

**A**  
**PROJECT REPORT**  
**ON**  
**“Project Mentor Management System”**

**SUBMITTED TO**  
**SHIVAJI UNIVERSITY, KOLHAPUR**  
**IN THE PARTIAL FULFILLMENT OF THE REQUIREMENT**  
**FOR THE AWARD OF DEGREE**  
**BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND**  
**ENGINEERING**

**SUBMITTED BY**

<b>MR.</b>	<b>ATHARV HANMANT KAMBLE</b>	<b>22UAD025</b>
<b>MR.</b>	<b>PRATIK SURESH PATIL</b>	<b>22UAD050</b>

**UNDER THE GUIDANCE OF**  
**Mr. S. P. PISE**



**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA**  
**SCIENCE ENGINEERING**  
**DKTE SOCIETY’S TEXTILE AND ENGINEERING**  
**INSTITUTE, ICHALKARANJI**  
**(AN EMPOWERED AUTONOMOUS INSTITUTE)**  
**2024-2025**

**D.K.T.E. SOCIETY'S**  
**TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI**  
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**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA**  
**SCIENCE ENGINEERING**



## **CERTIFICATE**

**This is to certify that, project work entitled**

**“Project Mentor Management System”**

**is a bonafide record of project work carried out in this college by**

<b>MR.</b>	<b>ATHARV HANMANT KAMBLE</b>	<b>22UAD025</b>
<b>MR.</b>	<b>PRATIK SURESH PATIL</b>	<b>22UAD050</b>

**is in the partial fulfillment of award of degree Bachelor of Technology in Artificial Intelligence and Data Science Engineering prescribed by Shivaji University, Kolhapur for the academic year 2024-2025.**

**MR. S. P. PISE**  
**(PROJECT GUIDE)**

**PROF. (DR.) T. I. BAGBAN**  
**(HOD AI & DS DEPT.)**

**PROF.(DR.) L.S.ADMUTHE**  
**(DIRECTOR)**

**EXAMINER: \_\_\_\_\_**

# **DECLARATION**

We hereby declare that, the project work report entitled “Project Mentor Management System” which is being submitted to D.K.T.E. Society’s Textile and Engineering Institute Ichalkaranji, affiliated to Shivaji University, Kolhapur is in partial fulfillment of degree B.Tech.(AI & DS). It is a bonafide report of the work carried out by us. The material contained in this report has not been submitted to any university or institution for the award of any degree. Further, we declare that we have not violated any of the provisions under Copyright and Piracy / Cyber / IPR Act amended from time to time.

<b>Title</b>	<b>Name of the Student</b>	<b>PRN</b>	<b>Signature</b>
MR.	ATHARV HANMANT KAMBLE	22UAD025	
MR.	PRATIK SURESH PATIL	22UAD050	

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We feel gratified to record our cordial thanks to other staff members of the Artificial Intelligence and Data Science Department for their support, help, and assistance which they extended as and when required.

Thank you,

<b>Title</b>	<b>Name of the Student</b>	<b>PRN</b>
MR.	ATHARV HANMANT KAMBLE	22UAD025
MR.	PRATIK SURESH PATIL	22UAD050

# **ABSTRACT**

The *Project Mentor Management System* is a web-based application designed to streamline the academic project mentoring process within educational institutions. It aims to bridge the communication gap between students and faculty mentors by providing a centralized platform for project idea submission, mentor feedback, and progress tracking.

The system introduces three user roles: Admin, Student, and Faculty Mentor. The Admin is responsible for adding and managing users and assigning mentors to students. Students can log in to submit their project proposals, view feedback, and resubmit improved versions based on mentor suggestions. Faculty mentors, in turn, can view assigned students, evaluate submitted ideas, provide feedback, and either accept or reject proposals. This two-way interaction fosters continuous engagement and allows students to refine their projects iteratively. It eliminates the traditional, inefficient paper-based system and ensures all records are securely stored and accessible in one place.

The platform is built using modern technologies including React.js for the frontend, Express.js for the backend, and MySQL for data management. It is responsive, scalable, and secure, supporting multiple user sessions simultaneously. With a focus on improving mentorship quality, project visibility, and communication transparency, this system serves as a powerful tool for academic project management. It not only enhances the mentor–student interaction but also contributes to better learning outcomes and project quality. The system can be further extended with evaluation modules and industry mentor integration in the future.

