A Minor Project Midterm Report On

Student Management Mobile Application

Submitted in Partial Fulfillment of the Requirements for Degree of

Bachelor in Software Engineering

Under Pokhara University

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1. Abstract

This project focuses on developing a mobile application designed to simplify and enhance the academic experience for college students. Built with React Native for the frontend, Node.js for the backend and mongo dB for database the app offers a seamless, cross-platform user interface and robust performance. The application includes essential features such as a user-friendly onboarding process, secure login/signup functionality, and a centralized home dashboard. Students can manage their profiles, access notices and event schedules, view exam results, track routines, and organize course details effectively. Additionally, the app streamlines administrative processes by providing an automated system for submitting exam forms. By leveraging modern technologies, this project aims to improve academic workflows, foster efficient communication between students and college administration, and deliver a convenient, engaging digital platform tailored to students' needs. [1]

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1.INTRODUCTION

The growing reliance on digital solutions in education has created a demand for applications that simplify academic and administrative processes. For college students, managing academic schedules, accessing notices, and keeping track of important updates can often be overwhelming. This project addresses these challenges by developing a mobile application that consolidates essential academic and administrative functionalities into a single, user-friendly platform.

The proposed mobile app, built with React Native for the frontend and Node.js for the backend, is designed to cater to the specific needs of college students. It provides features such as student onboarding, secure login/signup, a home dashboard, profile management, notices, event updates, exam results, class routines, subject management, and automated exam form submission.

By integrating these features, the app not only streamlines daily academic workflows but also fosters better communication between students and the college administration. Its cross-platform compatibility ensures accessibility across various devices, providing an intuitive and efficient experience for all users. This project aims to contribute to the digital transformation of education, enhancing convenience and productivity for students in a fast-paced academic environment.

2.PROBLEM STATEMENT

At present, students in many colleges suffer from hurdles related to effective management of their academic or administrative work. Important information such as notices, event schedules, routines and results is passed through different channel that creates confusion and loss of updating. Some manual, time consuming and error-prone treatments like an examination form submission and subject management create additional setbacks.

Thus, there is no clear direction on where these tasks end due to an adequate and centralized handling of it. This results into skewed attention by students from their academic goals. In addition, the absence of a platform and communication between students and college administration delays and causes confusion.

This project aims to address the above situations by providing a fully-fledged mobile application, which all the time is ever-present to students to handle their academic and administrative work. With a feature-rich user-friendly interface, the app intends to remove inefficiencies, enhance interaction and significantly improve the entire academic experience of college students. [1]

3.PROJECT OBJECTIVE

Our main objectives for doing this project are:

1. Develop a mobile app to centralize and simplify academic and administrative tasks for college students.
2. Enhance efficiency and communication between students and college administration using modern technologies. [2]

4.SIGNIFICANCE OF STUDY

This study is significant as it simplifies academic and administrative tasks for college students by providing a centralized mobile app. It streamlines processes like accessing notices, results, routines, and automates tasks such as exam form submissions, enhancing efficiency and communication. By leveraging modern technologies, the project contributes to the digital transformation of educational institutions and sets a foundation for future innovations in educational technology. [1]

5.SCOPE AND LIMITATION

2. Scope And Importance

- Centralizes academic and administrative tasks for college students.
- Built with React Native and Node.js for cross-platform support.

3. Limitations

- Limited to core features.
- Requires internet access for real-time updates.
- Potential integration challenges with existing systems. [3]

6.METHODLOGY

1. **Software Development Lifecycle**

The Incremental Model is well-suited for the development of this app, enabling the project to be built in stages with each increment focusing on specific features. This phased approach ensures that essential functionality is delivered early while allowing feedback and improvements for subsequent phases. Below is the development approach covering the Increment 1 and Increment 2 in this project.

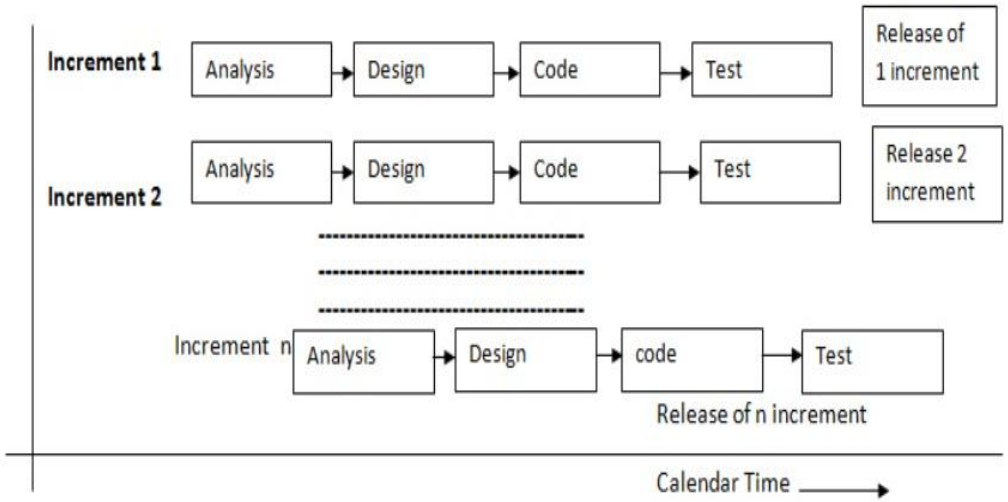


Figure 1: Incremental Model

Increment 1 – Core Features

The first increment focuses on developing the app's fundamental functionality. Student will be able to login and signup. College administrators will have access to an administrative panel that allows them to see and control student data. Student will be able to visit their profile, notices and event section. This increment also includes creating user-friendly interfaces for both student and college administrative. The UI/UX design will be created in Figma, with a focus on simplicity and user-friendly navigation

Increment 2 – Results, Routines and Exam forms

The second increment focuses on developing the app's core functionality. This includes designing the backend to enable the college to manage student data in the

database effectively. College administrators will have access to an administrative panel, allowing them to view and manage student results and Automated form submissions. Students will be able to view their subjects, exam routines, and receive form submission messages. Additionally, this increment includes creating dynamic notices for students and publishing exam results. [3]

2. Technical Architecture

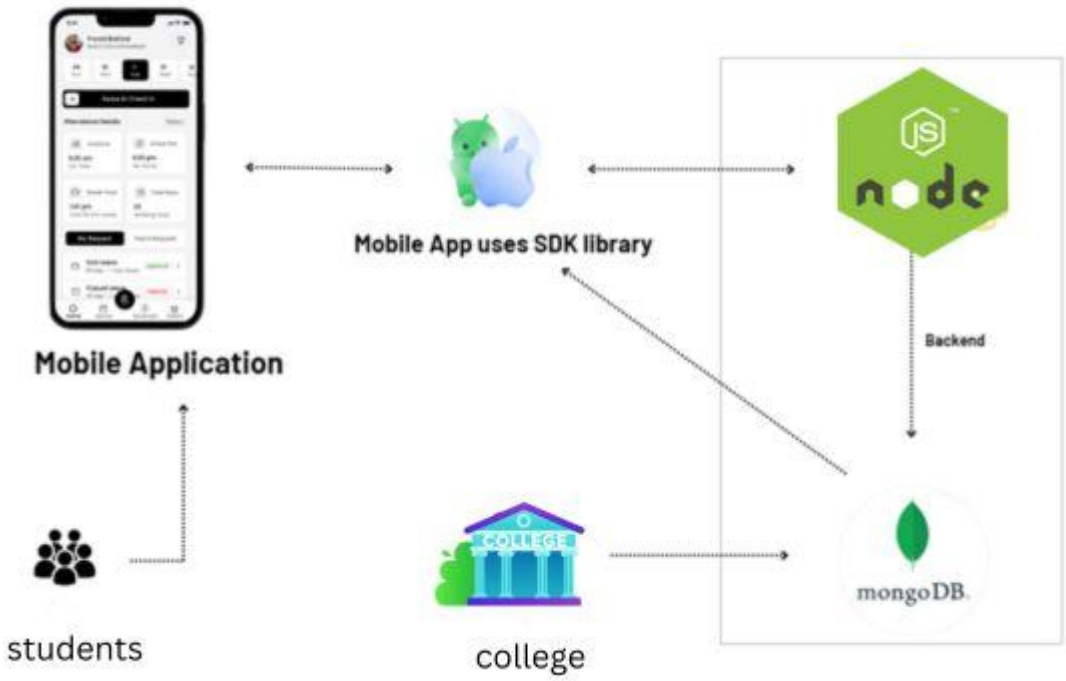


Figure 1: Technical Architecture

The architecture consists of a database that handles data storage and management. NodeJS is responsible for handling Create, Read, Update, and Delete (CRUD) operations on the database with student management. The application allows student to login, logout, view profile, college event, college notice, exam results, subject and able submit exam form online after clearing college due. [3]

7.LITERATURE REVIEW

Mobile applications have transformed education by improving accessibility, efficiency, and communication. Existing systems, like web-based student portals, often lack mobility and real-time updates, which are critical for students. Mobile apps address these issues by offering portable and user-friendly solutions.

React Native enables cross-platform development, ensuring seamless experiences on Android and iOS, while Node.js supports real-time updates and efficient data handling. MongoDB provides scalable and flexible database management, ideal for dynamic student data.

