KING'S OWN INSTITUTE*

Success in Higher Education

GROUP ASSIGNMENT COVERSHEET

Subject Code & Name: ICT729 Capstone Project 2 T225

Lecturer's/Tutor's name: Mohamed MADNI

Assignment Title: Implementation Plan

Declaration

(This declaration must be completed by all students in the group or the assignment will not be marked.)

We, the undersigned, certify the following:

- We have read and understood the *Student Academic Misconduct Policy*
- This assignment is our own work based on our personal study and or research.
- We have acknowledged all material and sources used in the preparation of this assignment including any material generated in the course of our employment.
- **The assignment has not previously been submitted for assessment in this or any other unit.**
- We have not copied in part or in whole or otherwise plagiarised the work of other students.
- We have read and understand the criteria used for assessment.
- The assignment is within the word and page limits specified in the unit outline.
- The use of any material in this assignment does not infringe the intellectual property / copyright of a third party.
- We understand that this assignment may undergo electronic detection for plagiarism, and an anonymous copy of the assignment may be retained on the database and used to make comparisons with other assignments in future.
- By completing this coversheet in full and submitting this assignment electronically, we are bound by the conditions of the KOI's *Student Academic Misconduct Policy* and the declaration on this coversheet.

	Family Name	Given Name(s)	Student ID	Tutorial Code	Contribution Percentage	Signature
Student 1	Dahal	Roshan	20030922	ICT728	20%	
Student 2	Kandel	Dipak	20030909	ICT728	20%	
Student 3	Luitel	Sandip	20030973	ICT728	20%	
Student 4	Bhattarai	Umanga	20029238	ICT728	20%	
Student 5	Shah	Khusbu	20024002	ICT728	20%	

Assignment Receipt

Subject Code & Name: ICT729 Capstone Project 2 T225 Lecturer's/Tutor's Name: Mohamed MADNI

Assignment Title: Implementation Plan

	Family Name	Given Name(s)	Student ID	Tutorial/ Code	Signature
Student 1	Dahal	Roshan	20030922	ICT728	
Student 2	Kandel	Dipak	20030909	ICT728	
Student 3	Luitel	Sandip	20030973	ICT728	
Student 4	Bhattarai	Umanga	20029238	ICT728	
Student 5	Shah	Khusbu	20024002	ICT728	

Table of Contents

1. Introduction

The web application, Thesis Management, is designed for higher academic projects involving students, supervisors, and administrators. The Thesis lifecycle in universities will be enabled using this thesis management tool, which will provide automated feedback on project analysis, planning, selection, assessment, and evolution. Students, supervisors, and administrators can access the automatic dashboard display of the project (McLeod, s.,2021).

This system will be a scalable, efficient, and transparent system. The major efficiency problem, communication issues, and administrative burdens are aimed to be solved by this thesis management system. Paper-based systems originate problems with tracking projects and communication between students, supervisors, and administrators. It consumes lots of time and costs to track project activities (Thamhain, H.J., 1991).

This report will showcase the prototype design, database design, development plans along with work breakdown structure and task division of our team members. We team of five are working on this system development to deliver the thesis management to our client Hui Hu who is also our lecturer in Kings Own Institute.

2. Objectives

The main objective of this project is to create a working thesis management system which would help student's supervisors and admin to manage thesis related tasks in an educational institution like KOI itself. By using the system, they can easily communicate and complete their responsibilities without depending heavily on paper-based process or meeting each other in-person.

This system focuses on improving how students select their thesis projects, submit their work and get feedback from the supervisors. Similarly, it makes the job easier for supervisors and admins by giving them the system to approve students, track progress and manage markings.

Here are the key objectives we are working to achieve:

- To provide a platform for students to view available thesis topics and apply to work on them.
- To allow supervisors to create project topics and manage student applications by supervisors.
- To give admins the ability to create assessment structures and monitor student-submitted assignments.
- To reduce confusion and communication delays between students, supervisors, and admins by a centralized system accessible to all.
- To help students upload their thesis assignments in different formats (doc or PDF) before deadlines.
- To build dashboards that show important project updates and assignment status for each user role.
- To create a system that is user-friendly, secure, and accessible from different devices.

By completing these objectives, our system will save time and effort for all users of the system and will make the whole process more transparent and less stressful for students and staff (Aydos et al., 2022).

3. Duration and Completion of the Project

The development of the system spans approximately nine to ten weeks as part of Capstone 2. With the current sprint plan and workload, the project is expected to be completed at the start of September 2025. Concentrated sprinting, initial testing, and parallel development stages can be seen in this shorter timeline.

The team employs two weeks of sprints and Agile strategy, a strategy that helps in delivering fast and continuing improvement. Each sprint is focused on a specific component, such as deployment and feedback incorporation into basic features. The project will be concluded by the handover of the system and an academic review.

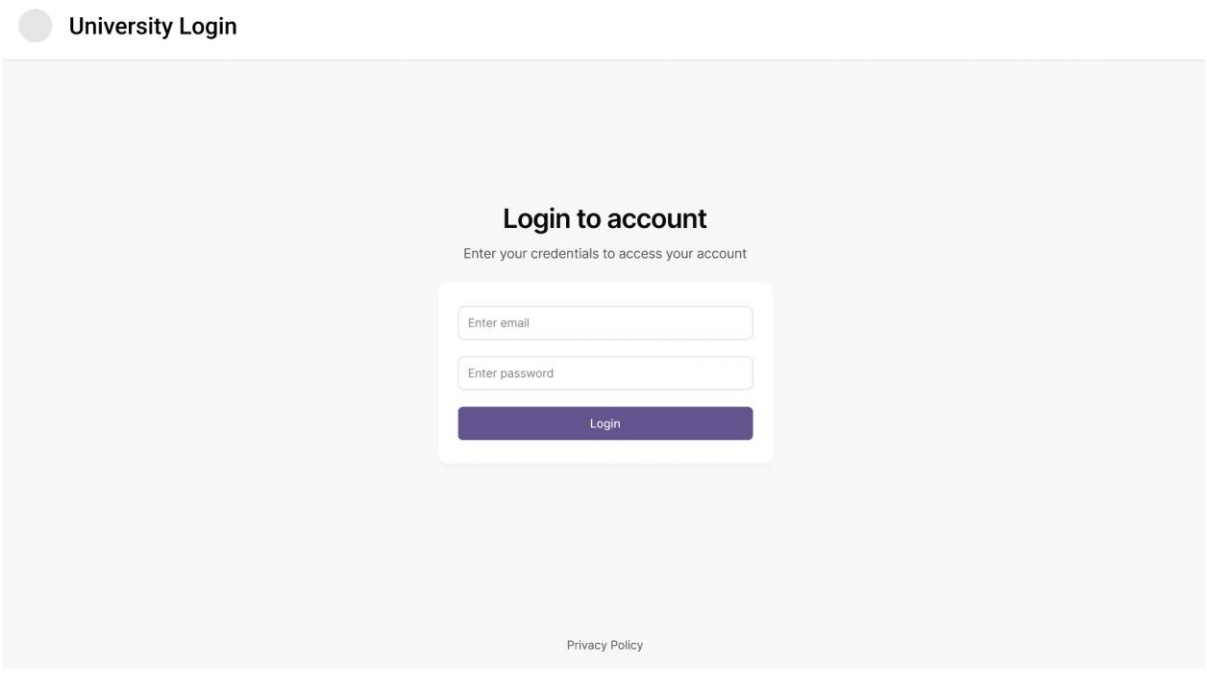
4. Team Involved and Tasks

Task Category	Team Members	Primary Tasks	Secondary Tasks
Prototype Design	Roshan Dahal Dipak Kandel	• The requirements were gathered from the client • The prototype design is based on the requirements	• Updating the prototype as per feedback from the client • Finalizing the requirements and confirming the design
Documentation	Khusbu Shah Umanga Bhattarai	• All the reports and Documentation Involved • Progress Tracking and communication with the team	• Making sure proper documentation is being done for the progress
Frontend Design and Development	Sandip Luitel Umanga Bhattarai	• Design and Development of the pages	• Testing of the design and development is done
Database Design	Sandip Luitel Khusbu Shah	• Designing the database as per the frontend design and requirements	• Testing of the design and development is done
Backend Development	Roshan Dahal Dipak Kandel	• All the backend development tasks	• Testing of all the code and features developed

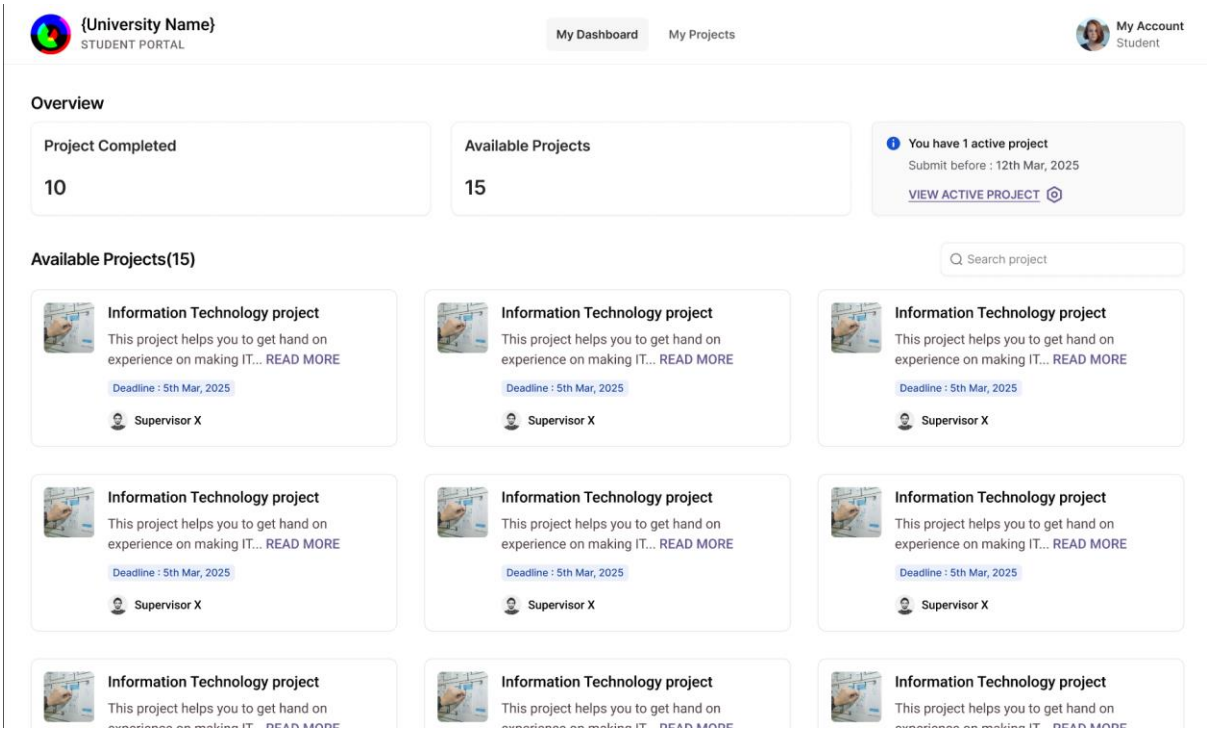
5. Implementation

5.1 Prototype Design

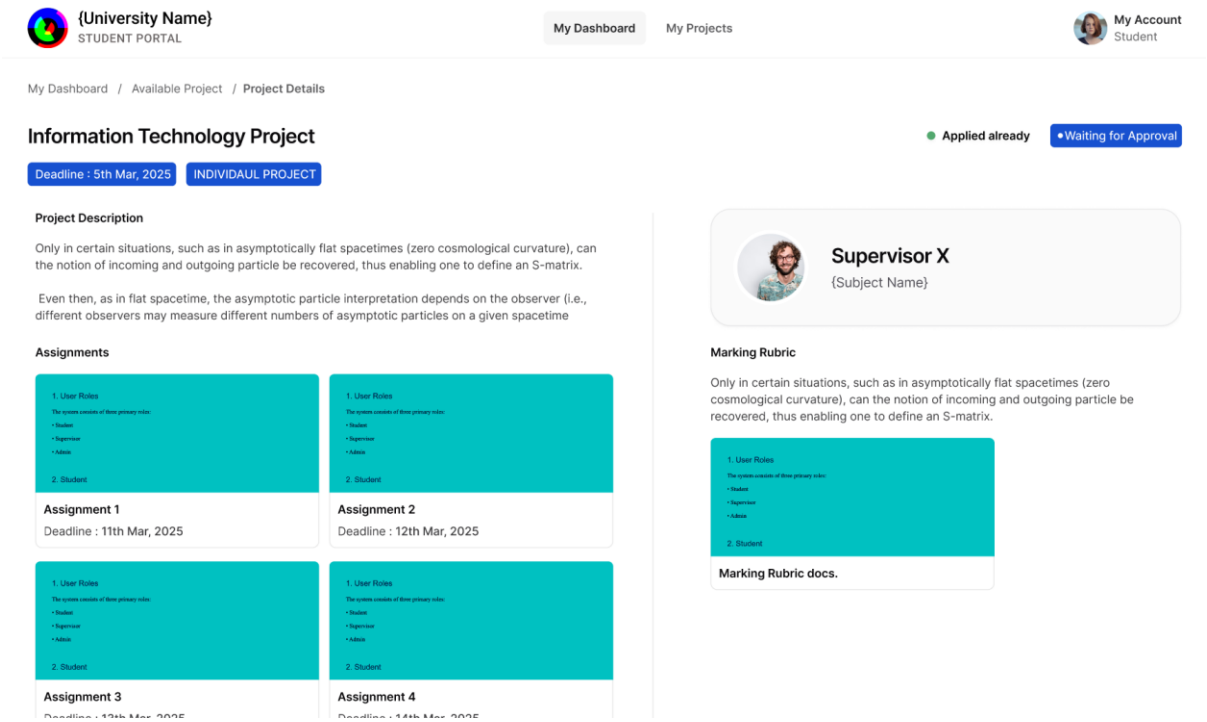
1. Universal Login Page



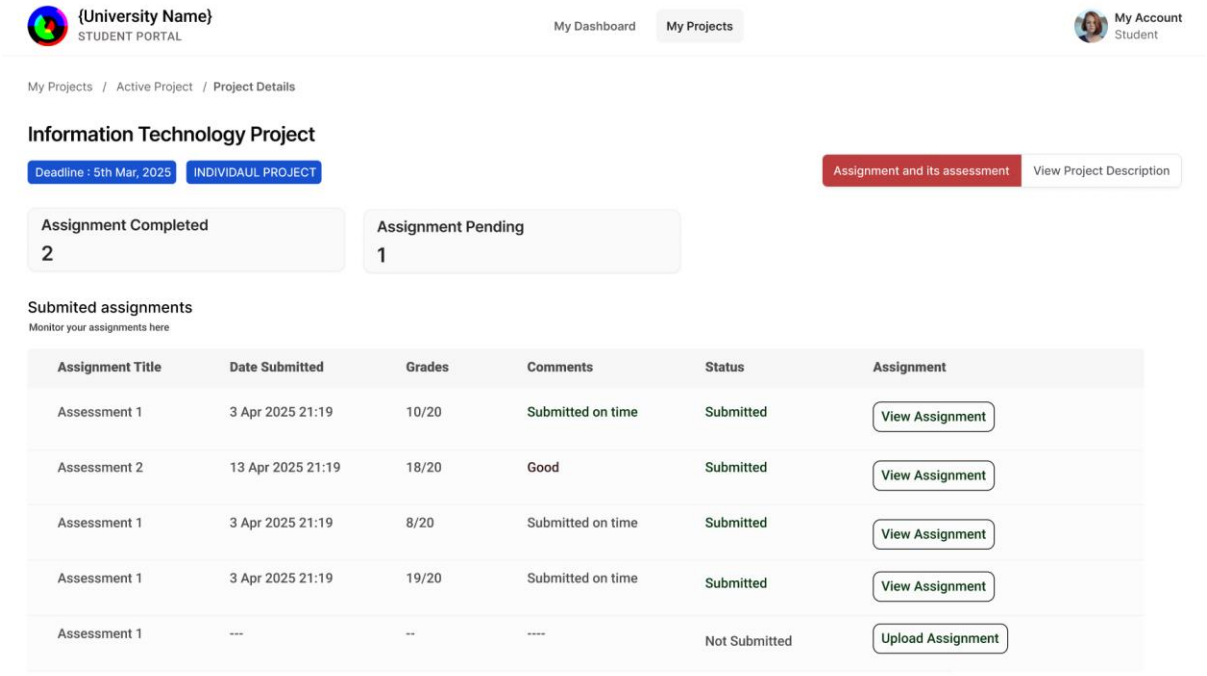
2. Student Dashboard



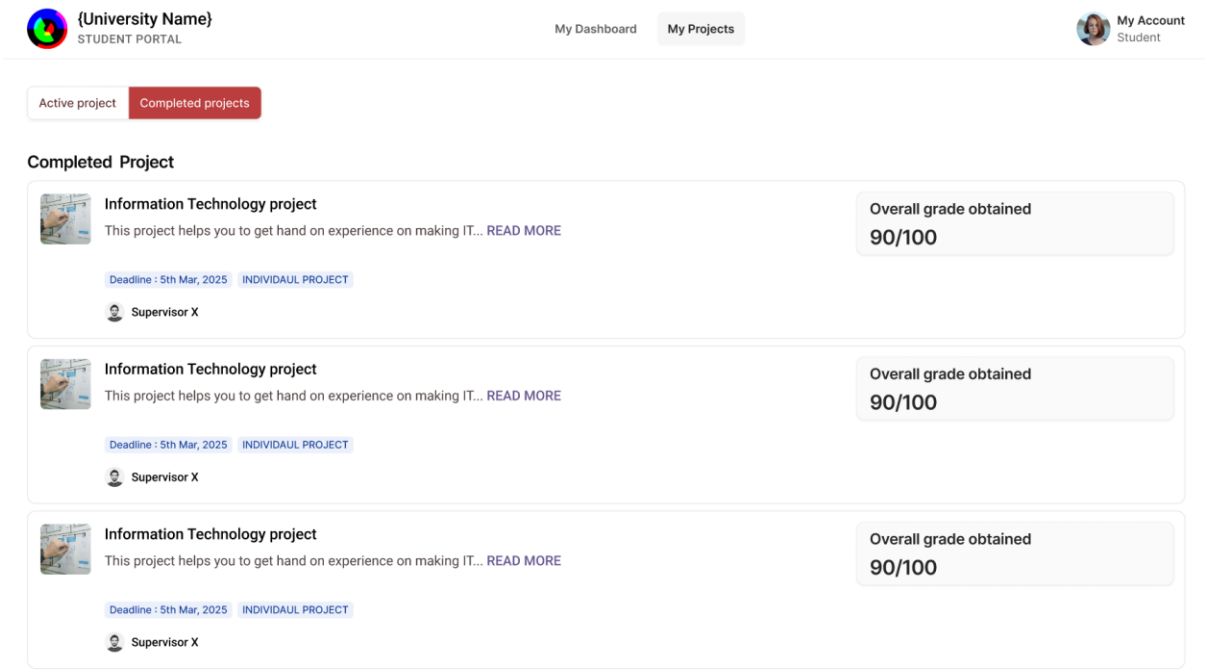
3. Project Details Page

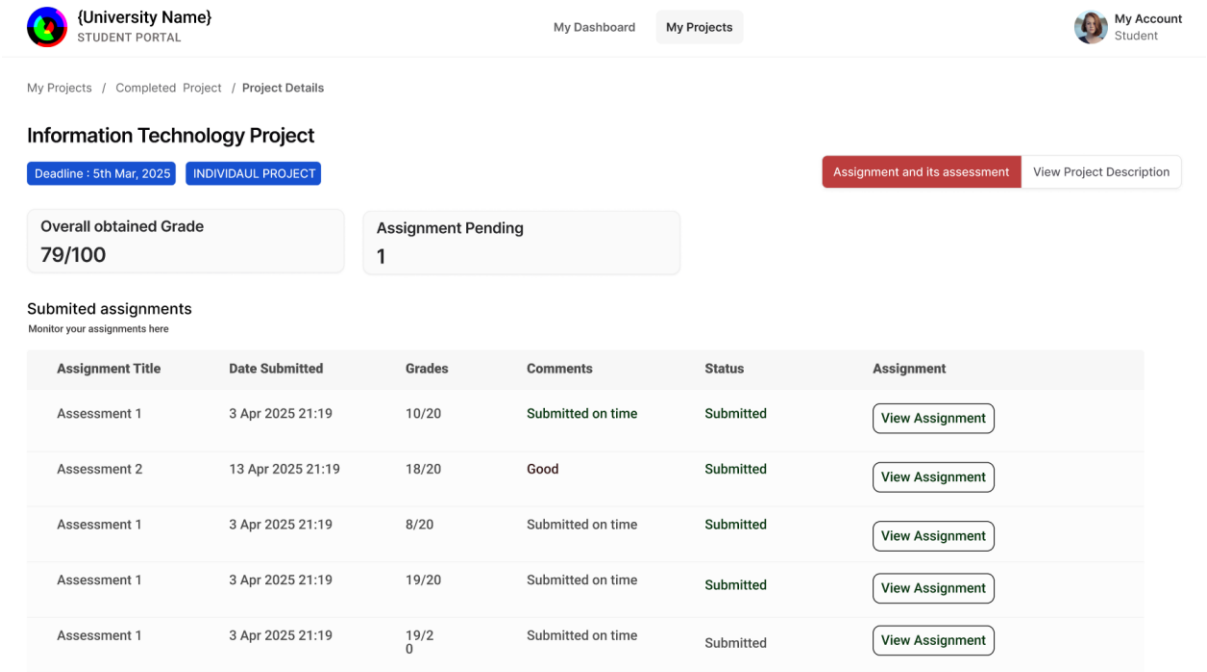


4. Assessment Page

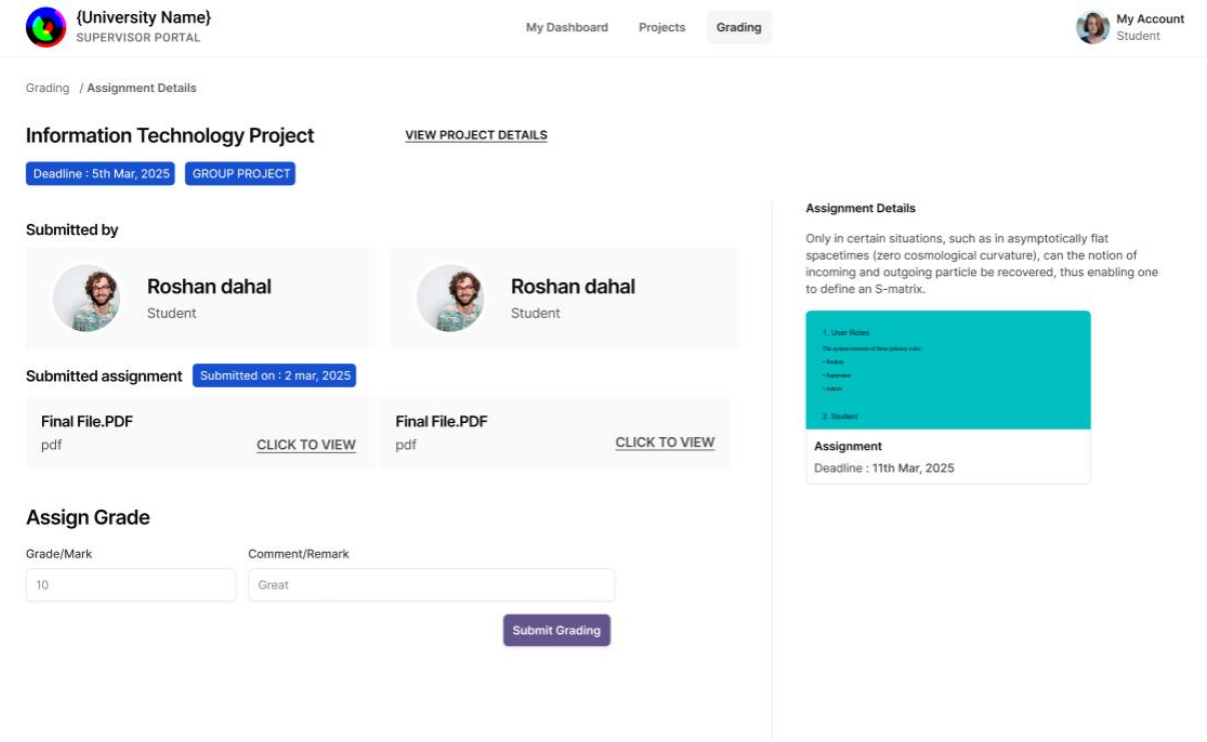


5. Grading Page

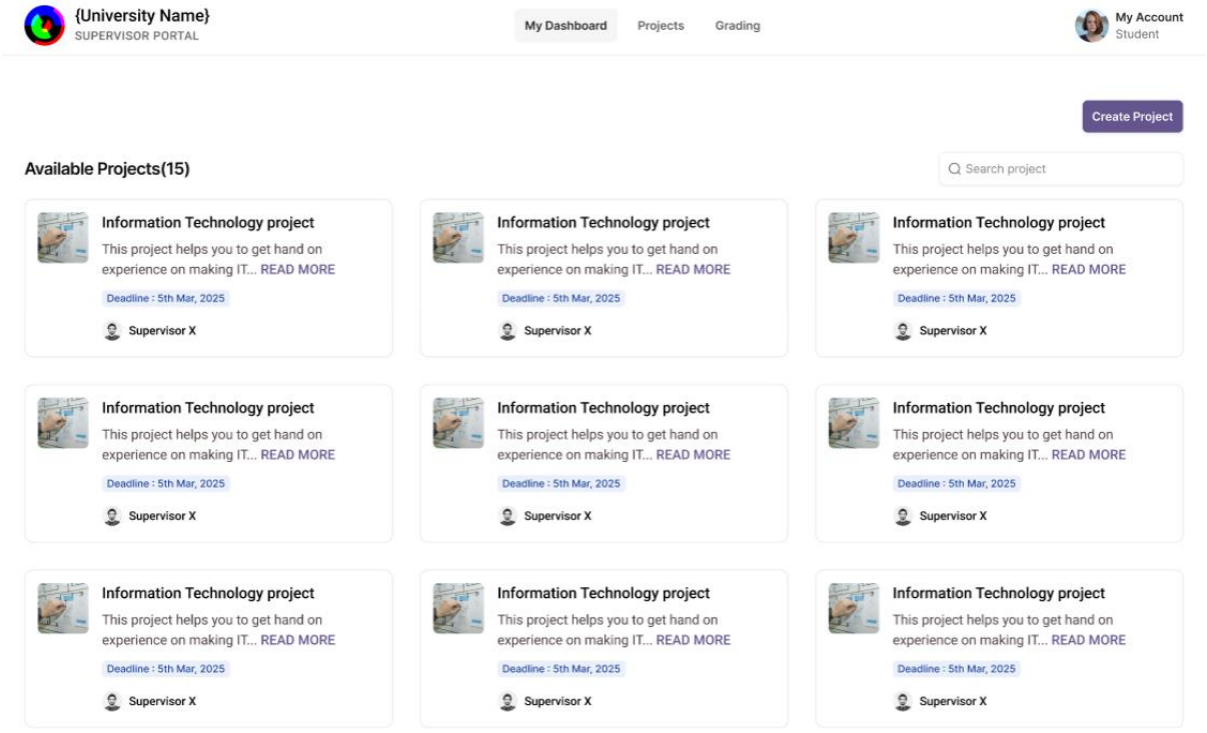


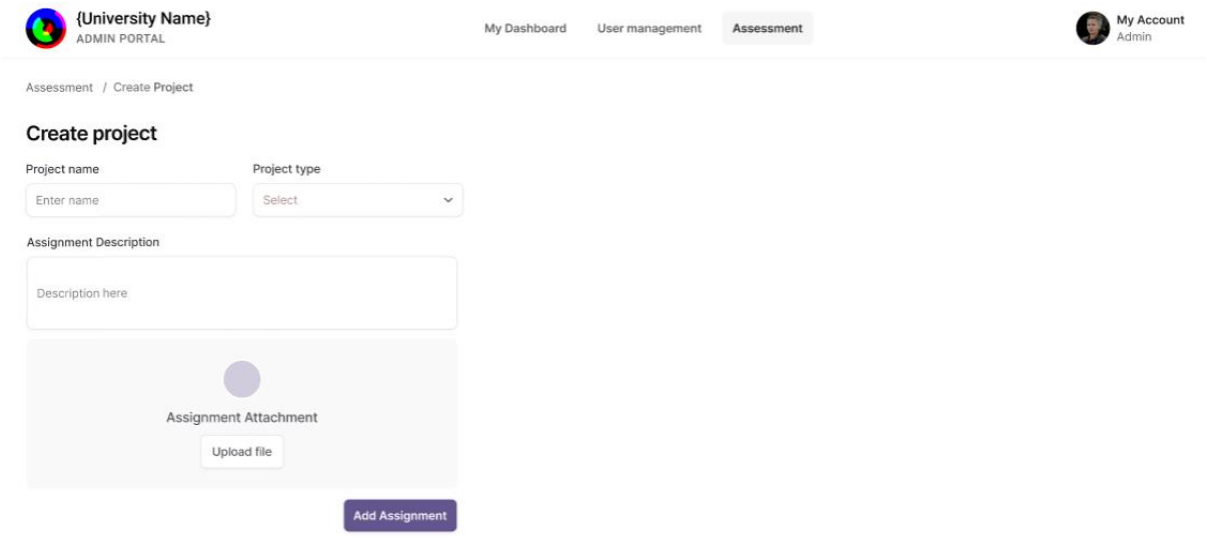


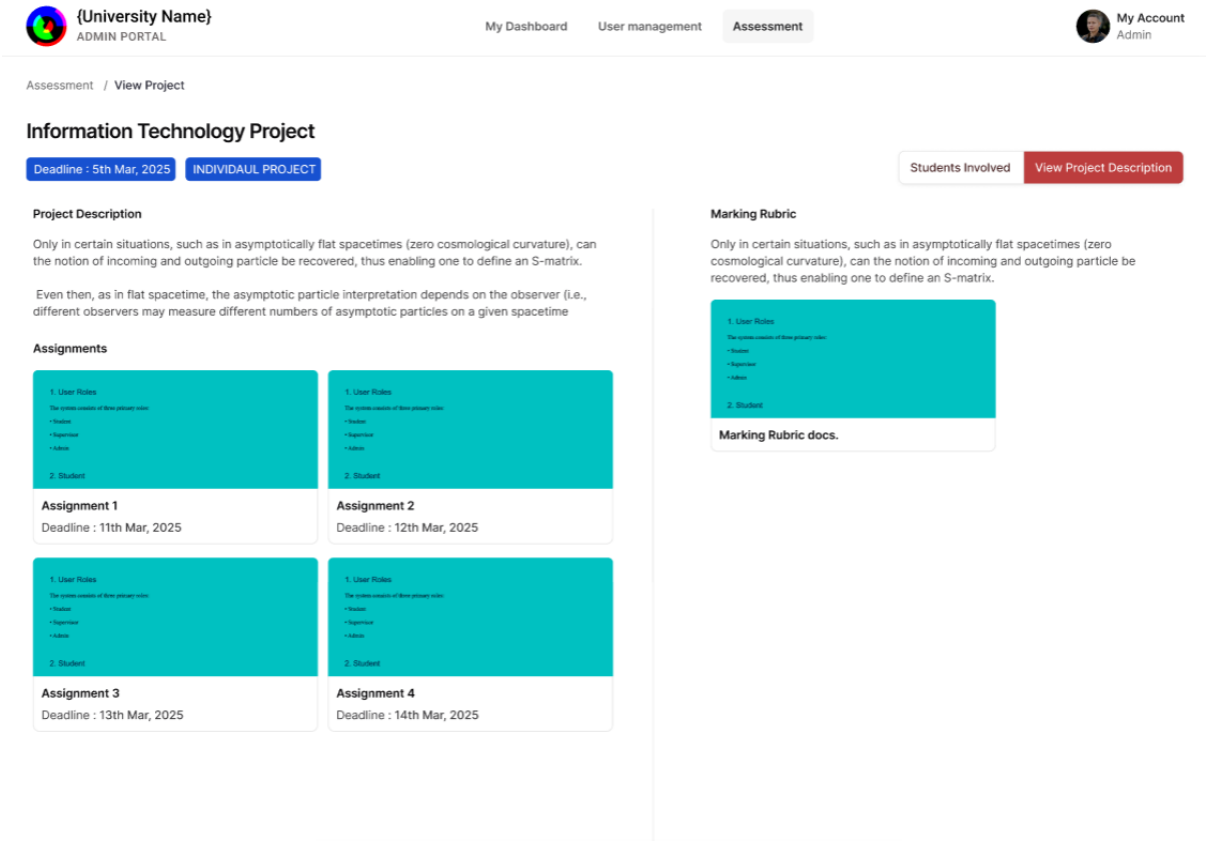
6. Supervisor Grading

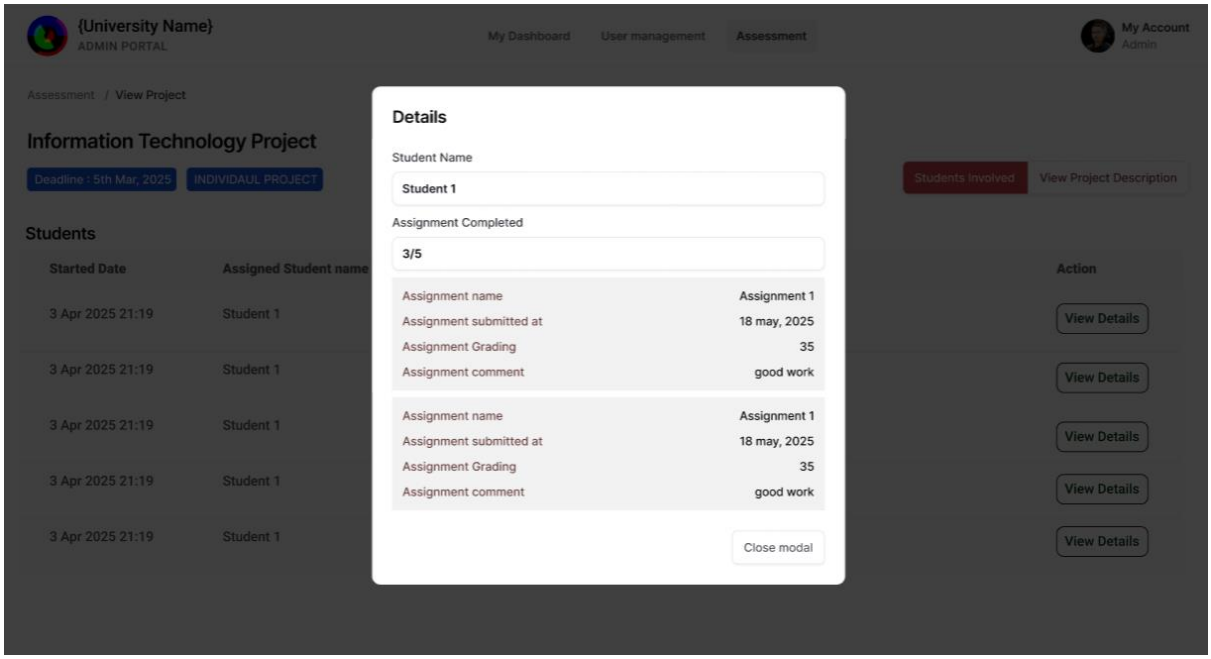


7.Project View




{University Name}
ADMIN PORTAL
My Dashboard
User management
Assessment
My Account
Admin
Assessment / Create Project
Create project
Project name
Enter name
Project type
Select
Assignment Description
Description here
Assignment Attachment
Upload file
Add Assignment

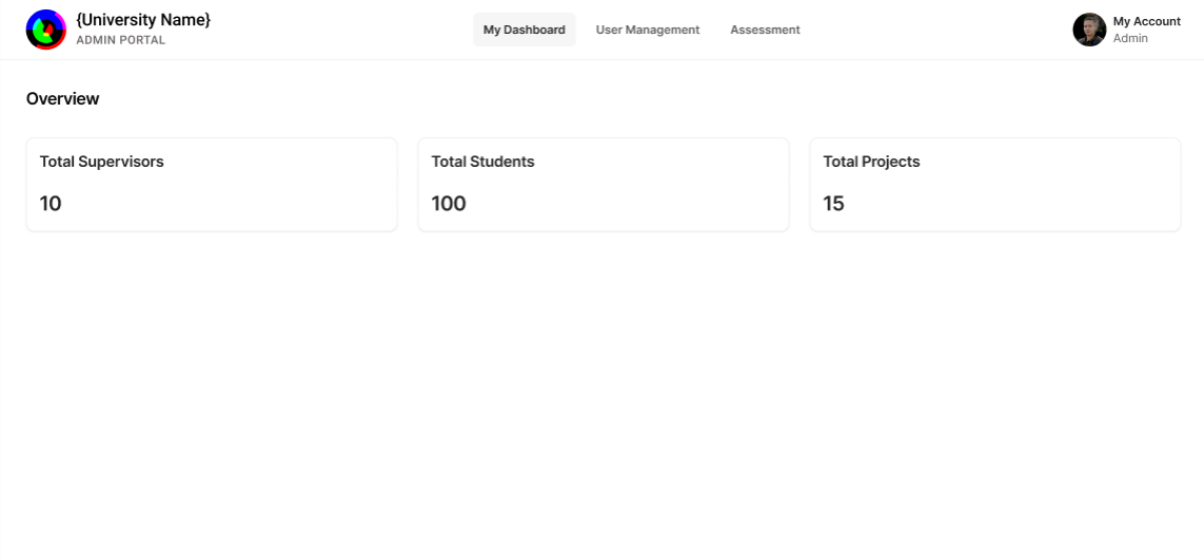

{University Name}
ADMIN PORTAL
My Dashboard
User management
Assessment
My Account
Admin
Assessment / View Project
Information Technology Project
Deadline : 5th Mar, 2025
INDIVIDAUL PROJECT
Students Involved
View Project Description
Project Description
Only in certain situations, such as in asymptotically flat spacetimes (zero cosmological curvature), can the notion of incoming and outgoing particle be recovered, thus enabling one to define an S-matrix.
Even then, as in flat spacetime, the asymptotic particle interpretation depends on the observer (i.e., different observers may measure different numbers of asymptotic particles on a given spacetime
Assignments
Assignment 1
Deadline : 11th Mar, 2025
Assignment 2
Deadline : 12th Mar, 2025
Assignment 3
Deadline : 13th Mar, 2025
Assignment 4
Deadline : 14th Mar, 2025
Marking Rubric
Only in certain situations, such as in asymptotically flat spacetimes (zero cosmological curvature), can the notion of incoming and outgoing particle be recovered, thus enabling one to define an S-matrix.
Marking Rubric docs.



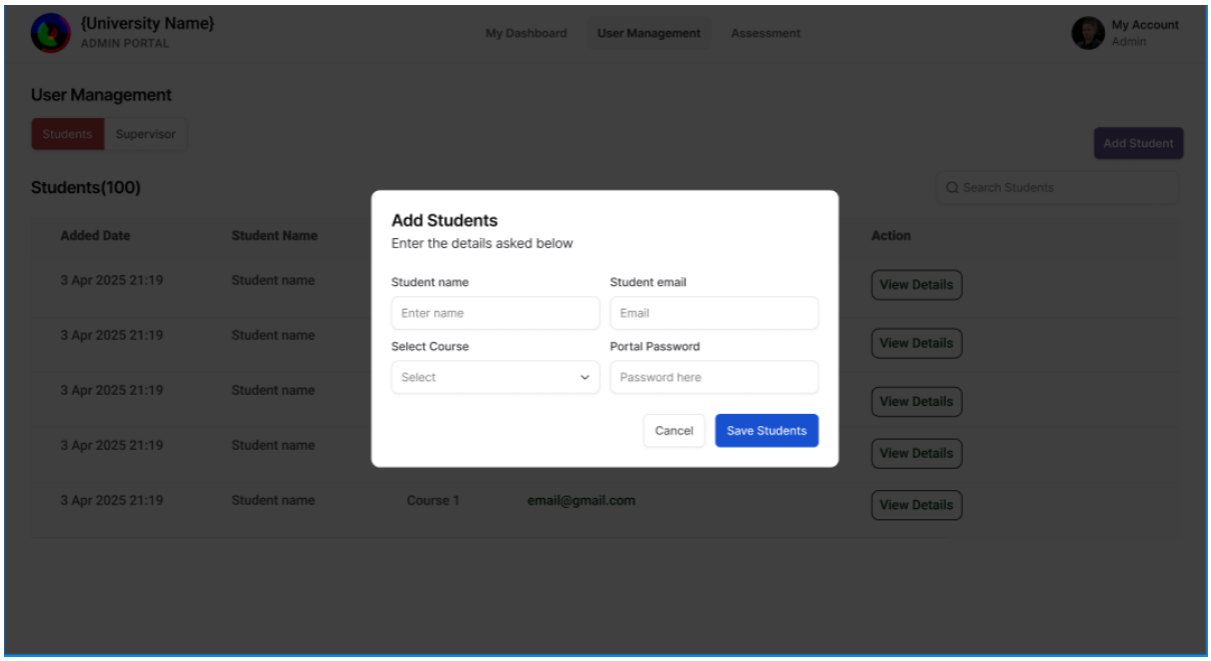
{University Name}
ADMIN PORTAL
My Dashboard
User management
Assessment
My Account
Admin
Assessment / View Project
Information Technology Project
Deadline : 5th Mar, 2025
INDIVIDAUL PROJECT
Students Involved
View Project Description
Students

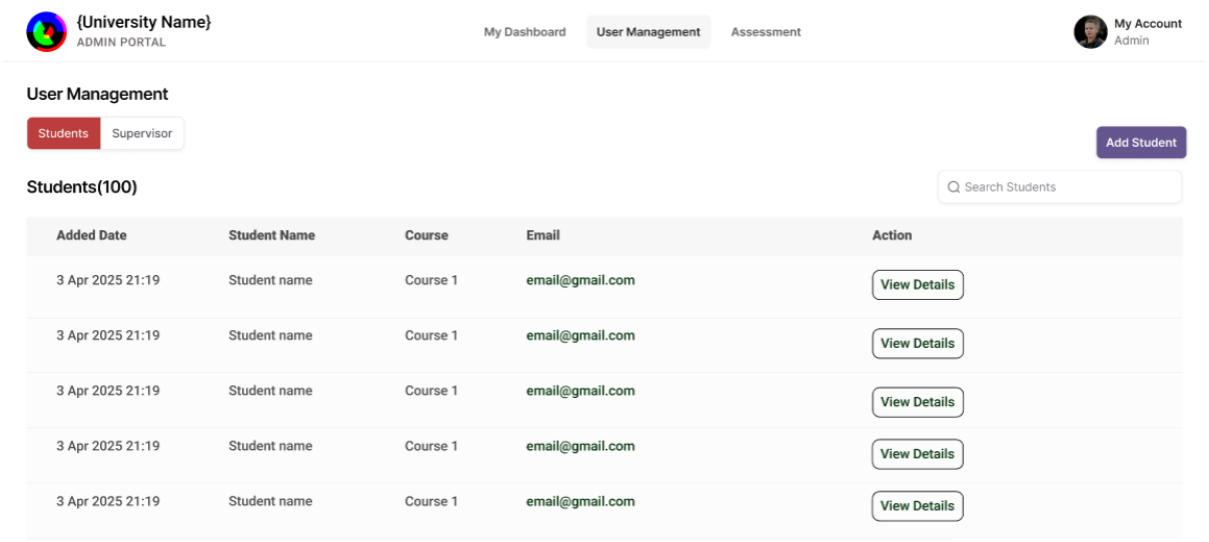
Started Date	Assigned Student name	Assignment completed	Action
3 Apr 2025 21:19	Student 1	3/5	View Details
3 Apr 2025 21:19	Student 1	3/5	View Details
3 Apr 2025 21:19	Student 1	3/5	View Details
3 Apr 2025 21:19	Student 1	3/5	View Details
3 Apr 2025 21:19	Student 1	3/5	View Details

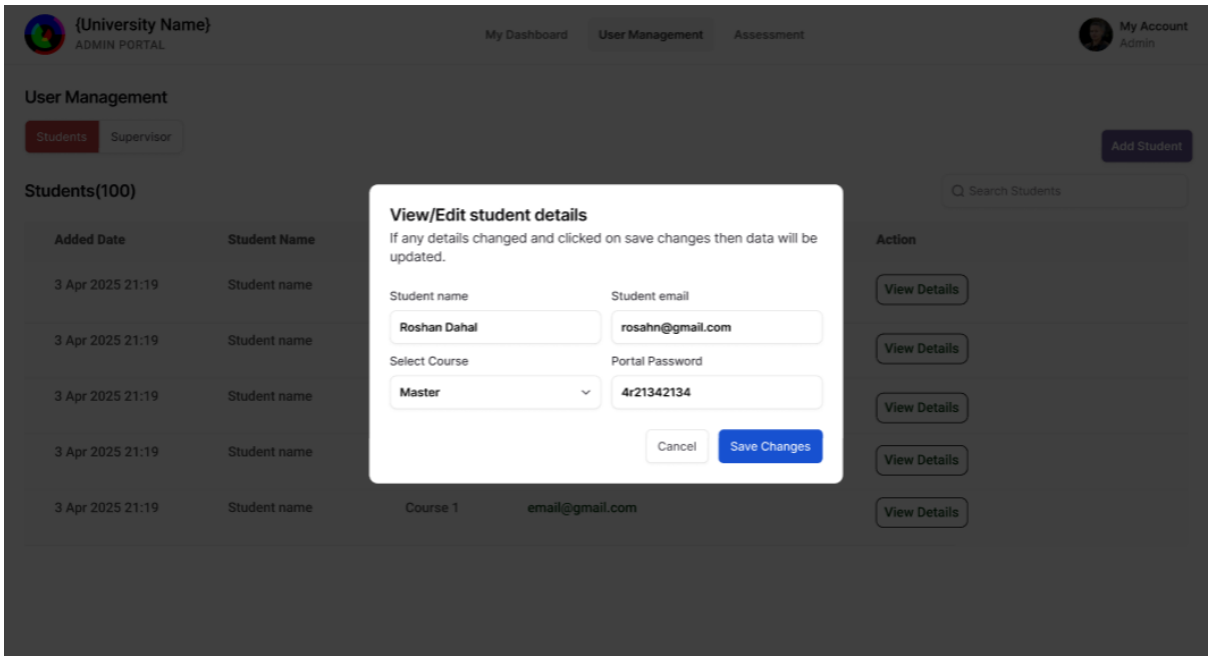
8. Admin - Dashboard



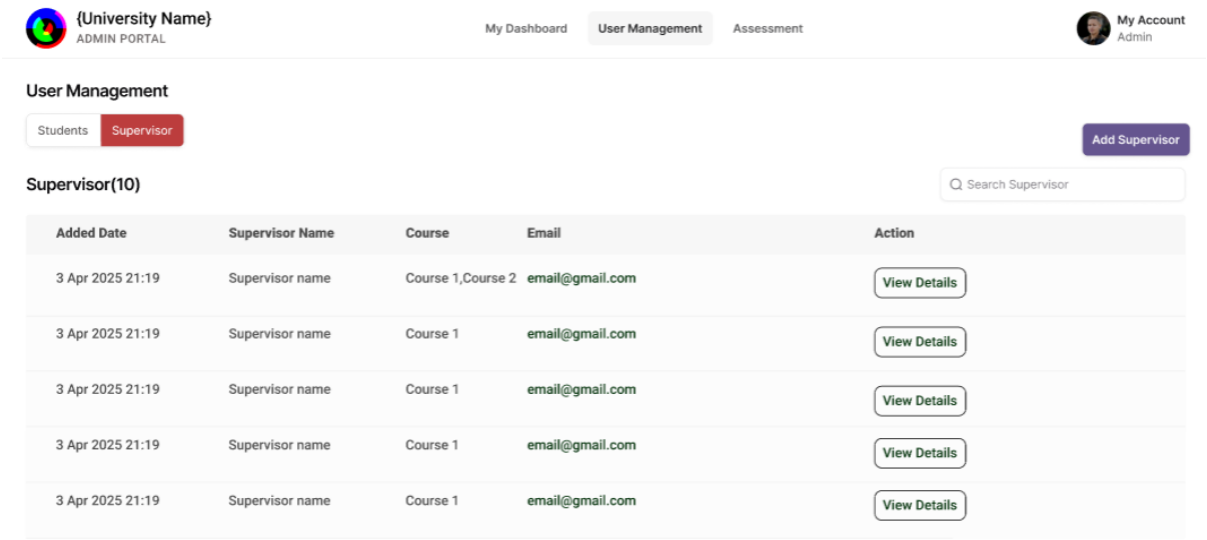
9. Admin - Student Management



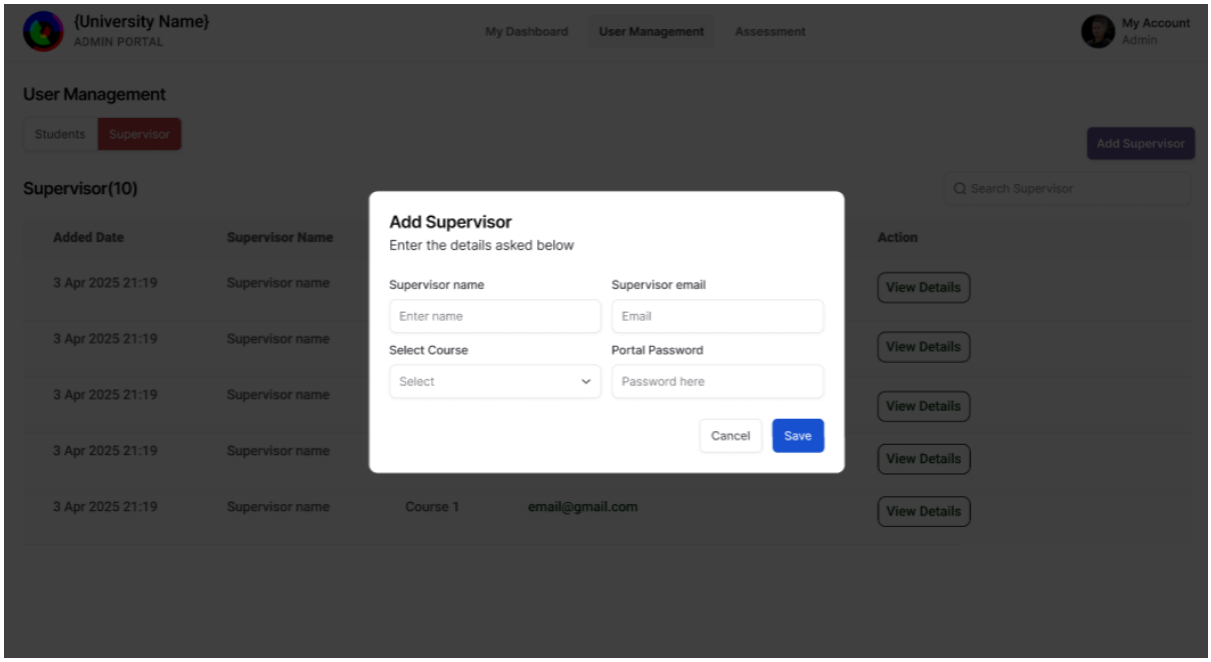

{University Name}
ADMIN PORTAL
My Dashboard
User Management
Assessment
My Account
Admin
User Management
Students
Supervisor
Add Student
Students(100)
Search Students
Added Date
Student Name
Course
Email
Action
3 Apr 2025 21:19
Student name
Course 1
email@gmail.com
View Details

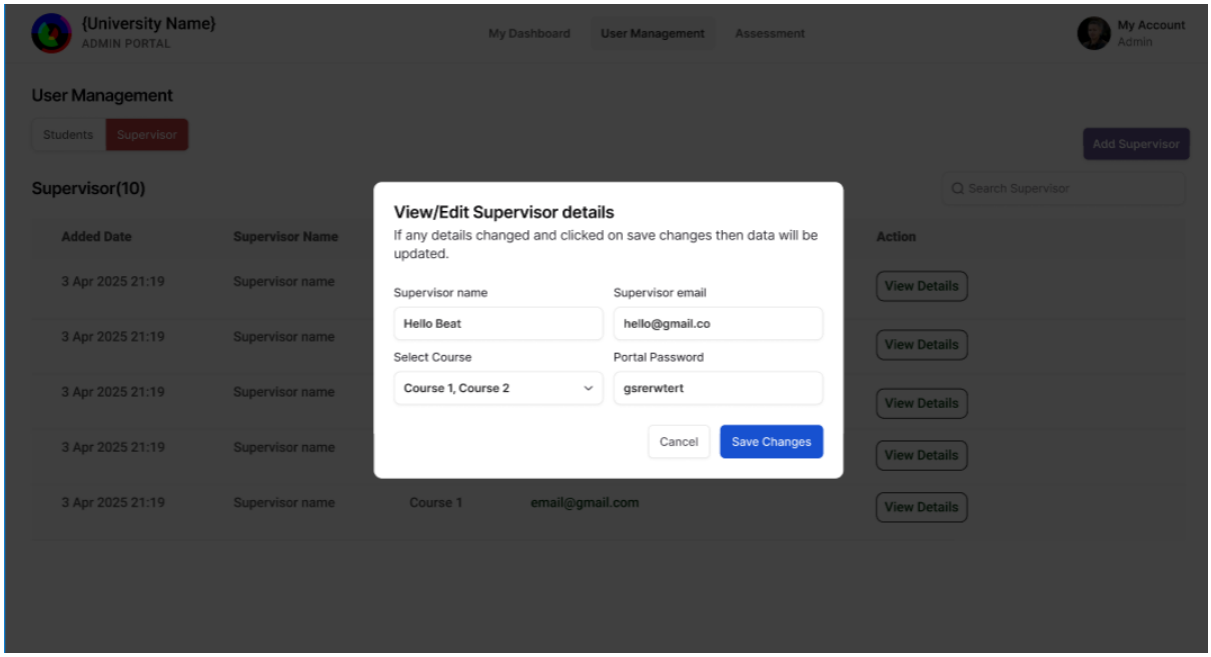

{University Name}
ADMIN PORTAL
My Dashboard
User Management
Assessment
My Account
Admin
User Management
Students
Supervisor
Add Student
Students(100)
Search Students
Added Date
Student Name
Action
3 Apr 2025 21:19
Student name
View Details
View/Edit student details
If any details changed and clicked on save changes then data will be updated.
Student name
Roshan Dahal
Student email
rosahn@gmail.com
Select Course
Master
Portal Password
4r21342134
Cancel
Save Changes
3 Apr 2025 21:19
Student name
Course 1
email@gmail.com
View Details

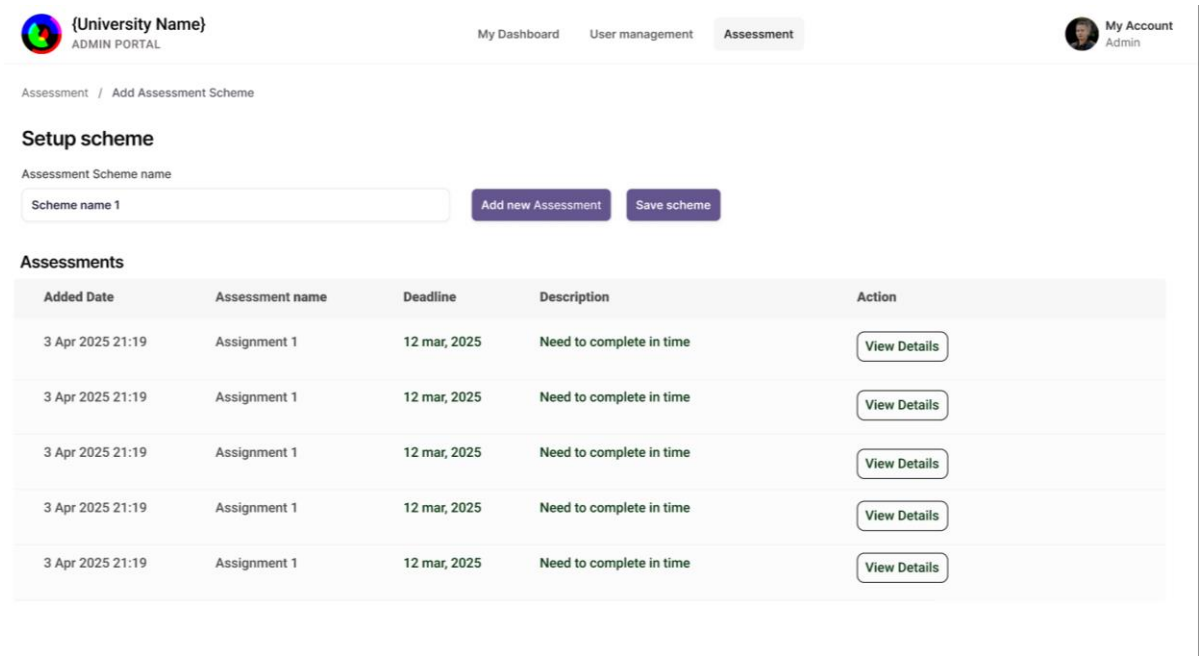
10. Admin - Supervisor Management



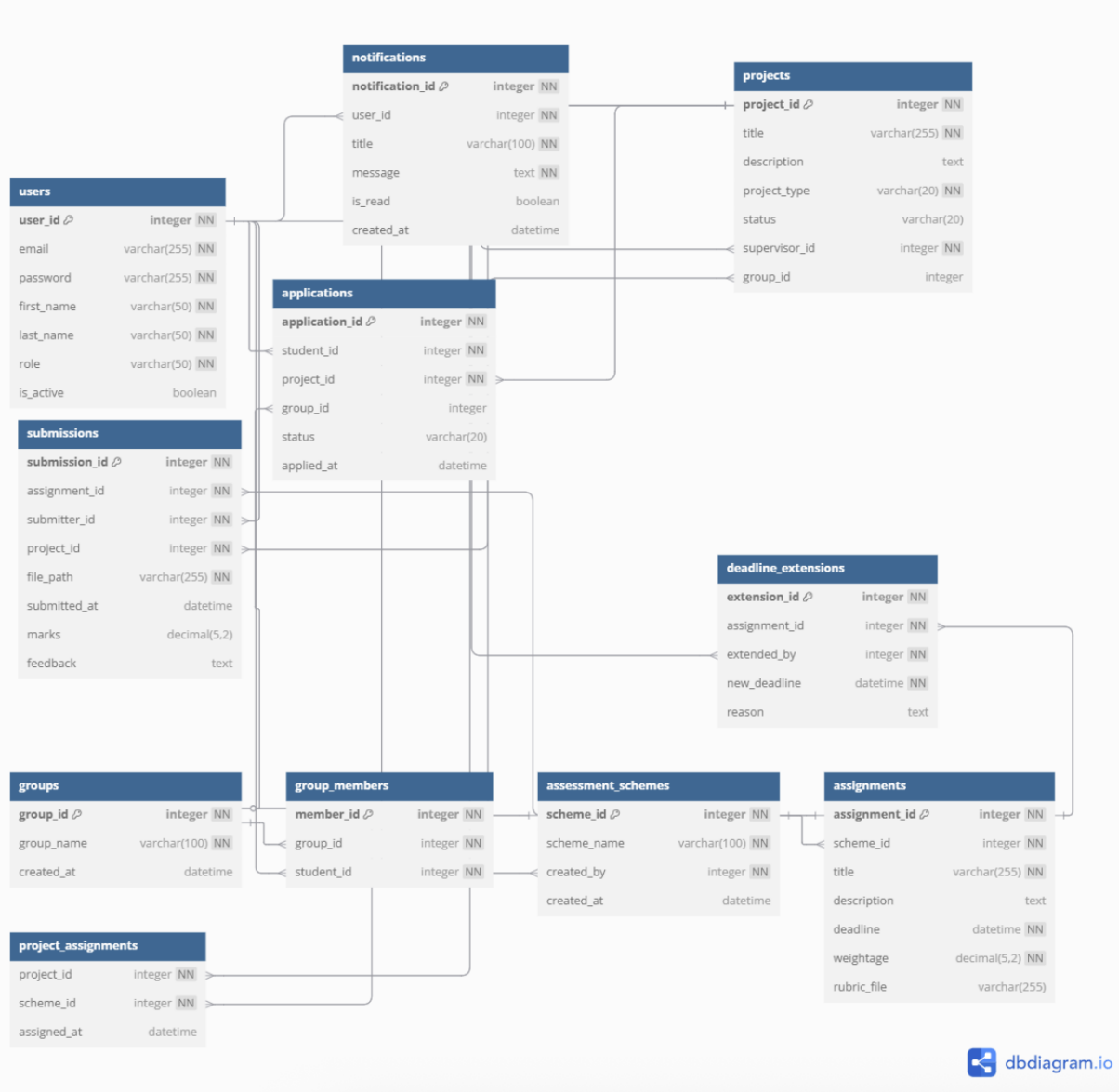
11. Admin - Assessment Schema




{University Name}
ADMIN PORTAL
My Dashboard
User Management
Assessment
My Account
Admin
User Management
Students
Supervisor
Add Supervisor
Supervisor(10)
Search Supervisor
Added Date
Supervisor Name
Action
3 Apr 2025 21:19
Supervisor name
View Details
View/Edit Supervisor details
If any details changed and clicked on save changes then data will be updated.
Supervisor name
Hello Beat
Supervisor email
hello@gmail.co
Select Course
Course 1, Course 2
Portal Password
gsrerwtert
Cancel
Save Changes
Course 1
email@gmail.com


{University Name}
ADMIN PORTAL
My Dashboard
User management
Assessment
My Account
Admin
Assessment / Add Assessment Scheme
Setup scheme
Assessment Scheme name
Scheme name 1
Add new Assessment
Save scheme
Assessments
Added Date
Assessment name
Deadline
Description
Action
3 Apr 2025 21:19
Assignment 1
12 mar, 2025
Need to complete in time
View Details

5.2 Database Design



The proposed database design supports a Thesis Management System that facilitates coordination among students, supervisors, and administrators. The key entities and their roles are outlined below:

- **users**:
  Stores information about all users in the system, including login credentials, personal details, and roles such as student, supervisor, or admin.

- **groups**:
  Represents student groups working on collaborative projects. Each group entry includes a name and the date of creation.

- **group_members**:
  Maps students to their respective groups. Each record links a student to a group and enforces uniqueness to prevent duplication.

- **projects**:
  Contains details of both individual and group-based projects. Each project is assigned to a supervisor and may optionally be linked to a group. The project type and status fields help manage its availability and completion.

- **applications**:
  Handles project applications submitted by students or groups. Each application includes references to the project and applicant, along with a status (e.g., pending, approved, rejected) and a timestamp.

- **assessment_schemes**:
  Defines sets of assessments created by administrators. Each record includes the name of the scheme, the creator's ID, and the creation date.

- **assignments**:
  Represents individual assessment tasks within a larger assessment structure. Each assignment includes a title, description, submission deadline, weightage, and an optional rubric document.

- **project_assignments**:
  Connects specific projects to a relevant set of assignments. This relationship indicates which set of assessments applies to which project.

- **submissions**:
  Records assignment submissions by students or group representatives. Details include the file submitted, submission time, obtained marks (if graded), and supervisor feedback.

- **deadline_extensions**:
  Allows supervisors to extend assignment deadlines when necessary. Each

entry includes the new deadline, the supervisor responsible, and the reason for the extension.

- **notifications**:
  Manages system-generated messages for users. Each notification includes a title, message content, read status, and the creation timestamp.

This design promotes clear role-based interaction, efficient project tracking, structured assessment management, and effective communication within the academic environment.

5.3 Front End Development

Frontend development is the process of developing the user-visible front end of a site or application, the side that is directly seen and used by the user. Ensuring a functional and smooth user experience involves forming layouts, personalizing pages, and integrating interesting components. Taking simple technologies such as HTML, CSS, Bootstrap, and JavaScript, the idea is to develop a nice-looking and practical interface.

5.3.1 HTML (Hypertext Markup Language)

HTML is the code on which every webpage is erected to define the structure and presentation of the content. The basic elements of all our pages, such as headings, template boxes, buttons, forms, and navigation menus, are created using HTML. It becomes the outline of the rest of the frontend and determines the contents that the user accesses and engages with.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Home</title>
</head>
<body>
    <div>
        <h1>Welcome to My Page</h1>
        <p>This is a simple HTML snippet.</p>
    </div>
</body>
</html>
```

5.3.2 CSS (Cascading Style Sheets)

CSS defines the style and format of HTML material. We have CSS in our project that can be used in determining the overall site design, font family, colours, paddings, and margins. It makes it easy to read, enhances the appearance and feel of the interface, and helps achieve visual consistency across pages. Responsive design is also enabled by CSS, which is assisted by media queries.

```css
body {
  font-family: Arial, sans-serif;
  background-color: #f9f9f9;
  color: #333;
}

h1 {
  color: #007bff;
}
```

5.3.3 Bootstrap

Bootstrap is a popular frontend framework that simplifies the design of sites by pre-built JavaScript and CSS pieces. In this project, we will work with Bootstrap in making input forms, building navigation bars, creating a mobile-responsive layout, and using grid systems to align them. It helps maintain our UI tidy and congruous, in that we do not have to code a lot of customized CSS.

```html
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet

<div class="container mt-5">
  <div class="alert alert-success" role="alert">
    Bootstrap alert example!
  </div>
  <button class="btn btn-primary">Primary Button</button>
</div>
```

5.3.4 JavaScript

JavaScript is a programming language that may be used to make Web pages dynamic and interactive. Our project uses JavaScript to regulate the actions of buttons, verify forms, and transform the content of a page without reloading. It also allows adding capabilities such as alarm functionality, interactive user interface behaviour, and real-time feedback. This improves on the user experience in general and makes the site seem more dynamic, modern.

zest.js > ...

```
<button id="btn">Click Me</button>

document.addEventListener("DOMContentLoaded", function () {
  document.getElementById("btn").addEventListener("click", function () {
    alert("Button clicked!");
  });
});
```

5.4 Back-End Development

We will be using Python as our main programming language for this project. Django will be used for backend development, and MySQL will be used for the database. Django is a high-level Python web framework for the rapid development of secure and maintainable websites. It is a free as well as open source, so it would be perfect for us to use in the development. Similarly, MySQL is a widely used open-source relational database management system.

zest.py

```
from django.shortcuts import render

def home(request):
    return render(request, 'home.html', {'message': 'Hello, Django!'})
```

5.5 Database - MySQL

MySQL was used to store and manage project data, including users, topics, submissions, and feedback. It worked well with Django's ORM for smooth database interactions. Foreign keys and indexing ensured data integrity and fast retrieval. MySQL was chosen for its reliability, open-source nature, and ease of integration with the backend.

5.6 Testing

Testing is essential to ensure the system performs as expected and provides a seamless user experience. Both white-box and black-box testing methods will be applied:

White-Box Testing

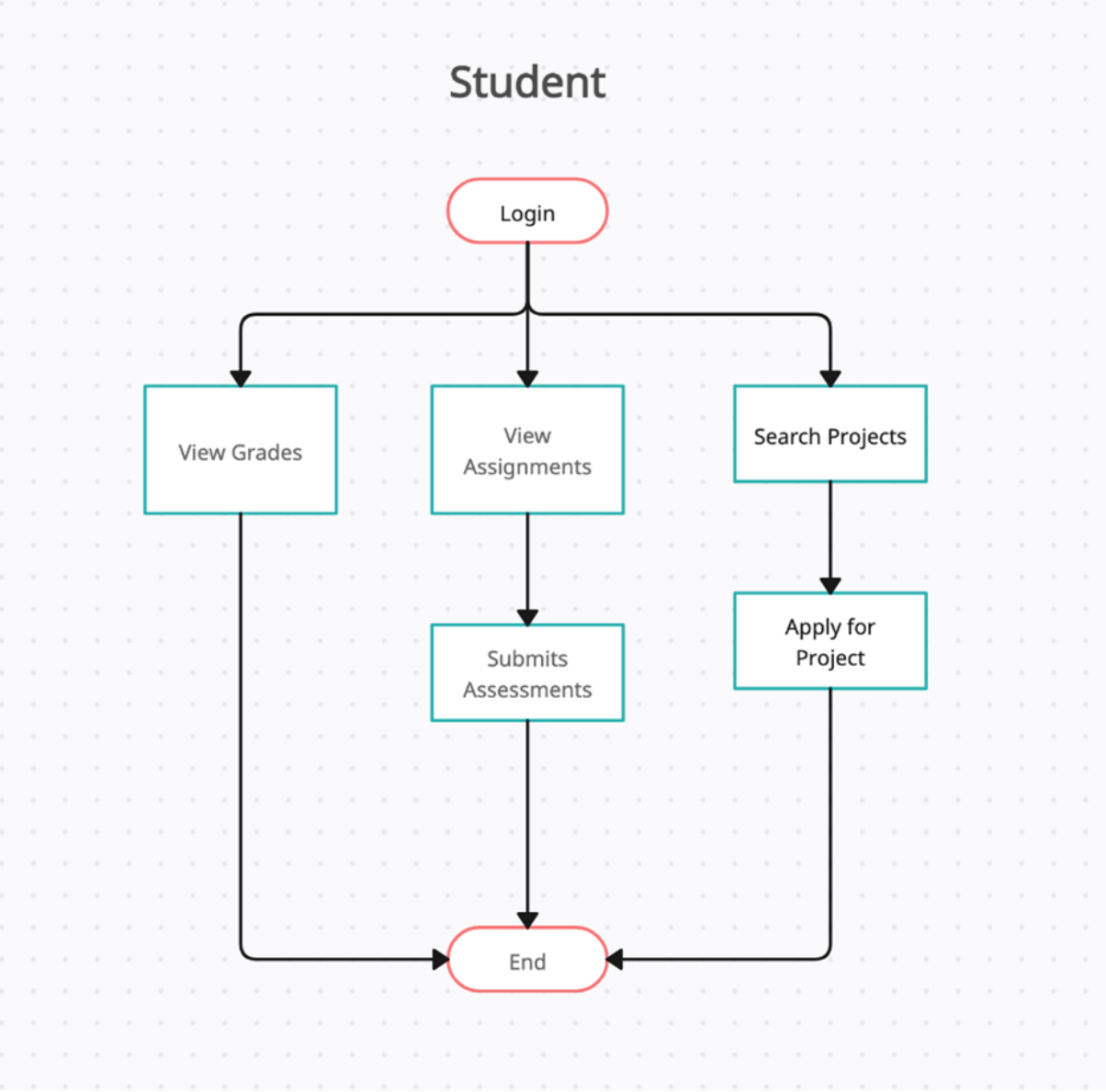
- Focuses on internal logic and code structure.
- Applied primarily to backend functions using Django's testing tools.
- Ensures proper flow of functions and logic in views and models.
- Verifies database queries and data handling are correct.
- Detects logical errors, broken paths, or incorrect outputs in the code.

Black-Box Testing

- Tests the system from the user's point of view.
- No knowledge of internal code is required.
- Validates functionality like login, registration, and form submission.
- Ensures buttons, navigation, and pages respond correctly.
- Checks error handling and user feedback messages.
- Confirms that features work across different browsers and devices.

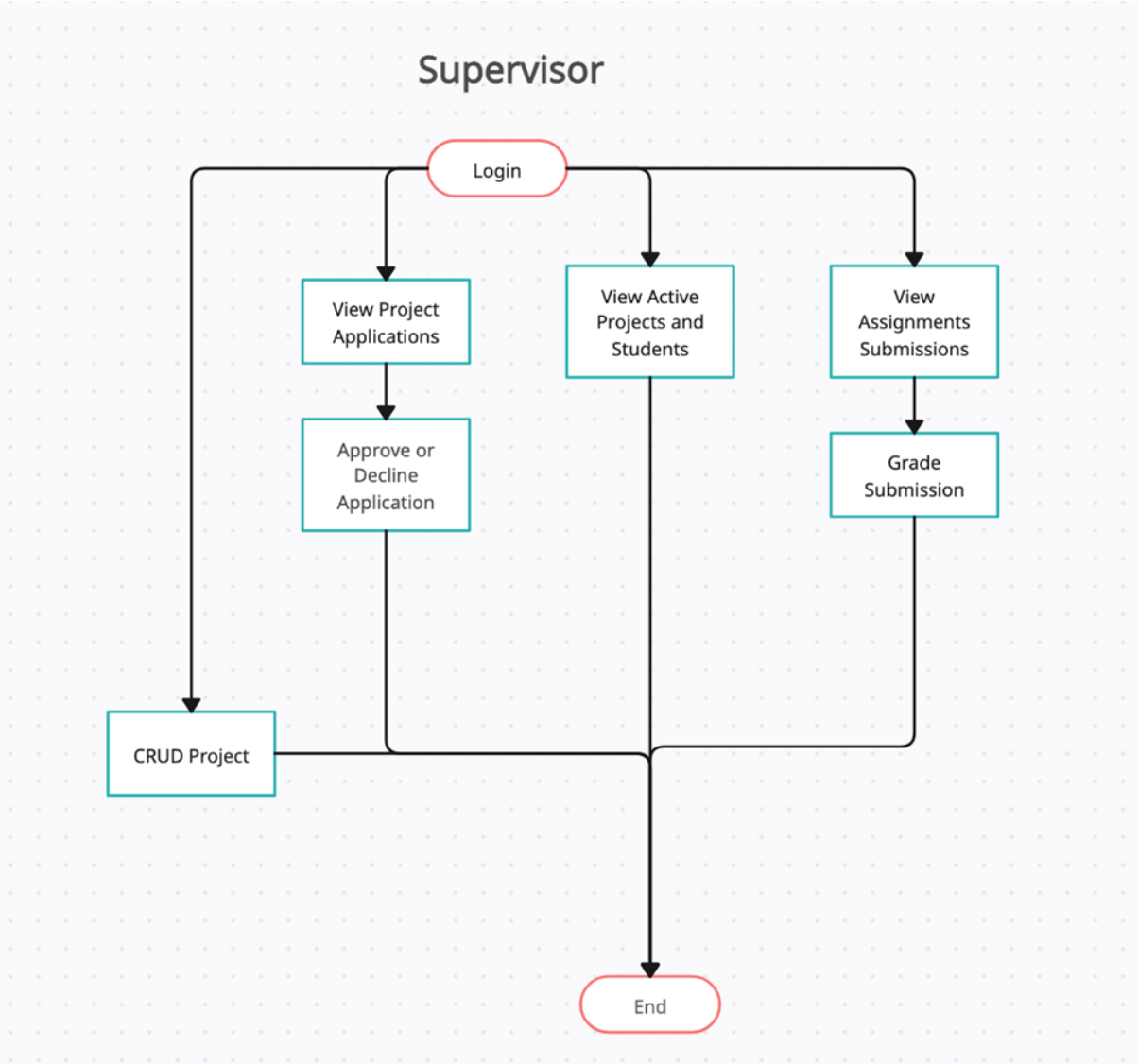
5.7 Flowchart

Student



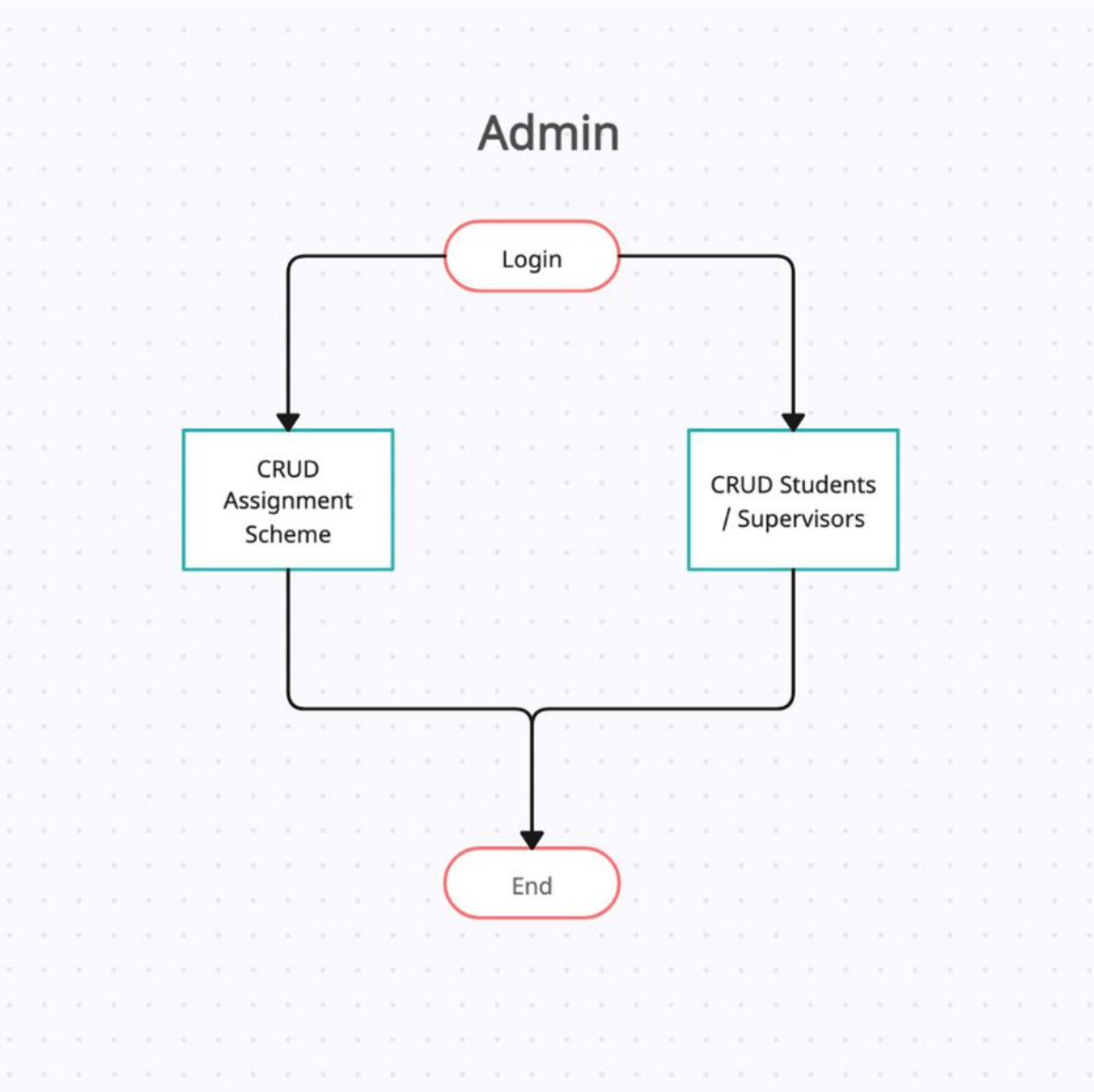
This is the workflow for the student dashboard. Where is, student going to log in first to access multiple authentication? They verify their identity, and they enter their dashboard, where they can search projects, make selections, and apply for projects. You can view assignments and submit them. And view grades as well.

Supervisor



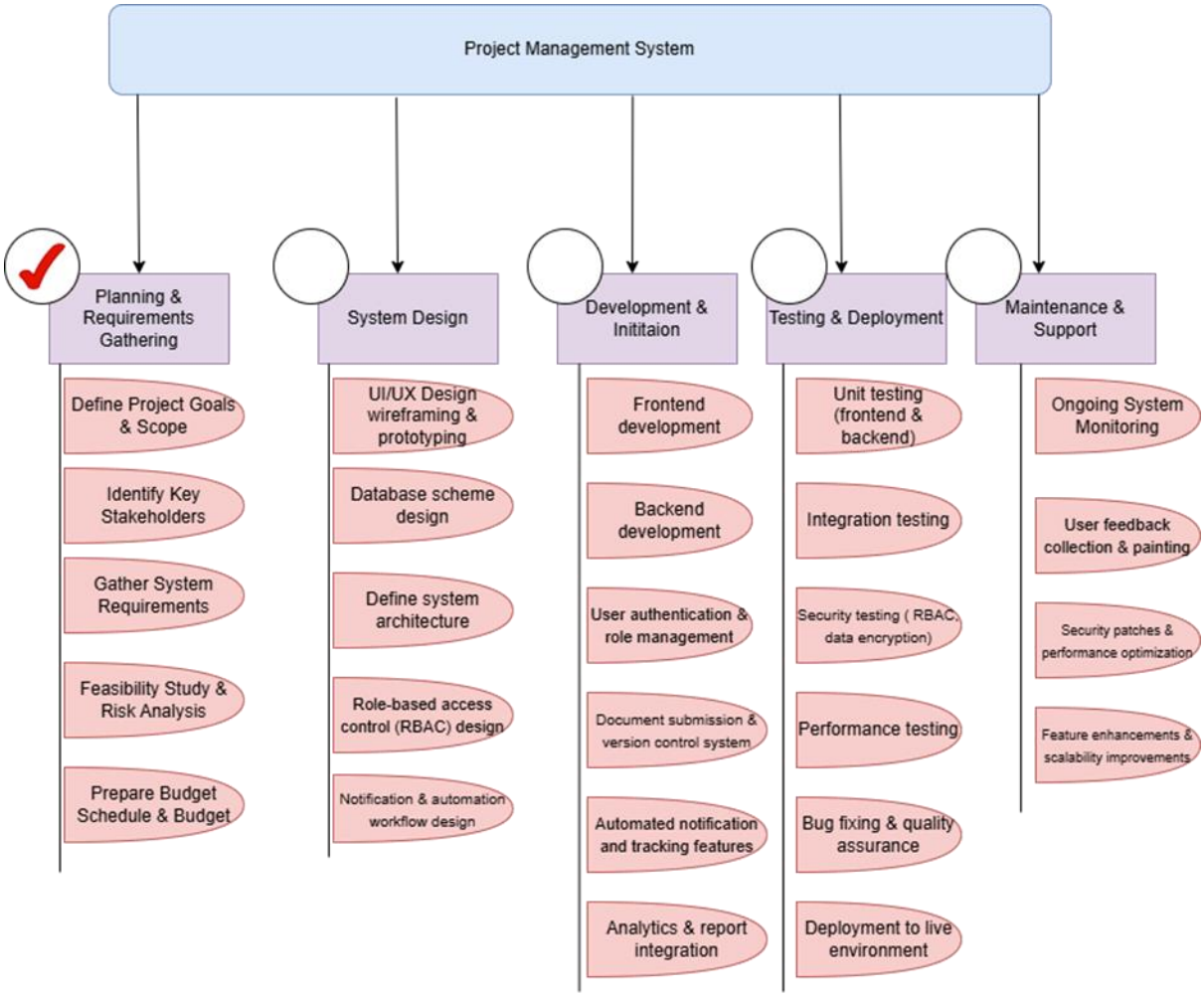
The supervisor has logged in with multiple authentications. When they access, they can view the project application and approve or decline it. They can view the assignment and give a grade for that. They can track the student's progress. There will be a CRUD project, able to create, update, and delete data if needed.

Admin



For the admin dashboard, admins are logged in with multiple authentication methods. Where admins can create, update, and delete data for students and supervisors if needed. They can update the assignment scheme. They are able to upload more projects depending on the students' capacities.

6. Work Breakdown Structure



Project Overview

- **Team Size:** 5 Members
- **Completion Date:** Week 11
- **Budget:** Not Allocated

Level 1: Project Development

1. Planning & Requirements Gathering

Assigned Members: Dipak Kandel & Roshan Dahal

- Defined objectives: simplify student-supervisor interaction and document tracking.
- Identified key stakeholders: students, faculty, and administrative staff.

- Gathered detailed requirements via surveys and academic policy review.
- Conducted feasibility study, including risk and compliance checks.
- Developed a project schedule and resource plan.

2. System Design

Assigned Members: Sandip Luitel & Khusbu Shah

- Created wireframes for proposal uploads, supervisor feedback, and dashboards.
- Designed the MySQL schema, including entities like Users, Topics, Submissions, Versions, and Feedback.
- Implemented Role-Based Access Control using Django's auth system.

3. Development & Implementation

Assigned Members: Roshan Dahal, Dipak Kandel, Umanga Bhattarai, Sandip Luitel

Frontend:

- Used Bootstrap for responsive layout and modals.
- JavaScript-enabled real-time form validation.

Backend:

- Django ORM mapped to MySQL schema for user, topic, and version tracking.
- RESTful APIs enabled dashboard integration and asynchronous operations.
- Implemented secure login and access control for students, supervisors, and admins.

4. Testing & Deployment

Assigned Members: Roshan Dahal, Dipak Kandel, Umanga Bhattarai, Sandip Luitel

Testing:

- Unit tests on Django models, views, and serializers.
- Role-based permissions tested for students, reviewers, and admins.

- Load testing ensured performance under multiple concurrent users.

Deployment:

- Used Git for version control and GitHub Actions for CI.
- Deployed on a secure cloud VM with Django's production settings enabled.

5. Maintenance & Support

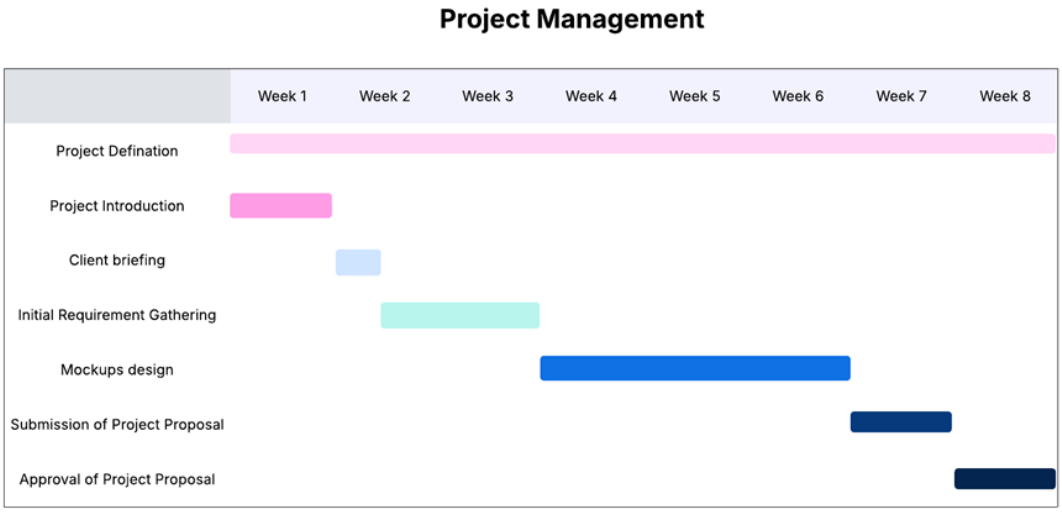
Assigned Members: All Team Members

- Monitored system performance and resolved issues.
- Collected user feedback and maintained a change log.
- Planned upgrades like AI-based topic suggestions and UI enhancements.
- Scheduled patches for Django and MySQL updates.
- Database optimized for faster retrieval and reporting.

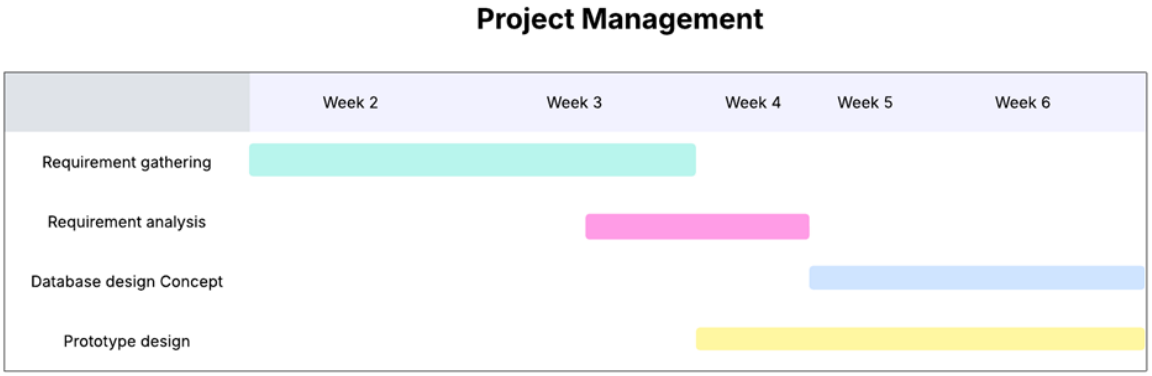
Functional Capabilities Overview

- **Student Dashboard:** Upload proposals, view feedback, and track submission progress.
- **Supervisor Interface:** Review, comment, and approve/reject proposals.
- **Admin Panel:** Assign supervisors, manage users, and configure assessment schema.
- **Notification System:** Sends automated alerts for deadlines and approvals.
- **Analytics Reports:** Displays submission frequency, supervisor load, and feedback timelines.

7. Gantt Chart

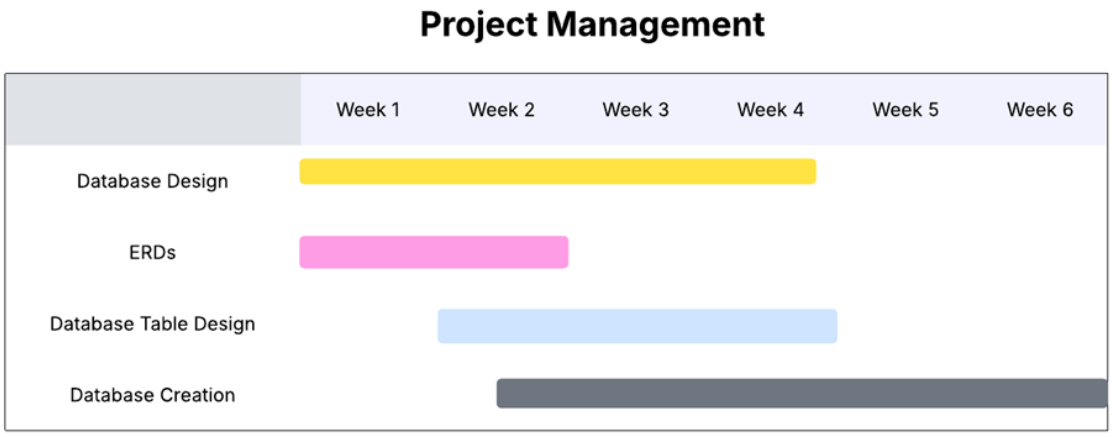


There are two phases of the project capstone: one and two. In the earlier stages of the project requirements of the project requirements are gathered and the design of the project is created. The mock-ups of the project based on the requirement are created to display to the client. This creates a basic image and workflow in the mind of the client related to the project. This helps in requirement finalization. Finally, the proposal is drafted and submitted. After the approval of the proposal, further work is carried out on the project.

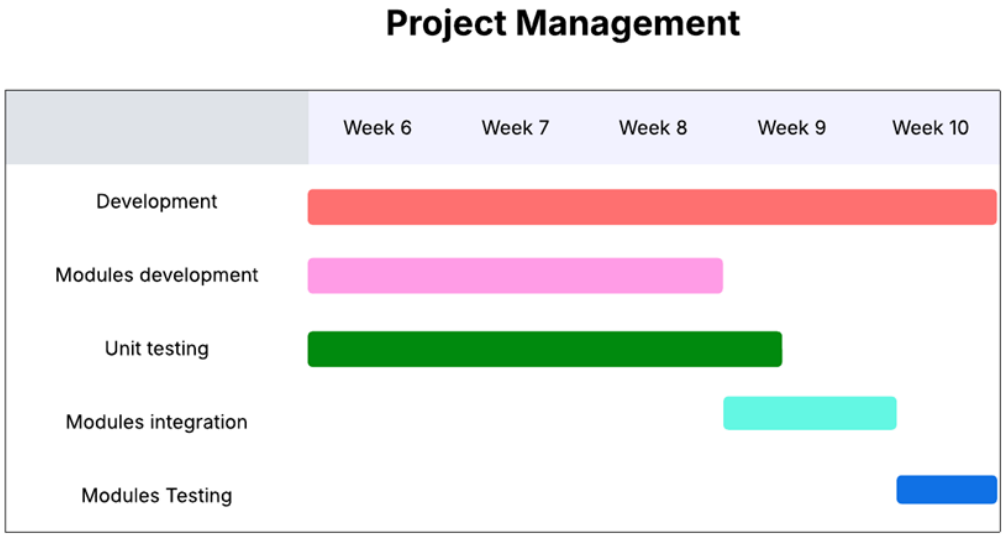


Based on the meeting with the client and necessary research, requirements are gathered to finalize the basic structure of the project. The requirements that are gathered may not be required, so analysis must be done to finalize the requirements.

For easy planning and development database concept is prepared, and the final prototype is presented to the client and development team.

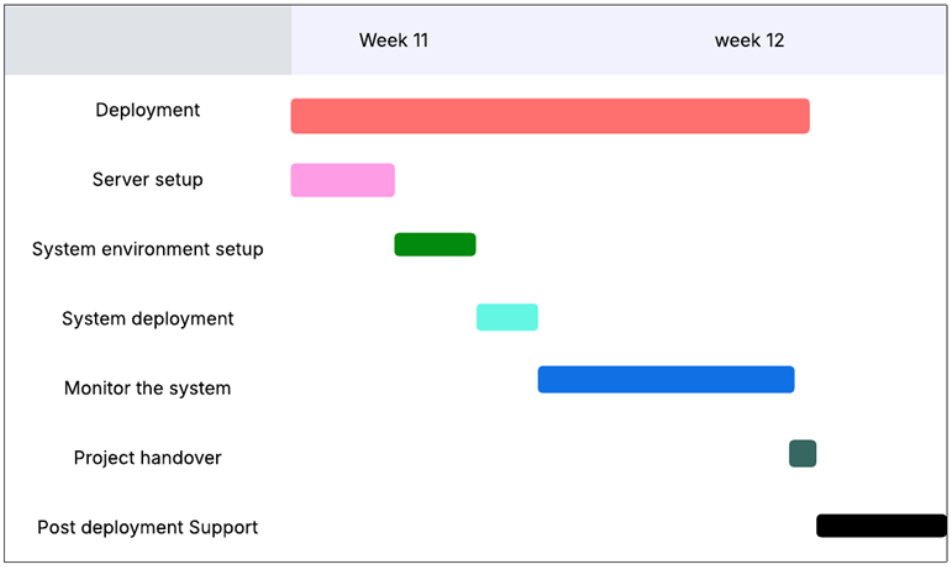


The second phase of the project is the development phase where database is created based on the concept that was set earlier. Diagrams are created to understand the relation of the attributes in the table. The diagram helps to establish the flow of data and better understanding of the projects.



The development phase is important phase, where testing is also done simultaneously. Different modules are developed and tested to see the functionality of it and after proper testing it is integrated, and final testing is done. After the development of all the modules the system is ready for deployment.

Project Management



There are various steps in deployment. This is the final stage of project which determines the success of it. For deployment server is setup and system environment is created. The system is deployed in the environment and is monitored through the process. After successful deployment project is handed to client and post deployment support is provided.

8. Conclusion

The Thesis Management System is a secure, effective, and user-friendly online platform developed to manage the life cycle of thesis management from the selection of a project to receiving grades and feedback. This thesis management system was specially developed to mitigate inefficiencies in the paper-based workflow with modern platforms for students, supervisors, and administrations. Compared with a traditional paper-based system, where every student faces difficulties with ineffective project tracking, poor communication between stakeholders, and delays in administrative activities. We aim to mitigate all these difficulties with an effective workflow. In this system will be no bias in checking projects, and all students will get equal opportunities to participate. Our project provides flexibility for academic institutions to create a flexible, reliable platform with includes security features. Which makes learning enjoyable for all the stakeholders (Zolnai et al., 2003).

9. References

Aydos, M., Aldan, Ç., Coşkun, E. and Soydan, A., 2022. Security testing of web applications: A systematic mapping of the literature. Journal of King Saud University-Computer and Information Sciences, 34(9), pp.6775-6792.

McLeod, S., 2021. Feasibility studies for novel and complex projects: Principles synthesised through an integrative review. Project Leadership and Society, 2, p.100022.

Thamhain, H.J., 1991, September. Developing project management skills. Project Management Institute.

Zolnai, Z., Lee, P.T., Li, J., Chapman, M.R., Newman, C.S., Phillips Jr, G.N., Rayment, I., Ulrich, E.L., Volkman, B.F. and Markley, J.L., 2003. Project management system for structural and functional proteomics: Sesame. *Journal of structural and functional genomics*, *4*(1), pp.11-23.