

Name	Saravanapriya M
Roll No	73736221EC295
Seat No	367
Project ID	7
Project Title	Project Work Mark Consolidation System
Stack	MERN

TECHNICAL COMPONENTS

Components	Techstack
Frontend	React (JS Library for building user interfaces)
Backend	Node.js with Express.js
Database	MongoDB(NOSQL Database)
API	OpenAPI

1. INTRODUCTION

This document outlines the design and functionalities of a web-based system for streamlined project evaluation.

Key Functionalities:

- Centralized data management for project information and student marks.
- Dynamic moderation triggers for ensuring fairness and consistency in assessment.
- Role-based access control for secure data access and streamlined moderation workflows.

1.1 PROBLEM STATEMENT

In educational institutions, especially during the final semesters, students are required to undertake project work which is often evaluated through multiple reviews conducted by a panel of evaluators. Managing and consolidating these evaluation marks efficiently poses a significant challenge. Our project aims to develop a robust Project Work Consolidation System using the MERN (MongoDB, Express.js, React.js, Node.js) stack to streamline this process.

Objectives:

1. Automated Mark Entry(if applicable): Develop a system where evaluators can efficiently enter project evaluation marks for each student.
2. Moderation Management: Implement a moderation mechanism to identify and handle cases where the evaluation marks deviate significantly.
3. User Authentication and Authorization: Ensure secure access control with different roles (Admin, Staff, Students) having appropriate permissions.
4. Mark Visibility: Allow students to view their own marks, while staff and admin have access to additional functionalities such as downloading marks, generating reports, etc.
5. Reporting: Provide comprehensive reporting capabilities for administrators to track student performance, moderation cases, and overall evaluation trends.

1.2 PURPOSE

The purpose of the Project Work Consolidation System is to streamline and automate the process of evaluating and consolidating project work marks for students in their final semesters. It aims to provide a centralized platform for entering evaluation marks, managing moderation, and generating reports

to facilitate efficient decision-making and enhance transparency in the evaluation process.

1.3 SCOPE

The system will cover project evaluation processes for the final semesters (S7 and S8) of the academic curriculum. It will include functionalities for mark entry, moderation management, mark visibility for students, report generation, and user management.

1.4 BUSINESS CONTEXT:

In educational institutions, project evaluations play a crucial role in assessing students' skills and knowledge. However, manual handling of evaluation marks often leads to inefficiencies, errors, and lack of transparency. The Project Work Consolidation System addresses these challenges by providing a digital platform for managing evaluation marks, ensuring accuracy, transparency, and efficiency in the evaluation process.

2. CONSIDERATION:

- Security: Ensuring the confidentiality and integrity of student data.

- Scalability: Designing the system to handle a large number of students and evaluators.
- Usability: Creating an intuitive and user-friendly interface for ease of use.
- Adaptability: Designing the system to accommodate different evaluation methodologies and academic requirements.

2.1 DEPENDENCIES

- MERN Stack Technologies: MongoDB, Express.js, React.js, Node.js for development.
- Authentication and Authorization Libraries: Integration of authentication and authorization mechanisms.
- PDF and Excel Generation Libraries: Utilization of libraries for generating PDF and Excel reports.

2.2 USER PERSONAS

- Admin: Oversees the entire evaluation process, manages user roles, enters marks, manages moderation, generates reports.
- Staff/Evaluators: Responsible for entering marks(if applicable), viewing student marks, downloading marks, generating reports.
- Students: View their own marks and moderation status.

2.3 USER STORIES

1. Admin:

- As an admin, I want to be able to log in securely to the system to access administrative functionalities.
- As an admin, I want to manage user roles and permissions to ensure data security and privacy.
- As an admin, I want to enter evaluation marks for students, including details of reviewers and review rounds.
- As an admin, I want to manage moderation cases by adjusting marks as necessary.
- As an admin, I want to generate comprehensive reports on student performance, moderation cases, etc.

2. Staff/Evaluators:

- As a staff member, I want to log in securely to the system to access evaluation functionalities.
- As a staff member, I want to enter evaluation marks for assigned students for each review round(if applicable).
- As a staff member, I want to view individual student marks, overall marks, and moderation status.
- As a staff member, I want to download student marks in PDF or Excel format.
- As a staff member, I want to generate reports on evaluation data for analysis and decision-making.

