BANNARI AMMAN INSTITUTE OF TECHNOLOGY
An Autonomous Institution Affiliated to Anna University - Chennai, Accredited by NAAC with A+ Grade
Sathyamangalam - 638401 Erode District, Tamil Nadu, India
Stay Ahead

Software Requirement Specification for Project Portal

NAME:	KANESHKHA T
ROLL NO:	737622AD151
SEAT NO:	8
PROJECT ID:	8
PROJECT TITLE	Project Work Title Registration Portal

1. PROBLEM STATEMENT:

Build a portal to select the project title based on its availability in the given list of titles.

2. DIFFICULTIES FACED BY CLIENT:

2.1. Concurrency Control:

Implementing mechanisms to handle concurrent access to project titles to prevent race conditions and ensure data integrity can be challenging, especially in a multi-user environment.

2.2. Complexity of Authorization:

Managing user roles and permissions, particularly when dealing with different levels of access for students, faculty, and administrators, can introduce complexity in the authorization system. **2.3.**

Notification Handling:

Developing a robust notification system to inform users about the status of their selected project titles (e.g., approval or rejection by faculty) and ensuring timely delivery of notifications can be challenging.

3. PURPOSE:

The purpose of building a portal to select project titles based on availability from a given list is to establish a fair and efficient system where each user can choose a project title without the risk of others selecting the same one simultaneously.

4. OVERVIEW:

The scope of this project encompasses the development of a web-based portal that facilitates the selection of project titles based on availability from a provided list. The portal enables users to register, browse available project titles, select a title of interest, and submit it for faculty approval. Upon approval, the selected project title becomes unavailable to other users. The portal incorporates authentication and authorization mechanisms, concurrency control to prevent conflicts in title selection, a faculty approval system, a notification system to inform users of project status updates, and user dashboards for tracking selected projects. Additionally, the project includes backend logic for handling user interactions, security measures to protect user data, considerations for scalability and performance optimization, and comprehensive documentation and training materials for user guidance

5. FUNCTIONAL REQUIREMENTS:

5.1. User Authentication:

Implement a system for users to register and log in to the portal securely. This ensures that only the leader of the project can access and select project titles.

5.2 Project Title Management:

Developing a database to store the list of available project titles. Each title should have attributes such as its availability status (available or unavailable); if it is available, it will show in the options.

5.3. Title Selection Process:

Design the interface for users to browse through the list of available project titles and select the one they are interested in. Implement logic to mark a title as unavailable once it's selected by a user.

5.4. Concurrency Handling:

Implement concurrency control mechanisms to prevent race conditions, ensuring that multiple users cannot select the same project title simultaneously.

5.5. Faculty Approval System:

Developing a feature for faculty members to review selected project titles. They should have the ability to approve or reject a selected project. If rejected, the project title should become available again for other users to select.

5.6. Notification System:

Implement a notification system to inform users when their selected project title is approved or rejected by the faculty guide.

5.7. User Dashboard:

Create a dashboard for users to track the status of their selected project titles, including whether they are pending approval or rejected.

5.8. Faculty Dashboard:

Develop a separate dashboard for faculty members to view and manage all selected project titles, including approving or rejecting them.

5.9. Admin Panel:

Create an admin panel for system administrators to manage user accounts, project titles, and other system settings.

5.10. User Feedback:

Incorporate a mechanism for users to provide feedback on the portal's usability and functionality, allowing for continuous improvement, and if they need any help, they can contact us through this option.

5.11. Concurrency Control:

Implementing mechanisms to handle concurrent access to project titles to prevent race conditions and ensure data integrity can be challenging, especially in a multi-user environment.

5.12. Complexity of Authorization:

Managing user roles and permissions, particularly when dealing with different levels of access for students, faculty, and administrators, can introduce complexity in the authorization system.

5.13. Notification Handling:

Developing a robust notification system to inform users about the status of their selected project titles (e.g., approval or rejection by faculty) and ensuring timely delivery of notifications can be challenging.

6. NON FUNCTIONAL REQUIREMENTS

6.1. Performance:

The portal should respond to user interactions promptly, with minimal latency. Pages should load quickly, and the system should handle concurrent user interactions efficiently, even during peak usage times.

