



National University of Computer and Emerging Sciences

Software Engineering

“Deliverable 3 – Project Proposal”

STUDENTS NAME and REGISTRATION NUMBERS:

Muhaddis Farooq	21i-0391
Farzeen Qaiser	21i-0782
Saad Ahsan	21i-2965

DEGREE PROGRAM: BSCE

Section: G

SUBJECT NAME: Software Engineering

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SUBMITTED TO: Sidra Khalid

STUDENT SIGNATURE:

MARKS:

REMARKS:

TEACHERS SIGNATURE:

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Project Title:

EduSync: Revolutionizing University Learning

Problem Statement:

Our project's goal is to create an extensive University Learning Management System (ULMS) that gives administrators, instructors, and students a centralized platform to effectively manage academic activities. The institution will be able to reduce administrative processes, improve communication, facilitate online learning, and streamline course management with the help of the ULMS.

User Stories:

Module Name:

Assessment & Event Scheduling Module

ID	User Story	Tasks	Owner	Status	Effort	Day 1	Day 2	Day 3	Day 4
01	As an Instructor, I want to access the EduSync LMS, so that i can upload marks of my students Sub-stories: As an Instructor, I want to login, navigate to the upload marks section and upload relevant marks of each subject of every student so that it's convenient for them to view and plan their studies accordingly.	1.Implement the functionality of uploading marks material.	Farzeen Qaiser	Completed	10	1	0	1	1
		2.Creation of front end of upload marks section.	Saad Ahsan	Completed		1	1	0	0

02	<p>As an Instructor, I want to access the EduSync LMS, so that I can upload past papers for students.</p> <p>Sub-stories: As an Instructor, I want to be able to login and find the past paper section and upload the past papers so that my students can easily access them.</p>	<p>1.Designing of the past paper section</p> <p>2.Implementing the functionality of uploading past papers.</p>	<p>Farzeen Qaiser</p> <p>Farzeen Qaiser</p>	<p>Completed</p> <p>Completed</p>	<p>8</p> <p>1</p>	<p>0</p> <p>0</p>	<p>0</p> <p>0</p>	<p>2</p> <p>0</p>	<p>2</p> <p>0</p>
03	<p>As a Student, I want to access the EduSync LMS, so that I can keep track of my grading records.</p> <p>Sub-stories: As a Student. I want to be able to login and be able to track my academic records so that I can plan my studies accordingly.</p>	<p>1.Designing of student grades section</p> <p>2. Implement the functionality of viewing grading records.</p>	<p>Saad Ahsan</p> <p>Farzeen Qaiser</p>	<p>Completed</p> <p>Completed</p>	<p>9</p>	<p>0</p> <p>1</p>	<p>1</p> <p>1</p>	<p>1</p> <p>1</p>	<p>2</p> <p>1</p>
04	<p>As a Student, I want to access the EduSync LMS, so that I can keep track of my attendance.</p> <p>Sub-stories: As a Student. I want to be able to login and be able to track my attendance records so that I can</p>	<p>1.Designing of student's attendance dashboard.</p> <p>2.Implementation of backend functionality.</p>	<p>Farzeen Qaiser</p> <p>Muhaddis Farooq</p>	<p>Completed</p> <p>Completed</p>	<p>7</p>	<p>1</p>	<p>3</p>	<p>0</p>	<p>0</p>

	manage my schedule accordingly.								
05	<p>As an Instructor ,I want to access the EduSync LMS, so that I can mark the attendance of my students.</p> <p>Sub-stories: As an Instructor, I want to be able to login and find the mark attendance dashboard and mark the attendance of each individual section so that my students can easily view their attendance record.</p>	1.Creation of instructor's "Mark Attendance" dashboard.	Saad Ahsan	Completed	9	1	0	1	1
		2.Implementing functionality of separating sections and "Mark Attendance" sections.	Farzeen Qaiser	Completed					
06	<p>As a Student, I want to access the EduSync LMS, so that I can submit my assignments.</p> <p>Sub-stories: As a Student. I want to be able to login and be able to submit my assignments, projects, class activities and other documents on time so that I can get grades.</p>	1. Designing of front end for submitting assignments.	Saad Ahsan	Completed	8	0	0	2	2
		2. Back end functionality for "Submit Assignments" section.	Farzeen Qaiser	Completed					
		3. Implementing permissions for choosing documents from device and "Drive".	Farzeen Qaiser	Completed					

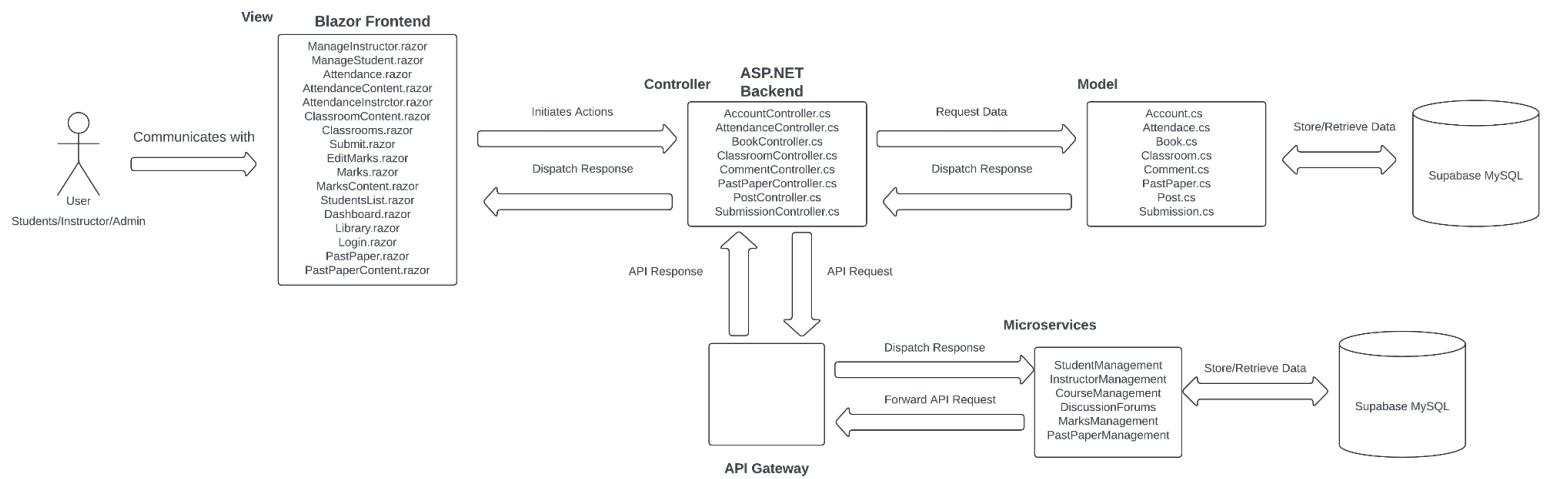
07	<p>As an Instructor ,I want to access the EduSync LMS, so that I can create Submission portals for my students.</p> <p>Sub-stories: As an Instructor, I want to be able to login and navigate to the “Create portal” section and create a submission portal, set the deadline time, instructions and attach any relevant document with the portal so that my students can submit view their Assignments, sessionals, projects and other important documents.</p>	<p>1.Front end Design of “Create Submission portal” section.</p> <p>2. Back end functionality with complete conditions to set the portal for submissions.</p>	<p>Saad Ahsan</p> <p>Farzeen Qaiser</p>	<p>Completed</p> <p>Completed</p>	10	1	1	1	1
08	<p>As an Instructor ,I want to access the EduSync LMS, so that I can upload any relevant books of the courses for my students.</p> <p>Sub-stories: As an Instructor, I want to be able to login and find the upload material dashboard and upload any book, reference books so that my students can conveniently study for their exams.</p>	<p>1.Designing of upload material section</p> <p>2. Implementation of functionality of upload material section(permission s to choose from device etc).</p>	<p>Farzeen Qaiser</p> <p>Farzeen Qaiser</p>	<p>Completed</p> <p>Completed</p>	7	0	0	2	2