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# 1. Introduction

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## a. Problem definition

In many academic institutions, final-year or semester-long projects are a crucial part of the curriculum. These projects require consistent guidance and evaluation from faculty mentors to ensure academic quality and real-world relevance. However, the traditional method of project mentoring involves offline communication, paperwork, and scattered tools such as emails, messaging apps, and physical logs, which leads to disorganization and inefficiency.

There is often no formal system to track project submissions, revisions, mentor feedback, or approval statuses. As a result, students may find it difficult to receive timely guidance, mentors struggle to monitor multiple projects simultaneously, and administrators lack visibility into the overall project progress.

Due to the absence of a centralized platform, communication gaps emerge between students and mentors. This can lead to unclear expectations, delayed feedback, and ultimately a decline in the quality of projects submitted. There is a clear need for a digital solution that streamlines the mentor–student relationship and automates the overall mentoring process for academic projects.

## b. Aim and objective of the project

The primary aim of the *Project Mentor Management System* is to develop a centralized, digital platform that simplifies and enhances the process of academic project mentoring through structured workflows and communication.

The specific objectives of this system are:

- To design a web-based system that provides distinct roles and access levels for Admin, Faculty, and Student users.
- To allow the Admin to register students and faculty, manage records, and assign a group of students to specific faculty members as project mentors.
- To enable students to log in, submit their project ideas, share progress updates, and receive mentor feedback throughout the project lifecycle.
- To empower faculty mentors to view assigned students, evaluate proposals, provide structured feedback, and accept or reject submissions with comments.
- To facilitate a continuous feedback loop where students can improve their work based on mentor guidance and resubmit updates until final approval.
- To store all project data securely in a centralized database for easy access, tracking, and reporting.

This system is designed to improve academic project quality by fostering better collaboration between students and faculty, while saving time and reducing manual errors in the project evaluation process.

## c. Scope and limitation of the project

Scope:

- The system is built to be used by educational institutions for effective project monitoring and mentorship.
- It allows multi-user support and role-based access for Admin, Student, and Faculty

users.

- Provides features for user registration, mentor assignment, project proposal submission, and real-time feedback.
- Supports two-way communication between student and mentor for iterative development and evaluation.
- The platform is developed using React.js for the frontend, Express.js for backend logic, and MySQL for database management.
- Can be deployed on cloud infrastructure or hosted locally within a college network.

**Limitations:**

- The current version does not support live chat, email notifications, or real-time messaging (though this can be integrated later).
- Mentor assignment is manually handled by the admin and not automated based on faculty load or expertise.
- It does not include features like plagiarism detection, automated grading, or project documentation generation.
- Integration with external tools like GitHub, Turnitin, or plagiarism scanners is not present in this version.
- System usability and performance depend on the hosting environment and number of concurrent users.



## 2. Background study and literature overview

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### a. Literature overview

The increasing digitization in education has led to the development of several academic management systems, such as Learning Management Systems (LMS), student portals, and project submission platforms. However, very few systems focus specifically on project mentoring workflows, especially in the context of Indian academic institutions where project guidance often relies heavily on offline interactions.

Literature and existing academic research highlight that consistent mentor-student communication and feedback improve project outcomes, student understanding, and innovation. Studies suggest that a well-structured digital system increases transparency, tracks project progress efficiently, and enhances accountability on both sides. Tools like Google Classroom or Moodle allow file submissions and basic feedback but lack dedicated features such as mentor assignments, iterative feedback loops, and project-specific workflow tracking.

Many universities have attempted to digitize portions of the mentoring process through spreadsheets or internal portals, but these are typically fragmented, lack security, and do not support dynamic feedback and project approval stages. A well-designed, mentor-student project platform can address these gaps by bringing all interactions into a single, role-based system.

In software development, modular and scalable web-based systems are preferred for such applications, especially using modern stacks like MERN (MongoDB, Express, React, Node.js) or MySQL-based stacks. These technologies enable faster development, real-time interactions, and ease of future expansion.