6.2. Scalability:

The system should be scalable to accommodate a growing user base and an increasing number of project titles. It should be able to handle additional users and data without a significant decrease in performance.

6.3. Reliability:

The portal should be reliable and available for use consistently. It should minimize downtime and ensure data integrity to prevent loss of user information or project selections.

6.4. Security:

The system should adhere to security best practices to protect user data, prevent unauthorized access, and ensure confidentiality, integrity, and availability. This includes encryption of sensitive data, secure authentication mechanisms, and protection against common security threats such as SQL injection and cross-site scripting (XSS).

6.5. Usability:

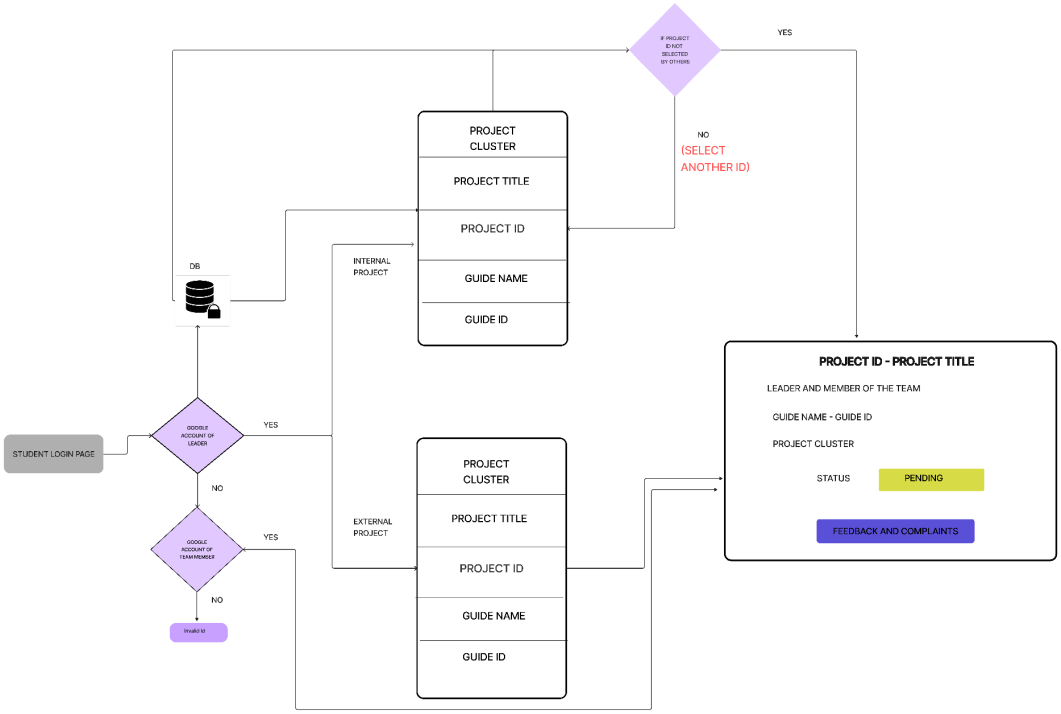
The portal should have an intuitive and user-friendly interface that is easy to navigate and understand. It should provide clear instructions, feedback, and error messages to guide users through the selection process.

STACK:

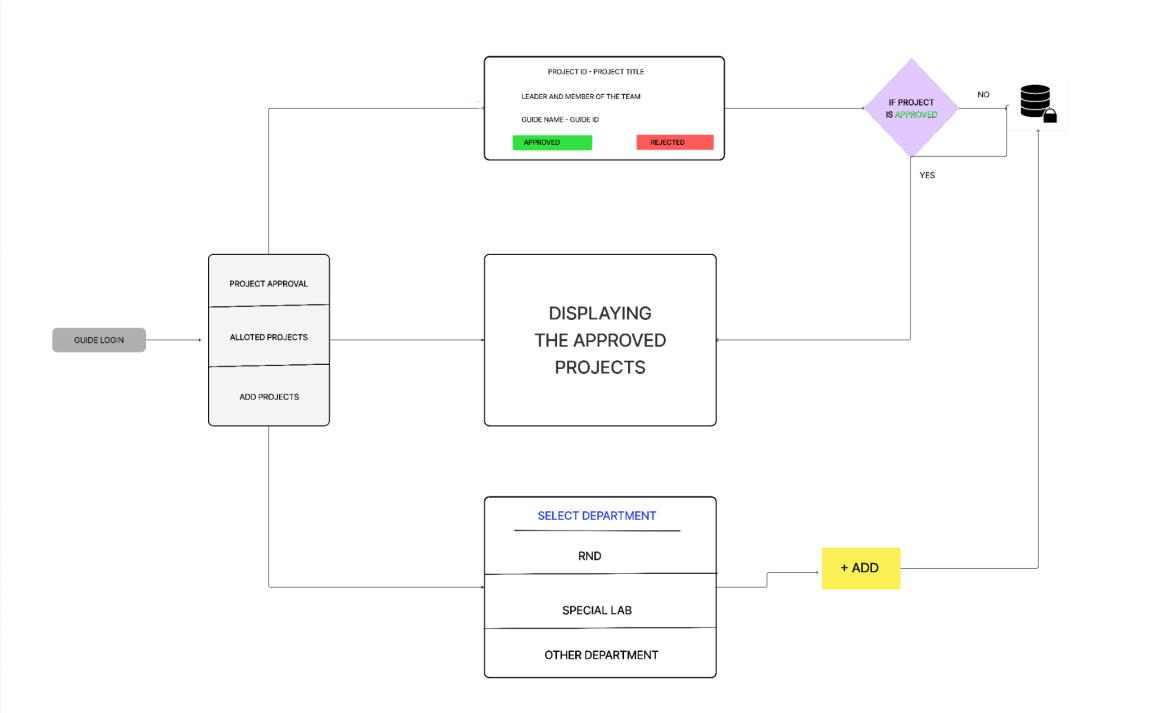
Full Stack 4 - Spring Boot Stack (Java)

Front End	❖ Angular / React.js
Back End	❖ Java with Spring Boot
Database	❖ PostgreSQL ❖ MySQL
API	❖ OpenAPI ❖ SOAP APIs ❖ REST Ful API

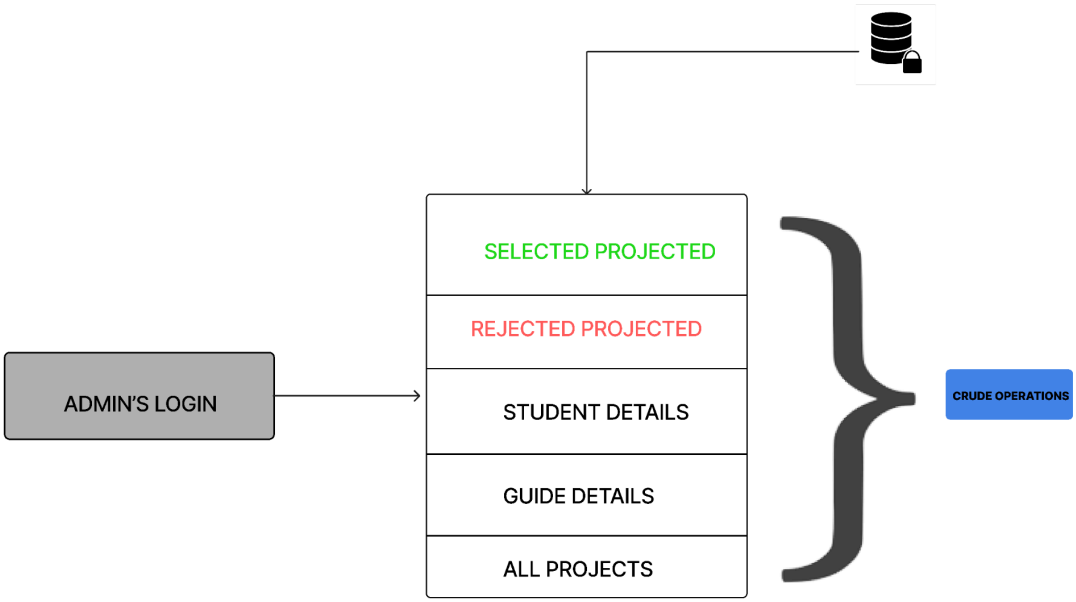
FLOW CHART OF THE USER'S INTERFACE:



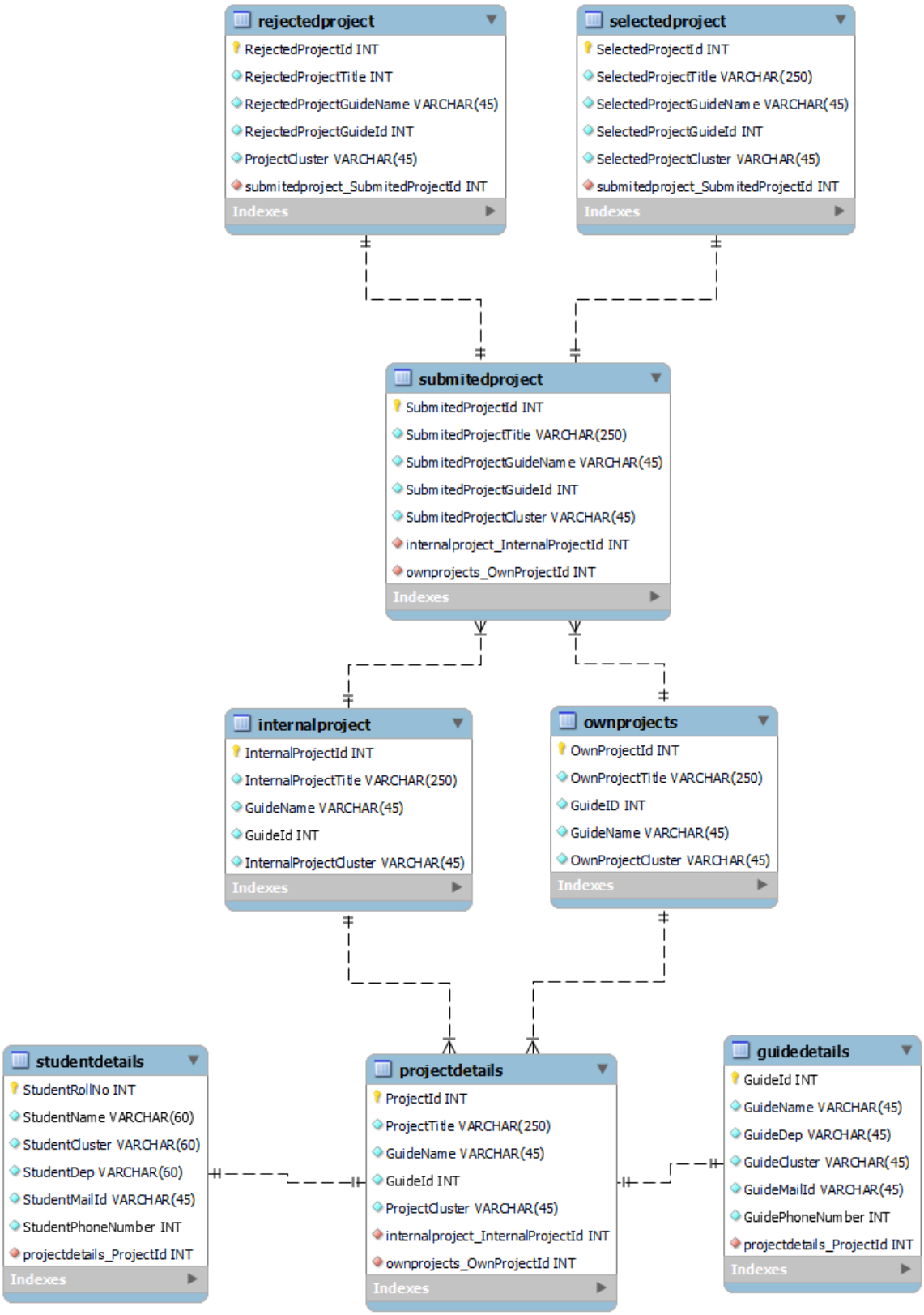
FLOW CHART OF THE GUIDE'S INTERFACE:



FLOW CHART OF ADMIN'S INTERFACE:



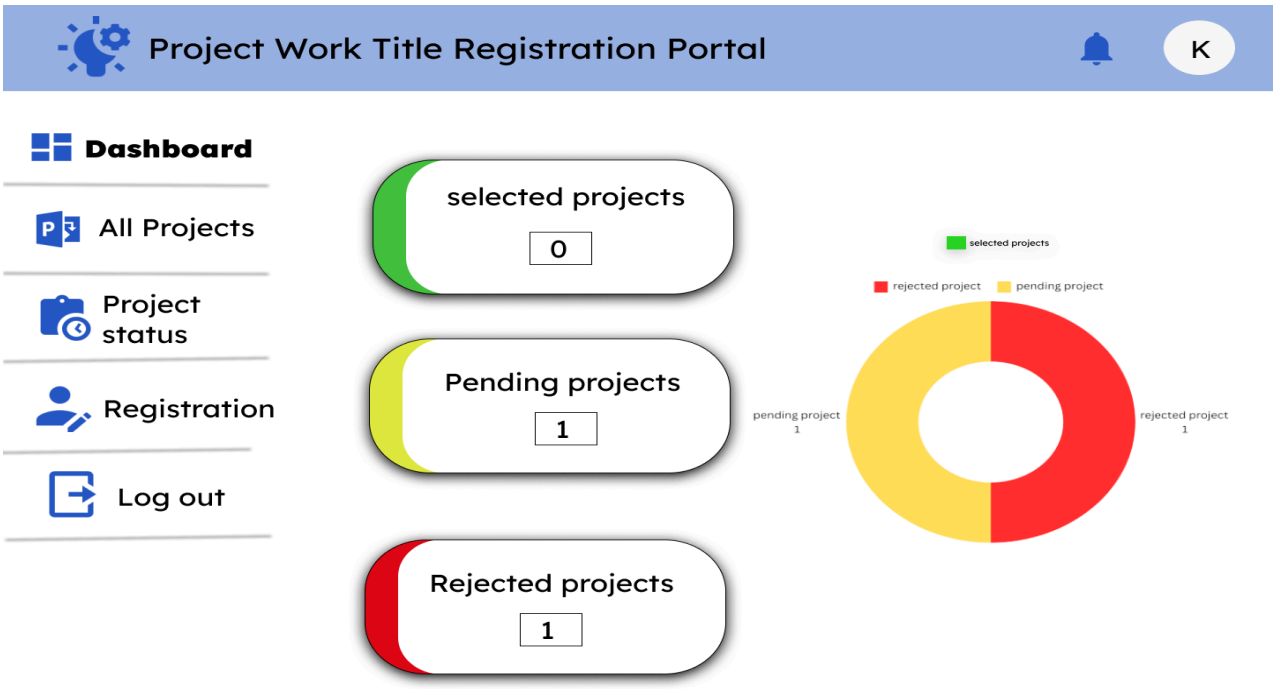
ER DIAGRAM FOR THE PROJECT:



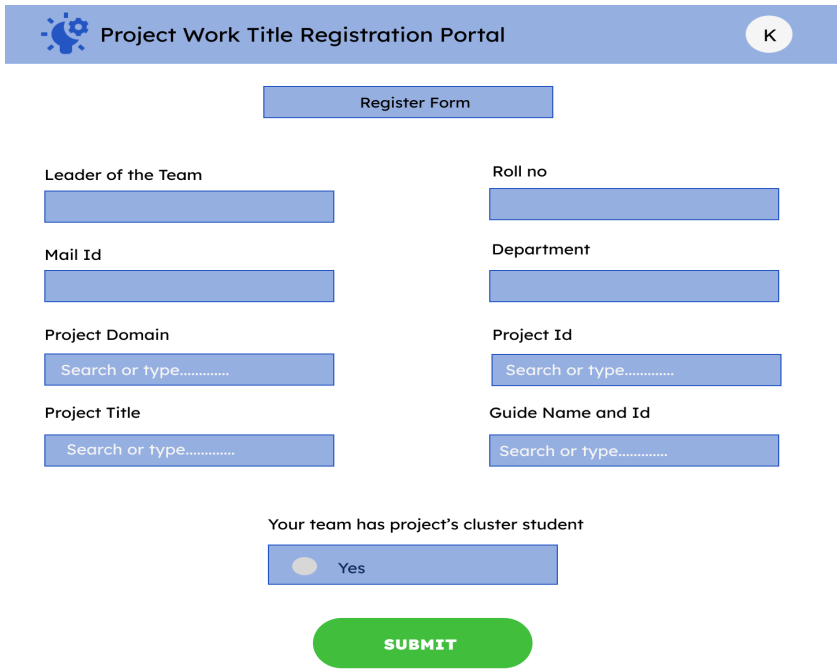
USER INTERFACE:

Login page:

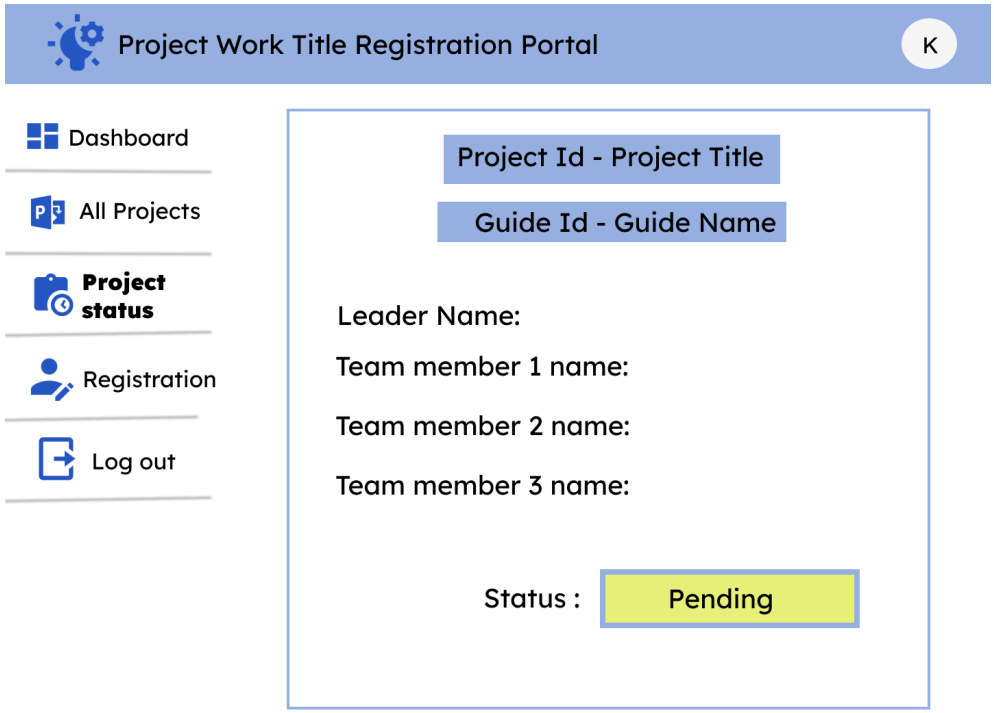
Dashboard:



Registration Form:

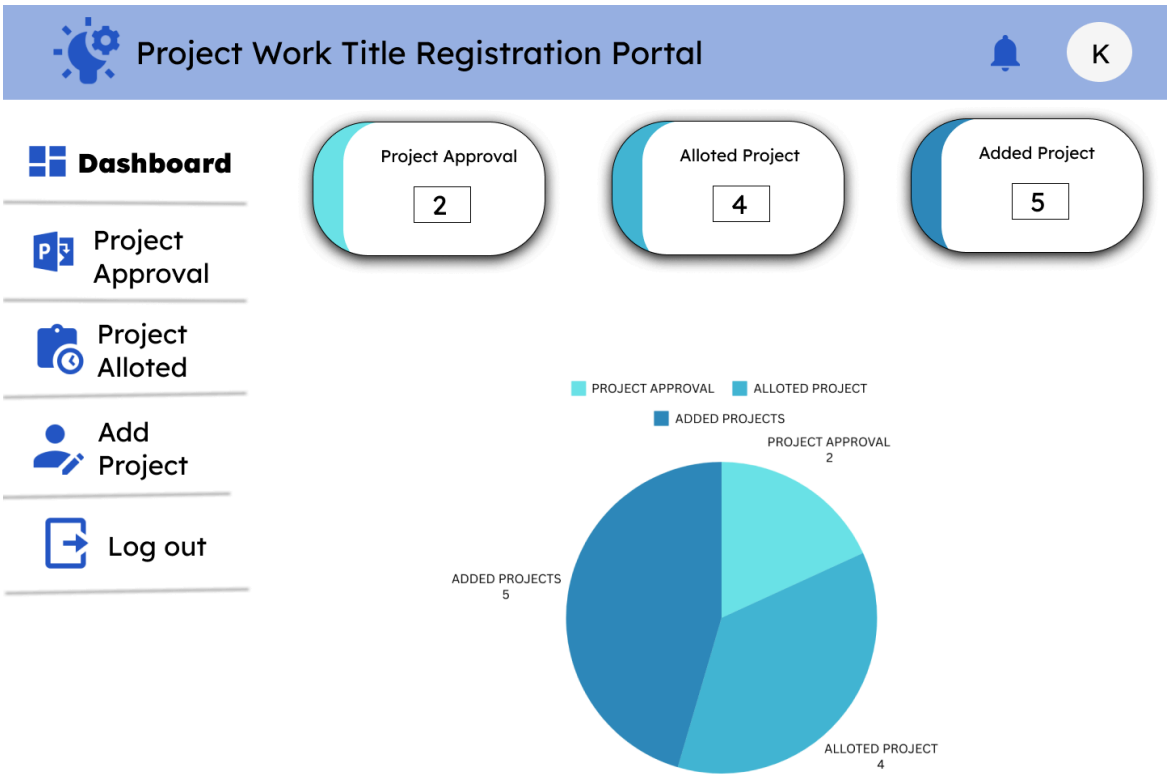


Project Status:

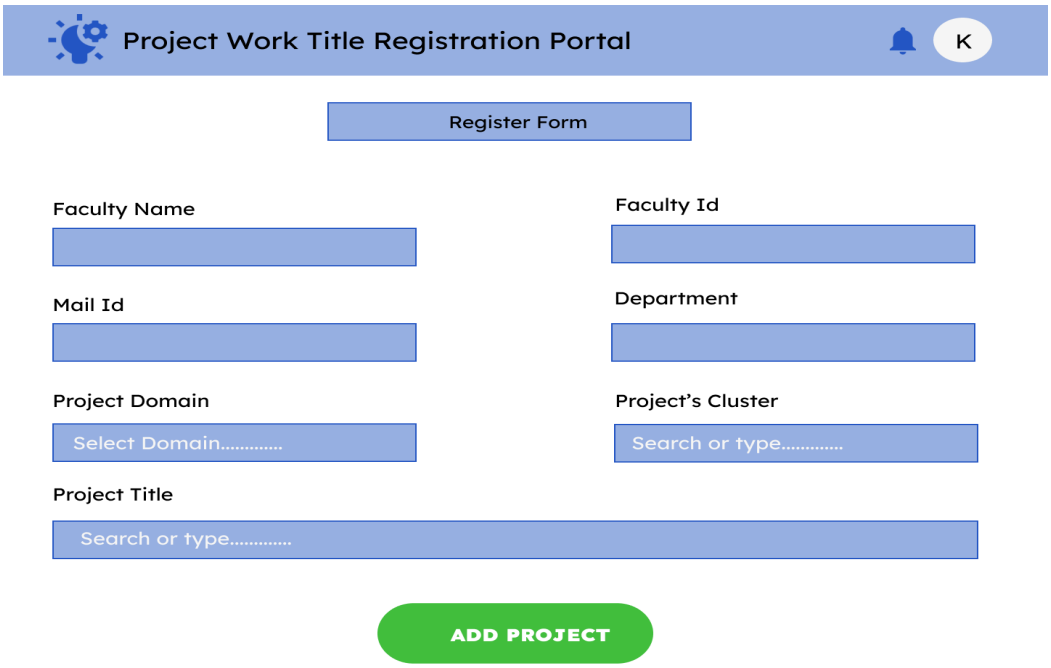


FACULTY INTERFACE:

Dashboard:



Add Projects:



:

ADMIN'S VIEW:

Dashboard: