forgot Password."
Response	<ol style="list-style-type: none"> 1. System sends an OTP to the user. 2. Valid OTP allows the user to reset their password. 3. Error messages for invalid credentials or OTP.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. User provides valid credentials. b. System sends OTP. c. User enters valid OTP. d. User resets password. e. System confirms password reset. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. User provides invalid credentials. b. System displays "User not found." c. User enters invalid OTP. d. System displays "Invalid OTP."
Comments	OTPs are sent via email to Teachers and Admins; Parents and Students cannot reset their password.

Table 18 Forget Password Description

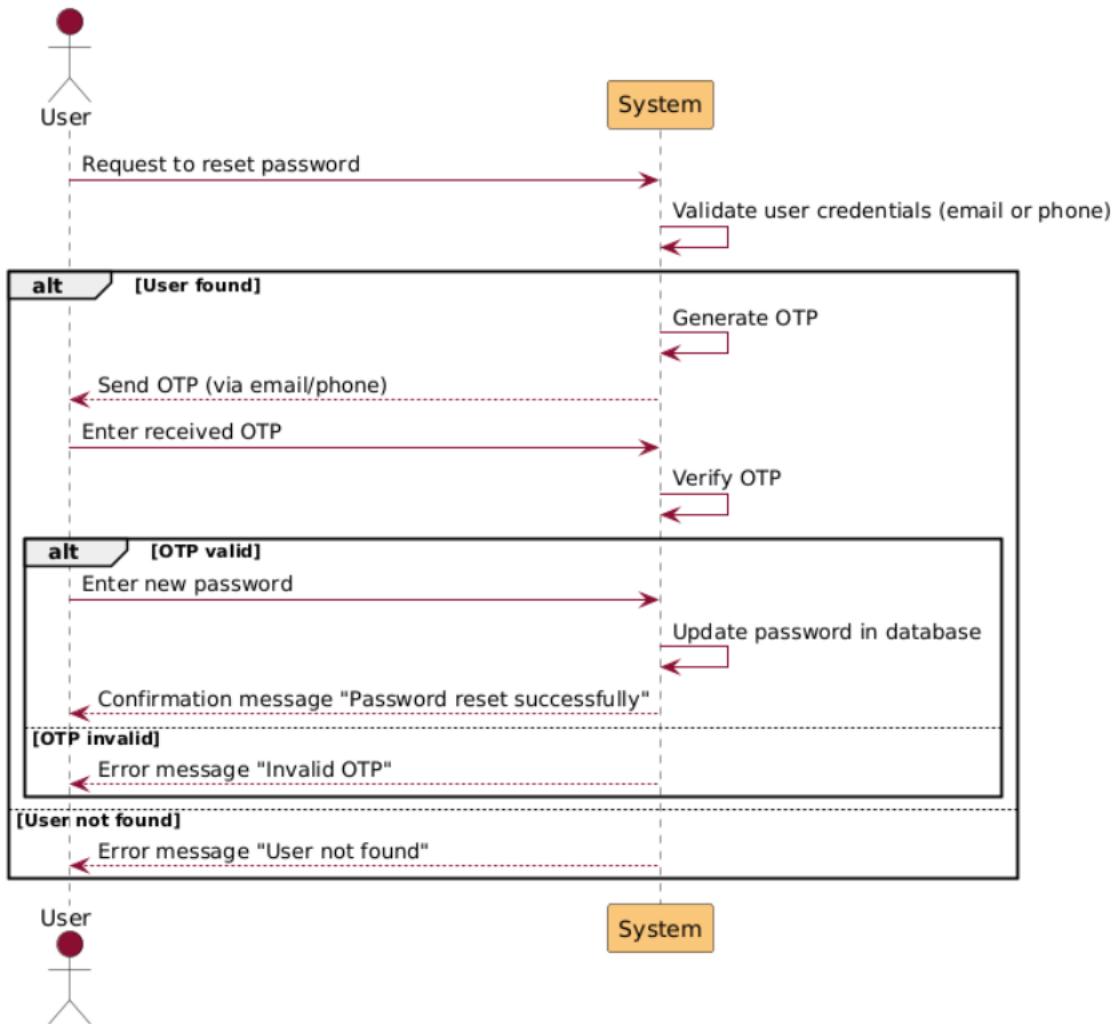


Figure 27 Sequence Diagram Forget Password

G2: 1-Announcements System:

Send Announcement	
Actors	Admin
Description	<p>The admin can send announcements to a specific department or all departments (General). The targeted department can be selected using radio buttons.</p> <p>Department Radio buttons:</p> <p>General, KG, Primary, Intermediate Males, and Intermediate Females.</p>
Data	<p>1-Announcement Content (text).</p> <p>2-Targeted Department.</p> <p>3-Timestamp of the announcement</p>
Stimulus	The admin selects the desired department, composes the announcement, and clicks "Send Announcement."
Response	<p>1-The announcement is delivered to the selected users and sections.</p> <p>2-A success message is displayed ("Announcement sent successfully!").</p>
Scenarios	<p>1-Admin Sending to All Departments:</p> <p>a-The admin selects "General" in the department section.</p> <p>b-The announcement is sent to all users across all departments.</p> <p>2-Admin Sending to Specific Department:</p> <p>a-The admin selects a department ("KG," "Primary," "Intermediate Males" and "Intermediate Females").</p> <p>b-The announcement is sent only to the chosen department.</p> <p>4-Failed Announcement – Missing Content:</p> <p>a-The user attempts to send an announcement without entering content.</p> <p>b-The system prompts the user to provide content ("Announcement content cannot be empty.").</p>
Comments	

Table 19 Send Announcement Description

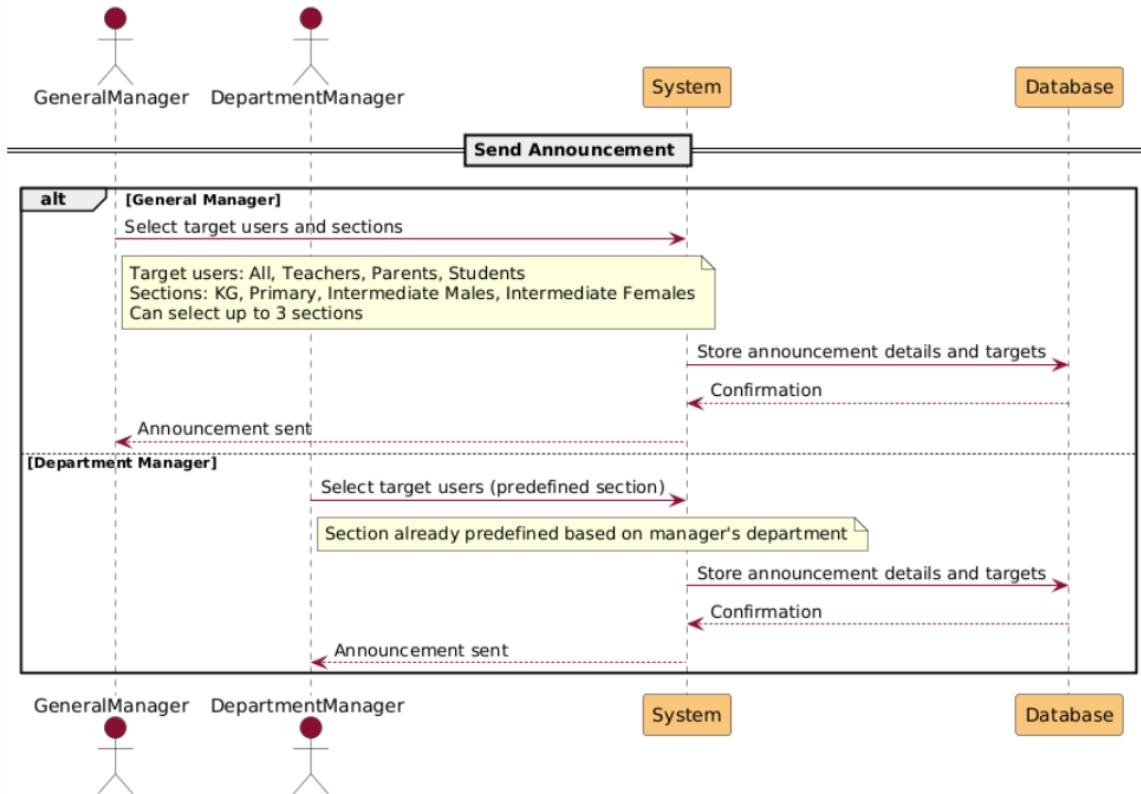


Figure 28 Sequence Diagram send Announcement

Delete Announcement	
Actors	Admin
Description	Admins can delete announcements with granular control over target audiences. Selection includes departments (General /KG/Primary/Intermediate). Department Radio buttons: General, KG, Primary, Intermediate Males, and Intermediate Females.
Data	1-Announcement Content (text). 2-Selected Department
Stimulus	Admin selects announcement(s) and chooses: <ol style="list-style-type: none"> 1. department: General/KG/Primary/Intermediate Males/Intermediate Females.
Response	<ul style="list-style-type: none"> ● On success: "<i>Announcement deleted for [X] users.</i>" ● On error: "<i>Failed: [Reason].</i>"
Scenarios	<ol style="list-style-type: none"> 1. Admin navigates to announcements dashboard. 2. Select announcement(s) and click "Delete". 3. System shows checkboxes for: <ul style="list-style-type: none"> ○ Department (General, KG, Primary, Intermediate Males, and Intermediate Females). 4. Admin confirms. System validates: <ul style="list-style-type: none"> ○ If valid → Deletes announcement for selected audiences. ○ If invalid → Shows error (e.g., "<i>Something went wrong.</i>").
Comments	

Table 20 Delete Announcement Description

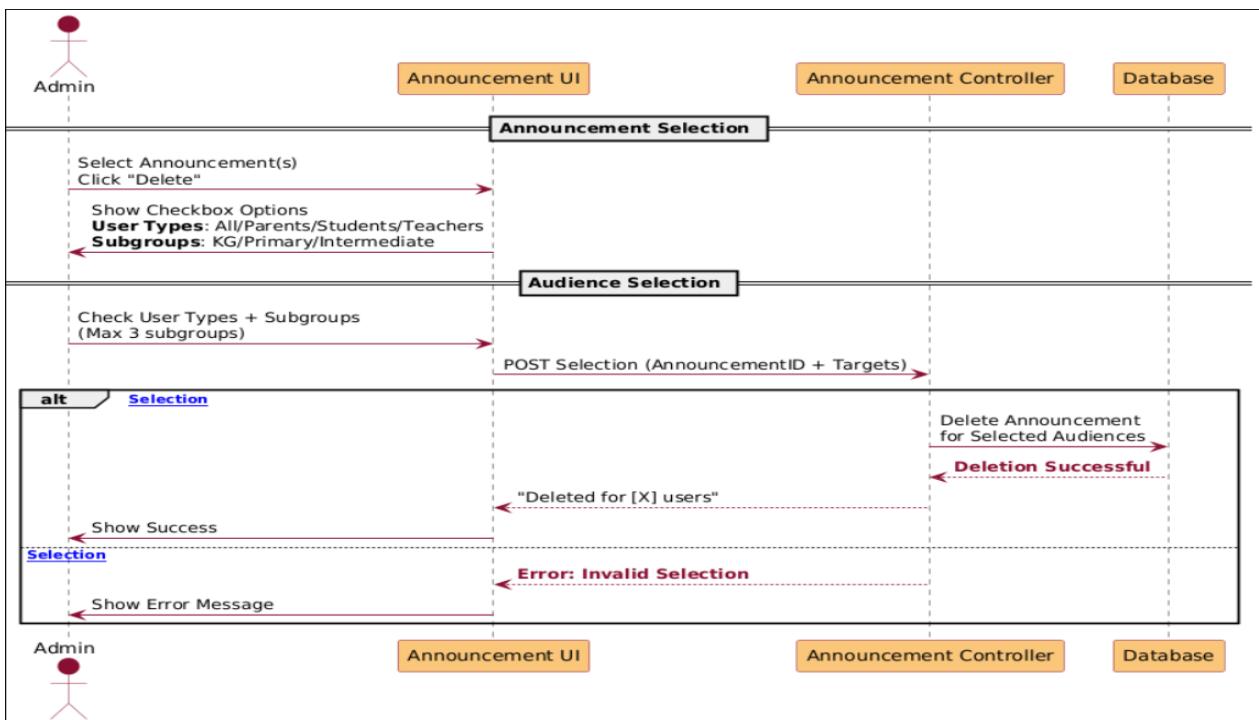


Figure 29 Sequence Diagram Delete Announcement

View Announcement	
Actors	All
Description	<p>Users view announcements filtered by departments. Admins see all announcements unconditionally</p> <p>Targeted User Selection:</p> <p>(General, KG, Primary, Intermediate Males, and Intermediate Females).</p> <p>The admin can select up to 3 sections at a time.</p>
Data	<ol style="list-style-type: none"> 1. Announcement content 2. Sender (Admin) 3. Timestamp 4. Target audience (department)
Stimulus	User opens the "Announcements" page.
Response	The system displays filtered announcements in reverse chronological order.
Scenarios	<p>1. Student in KG Section:</p> <ul style="list-style-type: none"> - Sees "General" + "KG" announcements. <p>2. Parent of Primary Student:</p> <ul style="list-style-type: none"> - Sees "General" + "Primary" announcements. <p>3. KG Teacher:</p> <ul style="list-style-type: none"> - Sees "General" + "KG Department" announcements
Comments	

Table 21 View Announcement Description

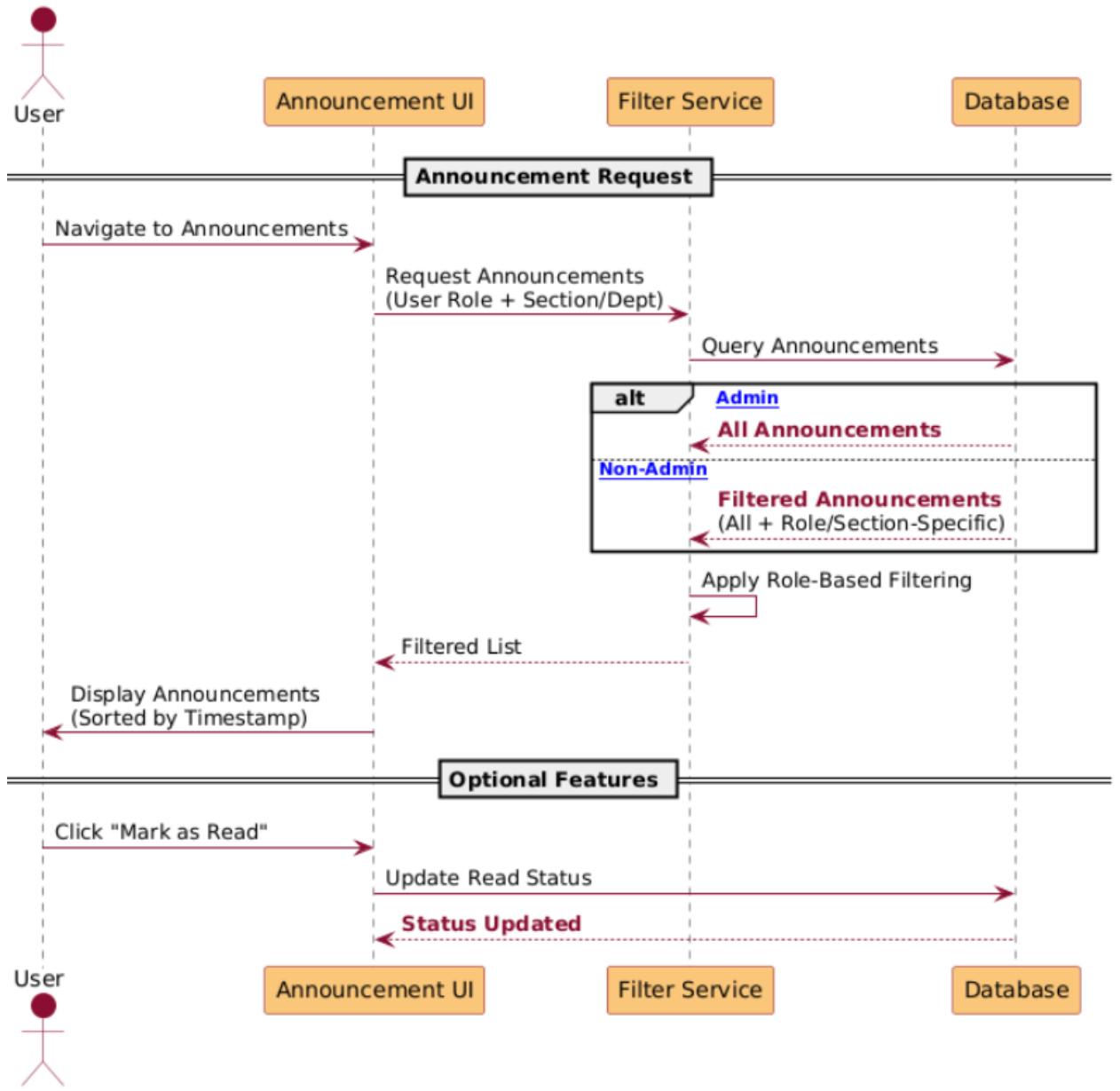


Figure 30 Sequence Diagram View Announcement

G3: 1-Admin System:

Reset user password	
Actors	Admin
Description	The Admin searches for a user by their full name , updates the password, and saves the change. all users except admin
Data	<p>User details:</p> <ol style="list-style-type: none"> 1. Full Name or Primary Key (for search) 2. New Password.
Stimulus	Admin inputs the new password and confirms the change.
Response	<ol style="list-style-type: none"> 1. Passwords are updated in the database. 2. Confirmation message is displayed.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a user. b. Admin enters the new password. c. System validates and updates the password. d. Confirmation message is shown. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a non-existent user. b. System displays an error message like "User not found."
Comments	This functionality applies to all users except the Admin, and the password must meet validation criteria.

Table 22 Reset user Password Description

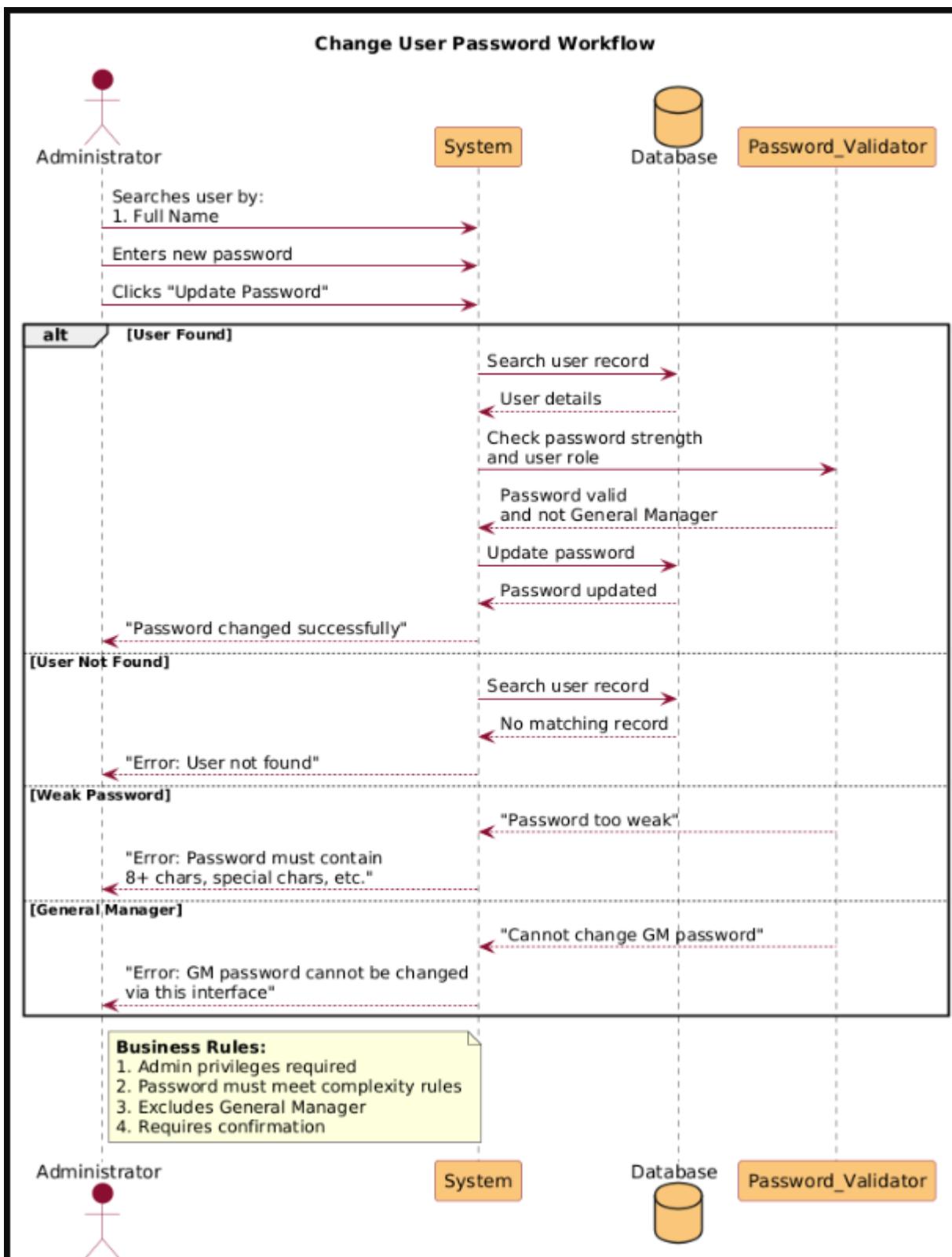


Figure 31 Sequence Diagram reset User Password

Change Admin Password	
Actors	Admin
Description	Admins can change their password by navigating to settings change password page.
Data	User details: 1. current password 2. new password 3. Confirms new password
Stimulus	Admin clicks on update password
Response	Success: " <i>Password updated successfully</i> " Errors: " <i>Invalid password format</i> "
Scenarios	<p>Normal Scenario:</p> <p>1. Valid Change:</p> <ul style="list-style-type: none"> - Correct current, strong new password, matching confirm - Password updates successfully <p>2. Incorrect Current Password:</p> <ul style="list-style-type: none"> - Wrong current password - Show "Incorrect current password" <p>3. Mismatched Confirmation:</p> <ul style="list-style-type: none"> - Confirm doesn't match new password - Show "Passwords do not match"
Comments	Only Admins can perform this action

Table 23 Change Admin Password Description

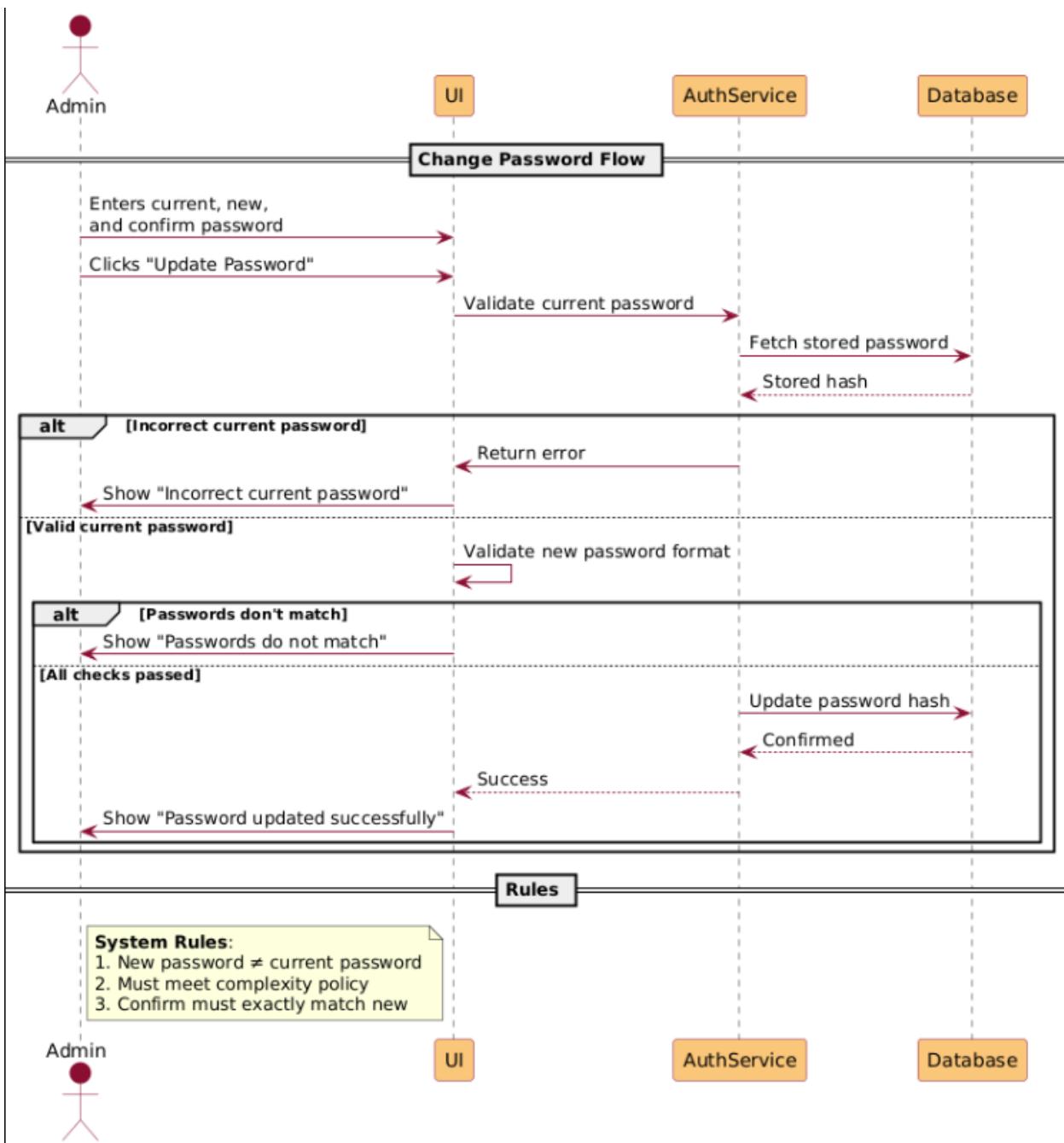


Figure 32 Sequence Diagram Change Admin Password

Change Admin Name	
Actors	Admin
Description	Admins can modify his first and last name through a controlled interface with validation
Data	User details: 1. First Name (required) 2. Last Name (required) 3.Password
Stimulus	Admin Navigate to settings and updates his full name
Response	Success: " <i>Name updated successfully</i> " Errors: " <i>Name cannot be empty</i> "
Scenarios	Normal Scenario: 1. Valid Change: - Valid first and last name, correct password,"name updated successfully" 2. Incorrect Password: - Wrong password entered,Show "Invalid Password" 3. Empty Field: - Clear first name → shows "Field required".."
Comments	

Table 24 Change Admin Name Description

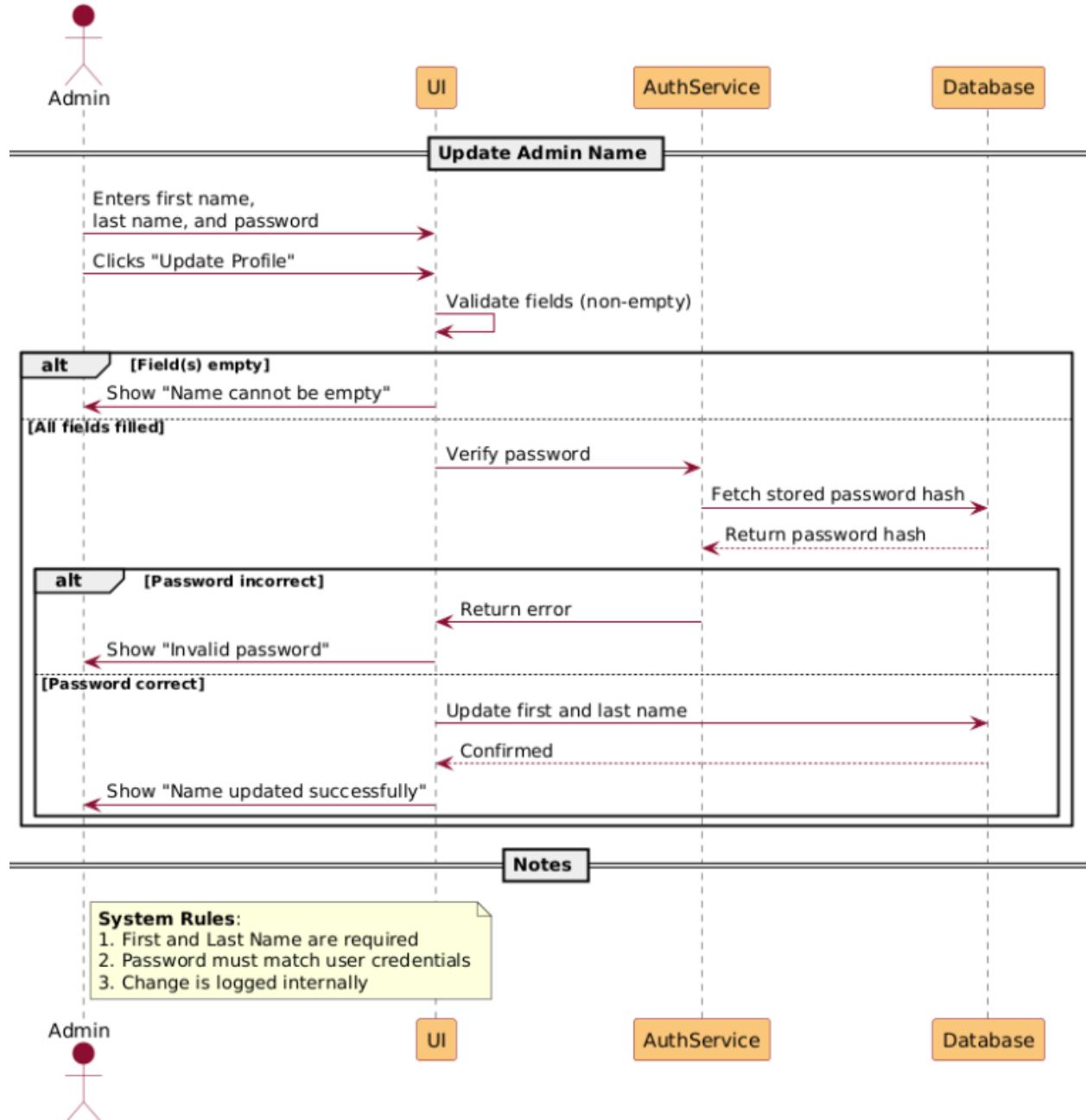


Figure 33 Sequence Diagram Change Admin Name

Search Course	
Actors	Admin
Description	the Admin searches for any course for any department in the school courses
Data	Course information: course name.
Stimulus	The Admin clicks on “Search Course” and write the course name in the search bar
Response	course retrieved to the Admin page
Scenarios	<p>Scenario 1: Course Found Successfully</p> <ol style="list-style-type: none"> 1. Admin navigates to the "Search Course" page. 2. Admin enters the Course Name. 3. Admin selects the Grade.. 4. Admin selects the Section 5. Admin clicks the "Search" button. 6. System queries the database and finds a matching course. 7. Course information is displayed, including name, teacher, section, and schedule. <p>Scenario 2: No Course Found</p> <ol style="list-style-type: none"> 1. Admin opens the "Search Course" page. 2. Admin enters a non-existent Course Name . 3. Admin selects Grade and Section. 4. Admin clicks the "Search" button. 5. System queries the database but finds no matching results. 6. UI displays a message: “No course found” <p>Scenario 3: Database Error</p> <ol style="list-style-type: none"> 1. Admin accesses the "Search Course" feature. 2. Admin fills the search form and clicks "Search". 3. The system attempts to query the database. 4. A database timeout or error occurs (e.g., connection failure). 5. UI displays an error message: “An error occurred while searching. Please try again later.”
Comments	Only Admins can search courses.

Table 25 search Course Description

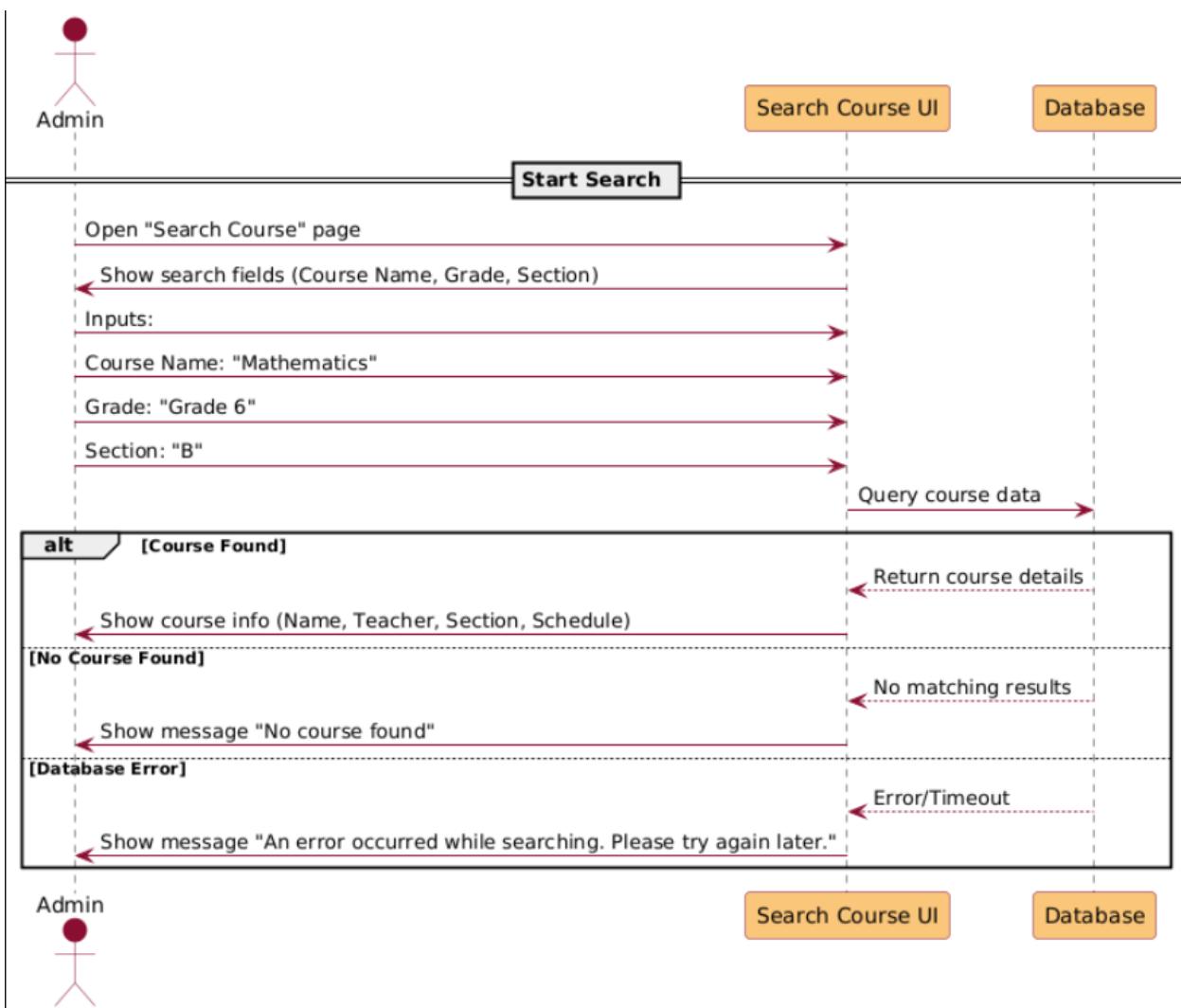


Figure 34 Sequence Diagram search Course

Add Course	
Actors	Admin
Description	Admins can create new courses by specifying course details, target grade/section, and assigning a teacher.
Data	1-Course Name (required) 2. Grade 3. Section 4. Assigned Teacher
Stimulus	Admin clicks "Add Course" and submits form
Response	Success: " <i>Course created successfully!</i> "
Scenarios	Valid Creation: - Add "course name" for a Grade and section → Assign Teacher -click add course -Success Message “Course added successfully”
Comments	- teachers Filtered based on the grade.

Table 26 Add Course Description

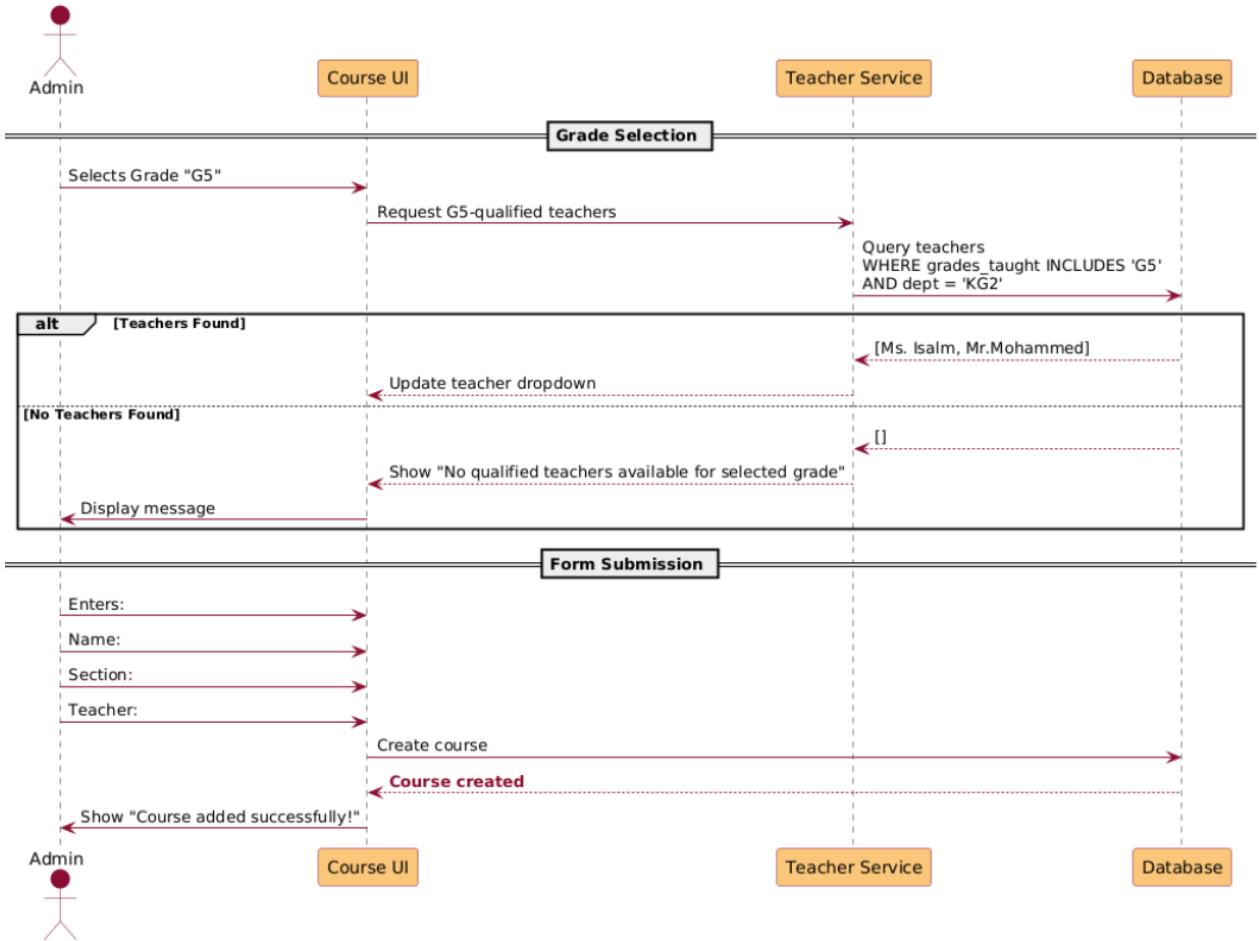


Figure 35 Sequence Diagram search Course

Delete Course	
Actors	Admin
Description	Admins can delete courses by specifying course name and delete from any grade
Data	1-Course Name (required) 2. Grade 3. Section
Stimulus	Admin clicks "Delete" button and submits form
Response	Success: " <i>Course Deleted successfully!</i> "
Scenarios	Valid Creation: - search "course name" for a Grade and section. -click delete button -Success Message “Course deleted successfully”
Comments	

Table 27 Delete Course Description

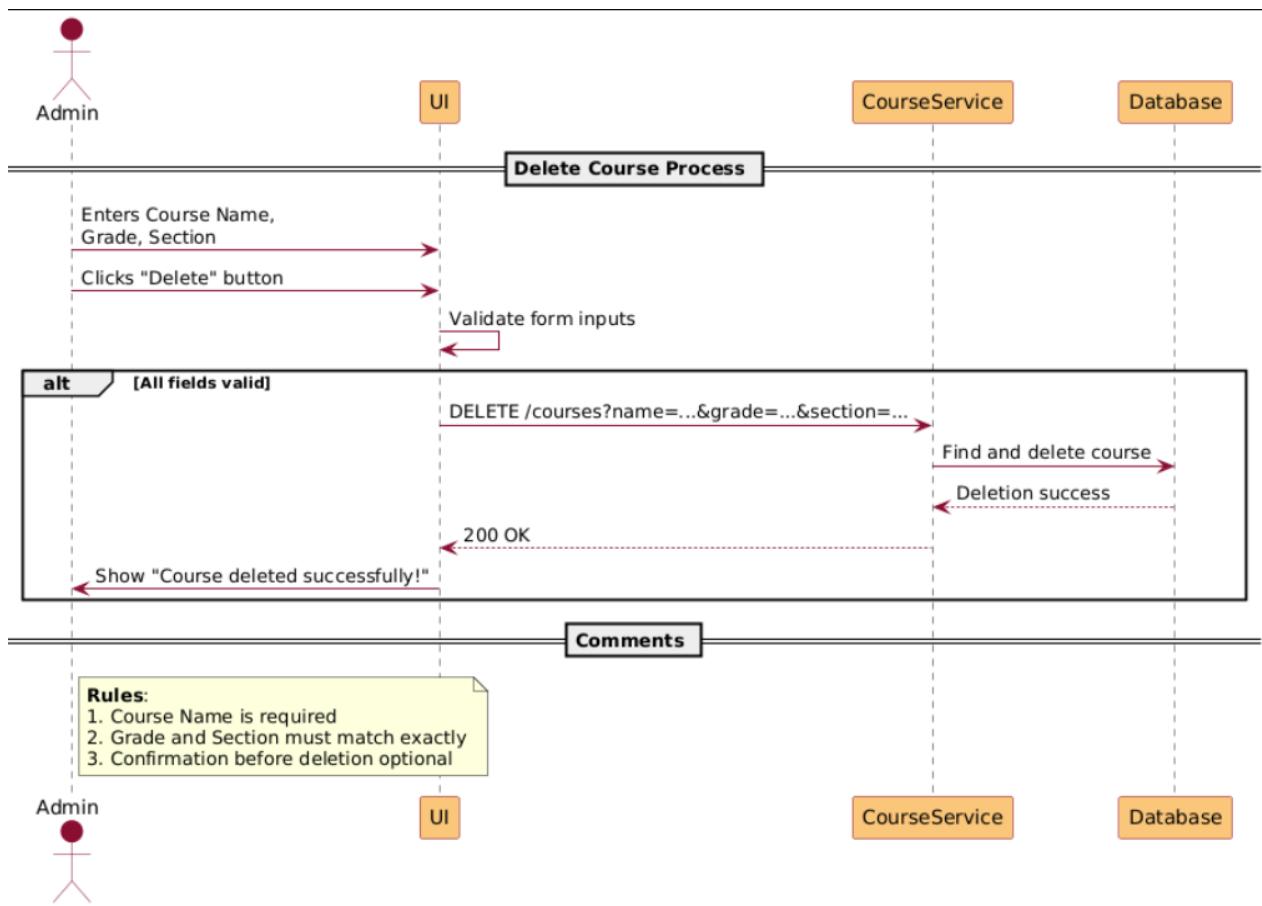


Figure 36 Sequence Diagram Delete Course

Search Teacher	
Actors	Admin
Description	Admins can search for teachers by full name and view their complete profile information.
Data	Teacher full name
Stimulus	Admin clicks "Add Course" and submits form
Response	Success: "1. Teacher ID, 2. Full Name, 3. Department!"
Scenarios	<p>Exact Match: -Search "Mohamed Ali" → Shows Math teacher</p> <p>2. Partial Match: - Search "Moh" → Shows all Mohamed* teachers</p> <p>3. No Results: - Search "XYZ" → Shows error</p>
Comments	

Table 28 Search Teacher Description

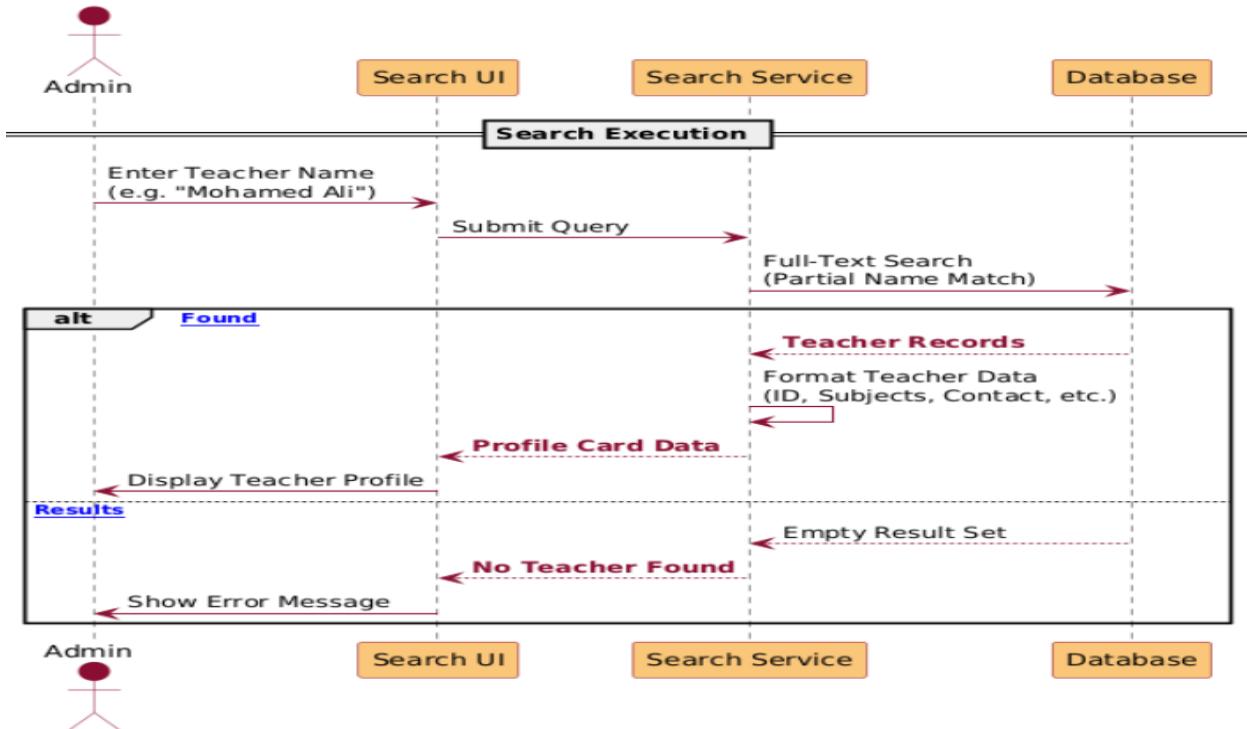


Figure 37 Sequence Diagram Search Teacher

Add Teacher	
Actors	Admin
Description	The Admin can add a new teacher by filling out the required details and submitting the information to the system.
Data	<p>Teacher Data:</p> <ol style="list-style-type: none"> 1. Full Name 2. Email 3. Password 4. Department 5. Section
Stimulus	The Admin enters the teacher details and clicks the "Add Teacher" button.
Response	<ol style="list-style-type: none"> 1. Parent information is stored in the database. 2. A confirmation message is displayed to the Admin.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin fills out the form. b. Admin submits the form. c. System saves the information and displays confirmation <p>Error Scenario</p> <ol style="list-style-type: none"> a. Admin tries to submit incomplete or incorrect data. b. System shows error messages like "All fields are required."
Comments	<ul style="list-style-type: none"> - Only the Admin role can add teachers. - Teacher records must include all required fields.