### b. Investigation of current project and related work

Upon investigating existing solutions and related works, we found that while there are many academic portals available, very few are dedicated entirely to project mentoring with structured workflows. Systems like **ERP (Enterprise Resource Planning)** modules in colleges provide some support for project data, but lack interactive components such as proposal review, mentor feedback, and improvement cycles.

Open-source platforms such as **ProjectLibre** or **OpenProject** are more focused on task and resource management and are better suited to software or industry-based project tracking rather than academic use. These platforms also do not align with academic mentoring structures, where continuous faculty involvement is essential for idea validation and guidance.

We also observed that some institutions use **custom-built internal tools**, but these are either too complex or too limited in features, lacking a user-friendly interface or modern frontend technologies. They often require faculty to adapt to non-intuitive systems, reducing their usability and effectiveness.

To address these shortcomings, our **Project Mentor Management System** is designed to be simple, interactive, and built with a clear academic workflow in mind. It allows real-time proposal submissions, feedback exchange, and project tracking, thereby filling the gaps left by general-purpose platforms. Our system provides a clean UI, secure login, and straightforward mentor-student communication channels focused specifically on improving academic project collaboration.

This project stands apart due to its **academic-centric design**, use of modern web technologies, and a two-way mentoring model that ensures students can iteratively improve

their work based on mentor input, leading to higher quality final outcomes.

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### 3. Requirement analysis

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#### a. Requirement Gathering

To build an effective Project Mentor Management System, it was essential to understand the needs of all stakeholders involved – Admins, Faculty Members, and Students. The requirements were collected through informal interviews with faculty, project coordinators, and students, along with observations of existing manual processes.

Key gathered requirements include:

- A secure login system with role-based access for Admin, Faculty, and Student.
- Admin should be able to register users, assign mentors to students, and manage records.
- Faculty should have access to their assigned students' project ideas and provide feedback, accept or reject proposals.
- Students should be able to submit their project ideas, view feedback, and update progress.
- Notification system to alert users of actions taken (e.g., project accepted/rejected).
- Dashboard for all users to track status and history.
- Centralized database to store all user and project data securely.

These requirements formed the base for system functionality, interface design, and database modelling.

#### b. Requirement Specification

The project requirements are classified into Functional and Non-Functional categories:

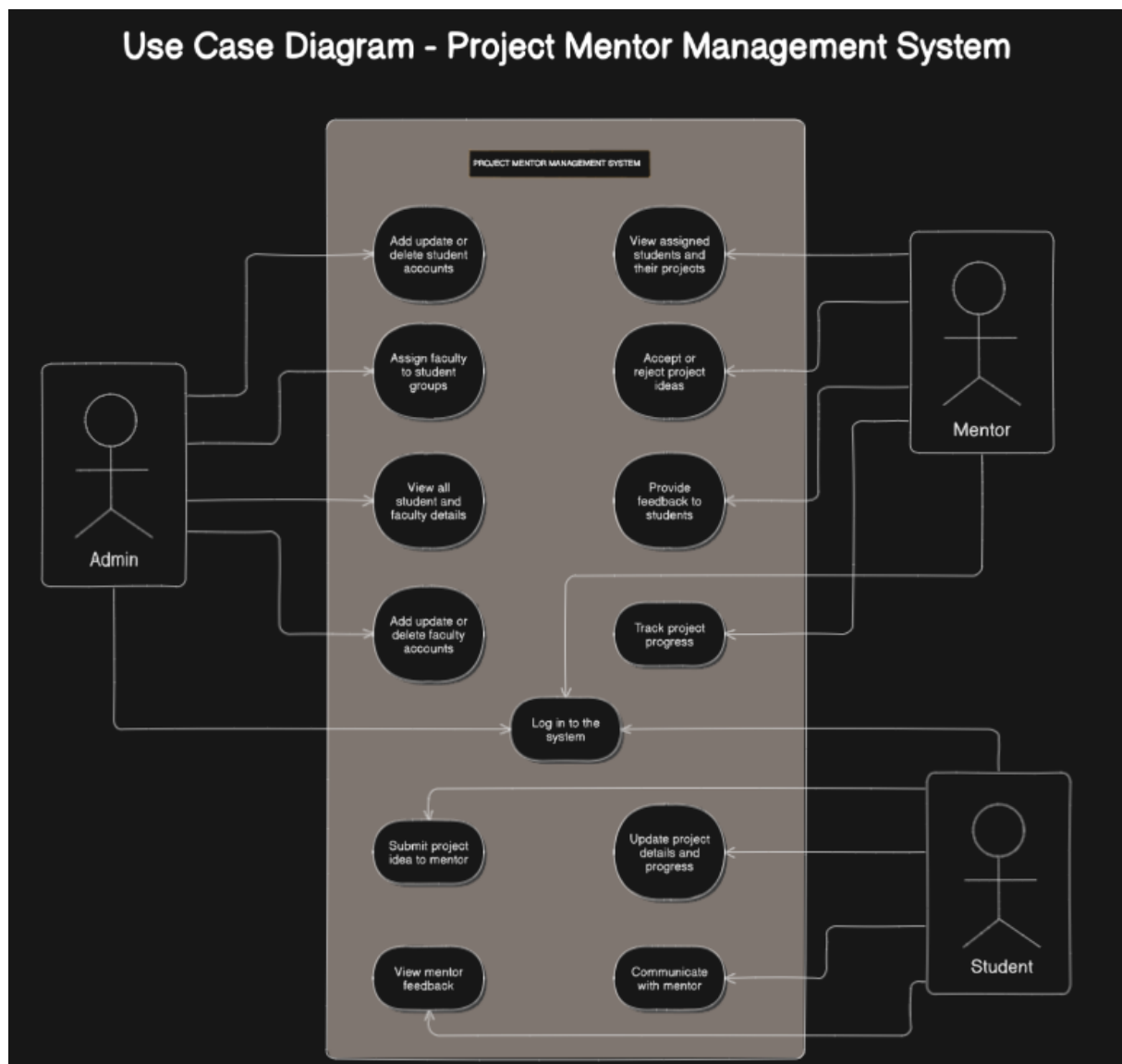
Functional Requirements:

- The system shall allow Admin to add, delete, and assign faculty to students.
- The system shall allow students to log in and submit project proposals.
- The system shall allow faculty to accept, reject, and comment on proposals.
- The system shall support updating of project status and progress.
- The system shall store each submission and feedback history.

Non-Functional Requirements:

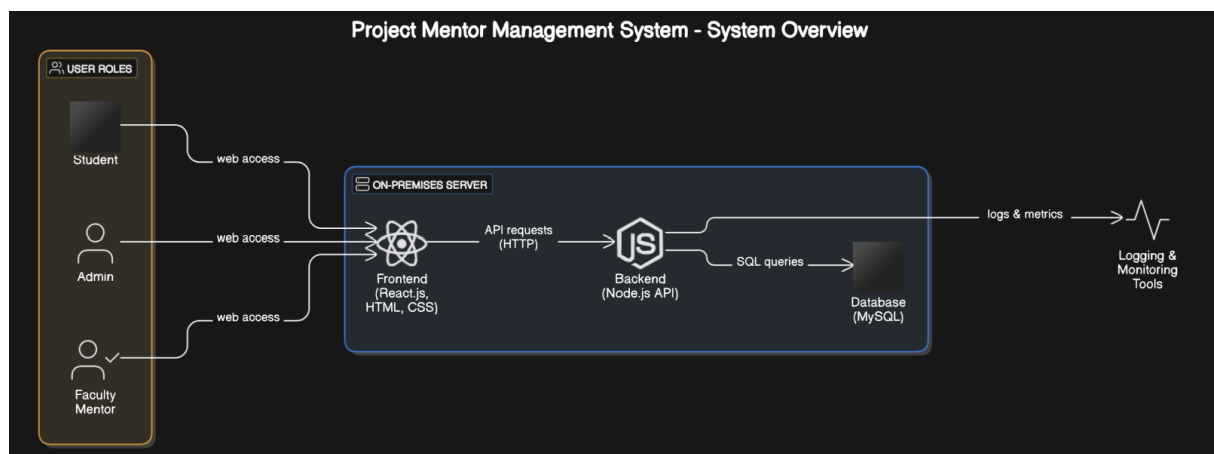
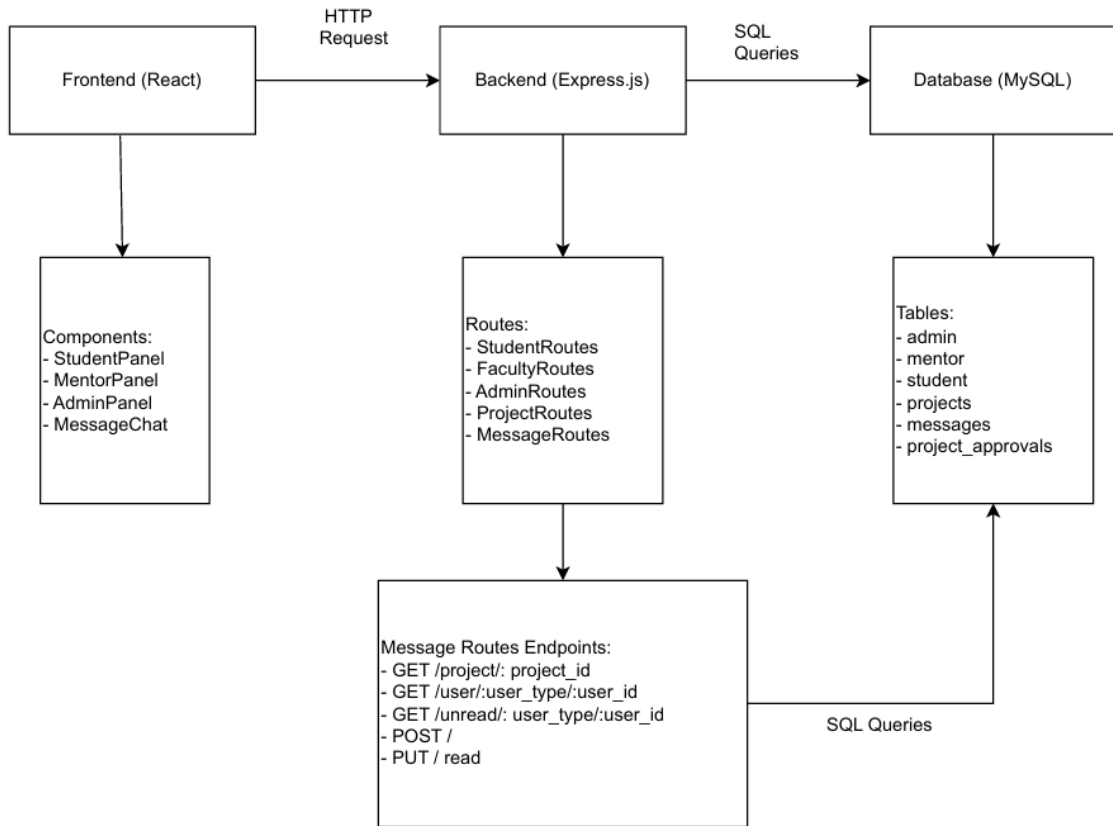
- The system shall ensure secure authentication using passwords.
- The interface shall be responsive and easy to use.
- Data should be stored in a relational database (MySQL) for integrity.
- The system should support at least 100 concurrent users without performance degradation.
- The platform should be deployable on local server or cloud.