3. Students:

- As a student, I want to log in securely to the system to view my evaluation marks.
- As a student, I want to view my own evaluation marks in overall reviews.

3. FUNCTIONAL REQUIREMENTS

1. User Management:

- Registration: Users (Admin, Staff, Students) should be able to register with the system using their email addresses.
- Login: Users should be able to securely log in to the system using their registered credentials.
- User Roles: Define different user roles (Admin, Staff, Students) with corresponding permissions.

2. Mark Entry:

- Mark Entry Form: Provide a form for entering evaluation marks for each student.
- Review Rounds: Support multiple review rounds (S7: 2 rounds, S8: 3 rounds) with separate mark entry forms.
- Reviewer Details: Include fields to specify reviewer details (PMC1, PMC2, Guide) for each review round.
- Absence Handling: Allow marking absences ('A') for students who didn't participate in a particular review round.

3. Moderation Management:

- Moderation Calculation: Automatically calculate the average difference (S7) or maximum difference (S8) between the evaluation marks.
- Threshold: Identify cases where the difference exceeds 10% of the original marks for moderation.
- Admin Adjustment: Allow the admin to adjust marks for moderation cases as necessary.

4. Mark Visibility:

- Student View: Students should be able to view their overall evaluation marks in the reviews and moderation Status.
- Staff View: Staff members should be able to view individual student marks, overall marks, and moderation status.
- Admin View: Admin should have access to all evaluation marks, moderation status, and additional administrative functionalities.

5. Reporting:

- Report Generation: Provide functionalities for generating comprehensive reports on student performance, moderation cases, etc.
- Export Formats: Support exporting reports in PDF or Excel formats for easy sharing and analysis.

4. NON-FUNCTIONAL REQUIREMENTS

1. Performance:

- The system should respond to user actions within a reasonable timeframe (e.g., seconds for typical operations).
- The system should be able to handle a high volume of concurrent users without significant performance degradation.

2. Security:

- Authentication: Ensure secure authentication mechanisms for user login.
- Authorization: Enforce role-based access control to restrict functionalities based on user roles.
- Data Encryption: Encrypt sensitive data to ensure confidentiality and integrity.

3. Usability:

- Intuitive Interface: Design a user-friendly interface with clear navigation and easy-to-use functionalities.
- Error Handling: Provide informative error messages and validation checks to guide users during data entry.

4. Scalability:

- Performance: Design the system to handle a large number of users and evaluation data without compromising performance.
- Database Optimization: Optimize database queries and indexing for efficient data retrieval and storage.

5. Integration:

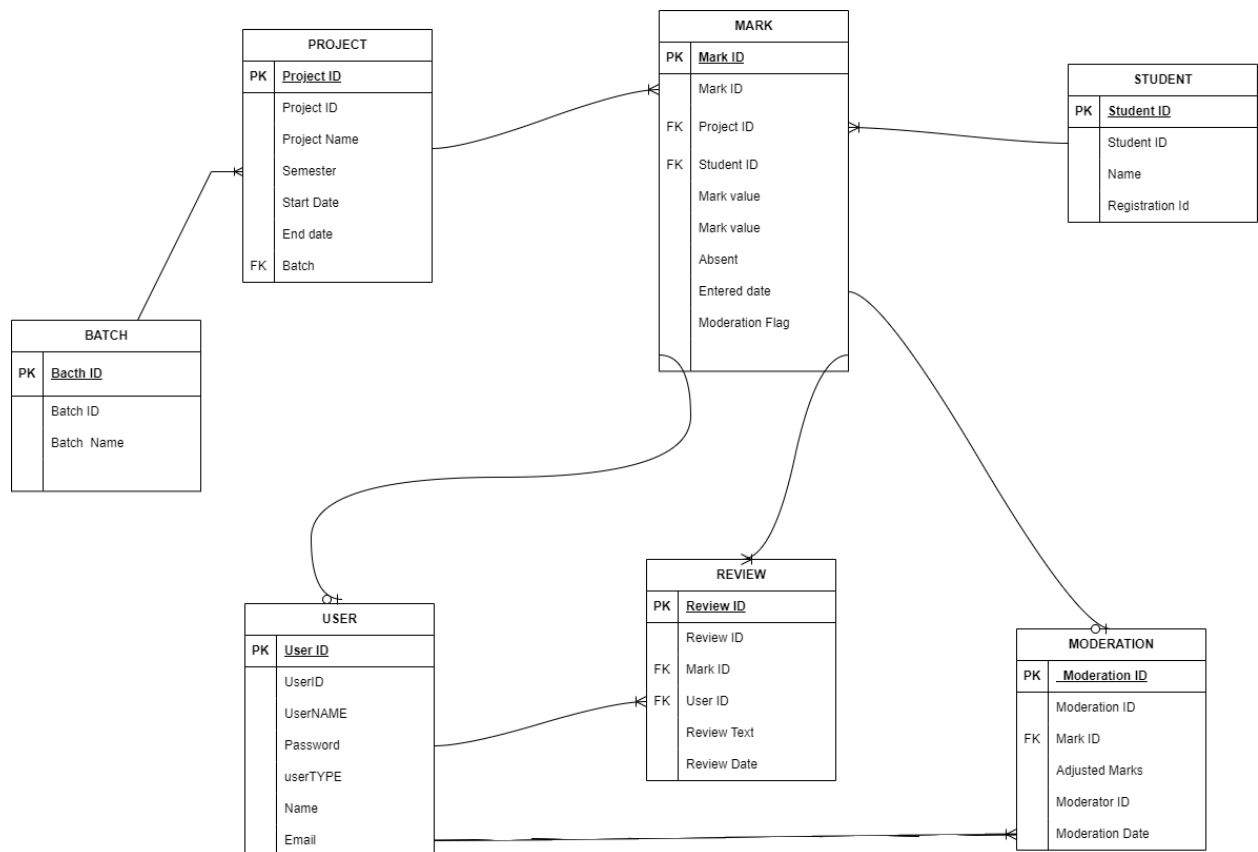
- Email Notifications: Integrate email notifications to inform users about important updates such as mark entry, moderation decisions, etc.
- External Systems: Integrate with external systems if necessary for data exchange or additional functionalities.

CONCLUSION

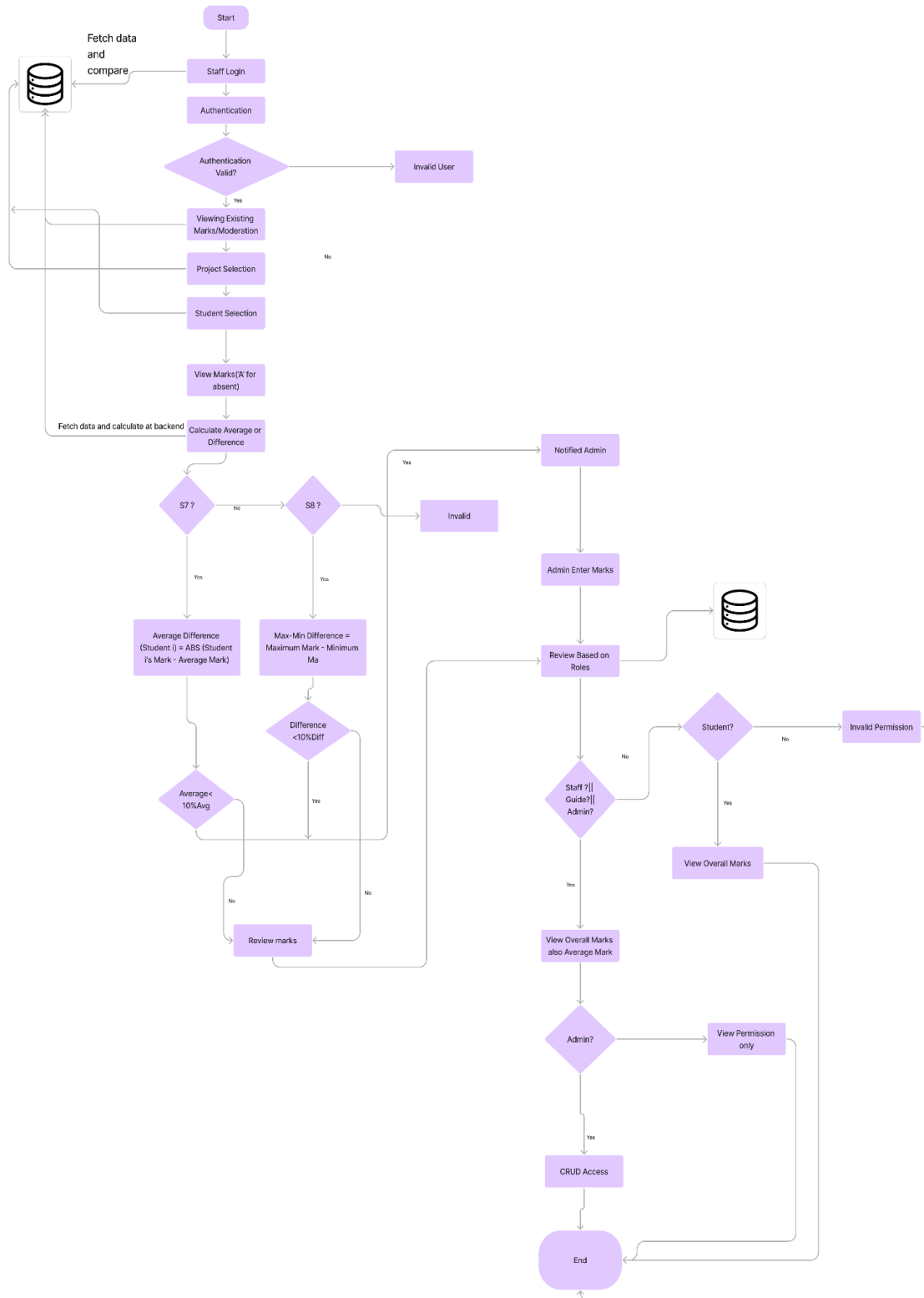
This project proposes a web-based system for streamlined project evaluation, leveraging a centralized database for managing project information, student marks, and moderation decisions. By implementing this system, institutions can enhance efficiency, accuracy, and fairness in the project evaluation process.

PHASE	STATUS
Planning and Requirement Gathering	FINISHED
Design and UI/UX Prototyping	
Database Design and Implementation	
Backend Development	
Integration and Testing	
Deployment	

ER DIAGRAM

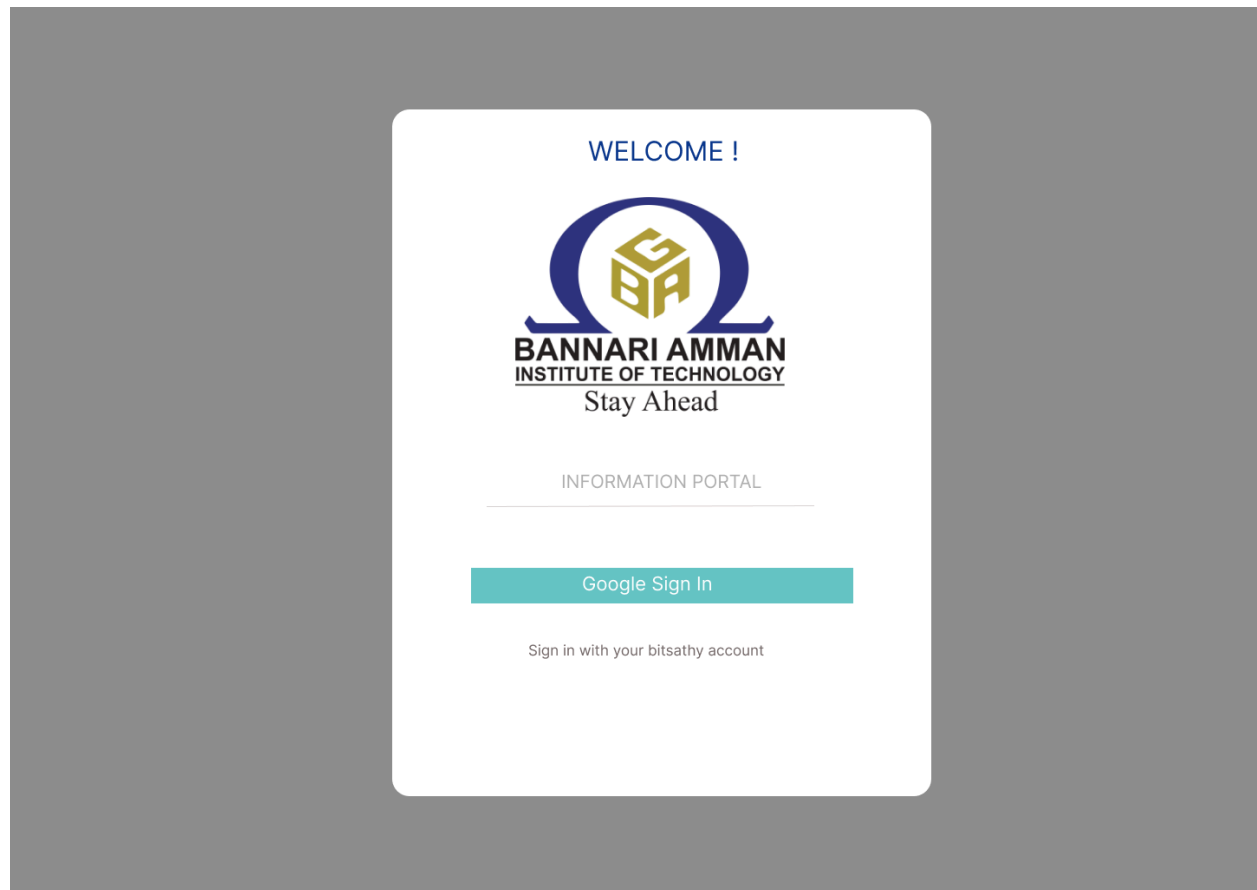


FLOW DIAGRAM




PROTOTYPE


LOGIN:



FOR STAFF/ADMIN/GUIDE




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Welcome! Username

Semester ▼

S7 ▼

 Report

S8 ▼


 Report

Slot ▼

S7

S8

Settings ▼

 Logout

S7 Completed Reviews: 2

S8 Completed Reviews: 3



No of Batches in S7: 40

No of Batches in S8: 25

No of Guides in S7: 25


No of Guides in S8: 25

Semester -S7


**S7 Students Project Details**

Semester ▼

S7 ▼

 Report

S8 ▼


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S7

S8

Settings ▼

 Logout


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PDF

Excel

NAME	ROLL NO	DEPARTMENT	PROJECT	BATCH	PMC1	PMC2	GUIDE	TOTAL	STATUS
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXX	XXXXXX	XX	XX	XX	YY	No
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	Yes
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXX	XXXXXX	XX	XX	XX	YY	No
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	No
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	Yes
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	Yes


Semester-S8:




S8 Students Project Details

Semester ▼

S7 ▼

 Report

S8 ▼


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S7

S8

Settings ▼

 Logout



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XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	Yes
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Slot -S7:


**S7 Students Project Slot**

Semester ▼

S7 ▼

 Report

S8 ▼


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S7

S8

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NAME	ROLL NO	DEPARTMENT	PROJECT	BATCH	PMC1 Date & Time	PMC2 Date & Time	Guide Date
XXXXX	YYYYYYY	ZZZZZZZZZ	XXXXXX	XXXXXX	XX	XX	X
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XXXXX	YYYYYYY	ZZZZZZZZZ	XXXXXX	XXXXX	XX	XX	X
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Slot-S8:




S8 Students Project Slot




Semester ▼

S7 ▼

 Report

S8 ▼


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NAME	ROLL NO	DEPARTMENT	PROJECT	BATCH	PMC1 Date & Time	PMC2 Date & Time	Guide Date
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XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXX	XXXXX	XX	XX	X
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XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXX	XXXXXX	XX	XX	X
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXX	XXXXXX	XX	XX	X


Semester-S7-Report:

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Semester-S8-Report:

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S8 Students Project Report



Semester ▼
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Search


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Above 90
Above 80
Above 70
Above 60
Above 50
Below 50

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NAME	Roll NO	PROJECT	BATCH	GUIDE	TOTAL MARKS
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FOR ADMIN(Enter Mark Access)

Semester-S7




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
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S7 Students Project Details




Semester ▼

S7 ▼

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
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NAME	ROLL NO	DEPARTMENT	PROJECT	BATCH	PMC1	PMC2	GUIDE	ENTER MARK	TOTAL
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XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXX	XXXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXX	XXXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXX	XXXXXX	XX	XX	XX	YY	XX

Semester-S8:



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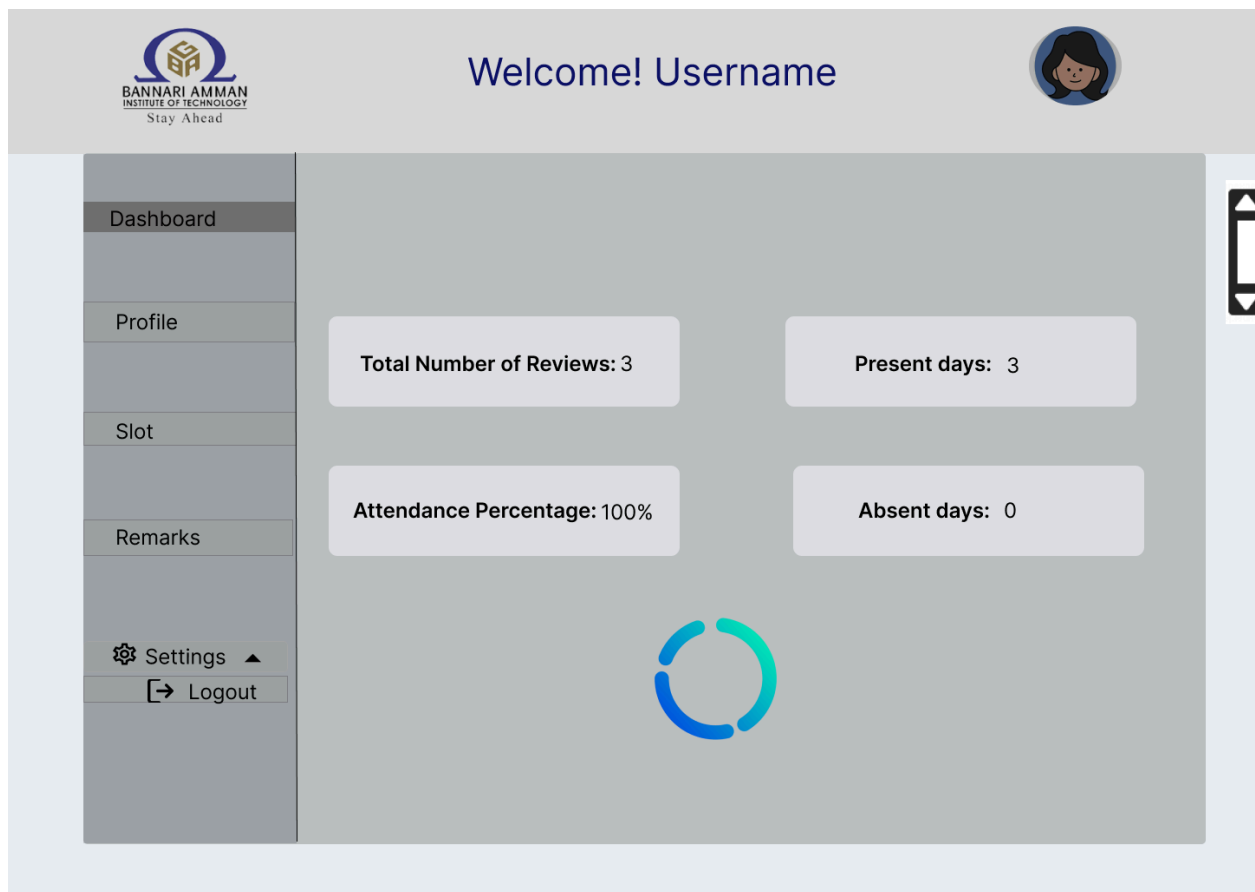
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NAME	ROLL NO	DEPARTMENT	PROJECT	BATCH	PMC1	PMC2	GUIDE	ENTER MARK	TOTAL
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XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXX	XXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	XX
XXXXX	YYYYYYYY	ZZZZZZZZZZ	XXXXXXXX	XXXXXX	XX	XX	XX	YY	XX

FOR STUDENTS:


Dashboard:



Remarks:



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Remarks

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Name: Saravanapriya M

Roll No: 7376221EC295

Department: ECE

Project ID: 07

Project Title: Project Work Consolidation System


Batch: xxxx

Guide Name: xxxx


PMC1 Remarks: xxxx

PMC 2 Remarks: xxxx


Guide Remarks: xxxx



Profile:



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Name: Saravanapriya M

Roll No: 7376221EC295

Department: ECE

Project ID: 07

Project Title: Project Work Consolidation System


Batch: xxxx

Guide Name: xxxx


Total Marks: xxxx

Moderation Status: xxxx

Slot:



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Name: Saravanapriya M

Roll No: 7376221EC295

Department: ECE

Project ID: 07

Project Title: Project Work Consolidation System

Batch: xxxx

Guide Name: xxxx

PMC1 Date &Time: xxxx

PMC 2 Date & Time: xxxx

Guide Review Date & Time: xxxx