Table 29 Add Teacher Description

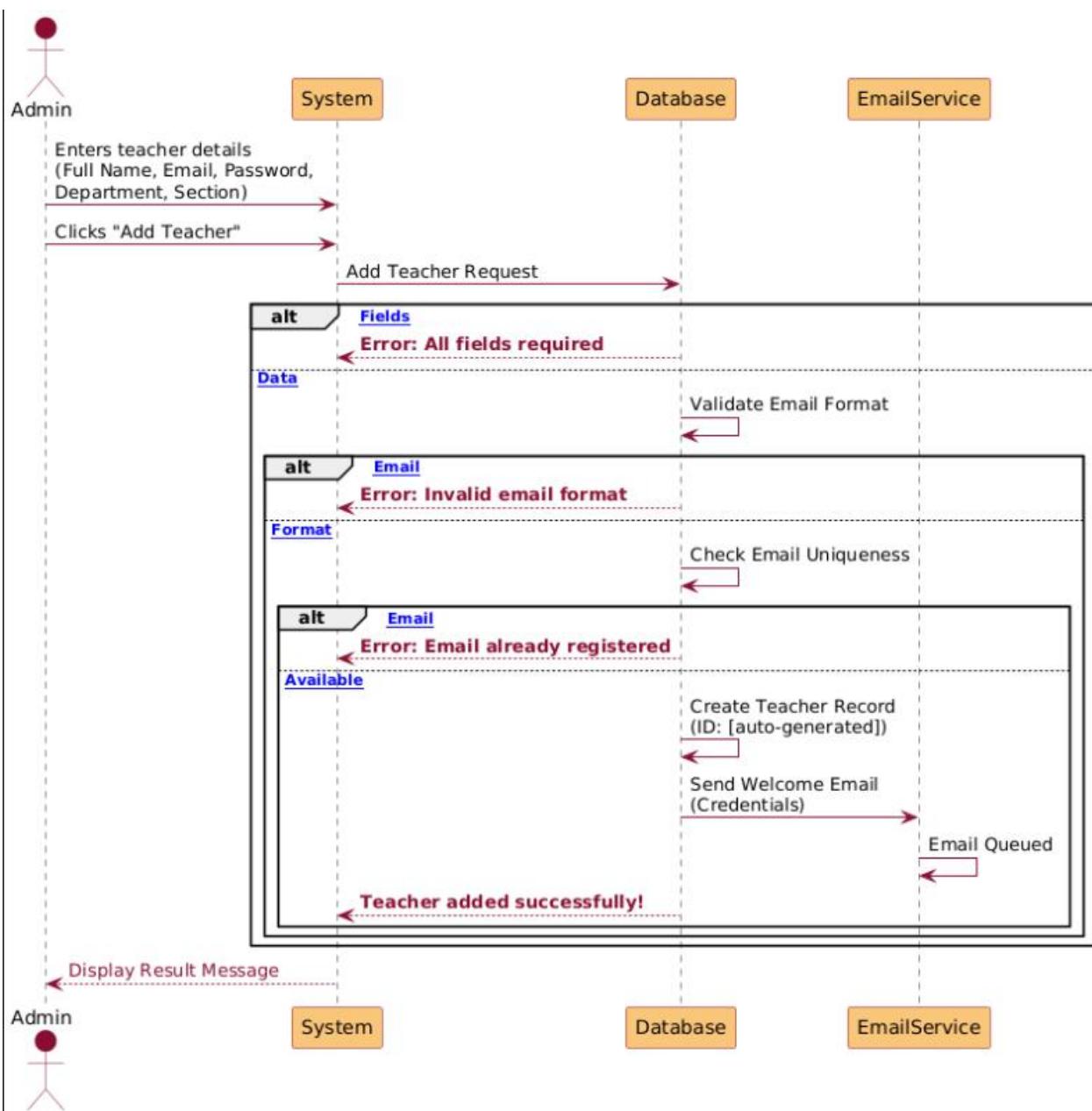


Figure 38 Sequence Diagram Add Teacher

Delete Teacher	
Actors	Admin
Description	The Admin searches for a teacher using their name or email, confirms the action, and deletes the teacher from the system.
Data	<p>Teacher details:</p> <ol style="list-style-type: none"> 1. Name or Email (for search) 2. Confirmation for deletion.
Stimulus	Admin clicks the "Delete" button after searching and selecting a teacher.
Response	<ol style="list-style-type: none"> 1. Teacher is removed from the database. all of the teacher courses will change the teacher to null 2. Confirmation message is displayed.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a teacher. b. Admin confirms deletion. c. System removes the teacher and shows confirmation. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a non-existent teacher. b. Admin displays an error message like "Teacher not found."
Comments	The deletion is permanent and applies only if the teacher has officially left the school.

Table 30 Delete Table Description

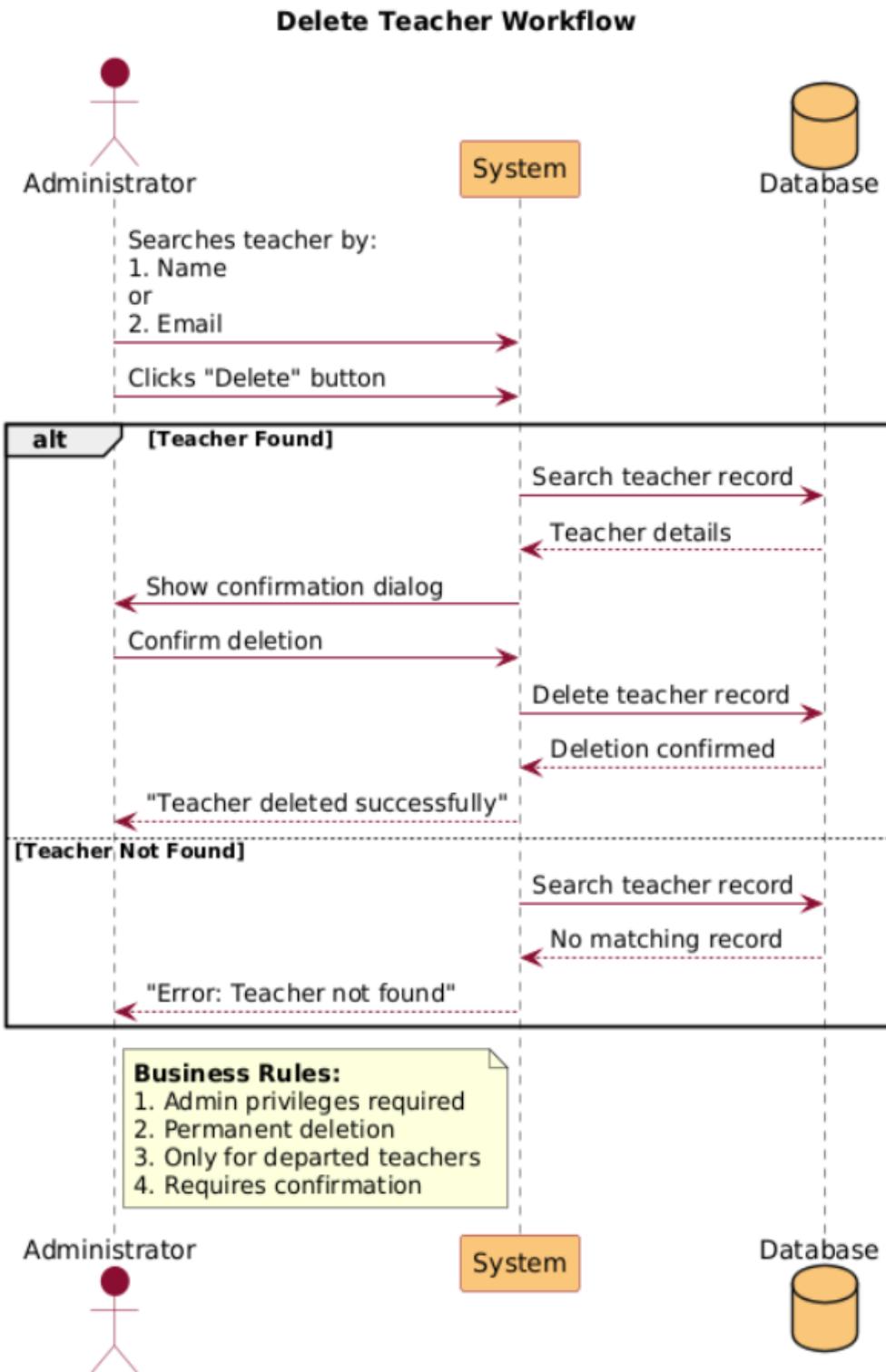


Figure 39 Sequence Diagram Delete Teacher

Search Students	
Actors	Admin
Description	Admins can search for a student by full name and view their information.
Data	1. Full Name
Stimulus	Manager enters a search query and submits it.
Response	<p>1. Matching student details are retrieved and displayed.</p> <p>2. Error message if no match is found.</p>
Scenarios	<p>Normal Scenario:</p> <ul style="list-style-type: none"> a. Admin submits a search query. b. System retrieves matching student details. c. Details are displayed. <p>Error Scenario:</p> <ul style="list-style-type: none"> a. Admin searches for a non-existent student. b. System displays a blank referring to the student who does not exist.
Comments	Only authorized Managers can access student information. Managers are limited to their department.

Table 31 Search Students Description

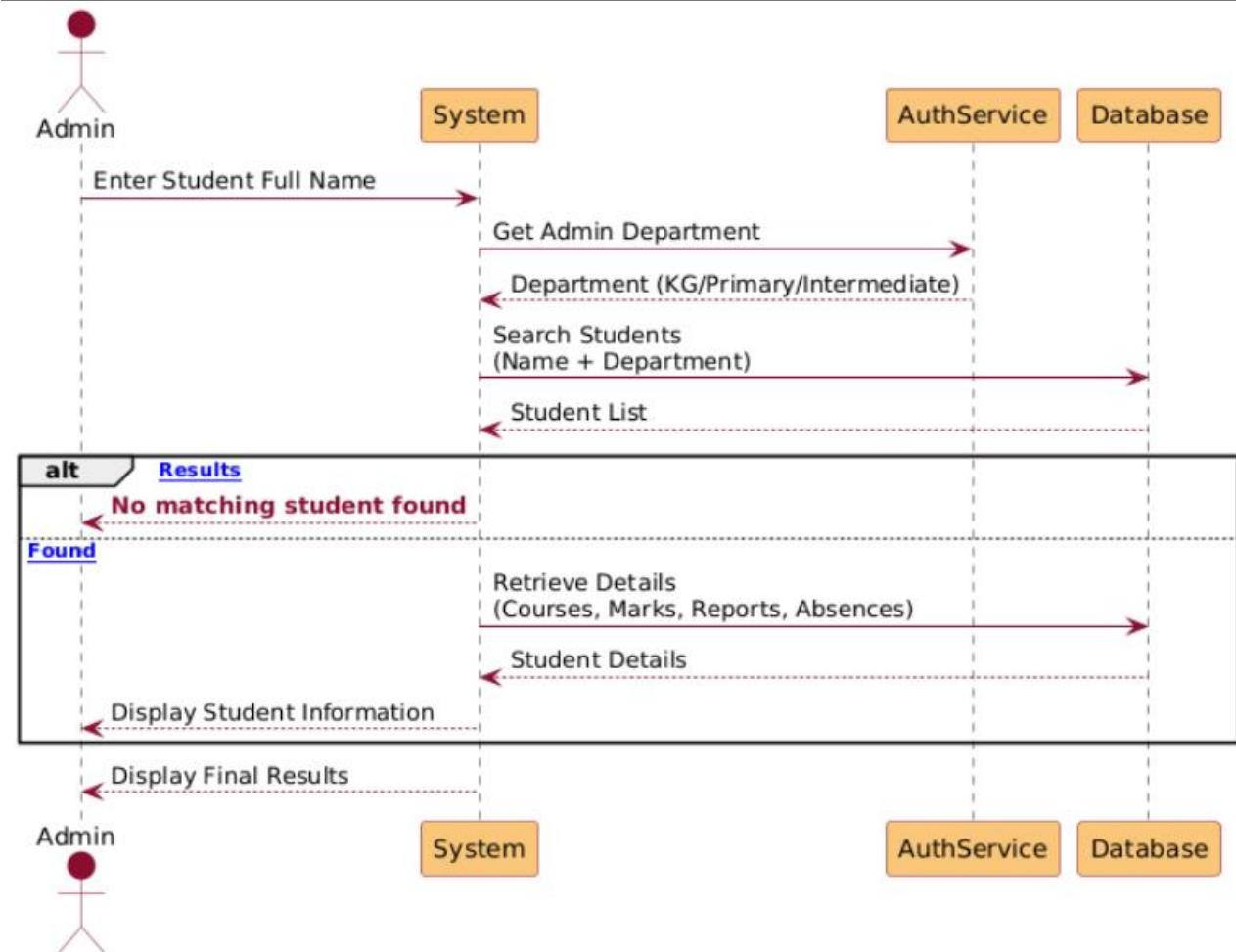


Figure 40 Sequence Diagram Search Students

Add Student	
Actors	Admin
Description	The Admin can add a new student to the system by entering all the required details.
Data	<ol style="list-style-type: none"> 1. Full Name 2. Password 3. Parent 4. Class 5. Section
Stimulus	Admin fills out the form and clicks the "Add Student" button.
Response	<ol style="list-style-type: none"> 1. Student details are saved to the database. 2. A confirmation message is displayed.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin fills out the form. b. Admin submits the form. c. System saves the details and displays confirmation. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin submits incomplete or invalid data. b. System displays an error message.
Comments	Validation ensures all required details are provided and correct before saving.

Table 32 Add Student Description

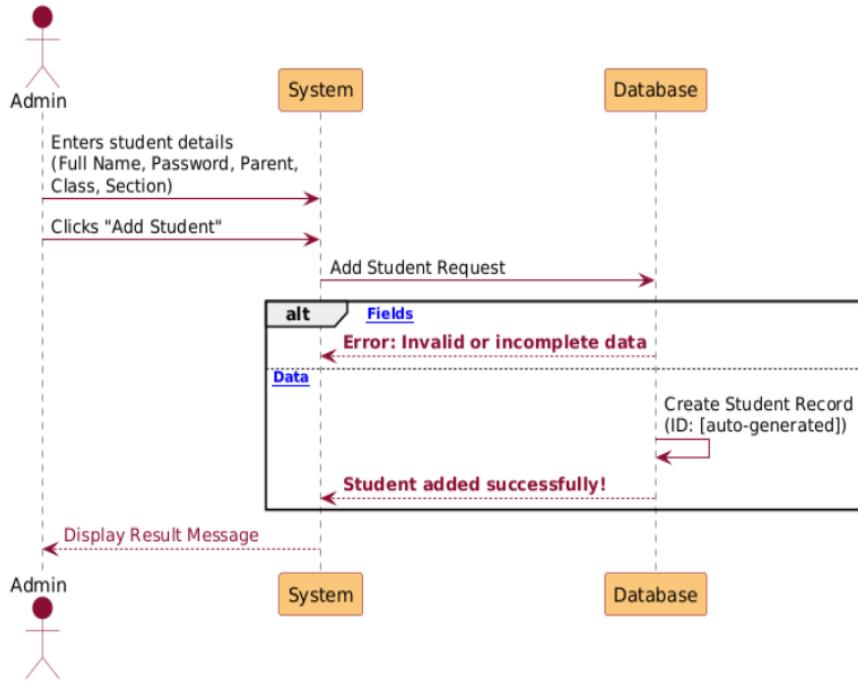


Figure 41 Sequence Diagram Add Student

Delete Student	
Actors	Admin
Description	The Admin can delete a student's record from the system by searching for the student and confirming the deletion.
Data	Student Details: - Full Name
Stimulus	The Admin searches for a student and clicks the "Delete Student" button.
Response	1. The system removes the student's record from the database. 2. A confirmation message is displayed to the Admin.
Scenarios	- Normal Scenario a. Admin searches for a student by name.

	<p>b. Admin confirms the deletion.</p> <p>c. System deletes the student's record and displays a confirmation message.</p> <p>- Error Scenario</p> <p>a. Admin attempts to delete a non-existent or already deleted student.</p> <p>b. System shows an error message like "Student not found."</p>
Comments	The deletion is permanent and should only be performed if the student has left the school.

Table 33 Delete Student Description

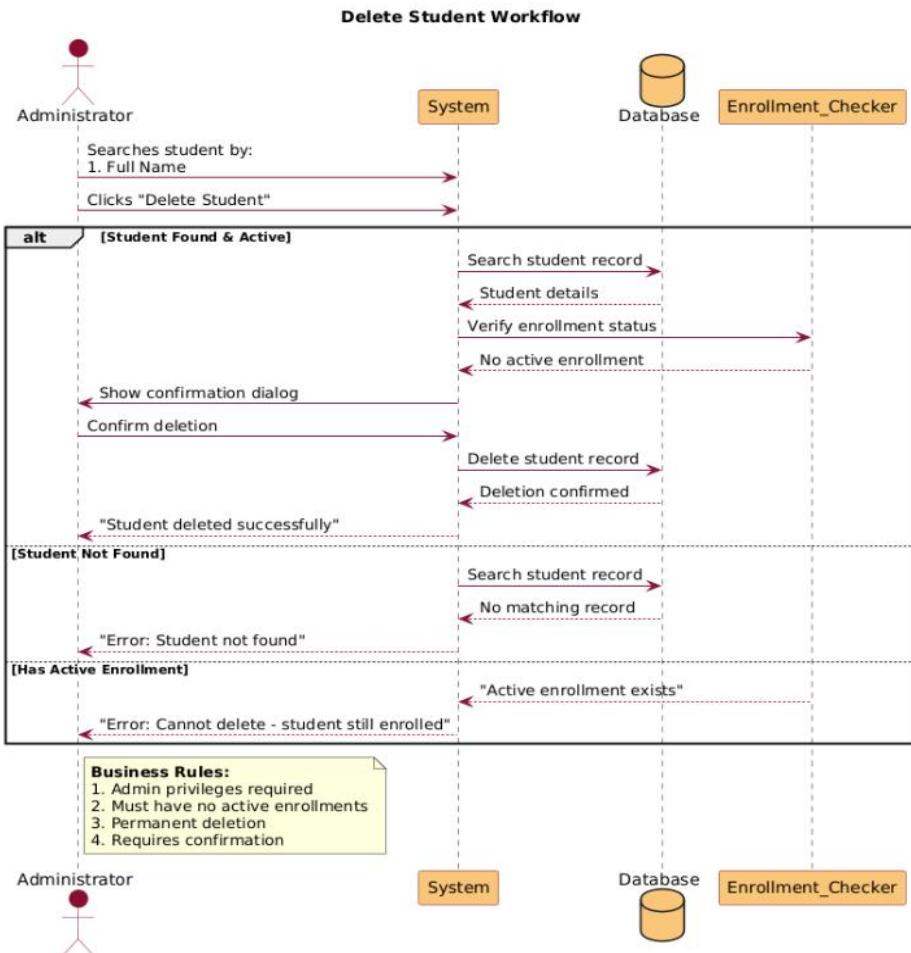


Figure 42 Sequence Diagram Delete Teacher

Search parent	
Actors	Admin
Description	Admins can search for parents using name, ID, or phone number, with results displaying a full parent profile.
Data	Parent Name (partial match) Parent ID Parent PhoneNumber
Stimulus	Admin enters search term in any field
Response	1. Parent ID 2. Full Name 3. Phone Number
Scenarios	<p>Normal Scenario:</p> <p>1. Phone Search:</p> <ul style="list-style-type: none"> - Search "0551234567" → Shows parent + 2 students <p>2. ID Search:</p> <ul style="list-style-type: none"> - Search "P-1002" → Exact match <p>3. Name Search:</p> <ul style="list-style-type: none"> - Search "Ali" → All Ali* parents <p>Error Scenario:</p> <ul style="list-style-type: none"> a. Admin writes incomplete or invalid data. b. System displays an error message.
Comments	

Table 34 Search Parent Description

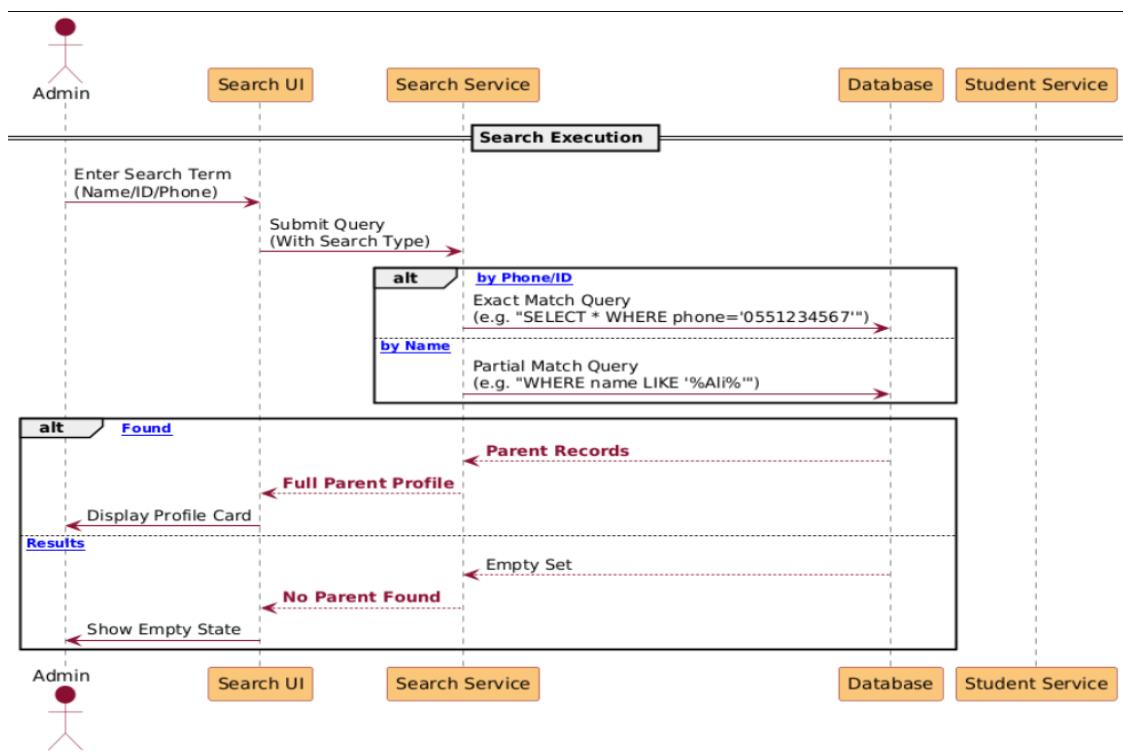


Figure 43 Sequence Diagram Search Parent

Add Parent	
Actors	Admin
Description	The Admin can add a new parent by filling out the required details and submitting the information to the system.
Data	<p>Parent details including:</p> <ol style="list-style-type: none"> 1. Full Name 2. Phone Number 3. Password
Stimulus	The Admin enters parent details and clicks the "Add Parent" button.
Response	<ol style="list-style-type: none"> 1. Parent information is stored in the database. 2. Confirmation message is displayed to the Admin.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin fills out the form. b. Admin submits the form. c. System saves the information and displays confirmation. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin tries to submit incomplete data. b. System shows error messages like "All fields are required."
Comments	Only the Admin role can add parents. The parent's record should be complete and associated with at least one child.

Table 35 Add Parent Description

Add Parent Workflow

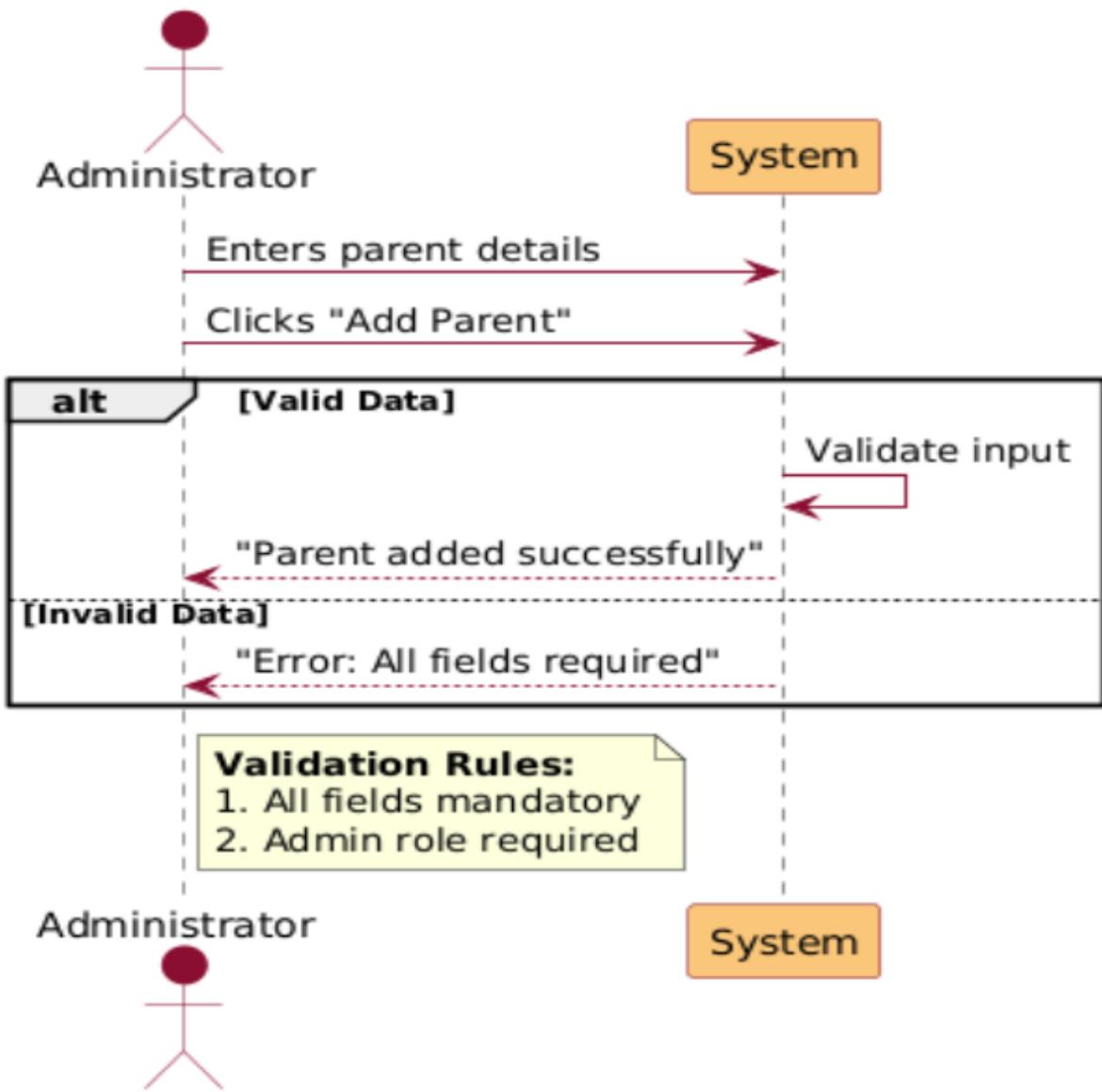


Figure 44 Sequence Diagram Add Parent

Delete Parent	
Actors	Admin
Description	The Admin searches for a parent using their name or phone number, confirms the action, and deletes the parent from the system.
Data	<p>Parent details:</p> <ol style="list-style-type: none"> 1. Name or Phone Number (for search) 2. Confirmation for deletion.
Stimulus	Admin clicks the "Delete" button after searching and selecting a parent.
Response	<ol style="list-style-type: none"> 1. Parent and his Children have been removed from the database. 2. Confirmation message is displayed.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a parent. b. Admin confirms deletion. c. System removes the parent and shows confirmation. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a non-existent parent. b. System displays an error message like "Parent not found."
Comments	The deletion is permanent and applies only if the child(ren) parent's have left the school.

Table 36 Delete Parent Description

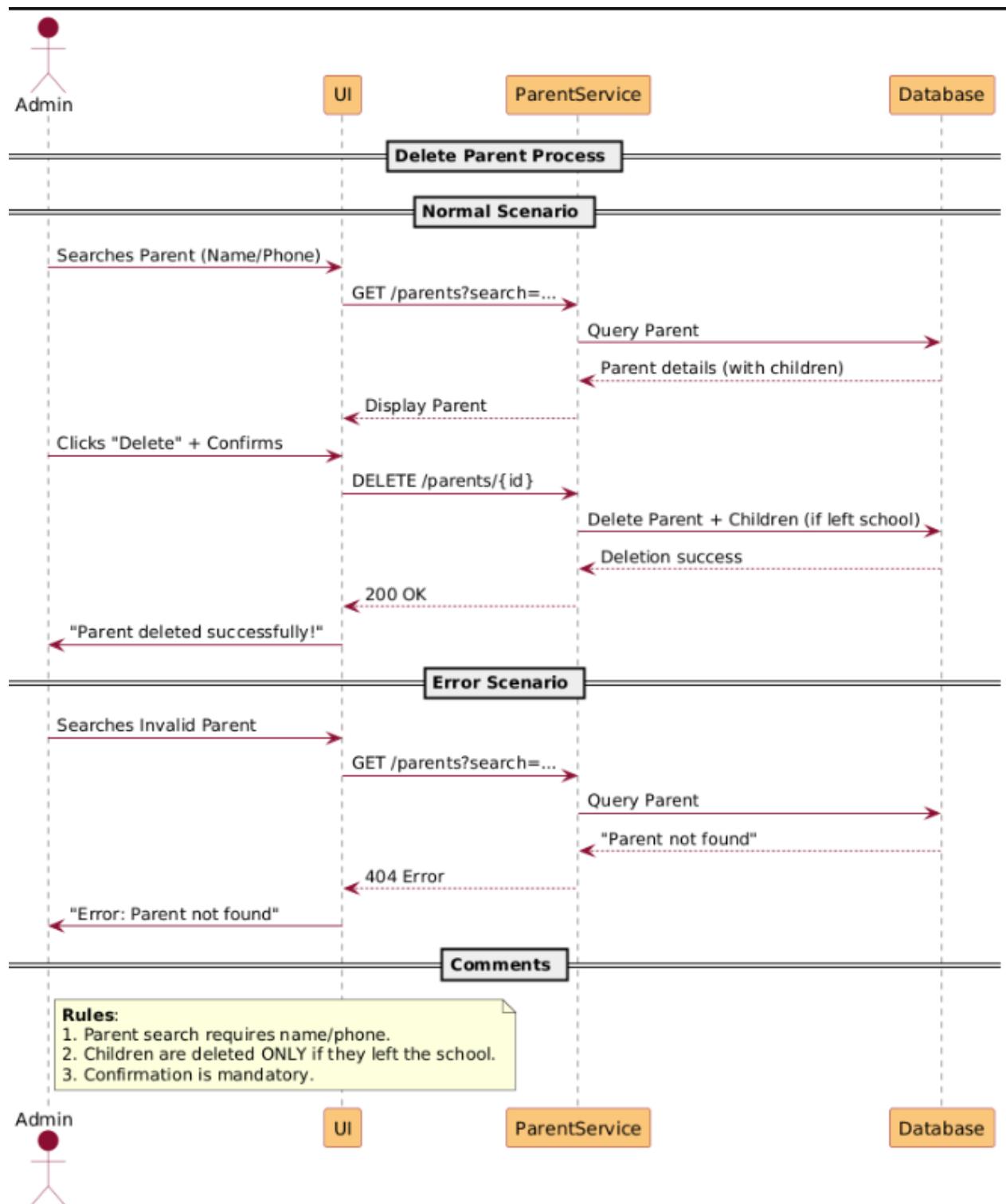


Figure 45 Sequence Diagram Delete Parent

Search Admin	
Actors	Admin
Description	Admins can search for other admins by full name, with results displaying profile data. A specialized version exists for deletion workflows.
Data	Full name
Stimulus	Manager enters a search query
Response	<ol style="list-style-type: none"> 1. Admin ID 2. Full Name 3. Email.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Admin submits a search query. b. System retrieves matching Admin details. c. Details are displayed. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Admin searches for a non-existent Admin. b. System displays a blank referring to the Admin who does not exist.
Comments	Only authorized Admins can access Admin information. are limited to their department.

Table 37 Search Admin Description

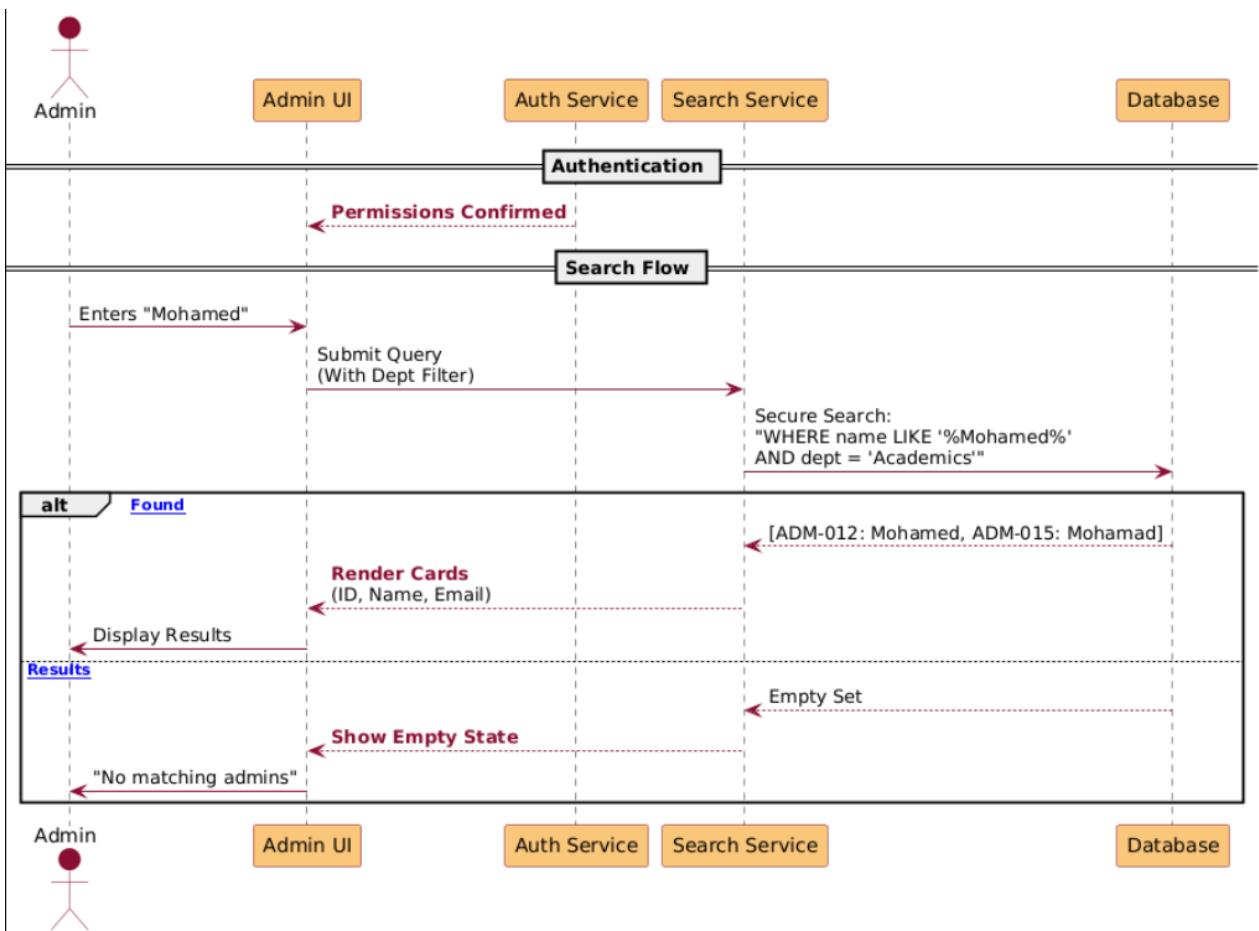


Figure 46 Sequence Diagram Search Admin

Add Administrator	
Actors	Admin
Description	<p>The Admin can add a new Admin to the system by filling out all the required fields for the Admin's information. Once the data is provided and submitted, a new record is created and stored in the database.</p> <p>sd</p> <p>Admin data includes:</p> <p>1-Full Name – The Admin's complete name. 2-Email – The email address for the Admin's (used for login). 3-Password – A secure password for the Admin's account</p>
Data	<p>1-Full Name 2-Email Address 3-Password</p>
Stimulus	The Admin accesses the "Add Admin" form and inputs the required details.
Response	<p>1-If the data is valid, the system saves the new Admin's record in the database and displays a success message. 2-If the data is incomplete or invalid, an error message is displayed, prompting the Admin to correct the inputs.</p>
Scenarios	<p>1-Successful Addition:</p> <p>a-The Admin fills in the required fields (Full Name, Email, Password).</p> <p>b-The system validates the inputs like(email format, password strength).</p> <p>c-The record is saved in the database, and a success message is displayed.</p> <p>2-Failed Addition – Incomplete or Invalid Data:</p> <p>a-The Admin attempts to submit the form with incomplete or invalid fields.</p>

	<p>b-The system detects the issue and displays an error message like (“Email format is incorrect” or “Password must be at least 8 characters long”).</p> <p>c-The Admin corrects the inputs and resubmits the form.</p> <p>3-Failed Addition – Duplicate Email:</p> <p>a-The Admin enters an email address already associated with another account.</p> <p>b-The system displays an error message like(“Email address is already in use”).</p> <p>c-The Admin must provide a unique email address before submission.</p>
Comments	<p>1- Ensure email addresses are validated for proper format and uniqueness.</p> <p>2- Passwords should meet security requirements (minimum length, inclusion of numbers/special characters)</p>

Table 38 Add Admin Description

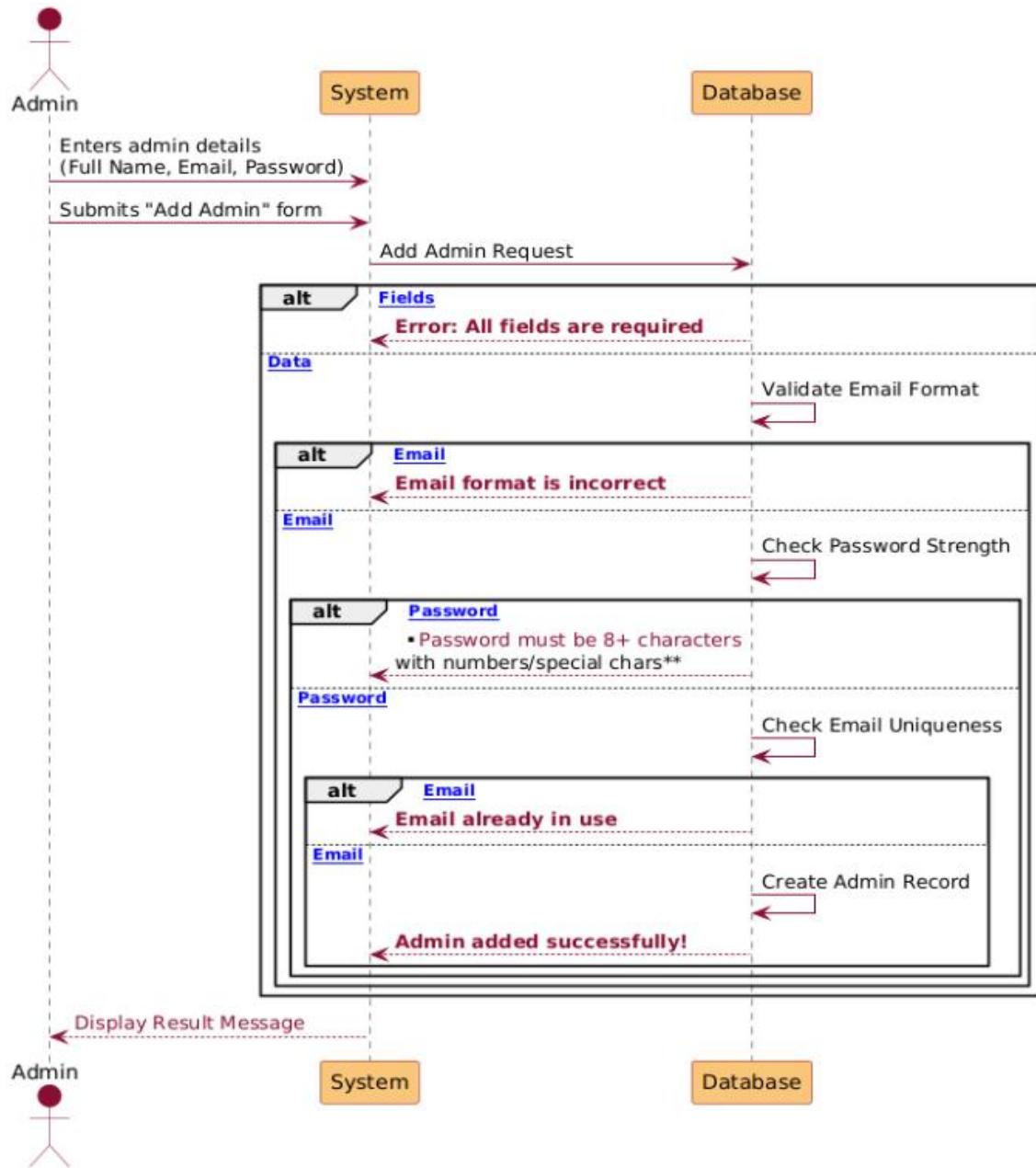


Figure 47 Sequence Diagram Add Admin

Delete Admin	
Actors	Admin
Description	The Admin can permanently delete an existing Admin from the system. The process involves displaying a list of all Admins, allowing the manager to select and confirm which Admin will be removed. Deletion is irreversible and should only occur if the Admin has officially left the school.
Data	1- Admin ID 2-Full Name 3-Email
Stimulus	The Admin selects the "Delete Admin" option, views the list of Admins, and chooses one for deletion.
Response	1-If the Admin is selected and confirmed for deletion, their record is permanently removed from the database, and a success message is displayed. 2-If no selection is made or deletion is canceled, no changes occur.
Scenarios	<p>1-Successful Deletion:</p> <ul style="list-style-type: none"> a-The Admin accesses the list of Admins. b-The manager selects a Admin to delete. c-A confirmation dialog is displayed ("Are you sure you want to delete this Admin? This action is permanent."). d-Upon confirmation, the Admin's record is permanently deleted from the database. e-The system displays a success message ("Admin successfully deleted."). <p>2-Deletion Canceled:</p> <ul style="list-style-type: none"> a-The Admin accesses the list of Admins.

	b-The manager selects a Admin but chooses not to confirm deletion. c-The system cancels the operation without making changes.
Comments	1-Ensure a confirmation step is mandatory before final deletion to avoid accidental removals. 2-Implement an audit log to record deletion actions, including the Admin's ID, the deleted Admin's details, and the timestamp.