c. Use case Diagram

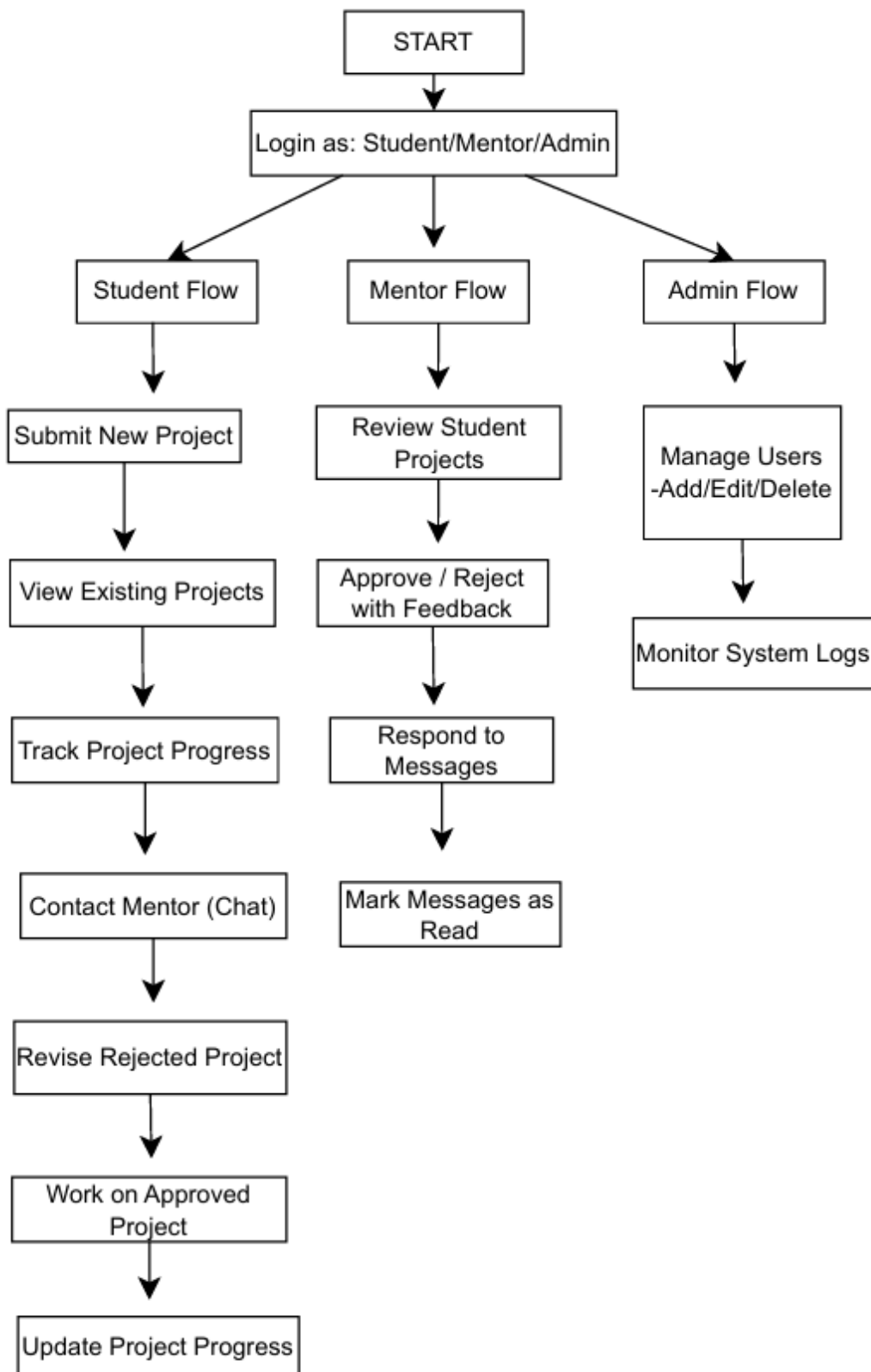


## 4. System design

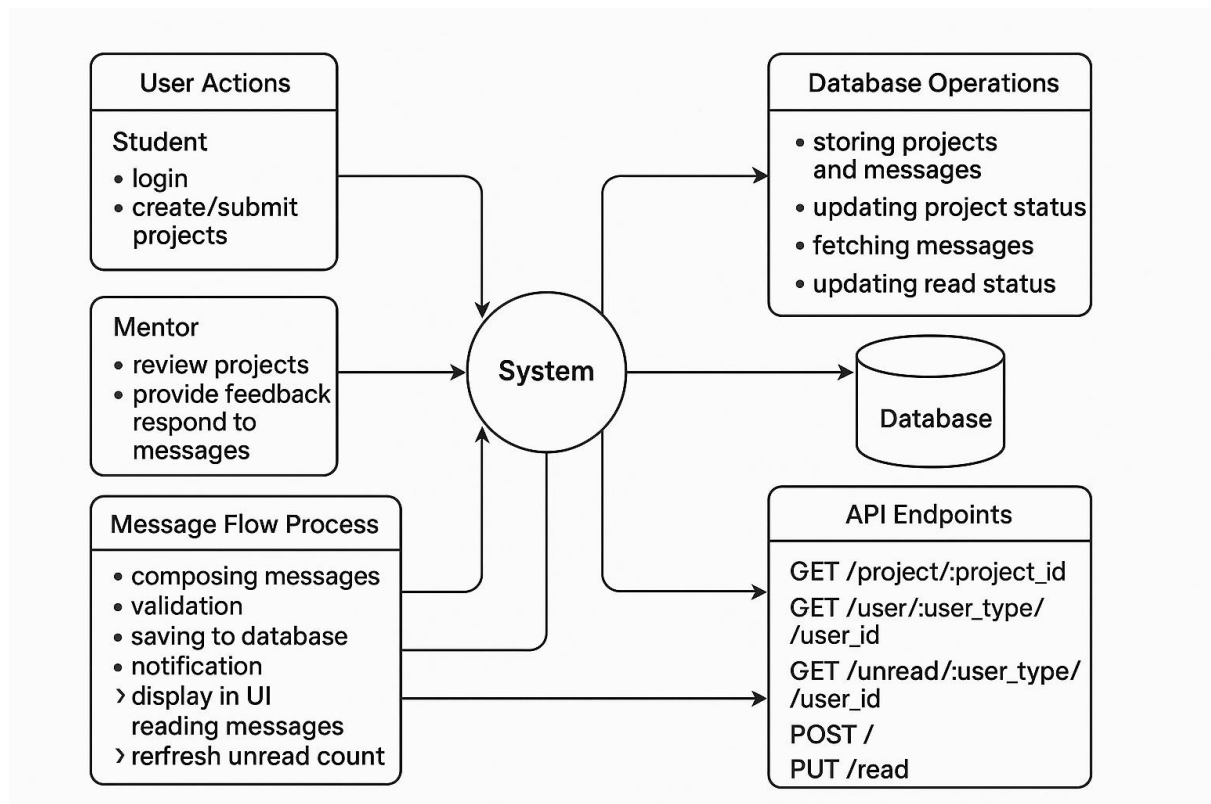
### a. Architectural Design



## b. Flow Chart



c. System Modeling  
1. Dataflow Diagram



## 5. Implementation

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### a. Agile Methodologies

For the successful implementation of the Project Mentor Management System, we adopted Agile Methodology, specifically the Scrum Framework. Agile allowed for flexibility in development, enabling us to refine and adjust the system based on real-time feedback and evolving project requirements.

Key Features of Agile Used:

- **Incremental Development:** The project was divided into manageable sprints, each with a clear deliverable. This approach helped in building the system step by step, focusing on core features like the admin panel, student login, and mentor feedback system before expanding functionality.
- **Daily Stand-ups:** Regular stand-up meetings were held to ensure that all team members were aligned. These short, focused discussions helped in identifying potential blockers and addressing them quickly, ensuring smooth progress.
- **Sprint Planning & Review:** At the beginning of each sprint, specific goals were set based on priority features, such as faculty-student assignments or feedback functionalities. After each sprint, we reviewed the work done, which allowed us to reassess priorities, incorporate feedback, and plan for the next cycle.
- **Continuous Feedback:** The project guide and mentors were actively involved throughout the development. Their feedback was incorporated regularly into the system, ensuring the product met the required standards and expectations. For instance, feedback on the UI/UX led to adjustments in the design for better usability.
- **Adaptability:** As the system evolved, we encountered changes in feature requirements. The flexible nature of Agile allowed us to incorporate these changes with minimal disruption, such as adjustments to the mentor feedback feature or additional functionalities like project file uploads.

Agile proved to be an essential framework for maintaining focus, promoting teamwork, and ensuring consistent progress. It allowed us to deliver a functional and high-quality product with strong coordination among all stakeholders.