09	<p>As a Student, I want to access the EduSync LMS, so that I can download any course material for the preparations of my exams.</p> <p>Sub-stories: As a Student. I want to be able to login and be able to download any relevant material including books, past papers etc so that I can prepare and study for my exams efficiently.</p>	<p>1. Implementing functionality of downloading material.</p> <p>2. Integration of API's into backend Database.</p>	<p>Saad Ahsan</p> <p>Farzeen Qaiser</p>	<p>Completed</p> <p>Completed</p>	9	1	1	1	2
10	<p>***As a Student, I want to access the EduSync LMS, so that I can view the semester calendar.</p> <p>Sub-stories: As a Student, I want to view the semester calendar so that i can view upcoming Holidays, make personal plans according to the calendar.</p>	<p>1. Developing Front-end dashboard for student view.</p> <p>2. Backend functionality implementation.</p>	<p>Saad Ahsan</p> <p>Muhaddis Farooq</p>	<p>Completed</p> <p>Completed</p>	7	1	0	1	2
11	<p>***As a Student and Instructor, I want to access the EduSync LMS, so that i can view announcements of different events.</p> <p>Sub-stories: As a Student and Instructor, I</p>	<p>1. Designing of frontend design.</p>	<p>Saad Ahsan</p>	<p>Completed</p>	7	0	0	2	2

	want to view courses and upcoming events so that I can keep myself updated about the quizzes, sessional exams and various other events.								
		2. Implementation of backend functionality.	Muhaddis Farooq	Completed					
12	As an Admin, I want to access the EduSync LMS, so that I can assign relevant courses and sections to both students and teachers. Sub-stories: As an admin, I want to assign courses to instructors based on their subject and availability. As an admin, I want to modify sections based on any change	1. FrontEnd Design of Admin portal.	Farzeen Qaiser	Completed	8	0	1	2	2
13	As an Admin, I want to access the EduSync LMS, so that I can add, remove and modify user accounts. Sub-stories: As an admin, I want to modify users based on the results and requirements of the ULMS.	2. Addition of new user and backend Development	Muhaddis Farooq	Completed	9	1	1	1	1

14	<p>As an Admin, I want to access the EduSync LMS, so that I can create events based on University Curriculum</p> <p>Sub-stories: As an admin, I want to create new events that all the students and teachers can engage in the activities of said events etc.</p>	<p>1. Designing Frontend of notification panel of “Create Events”</p> <p>2. Backend Functionality Implementation</p>	<p>Farzeen Qaiser</p> <p>Muhaddis Farooq</p>	<p>Completed</p> <p>Completed</p>	8	0	2	1	2
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MVC Architecture Diagram:



MVC Architecture:

Model:

Our Model files like Account.cs, Book.cs, and Classroom.cs represent the applications data structure and business logic. These define the properties and behaviors related to the different domains of the application such as user accounts, classrooms and discussion forums.

View (Blazor Frontend):

UI of the web application is rendered in our view. Blazor is basically a framework by Microsoft that enables developers to create web applications with C# and .NET. The .razor files such as Marks.razor , Login.razor etc listed are Blazor components or pages that defines the interaction logic for the user interface.

Controller (ASP.NET Backend)

Our controller section represents the controllers of the application, which are responsible for handling incoming requests, basically processing them and then returning the response to the client. Its an ASP.NET backend, which means the controllers are written in C# using the ASP.NET framework. Each controller such as AccountController.cs, HomeController.cs is responsible for different areas of the application functionality.

Microservices

In our diagram the micro services are shown to handle different aspects down below is explanation for our micro services:

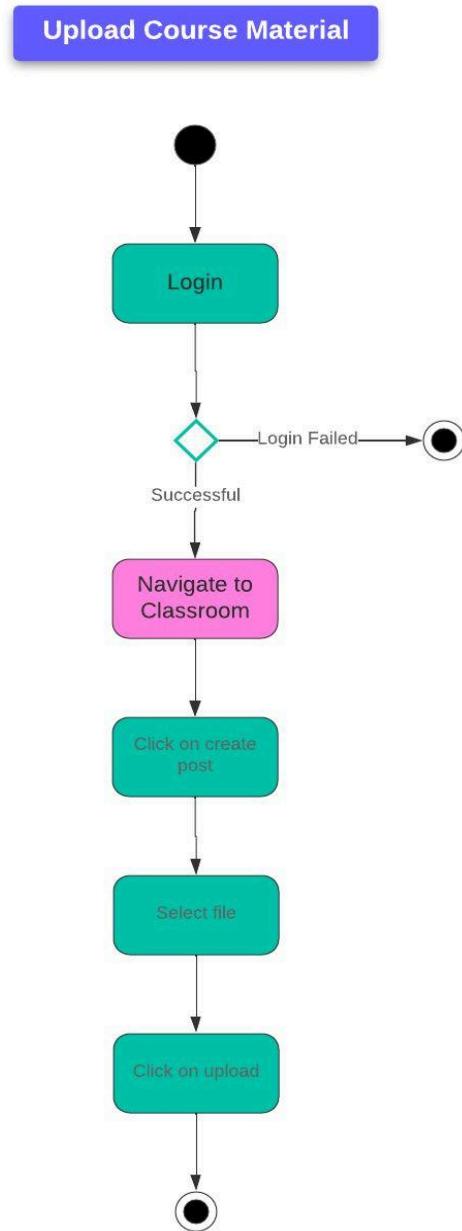
- **StudentManagement:** Manages all operations related to student data, including enrollment, updates, and academic tracking.
- **InstructorManagement:** Manages instructor related tasks such as assigning courses, evaluating students etc.
- **CourseManagement:** Handles the creation of course materials and related academic content.
- **DiscussionForums:** Allows interactive communication among users, providing students a platform for discussion.
- **MarksManagement:** Manages in calculation of student grades and reporting assessment results.
- **PastPaperManagement:** Manages the storage of previous exam papers. Allows students to access past papers of their related subject with ease.

Database:

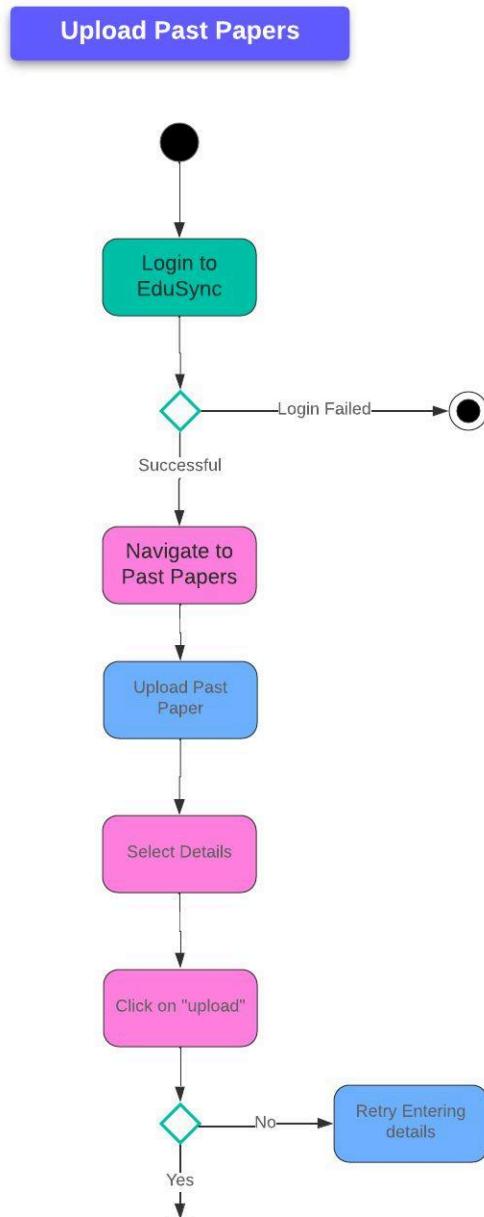
The database we used is Supabase MySQL for fetching and sending the data

Activity Diagrams:

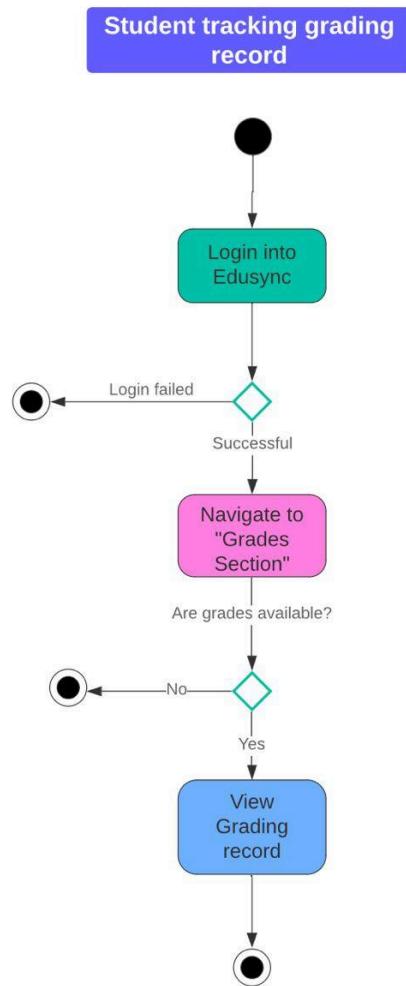
1. Upload Course Material



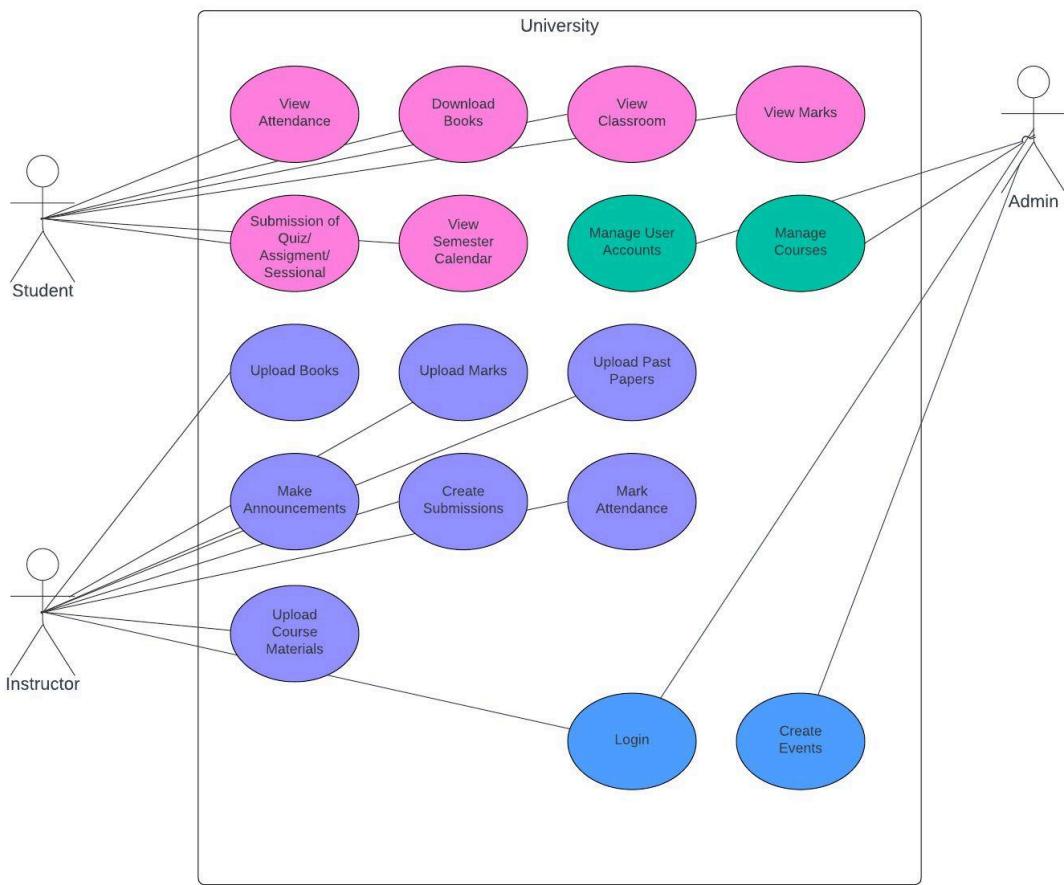
2. Upload Past Papers



3.Student Tracking Grading record:

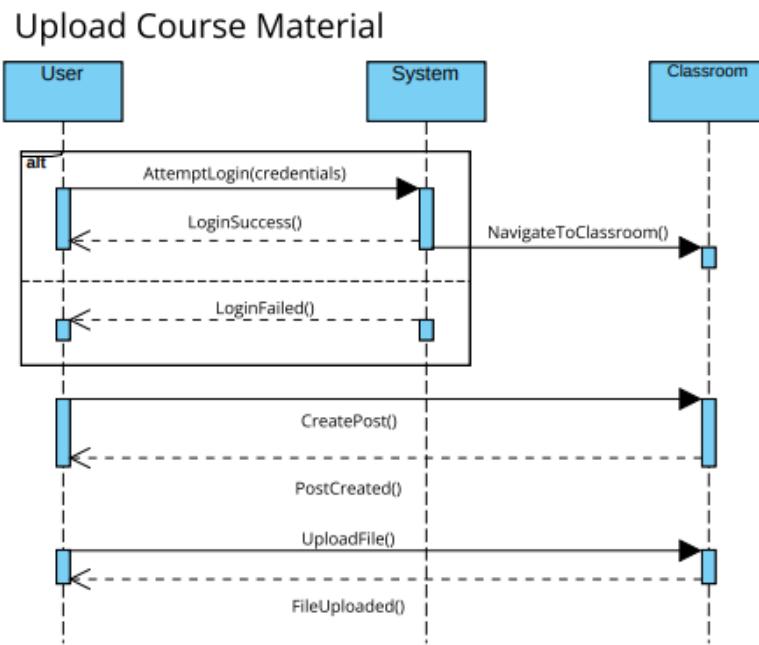


Use Case Diagram:

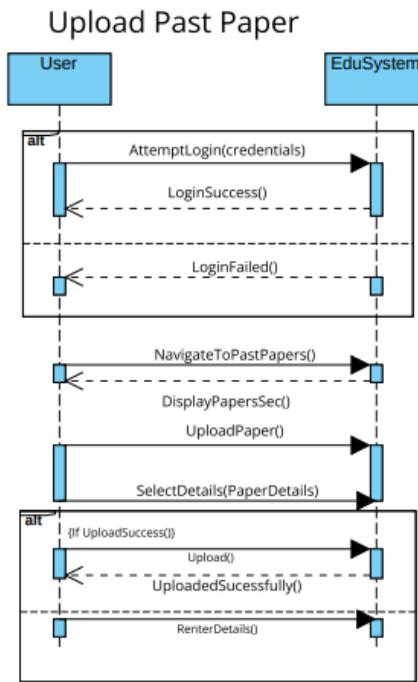


Sequence Diagram:

1. Upload Course Material:

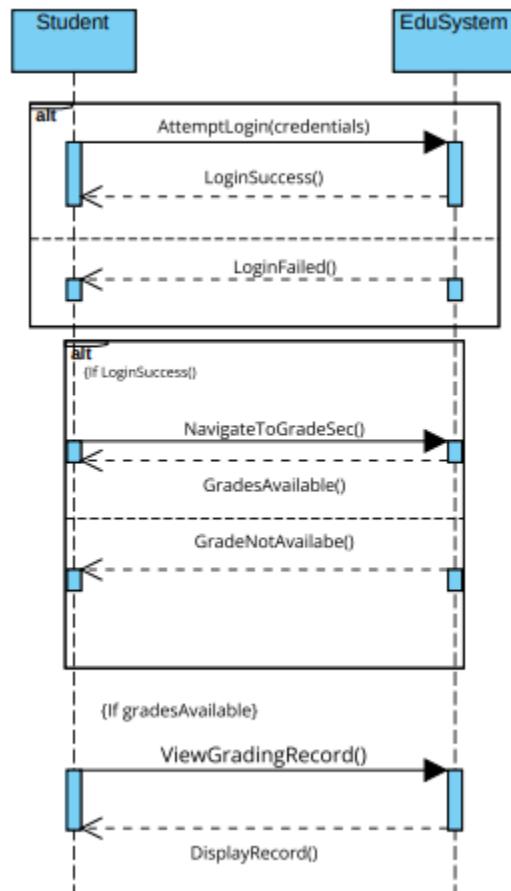


2. Upload Past Papers:

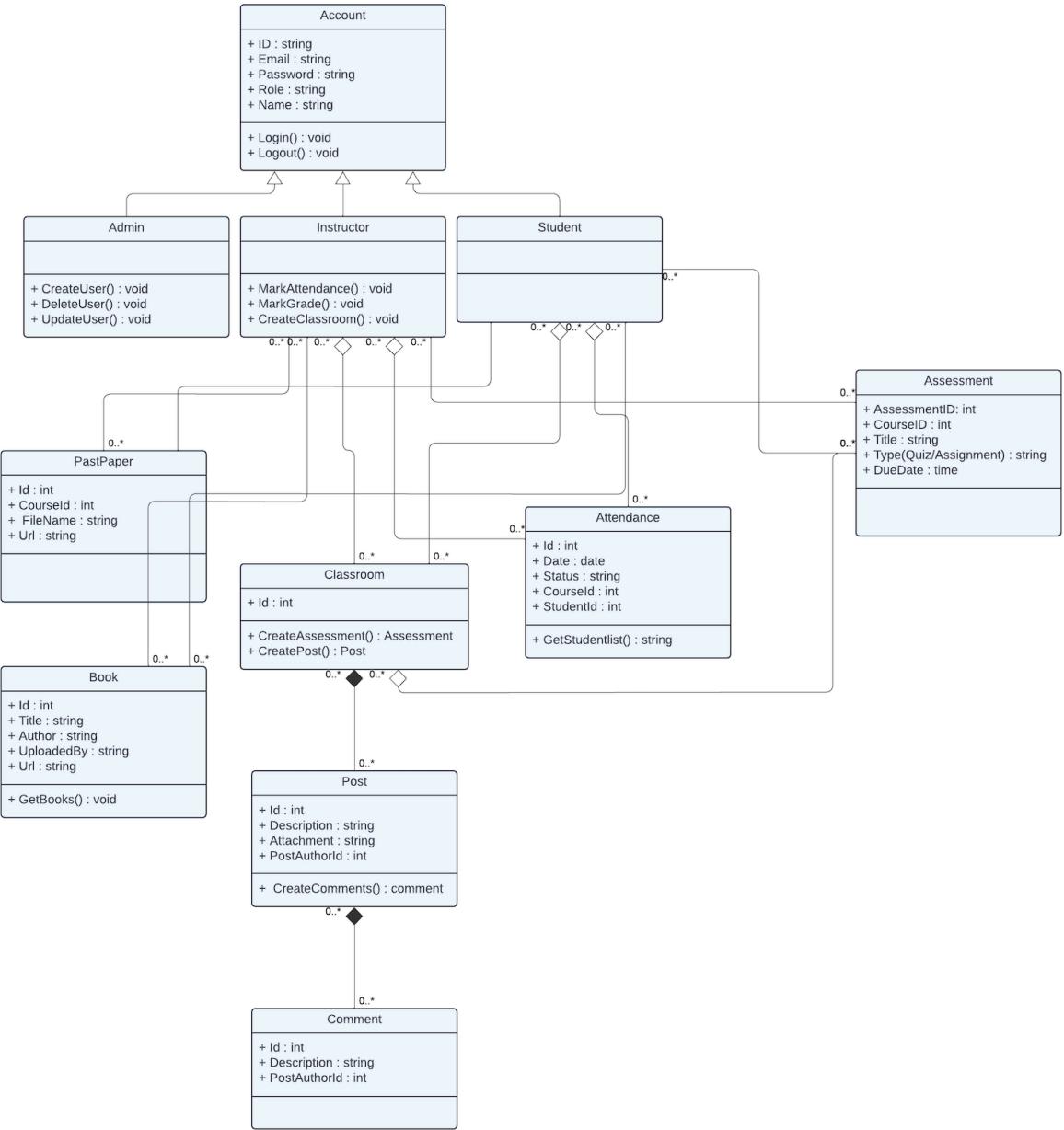


3. Tracking Grading record:

TrackingGradeRecord

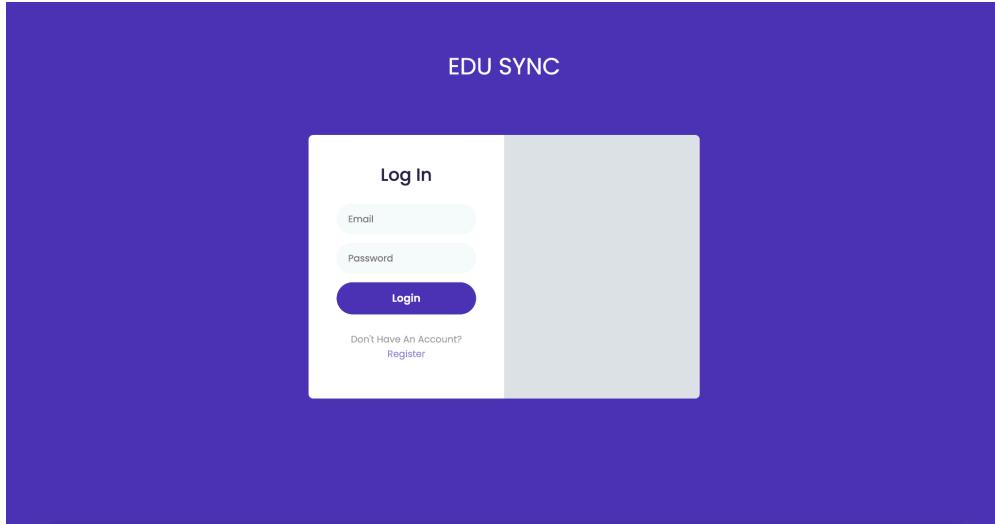


Class Diagram:



Implementation Screenshots

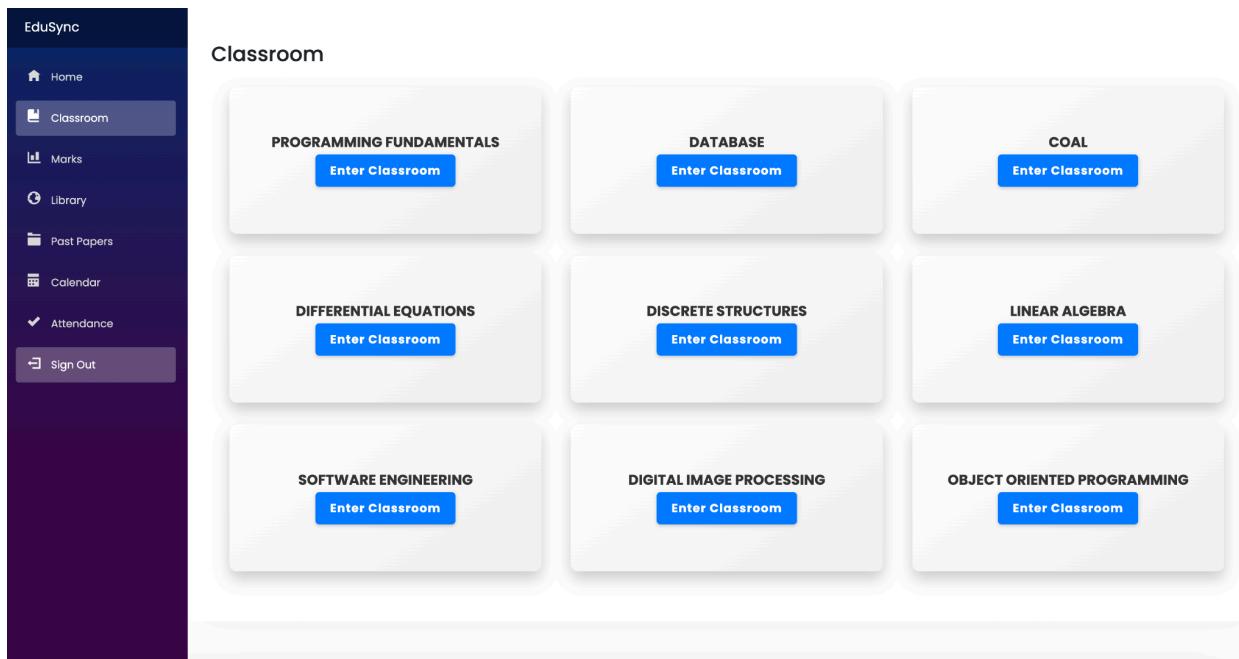
Login:



Details:

The user can either login or register an account. If the account exists in the database, the user can login by typing the correct email address and password. On typing an invalid email address and password, an error message will appear.

Classrooms:



Details:

After login, the user can view the classrooms they have joined and a menu bar to navigate through different pages. To view the contents of the classroom, the user has to click on the respective classroom. Similar to navigating through different pages the user has to click on the different options on the menu bar.

Classroom Page:

The screenshot shows the EduSync Classroom interface. On the left is a sidebar with icons for Home, Classroom (selected), Marks, Library, Past Papers, Calendar, Attendance, and Sign Out. The main area has a header "Add a New Post" with "Back" and "Post Description:" fields. Below is a "Post Attachment URL:" field and a "Add Post" button. A user profile for "Labiba Khan" is shown with a message: "This is a Assignment Submission" and buttons for "Attachment" and "View Submission". Below this are three student comments: "Farzeen Qaiser: This is a comment", "Saad Ahsan: Kindly extend the deadline please!", and "Muhammad Farooq: What is the approach for question 1?". At the bottom is a text input "Add a comment..." and a "Add Comment" button.

Details:

This is the classroom interface, the user can create a post and add attachments to the post. For instructors, they can post Submissions for quizzes, assignments and projects.

Submission Page (Student):

The screenshot shows the EduSync student interface. On the left is a dark sidebar with navigation links: Home, Classroom, Marks, Library (which is selected and highlighted in blue), Past Papers, Calendar, Attendance, and Sign Out. The main content area has a white header with "Post Description:" and "This is a Assignment Submission". Below this is a section titled "Submission" with a green message bar stating "You have submitted your work for this post." and a red "Unsubmit" button.

Details:

The Student can submit and unsubmit their work by uploading a URL of their attachment.

Library (Student):

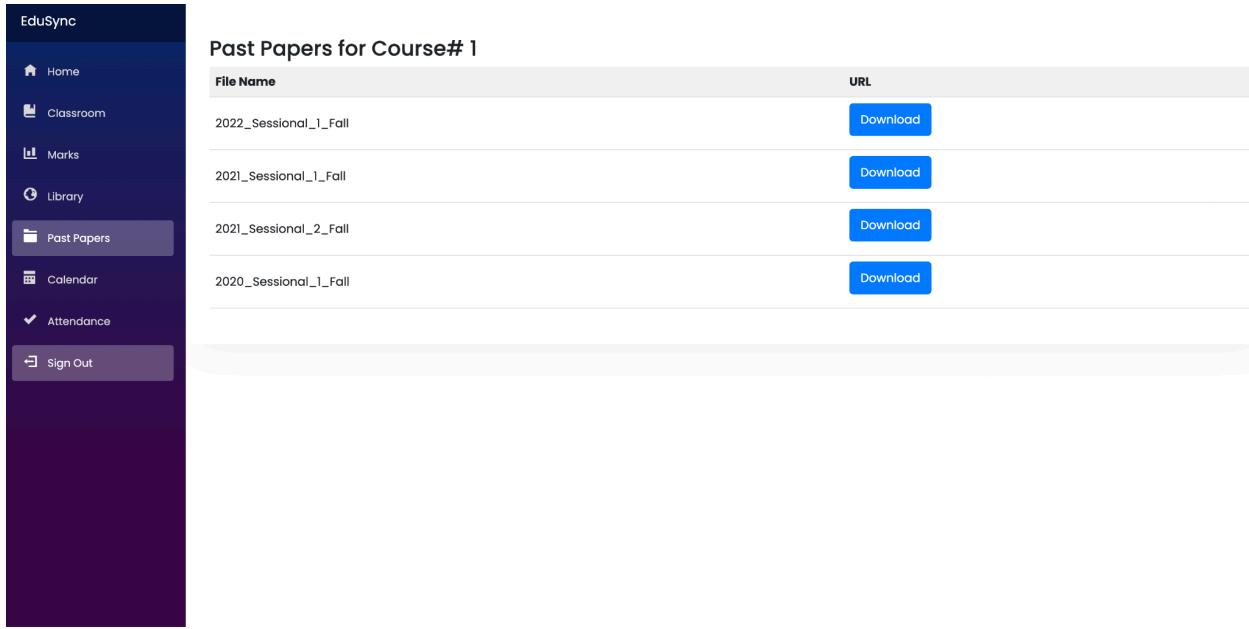
The screenshot shows the EduSync student interface. On the left is a dark sidebar with navigation links: Home, Classroom, Marks, Library (selected and highlighted in blue), Past Papers, Calendar, Attendance, and Sign Out. The main content area has a table titled "Library" with columns: Title, Author, Uploaded By, and URL. The table lists several books with their respective authors and uploaders, and a "Download" button next to each row.

Title	Author	Uploaded By	URL
Thomas' Calculus	Thomas Jr., George B.	Usman Rashid	<button>Download</button>
Artificial Intelligence A Modern Approach	Stuart Russell	Labiba	<button>Download</button>
Introduction to Parallel Programming	Peter Pacheco	Arshad Islam	<button>Download</button>
Software Engineering	Ian Sommerville	Sidra Khalid	<button>Download</button>
Software Engineering A Practitioner's Approach	Roger S. Pressman	Sidra Khalid	<button>Download</button>
Fundamentals of Database Systems	Ramez Elmasri	Noorul Ain	<button>Download</button>
An Introduction to Database	C.J Date	Noorul Ain	<button>Download</button>
An Introduction To Algorithms	Thomas H. Cormen	Owais Idress	<button>Download</button>

Details:

On the click of download, the user will be directed to the page to download the pdf of the book.

Past Papers (Student):



The screenshot shows the EduSync student interface. On the left is a dark sidebar with white icons and text: Home, Classroom, Marks, Library, Past Papers (which is highlighted in blue), Calendar, Attendance, and Sign Out. The main area has a light gray header "Past Papers for Course# 1". Below it is a table with four rows. The columns are "File Name" and "URL". Each row contains a file name and a blue "Download" button. The file names are: 2022_Sessional_1_Fall, 2021_Sessional_1_Fall, 2021_Sessional_2_Fall, and 2020_Sessional_1_Fall.

File Name	URL
2022_Sessional_1_Fall	Download
2021_Sessional_1_Fall	Download
2021_Sessional_2_Fall	Download
2020_Sessional_1_Fall	Download

Details:

On the click of download, the user will be directed to the page to download the pdf of the pastpaper.

Attendance (Student):

The screenshot shows the EduSync student interface. On the left is a dark sidebar with icons for Home, Classroom, Marks, Library, Past Papers, Calendar, Attendance (which is selected and highlighted in purple), and Sign Out. The main area is titled "Attendance List" and contains a table with columns for Date and Status. The table shows the following data:

Date	Status
18-04-2024	Present
16-04-2024	Late
17-04-2024	Absent
15-04-2024	Late
22-04-2024	Absent

A blue "Back to Courses" button is located at the top right of the attendance list area.

Details:

A very user-friendly interface for students to view their attendance. After selecting the subject to view their attendance, The student can see the days when they were Present, Late or Absent. Green, Yellow and Red indicate Present, Late and Absent respectively.

Submission Page (Instructor):

The screenshot shows the EduSync application interface. On the left is a dark sidebar with white icons and text for Home, Classroom, Marks, Library, Past Papers, Calendar, Attendance, and Sign Out. The main content area has a light gray header with 'Post Description:' and 'This is a Assignment Submission' followed by a 'Back' button. Below is a table titled 'Submissions' with columns: Student ID, Student Name, Submission Marks, Edit Marks, and View Submission. The table contains four rows of student data:

Student ID	Student Name	Submission Marks	Edit Marks	View Submission
788	Mubeen Qaiser	50	<button>Edit</button>	<button>View</button>
391	Muhaddis Farooq	0	<button>Edit</button>	<button>View</button>
2965	Saad Ahsan	67	<button>Edit</button>	<button>View</button>
782	Farzeen Qaiser	100	<button>Edit</button>	<button>View</button>

Details:

The user can edit the marks of the student's submission by clicking on the edit button and also view the respective submission of the student.

Attendance Page (Instructor):

The screenshot shows the EduSync application interface. On the left is a dark sidebar with navigation links: Home, Classroom, Marks, Library, Past Papers, Calendar, and Attendance (which is currently selected). Below these is a 'Sign Out' button. The main content area is titled 'Attendance List' and includes a date input field ('dd/mm/yyyy'). A 'Back' button is in the top right corner. The central part is a table with four columns: Student ID, Student Name, Date, and Status. The data in the table is as follows:

Student ID	Student Name	Date	Status
782	Farzeen Qaiser	22-04-2024	Absent
788	Mubeen Qaiser	22-04-2024	Present
391	Muhaddis Farooq	22-04-2024	Late
2965	Saad Ahsan	22-04-2024	Present

Details:

The Attendance page will display all the students that are currently taking the course. A drop down menu is used to mark the attendance of the students. After selecting the date, the instructor can mark the attendance.

Past Paper Page (Instructor):

The screenshot shows the EduSync interface for instructors. On the left, a sidebar menu includes Home, Classroom, Marks, Library, Past Papers (which is selected and highlighted in purple), Calendar, Attendance, and Sign Out. The main content area is titled "Past Papers for Course# 1" and contains a table with four rows of past papers. Each row has a "File Name" (e.g., 2022_Sessional_1_Fall, 2021_Sessional_1_Fall, 2021_Sessional_2_Fall, 2020_Sessional_1_Fall) and a "URL" column with a "Download" button. A blue "Insert New Past Paper" button is located at the top of this section. To the right, a modal window titled "Add New Past Paper" is open, featuring input fields for "File Name" and "URL", and a "Add Past Paper" button.

Details:

The instructor can upload the past paper by clicking on the “Insert New Past Paper” button. A slider will pop from the right and the instructor can upload the url of the pdf attachment and give it a name.

Library (Instructor):

The screenshot shows the EduSync application interface. On the left is a dark sidebar with navigation links: Home, Classroom, Marks, Library (which is selected and highlighted in blue), Past Papers, Calendar, Attendance, and Sign Out. The main content area is titled "Library" and contains a table of books. The table has columns for Title, Author, and Uploaded By. Below the table is a blue button labeled "Insert New Book". To the right of the table is a modal window titled "Add New Book" with fields for Title, Author, URL, and ID, and a blue "Add Book" button.

Title	Author	Uploaded By
Thomas' Calculus	Thomas Jr., George B.	Usman Rashi
Artificial Intelligence A Modern Approach	Stuart Russell	Lobiba
Introduction to Parallel Programming	Peter Pacheco	Arshad Islam
Software Engineering	Ian Sommerville	Sidra Khalid
Software Engineering A Practitioner's Approach	Roger S. Pressman	Sidra Khalid
Fundamentals of Database Systems	Ramez Elmasri	Noorul Ain
An Introduction to Database	C.J Date	Noorul Ain
An Introduction To Algorithms	Thomas H. Cormen	Owais Idress

Details:

The instructor can upload the book by clicking on the “Insert New Book” button. A slider will pop from the right and the instructor can upload the url of the pdf attachment and give it a name.

Marks Page 1 (Instructor):

The screenshot shows the EduSync application interface. On the left is a dark sidebar with navigation links: Home, Classroom, Marks, Library, Past Papers, Calendar, Attendance, and Sign Out. The main content area is titled "Students List" and contains a table of students. The table has columns for User ID and User Name. To the right of each student entry is a blue "Edit" button. Above the table is a blue "Back to Courses" button.

User ID	User Name	Edit
782	Farzeen Qaiser	<button>>Edit</button>
788	Mubeen Qaiser	<button>>Edit</button>
391	Muhaddis Farooq	<button>>Edit</button>
2965	Saad Ahsan	<button>>Edit</button>

Details:

After selecting a course, the instructor can view the students list who are taking the course. And to edit the marks, the instructor can click on the respective button.

Marks Page 2 (Instructor)

Submission #	Marks	Edit
1	10	<button>Edit</button>
2	69	<button>Edit</button>

Submission #	Marks	Edit
1	100	<button>Edit</button>

Submission #	Marks	Edit
Submission is Not Available		

Details:

After choosing the student, the instructor can view the marks of all the submissions and edit them accordingly.

Manage Instructor:

User ID	User Name	User Email	Edit
321	Labiba	instructor	<button>Edit</button>
111	Sidra Khalid	sidrakhalid@nu.edu.pk	<button>Edit</button>
3	Usman Rashid	usmanrashi@nu.edu.pk	<button>Edit</button>

Details:

The admin can add new instructors by clicking on the “Insert New Instructor” button. A slider will pop from the right prompting the admin to enter the Instructor Name, Email and Password.

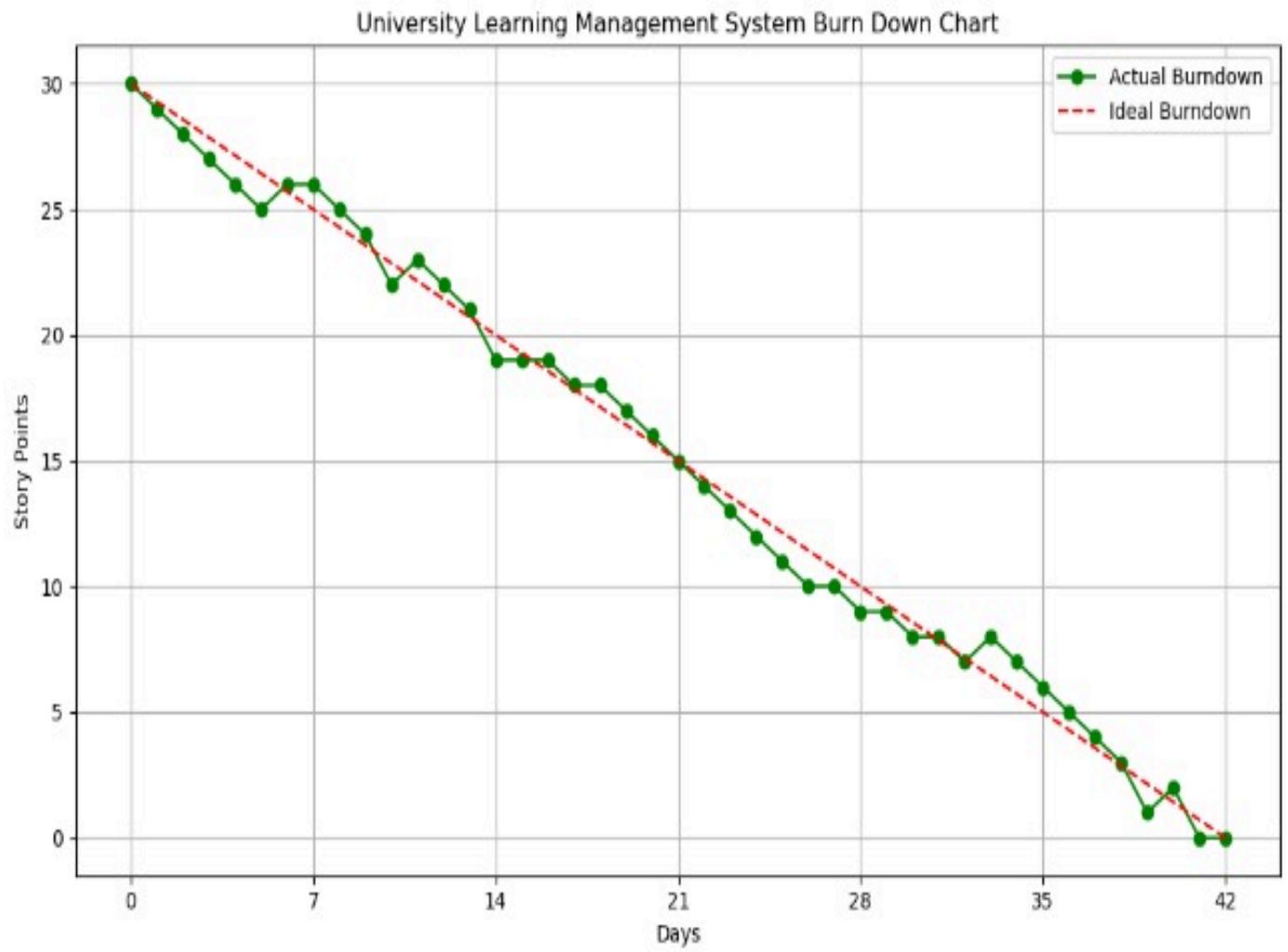
Manage Student:

User ID	User Name	User Email	Edit
1	Rizwan Salim	rizwane@nu.edu.pk	Edit
2	fizi	fiziqaiser@gmail.com	Edit
391	Muhaddis Farooq	muhaddis@nu.edu.pk	Edit
2965	Saad Ahsan	saad@nu.edu.pk	Edit
788	Mubeen Qaiser	mubeen@nu.edu.pk	Edit
782	Farzeen Qaiser	farzeen@nu.edu.pk	Edit

Details:

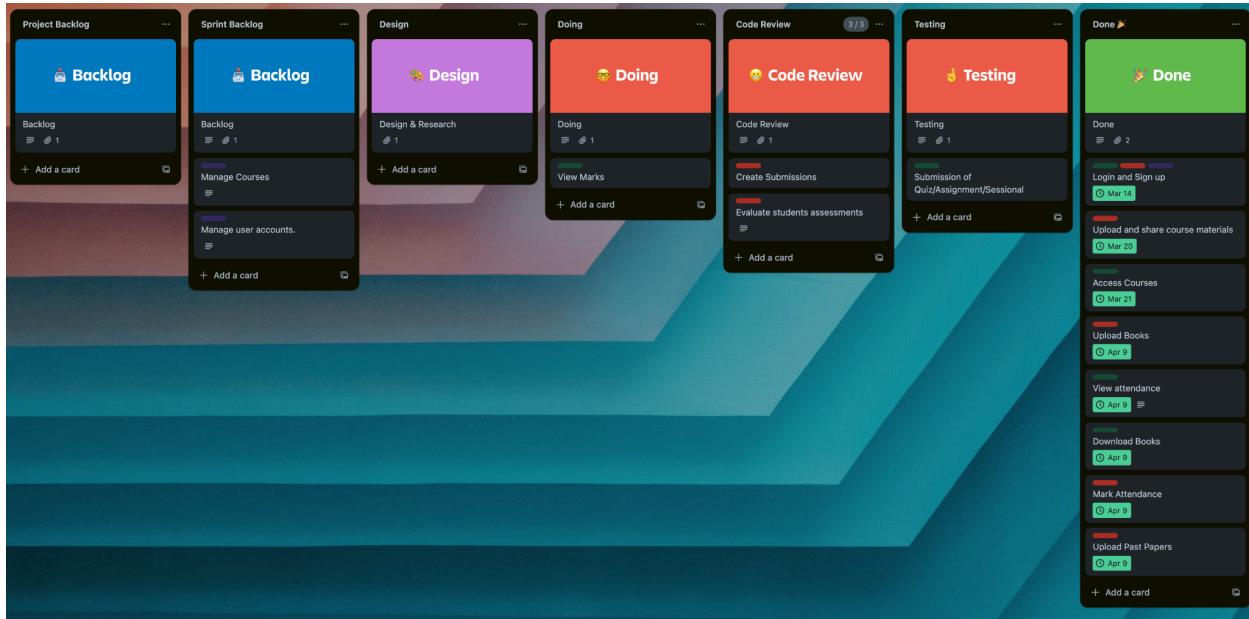
The admin can add new students by clicking on the “Insert New Student” button. A slider will pop from the right prompting the admin to enter the Student Name, Email and Password.

Burn Down Chart:

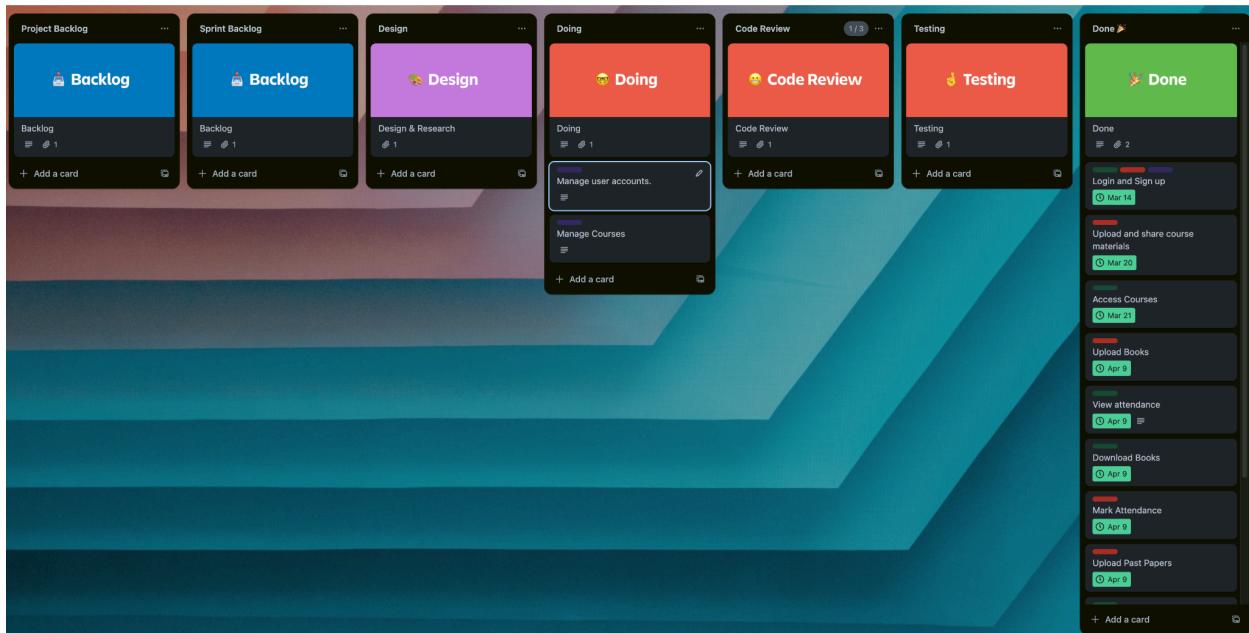


Scrum Board:

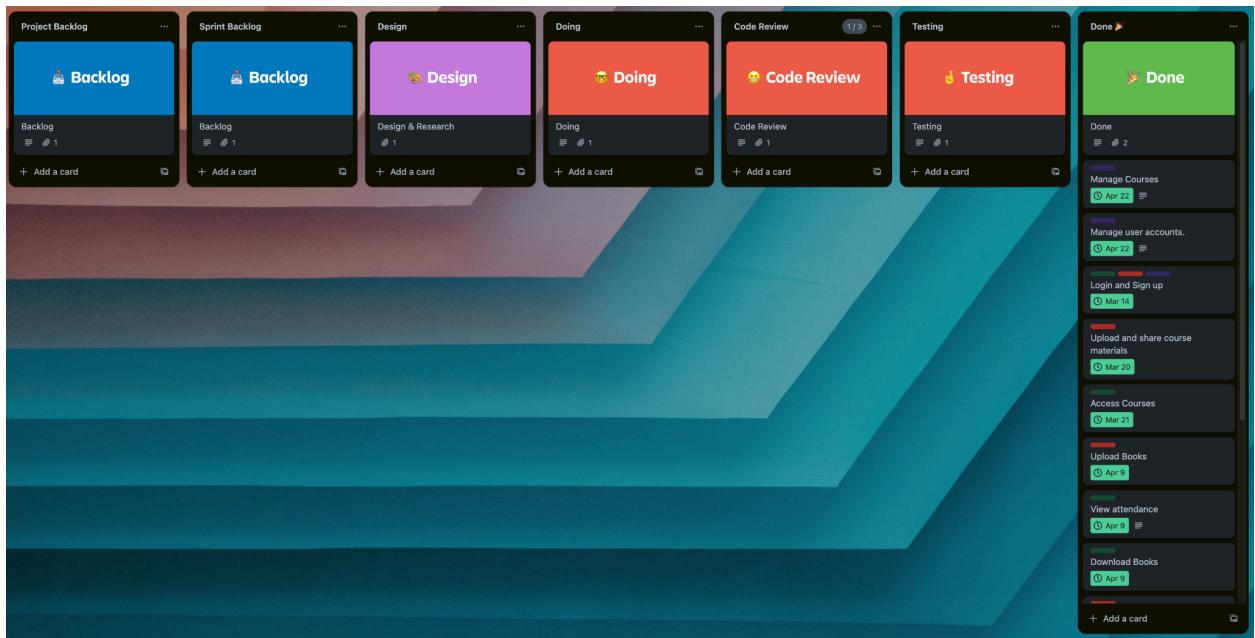
Beginning of the Sprint:



Middle of the Sprint:



End of the Sprint:



Boundary Value Analysis Testing

Boundary Values:

- **Password:**
 - Minimum length (8 characters)
 - Should contain 1 Uppercase, 1 number and 1 special character.
- **Email:**
 - Must contain an @
 - Should contain valid format (abc@nu.edu.pk etc)
 - Should not contain “”
 - Contains a “.” in the domain name.

Boundary Value Analysis (Sign Up):

Email Boundary Value Test Cases:

1. Must contain an @:

Field	Input	Validity	Expected Output
Email	abcdenu.edu.pk	No “@” symbol	Invalid
Email	abcde@nu.edu.pk	“@” symbol	Valid

2. Should contain valid format (abc@nu.edu.pk):

Field	Input	Validity	Expected Output
Email	abc@	Missing domain	Invalid
Email	@nu.edu.pk	Missing local part	Invalid
Email	abcde@nu.edu.pk	Local part and domain present	Valid

Field	Input	Validity	Expected Output
Email	abcde@nu.edu.pk.com	Extra characters in domain	Invalid

3. Should not contain "":

Field	Input	Validity	Expected Output
Email	ab"cde@nu.edu.pk	Contains quotes in local part	Invalid
Email	abcde@nu.edu"".pk	Contains quotes in domain	Invalid

4. Contains a "." in the domain name

Field	Input	Validity	Expected Output
Email	abcde@nu_edu_pk	Domain without a dot	Invalid
Email	abcde@nu.edu.pk	Domain with a dot	Valid
Email	abcde@.nu.edu.pk	Domain starts with a dot	Invalid
Email	abcde@nu.edu.pk.	Domain ends with a dot	Invalid

5. Minimum Length (15 characters)

Field	Input	Validity	Expected Output
Email	abcde@nu.edu.pk	15 Characters	Valid

Field	Input	Validity	Expected Output
Email	abcd@nu.edu.pk	14 Characters	Invalid
Email	abcdefg@.nu.edu.pk	17 Characters	Valid
Email	ab@nu.edu.pk.	12 Characters	Invalid

6. Maximum Length (30 characters)

Field	Input	Validity	Expected Output
Email	abcde@nu.edu.pk	15 Characters	Valid
Email	abcdefghijklmnpqrstuvwxyz@nu.edu.pk	36 Characters	Invalid
Email	abcdefghijklmnpqrst@nu.edu.pk	30 Characters	Valid

7. Must not contain Uppercase letters

Field	Input	Validity	Expected Output
Email	abcde@nu.edu.pk	All lowercase	Valid
Email	Abcde@nu.edu.pk	1 uppercase	Invalid
Email	ABCDE@.nu.edu.pk	5 uppercase	Invalid

Password Boundary Value Test Cases:

1. Minimum Length (8 characters):

Field	Input	Validity	Expected Output
Password	Abc1#de	7 characters	Invalid
Password	Abc1#def	8 characters	Valid
Password	Abc1#defg	9 characters	Valid

2. Maximum Length (20 characters):

Field	Input	Validity	Expected Output
Password	Abc1#defghijk	13 characters	Valid
Password	Abc1#defghijk1234 567	20 characters	Valid
Password	Abc1#defghijk1234 567abc	23 characters	Invalid

3. Must contain 1 Uppercase letter

Field	Input	Validity	Expected Output
Password	abc1#defg	All lowercase	Invalid
Password	Abc1#defg	Exactly 1 uppercase	Valid
Password	Abc1#DEFG	More than 1 uppercase	Valid

4. Must contain 1 Lower letter

Field	Input	Validity	Expected Output
Password	ABC#DEFG	All uppercase	Invalid
Password	aBC1#DEFG	Exactly 1 lowercase	Valid
Password	Abc1#defG	More than 1 lowercase	Valid

5. Must contain 1 number:

Field	Input	Validity	Expected Output
Password	AbcD#efg	No numbers	Invalid
Password	AbcD#1efg	Exactly 1 number	Valid
Password	AbcD#12ef	More than 1 number	Valid

6. Must contain 1 special character:

Field	Input	Validity	Expected Output
Password	AbcD2efg	No special characters	Invalid
Password	AbcD#2efg	Exactly 1 special character	Valid
Password	AbcD#2!ef	More than 1 special character	Valid

Boundary Value Analysis (Login):

Email Boundary Value Test Cases for Login:

1. Minimum Length (including '@' and domain):

Field	Input	Validity	Expected Output
Email	""	Empty email field	Invalid
Email	a@	One character without domain	Invalid
Email	a@n.pk	Local part with minimum characters for a valid domain	Invalid

2. Proper Format with '@' and '.' in domain:

Field	Input	Validity	Expected Output
Email	abcdenu.edu.pk	Missing '@' symbol	Invalid
Email	abcde@nu_edu_pk	Incorrect Domain	Invalid
Email	abcde@nu.edu.pk	Correct format	Valid
Email	abcde@nu.edu.com	Incorrect Domain	Invalid
Email	abcde""@nu.edu.pk	Email with quotes	Invalid

Password Boundary Value Test Cases for Login:

1. Minimum Length (8 characters):

Field	Input	Validity	Expected Output
Password	Abcd1#	Less than 8 characters	Invalid
Password	Abcd1#e2	Exactly 8 characters	Valid
Password	Abcd1#e2f	More than 8 characters	Valid

2. Uppercase, Number, and Special Character:

Field	Input	Validity	Expected Output
Password	abcd1#e2	No uppercase	Invalid
Password	Abcd#efg	No numbers	Invalid
Password	Abcd1efg	No special characters	Invalid
Password	Abcd1#e2	All conditions met	Valid

Work Division:

Name	Documentation	Front End	Back End
Farzeen Qaiser	Scrum Board Class Diagram User Stories	✓	✓
Muhaddis Farooq	Sequence Diagrams Architecture Diagram Boundary Value Test User Stories	-	✓
Saad Ahsan	Activity Diagrams Use Case Diagrams Burn Down Chart User Stories	✓	-

Lessons learnt by group:

1. Collaboration and Communication:

When we worked as a team we came to know about the importance of teamwork. As we shared ideas, discussed issues we realized how important they were for the successful completion of tasks.

2. Time Management:

We learned how to manage deadlines as a group and how time management plays a critical part for delivering work on time.

3. Learning from Mistakes:

We made some mistakes as we were progressing but as a group we tried to learn from our mistakes so that in the future we don't repeat the same mistake we made in the past.

4. Division of Labor:

We realized that breaking down tasks and assigning them based on a person's expertise and interest can lead to better work experiences.

5. Proof Checking:

We learned that it's extremely important to proof check multiple times before submitting the deliverables.