Table 39 Delete Admin Description

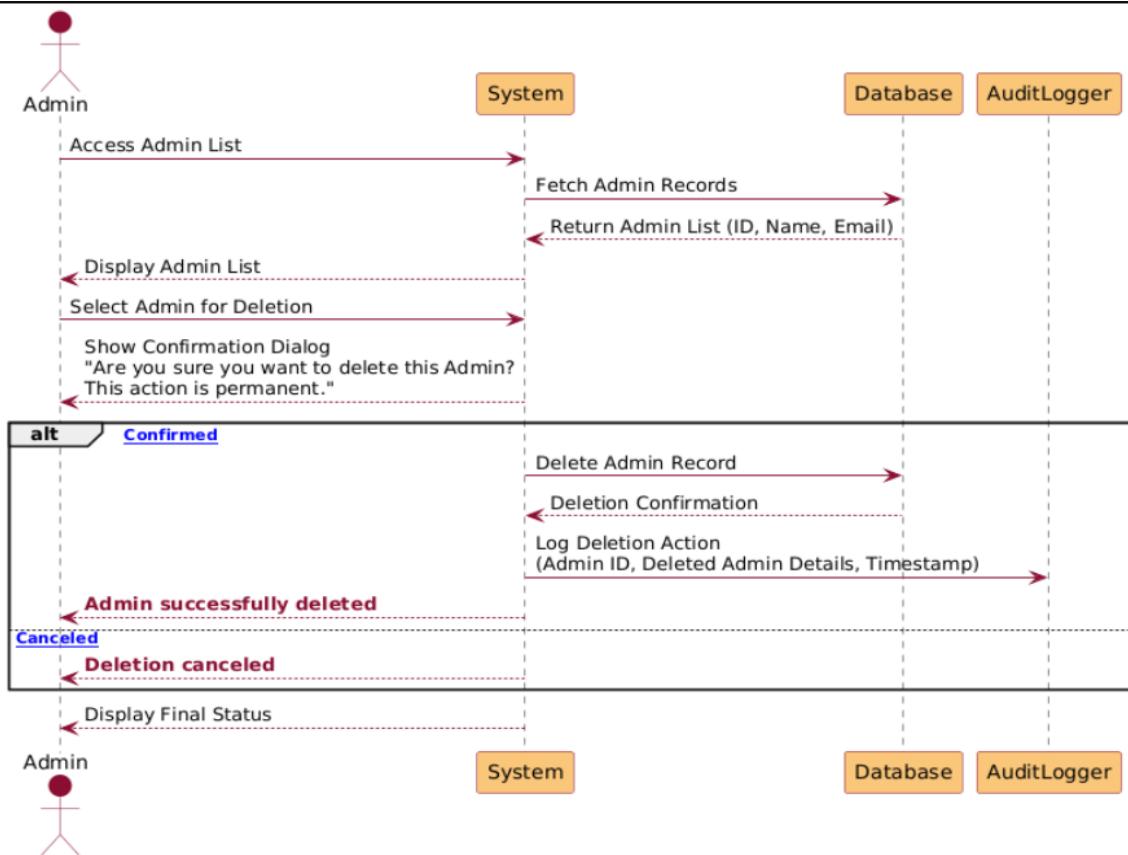


Figure 48 Sequence Diagram Delete Admin

G4: Events System

Add Event	
Actors	Admin
Description	Admins can create school events with rich media attachments, visible to all users and guests.
Data	<ol style="list-style-type: none"> 1. Title (required) 2. Date/Time 3. Location 4. Description 5. Media (images/videos)
Stimulus	Admin clicks "Add New Event "
Response	<p>Success: Event appears in feeds Error: Field-specific warnings</p>
Scenarios	<p>1. Successful Event Creation</p> <p>Preconditions:</p> <ul style="list-style-type: none"> • Admin is logged in • Valid event data and media files are ready <p>Steps:</p> <ol style="list-style-type: none"> 1. Admin navigates to Events Section → Clicks "Add New Event" 2. System displays empty event form with fields: <ul style="list-style-type: none"> ○ Event Title (text field) ○ Event Date (date picker, future dates only) ○ Location (dropdown with school venues) ○ Description (rich text editor) ○ Media Upload (drag-and-drop area) 3. Admin enters Data 4. Admin clicks "Publish" 5. System: <ul style="list-style-type: none"> ○ Validates all fields ○ Uploads media to server ○ Creates event record in database ○ Distributes to: <ol style="list-style-type: none"> i. All KG/Primary student/parent feeds ii. Science teachers' dashboards

	<p>6. UI shows: "Event published successfully!" (New event appears in feeds with blue "NEW" badge)</p>
Comments	<p>All the data are required: 1-Title 2-Date 3-Location 4-Description 5-Media</p>

Table 40 Add Event Description

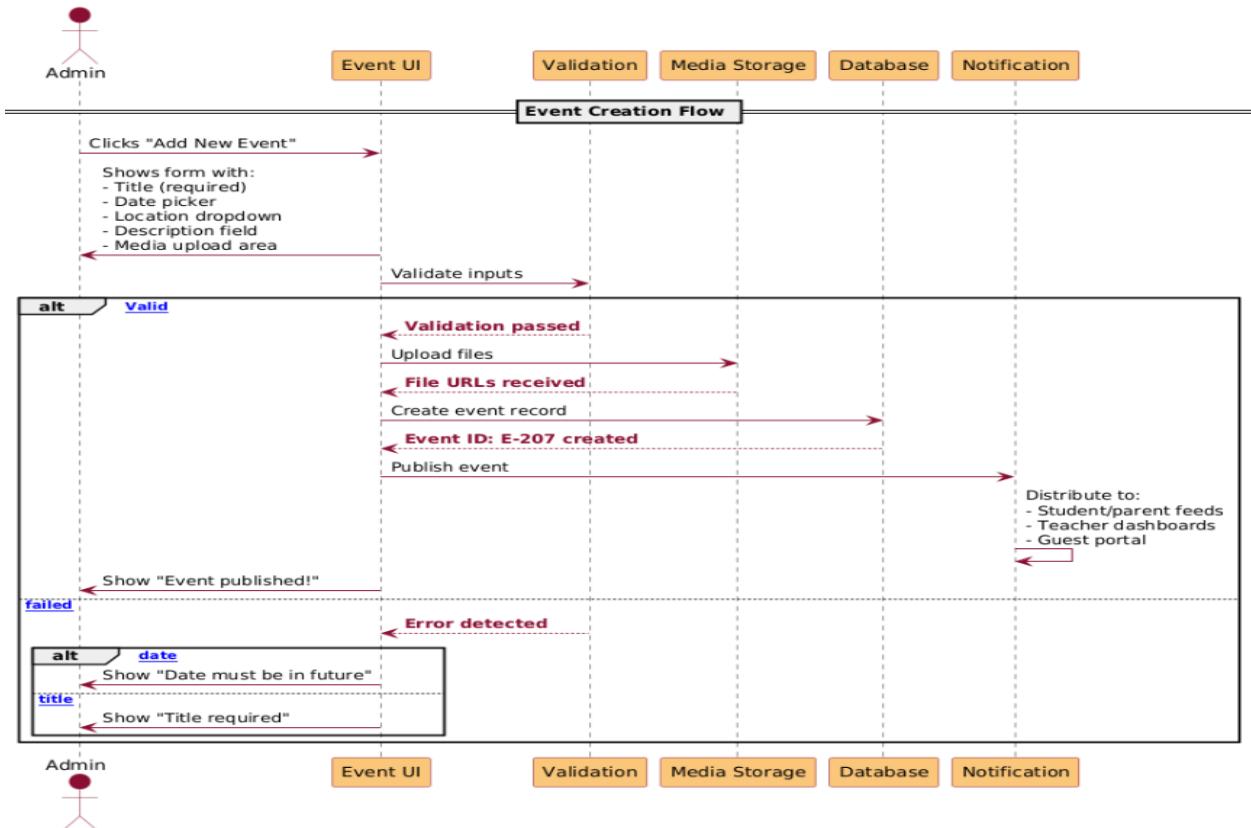


Figure 49 Sequence Diagram Add Event

Delete Event	
Actors	Admin
Description	Admins can permanently remove events after confirmation. Deleted events are immediately removed from all user feeds.
Data	1.Event Post
Stimulus	Admin clicks "Add New Event"
Response	Success: "Event deleted" toast + removal from feeds Error: "Deletion failed" alert
Scenarios	<p>1. Successful Deletion</p> <p>Preconditions:</p> <ul style="list-style-type: none"> • Admin is logged in • Event exists <p>Steps:</p> <ol style="list-style-type: none"> 1. Admin clicks trash icon on "Science Fair" event 2. System shows confirmation modal: "Delete 'Science Fair' (Nov 15)? This cannot be undone." 3. Admin clicks "Confirm" 4. System: <ul style="list-style-type: none"> • Deletes event record from database • Removes associated media files

	<ul style="list-style-type: none"> Updates all user feeds <p>5. UI shows: "Event deleted" + refreshes list</p> <p>2. Cancelled Deletion</p> <ol style="list-style-type: none"> 1. Admin clicks "Cancel" in confirmation modal 2. System closes modal with no changes
Comments	<ul style="list-style-type: none"> No recovery option <p>Confirmation modal includes:</p> <ul style="list-style-type: none"> - Warning message

Table 41 Delete Event Description

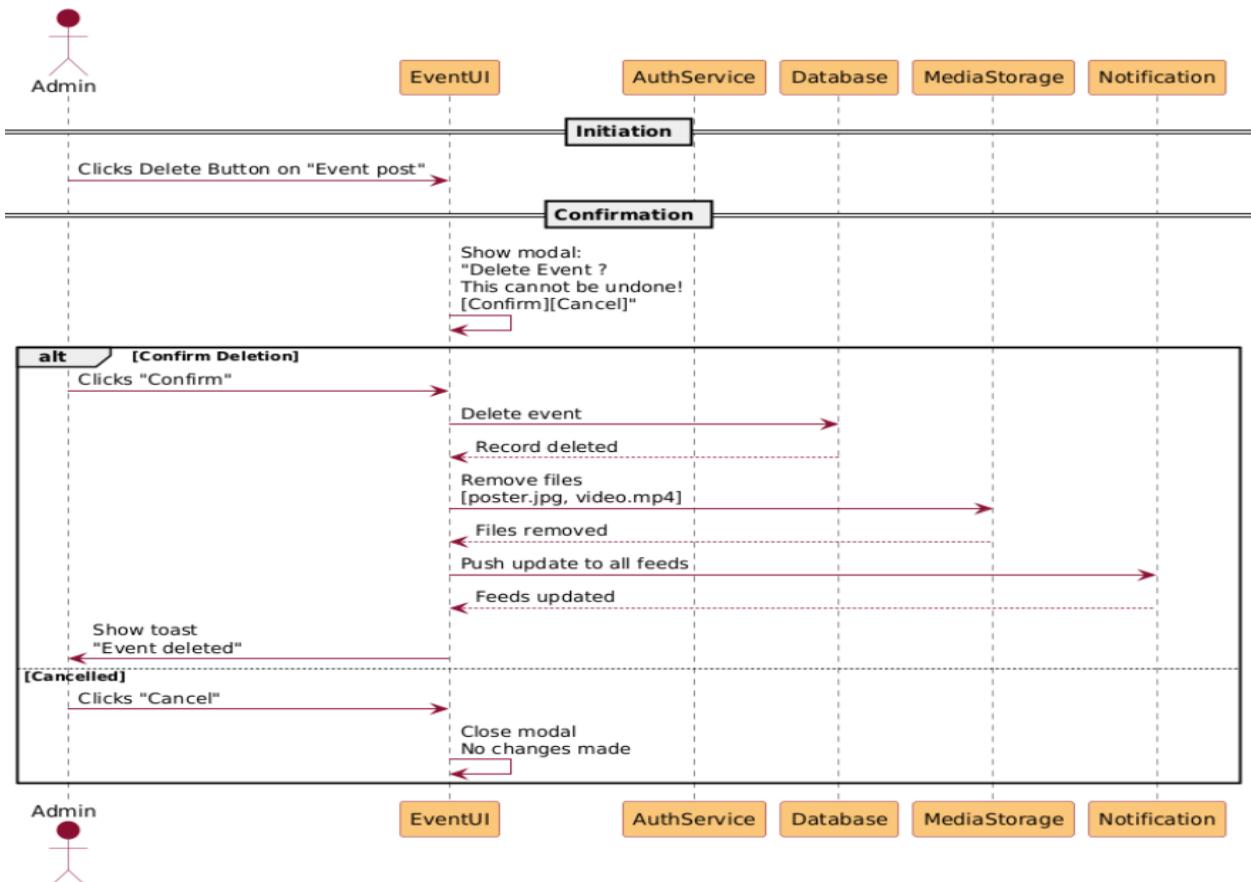


Figure 50 Sequence Diagram Delete Admin

Show Event	
Actors	All
Description	The events that are uploaded by the Admin will be viewed by all the users and the guests.
Data	<ol style="list-style-type: none"> 1. Title 2. Date/Time 3. Location 4. Description 5. Media (images/videos)
Stimulus	users clicks " Events"
Response	Success: Event appears in feeds
Scenarios	<p>Scenario 1: Guest views upcoming events</p> <ul style="list-style-type: none"> • Actor: Guest and Users. • Steps: <ol style="list-style-type: none"> 1. Guest opens the public portal. 2. Clicks on “View Events”. 3. System fetches all events. 4. Guests see event cards with title, date, description, and images/videos. • Expected Outcome: Guest successfully views all visible events without needing to log in. <p>Scenario 2: Database failure or timeout</p> <ul style="list-style-type: none"> • Actor: Any user • Steps: <ol style="list-style-type: none"> 1. User requests to view events. 2. Database fails to respond or times out. 3. UI displays an error message: “Failed to load events. Please try again later.” • Expected Outcome: User is informed of the failure gracefully without crashing the interface. <p>Scenario 3: No events available</p> <ul style="list-style-type: none"> • Actor: Any user • Steps: <ol style="list-style-type: none"> 1. Users open the events page. 2. System queries database and finds no upcoming or published events.

	<p>3. UI displays a message: "No events available at the moment."</p> <ul style="list-style-type: none"> ● Expected Outcome: User receives clear feedback; page remains user-friendly.
Comments	

Table 42 Show Event Description

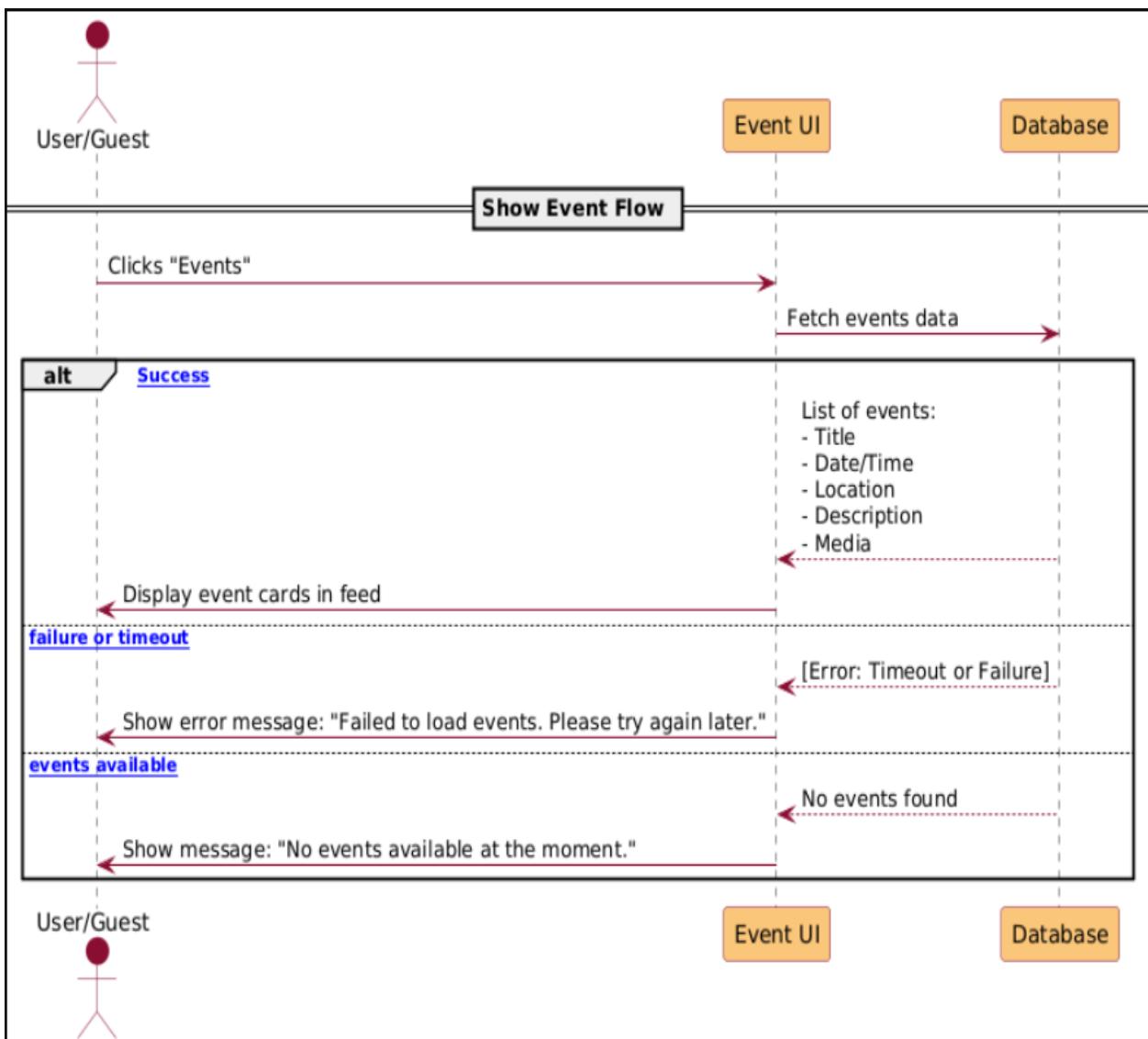


Figure 51 Sequence Diagram Show Event

G5: Course System

View Course	
Actors	Teacher, Admin
Description	The Teacher can view a list of their assigned courses and select a course to see detailed information. The admin can view any course within the school.
Data	Course information: 1. List of courses assigned to the teacher or any course for the Admin. 2. Details of the selected course.
Stimulus	The Users requests to view their courses and selects one.
Response	1. System fetches and displays a list of courses. 2. Displays details of the selected course.
Scenarios	<p>Normal Scenario:</p> <p>1- Teacher</p> <ul style="list-style-type: none"> a. Teacher requests to view courses. b. System fetches and displays the courses. c. Teacher selects a course. <p>2-Admin</p> <ul style="list-style-type: none"> a- Admin searches for any course b- System fetches and displays the course c-Admin selects the course d-System fetches and displays the courses <p>Error Scenario:</p> <ul style="list-style-type: none"> a. Teacher has no assigned courses. b. System displays a message like "No courses assigned."

Comments	Teachers can only view courses assigned to them, ensuring security and relevance.
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Table 43 View Course Description

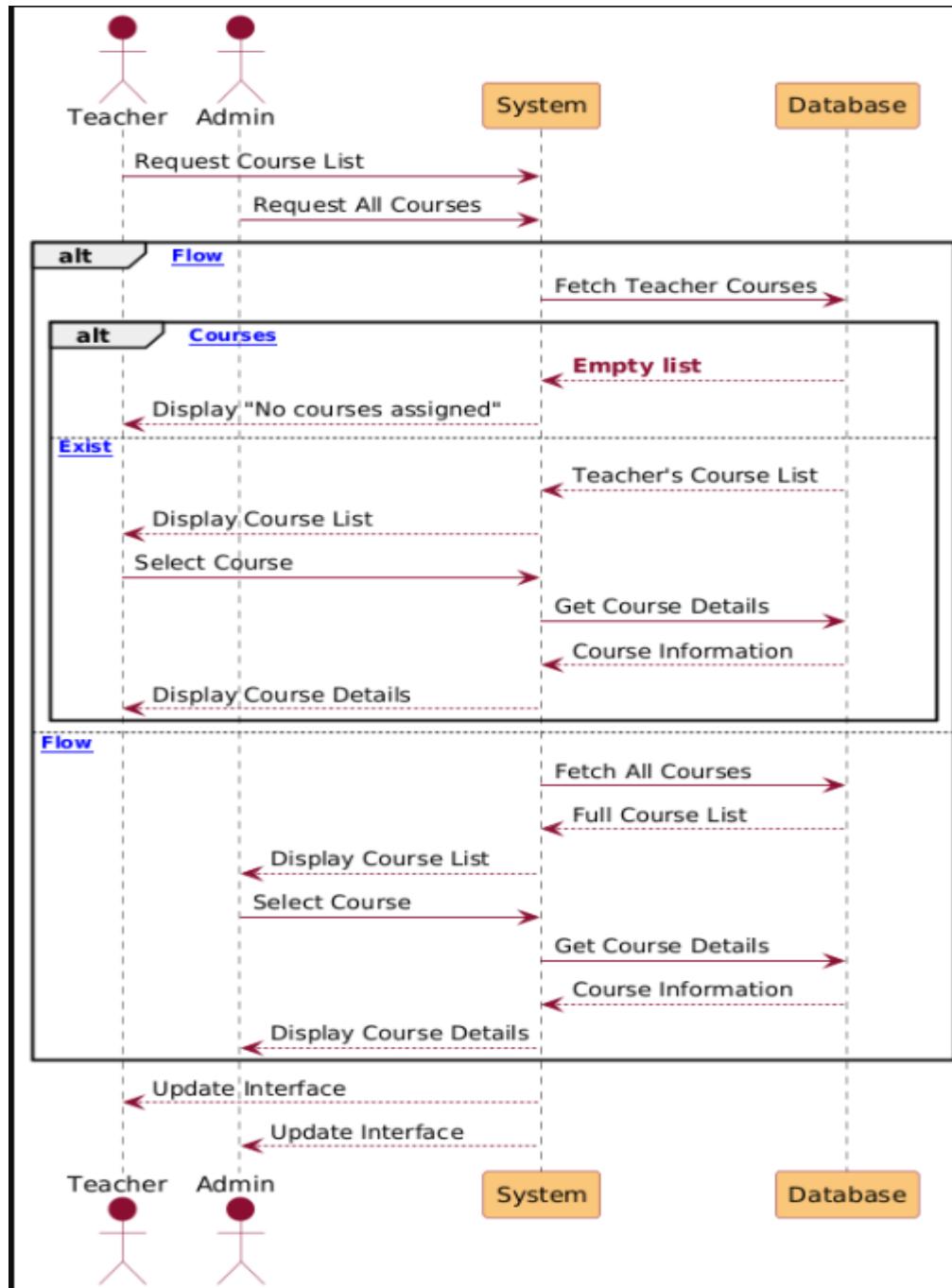


Figure 52 Sequence Diagram view course

Show students	
Actors	Teacher, Admin
Description	This functionality allows the user to view all students enrolled in a selected course. After displaying the list of students, the user (Teacher or Admin) can take specific actions, such as adding reports or assigning marks for individual students.
Data	1-Course ID 2-Student List (retrieved from the database) 3-Actions like Add Report
Stimulus	The user selects a course to view its enrolled students.
Response	The system retrieves and displays a list of students belonging to the chosen course. The user can then interact with the list to perform further actions like adding reports or assigning marks.
Scenarios	1-View Students in a Course: a-The user selects a course. b-The system fetches the list of students enrolled in the course. c-The list is displayed, showing details such as student names and IDs. 2-Add a Report for a Student: a-The user selects a student from the list. b-The system provides an interface to create and submit a report for the selected student. c-The report is saved, and a confirmation message is displayed. 3-Empty Course – No Students Enrolled: a-The user selects a course with no students enrolled. b-The system displays a message (“No students are currently enrolled in this course.”).
Comments	Actions like adding reports should have validation and confirmation to prevent accidental inputs.

Table 44 Show students Description

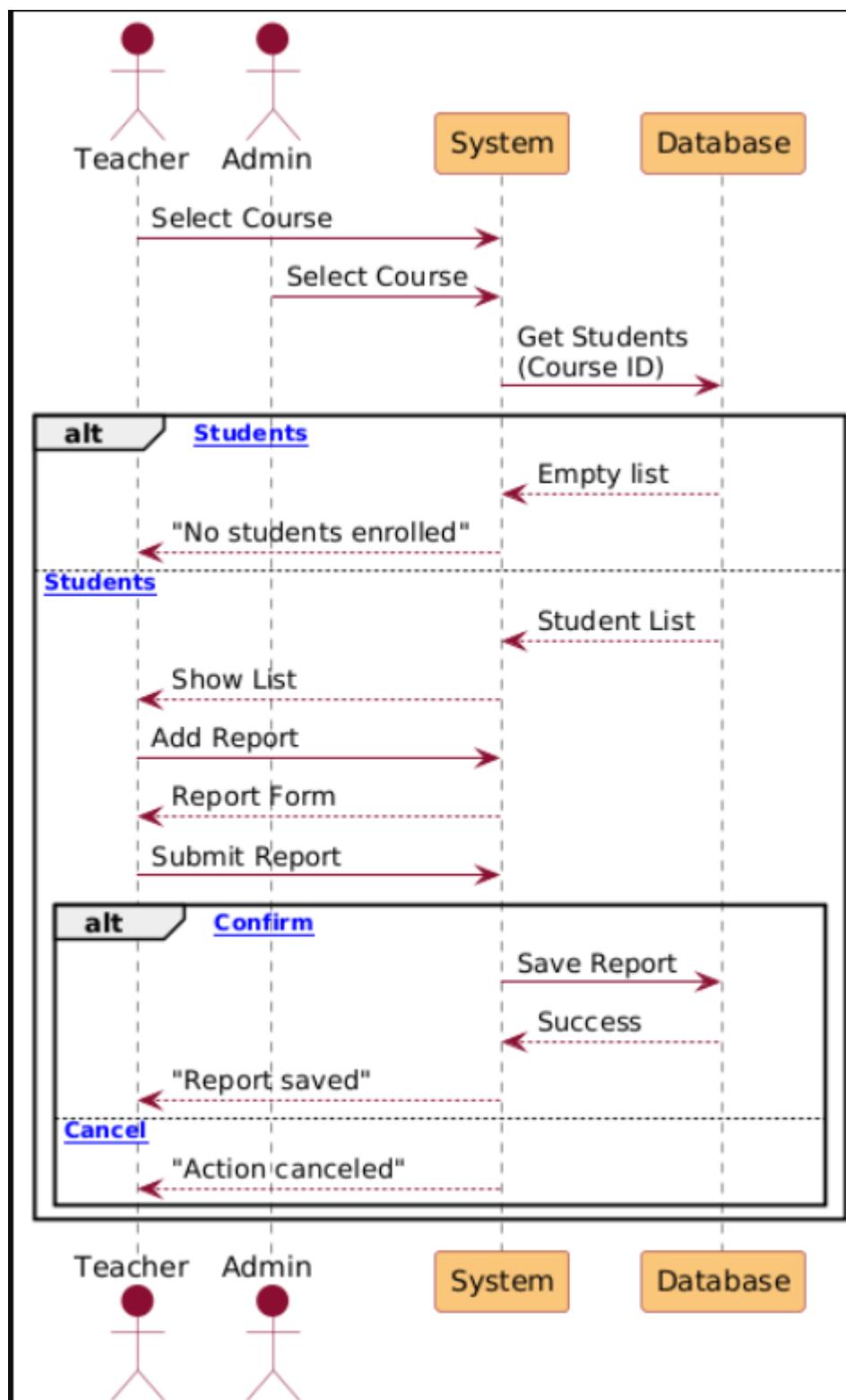


Figure 53 Sequence Diagram Show students

Involve Students	
Actors	Admin
Description	Admins can involve all students from a specific grade and section into a course, granting them access to course materials.
Data	1- Course name (by search) 2- Grade (Auto) 3-Section (Auto) 4-Students (Auto)
Stimulus	Admin clicks the "involve Students" button on the course page.
Response	1. Success: "X students enrolled" notification or "All students are already involved in this course".
Scenarios	<p>Normal Scenario:</p> <p>1. Successful Enrollment</p> <ul style="list-style-type: none"> a. Admin selects: <ul style="list-style-type: none"> - Course: - Grade: - Section: b. Admin clicks "involve students" c. System verifies course is assigned to G10-B d. Creates 25 enrollment records e. Shows: "25 students enrolled" <p>2. already involved</p> <ul style="list-style-type: none"> a. Admin tries enrolling students into course but all the students are involved

	b. System shows: "All students are already involved in this course"
Comments	<ul style="list-style-type: none"> • Auto-validates course-grade-section alignment • Students see course within 1 minutes of enrollment • Audit log tracks: <ul style="list-style-type: none"> - Admin who performed action - Affected students coun.

Table 45 Involve Students Description

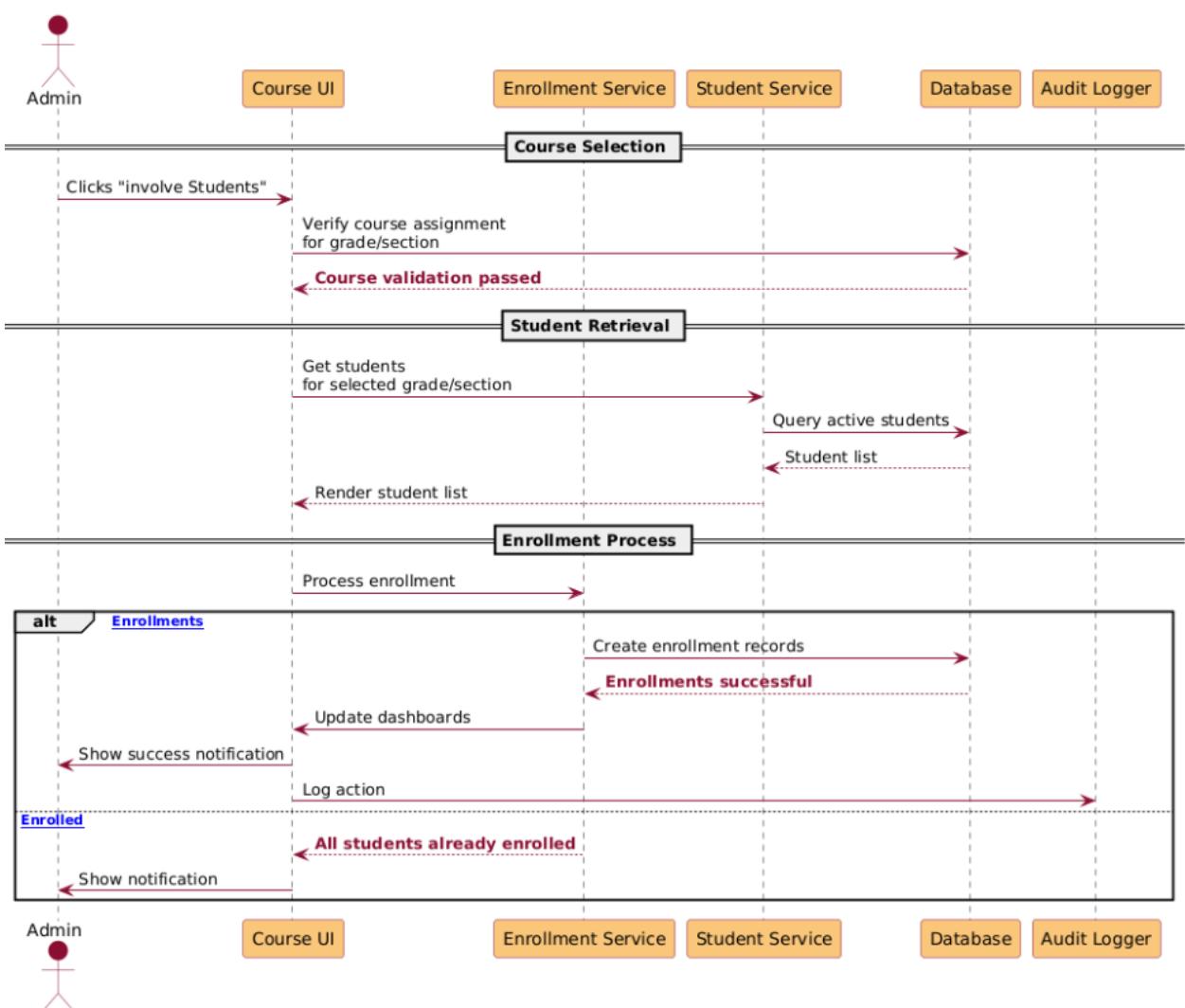


Figure 54 Sequence Diagram Involve Students

Change Course Teacher	
Actors	Admin
Description	Admins can reassign courses from one teacher to another within the same Department
Data	1- Course name 2. Current Teacher (display-only) 3. New Teacher (dropdown).
Stimulus	Admin clicks "Change Teacher" on course page
Response	Success: "Course teacher updated"
Scenarios	<p>Normal Scenario:</p> <p>1. Successful Enrollment</p> <p>a. Admin views "Math" (Current: Mr. mohammed) b. Select Mr. islam from the dropdown. c. System verifies Mr. islam teaches the same department. d- Admin save changes. e. Updates record.</p>
Comments	<ul style="list-style-type: none"> • Auto-filters teachers by: <ul style="list-style-type: none"> - Department match • Audit log tracks: <ul style="list-style-type: none"> - current teacher - New teacher

Table 46 change course teacher Description

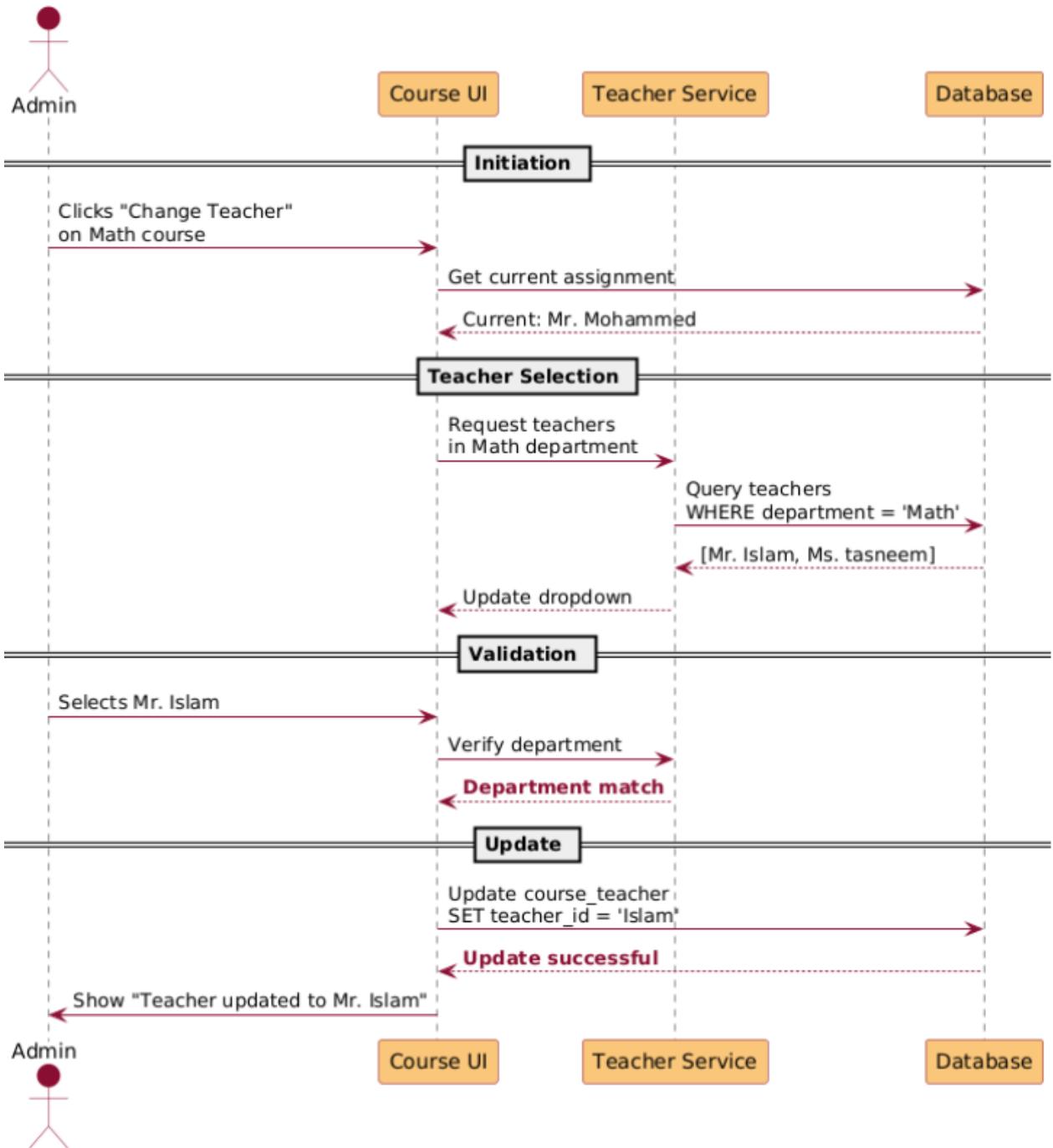


Figure 55 Sequence Diagram Change Course Teacher

Show Course Unit	
Actors	Teacher, Admin, Parent, Student
Description	Role-based access to view course units with hierarchical permissions.
Data	<ol style="list-style-type: none"> 1. Unit Title 2. Content Type 3. Last Updated 4. Access Permissions
Stimulus	User navigates to the Course Page.
Response	Success: Displays filtered units Error: "No units available"
Scenarios	1. Student View - Sees units for enrolled courses only 2. Parent View - Sees units linked to children's courses 3. Teacher View - Sees units for supervised courses 4. Admin View - Sees all units across all courses
Comments	

Table 47 Show Course Unit Description

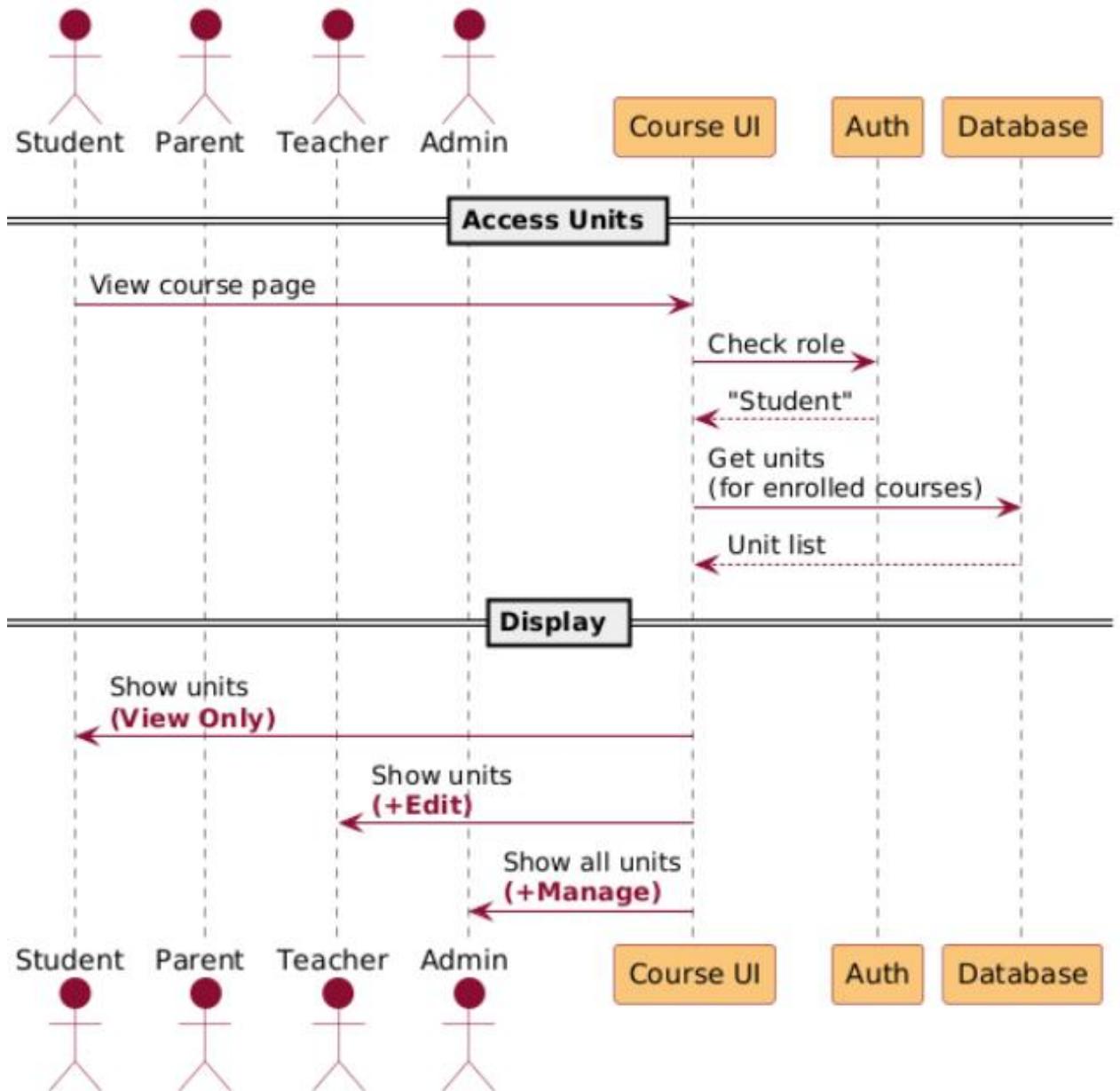


Figure 56 Sequence Diagram Show Course Unit

Add unit	
Actors	Teacher, Admin
Description	Navigates to Course Dashboard, Clicks "Add Unit"
Data	Enters: - Selects Course - Unit Title - Units Description
Stimulus	Staff clicks "Add Unit" button on course dashboard
Response	Success: "Unit added successfully" Errors: - "title required"
Scenarios	<p>1-Admin Adds Unit</p> ol type="a"> Admin selects any course admin clicks on “add new unit” admin inserts the title(required) and the description(Optional). <p>2. Teacher Adds Unit</p> ol type="a"> Teacher only sees supervised courses admin clicks on “add new unit” admin inserts the title(required) and the description(Optional). <p>3. Failed Upload</p> ol type="a"> the staff can not click on the add unit if the title is not inserted.
Comments	

Table 48 Add unit Description

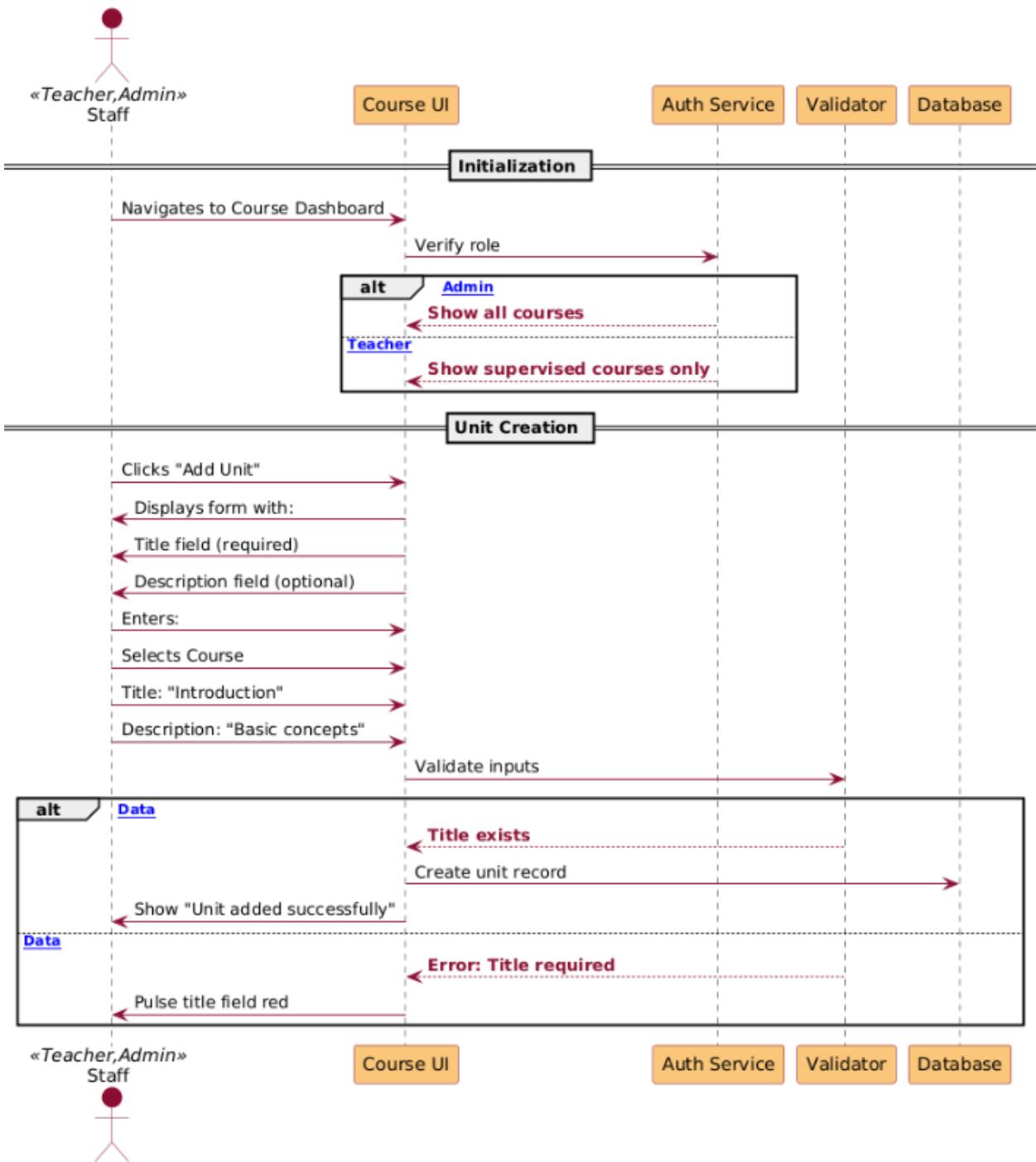


Figure 57 Sequence Diagram Add Unit

Show Unit Content	
Actors	Student, Parent, Teacher, Admin
Description	Role-based access to view unit content with hierarchical Permissions.
Data	1- Unit's resources 2. Content Type 3. upload date
Stimulus	User clicks on "View Unit" in the course units
Response	1. Success: Displays content 2. Errors: - "No content Available".
Scenarios	<p>1. Student Views Unit</p> <p>Preconditions:</p> <ul style="list-style-type: none"> ● Students are enrolled in course ● Unit exists <p>Steps:</p> <ol style="list-style-type: none"> 1. Student clicks view unit 2. Displays: <ul style="list-style-type: none"> ○ PDF lecture notes ○ Practice problems 3. No edit/delete options visible <p>2. Parent Views Child's Unit</p> <p>Preconditions:</p> <ul style="list-style-type: none"> ● Parents have child in the grade and Section ● Unit exists <p>Steps:</p> <ol style="list-style-type: none"> 1. Parent selects child's course 2. Clicks view Unit 3. Displays: <ul style="list-style-type: none"> ○ Unit content <p>3. Teacher Views Unit</p> <p>Preconditions:</p> <ul style="list-style-type: none"> ● Teacher supervises ● Unit exists <p>Steps:</p> <ol style="list-style-type: none"> 1. Teacher clicks unit title 2. Displays:

	<ul style="list-style-type: none"> ○ Content ○ "Edit and Delete Content" button. <p>4. Admin Manages Unit</p> <p>Preconditions:</p> <ul style="list-style-type: none"> ● Admin accesses any course ● Unit exists <p>Steps:</p> <ol style="list-style-type: none"> 1. Admin clicks unit 2. Displays: <ul style="list-style-type: none"> ○ Content ○ "Edit" + "Delete" buttons
Comments	

Table 49 Show Unit Content Description

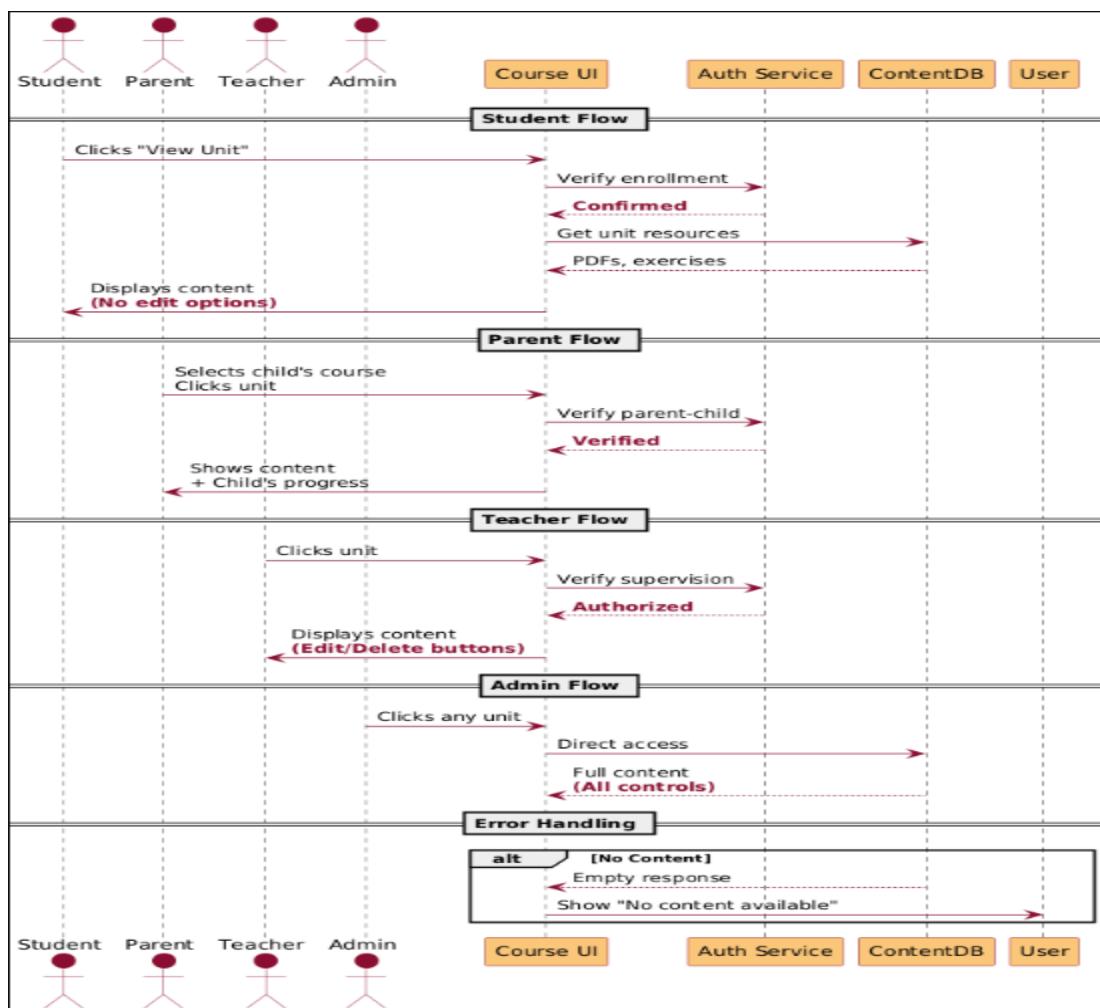


Figure 58 Sequence Diagram Show Unit Content

Add Unit Content	
Actors	Teacher, Admin
Description	Teachers add content to their assigned courses, Admins can add from any course Units . The addition may include: lectures videos, worksheets, units material.
Data	1- Unit Title (required) 2. Content File (PDF/PPT/Video)
Stimulus	User clicks "Add Content" in course dashboard
Response	Success: "Content added" Errors: - "Invalid file type" - "Missing Title"
Scenarios	<p>1. Teacher Adds Content Successfully Preconditions: • Teacher is assigned to a certain course Steps: 1. Teacher clicks "Add Content" in course dashboard 2. System shows only in course dropdown 3. Teacher: ○ Enters title: ○ Uploads content 4. Success: "Content added"</p> <p>2. Admin Adds Content to Any Course Preconditions: • Admin accesses system Steps: 1. Admin clicks "Add Content" 2. System shows all courses in dropdown 3. Admin: ○ Selects "course ○ Uploads content 4. Success: Content added.</p> <p>3. Invalid File Upload (Teacher) Preconditions: • Teacher tries uploading .exe file Steps: 1. Teacher selects valid course</p>

	<p>2. Uploads invalid file type 3. System blocks upload 4. Error: "Only PDF/DOC/DOCX allowed"</p> <p>UI Response: Red border around file upload</p>
Comments	only can upload docs, docx, pdf and MP4.

Table 50 Add Unit Content Description

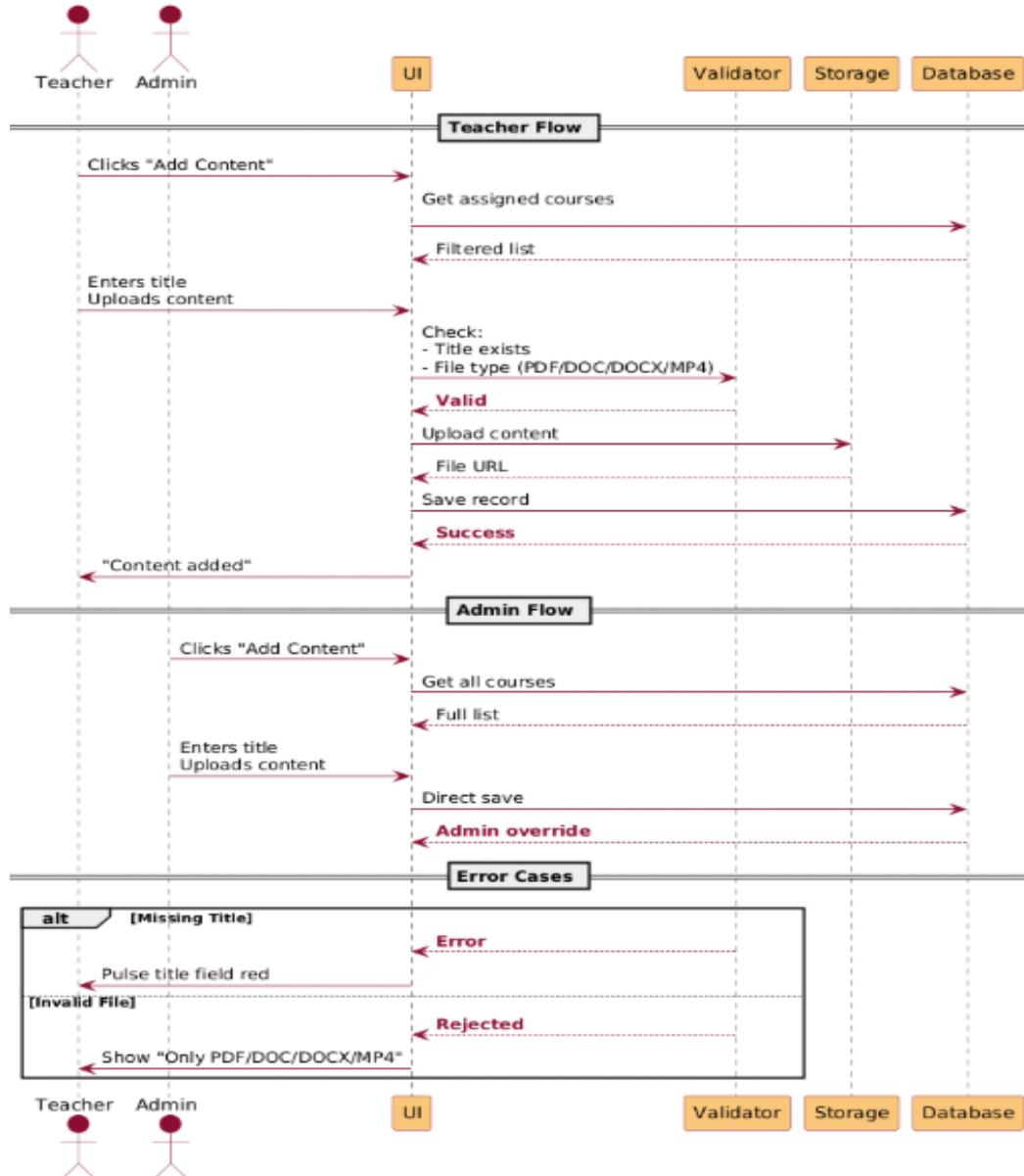


Figure 59 Sequence Diagram Add Unit Content

Delete Unit Content	
Actors	Teacher, Admin
Description	Teachers Delete content to their assigned courses, Admins can Delete from any course Units .
Data	1- Unit name 2- unit content 3-Confirmation flag
Stimulus	User clicks "Delete" button on unit
Response	Success: "Content deleted" Error: "Delete failed"
Scenarios	<p>Teacher navigates to "Math 101" course</p> <ol style="list-style-type: none"> 1. Clicks "Delete" on "Algebra Basics" unit 2. System verifies course assignment 3. Shows confirmation 4. clicks Confirm 5. Success: Unit removed + "Content deleted" <p>2. Admin Force Deletes Unit</p> <p>Preconditions:</p> <ul style="list-style-type: none"> • Admin views "History 202" course <p>Steps:</p> <ol style="list-style-type: none"> 1. Admin clicks red "Delete" button on any unit 2. Sees enhanced warning. 3. confirmation message, 4. Confirms action 5. Result: <ul style="list-style-type: none"> ○ Immediate deletion ○ No recycle bin <p>Error Cases</p> <ol style="list-style-type: none"> 1. Missing Unit <ul style="list-style-type: none"> ○ "Content already deleted" 2. Database Failure <ul style="list-style-type: none"> ○ "Deletion failed. Contact IT" 3. Student Access Active <ul style="list-style-type: none"> ○ "Cannot delete while students are viewing"
Comments	

Table 51 Delete Unit Content Description

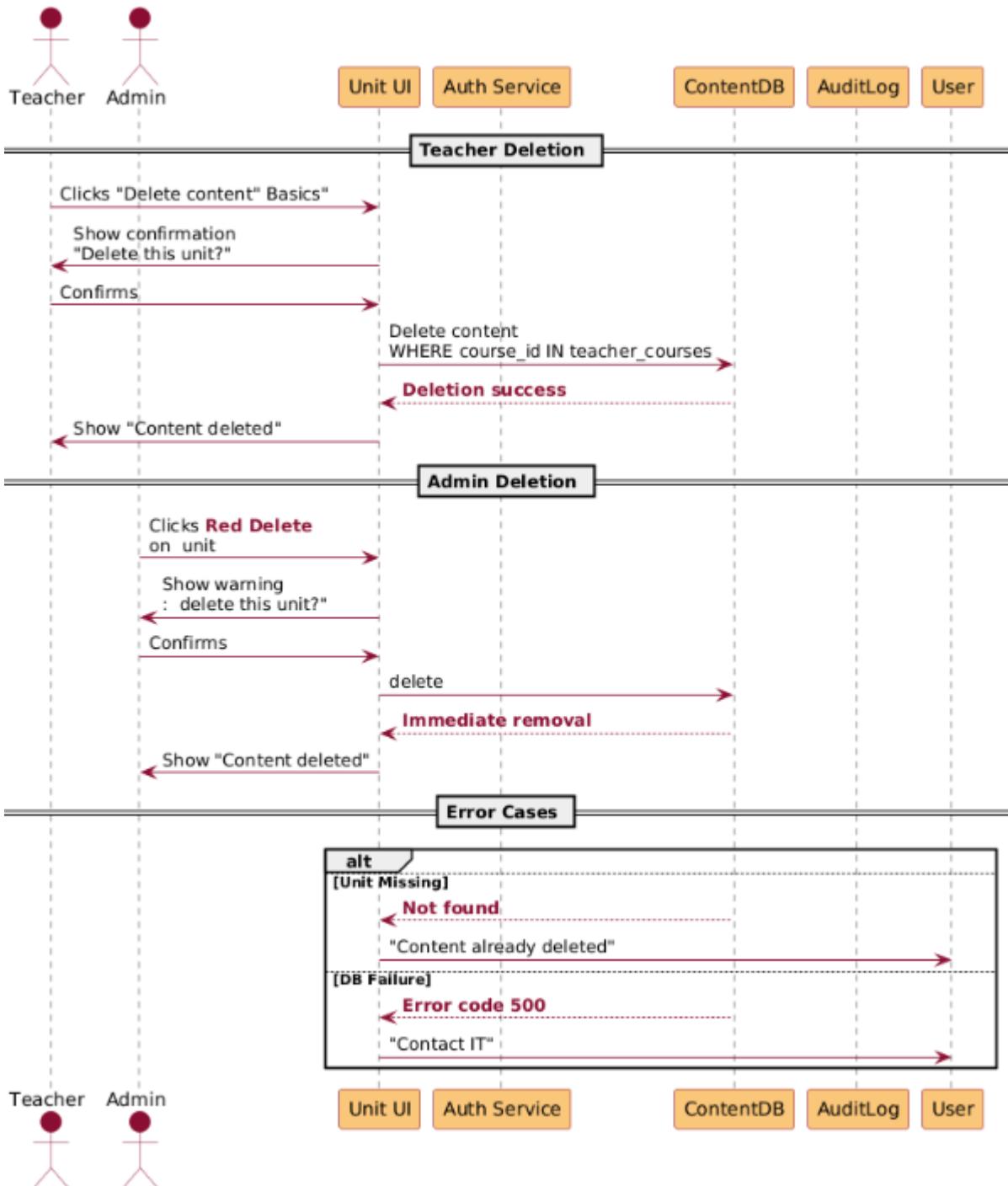


Figure 60 Sequence Diagram delete Unit Content

Delete unit	
Actors	Teacher, Admin
Description	Admins and Teachers can delete a unit from a course. Admins have access to all courses; teachers can only delete units in their assigned courses.
Data	<ul style="list-style-type: none"> - Unit ID - Confirmation Prompt - Deletion Status
Stimulus	Admin/Teacher clicks on the “Delete Unit” button next to a unit.
Response	<p>Success:</p> <ul style="list-style-type: none"> - Confirmation modal: “Are you sure you want to delete this unit?” - If confirmed: Unit is deleted. - Show: “Unit deleted successfully.” <p>Error:</p> <ul style="list-style-type: none"> - “Failed to delete unit” (e.g., system or network error).
Scenarios	<ol style="list-style-type: none"> 1. Clicks "Delete" on a specific unit. 2. Confirms deletion. 3. System deletes the unit. 4. Confirmation message displayed.
Comments	<ul style="list-style-type: none"> - Admin can delete units from any course. - Teacher can only delete units in their assigned courses. - Always ask for confirmation before deletion.

Table 52 Delete Unit Description

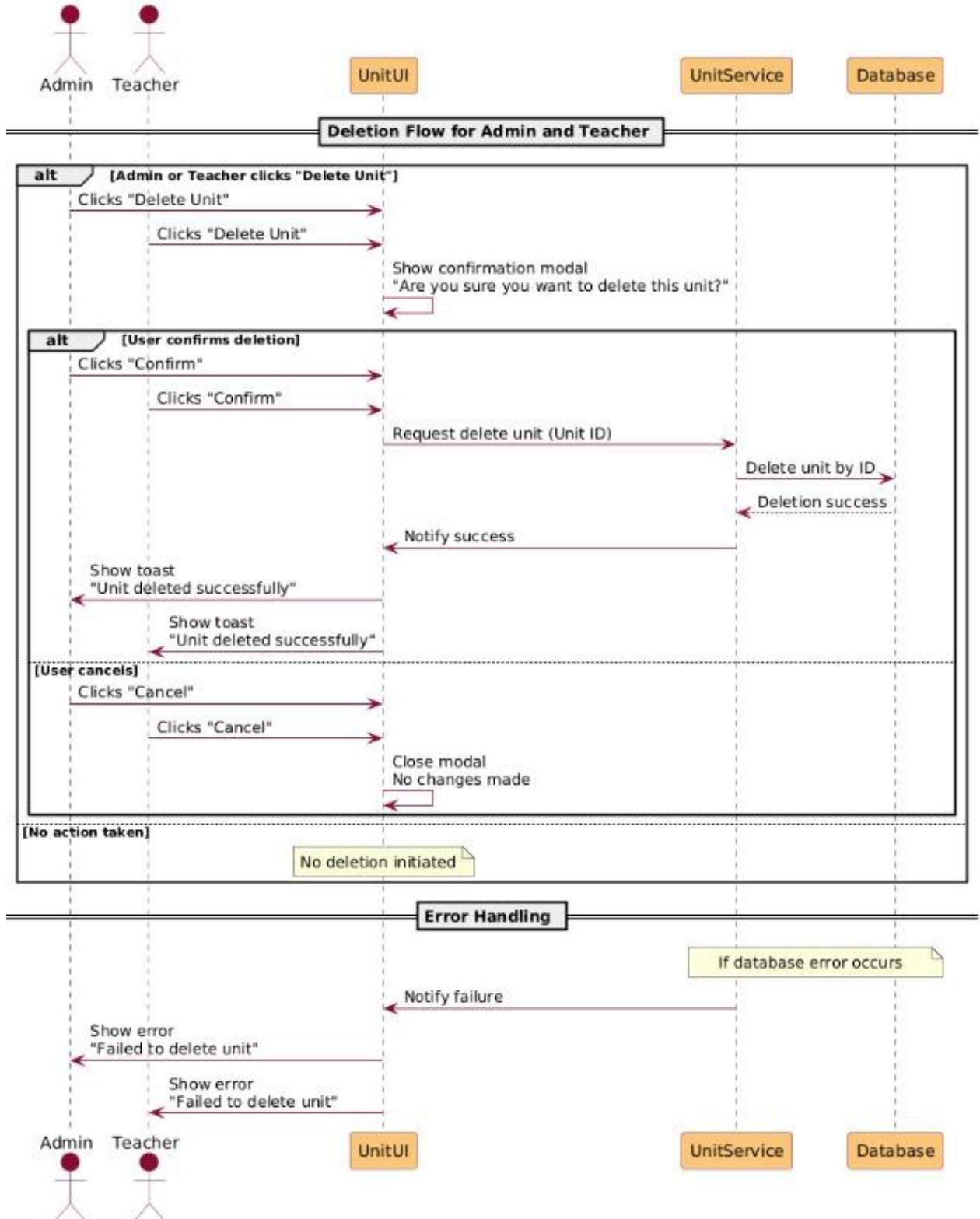


Figure 61 Sequence Diagram Delete Unit

Add Quiz	
Actors	Teacher
Description	A Teacher can create and add quizzes to a specific course for students to complete as part of the curriculum.
Data	<p>Quiz details:</p> <ol style="list-style-type: none"> 1. Course to which the quiz is being added. 2. Quiz title, description (optional). 3. Questions, possible answers, correct answers, and scoring criteria.
Stimulus	User selects a course and creates a new quiz by adding questions and related information.
Response	<ol style="list-style-type: none"> 1. Quiz is saved to the system. 2. Confirmation message is displayed. 3. Error message for invalid input or access denial.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. User selects a course. b. User provides valid quiz details (title, questions, answers, etc.). c. System validates the input and saves the quiz. d. System shows a confirmation message "Quiz added successfully." <p>Error Scenario:</p> <ol style="list-style-type: none"> a. time date for the quiz is older than the current date
Comments	The system should validate the format and completeness of all fields before saving the quiz.

Table 53 Add Quiz Description

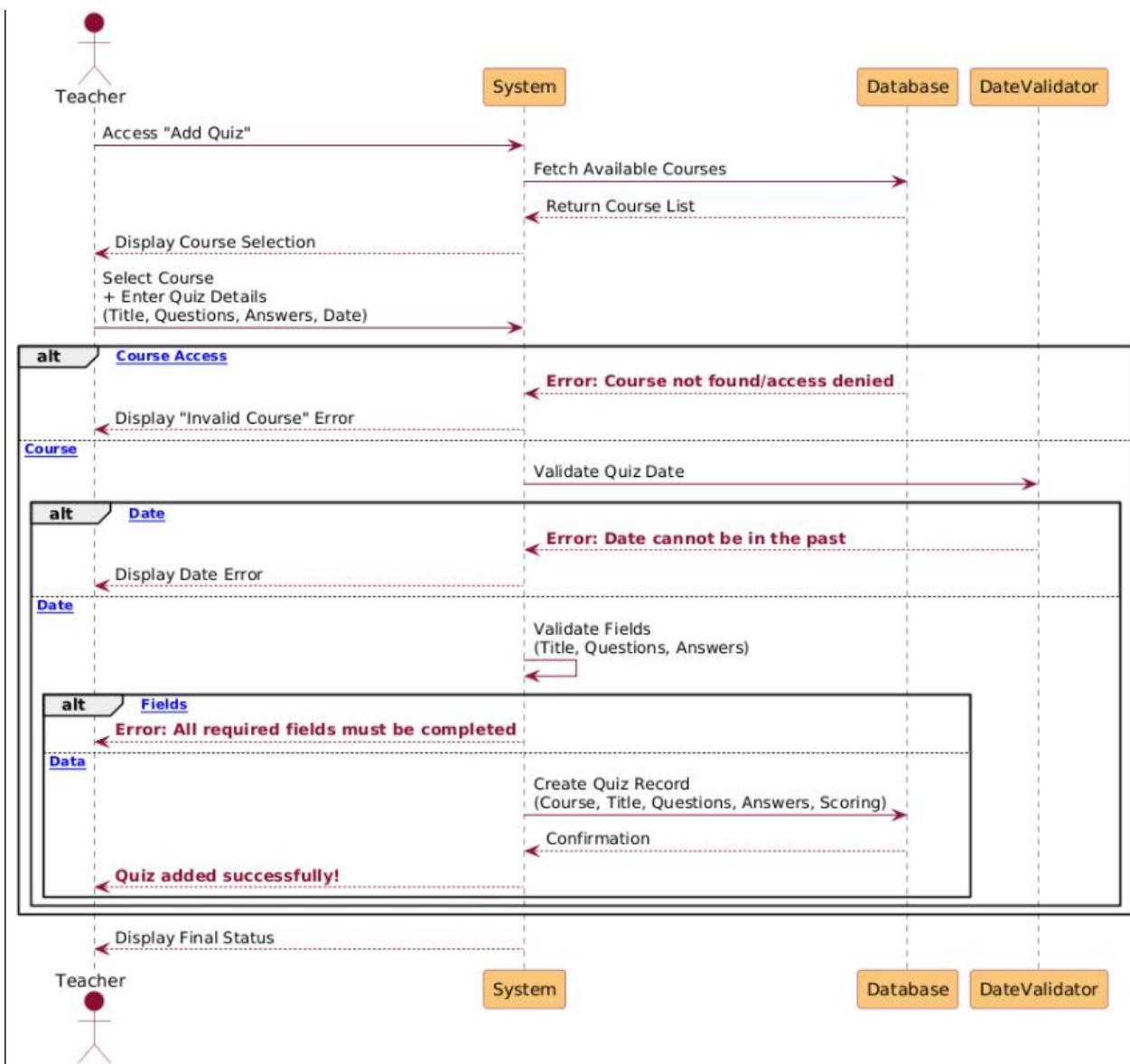


Figure 62 Sequence Diagram Add Quiz

Edit Quiz	
Actors	Teacher
Description	Teachers can modify quiz details including questions, answers, dates, and marks.
Data	1.course name, 2. Quiz name, 3. Questions, 4. Answers (T/F options) 5. Marks., 6. Due Date
Stimulus	Teacher clicks the "Edit Quiz" button then appears on the quiz page to edit.
Response	Success: "Quiz updated" Error: "Invalid data".
Scenarios	<p>1. Add Question</p> <ol style="list-style-type: none"> 1. Teacher initiates edit mode 2. Select question addition 3. Completes required fields 4. System validates and saves <p>2. Modify Grading</p> <ol style="list-style-type: none"> 1. Edits point values 2. Updates correct answers 3. System verifies: <ul style="list-style-type: none"> ○ Positive points ○ At least one valid answer <p>3. Reschedule Quiz</p> <ol style="list-style-type: none"> 1. Changes due date 2. System checks: <ul style="list-style-type: none"> ○ Future date ○ No schedule conflicts <p>4. Change Title or Description</p> <p>5. Change Duration</p> <p>6. Change The Total Points</p> <p>Errors Handling</p> <p>1- Empty field: outline on the missing field</p> <p>2-Invalid points: Value Must be ≥ 1</p> <p>3- Past Date: “Select Future Date”</p>
Comments	should not leave any empty fields.

Table 54 Edit Quiz Description

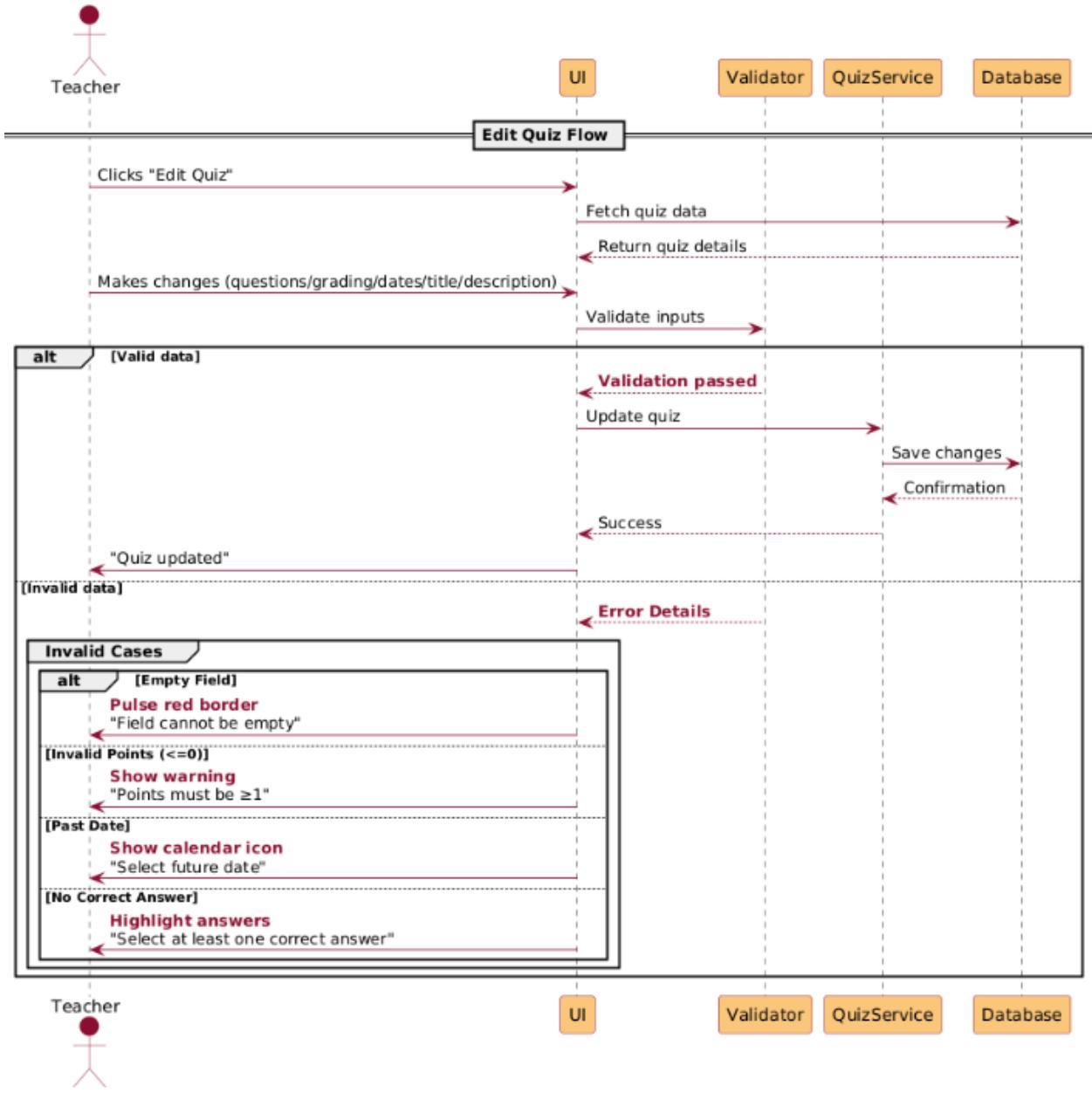


Figure 63 Sequence Diagram Edit Quiz

Delete Quiz	
Actors	Teacher
Description	Teachers can permanently remove a quiz from the system. The deletion is immediately reflected on students, parents and Teachers Pages.
Data	1.course name 2.Quiz name
Stimulus	Teacher clicks the " Delete Quiz " button and confirm the deletion.
Response	<ul style="list-style-type: none"> ● Success: <ul style="list-style-type: none"> ○ Immediate removal from all user views ○ Confirmation toast: "Quiz '[Name]' deleted" ● Error: <ul style="list-style-type: none"> ○ Contextual alerts (e.g., "Access denied", "Quiz not found")
Scenarios	<p>1. Standard Deletion</p> <ol style="list-style-type: none"> 1. Teacher selects quiz 2. Confirms deletions <p>2.Error Handel: Invalid Quiz:Deleted or non-existent ID. Database Failure:Connection timeout</p>
Comments	No undo option. Students see removal immediately.

Table 55 Delete Quiz Description

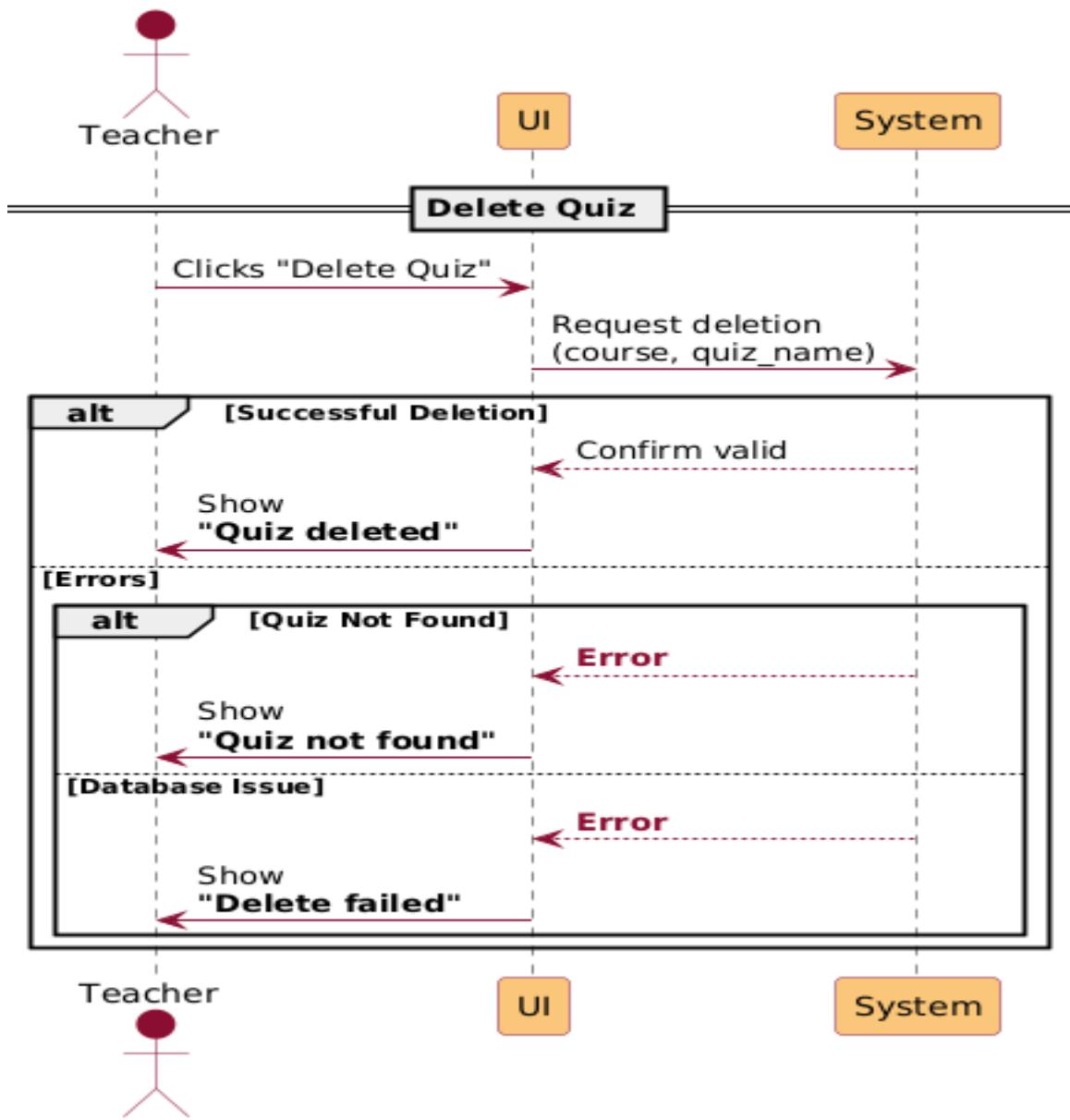


Figure 64 Sequence Diagram Delete Quiz

View Quizzes	
Actors	Teacher, Parent, Student
Description	All actors can view course quizzes with role-specific data and actions. Updates appear in real-time.
Data	<p>1- Teacher: 1. Quiz title + date, 2. Total marks, 3. Availability time, 4. Action count</p> <p>2- Parent: 1. Quiz title, 2. Start date, 3. Time, 4. Duration, 5. Total points, 6. Status, 7. Results link</p> <p>3-Students 1- Same as parent + submission status</p>
Stimulus	<p>Teacher: Clicks "Course Quizzes" in dashboard</p> <ul style="list-style-type: none"> ● Parent: Selects child from dropdown → chooses course then quizzes ● Student: Opens enrolled course page from the dashboard the Quizzes
Response	<p>- Success:</p> <ul style="list-style-type: none"> ○ Teacher: Interactive quiz cards with actions ○ Parent/Student: Read-only table with status indicators <p>- Error:</p> <ul style="list-style-type: none"> ○ "No quizzes available" (empty set)
Scenarios	<p>Scenario 1: Teacher Views Quizzes</p> <ol style="list-style-type: none"> 1. Request quizzes for a course 2. Returns editable quiz list 3. Displays with edit/delete buttons <p>Scenario 2: Parent Checks Child's Quizzes</p> <ol style="list-style-type: none"> 1. Selects child → course 2. Validates parent-child relationship 3. Shows simplified quiz table

	<p>4. Results link appears if graded</p> <p>Scenario 3: Student Sees Quiz Status</p> <ol style="list-style-type: none"> 1. Opens course 2. Displays quizzes with: <ul style="list-style-type: none"> o Submitted (green) o Pending(orange) <p>Scenario 4: No Quizzes Available</p> <p>1- Appears for the Actors.</p>
Comments	

Table 56 View Quizzes Description

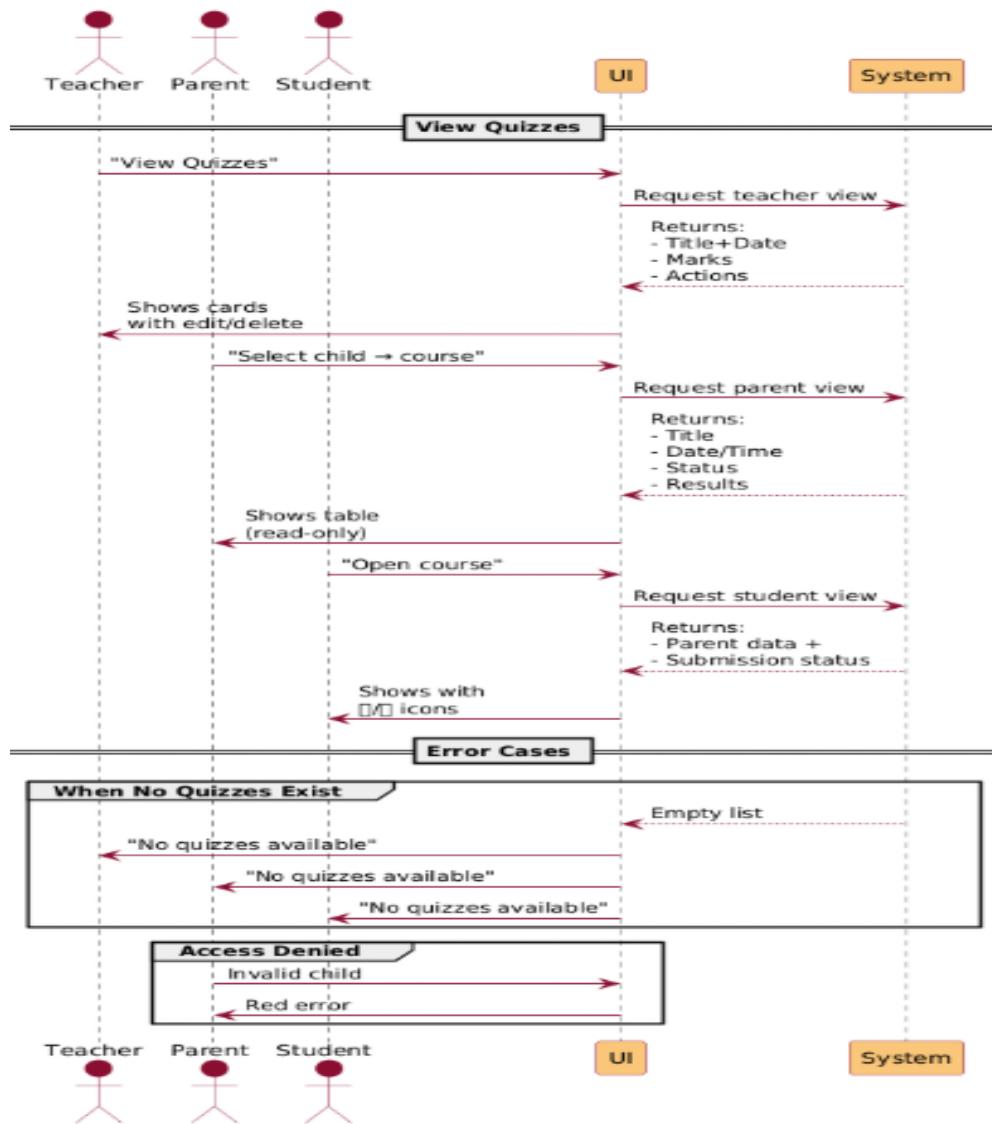


Figure 65 Sequence Diagram View Quizzes

Start Quiz	
Actors	Student
Description	The student can Start a quiz in his courses only if the quiz time is valid, if it is he can start answering the questions of the quiz.
Data	<ol style="list-style-type: none"> 1. Quiz questions + options 2. Points per question 3. Time limit 4. Student answers
Stimulus	Students click the "Start Quiz" Button.
Response	<p>Success:</p> <ol style="list-style-type: none"> 1. Questions display with timer 2. Real-time answer validation <p>Error:</p> <p>Network error" (failed to load).</p>
Scenarios	<p>Scenario 1: Normal Flow</p> <ol style="list-style-type: none"> 1. Starts quiz → loads Q1 2. Answers the questions. <p>Scenario 2: Timeout</p> <p>Quiz Start time is not valid</p>
Comments	

Table 57 Start Quiz Description

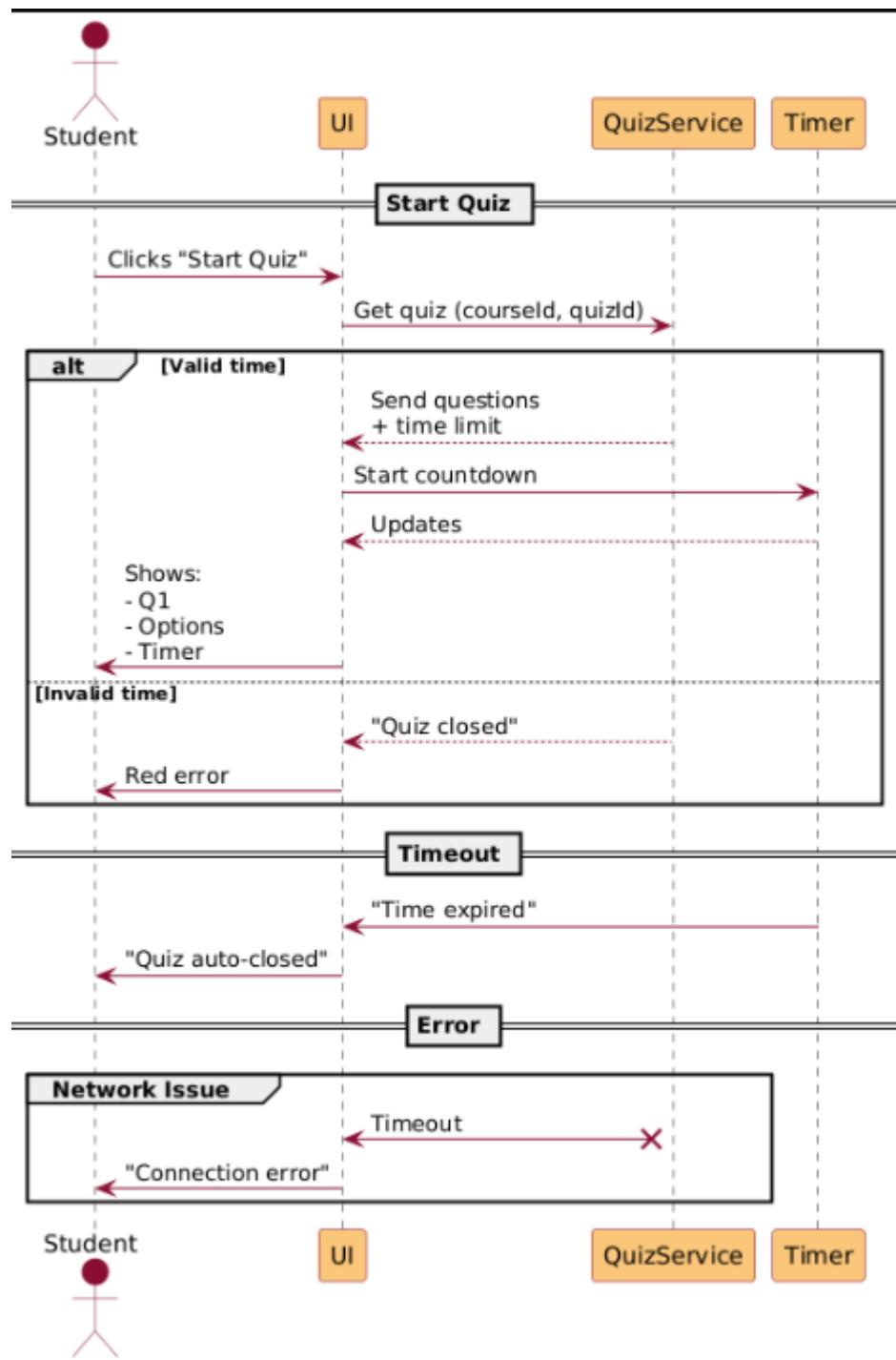


Figure 66 Sequence Diagram Start Quiz

Submit Quiz	
Actors	Student
Description	Students submit completed quiz answers for grading.
Data	<ol style="list-style-type: none"> 1. Student answers 2. Quiz ID 3. Submission timestamp
Stimulus	Students click the "Submit Quiz" Button.
Response	<p>Success:</p> <ol style="list-style-type: none"> 1. "Submission received" confirmation 2. Answers locked from editing 3. Results hidden until publication <p>Error:</p> <ol style="list-style-type: none"> 1. "Submission failed" (network) 2. "Time expired" (auto-submit).
Scenarios	<p>Scenario 1: Normal Flow</p> <ol style="list-style-type: none"> 3. Starts quiz → loads Q1 4. Answer the questions. 5. 3. Submits before timeout. <p>Scenario 2: Timeout</p> <ol style="list-style-type: none"> 1. Timer reaches 0:00 2. System auto-submits
Comments	

Table 58 Submit Quiz Description

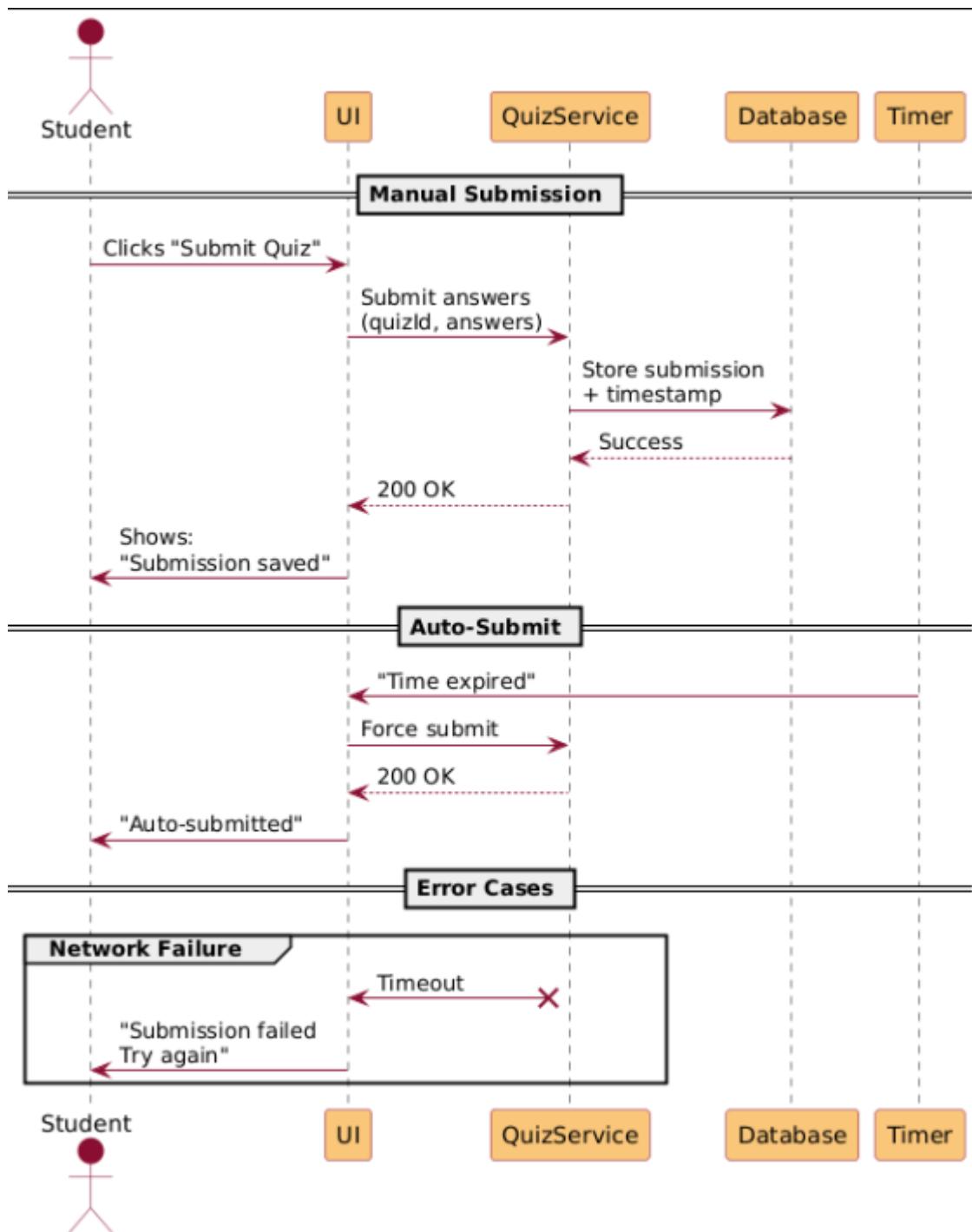


Figure 67 Sequence Diagram Submit Quiz

Publish Marks	
Actors	Teacher
Description	Teacher publishes/unpublished quiz results to control visibility for students/Parents.
Data	<ol style="list-style-type: none"> 1. Quiz ID. 2. Publish status (true/false). 3. Visibility timestamp.
Stimulus	Teacher clicks "Publish" or "Unpublish" Button.
Response	<p>Success:</p> <ul style="list-style-type: none"> . "Quiz published" confirmation 2. Results become visible to students/parents 3. Button toggles to "Unpublish" <p>Error:</p> <ul style="list-style-type: none"> 1. "Publish failed" (network) 2. "No grades available" (if ungraded)
Scenarios	<p>Scenario 1: Publish Quiz</p> <ol style="list-style-type: none"> 1. Grades all submissions 2. Clicks publish → results visible <p>Scenario 2: Unpublish Quiz</p> <ol style="list-style-type: none"> 1. Clicks unpublish → hides results 2. Students/parents see "Results hidden"
Comments	

Table 59 Publish Marks Description

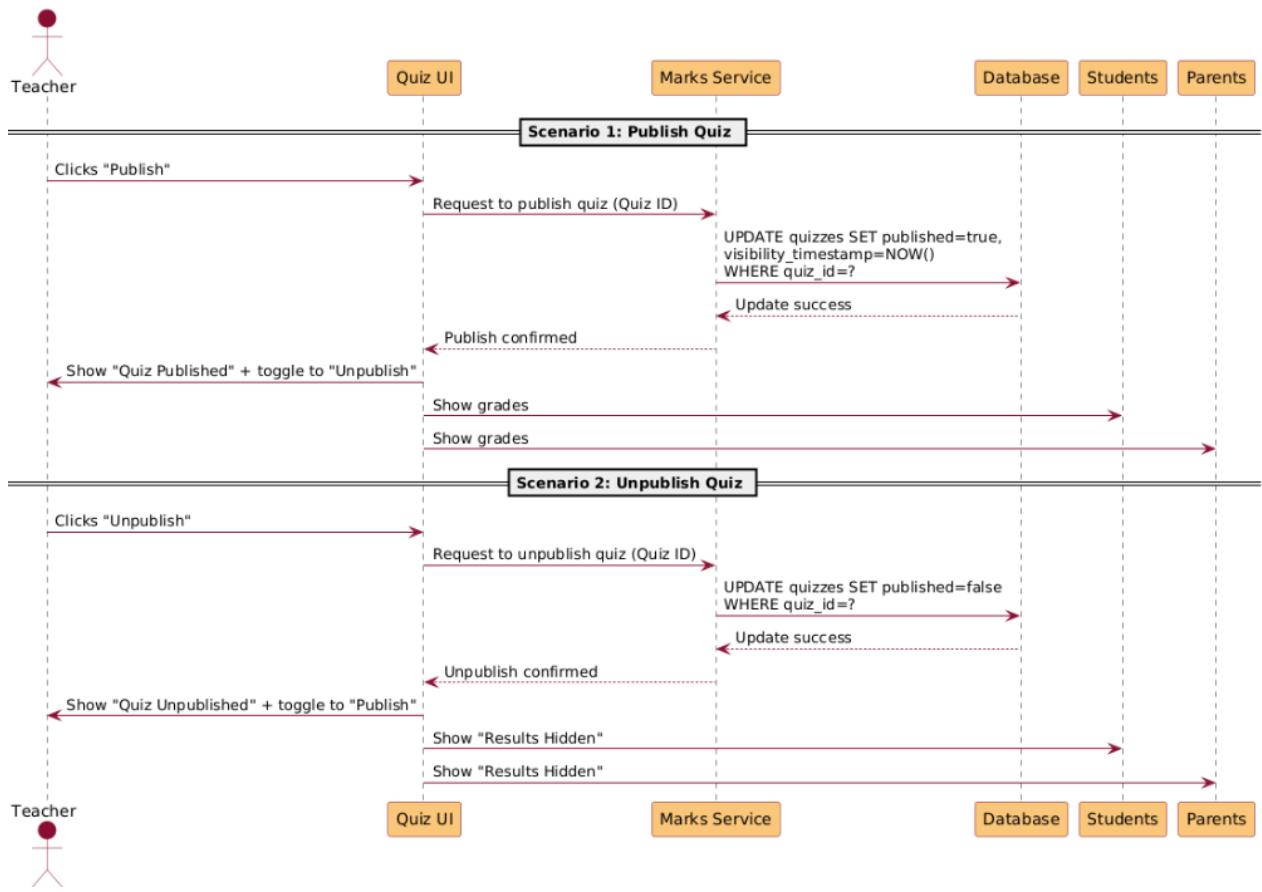


Figure 68 Sequence Diagram Publish Marks

Show Quiz Submission (Student, parent)	
Actors	Parent, Student
Description	Both actors can view graded quiz submissions with detailed question-by-question analysis, presented in a paginated format.
Data	1- Quiz Title 2-Student Info 3-Final mark 4-Question 5-questions mark 6-question text 7-Correct/Incorrect 8-Points Earned
Stimulus	<ul style="list-style-type: none"> ● Student: Clicks "View Results" on completed quiz ● Parents: Selects child → chooses quiz from list
Response	<p>- Success:</p> <ul style="list-style-type: none"> ■ Paginated question display ■ Color-coded answers ■ Points breakdown per question <p>- Error:</p> <ul style="list-style-type: none"> ■ "Results not available yet" (if ungraded)
Scenarios	Scenario 1: Student Views Submission <ol style="list-style-type: none"> 1. Requests quiz MATH-101 results 2. System verifies submission exists 3. Displays first question with navigation arrows Scenario 2: Parent Views Child's Submission <ol style="list-style-type: none"> 1. Selects child "Ali" → quiz "Science Quiz" 2. System verifies parent-child link 3. Shows same data as student view Scenario 3: Ungraded Quiz <ol style="list-style-type: none"> 6. Student clicks on pending quiz 7. System checks grading status 8. Results Unavailable
Comments	

Table 60 Show Quiz Submission (Student, parent) Description

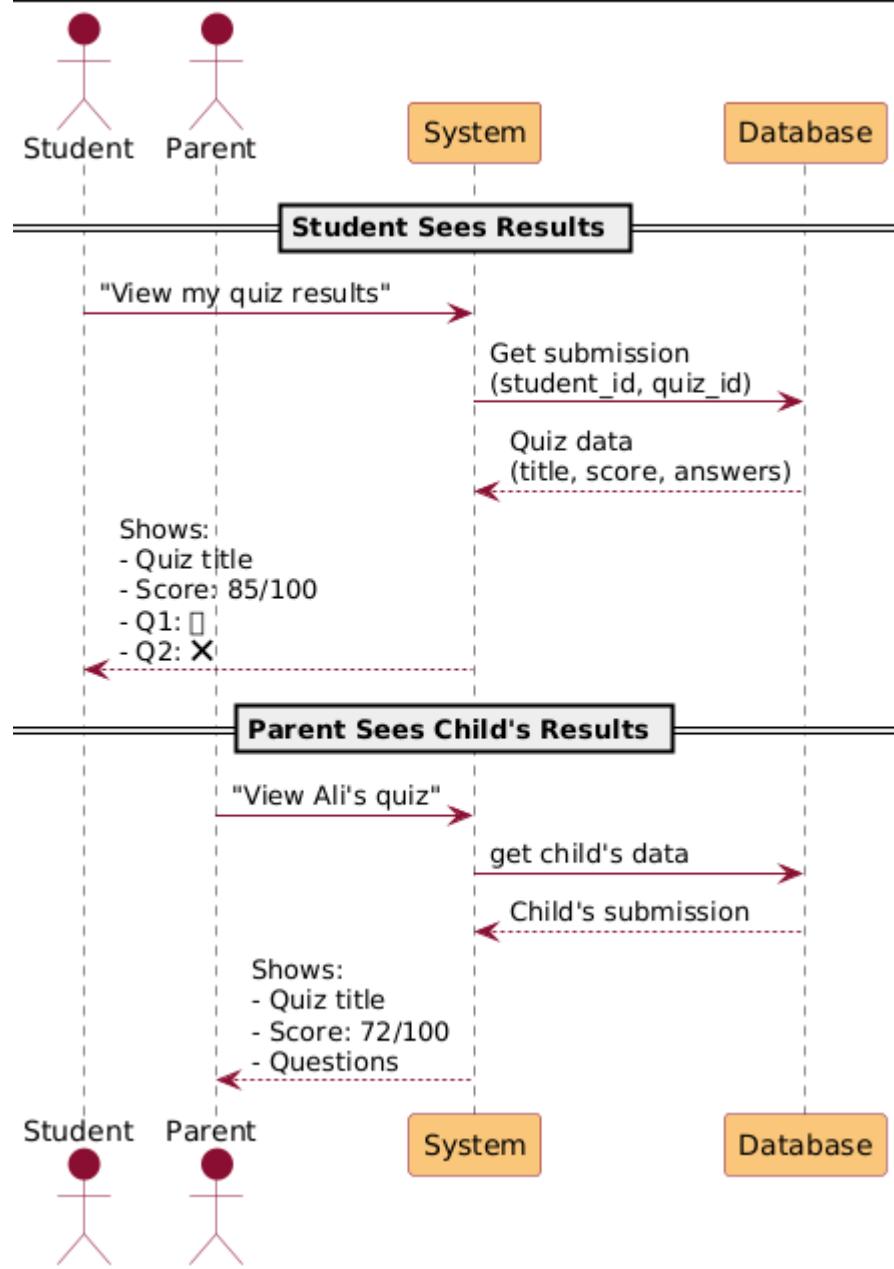


Figure 69 Sequence Diagram Show Quiz Submission (Student, parent)

Show Quiz Submission (Teacher)	
Actors	Teacher
Description	Teachers access a consolidated view of all student submissions for a specific quiz, with options to review individual attempts .
Data	<p>1. Quiz Metadata</p> <ul style="list-style-type: none"> ○ Title, duration, date ○ Total points, description ○ Visibility status <p>2. Submission table</p> <p>1-Student ID</p> <p>2-Name</p> <p>3-Status</p> <p>4-Marks</p> <p>5-Submission Date</p> <p>6-Review</p>
Stimulus	<ul style="list-style-type: none"> ● Teacher clicks: <ul style="list-style-type: none"> ○ "Submissions" button on quiz card ○ "Review" button for a student
Response	<p>Success:</p> <ul style="list-style-type: none"> ○ Displays quiz info + interactive submissions table ○ Detailed submission view on "Review" <p>Errors:</p> <ul style="list-style-type: none"> ○ "No submissions available" (empty state) ○ "You don't teach this course" (access denial)

Scenarios	<p>Scenario 1: View Submissions</p> <ol style="list-style-type: none"> 1. Teacher opens "Algebra Quiz" submissions 2. System shows: <ul style="list-style-type: none"> ○ Quiz duration: 30 mins ○ 15/20 students submitted ○ Toggle: "Visible to Students" <p>Scenario 2: Review Submission</p> <ol style="list-style-type: none"> 1. Clicks "Review" on student "Ali" 2. Displays: <ul style="list-style-type: none"> ○ Q1: Correct (5/5) ○ Q2: Incorrect (0/7) <p>Scenario 3: No Submissions</p> <ol style="list-style-type: none"> 1. Opens new quiz submissions 2. Shows empty table with: <ul style="list-style-type: none"> ○ "No submissions yet" ○ "Send reminder" button
Comments	

Table 61 Show Quiz Submission (Teacher) Description

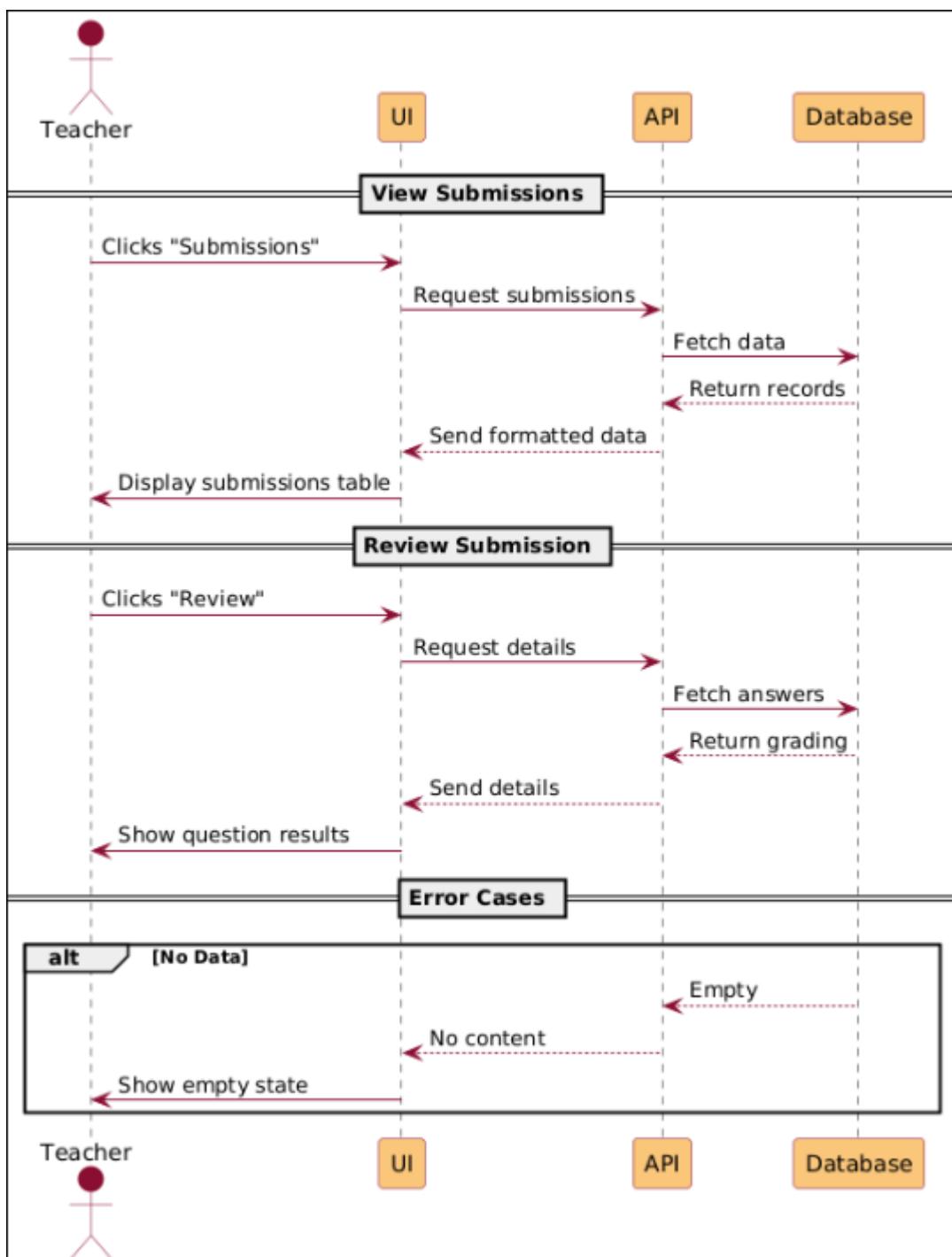


Figure 70 Sequence Diagram Show Quiz Submission (Teacher)

Add assignment	
Actors	Teacher
Description	The teacher can create and add a new assignment for a specific course, including details like description, deadline, and multimedia attachments.
Data	<p>- Assignment Details: Title, Description, Deadline, Multimedia (e.g., images, video).</p>
Stimulus	The teacher fills in the assignment details and clicks the "Add Assignment" button.
Response	<ol style="list-style-type: none"> 1. The assignment is stored in the database. 2. Students in the course can view the assignment.
Scenarios	<ul style="list-style-type: none"> - Normal Scenario <ol style="list-style-type: none"> a. Teacher fills in the form with assignment details. b. Teacher submits the form. - Error Scenario <ol style="list-style-type: none"> a. Teacher submits the form with invalid data. b. System shows error messages like "All fields are required" or "Invalid file format."
Comments	

Table 62 Add assignment Description

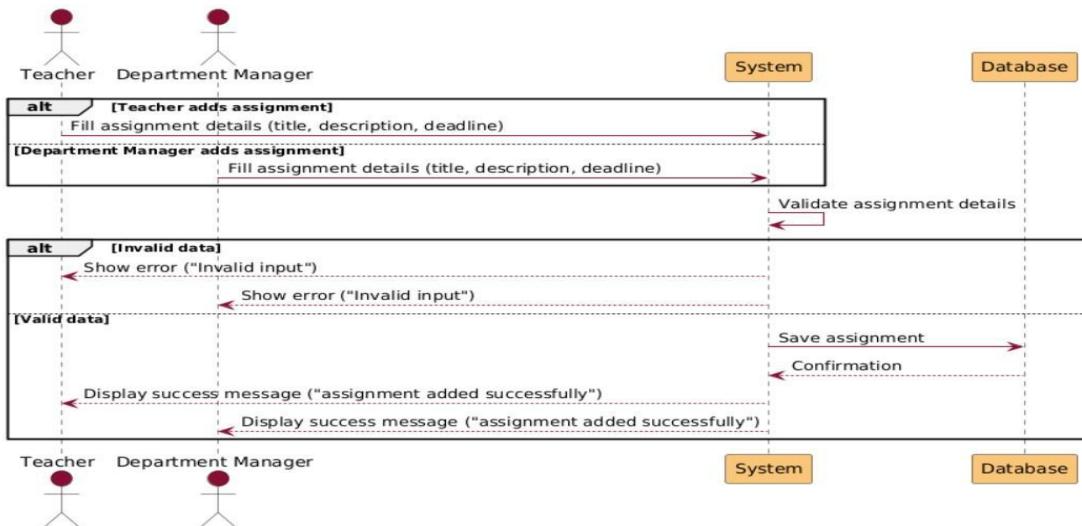


Figure 71 Sequence Diagram Add Assignments

Delete assignment	
Actors	Teacher
Description	Teacher permanently deletes an assignment, removing it from all student/parent views.
Data	1. Assignment 2. Course 3. Confirmation message.
Stimulus	Teacher clicks the "Delete Assignment" button.
Response	(Success) 1. "Assignment deleted" toast 2. Immediate removal from all views 3. Audit log entry. (Error) 1. "Delete failed" (network) 2. "Unauthorized" (if not owner).
Scenarios	Scenario 1: Confirm Deletion 1. Clicks delete → confirms → success Scenario 2: Cancel Deletion 1. Clicks delete → cancels → no action
Comments	

Table 63 Delete Assignments Description

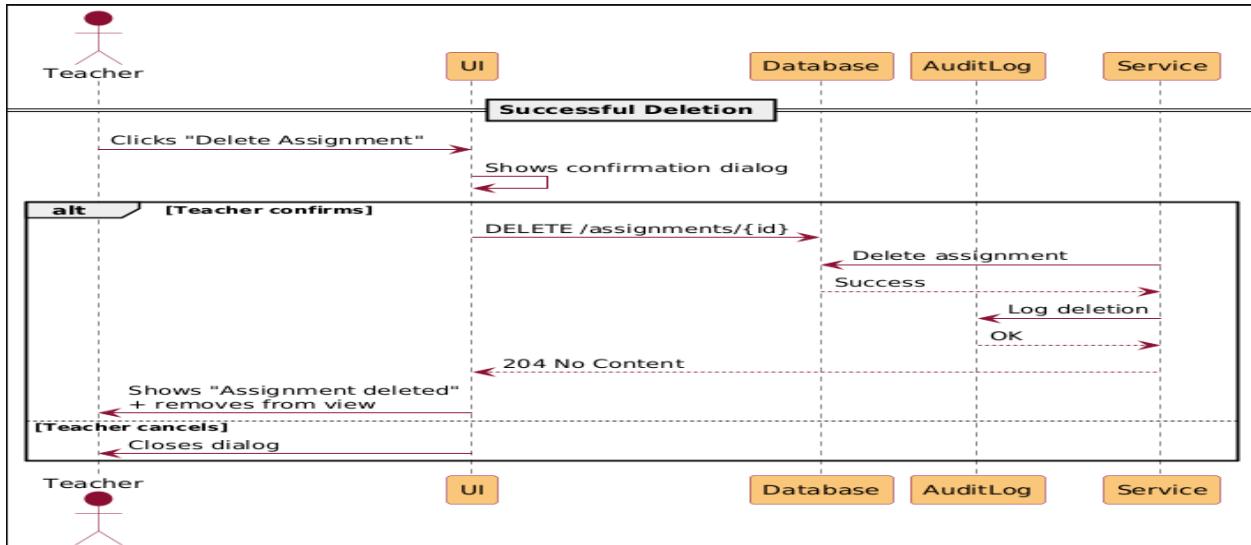


Figure 72 Sequence Diagram Delete Assignments

Show assignments	
Actors	Teachers, Parents, Students
Description	Actors have the ability to show the assignments in a certain course
Data	1. Assignment, 2. Assignment Title, 3. Description 4. Course, 5. Status.
Stimulus	Actors click on assignments in the course.
Response	<p>Teacher Response:</p> <p>Success:</p> <ul style="list-style-type: none"> • Assignments list displays with: <ul style="list-style-type: none"> ○ Title, Description, File, Due Date ○ “Delete” and “View Submissions” buttons <p>Parent response:</p> <p>Success:</p> <p>List of child’s course assignments with:</p> <ul style="list-style-type: none"> ○ Title, Due Date, Status (Submitted/Not Submitted) • View-only access confirms: → “Assignments displayed (read-only view” • If the date of the assignment is not valid: → “DeadLine Passed” in the action field <p>Student Responses</p> <p>Success:</p> <ul style="list-style-type: none"> • Assignments list shows: <ul style="list-style-type: none"> ○ Title, Due Date, Status, Upload option • After uploading a file: → “Submission uploaded successfully.” • If already submitted: → “You have already submitted this assignment.” • If the date of the assignment is not valid: → “Deadline Passed” in the action field <p>DataBase Error:</p> <p>- “No content retrieved”</p> <p>Network Error:</p> <p>- check The Internet Connection</p>

Scenarios	<p>Scenario 1: Teacher Views and Manages Assignments</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. The teacher logs in and navigates to a specific course page. 2. The teacher requests the list of assignments. 3. The system fetches all assignments for that course from the database. 4. The UI displays: <ul style="list-style-type: none"> o Assignment Title o Description o Attached file (downloadable) o Due Date o "Delete" button o "View Submissions" button <p>Scenario 2: Student Views and Submits Assignment</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Students log in and navigate to a course page. 2. The system displays all available assignments with: <ul style="list-style-type: none"> o Title o Due Date o Submission status (Submitted / Not submitted) o Upload button for submitting a file <p>Scenario 3: Parent Views Assignment Info</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Parents log in and selects the child's course. 2. The system filters assignments based on the child's enrollment. 3. UI displays: <ul style="list-style-type: none"> o Assignment Title o Due Date o Status (Submitted / Not submitted by child) o Actions: Read-only view, no submit/delete allowed
Comments	

Table 64 Show Assignments Description

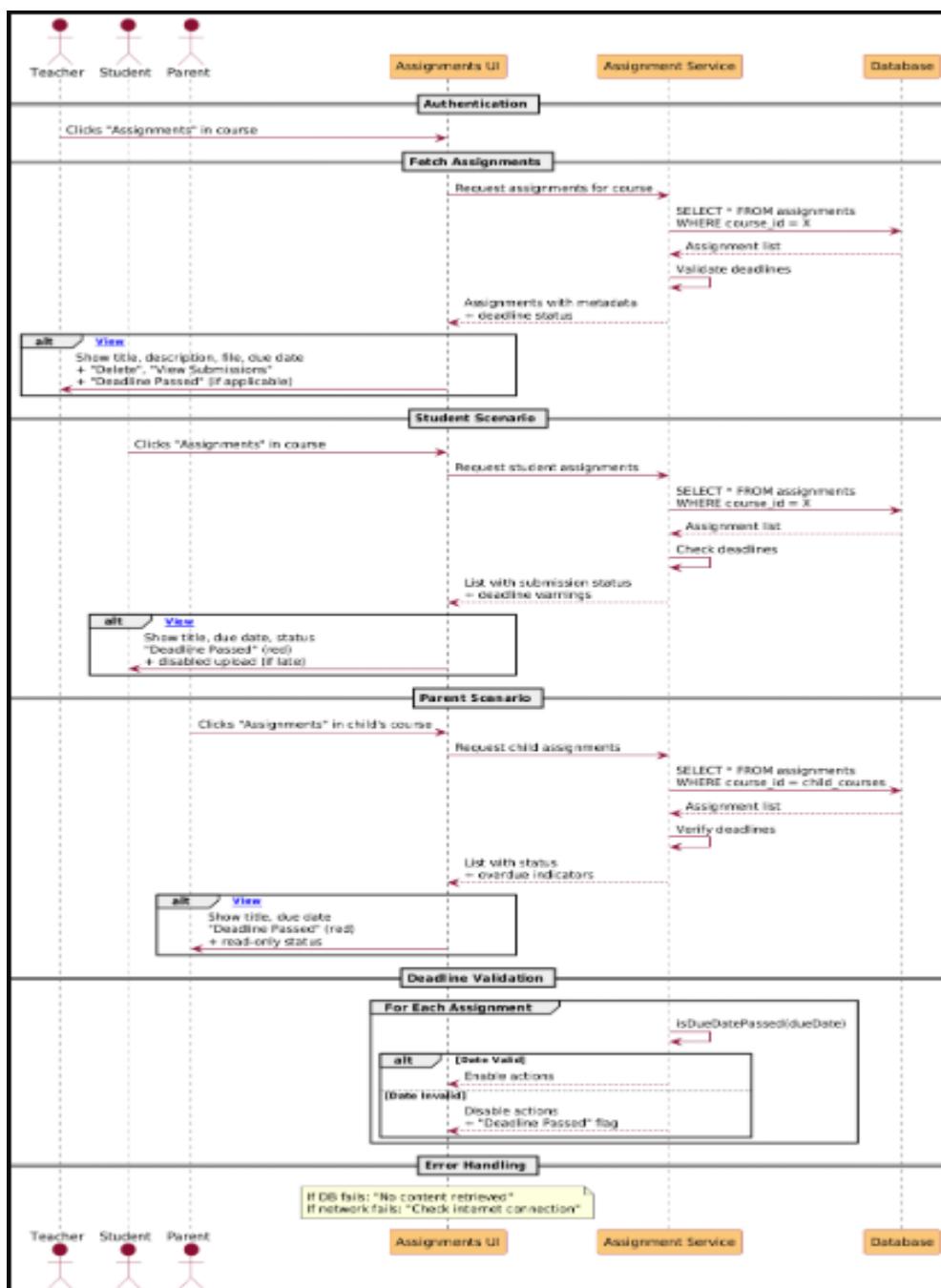


Figure 73 Sequence Diagram Show Assignments

Show assignment Submission	
Actors	Teacher
Description	Teachers can view all student submissions for a specific assignment within their courses. This helps track student progress and submission activity.
Data	1. Assignment ID, 2. Student Name, 3. Submission File 4. Submission Date, 5. Submission Status
Stimulus	Teacher clicks the " View Submissions " button on an assignment from their course Page..
Response	<p>Success:</p> <ul style="list-style-type: none"> ● A table is displayed with: <ul style="list-style-type: none"> ○ Student names ○ Submission files (download links) ○ Submission timestamps <p>Error:</p> <ul style="list-style-type: none"> ● "No submissions found" (if none exist) ● "Unable to load submissions" (in case of network/database failure)
Scenarios	<p>Scenario: Teacher Views Submissions</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Teacher logs into the system. 2. Navigates to a specific course. 3. Clicks on an assignment's "View Submissions" button. 4. The system checks permissions and fetches all submissions from the database. 5. UI displays: <ul style="list-style-type: none"> ○ Student names ○ Submitted files ○ Submission dates
Comments	

Table 65 Show assignment Submission Description

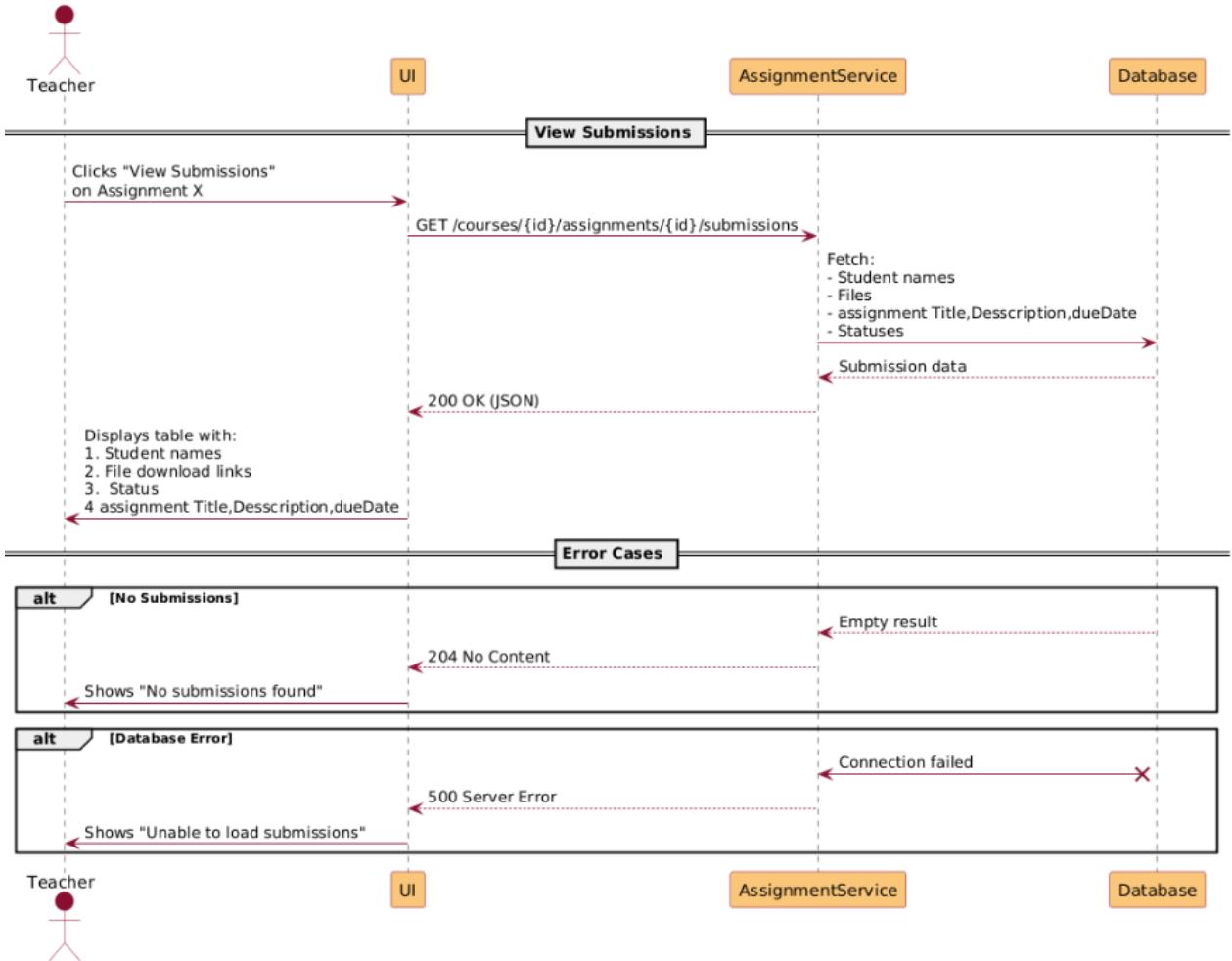


Figure 74 Sequence Diagram Show Assignment Submission

Check assignments	
Actors	Teacher
Description	Teachers can review student submissions for an assignment, view submitted files, and mark submissions as graded.
Data	<ul style="list-style-type: none"> ● Student ID ● Student Name ● Download link ● a check box to confirm that the student's assignment is checked
Stimulus	The Teacher clicks on the box in the submissions table to check/uncheck.
Response	<ul style="list-style-type: none"> ● Success: <ul style="list-style-type: none"> ○ ✓ appears/disappears instantly ○ Database updates checked status ● Error: <ul style="list-style-type: none"> ○ "Failed to update status" (if network error)
Scenarios	<p>Scenario 1: Mark as Checked</p> <ol style="list-style-type: none"> 1. Teacher clicks empty box next to student name 2. System: <ul style="list-style-type: none"> ○ Displays ✓ symbol ○ Saves status to database <p>Scenario 2: Uncheck</p> <ol style="list-style-type: none"> 1. Teacher clicks ✓ next to student name 2. System removes ✓ and updates database.
Comments	

Table 66 Check assignments Description

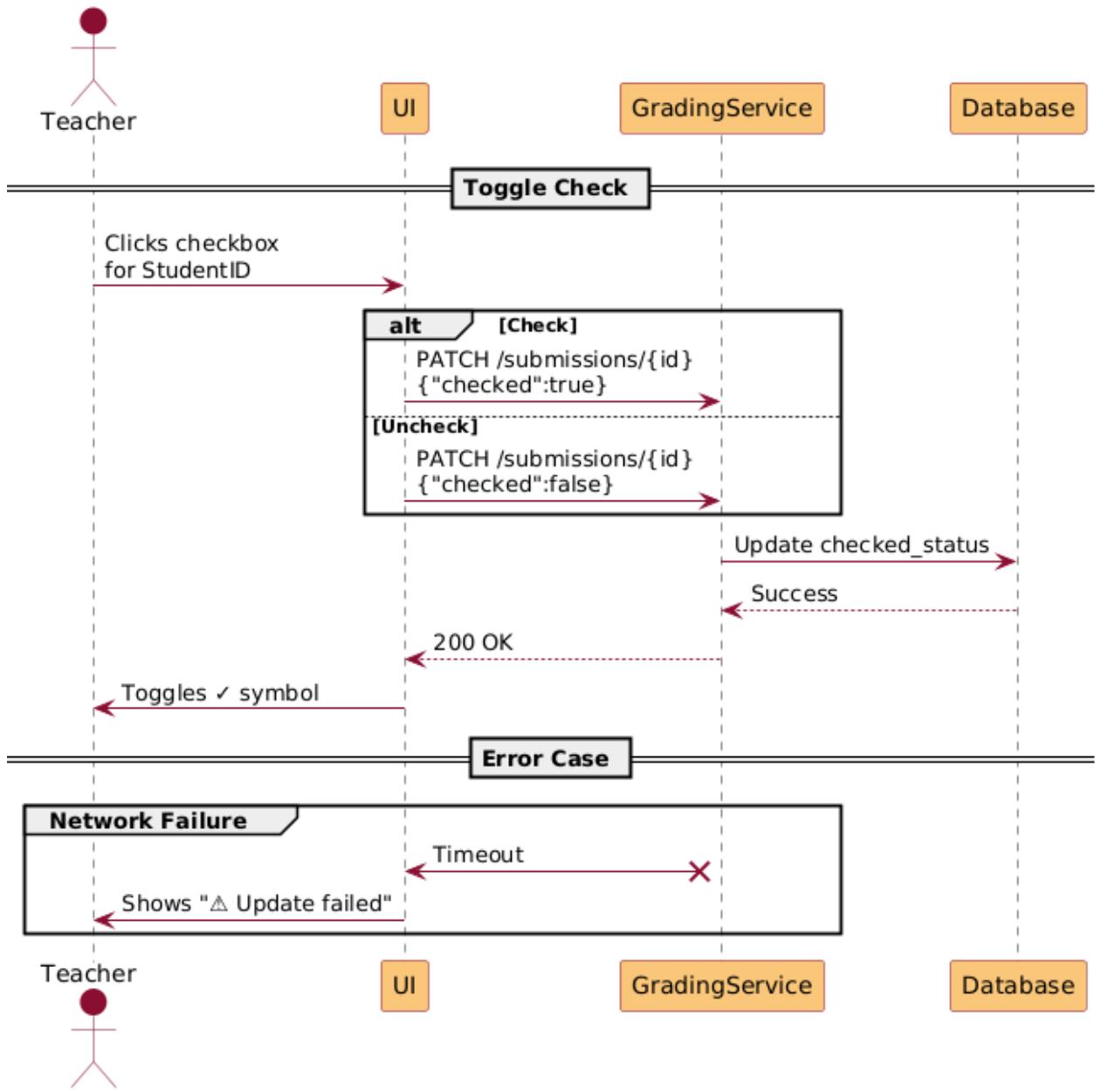


Figure 75 Sequence Diagram Check Assignments

Submit assignments	
Actors	Student
Description	Students submit assignment answers and view teacher-uploaded files
Data	<ol style="list-style-type: none"> 1. Assignment file (from teacher) 2. Student answers file.
Stimulus	Students click the "Submit Assignment" button.
Response	<ul style="list-style-type: none"> ● Success: <ol style="list-style-type: none"> 1. "Submission received" confirmation 2. the status turns to Submitted in green ● Error : <ol style="list-style-type: none"> 1. "Submission failed" (network) 2. "Deadline passed" (if late)
Scenarios	<p>Scenario 1: On-Time Submission</p> <ol style="list-style-type: none"> 1. Views teacher's file 2. Uploads answers 3. Submits before deadline <p>Scenario 2: Late Submission</p> <ol style="list-style-type: none"> 1. Attempts post-deadline 2. System blocks with "Time expired."
Comments	You can't review the assignment after submission.

Table 67 Submit assignments Description

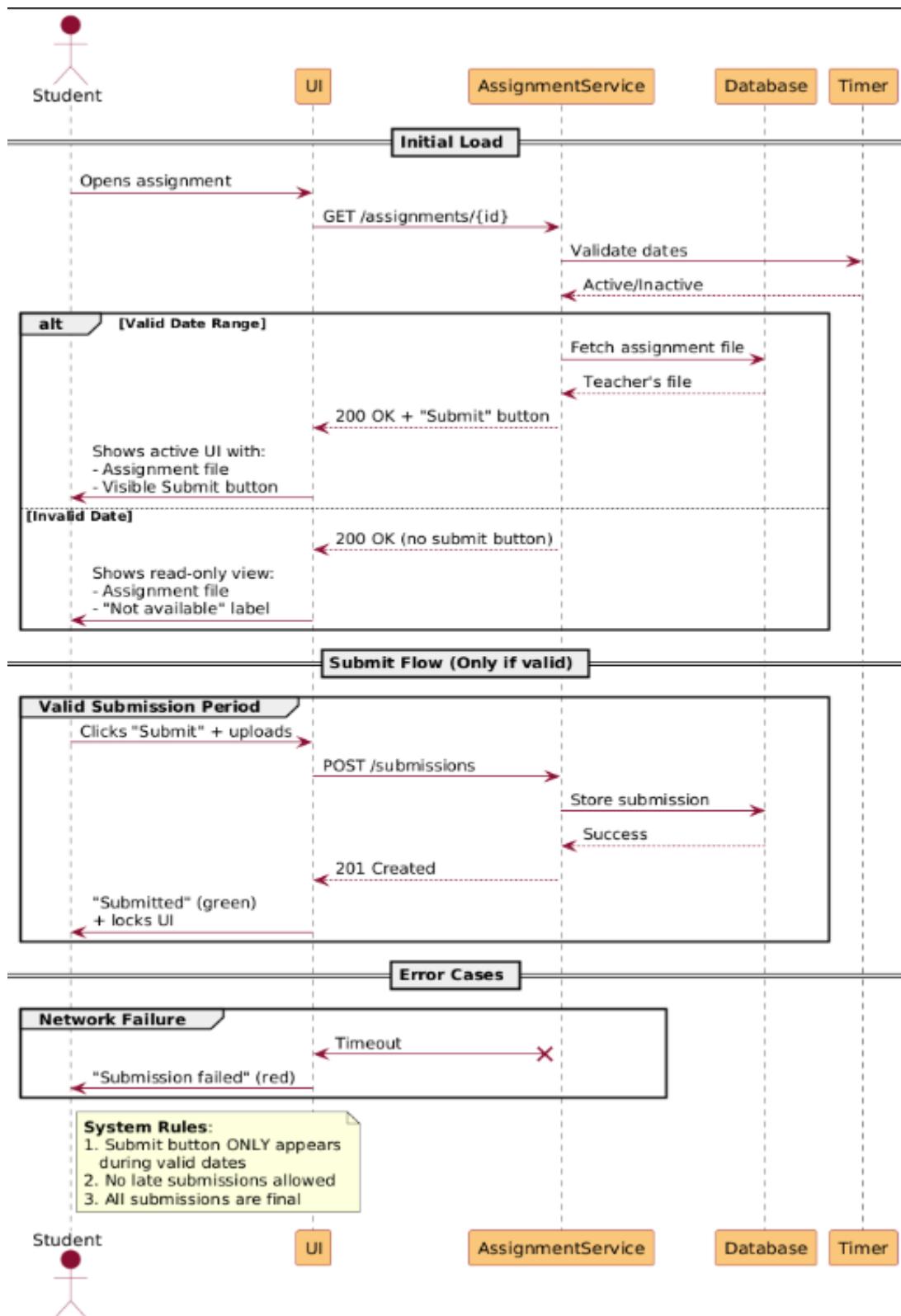


Figure 76 Sequence Diagram Submit Assignments

G7: Monitoring System

Add reports	
Actors	Teacher, Admin
Description	<p>This functionality allows Teachers and Admins to generate detailed reports for specific students in a selected course. Reports are created using a predefined formula and can only be generated for students within the scope of the user's role:</p> <p>Teacher: Can add reports for students on the courses they teach.</p> <p>Admin: Can add reports for any student across all departments.</p> <p>Report Formula Includes:</p> <p>Date: Year/Month/Day</p> <p>Description: Text description detailing the report's purpose or findings.</p> <p>Student Full Name: The complete name of the student.</p> <p>Course Name: The name of the course the report is related to.</p>
Data	1-Course ID (for teacher) 2-Student ID 3-Report Details (Date, Description, etc.) 4-Department
Stimulus	The user selects a course and a student to generate a report.
Response	<p>If the user has the appropriate permissions, the system provides a report template pre-filled with available data (e.g., student name, course name).</p> <p>The user completes the report fields and submits it.</p> <p>The system saves the report and provides an option to download or share it.</p>

Scenarios	<p>1-add report by Teacher:</p> <p>a-The teacher selects a course they teach and a student in that course.</p> <p>b-The system retrieves the student and course data, pre-filling the report template.</p> <p>c-The teacher completes the description and date fields, then submits the report.</p> <p>d-The system saves the report and displays a success message.</p> <p>2-add report by Admin:</p> <p>a-The Admin selects any course and a student in that course.</p> <p>b-The system retrieves the necessary data and pre-fills the report template.</p> <p>c-The manager completes the description and date fields, then submits the report.</p> <p>d-The system saves the report and displays a success message.</p>
Comments	Include options for exporting the report as a PDF or Word.

Table 68 Add Reports

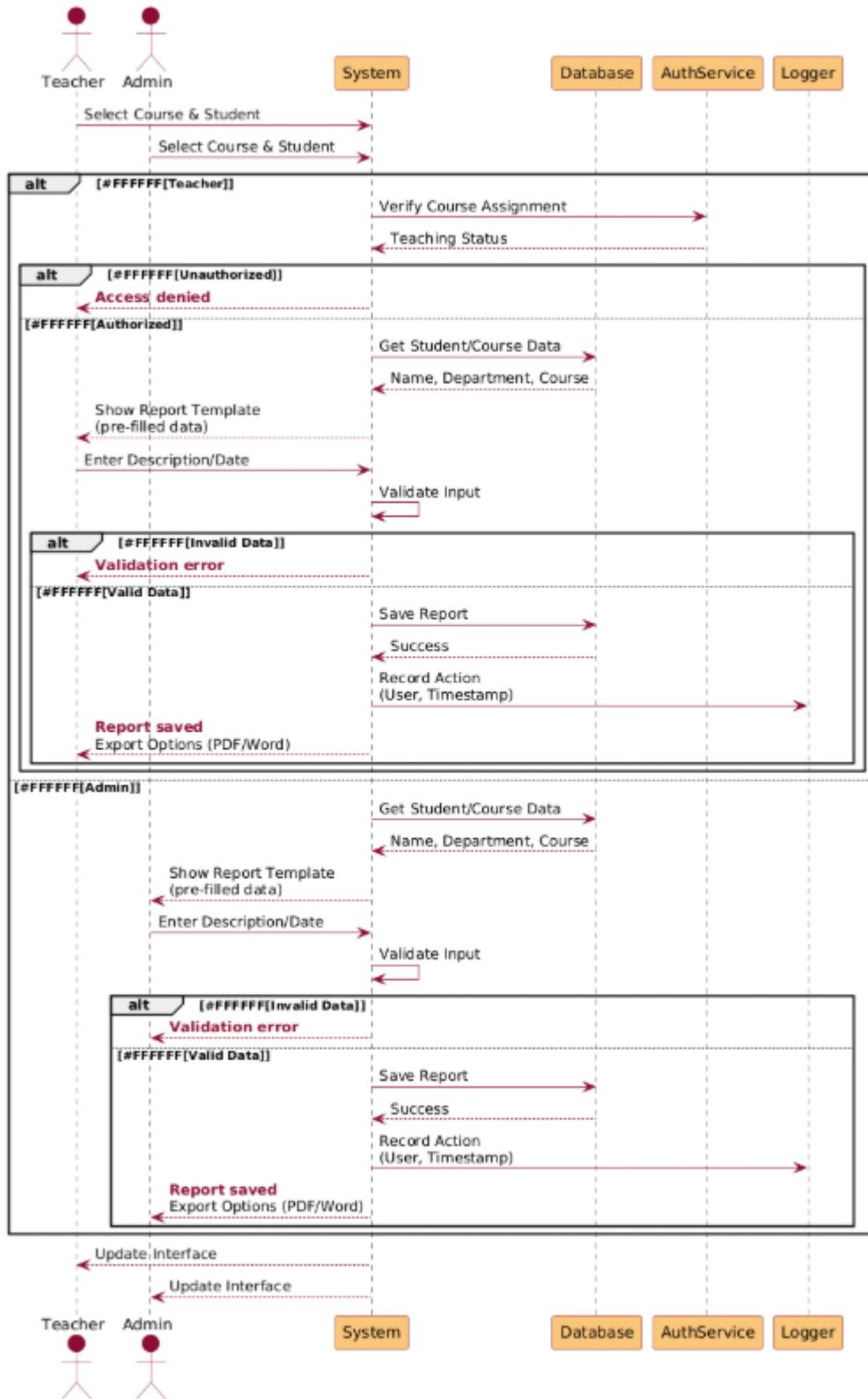


Figure 77 Sequence Diagram Add Reports

View Reports	
Actors	Parent
Description	A Parent can view performance and progress reports for their child in a specific course.
Data	<ol style="list-style-type: none"> 1. Student identifier. 2. Course identifier. 3. Report details (e.g., performance metrics, feedback).
Stimulus	Parent requests to view reports for a specific course.
Response	<ol style="list-style-type: none"> 1. System displays the reports if available. 2. Error message if no reports are found.
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> a. Parent requests to view reports. b. System retrieves and displays the reports. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. Parent requests to view reports. b. System finds no reports for the student. c. Error message "No reports available" is displayed.
Comments	Only parents can view reports for their child. This ensures data privacy and relevance.

Table 69 View Reports Description

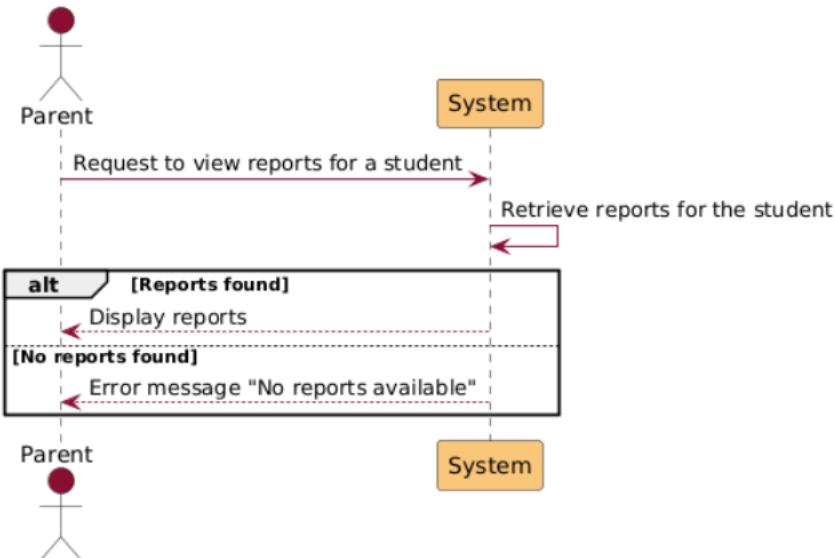


Figure 78 Sequence Diagram View Reports

Delete Reports	
Actors	Admin
Description	The Admin can delete a certain report written by anyone to a student in any course.
Data	<ol style="list-style-type: none"> 1. student reports (teacher or Admin). 2. report instructor. 3.Date 4.Title 5.Actions
Stimulus	Admin clicks on delete report button on the student report.
Response	<ul style="list-style-type: none"> ● Success: <ul style="list-style-type: none"> ○ Report removed from all views ○ "Report deleted" confirmation toast ● Error: <ul style="list-style-type: none"> ○ "Report not found" (already deleted)
Scenarios	<p>Scenario 1: Delete Report</p> <ol style="list-style-type: none"> 1. Admin selects "Delete" on a teacher's or Admin's report 2. System: <ul style="list-style-type: none"> ○ Deletes report ○ Confirmation message ○ Report is deleted <p>Scenario 2: Failed Deletion</p> <ol style="list-style-type: none"> 1. Network failure during deletion 2. System: <ul style="list-style-type: none"> ○ Shows "Deletion failed - Retry?".
Comments	

Table 70 Delete Reports Description

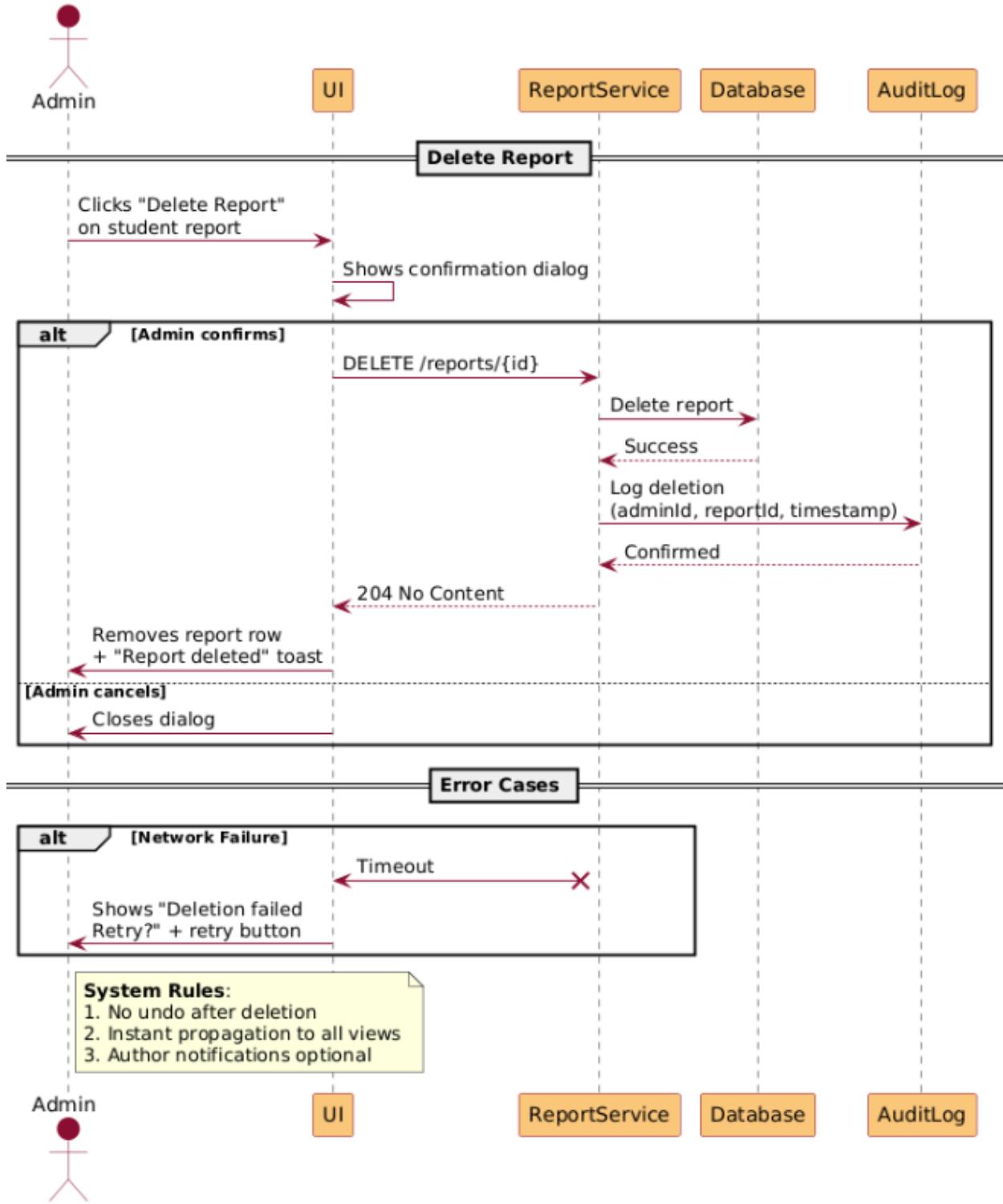


Figure 79 Sequence Diagram Delete Reports

Add marks	
Actors	Teacher
Description	<p>This functionality allows Teachers and Managers to assign marks for specific students in a selected course. Marks are allocated according to predefined formulas based on the students' age group.</p> <p>1-Teacher: Can assign marks only to students enrolled in their courses.</p> <p>Marking Formulas:</p> <ul style="list-style-type: none"> a. Components: 20 / 20 / 20 / 40
Data	1-Course ID 2-Student ID 3-Mark Components (Assignments, Quizzes, Exams, Participation) 4-Total Marks 5-Department
Stimulus	The user selects a course and a student to assign marks.
Response	<p>If the user has appropriate permissions, the system provides the input fields for the applicable mark components based on the student's age group and formula.</p> <p>Marks are saved in the system, and a confirmation message is displayed.</p>
Scenarios	<p>1-Add Marks by Teacher:</p> <ul style="list-style-type: none"> a-The teacher selects a course they teach and a student in the course. b-The system identifies the student's age group and presents the mark components based on the predefined formula. c-The teacher inputs the marks and submits. d-The system saves the marks and displays a success message. <p>2-Failed action:</p> <ul style="list-style-type: none"> a- if the marks are already entered
Comments	1-Ensure the system validates input to prevent incorrect marks or exceeding the component limits.

Table 71 Add Marks

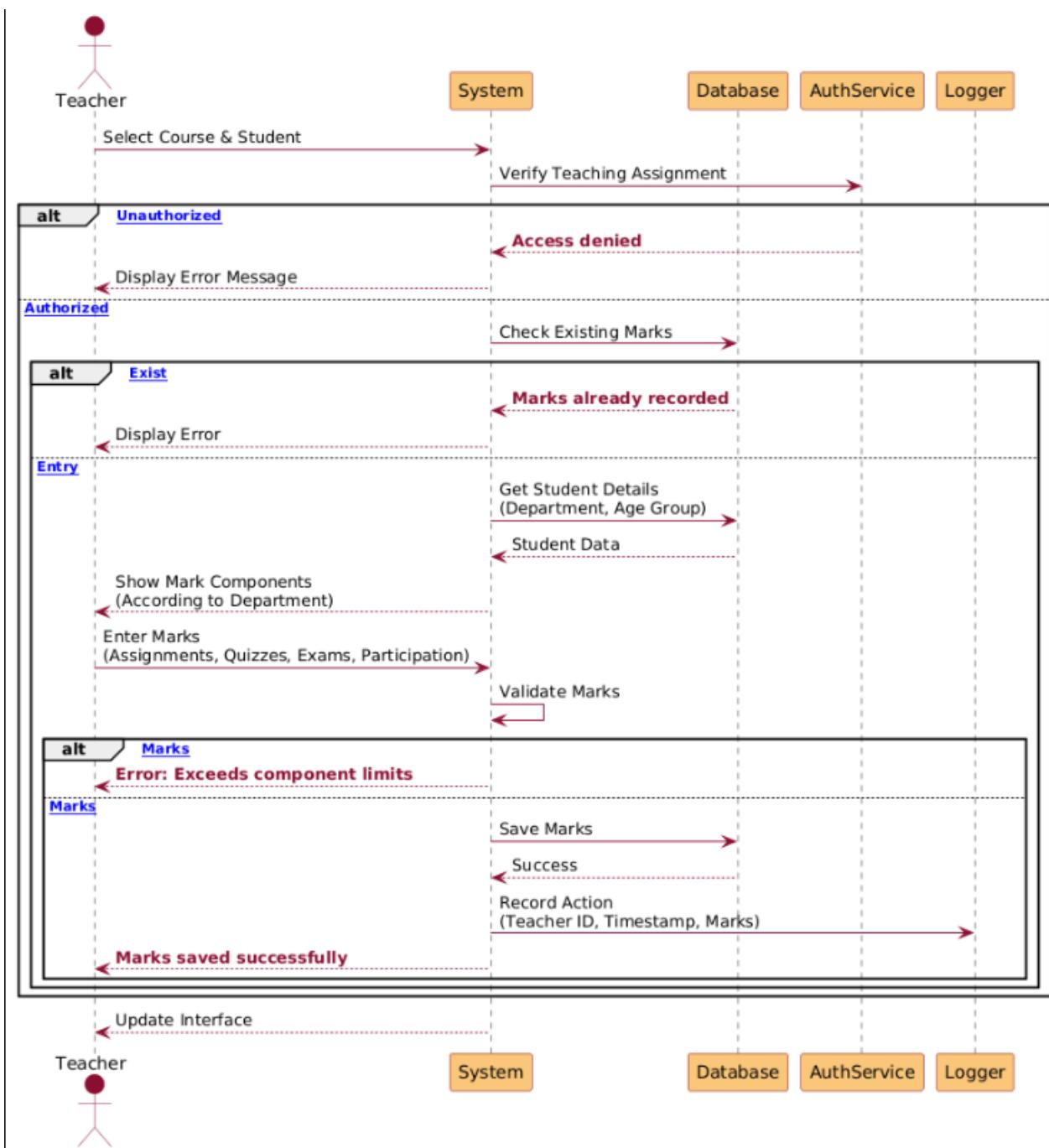


Figure 80 Sequence Diagram Add Marks

View Marks	
Actors	Parent, Student
Description	A Parent or Student can view the Marks for a specific course the student is enrolled in.
Data	1. Course identifier. 2. Marks data (e.g., marks, total, grade breakdown).
Stimulus	User requests to view Marks for a selected course.
Response	1. System displays the Marks if available. 2. Error message if Marks are not available.
Scenarios	<p>Normal Scenario:</p> <ul style="list-style-type: none"> a. User requests to view Marks. b. System retrieves and displays Marks. <p>Error Scenario:</p> <ul style="list-style-type: none"> a. User requests to view Marks. b. System cannot find Marks. c. Error message "Marks not available" is displayed.
Comments	Parents and Students can only view Marks associated with the student. This ensures privacy and accuracy.

Table 72 View Marks

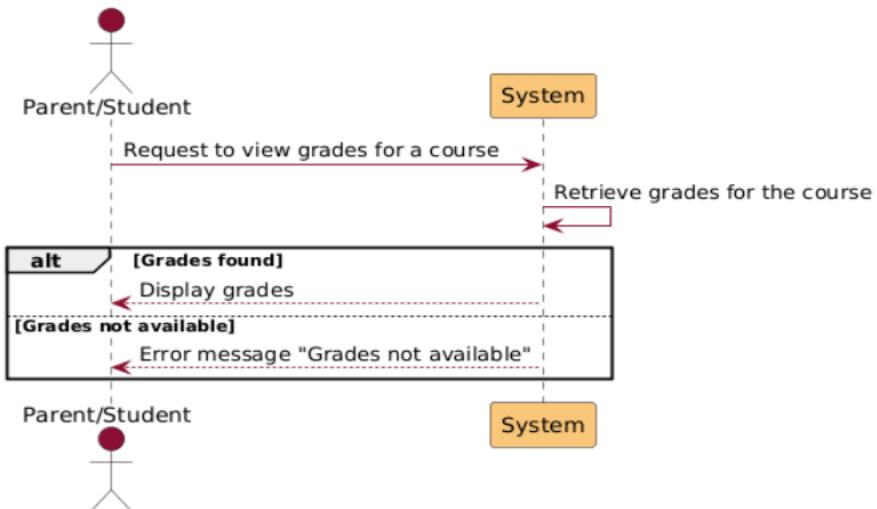


Figure 81 Sequence Diagram View Marks

Edit Marks	
Actors	Admin
Description	<p>The functionality allows the Admin to edit the marks of any student who belongs to a specific course.</p> <p>Marking Formulas: Components: 20 / 20 / 20 / 40</p>
Data	<p>1-Course ID 2-Student ID 3-Mark Components (Assignments, Quizzes, Exams, Participation) 4-Total Marks 5-User Role 6-Department</p>
Stimulus	The managers select the students and the course to edit
Response	<p>If the Admin has appropriate permissions, the system allows them to edit the marks by showing them the old marks and an edit button based on the student's age group and formula. Then inserting the new mark on the input field instead of the old one and a submit the update</p> <p>Updated Marks are saved in the system, and a confirmation message is displayed.</p>
Scenarios	<p>1-Edit Marks by Admin:</p> <ul style="list-style-type: none"> a-The Admin selects any course and a student in that course. b-The system retrieves the mark components based on the student's age group. c- The Admin edits the marks by clicking on the edit button. d- The Admin inserts the new marks and submits it. e-The system saves the marks and displays a success message.
Comments	

Table 73 Edit Marks Description

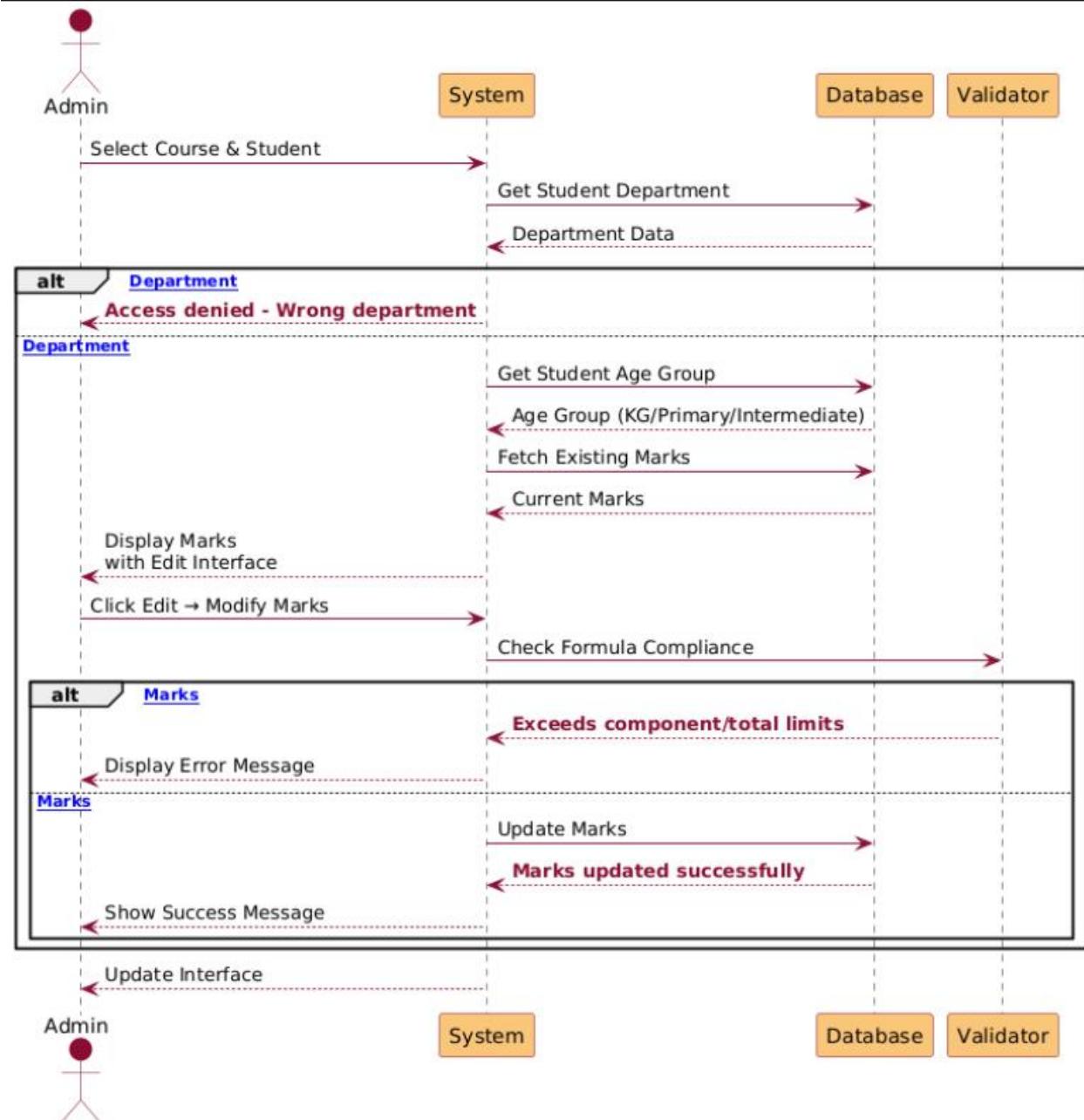


Figure 82 Sequence Diagram Edit Marks

Add Absences	
Actors	Admin, Teacher
Description	Admins and Teachers can mark student absences by selecting the student, date, and section (for Admin) or directly selecting from the student list (for Teacher). Once the selection is made, absences can be submitted.
Data	<p>Date of Absence</p> <p>Grade (only for Admin)</p> <p>Section (only for Admin)</p> <p>Student List</p> <p>Absence Submission Status</p>
Stimulus	Admin/Teacher selects the student from the list, chooses the date, and clicks the “ Submit Absence ” button
Response	<p>Success:</p> <ul style="list-style-type: none"> ● Absence successfully recorded for the student. ● A confirmation message such as “Absence marked successfully” appears. <p>Error:</p> <ul style="list-style-type: none"> ● “Failed to mark absence” (in case of system error).

Scenarios	<p>Scenarios</p> <p>Scenario ST1: Admin Marks Absence</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Admin logs into the system. 2. Admin selects the Date, Grade, and Section. 3. Admin selects the students who are absent. 4. Admin clicks Submit Absence. 5. System records the absence for the selected students and shows a confirmation message. <p>Scenario ST4: Teacher Marks Absence</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Teacher logs into the system. 2. Teacher selects the Date. 3. Teacher selects the absent students from the list. 4. Teacher clicks Submit Absence. 5. System records the absence for the selected students and shows a confirmation message.
Comments	Teacher can only take absences for their assigned course students, Admins can take from any course.

Table 74 Add Absences Description

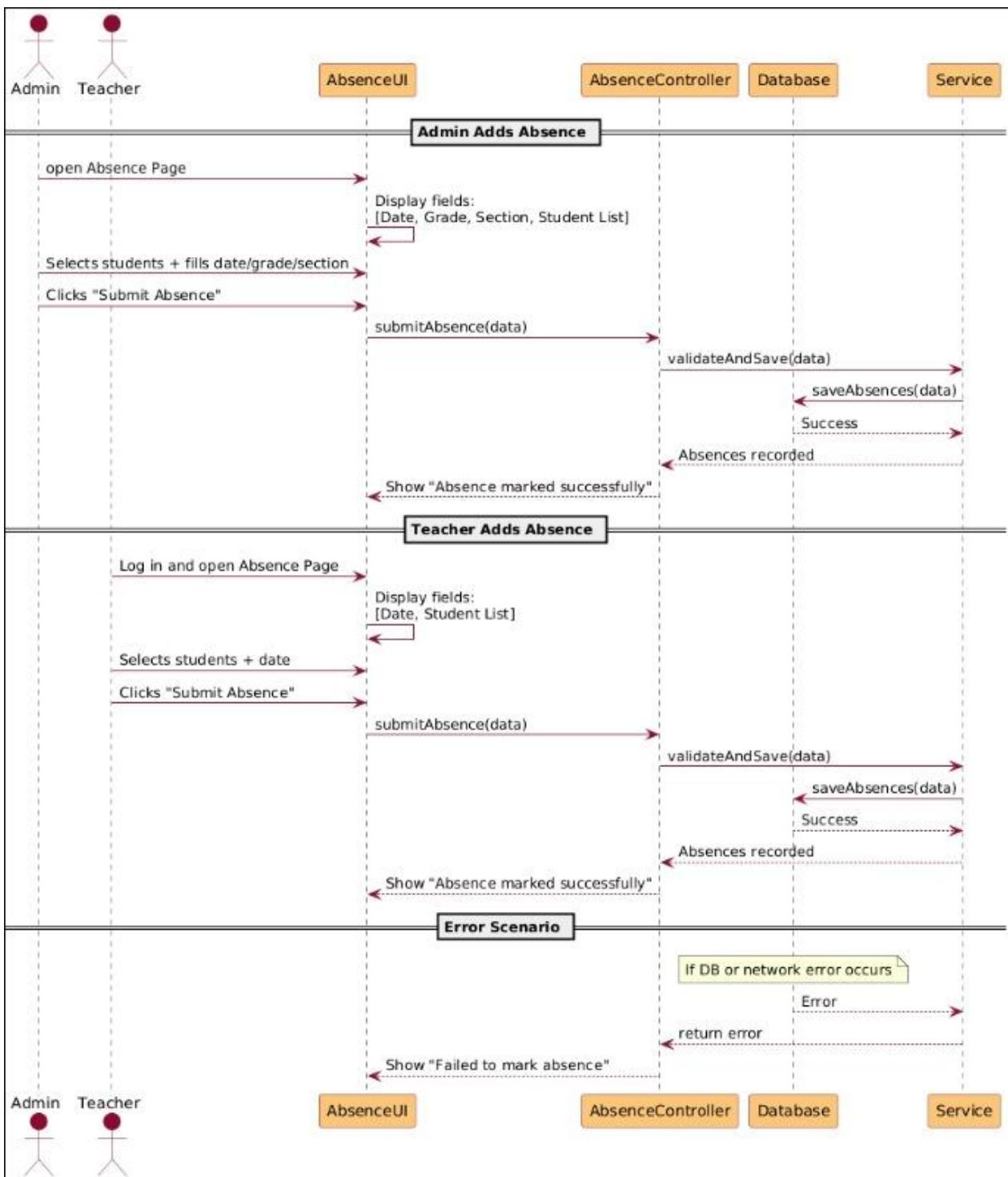


Figure 83 Sequence Diagram Add Absences

Show Absences	
Actors	Parent
Description	This functionality allows parents to view a list of their child's absences from the start of the semester to the present date.
Data	Student ID (associated with the parent's account).
Stimulus	Parent selects the "Show Absences" option for a specific child
Response	On success: Display the absence data in a structured table format On failure: Display an error message (e.g. "Error retrieving absences")
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> 1. Parent logs into the system. 2. Parent navigates to their child's profile or dashboard. 3. Parent clicks the "Show Absences" button. 4. System retrieves the child's absence records 5. The absence records are displayed in a table format, including the date, class <p>Error Scenario:</p> <ol style="list-style-type: none"> a. clicks on the absences button b. System cannot find absences c. Error message "absences not available" is displayed.
Comments	

Table 75 Show Absences Description

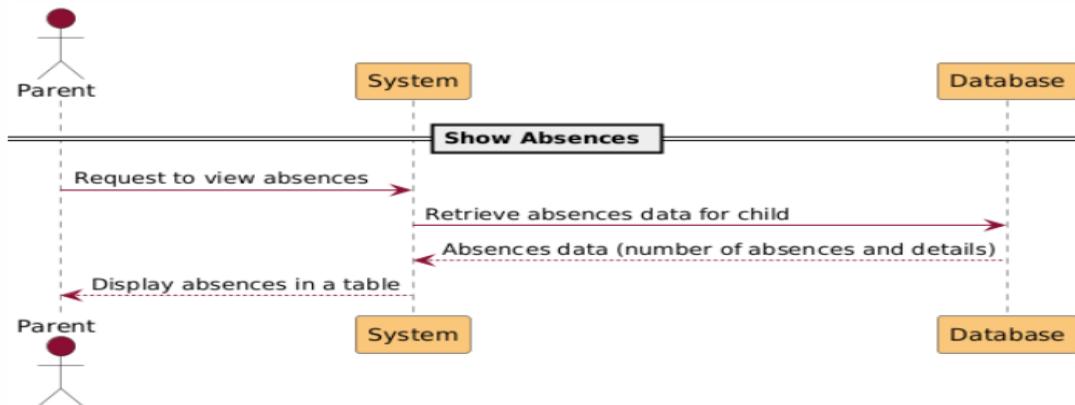


Figure 84 Sequence Diagram Show Absences

View Student Courses	
Actors	Parent, Student
Description	A Parent or Student can view a list of courses assigned to the student and select a course to see its details.
Data	1. Student identifier., 2. List of courses. 3. Selected course details.
Stimulus	User requests to view the courses for a student.
Response	1. Display the list of courses assigned to the student. 2. Display details of the selected course. 3. Error message if no courses are found.
Scenarios	<p>Normal Scenario:</p> <ul style="list-style-type: none"> a. User requests to view courses. b. System retrieves and displays courses. c. User selects a course. d. System retrieves and displays course details. <p>Error Scenario:</p> <ul style="list-style-type: none"> a. System finds no courses for the student. b. System displays "No courses available."
Comments	Parents and Students can only view courses associated with the student. System ensures role-based access control.

Table 76 View Student Courses Description

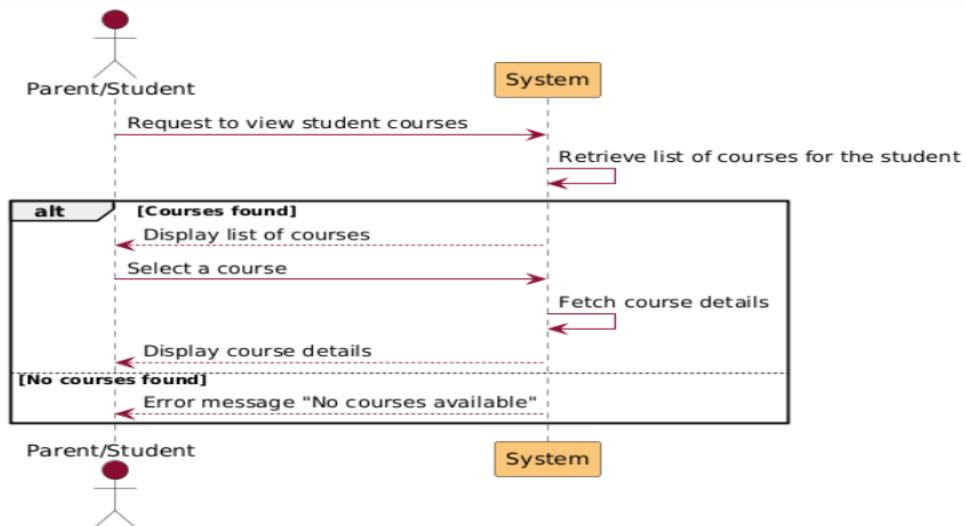


Figure 85 Sequence Diagram View Student Courses

Upload File	
Actors	Student
Description	The student selects an assignment and uploads a file as part of their submission.
Data	1. Assignment identifier. 2. File details (name, type, size).
Stimulus	Student uploads a file for a specific assignment.
Response	1. File is saved to the database if valid. 2. Confirmation message is displayed. 3. Error message for invalid files.
Scenarios	<p>Normal Scenario:</p> <ul style="list-style-type: none"> a. Student selects an assignment. b. Student uploads a valid file. c. System validates and saves the file. d. Confirmation message is displayed. <p>Error Scenario:</p> <ul style="list-style-type: none"> a. Student uploads an invalid file (e.g., wrong type or size). b. System displays "Invalid file type or size."
Comments	Files must meet predefined criteria for type (e.g., .pdf, .docx) and size. This ensures system compatibility and avoids misuse.

Table 77 Upload File Description

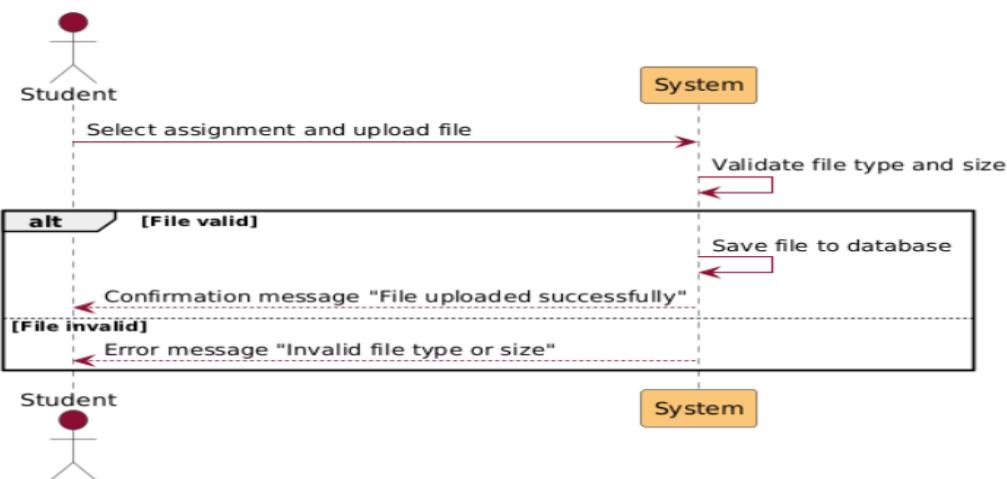


Figure 86 Sequence Diagram Upload File

Download File	
Actors	Student
Description	This functionality allows students to download files (e.g., worksheets, assignments, or materials) provided by teachers.
Data	File selection by the student.
Stimulus	Students click the "Download" button for a specific file.
Response	On success: The file is downloaded to the student's device. On failure: Display an error message (e.g., "File not found" or "Network error occurred").
Scenarios	<p>Normal Scenario:</p> <ol style="list-style-type: none"> 1. Student identifies the desired file from the list of available resources. 2. Student clicks the "Download" button associated with the file. 3. The system retrieves the file from the server. 4. The file is downloaded to the student's device. <p>Error Scenario:</p> <ol style="list-style-type: none"> a. the student clicks on download button. b. displays an error message due to ("file not found").
Comments	Files must meet predefined criteria for type (e.g., .pdf, .docx) and size. This ensures system compatibility and avoids misuse.

Table 78 Download File Description

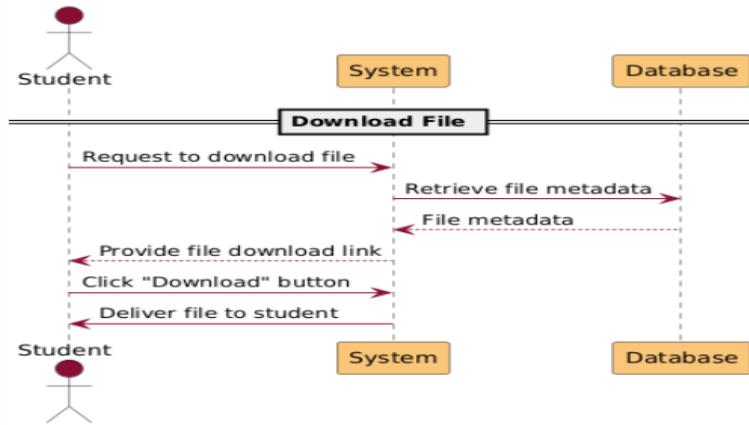


Figure 87 Sequence Diagram Download File

4.5 Database Design

Mongoose Models:

```
const eventSchema = new mongoose.Schema({
  event_id: {
    type: String,
    required: true,
  },
  title: {
    type: String,
    required: true,
  },
  description: {
    type: String,          You, last week • Uncommitted changes
    required: true,
  },
  media: [
    {
      path: {
        type: String, // Path to the media file (could be URL or file path)
        required: true,
      },
      type: {
        type: String, // Type of the media (e.g., image, video, audio)
        required: true,
      },
    },
  ],
});
```

Figure 88 Model 1 eventSchema

```
const reportSchema = new mongoose.Schema({
  instructor_id: {           You, 3 weeks ago • Half course Func Done
    type: String,
    required: true,
  },
  instructor_type: {
    type: String,
    required: true,
  },
  course_id: {
    type: String,
    required: false,
  },
  student_id: {
    type: String,
    required: true,
  },
  title: {
    type: String,
    required: false,
  },
  description: {
    type: String,
    required: true,
  },
  date: {
    type: String,
    required: true,
  },
});
```

Figure 89 Model 2 reportSchema

```
● ● ●
1 const mongoose = require("mongoose");
2
3 // Define the Event Schema
4 const AbsenceReportSchema = new mongoose.Schema({
5   section_id: {
6     type: String,
7     required: true,
8   },
9   date: {
10     type: String,
11     required: true,
12   },
13   students: [
14     {
15       student_id: {
16         type: String,
17         required: true,
18       },
19       isAbsence: {
20         type: Boolean,
21         required: true,
22       },
23     },
24   ],
25 });
26
27 // Create the Event model
28 const AbsenceReport = mongoose.model("AbsenceReport", AbsenceReportSchema);
29
30 module.exports = AbsenceReport;
31
```

Figure 90 Model 3 AbsenceReport

```
1  const mongoose = require("mongoose");
2
3 // Define the Assigment Schema
4 const AssigmentSchema = new mongoose.Schema({
5   course_id: {
6     type: String,
7     required: true,
8   },
9   published_at: {
10    type: String,
11    required: true,
12  },
13   end_at: {
14    type: String,
15    required: true,
16  },
17   title: {
18    type: String,
19    required: true,
20  },
21   description: {
22    type: String,
23    require: true,
24  },
25   path: {
26    type: String,
27    required: true,
28  },
29   type: {
30    type: String,
31    required: true,
32  },
33   studentsSubmission: [
34     {
35       student_id: {
36         type: String,
37         required: true,
38       },
39       submission_date: {
40         type: String,
41         required: true,
42       },
43       path: {
44         type: String,
45         required: true,
46       },
47       type: {
48         type: String,
49         required: true,
50       },
51       isChecked: {
52         type: Boolean,
53         default: false,
54       },
55       mark: {
56         type: Number,
57         required: false,
58       },
59     },
60   ],
61 });
62
63 // Create the AbsenceReport model
64 const Assigment = mongoose.model("Assigment", AssigmentSchema);
65
66 module.exports = Assigment;
67
```

Figure 91 Model 4 AssigmentSchema

```
● ● ●
1 const mongoose = require("mongoose");
2
3 // Define the Course Unit Schema
4 const CourseUnitSchema = new mongoose.Schema({
5   course_id: {
6     type: String,
7     required: true,
8   },
9   unit_name: {
10     type: String,
11     required: true,
12   },
13   unit_description: {
14     type: String,
15     required: true,
16   },
17   // Media field as an array of objects
18   media: [
19     {
20       title: {
21         type: String,
22         required: [true, "Title is required"], // Required for each media
23       },
24       path: {
25         type: String,
26         required: [true, "Path is required"], // Required for each media
27       },
28       date: {
29         type: Date,
30         required: [true, "Date is required"], // Required for each media
31       },
32       type: {
33         type: String,
34         required: [true, "Type is required"], // Required for each media
35       },
36     },
37   ],
38 });
39
40 const CourseUnit = mongoose.model("CourseUnit", CourseUnitSchema);
41
42 module.exports = CourseUnit;
43
```

Figure 92 Model 5 CourseUnitSchema

```
1 const mongoose = require("mongoose");
2
3 // Define the Quiz Schema
4 const QuizSchema = new mongoose.Schema({
5   course_id: {
6     type: String,
7     required: true,
8   },
9   title: {
10     type: String,
11     required: true,
12   },
13   description: {
14     type: String,
15     required: true,
16   },
17   start_date: {
18     type: String,
19     required: true,
20   },
21   start_time: {
22     type: String,
23     required: true,
24   },
25   duration: {
26     type: Number, // Duration in minutes
27     required: true,
28   },
29   total_points: {
30     type: Number,
31     required: true,
32   },
33   able_to_view: {
34     type: Boolean,
35     default: false,
36   },
37   questions: [
38     {
39       question_text: {
40         type: String,
41         required: true,
42       },
43       points: {
44         type: Number,
45         required: true,
46       },
47       options: [
48         {
49           option_text: {
50             type: String,
51             required: true,
52           },
53           isCorrectAnswer: {
54             type: Boolean,
55             required: true,
56           },
57         },
58       ],
59     },
60   ],
61 }
```

Figure 93 Model 6 QuizSchema

```
51  submissions: [
52    {
53      student_id: {
54        type: String,
55        required: true,
56      },
57      questions_submission: [
58        {
59          question_text: {
60            type: String,
61            required: true,
62          },
63          choosed_answer: {
64            type: String,
65            required: true,
66          },
67          correct_answer: { type: String, required: false },
68        },
69      ],
70      submitted_at: {
71        type: String,
72        default: new Date().toISOString().split("T")[0],
73      },
74      mark: {
75        type: Number,
76        required: false,
77      },
78    },
79  ],
80 });
81
82 // Create the Quiz model
83 const Quiz = mongoose.model("Quiz", QuizSchema);
84
85 module.exports = Quiz;
```

5. System Implementation and Technologies Used

5.1 System Implementation

The System Implementation Repository in github link:

<https://github.com/MohamadAbudraiea/ILM-Verse.git>

Don't forget to read the README.MD File

5.2 Development Tools and Software

Tool	Description
VS Code	Integrated development environment used for coding.
Node.js with Express.js	Backend environment and framework for server-side logic.
Supabase (PostgreSQL)	Relational database used to store structured data.
MongoDB Atlas	Non-relational database used for media and flexible content.
Git and GitHub	Version control and code collaboration tools.
Figma	UI/UX design and prototyping tool.
Postman	API testing and debugging tool.
JotForms	Used for form creation (e.g., data collection).
Canva	Graphic design tool for visual assets.

Table 79 Development Tools and Software

5.3 Frontend Technologies

Technology	Purpose
HTML	Page structure and content.
JavaScript	Adds interactivity and logic to the frontend.
React	Frontend library for building interactive UIs.
Tailwind CSS	Utility-first CSS framework for styling.

Table 80 Front-end Technologies

5.4 Security Tools

Technology	Purpose
SHA Algorithms	Used for data encryption and secure password handling.
Sequelize and Mongoose	Ensures secure, efficient database interaction and prevents SQL injection.

Table 81 Security Tools

6.0 SYSTEM TESTING AND INSTALLATION

This chapter presents the system testing and installation aspects including the heuristic evaluation, cooperative evaluation, system installation, and user manual. It also describes the manual and automated testing approaches used to validate the system's functionality and performance.

6.1 Testing

Testing Approaches: To ensure the system met all functional and performance requirements, a **cross-functional testing** approach was applied to ensure the system met all technical and user requirements across different areas. This approach integrated both manual and automated testing methods to validate functionality, usability, and performance. executed in a structured order to cover different layers of the system. The testing types performed as follows:

1. **Unit Testing (Manual):** Each module and component was tested independently to validate the internal logic and verify that each unit produced the expected output for given inputs.
2. **Integration Testing (Manual):** After unit testing, related modules were combined and tested to ensure smooth data flow and proper interaction between components.
3. **System Testing (Manual):** The fully integrated system was tested as a whole to confirm that all specified functional requirements were met across the platform.
4. **End-to-End Testing (Manual):** Real-world scenarios were tested from the user's perspective, simulating complete workflows to ensure the system functioned as expected from start to finish
5. **Stress Testing (Performance Testing) (Automated with Postman):** Finally, stress testing was conducted using Postman to simulate high-volume concurrent API requests. This tested the system's responsiveness and stability under load, identifying any performance bottlenecks.

6.2 Heuristic and Cooperative Evaluation:

As part of our usability testing strategy, we applied both Heuristic Evaluation and Cooperative Evaluation to assess the system's user interface and overall user experience.

Heuristic Evaluation was conducted by usability experts who examined the interface against a set of established usability principles, such as visibility of system status, consistency, error prevention, and user control.

6.2.1 Heuristic Evaluation:

Heuristic	Description	Component Evaluated	Implemented in Project
H1: Visibility of System status	After Submitting an assignment, does the System shows a success message	Students Assignment page	A successful message appears immediately confirming the submission.
H2: Match Between System and Real World	In the parent dashboard, progress and marks should be labeled in familiar academic terms.	Assignment Submission Page	Terms like “Grades,” “Attendance,” and “Reports” should match school terminology
H3: User Control and Freedom	Can Admins cancel a deletion operation and return before the deletion?	Delete User Page	Confirmation of “yes” and “Cancel” buttons appear before confirming the deletion.
H4: Consistency and Standards	All dashboards (admin, teacher, parent, student) should use consistent icons/layout.	All user dashboards.	Navigation icons and layout are uniform across roles.

H5: Error Prevention	Are there input validations when creating quizzes or uploading files?	Teacher Quiz Creation, Upload	The system prevents invalid inputs and warns users before submission.
H6: Recognition Rather Than Recall	When editing student marks or reports, do previous entries auto filled in the form?	Marks Editing / Report Forms	Previously entered data is loaded automatically into editable fields.
H7: Flexibility and Efficiency of use	Teachers should have quick actions (shortcuts) to add assignments or quizzes.	Teacher Dashboard	Buttons like “Add Assignment” or “Add Quiz” should be accessible in one click in each assignment and quiz page
H8: Aesthetic and minimalist design	Is the interface clean, with minimal distractions?	Home Page, Course Pages	UI is clean, focused on core tasks with no unnecessary visual clutter.
H9: Help Users Recognize, Diagnose, Recover	Are clear error messages shown (e.g., login issues, submission failure)?	Login Page, Submission Flow	Clear and helpful error messages are displayed in case of user errors.
H10: Help and Documentation	Is there a user guide or tooltip support for unfamiliar features?	Navigation /Header	Help link or tooltip present to assist new users in understanding functions.

6.2.2 Cooperative Evaluation:

focuses on real users performing tasks while being observed by developers or evaluators to collect feedback on usability, confusion points, and system flow.

Task Description	User Role	Expected Outcome	Observed Behavior	Feedback
Task 1: Log in to the platform using email and password	Student / Parent	User logs in and is redirected to their dashboard based on role	Some parents confused login with Staff login	Suggested clearer labels for login form
Task 2: Submit assignment to a course	Student	File uploads successfully and confirmation message appears	Completed Successfully	Consider adding “Submission Success” pop up
Task 3: Add a new quiz to a course	Teacher	Quiz is created with correct metadata and saved	User skipped required field (duration)	Add real-time validation for quiz duration to insert it.
Task 4: View student marks and add a new report	Teacher / Admin	Marks load properly; report is saved with timestamp	Successfully completed	Suggest separating the admins report from the teachers reports

Task 5: View their child's attendance and marks	Parent	Parent can access reports and view child progress	Some confusion on navigation steps	Add icons or tooltips to explain dashboard sections
Task 6: Edit user profile information (name/password)	Admin	Form is updated and confirmation is displayed	Admin unsure if password the new Password is not the same as the confirmation password	A message appears to tell the user that it's not the same as the new password.
Task 7: Navigate to the announcements section and send a new announcement	Admin	Announcement is posted and visible to selected roles and sections	Admin finds it confusing to choose the right targeted audience	A clear way to send the announcements to the targeted group without any mistakes.
Task 8: Start a quiz and submit answers	Student	Timer works, answers are saved, quiz is submitted	Students find it difficult to answer when all the questions are listed vertically	Make each question in a single page

6.3 System Installation:

The ILM-Verse system was installed and deployed on a production server following standard installation procedures. The setup process included configuring the database, backend services, and front-end interface to ensure full system functionality in a live environment. The backend was implemented using Node.js and Express.js, while Supabase was used to manage the PostgreSQL database. The front-end was built using React and styled with Tailwind CSS.

The installation steps included:

- Setting up a suitable hosting environment for deployment.
- Initializing and connecting the PostgreSQL database via secure APIs.
- Uploading project files and installing necessary dependencies using npm.
- Configuring security measures such as role-based access control (RBAC) and encrypting sensitive data using SHA algorithms.
- Verifying cross-platform compatibility to ensure smooth operation on desktops, tablets, and smartphones.

6.4 User Manual:

a user manual is made to ensure that the users are fully aware of the website aspects and have the knowledge to perform the functionalities, a clear guidance with a suitable brief of each point on the website will be very helpful for the users to fully understand their roles.

6.4.1 Guest User-Manual:

Home Page

Contact Us

Events Page

About Us Page

Student/Parent Login

Teacher/Admin Login

Login

Lightning Minds in As-Salt

At Thinking Flares School (TFS), learning shines bright like a spark! We use cool modern technology like tablets, smart boards, and fun apps to make every lesson exciting and easy to follow. Here, ideas light up, and students explore, create, and grow with the help of today's best tools. TFS is where the future of learning begins, and every student's mind flares with new possibilities!

In Loving Memory of Mr. Ayman

With deep respect and gratitude, we remember our beloved Head, Mr. Ayman, whose vision and leadership sparked the flame of knowledge at Thinking Flares School. His passion, wisdom, and kindness continue to guide us every day. His legacy shines bright in the hearts of all who knew him.

a Letter for School Founder →

A brief about School's Environment →

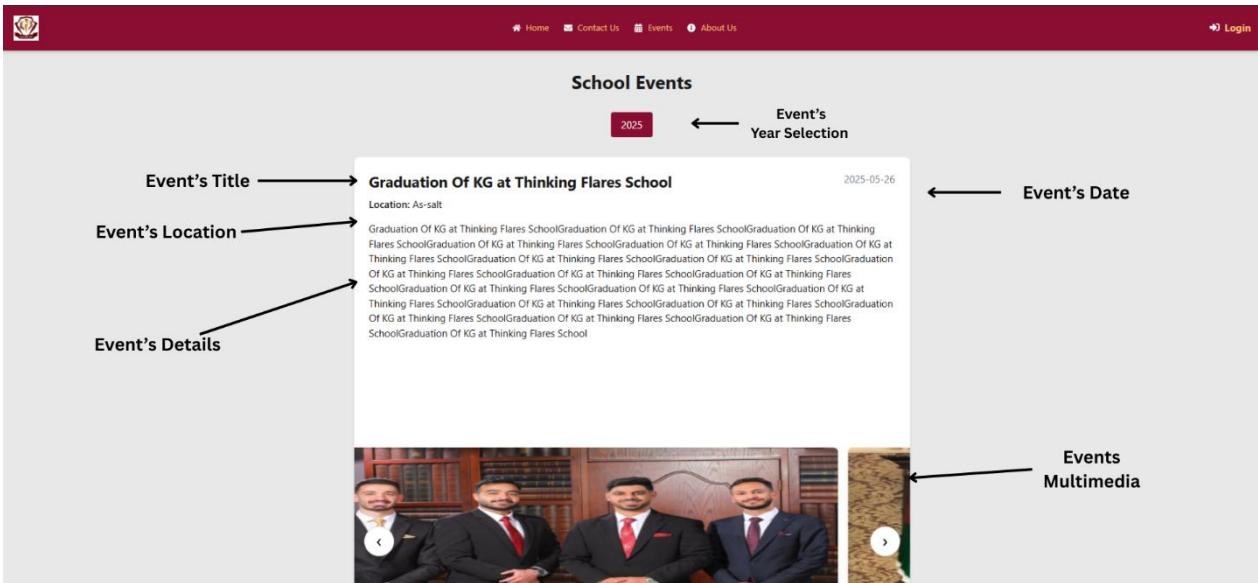
Our School Environment

At Thinking Flares School, we provide a safe, friendly, and inspiring environment where students feel comfortable to learn and explore. Our classrooms are bright and equipped with modern technology to support interactive lessons. We encourage teamwork, creativity, and respect, making our school a place where every student can thrive and grow happily.

In Loving Memory of Mr. Ayman

With deep respect and gratitude, we remember our beloved Head, Mr. Ayman, whose vision and leadership sparked the flame of knowledge at Thinking Flares School. His passion, wisdom, and kindness continue to guide us every day. His legacy shines bright in the hearts of all who knew him.

Social media School Links



About Thinking Flares

a brief about the school

With over 30 years of experience in education, Thinking Flares School (TFS) has been a trusted place where young minds grow and shine. We combine our long history of teaching excellence with the latest modern technologies to create a learning environment full of energy and innovation. At TFS, we believe every student deserves the best tools and support to discover their talents, think creatively, and prepare for a bright future. Our dedicated teachers and staff work together to inspire curiosity, confidence, and a love for learning in every child who walks through our doors.

Images For The School



Schools' Admins

Leadership Team



Dr. Bushra Al-Matari
General Manager



Motaz Abudraiea
Head of Finance



Renad Abudraiea
Head Of Academic Directors



Mohamad Abudraiea
Operations Manager



Rahaf Abudraiea
Head Of Social Media

School's Values

Our Core Values

Academic Excellence

Commitment to highest educational standards and lifelong learning

Community Focus

Building strong relationships with students, parents, and community

Global Citizenship

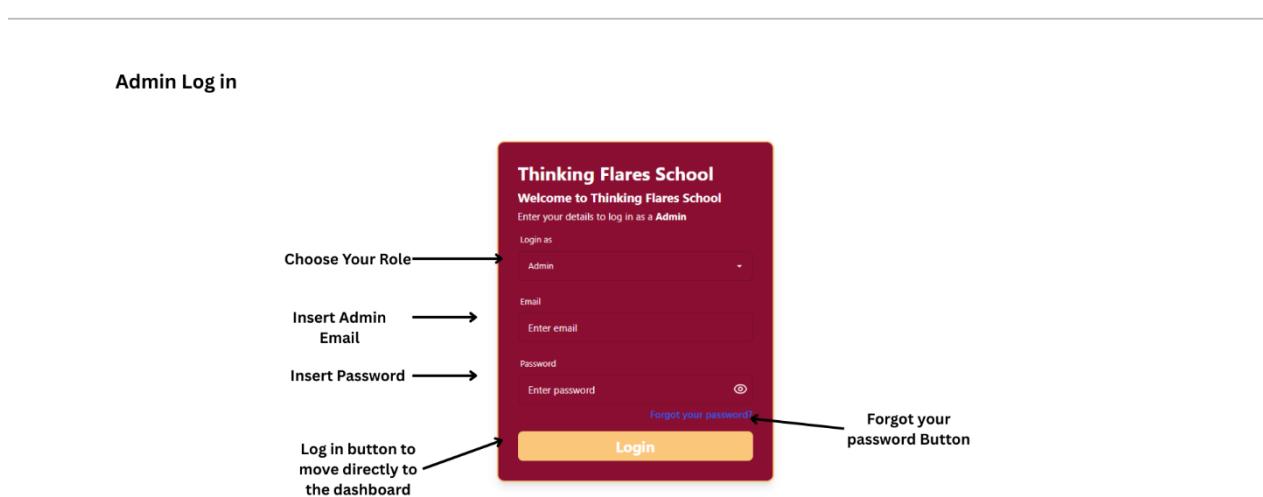
Developing responsible citizens for a interconnected world



Copyright © 2025 - All right reserved



6.4.2 Admin's User-Manual:



Thinking Flares School

Forgot Password
Enter your email address to receive a password reset OTP

Email Address
Enter your registered email

Send OTP

Back to Login

Write Your Email

Send a one time Password to your Email

Back to the Login Page

Ahmad Mohsen

Home Page for Admin(this page)

Dashboard Events Settings Announcement Logout

Students User settings page Parents Announcements Page

Events Page where the Admin can add events

Search by student name or ID

Admin dashboard's: show the recent search results for students and Parents

Student Search Results

Student ID	Student Name	Department	Grade	Section	Parent ID	Absences	Action	View Report
STU-032	Ahmad ali	Primary	Seventh1	C	Parent-003	Show absence	Add report	view report
STU-001	Ahmad Hary	KG	KG1	A	Parent-001	Show absence	Add report	view report
STU-050	ali mohammad	Primary	Seventh1	C	Parent-003	Show absence	Add report	view report
STU-034	karam emad	Primary	Seventh1	C	Parent-003	Show absence	Add report	view report
STU-036	Ibraheem Hyari	KG	KG1	B	Parent-003	Show absence	Add report	view report

Previous Page 1 of 1 Next

Deleting an existing Stackholder

Reset users passwords

Take Students Absence

Quick Actions: Addition, Deletion, Reset Password, Take Absence

Course Content Actions: Add Course, Courses

Searching for existing courses

logging out

Search bar for students as quick access for adding report

Add Report for a student

View Students Report

Adding a new Teacher, Student, Parent and Admin

Adding a new course

Student's absences Page

The screenshot shows a dashboard with a red header bar. On the left, it says "Ahmad mohsen". On the right, there are links for "Dashboard", "Events", "Settings", and "Announcement". Below the header is a button labeled "Logo". The main content area has a title "Student Absences" and a summary box showing "Total Absences 3 Current Academic Year". To the right is a table titled "Total Student's Absences" with three rows of data:

#	Date	Day
1	May 14, 2025	Wednesday
2	May 19, 2025	Monday
3	May 30, 2025	Friday

Annotations on the left side point to the table with labels "Absences order" and "Absences Date". Annotations on the right side point to the "Day" column with labels "Absence day" and "back to Admin Dashboard".

Settings Page

Administrator

Change Password

Current Password
Enter current password

New Password
Enter new password

Confirm New Password
Confirm new password

Update Password

Profile Information

First Name
Enter First Name

Last Name
Enter Last Name

Password
Enter your current password

Update profile changes

Annotations on the left side point to the "Change profile Name", "Change Email", and "Password" sections with arrows. Annotations on the right side point to the "Update Password" and "Update profile changes" buttons with arrows.

A screenshot of a web application interface titled "Events Management". The top navigation bar includes links for Dashboard, Events, Settings, Announcement, and Logout. A red button labeled "+ Add New Event" is located in the top right corner.

The main content area is divided into sections:

- School Events Section**: An arrow points from this label to the "+ Add New Event" button.
- Select Year**: An arrow points to the year "2025" in a dropdown menu.
- Choosing the event's year**: An arrow points to the "2025" dropdown.
- Event's Location**: An arrow points to the location field containing "ffff" and "fhdeyseawa".
- Event's Details**: An arrow points to the "Event's Title" field containing "qqq" and the "Event's Date" field showing "2025-05-01".
- Events Multimedia**: An arrow points to a Gantt chart titled "Slack = LS - ES or LF - EF". The chart shows tasks A through G with their start and end times (e.g., A: 0-7, B: 9-9, C: 12-19, D: 14-26, E: 17-26, F: 26-32, G: 27-32) and a finish time of 32. It also includes a legend for activities, predecessors, and slack.
- Add new event to the events page**: An arrow points to the "Add New Event" button.
- delete event**: An arrow points to the "Delete" button next to the event entry "2025-05-01".
- Event's Date**: An arrow points to the "Event's Date" field.

Ahmad mohsen

Logout

Students Parents

Student Report Form

Add Report modal

Report Title → Student Name

Report Date → Student's department

Student Search Results

Student ID	Student Name
STU-032	Ahmad ali
STU-001	Ahmad Hiyari
STU-030	ali mohammad
STU-034	karam emad
STU-036	Ibraheem Hiyari

Title: Report title → Ahmad ali

Date: 05/25/2025 → Primary

Description: Report details...

Action: View Report

Generate Report → Close Modal

Clear report → Close Modal

Quick Actions: Addition, Deletion, Reset Password, Take Absence

Close Modal

Generate the report

Ahmad mohsen

Logout

View Students report Page

Student Reports

Admins Reports Section

Admin Reports for

Admin	Date	Title	Actions
Ahmad mohsen	5/13/2025	admin report	View Delete
Ahmad mohsen	5/25/2025	Week 5	View Delete

Report Title

Admin Name → **Report Date**

Delete Report

View Report

Teachers Reports Section

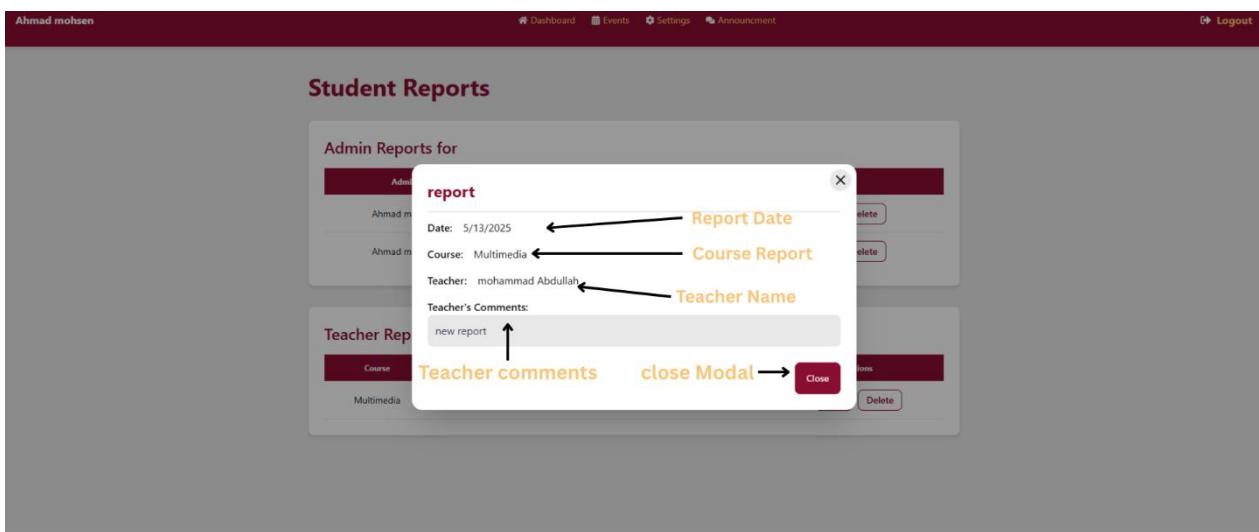
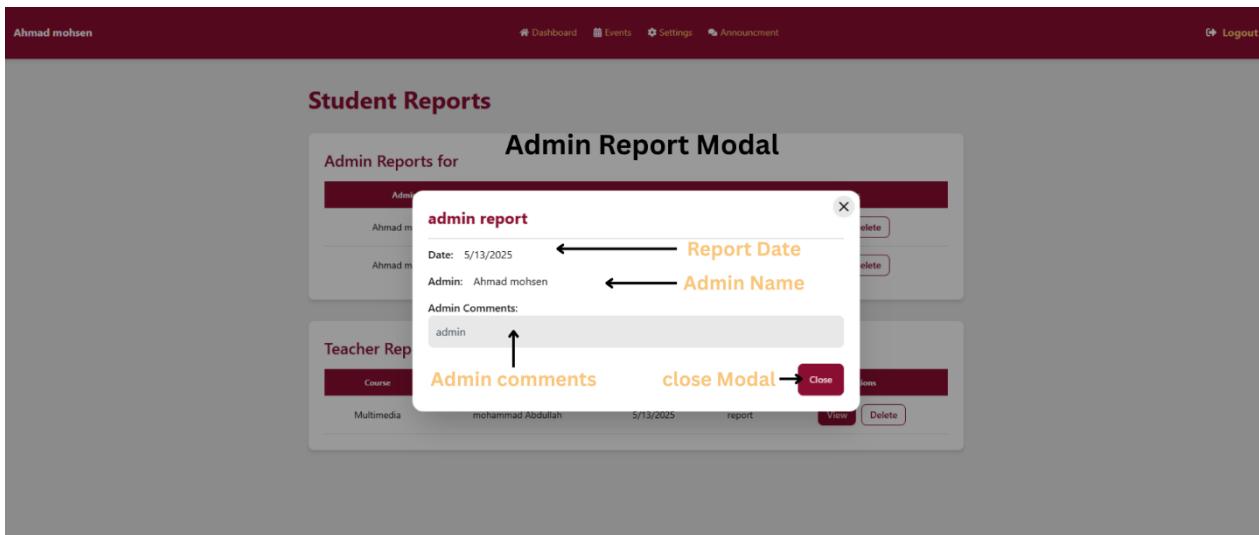
Teacher Reports for

Course	Teacher	Date	Title	Actions
Multimedia	mohammad Abdullah	5/13/2025	report	View Delete

Course Name → **Teacher Name** → **Report Date** → **Report Title**

Delete Report

View report



Ahmad mohsen

Dashboard Events Settings Announcement Logout

Parents search results

Parent Search Results		
Parent ID	Parent Name	Phone
Parent-003	Ibraheem Qudah	0799742003
Parent-001	John Doe	123-456-7890

Page 1 of 1

Annotations:

- Parent's ID**: Points to the "Parent ID" column header.
- Parent's Name**: Points to the "Parent Name" column header.
- Parents Phone Number**: Points to the "Phone" column header.

Ahmad mohsen

Dashboard Events

New Announcement

Announcements Sending Modal

Parent Search Results		
Parent ID	Parent Name	Phone
Parent-003	Ibraheem Qu	0799742003
Parent-001	John Doe	123-456-7890

Annotations:

- Announcements Message**: Points to the "Type your announcement here..." input field.
- Targeted Group Selection**: Points to the "Target Group" section.
- Send Announcement**: Points to the "Send Announcement" button.
- Confirm sending the Announcement**: Points to the "Send" button in the top right corner of the modal.

Announcements View Modal

The modal shows a search bar and a table of student results:

Student ID	Student Name	Department	Grade	Section
STU-032	Ahmad ali	Primary	Seventh1	C
STU-001	Ahmad Hary	KG	KG1	A
STU-030	ali mohammad	Primary	Seventh1	C
STU-034	karam emad	Primary	Seventh1	C
STU-036	Ibraheem Hyani	KG	KG1	B

Announcements

Filters based on groups

Announcement Content

Delete Announcement

Announcement Group

Announcement date →

Annotations explain the structure of the announcements list, showing how they are grouped by user and filtered by category.

Addition Page

Administrator Add New User

choose the user that you want to add

New Student Addition

User ID

enter first name for student

Last name for the student

Password

Student's Parent

student's grade

Student's Section

Add New Student

Students parents teachers admins

First Name*

Last Name*

Password*

Parent*

Grade*

Section*

Add Student

Confirm the addition operation

Annotations guide the user through the fields, from selecting the user type to confirming the addition.

New Parent Addition

Administrator
Add New User

students parents teachers admins

Add New Parent

User ID →
enter first name for student
Last name for the student
Password
Parent Phone Number

First Name*
Last Name*
Password*
Phone Number*

Add Parent

Confirm the addition operation

New Teacher Addition

Administrator
Add New User

students parents teachers admins

Add New Teacher

User ID →
enter first name for student
Last name for the student
Password
Student's Parent
student's grade
Student's Section

First Name*
Last Name*
Email*
Password*
Department*
Section*

Add Teacher

Confirm the addition operation

New Admin Addition

Administrator
Add New admins

students	parents	teachers	admins
			admins

Add New Admin

User ID →

enter first name →

Last name →

Email →

Password →

Add Admin ← Confirm the addition operation

Deletion Page

Administrator
Delete User

Search Bar

Users Selection →

ID	Details	Confirm Deletion	Action
STU-032	Ahmad ali Seventh	Are you sure you want to delete? This action cannot be undone.	Delete
STU-001	Ahmad Hilary KG1	Are you sure you want to delete? This action cannot be undone.	Delete
STU-030	ali mohammad Seventh	Are you sure you want to delete? This action cannot be undone.	Delete
STU-034	karan emad Seventh	Are you sure you want to delete? This action cannot be undone.	Delete
STU-036	Ibraheem Hyari KG1	Are you sure you want to delete? This action cannot be undone.	Delete

User ID → STU-001

User Name → karan emad

← Delete user button

Ahmad Mohseen Logout

Deletion Page (Parent) **Administrator**
Delete User

Search for parents...

Users Selection

ID	Details	Confirm Deletion	Action
Parent-001	John Doe	Are you sure you want to delete? This action cannot be undone.	Delete
Parent-002	Karam Jacob	Are you sure you want to delete? This action cannot be undone.	Delete
Parent-003	Ibraheem Qudah	Are you sure you want to delete? This action cannot be undone.	Delete

User ID → Parent-001
User Name → Karam Jacob

Search Bar **Delete user button**

Ahmad Mohseen Logout

Deletion Page (Teachers) **Administrator**
Delete User

Search for teachers...

Users Selection

ID	Details	Confirm Deletion	Action
TCH-002	Islam Abu rumman KG	Are you sure you want to delete? This action cannot be undone.	Delete
TCH-009	Tasneem Dabbas KG	Are you sure you want to delete? This action cannot be undone.	Delete
TCH-010	mohammad Abdullah KG	Are you sure you want to delete? This action cannot be undone.	Delete

User ID → TCH-002
User Name → mohammad Abdullah

Search Bar **Delete user button**

Ahmad Mohseen Dashboard Events Reports Settings Chat Logout

Deletion Page (Admin)

Administrator
Delete User

Search for admins...

students parents teachers **admins**

User ID

ID	Details	Confirm Deletion	Action
ADM-001	Mohamad Abudraiea mohamadabudraiea2003@outlook.com	Are you sure you want to delete? This action cannot be undone.	Delete
ADM-002	Ahmad Mohseen ahmad@gmail.com	Are you sure you want to delete? This action cannot be undone.	Delete

User Name

Search Bar

Users Selection

Delete user button

Ahmad Mohseen Dashboard Events Reports Settings Chat Logout

Reset User Password **Administrator Dashboard**
Password Management

Select User
Filter by User Type: All User Types Search Users: Q. Search by name...

User name **User ID**

Name	Identifier	Role	Action
Ibraheem Abdullah	STU-002	Student	Select
Ahmnad Hiary	STU-001	Student	Select
Ibraheem Hyari	STU-027	Student	Select
anas ghnaim	STU-029	Student	Select
Anas ahmad	STU-031	Student	Select
ali mohammad	STU-030	Student	Select
Islam Abu rumman	islamaburumman@gmail.com	Teacher	Select
Tasneem Dabbas	tasneem@gmail.com	Teacher	Select

Search Bar

Select User to change password

User role

islam Abu rumman	islamaburumman@gmail.com	Teacher	Select
Tasneem Dabbas	tasneem@gmail.com	Teacher	Select
mohammad Abdullah	mohammad@gmail.com	Teacher	Select
John Doe	Parent-001	Parent	Select
Karam Jacob	Parent-002	Parent	Select
Ibraheem Qudah	Parent-003	Parent	Select

Reset Password for **Ibraheem Abdullah** Change User

write a new password for the selected user → (i)

Confirm the new Password → (i)

cancel changes → Cancel Reset Password Submit reseting password 

Ahmad mohsen Logout

Take absence **Take Absence**

1- select the absence Date → Select Date Select Grade KG1 2- select student's grade

2- select student's section → Select Section 3- select student's section

3- Students List ←

4- mark the absent student → Ibraheem Hyari Mark Absence

5-Submit absence → Submit Absence

Ahmad Mohseen

Dashboard Events Reports Settings Chat Logout

Add new course

Add New Course

1- write course name →

2- select grade for this course → Grade* KG1 KG2 Seventh1

3- Create course button →

4- message appears (course added successfully) → **(course added successfully)**

Ahmad Mohseen

Dashboard Events Reports Settings Chat Logout

Search course

Course Management

Manage all courses and their content

Search Bar →

course name → **adv Java**
Teacher: mohammad Abdullah
Students: 2

course's grade and section → **Seventh1**

Teacher students in course → **Teacher: mohammad Abdullah**
Students: 2

Change course teacher →

clear search →

Delete course →

view course details →

involve all students in a certain class →

Ahmad mohsen

Dashboard Events Settings Announcement Logout

Course Management

Manage all courses and their content

Search Courses

Search by name or teacher...

Multimedia
Current teacher: mohammad Abdullah
Selected: mohammad Abdullah
Select New Teacher
mohammad Abdullah

Mathematics
Teacher: Islam Abu rumman
Students: 1

test 1
Teacher: Islam Abu rumman
Students: 1

Change Teacher for Multimedia

Current teacher: mohammad Abdullah
Selected: mohammad Abdullah
Select New Teacher
mohammad Abdullah

Current Teacher for the course

Selecting the new Teacher

Cancel Changes → Cancel **Save Changes**

Save the Changes

Ahmad Mohseen

Dashboard Events Reports Settings Chat Logout

Multimedia

Course ID: CRS-026

go back to the courses Page

Show Students

+ Add New Unit

Add a new unit to the course

Course Units

1 test

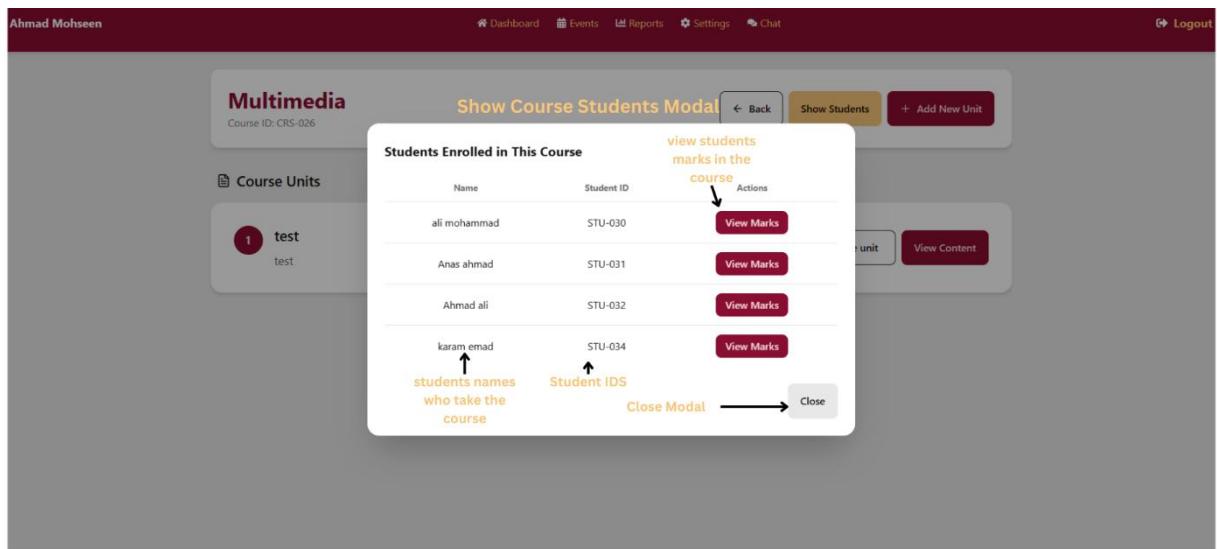
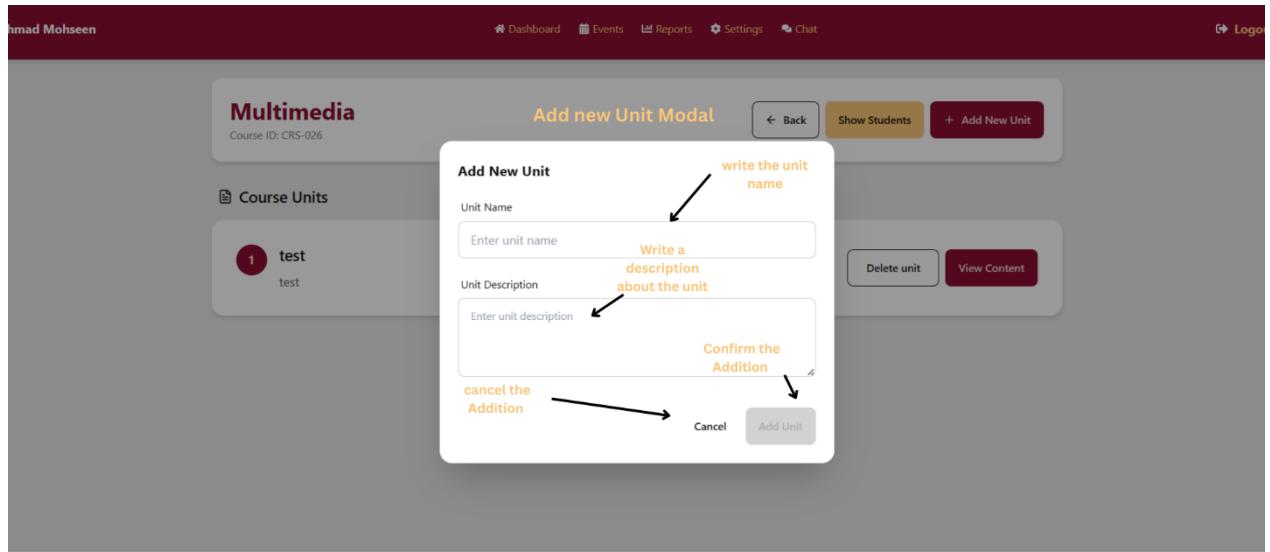
test

Delete unit

View Content

view unit details

delete unit from the course



Ahmad Moliseen

Dashboard Events Reports Settings Chat Logout

Multimedia
Course ID: CRS-026

Add Marks Modal

Enter Marks: ali mohammad - Multimedia

Term 1	Term 2	Term 3	Final
Max Marks	Obtained Marks		
20	0		
Max Marks	Student Mark	Cancel	Save

View Content

Ahmed Moliseen

Dashboard Events Settings Announcement

Unit Content

View content Page

Unit name: test

+ Add

ILM Verse Project1 Final
DOC • Uploaded on May 16, 2025

view content of the unit

Delete content from the unit

Upload Content

Upload Content Modal

Content Title: Enter content title

Select File (PDF, DOC, DOCK, MP4)

CHOOSE FILE: ILM Verse Project1 Final.docx

Insert content Title

Cancel the upload → Cancel Upload

Upload the file

6.4.3 Teacher's User-Manual:



Teacher Log in

Choose Your Role →

Insert Teacher Email →

Insert Password →

Log in button to move directly to the dashboard →

If you Forgot your password Button →

Thinking Flares School
Welcome to Thinking Flares School
Enter your details to log in as a **Teacher**

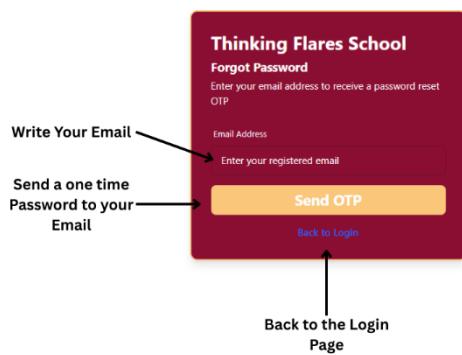
Login as
Teacher

Email
Enter email

Password
Enter password

Forgot your password?

Login



Teachers Dashboard

My Courses
Course overview

Course Name	Course Grade and Section	Action
Multimedia Grade: Seventh1 Section: C	aaaaa Grade: Seventh1 Section: C	View course
test 3 Grade: Seventh1 Section: C	testing Grade: Seventh1 Section: C	View course
adv Java Grade: Seventh1 Section: C	testing for abood Grade: Seventh1 Section: C	View course
sa Grade: Seventh1 Section: C		View course

Teachers Events Page

School Events

Event's Title	Event's Location	Event's Details	Year Selection	Event's Date	Events Multimedia
qwe	qwe	Location: qwe qweqweqwe	2024 2025	2025-05-31	View
qweqweqwe	qweqweqwe	Location: sakt qweqweqwe		2025-05-24	View

mohammad Abdullah

Dashboard Events Take Absence Announcements Logout

Take Absences Page

Take Absence

Select Date

05/28/2025

Absence Date

Absence Check

Mark Absence

- Ahmad ali
- ali mohammad
- karam emad

Students Names List

Submit Absences

Submit Absence

Mohammad Abdullah

Dashboard Events Take Absence Announcements Logout

Teachers Course Page

adv Java

Assigned Students → **Students**

Overview Content Assignments Quizzes

Students → **Overview Page**

Content Page ↑

Assignments Page ↑

Quizzes Page ←

Students Search

Student ID → **ID** → STU-030

Student Name → **Name** → ali mohammad

Ahmad ali

karam emad

Actions (Add report and add marks) → **...**

Page 1 of 1

mohammad Abdullah

Generating Reports (Teacher)

Report Date: **Students**

Student Report Form

Report Title: **ali mohammad**

Date: 05/25/2025

Description:

Clear Report **Generate Report** **Close**

Page 1 of 1

mohammad Abdullah

Add Marks Model

Term Selection: **Students**

Maximum Mark: **adv Java**

Enter Marks: **all mohammad - adv Java**

Term 1: **20** Term 2: **14.00** Term 3: **Final**

Max Marks: **20** Obtained Marks: **14.00**

Cancel Addition **Cancel**

Student and Course name: **karam emad**

Student obtained Mark: **14.00**

Actions: **Report**, **Add marks**

Page 1 of 1

mohammad Abdullah

Dashboard Events Take Absence Announcements Logout

Overview Units Page

adv Java

Students Overview Content Assignments Quizzes

Course Units

New Unit Addition → + Add New Unit

Unit's name: loops
this is a description

Unit's description: this is a description for the loops unit

View Unit → View Unit

Unit's name: conditions
this is a description for the conditions unit

View Unit

Unit's name: alert
alert

View Unit

mohammad Abdullah

Dashboard Events Take Absence Announcements Logout

Generating Reports (Teacher)

Report Date: Students → Students

Report Title: Student Report Form

Title: ali mohammad

Date: 05/25/2025

Description:

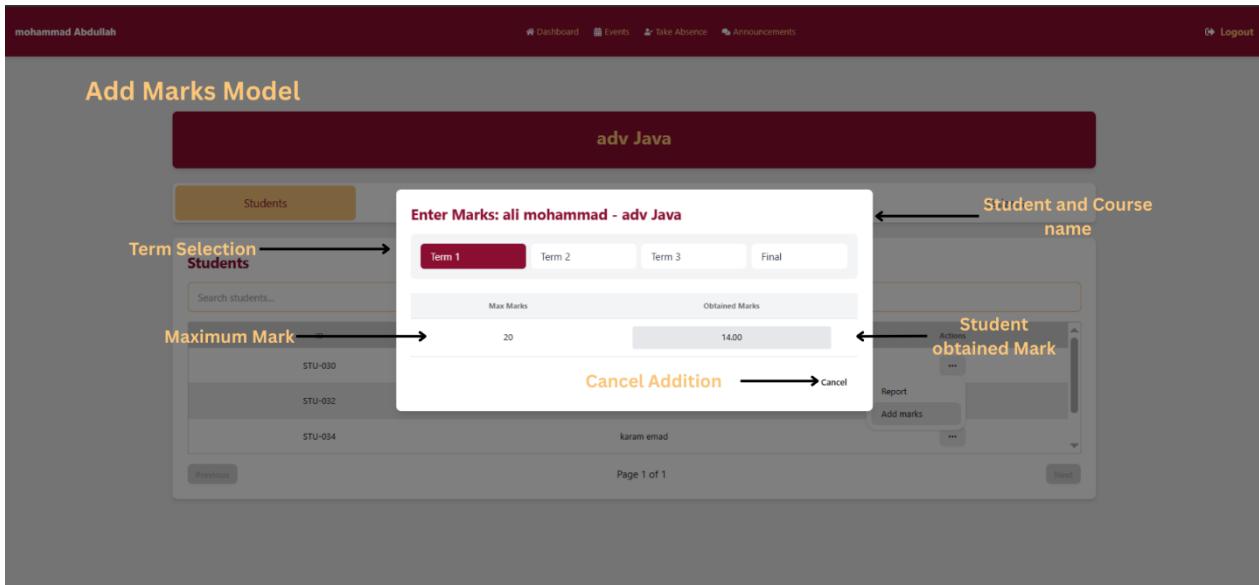
Clear **Generate** **Generate Report** **Close**

Page 1 of 1

Student name: ali mohammad

description:

Close modal:



Assignments Page

Assignment Title	Assignment Description	Show Assignment Submissions	Action
writing hello world program	write js program that prompts the user to input hi and prints hello world Due: 2025-5-16	Show submission	+ Add Assignment
Funding Strategy Exercise	write js program that prompts the user to input hi and prints hello world Due: 2025-5-18	Show submission	Delete Assignment

mohammad Abdullah

Dashboard Events Take Absence Announcements Logout

Overview Units Page

adv Java

Students Overview Content Assignments Quizzes

Course Units

New Unit Addition → + Add New Unit

Unit's name
loops
this is a description

Unit's description

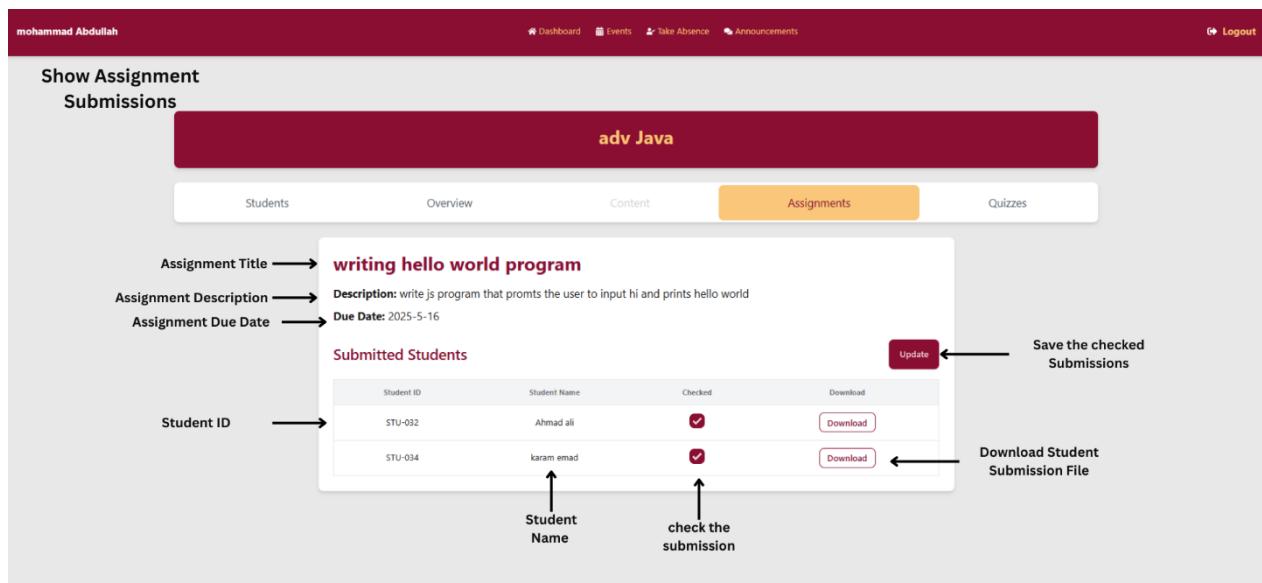
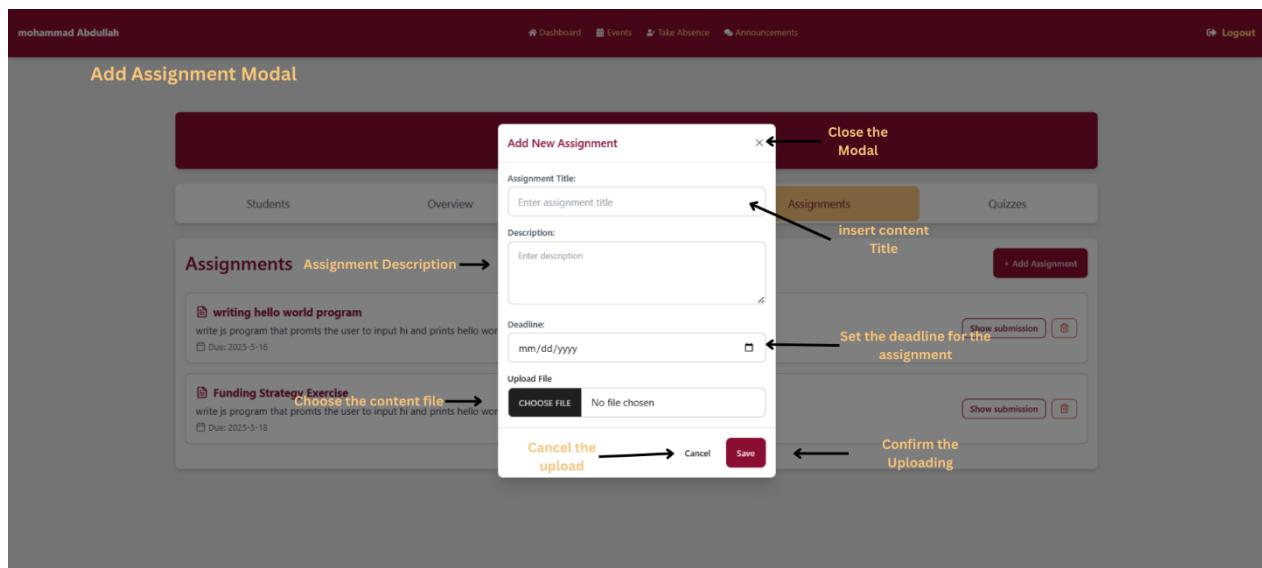
View Unit → View Unit

conditions
this is a description for the conditions unit

View Unit

alert
alert

View Unit



Quizzes Page

This screenshot shows the 'Quizzes' page for a course titled 'adv Java'. The page includes tabs for Students, Overview, Content, Assignments, and Quizzes. A sidebar on the left lists quizzes with their titles, descriptions, total marks, due dates, and question counts. Each quiz entry has an 'Edit' button, a 'Show Quiz Submissions' button, a 'Delete' button, and a 'Hide Marks' button. A large orange 'Add a New Quiz' button is located at the top right.

Annotations:

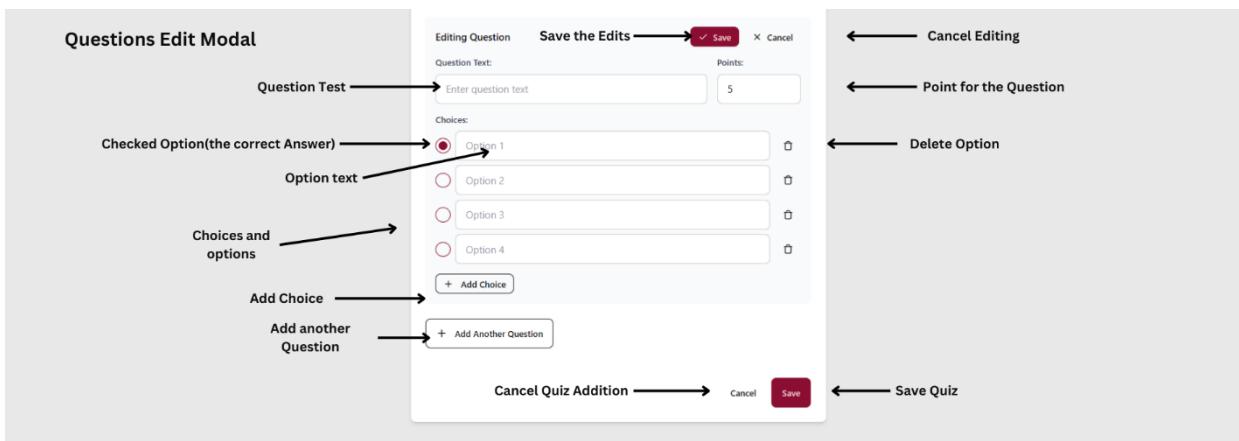
- Quiz Title**: Points to the title 'First quiz testing'.
- Quiz Description**: Points to the description 'this is a description'.
- Total Marks**: Points to the total marks '15 points'.
- Quiz Valid date**: Points to the available date '5/18/2025'.
- Questions Number**: Points to the number of questions '2'.
- Add a New Quiz**: Points to the large orange button at the top right.
- Show Quiz Submission**: Points to the 'Show Quiz Submissions' button for each quiz entry.
- Hide/Publish Marks**: Points to the 'Hide Marks' and 'Publish Marks' buttons for each quiz entry.

Quiz Addition Page

This screenshot shows the 'Add New Quiz' page. It features fields for 'Quiz Title' and 'Description', and a date/time selector for 'Start Date' and 'Start Time'. Below these are fields for 'Duration(minutes)' and 'Total Points'. A section for 'Start Time' shows a question with four options, where the first option is checked as the correct answer. Buttons for 'Edit' and 'Remove' are shown next to the question. At the bottom, there are buttons for 'Cancel Quiz', 'Cancel', and a large red 'Save' button.

Annotations:

- Quiz Title**: Points to the 'Quiz Title' input field.
- Quiz Description**: Points to the 'Description' input field.
- Start Date**: Points to the date input field.
- Start Time**: Points to the time input field.
- Options (The checked option is the correct answer)**: Points to the checked radio button '(Option 1)'.
- Total Quiz Points**: Points to the 'Total Points' input field.
- Quiz Duration**: Points to the 'Duration(minutes)' input field.
- Remove question**: Points to the 'Remove' button for the question.
- Edit Question**: Points to the 'Edit' button for the question.
- Add Another Question**: Points to the 'Add Another Question' button.
- Save Quiz**: Points to the large red 'Save' button at the bottom.



Quiz Edit Page

The page has the following components:

- Quiz Title:** Input field labeled "First quiz testing".
- Quiz Description:** Text area labeled "this is a description".
- Start Date:** Date input field labeled "05/18/2025".
- Start Time:** Time input field labeled "06:52 PM".
- Duration(minutes):** Input field labeled "15".
- Total Points:** Input field labeled "15".
- Quiz Duration:** Label pointing to the duration input field.
- Options (The checked option is the correct answer):** A label pointing to the checked radio button for "x2" in the first question's list.
- Question 1:** "rhyth" (Points: 5, Correct Answer: x2). Buttons: "Edit", "Remove".
- Question 2:** "xzxz" (Points: 10, Correct Answer: xzxz). Buttons: "Edit", "Remove".
- Add Another Question:** Button labeled "+ Add Another Question".
- Remove question:** Buttons labeled "Edit Question" and "Remove" pointing to the "Remove" button in the question row.
- Cancel Quiz:** "Cancel" button.
- Save Quiz:** "Save" button.

Quiz Submissions Page

The page shows a summary of the quiz details and a table of student submissions.

Quiz Details:

- Quiz Date:** 2025-05-18 at 18:52
- Duration:** 15 minutes
- Total Points:** 15
- Quiz Total Points:** 15
- Quiz Duration:** 15 minutes
- Quiz Visibility for students:** Visible to students

Student Submissions:

Student ID	Student Name	Status	Marks	Submitted At	Review
STU-030	ali mohammad	Not Submitted	—	—	Not Submitted
STU-032	Ahmad ali	Not Submitted	—	—	Not Submitted
STU-034	karam emad	Submitted	15 / 15	2025-05-16	<button>Review</button>

Annotations:

- Quiz Date:** Points to the Quiz Date field.
- Submissions numbers:** Points to the Submission Status progress bar.
- Student ID:** Points to the Student ID column in the Student Submissions table.
- Quiz Duration:** Points to the Quiz Duration field.
- Quiz Total Points:** Points to the Quiz Total Points field.
- Quiz Visibility for students:** Points to the Quiz Visibility for students field.
- Submission Review:** Points to the **Review** button in the Student Submissions table.

First quiz testing

Reviewing submission for: STU-034

Final Mark: 15 / 15

Student Information:

- Student ID:** STU-034
- Submitted At:** 5/16/2025, 3:00:00 AM
- Final Grade:** 15 / 15

Question Number: 1 / 2

Question: rhythr (5 points)

Options Answers:

- Correct Answer:** zz (Student's Answer (Correct))
- Other Options:** xxz, qq

Point Earned from the question: 5 / 5

Annotations:

- Student Information:** Points to the Student ID field.
- Student's final Grade:** Points to the Final Grade field.
- Question Number:** Points to the Question Number buttons.
- Question:** Points to the question text.
- Next/previous Question:** Points to the **Prev** and **Next** buttons.
- Options Answers:** Points to the list of options.
- Point Earned from the question:** Points to the Points Earned field.

6.4.4: Parent's User Manual



Parent Log in

The screenshot shows the login page for 'Thinking Flares School'. The page has a maroon background and a central login form. The form includes fields for 'Choose Your Role' (set to 'Parent'), 'Insert Admin ID', 'Insert Password', and a 'Login' button. A note at the bottom says 'Log in button to move directly to the dashboard'.

Parent's User name: Ibraheem Qudah

Dashboard

Events page

Announcements

Logout

Parents Dashboard

Ahmad ali (Seventh1 - C)

Select a Child

Announcements page

Show Child Marks

Show Marks

Show Absences

Show Reports

Show Child Reports

Show Child Absences

Child Courses

My Courses

Course overview

Course Name	Course Grade and Section	Action
Multimedia Grade: Seventh1 Section: C	test 3 Grade: Seventh1 Section: C	view course
testing Grade: Seventh1 Section: C	testing for abood Grade: Seventh1 Section: C	View Course view course
adv Java Grade: Seventh1 Section: C	sa Grade: Seventh1 Section: C	view course

Ibraheem Qudah

Dashboard

Events

Announcement

Logout

Parents Events Page

School Events

Event's Year Selection: 2024, 2025

Event's Title: qwe

Event's Location: qwe

Event's Details: qweqweqwe

Event's Date: 2025-05-31

Events Multimedia: (Image of a mobile device displaying event details)

Event's Title: qweqweqwe

Event's Location: sakt

Event's Details: qweqweqwe

Event's Date: 2025-05-24

Ibraheem Qudah

Dashboard Events Annoment Logout

Student Marks parent's Child Marks

Course Name →

Course	Teacher	Term 1	Term 2	Term 3	Final
Multimedia	mohammad Abdullah	20.00	Not Marked	Not Marked	Not Marked
test 3	mohammad Abdullah	Not Marked	Not Marked	Not Marked	Not Marked
adv Java	mohammad Abdullah	Not Marked	Not Marked	Not Marked	Not Marked
testing	mohammad Abdullah	Not Marked	Not Marked	Not Marked	Not Marked
testing for abood	mohammad Abdullah	Not Marked	Not Marked	Not Marked	Not Marked
sa	mohammad Abdullah	Not Marked	Not Marked	Not Marked	Not Marked

Course Teacher → 1st Term Mark → 2nd Term Mark → 3rd Term Mark → Final term Mark

Student's absences Page (Parent)

The screenshot shows a dashboard for a parent. At the top, there are links for Dashboard, Events, Announcements, and Logout. Below the header, a section titled "Student Absences" displays "Total Student's Absences" as 3. A table lists three absences with their dates and days:

#	Date	Day
1	May 14, 2025	Wednesday
2	May 19, 2025	Monday
3	May 30, 2025	Friday

Annotations include:

- A double-headed arrow labeled "Absences order" pointing between the "Total Student's Absences" count and the table.
- Upward arrows labeled "Absences Date" and "Absence day" pointing from the table rows to the corresponding columns.
- A double-headed arrow labeled "back to Parent Dashboard" pointing from the "Back to Dashboard" link at the top right to the left side of the page.

View Students report Page

The screenshot shows a dashboard for viewing student reports. At the top, there are links for Dashboard, Events, Announcements, and Logout. Below the header, sections for "Student Reports" and "Admins Reports Section" are displayed. The "Admins Reports Section" shows "Admin Reports for karam emad" with a table:

Admin	Date	Title	Actions
Ahmad mohsen	5/13/2025	admin report	View
Ahmad mohsen	5/25/2025	Week 5	View

Annotations include:

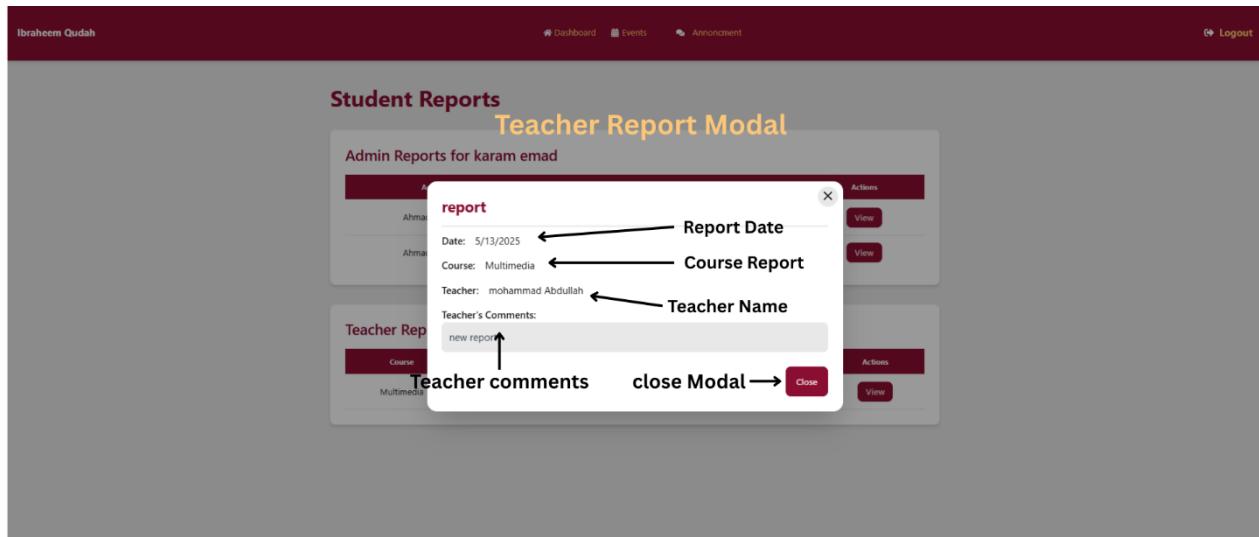
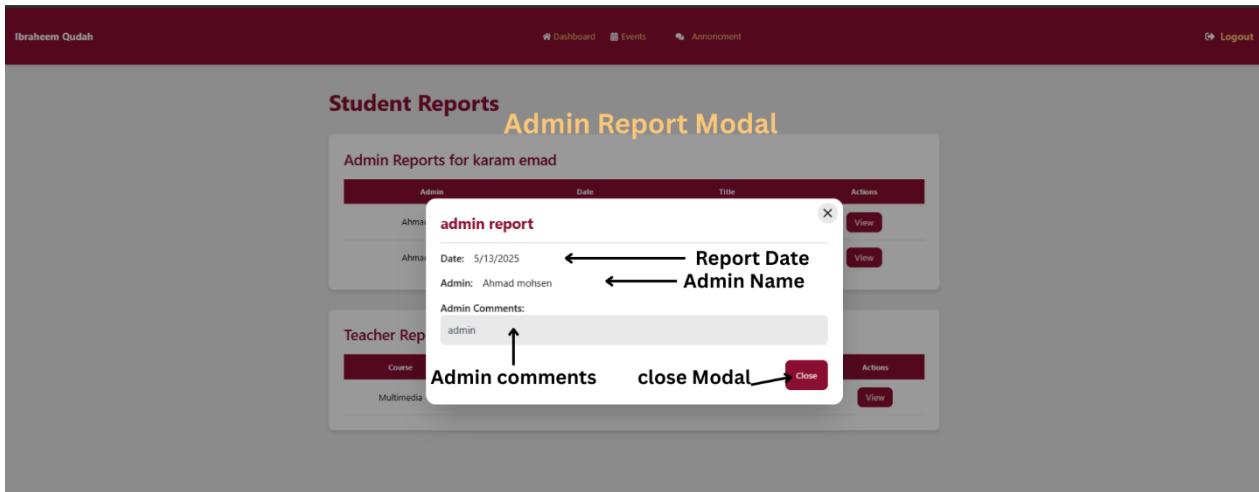
- An arrow labeled "Admin Name" pointing to the "Admin" column in the first row of the table.
- An arrow labeled "Report date" pointing to the "Date" column in the second row of the table.
- An arrow labeled "Report Title" pointing to the "Title" column in the first row of the table.
- An arrow labeled "View Report" pointing to the "View" button in the first row of the table.

The "Teachers Reports Section" shows "Teacher Reports for karam emad" with a table:

Course	Teacher	Date	Title	Actions
Multimedia	mohammad Abdullah	5/13/2025	report	View

Annotations include:

- An arrow labeled "Course Name" pointing to the "Course" column in the first row of the table.
- An arrow labeled "Teacher Name" pointing to the "Teacher" column in the first row of the table.
- An arrow labeled "Report Date" pointing to the "Date" column in the first row of the table.
- An arrow labeled "Report Title" pointing to the "Title" column in the first row of the table.
- An arrow labeled "View report" pointing to the "View" button in the first row of the table.



Ibraheem Qudah

Dashboard Events Announcements Logout

Overview Units Page

adv Java

The screenshot shows the 'Overview Units Page' for the 'adv Java' course. At the top, there's a navigation bar with links for Dashboard, Events, Announcements, and Logout. Below the navigation is a header 'Overview Units Page' and a course title 'adv Java'. The main content area displays three course units in a grid:

- loops**: Unit name, this is a description
- conditions**: this is a description for the conditions unit
- alert**: alert

Each unit has a 'View unit' button to its right. Arrows point from labels to specific elements:

- A double-headed arrow connects 'Unit's name' and 'Unit's description'.
- A vertical double-headed arrow labeled 'Assignments Page' points upwards from the units area.
- A vertical double-headed arrow labeled 'Quizzes Page' points upwards from the units area.

Ibraheem Qudah

Dashboard Events Announcements Logout

Unit Content Page

adv Java

The screenshot shows the 'Unit Content Page' for the 'loops' unit of the 'adv Java' course. At the top, there's a navigation bar with links for Overview, Content (which is highlighted), Assignments, and Quizzes. Below the navigation is a header 'Unit Content Page' and a course title 'adv Java'. The main content area displays the 'loops' unit content, which includes:

- Unit name**: loops
- Content name**: 30 SECOND TIMER
- Unit Content**: Video • Uploaded on May 13, 2025

Arrows point from labels to specific elements:

- A double-headed arrow connects 'Unit name' and 'Content name'.
- A double-headed arrow connects 'Content name' and 'Unit Content'.
- An arrow labeled 'Uploading Type' points to the 'Video' link.
- An arrow labeled 'Uploading Date' points to the 'May 13, 2025' date.

Ibraheem Qudah

Dashboard Events Announcements Logout

Assignments Page (Parent)

adv Java

Overview Content Assignments Quizzes

Assignments

Assignment	Due Date	Status	Action
writing hello world program Published: 2025-05-13	May 16, 2025	Submitted	View Submission
Funding Strategy Exercise Published: 2025-05-14	May 18, 2025	Not Submitted	Deadline Passed

Assignment name →

Ibraheem Qudah

Dashboard Events Announcements Logout

adv Java

Child Submission Page

Overview Content Assignments Quizzes

Assignments

Assignment	Due Date	Status	Action
writing hello world program Published: 2025-05-13	May 16, 2025	Submitted	View Submission
Funding Strategy Exercise Published: 2025-05-14	May 18, 2025	Not Submitted	Deadline Passed

Download assignment:

[writing hello world program \(Instructions\)](#)

Submission exists.

Download Child's Submission

[Close](#) → [Close](#)

Ibraheem Qudah

Dashboard Events Announcement Logout

Quizzes Page (Parent)

adv Java

Quizzes		Quiz Start Date	Quiz Start Time	Quiz Duration	Quiz Total Points	Quiz Status	Quiz Action
Title	Start Date	Time	Duration	Total Points	Status	Action	
First quiz testing	May 18, 2025	6:52 PM - 7:07 PM	15 minutes	15 pts	Finished	View Results	
First quiz testing	May 20, 2025	9:10 PM - 9:25 PM	15 minutes	15 pts	Not Submitted	Not Submitted	
Strings	May 20, 2025	10:43 PM - 10:58 PM	15 minutes	20 pts	Finished	View Results	

Ibraheem Qudah

Dashboard Events Announcement Logout

First quiz testing

Final Mark: 15 / 15

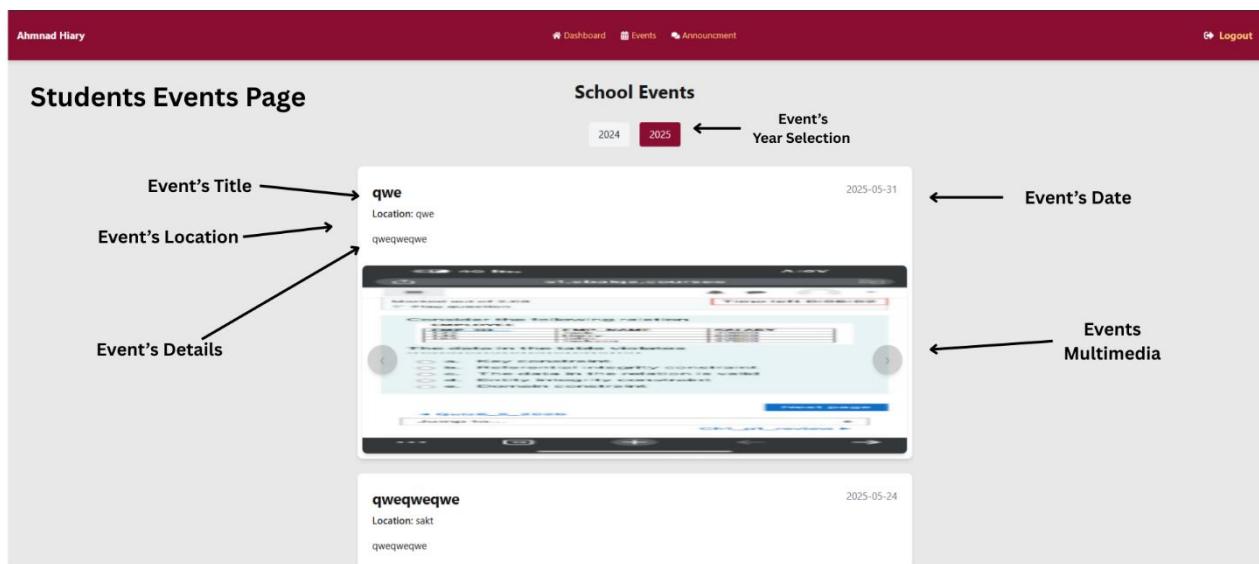
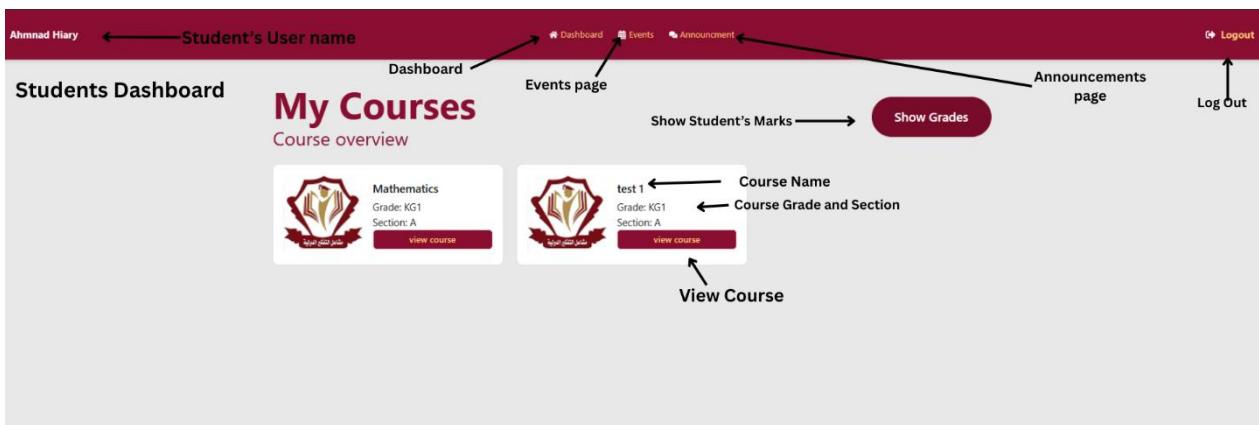
Student Information		Final Grade:		
Submitted At: 2025-05-16		15 / 15		
Child submission date	Student Information	Student's final Grade		
Question Number		Question	prev	Next
1	2	rhythm 5 points	Next/previous Question	
All Options:		xz Student's Answer (Correct)	Options Answers	
xz		qq		
Points Earned: 5 / 5		Point Earned from the question	correct answer	

6.4.5 Student's User-Manual



Student Log in

The screenshot shows the login interface for the school. It has a dark background with white text. At the top, it says "Thinking Flares School" and "Welcome to Thinking Flares School". Below that, it says "Enter your details to log in as a **Student**". There is a dropdown menu labeled "Login as" with "Student" selected. Below the dropdown are two input fields: "student ID" and "Password". The "student ID" field has the placeholder "Enter ID" and the "Password" field has the placeholder "Enter password". At the bottom is a large yellow "Login" button.



The screenshot shows a user interface for managing course units. At the top, there's a navigation bar with links for Dashboard, Events, Announcement, and Logout. The main title is "Overview Units Page" under the heading "Mathematics". Below this, there are four tabs: Overview (highlighted in orange), Content, Assignments, and Quizzes. The "Course Units" section displays a list of units: Conditions, Loops Fundamentals, and Unit's name. Arrows point from "Unit's name" and "Unit's description" to the "Assignments Page" and "Quizzes Page" respectively. A "View Unit" button is located next to the "Quizzes Page" link.

Ahmnad Hary

Dashboard Events Announcement Logout

Unit Content Page

Mathematics

Overview Content Assignments Quizzes

Resources ← Unit name

Uploading Type → Content name

Uploading Date → Unit Content

Ahmnad Hary

Dashboard Events Announcement Logout

Assignments Page (Students)

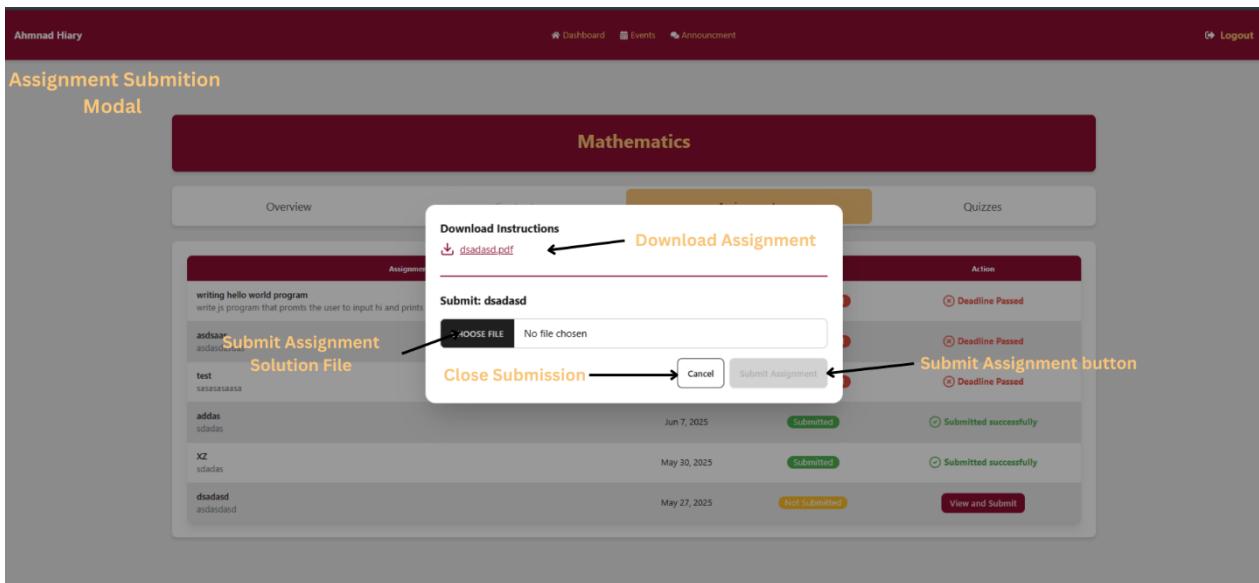
Mathematics

Overview Content Assignments Quizzes

Assignment	Assignments Due Date	Assignments Status	Assignments Action
writing hello world program write js program that prompts the user to input hi and prints hello world	May 12, 2025	Deadline Passed	
adasas asdasdadas	May 19, 2025	Deadline Passed	
test sasasasasa	May 21, 2025	Deadline Passed	
adas sdadas	Jun 7, 2025	Submitted	
XZ sdadas	May 30, 2025	Submitted	
dsadasd asdasdasd	May 27, 2025	Not Submitted	

Assignment name → writing hello world program
Assignment Description → write js program that prompts the user to input hi and prints hello world

Submit Assignment → View and Submit



The screenshot shows the "Quizzes Page (Student)" for a "Mathematics" course. The page has a header with tabs for Overview, Content, Assignments, and Quizzes. The Quizzes tab is active. A table lists quizzes with columns for Title, Start Date, Time, Duration, Total Points, Status, and Action. An arrow points to the "Quiz Title" column header. Another arrow points to the "Start Quiz" button for the last quiz listed, which is marked as "Available".

Quizzes	Quiz Start Date	Quiz Start Time	Quiz Duration	Quiz Total Points	Quiz Status	Quiz Action
test	May 19, 2025	10:55 PM - 11:15 PM	20 minutes	2 pts	Not Submitted	Not Submitted
sad	May 19, 2025	11:00 PM - 11:20 PM	20 minutes	2 pts	Not Submitted	Not Submitted
Algo	May 26, 2025	2:23 AM - 2:43 AM	20 minutes	5 pts	Not Submitted	Not Submitted
Algo	May 26, 2025	2:34 AM - 2:54 AM	20 minutes	2 pts	Not Submitted	Not Submitted
Algo	May 26, 2025	2:45 PM - 3:00 PM	15 minutes	5 pts	Finished	Results Not Available
Algo	May 26, 2025	2:47 PM - 3:02 PM	15 minutes	5 pts	Available	Start Quiz

Ahmnad Hiary

First Quiz

Algo ← Quiz Title and Description

Course: CRS-001	← Course ID	Total Questions: 1	← Number of questions
Time Remaining: 14:49	← Remaining time	Points: 5	← Total Points

Submit Answers

1 of 1 questions answered

Question Text → 0000000 5 points ← Question Points

Chooser answer → 0
 1
 11
 16

← Options of the question

Delete Answer ← Uncheck your answer

1 ← questions Pages

previous Question → Prev Next ← Next Question

Ahmnad Hiary

My Grades

Students Show Marks Page

Course Name →

Course Teacher 1st Term Mark 2nd Term Mark 3rd Term Mark Final ← final term Mark

Course	Teacher	Term 1	Term 2	Term 3	Final
Mathematics	Islam Abu rumman	19.50	20.00	Not Marked	28.00
test 1	Islam Abu rumman	Not Marked	Not Marked	Not Marked	Not Marked

7.0 PROJECT CONCLUSIONS AND FUTURE WORK

In this chapter, we will talk about the strengths and weaknesses of the system. Also, it will include future work.

Strengths:

- **User-Friendly Web Platform:** Designed exclusively as a responsive website, it ensures accessibility across all major browsers and devices without relying on native mobile applications.
- **Comprehensive Features:** The website integrates learning tools, progress dashboards, communication systems, and marketing sections in one place.
- **Security and Privacy:** Implementation of encryption and role-based access control safeguards user information.
- **Parental Engagement:** Provides parents with timely, detailed insights into their children's academic progress.
- **Cost-Efficient:** Development and operational costs are well-managed within the budget, with promising ROI projections.

Weaknesses:

- **No Native Mobile Application:** While the platform is accessible via web browsers on mobile devices, it lacks dedicated mobile apps that could enhance usability and offline access.
- **Scope Limited to One School:** The system is customized for TFS, which may limit direct applicability to other schools with different needs.
- **Training Needs:** Some users, particularly parents and teachers, may require basic training to navigate and utilize the platform effectively.
- **Exclusion of Advanced Functionalities:** Features such as live streaming classes and AI integrations are not included in the initial release due to technical and budget constraints.

In conclusion, the ILM-Verse website marks a significant advancement in digitizing education for Thinking Flares School. While it provides a robust foundation for current needs, future phases could consider adding real-time functionalities and AI capabilities to further enhance the learning experience.

Future work:

- **Real-Time Interaction Features:**

Introducing live video classes, virtual classrooms, and real-time chat functionalities to improve engagement and allow instant communication between students, teachers, and parents.

- **AI Integration:**

Incorporating AI-powered tools such as personalized learning assistants, automated grading systems, intelligent FAQ bots, and predictive analytics to provide tailored learning experiences and reduce administrative workload.

- **Mobile Application Development:**

Developing native mobile applications for Android and iOS to improve accessibility, provide offline capabilities, and enhance user experience on smartphones and tablets. This development will be facilitated by the existing robust APIs built during the platform's backend development, enabling easy and efficient integration with the mobile front-end.

- **Integration with Third-Party Educational Tools:**

Extending platform functionality by connecting with popular learning management systems, content repositories, and educational apps and games through APIs.

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<https://stackoverflow.com/>

[23] Discord:

<https://stackoverflow.com/>

[24] chatgpt:

<https://chatgpt.com/>

[25] Claude AI:

<https://claude.ai>

[26] Postman:

<https://www.postman.com/>

Appendices

[1] Study about number of schools, teachers and students in Jordan :

<https://www.assawsana.com/article/628864>