Many educational apps fail to include features tailored to college students, such as automated exam forms and subject management. This project bridges the gap by offering a centralized solution that combines modern technologies to meet students' specific needs, contributing to the advancement of educational tools. [4]

8.TECHNICAL DESCRIPTION OF THE PROJECT

1. **React native:** Frontend framework for building user Interface
2. **Node JS:** Backend framework for backend functionality
3. **Mango DB:** To store student's data
4. **StarUML:** To create UML diagram
5. **Draw.io:** To create ER diagram

9.PROPOSED PERFORMANCE ANALYSIS AND VALIDATION SCHEMA

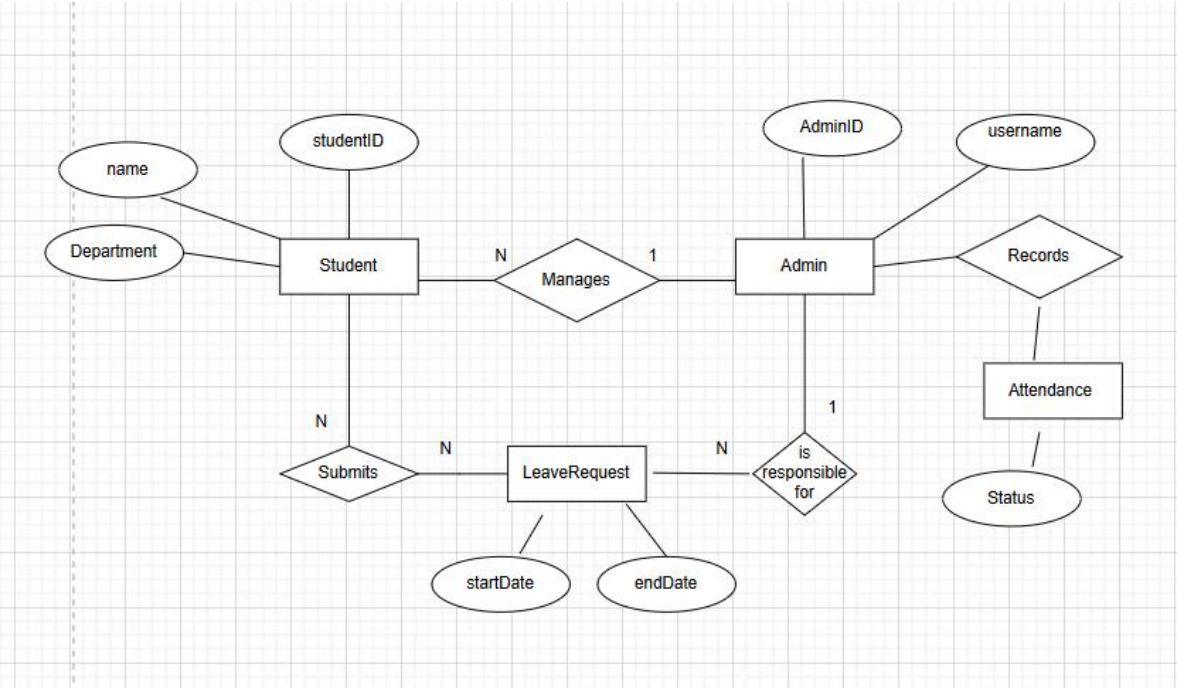


Figure 1: ER Diagram

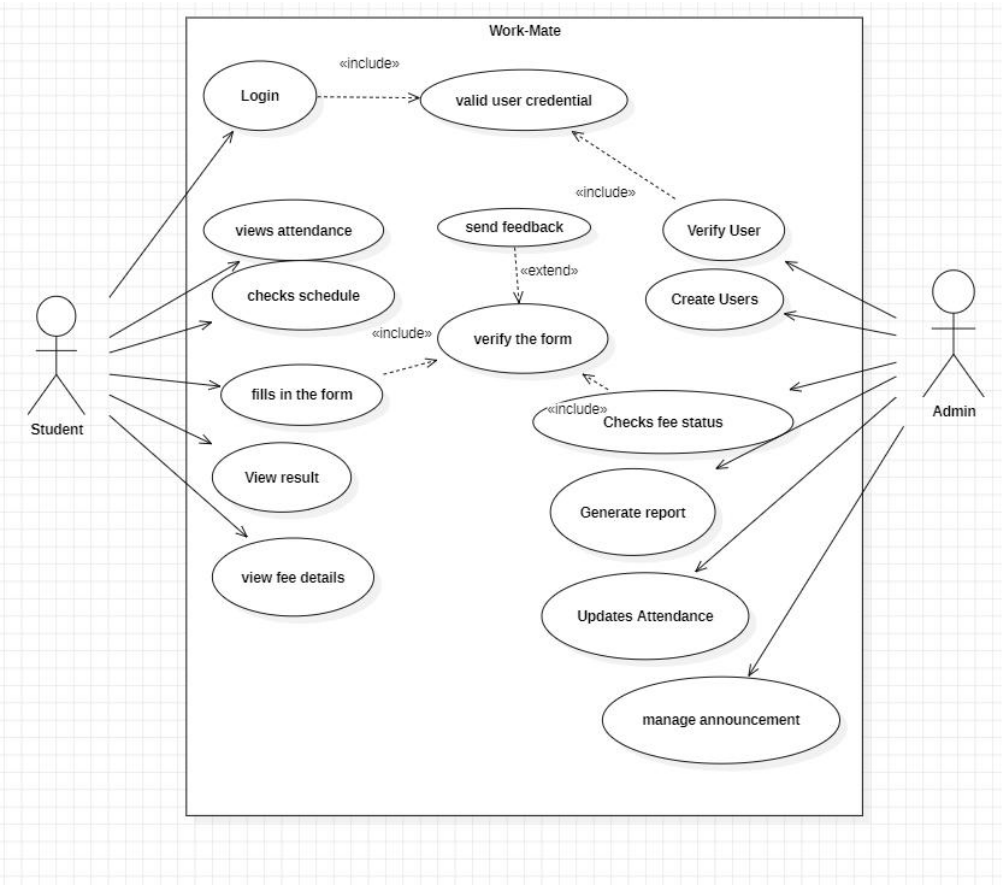


Figure 1: Use case Diagram

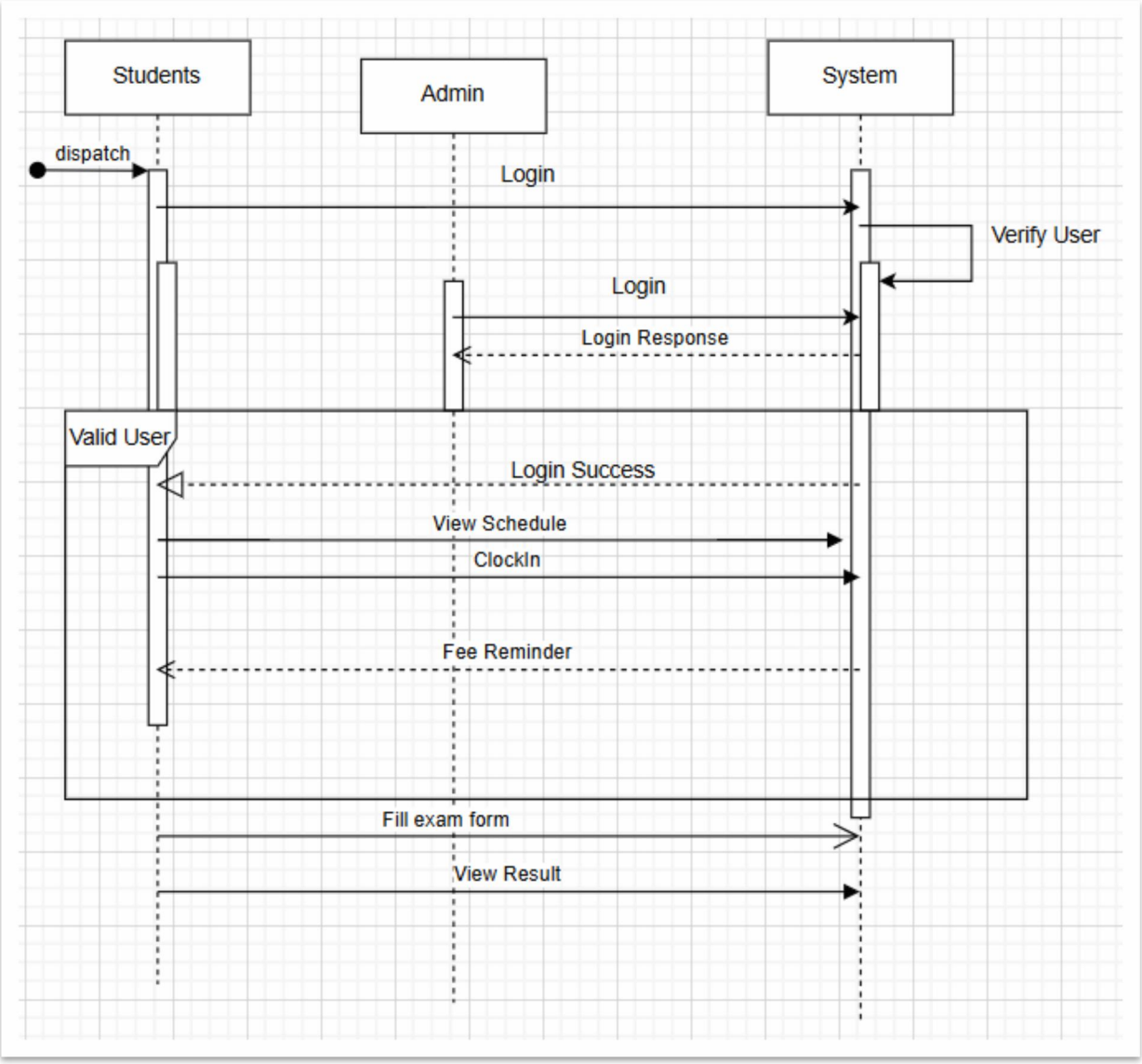


Figure 1: Sequence diagram

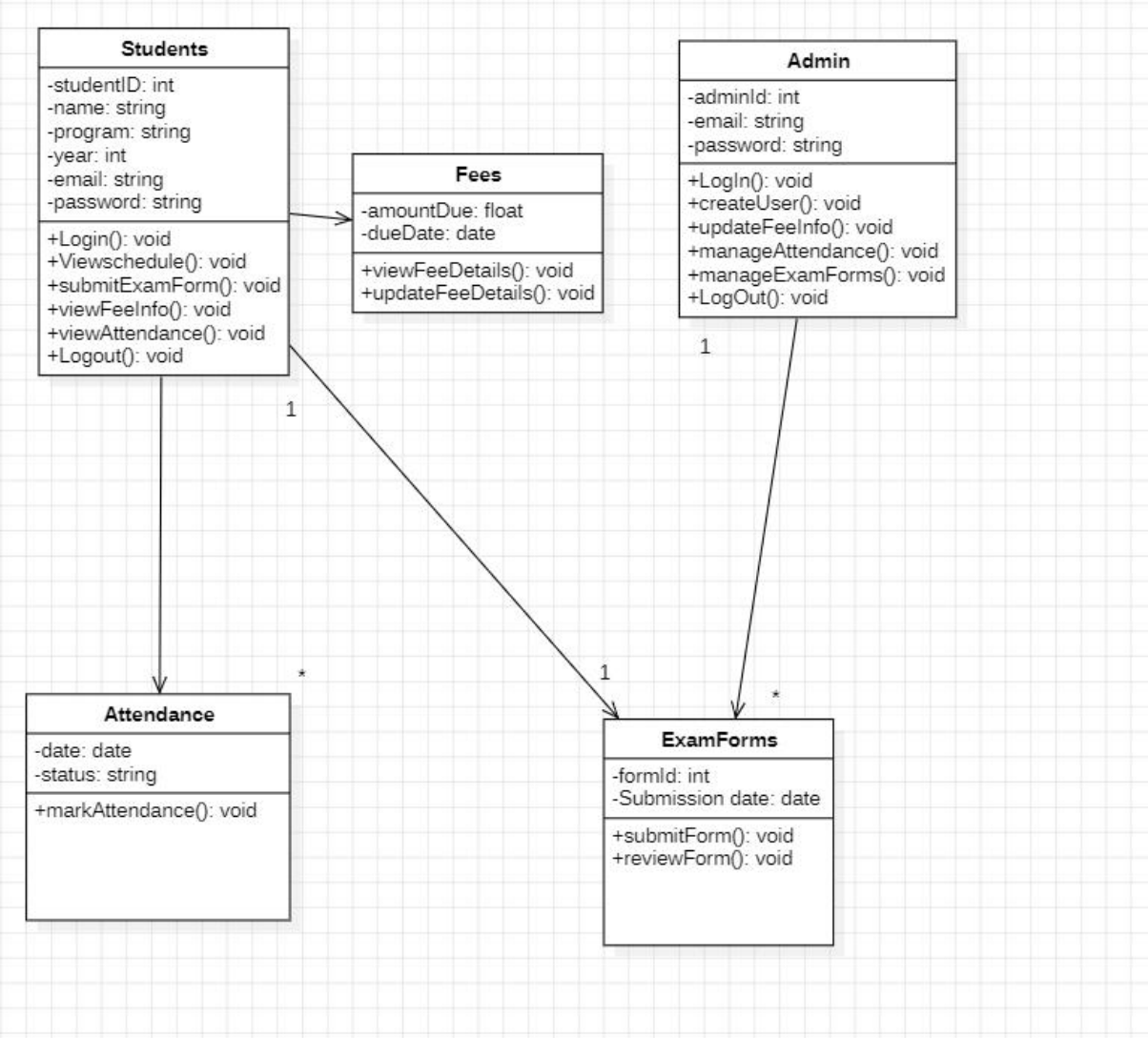


Figure 1: Class Diagram

10. PURPOSED DELIVERABLE OUTPUT

The project will deliver a fully functional mobile application for college students, developed using React Native, Node.js, and MongoDB. Key features include student onboarding, secure login/signup, a home dashboard, profile management, notices, events, results, routines, subject management, and automated exam form submissions. The app will be cross-platform (Android and iOS) and will leverage MongoDB for efficient and scalable data management. Detailed documentation will also be provided for deployment and maintenance. [4]

11.PROJECT TASK AND TIME SCHEDULE

The time schedule proposed for the development of the project is illustrated in the following Gantt chart: [2]