### b. Development Model

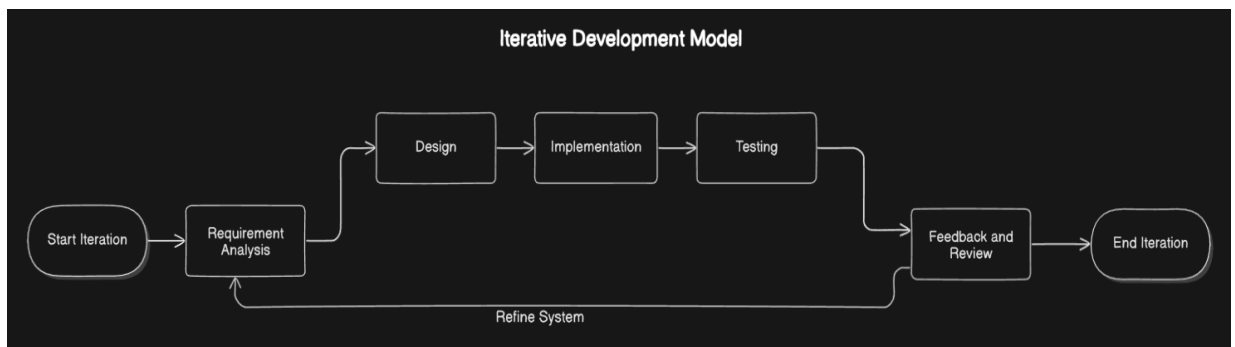
To ensure a structured approach, we adopted the **Agile Iterative Development Model**, which emphasizes incremental development. The system was built in stages, with each iteration refining specific components.

Key Phases of Development:

1. **Requirement Analysis:**
  - Gathered functional requirements from stakeholders (students, faculty, admin) and defined core features like student login, project submission, and mentor feedback.
2. **Design:**
  - Designed the system architecture, including database schema and UI mockups for various screens (admin panel, student login, mentor feedback).
3. **Implementation:**
  - Developed key modules:
    - **Admin Panel:** Manage faculty assignments and project submissions.



- Student Login: Secure system for project submission.
  - Mentor Feedback System: Allows mentors to review and provide feedback.
  - Communication Interface: Enables real-time updates between students and mentors.
  - Technologies Used: HTML, CSS, React.js (Frontend), Node.js (Backend), MySQL (Database).
4. Testing:
- Conducted Unit Testing, Integration Testing, and User Acceptance Testing (UAT) to ensure functionality and gather feedback for improvements.
5. Feedback and Review:
- Gathered feedback from users, reviewed the system, and made necessary adjustments to enhance performance and meet user expectations.



## 6. Future Scope

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The Project Mentor Management System, while fully functional in its current state, has significant potential for future enhancements. As project requirements evolve and institutional needs grow, the system can be extended to offer more advanced features that improve efficiency, user experience, and scalability.

**1. Integration with LMS and Academic Portals:**

The system can be integrated with Learning Management Systems (LMS) like Moodle or institutional ERP portals, enabling seamless synchronization of student and faculty data, project grades, and evaluation reports.

**2. Advanced Communication Tools:**

Implementing real-time chat, video conferencing, or voice messaging features will further enhance interaction between mentors and students, reducing the dependency on external tools.

**3. Version Control for Project Submissions:**

Introducing a version history feature would allow students to upload updated versions of their project files and enable mentors to track changes over time.

**4. Notification and Reminder System:**

Automated email or in-app notifications can be added to remind students and mentors of submission deadlines, meeting schedules, or pending feedback.

**5. Analytics Dashboard:**

A comprehensive analytics dashboard for admin and faculty to monitor project progress, evaluate mentor feedback efficiency, and assess student performance metrics.

**6. Role-Based Access Control:**

Future updates can include more granular role permissions (e.g., department heads, external evaluators) for broader academic oversight.

**7. Mobile Application:**

Developing a mobile version of the system would improve accessibility and allow users to manage their tasks on the go.

**8. AI-Powered Recommendations:**

Incorporating AI can help suggest project ideas based on a student's interests and past academic performance, and assist mentors in identifying areas where students may need additional guidance.

## **7. References (public repository GitHub source code links)**

- GitHub Repository: [https://github.com/Athrv10/Project\\_Mentor\\_Management\\_System.git](https://github.com/Athrv10/Project_Mentor_Management_System.git)
- React.js Documentation: <https://react.dev>
- Node.js Documentation: <https://nodejs.org>
- MySQL Reference: <https://dev.mysql.com/doc/>