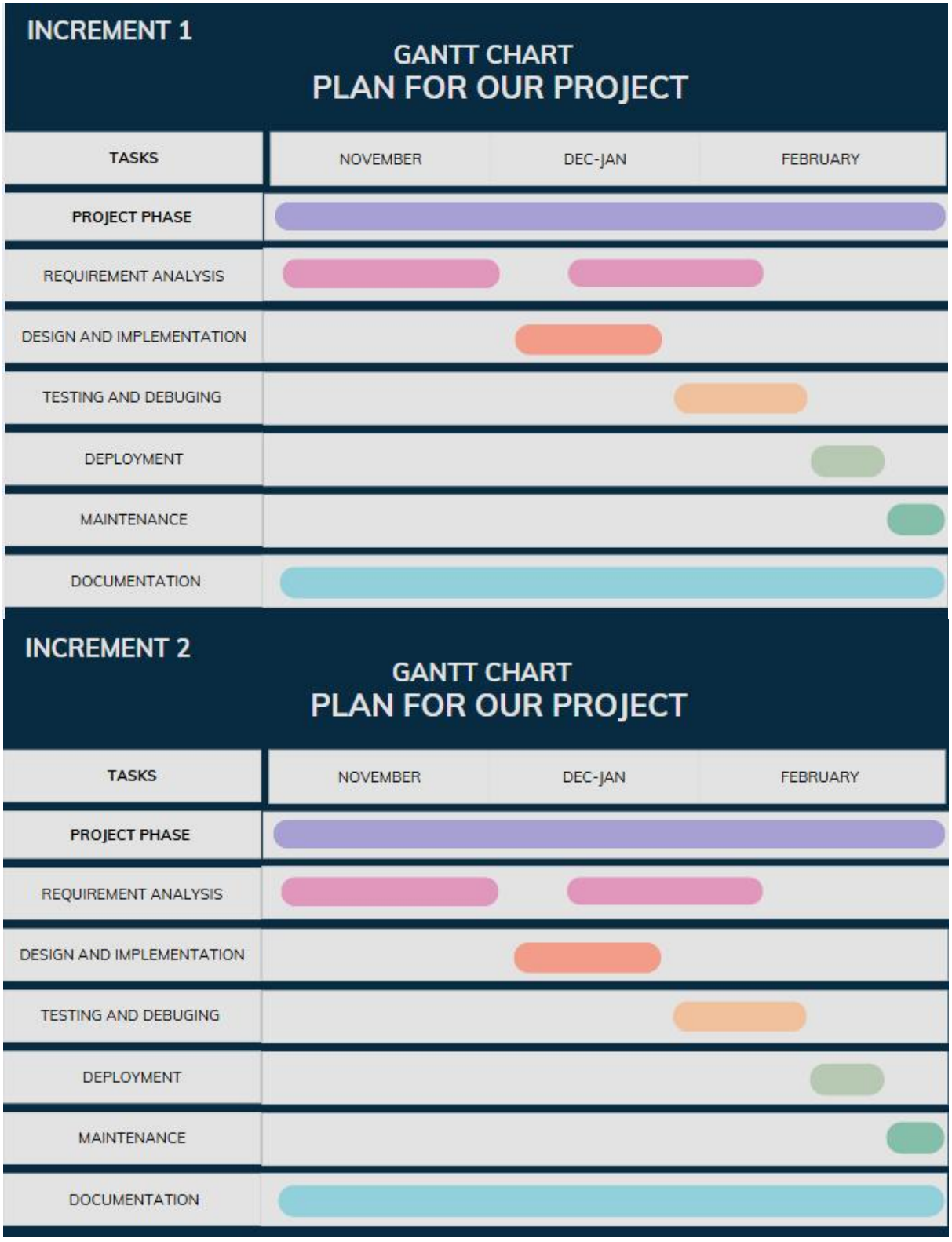
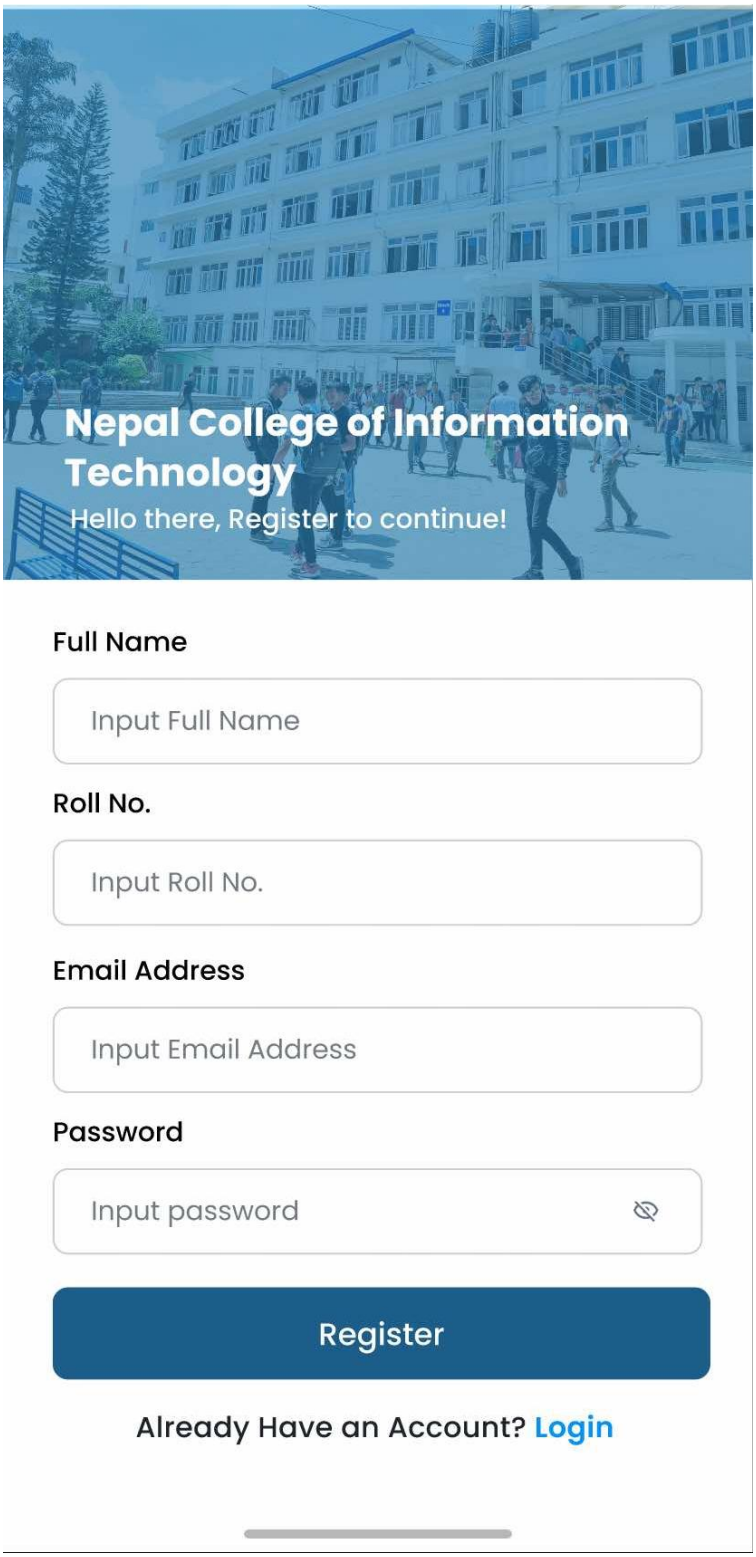


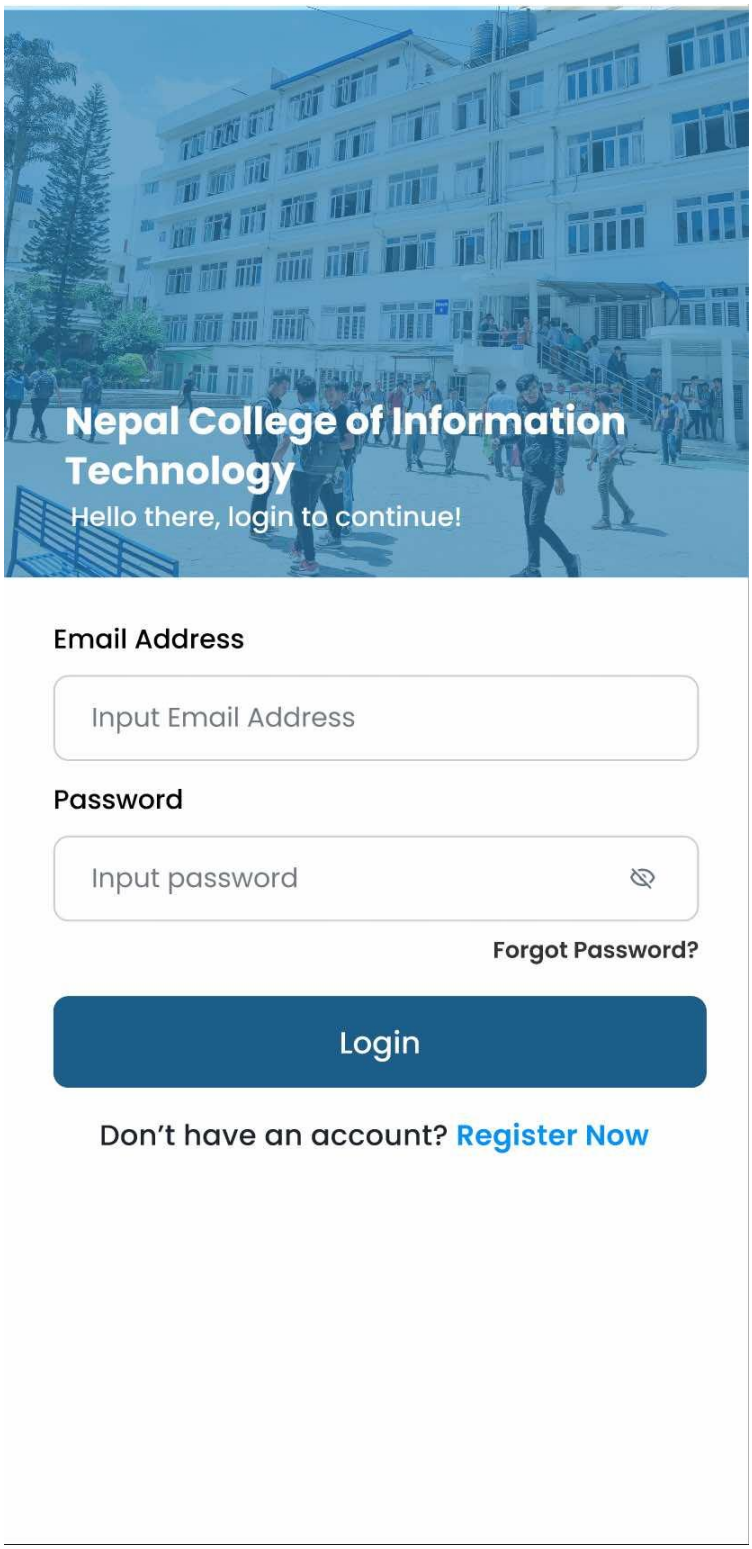
Table 2: Division of tasks among project team members

12.APPENDIX

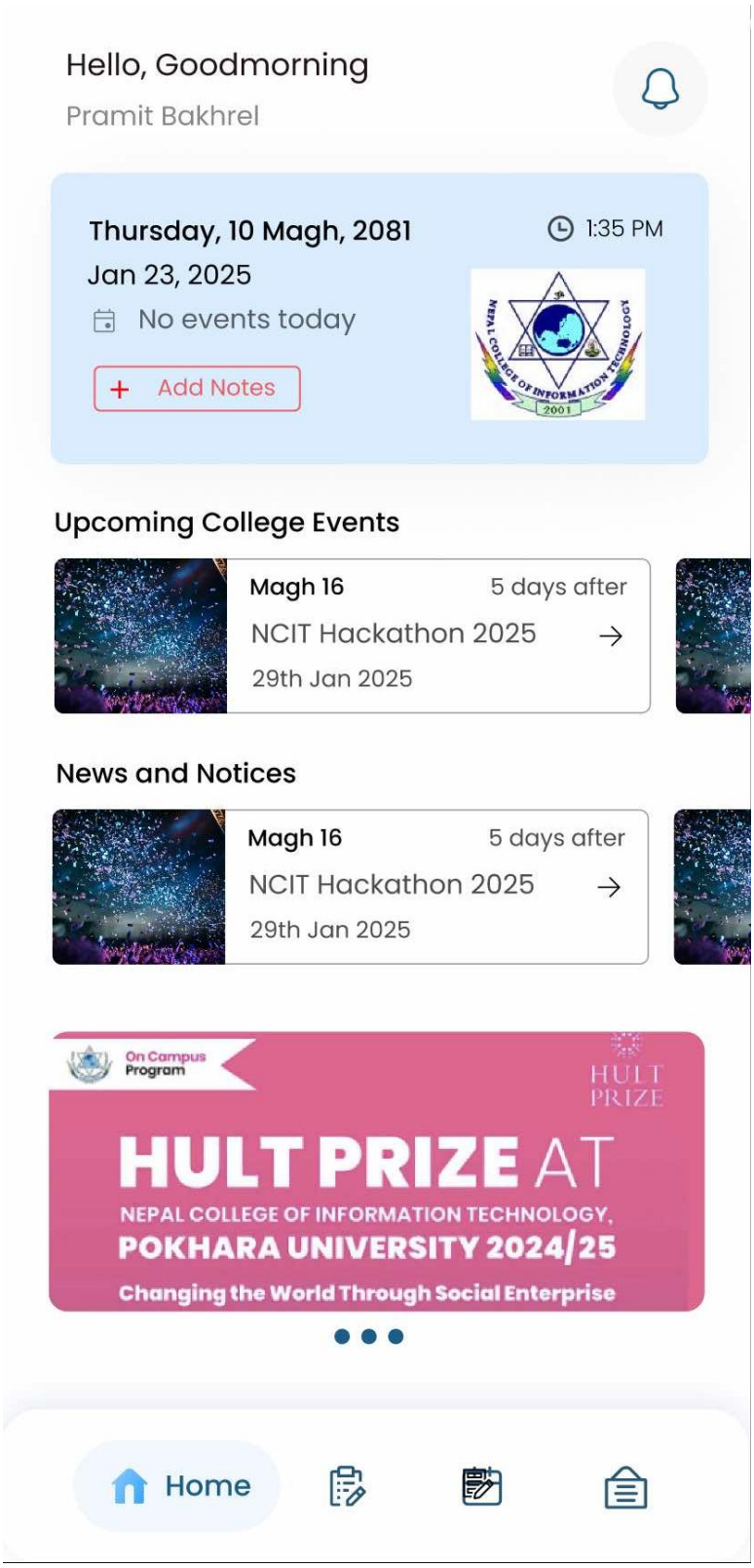
3. Register Page



4. **Login Page:**


Nepal College of Information Technology
Hello there, login to continue!
Email Address
Input Email Address
Password
Input password
Forgot Password?
Login
Don't have an account? Register Now

5. Dashboard:


Hello, Goodmorning
Pramit Bakhrel
Thursday, 10 Magh, 2081
1:35 PM
Jan 23, 2025
No events today
Add Notes
Upcoming College Events
Magh 16
5 days after
NCIT Hackathon 2025
29th Jan 2025
News and Notices
Magh 16
5 days after
NCIT Hackathon 2025
29th Jan 2025
On Campus Program
HULT PRIZE
HULT PRIZE AT
NEPAL COLLEGE OF INFORMATION TECHNOLOGY,
POKHARA UNIVERSITY 2024/25
Changing the World Through Social Enterprise
Home

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