CDAC Delhi

Project Report on

"ACTS-SMS"

Submitted in partial fulfillment of the requirements of

Post Graduate Diploma in Advanced Computing (PG-DAC)

Submitted By

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Session: MAR-2024 To AUG-2024

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Certificate

This is to certify that the Report work entitled

“ACTS SMS”

Has been duly completed by the following students under my guidance, in a satisfactory manner as a partial fulfillment of the requirement for the award of the

Post Graduate Diploma in Advanced Computing (PG-DAC)

Submitted By

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Senior Project Engineer
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Declaration

I declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declarethat we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. We understand that any violation of the above will be a cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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Date :

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At last special gratification to almighty God for blessing us with the hidden power to completing this study work.

PROJECT TEAM

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Abstract

The **ACTS-SMS** (Student Management System) is an innovative web application designed to better the educational experience by providing tailored solutions for both students and teachers.
Bridging the gap between students and educators, this system fosters a more connected, efficient, and productive learning environment, driving academic success for all.
Developed using Spring Boot for the backend and Thymeleaf for the frontend, the system provides distinct login portals for Students, Teachers and Admin. Students can easily access their profiles, monitor attendance, and provide feedback to their teachers. Admins, have the ability to manage students and teachers lists, update and modify them. Teachers, have the options for marking attendance and tracking pseudo-Anonymous feedbacks. Options for resource sharing is also provided which can be utilized in future prospects of this system.

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1. OBJECTIVE

- **Centralized Management**: Develop a comprehensive platform for managing student and teacher data, enabling administrators to efficiently oversee and update records, attendance, and academic information.
- **User Authentication**: Implement secure login mechanisms for students, teachers, and admins, ensuring that each user has appropriate access to the system based on their role.
- **Attendance Tracking**: Provide an easy-to-use attendance tracking system that allows teachers to mark attendance and students to view their attendance records, helping maintain accurate and up-to-date attendance data.
- **Resource Sharing**: Facilitate the distribution of study materials and assignments, allowing teachers to upload and share resources directly with students, promoting a seamless learning experience.
- **Feedback Mechanism**: Integrate a feedback system where students can provide feedback to teachers, fostering communication and continuous improvement in teaching methodologies.
- **Profile Management**: Enable students and teachers to manage and update their profiles, ensuring that personal and academic information is current and accurate.
- **Admin Role for CRUD Operations**: Provide an admin role responsible for managing CRUD (Create, Read, Update, Delete) operations for both student and teacher data, ensuring efficient management of user information.
- **User-Friendly Interface**: Design an intuitive and responsive user interface using React and Thymeleaf, ensuring that the system is easy to navigate and accessible on various devices.
- **Reporting and Analytics**: Provide administrators with tools to generate reports and analyze data related to student performance, attendance, and other key metrics, aiding in decision-making and resource allocation.
- **Scalability and Flexibility**: Build the system with scalability in mind, allowing for future expansion to accommodate additional features or an increasing number of users without compromising performance.

2. INTRODUCTION

In the ever-evolving landscape of education, technology plays a crucial role in enhancing the efficiency and effectiveness of academic and administrative processes. The **ACTS Student Management System (ACTS SMS)** is a tailored web-based application developed specifically for CDAC ACTS, aimed at consolidating various essential functions into a single, user-friendly platform. This system was designed to address the unique challenges faced by the institution in managing student and teacher interactions, streamlining processes that were previously handled through multiple disparate platforms.

Problem Domain

At CDAC ACTS, different platforms and methods were traditionally used to manage key academic activities—attendance was tracked manually on paper, feedback was collected via Google Forms, and resource sharing occurred across various classroom platforms. This fragmented approach led to inefficiencies, with data scattered across different systems, making it difficult to manage and access important information promptly. The lack of a unified system also created inconsistencies in data handling, increased the potential for errors, and posed challenges in ensuring a cohesive learning environment.

Solution Domain

The **ACTS SMS** was developed to address these challenges by integrating all these essential functions into a single, cohesive platform. The application provides a centralized system for managing student records, tracking attendance, collecting feedback, and sharing resources. By bringing these functionalities together, ACTS SMS streamlines administrative tasks, reduces the potential for errors, and improves the overall efficiency of academic management at CDAC ACTS. The system also enhances communication between students, teachers, and administrators, fostering a more organized and effective educational environment.

3. SCOPE

The **ACTS Student Management System (ACTS SMS)** is designed to meet the specific needs of CDAC ACTS by integrating various academic and administrative functions into a single, efficient platform. The scope of this project encompasses the following key areas:

3.1 **User Management**:
- **Admin Role**: Provides administrators with the capability to manage student and teacher data, including creating, updating, deleting, and viewing records.
- **Teacher Role**: Allows teachers to mark attendance, upload study materials and assignments, and view feedback from students.
- **Student Role**: Enables students to access their attendance records, view uploaded study materials and assignments, and provide feedback to teachers.

3.2 **Attendance Tracking**:
- Streamlines the process of recording attendance by allowing teachers to mark attendance digitally.
- Provides students with access to their attendance records, including total sessions attended and attendance percentages.

3.3 **Resource Sharing**:
- Facilitates the uploading and sharing of study materials and assignments by teachers, making them easily accessible to students through the platform.

3.4 **Feedback Collection**:
- Integrates a feedback mechanism that allows students to provide feedback on their courses and teachers, which can be reviewed by the teaching staff and administrators.

3.5 **Profile Management**:
- Provides functionality for students and teachers to manage their profiles, ensuring their information is accurate and up-to-date.

3.6 **Reporting and Analytics**:
- Offers tools for administrators to generate reports on student attendance, performance, and feedback, aiding in data-driven decision-making.

3.7 **Scalability**:
- The system is designed to be scalable, allowing for future enhancements and the addition of new features as needed by CDAC ACTS.

SYSTEM ANALYSIS

The **ACTS Student Management System (ACTS SMS)** is a comprehensive web application developed to streamline and enhance the management of academic and administrative functions within CDAC ACTS. The system is designed to integrate various functionalities into a single platform, providing a unified interface for students, teachers, and administrators. This analysis covers the major functionalities of the system, focusing on attendance submission and tracking, feedback submission and tracking, and the pseudo-anonymity feature in feedback tracking.

- **Attendance Submission and Tracking**

- **Teachers**: Teachers are provided with an intuitive interface to submit attendance records for their classes. This process is digital, replacing the traditional paper-based methods, and ensures that attendance data is accurately captured and stored in the system. Teachers can easily select the class, date, and mark students as present or absent with just a few clicks.
- **Students**: Students have access to their own attendance records through the platform. They can view their attendance history, including the total number of sessions, sessions attended, and their attendance percentage. This transparency allows students to monitor their own attendance and identify any discrepancies early on.

- **Feedback Submission and Tracking**

- **Feedback Submission**: Students are encouraged to submit feedback on their courses and instructors. This feedback is essential for continuous improvement in teaching quality and student satisfaction. The system allows students to submit feedback through a simple form, covering various aspects of their learning experience.
- **Feedback Tracking**: The feedback submitted by students is tracked and stored in the system. Teachers and administrators can access this feedback to assess areas of improvement and to address any concerns raised by students.

  Pseudo-Anonymity Feature:

  To encourage honest and constructive feedback, the system incorporates a pseudo-anonymous tracking mechanism. While the feedback is linked to the student's profile in the backend to prevent abuse (such as spamming or irrelevant submissions), this linkage is not exposed to teachers. This ensures that students feel comfortable providing candid feedback without fear of retribution, while still allowing administrators to follow up if necessary.

- **Resource Sharing**

- **Teachers**: The system allows teachers to upload and share study materials, assignments, and other resources directly with their students. This ensures that all learning materials are centralized and easily accessible, reducing the dependency on multiple platforms and streamlining the distribution process.
- **Students**: Students can access these resources anytime through the platform, making it convenient for them to stay up-to-date with their coursework and assignments. This centralized access enhances the learning experience by ensuring that all necessary materials are readily available in one place.

Functional Requirements

1. Navigation Bar

- **Components**: The navigation bar includes links such as "Home," "Courses," "Placements," "About," "Contact Us," and "Login."
- **Functionality**:
  - **Home**: Redirects users to the landing page of the SMS.
  - **Courses**: Provides access to course-related information, such as syllabi, enrollment details, and course materials.
  - **Placements**: Contains information about job placements, career services, and resources for students nearing graduation.
  - **About**: Offers information about the institution, its mission, history, and key personnel.
  - **Contact Us**: Provides contact details for the institution, including phone numbers, email addresses, and a contact form.
  - **Login**: Redirects to the login page, where students and teachers can authenticate themselves to access their respective dashboards.

2.Placement Section

- **Components**: Similar to the course section, this area showcases recent job placements, with logos of companies, names of hired students, and their respective positions.
- **Functionality**: Demonstrates the institution's success in placing students in reputable companies, serving as a powerful marketing tool for prospective students.

3. About Us and Contact Information

- **Components**: A brief overview of the institution's history, mission, and values, along with contact details like phone numbers, emails, and a physical address.
- **Functionality**: Helps build trust by providing background information about the institution and offering multiple ways for users to get in touch. It may also include a contact form for easy communication.

4. Footer

- **Components**: Links to important pages (like terms of service, privacy policy), social media icons, and possibly a newsletter subscription form.
- **Functionality**: Provides users with additional resources and ways to stay connected with the institution, including links to legal information and social media platforms.

5. Login Section

- **Components**: Login fields for students and teachers, possibly including "Forgot Password" links and options to register.
- **Functionality**: Securely authenticates users, directing them to their respective dashboards where they can manage their profiles, access courses, view assignments, and more.

6. Student and Teacher Dashboards (not visible but inferred)

- **Components**: After logging in, users are directed to dashboards tailored to their roles.
- **Functionality**:
    - **Student Dashboard**: Displays academic progress, attendance records, assignment status, and communication tools.
    - **Teacher Dashboard**: Allows teachers to manage student data, create assignments, track attendance, and generate reports.

7. Security Features

- **Components**: The system likely uses encrypted connections (e.g., HTTPS), secure login mechanisms, and role-based access control.
- **Functionality**: Ensures that sensitive student and teacher data is protected from unauthorized access, maintaining the privacy and security of all users.

4. FEATURES

- **Compatibility**

  The software will be compatible with multiple platforms.

- **Durability**

  The software will be tested for working with multiple users.

- **Effectiveness**

  The software will be made to handle operations effectively.

- **Maintainability**

  The system should be easy to maintain. There should be a clear separation between the interface and the business logic code. There should be a clear separation between the data

Software Requirements

Designing End: HTML5, CSS3, Bootstrap 5.

Development End: Spring Boot(3.2.8), Spring MVC, Hibernate, Servlet, Thymeleaf.

Data Base : MySQL.

Web Server: TOMCAT Web Server.

Tools : STS 4(JDK:17), MySQL Workbench 8.0 CE, Browser

5. USE CASE MODEL

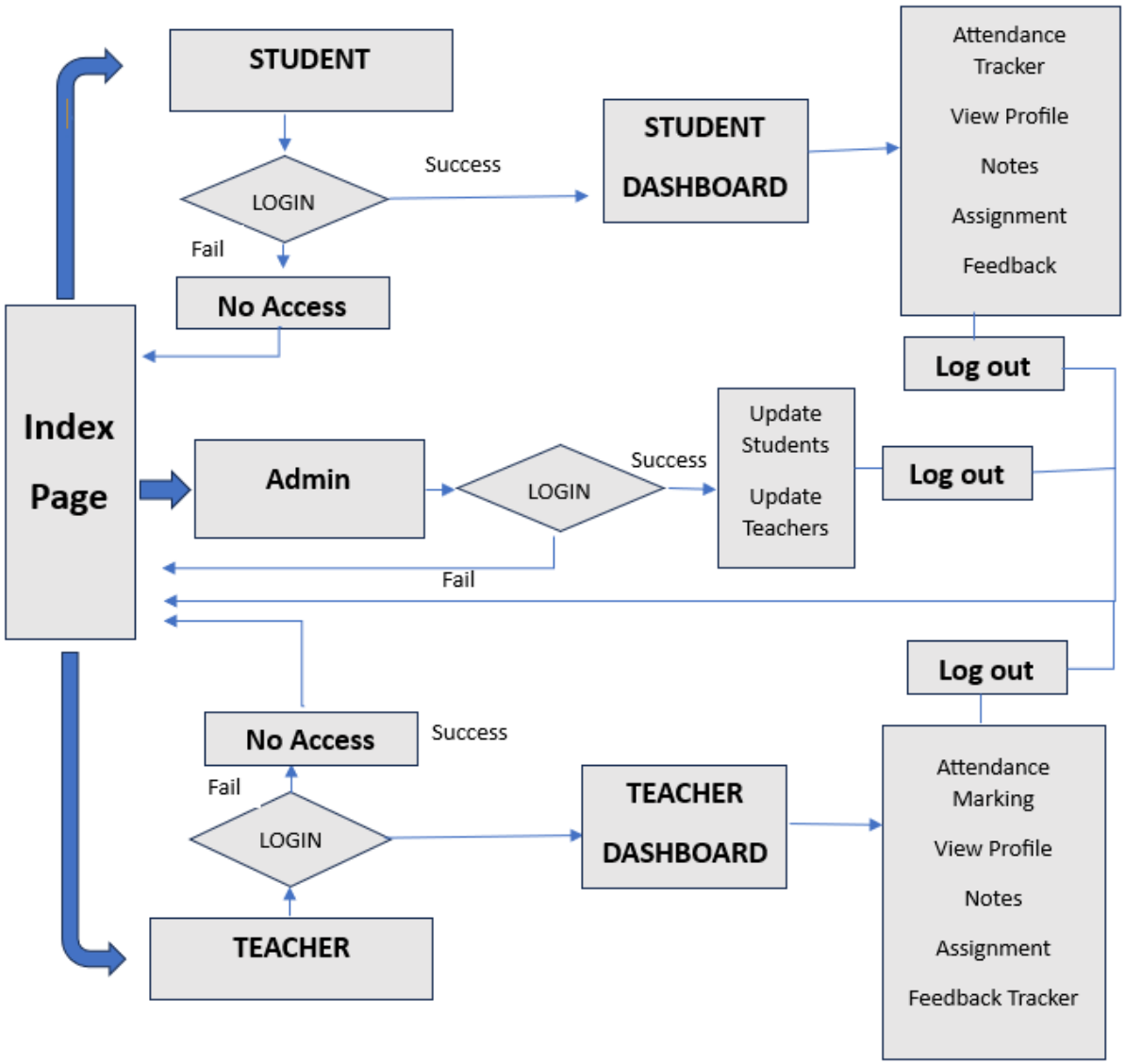


Figure 1. Use Case Model

6. SYSTEM ARCHITECTURE:

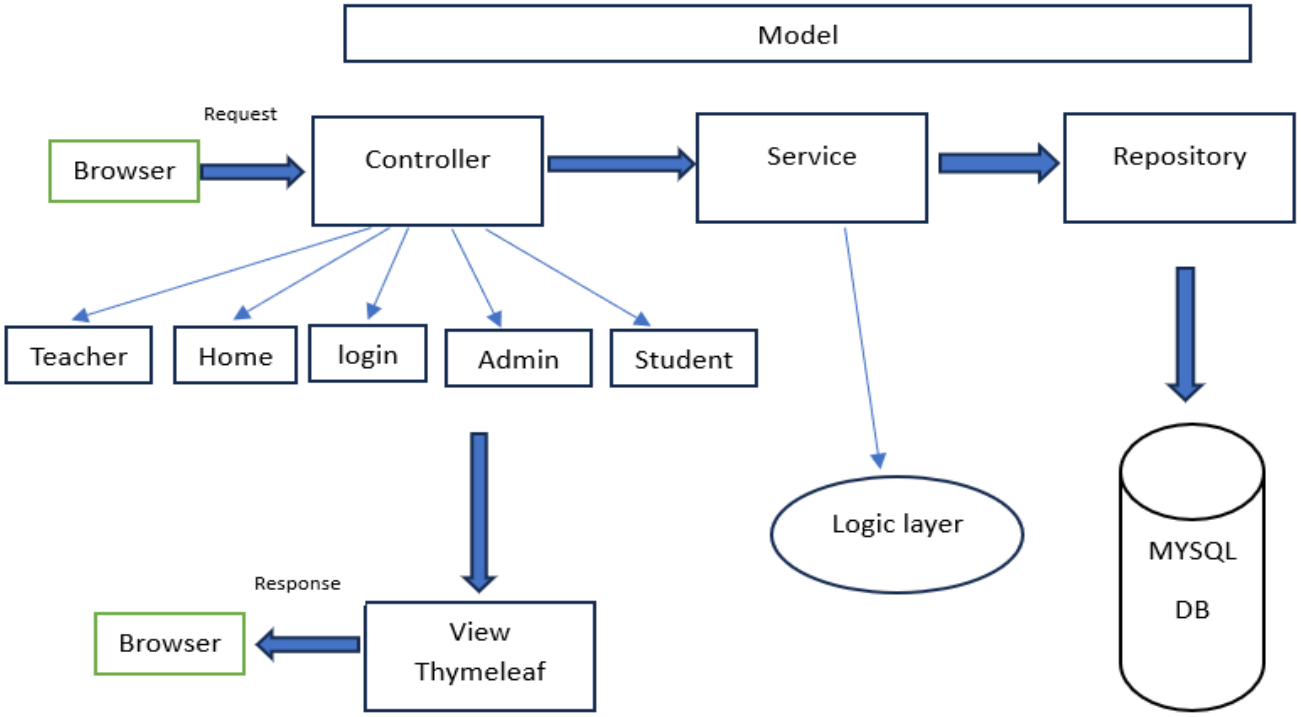


Figure 2. System Architecture

7. E-R DIAGRAM:

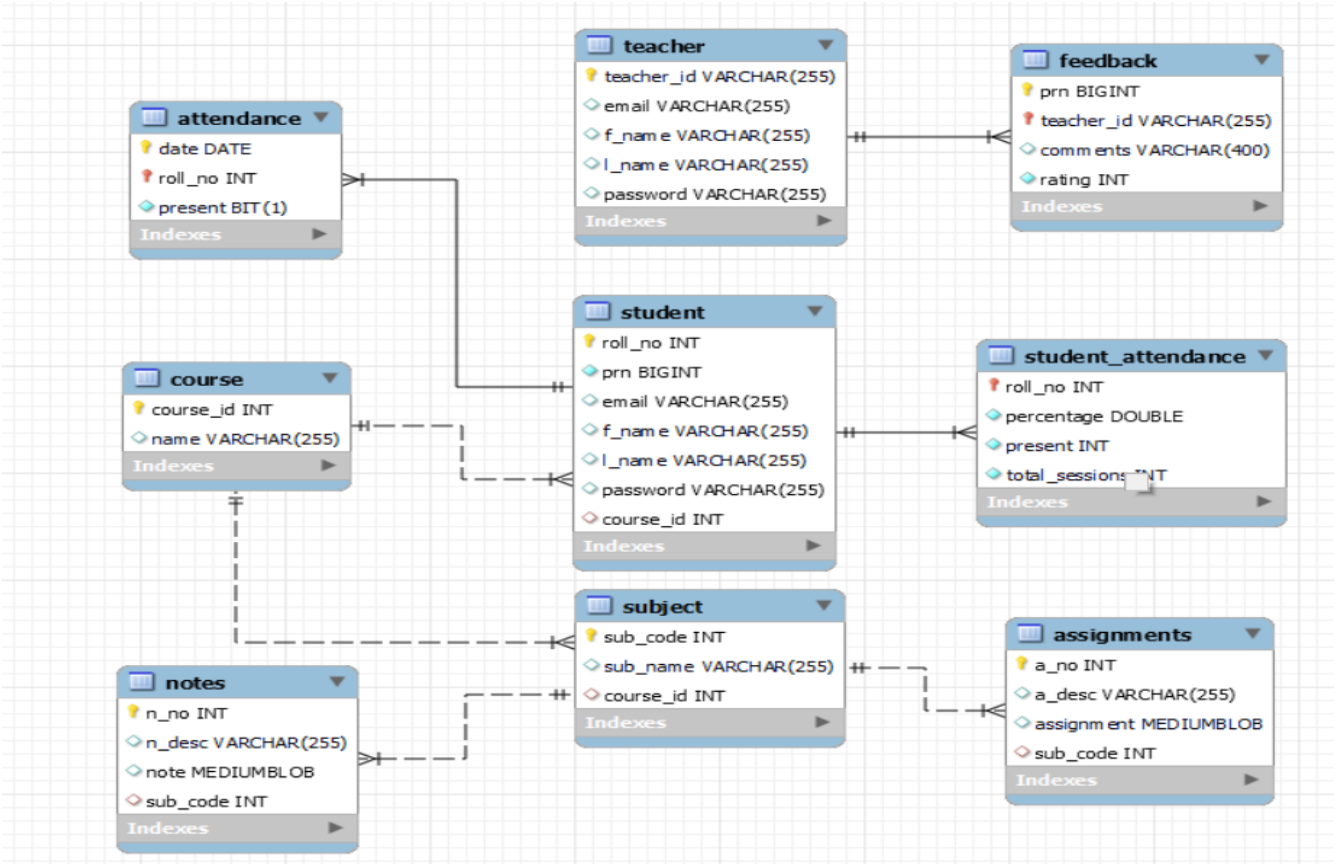
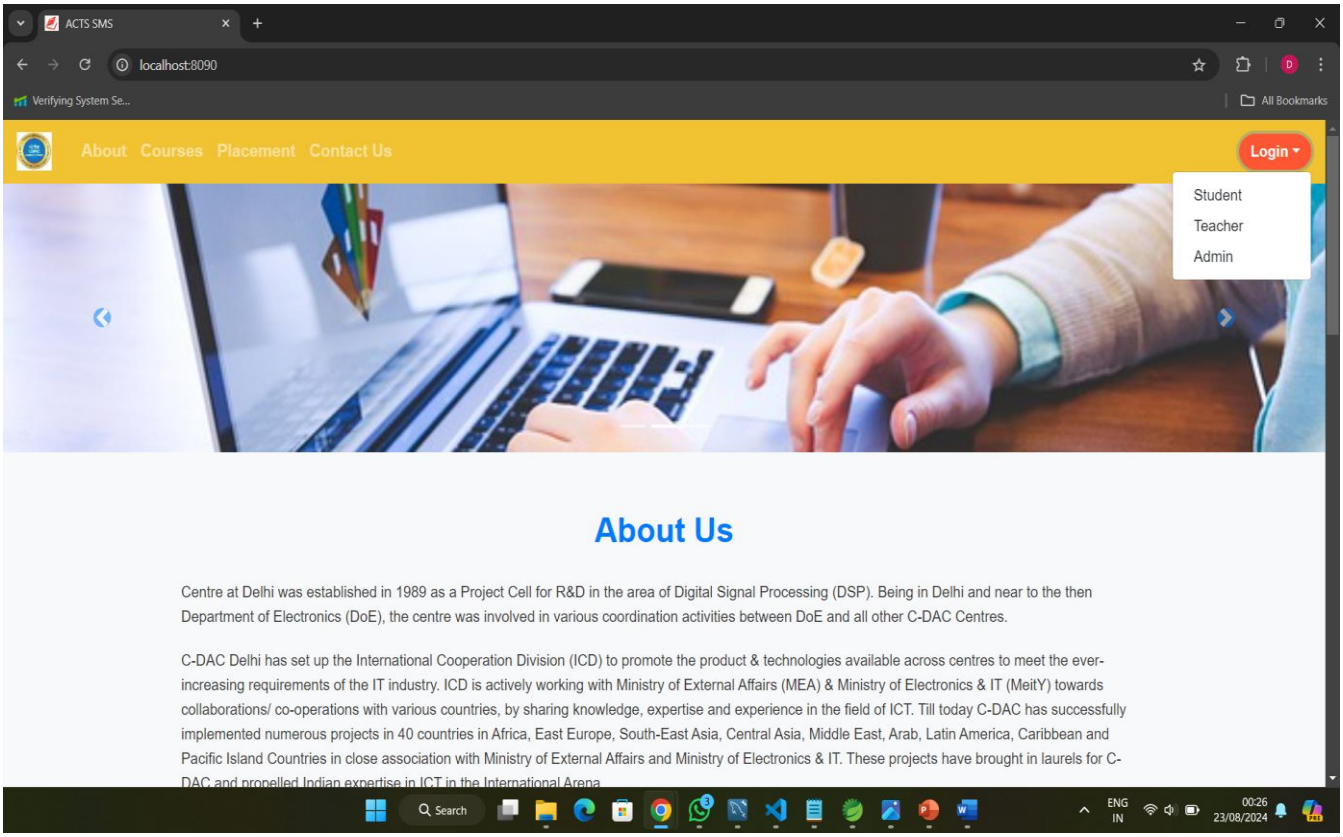


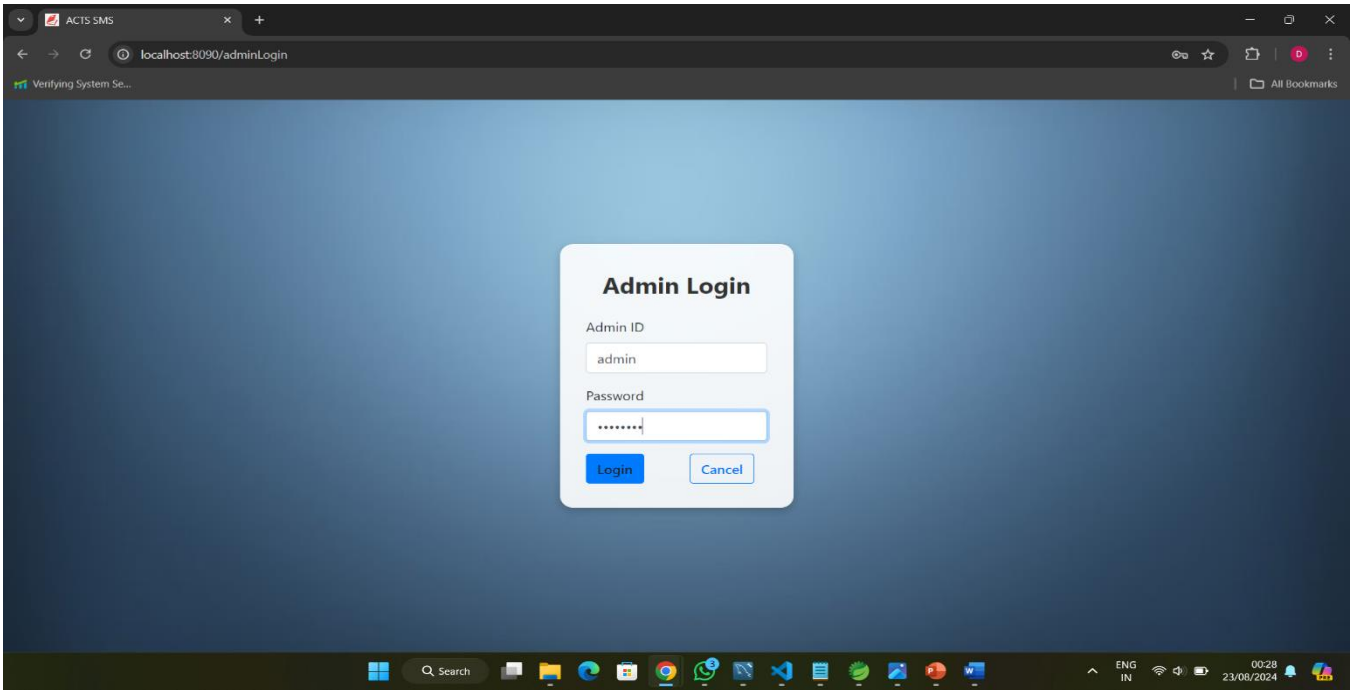
Figure 3. ER Diagram

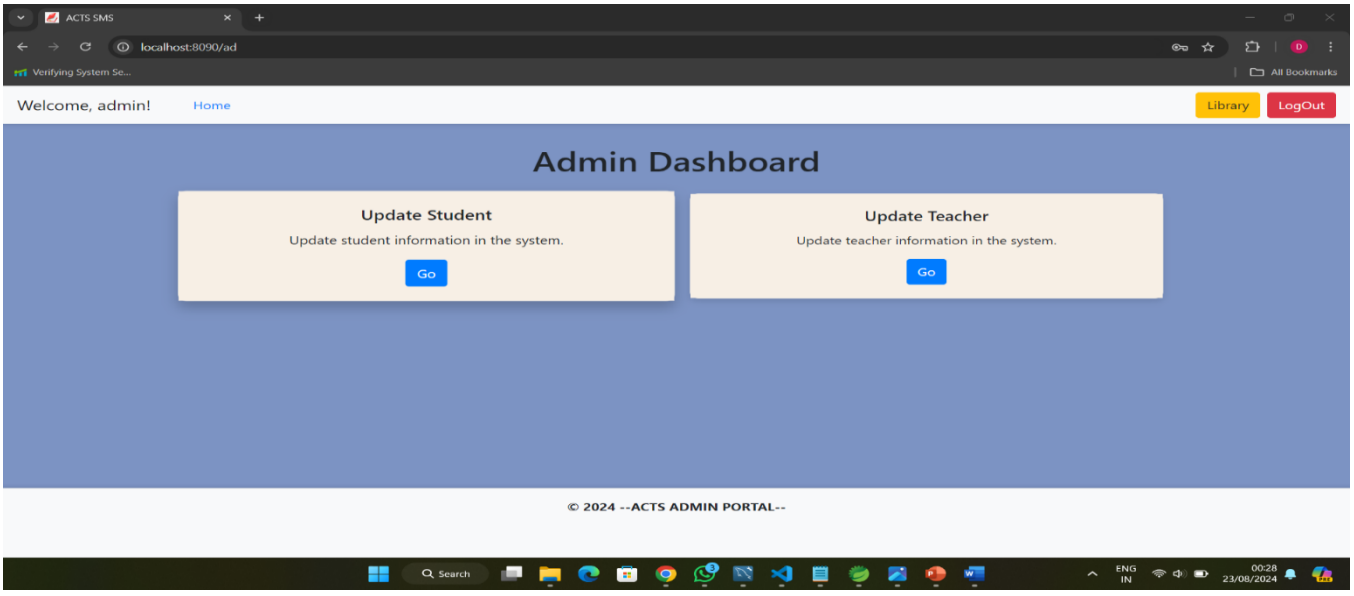
8. RESULT ANALYSIS:

- **Index page:**

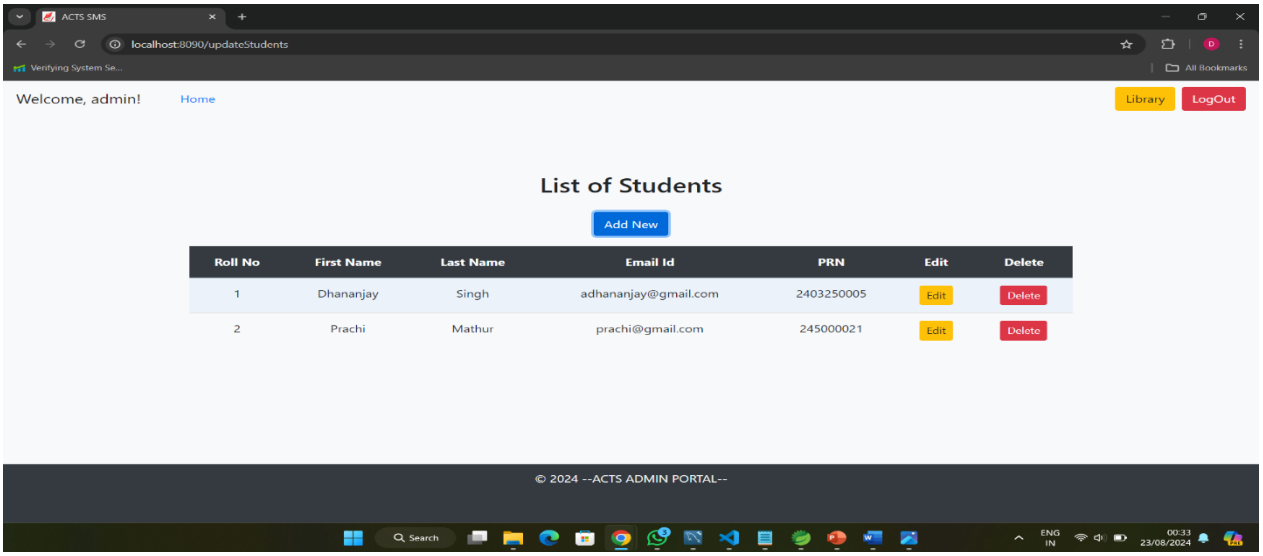


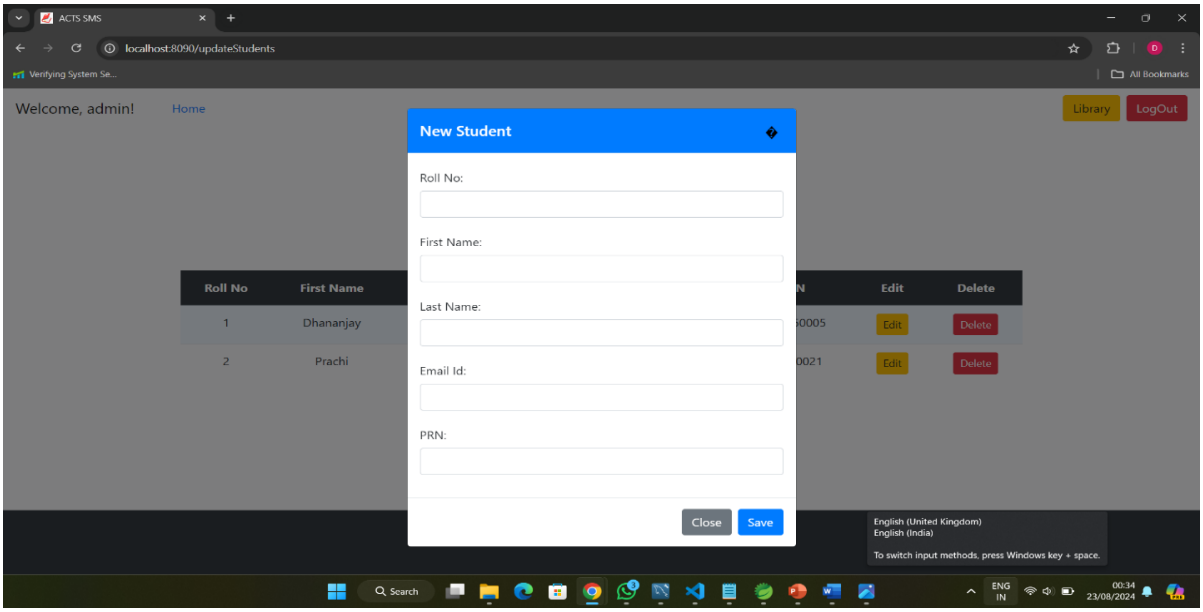
- **Admin Login And dashboard:**

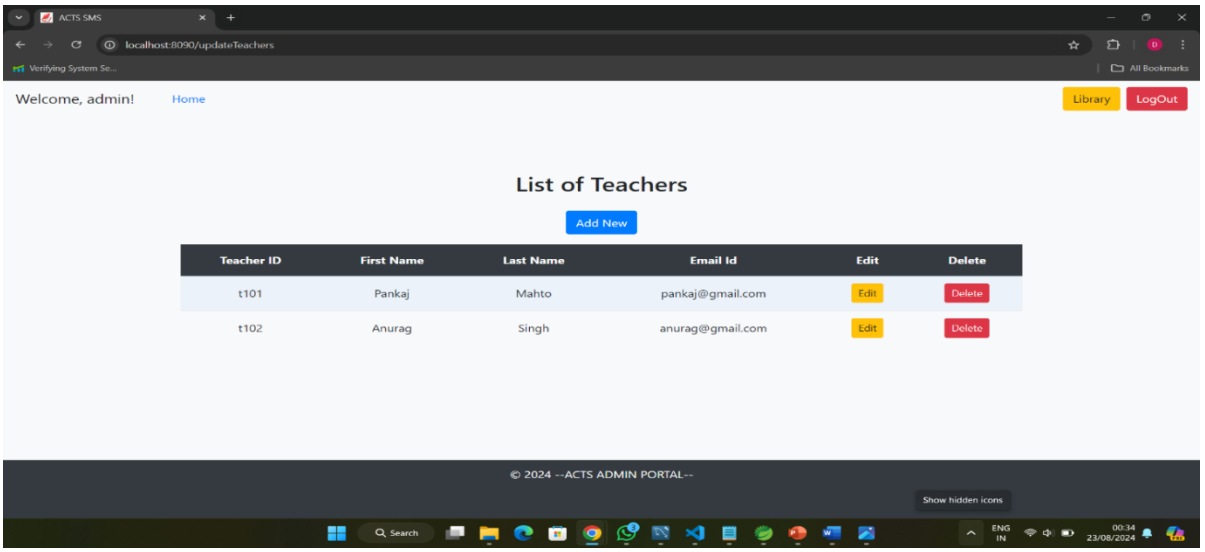


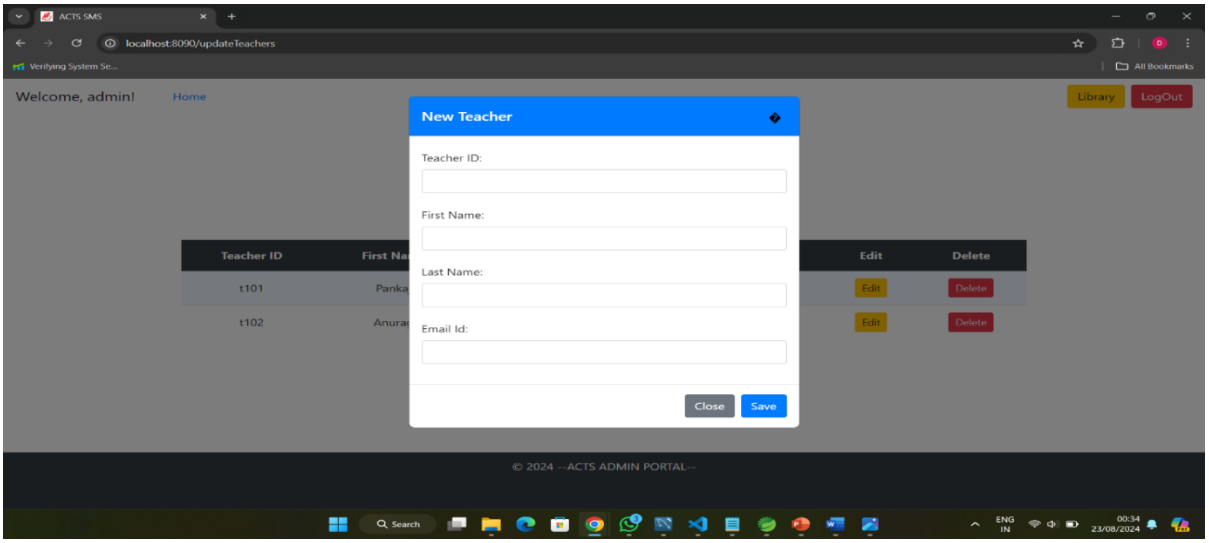


- **Admin Options:**

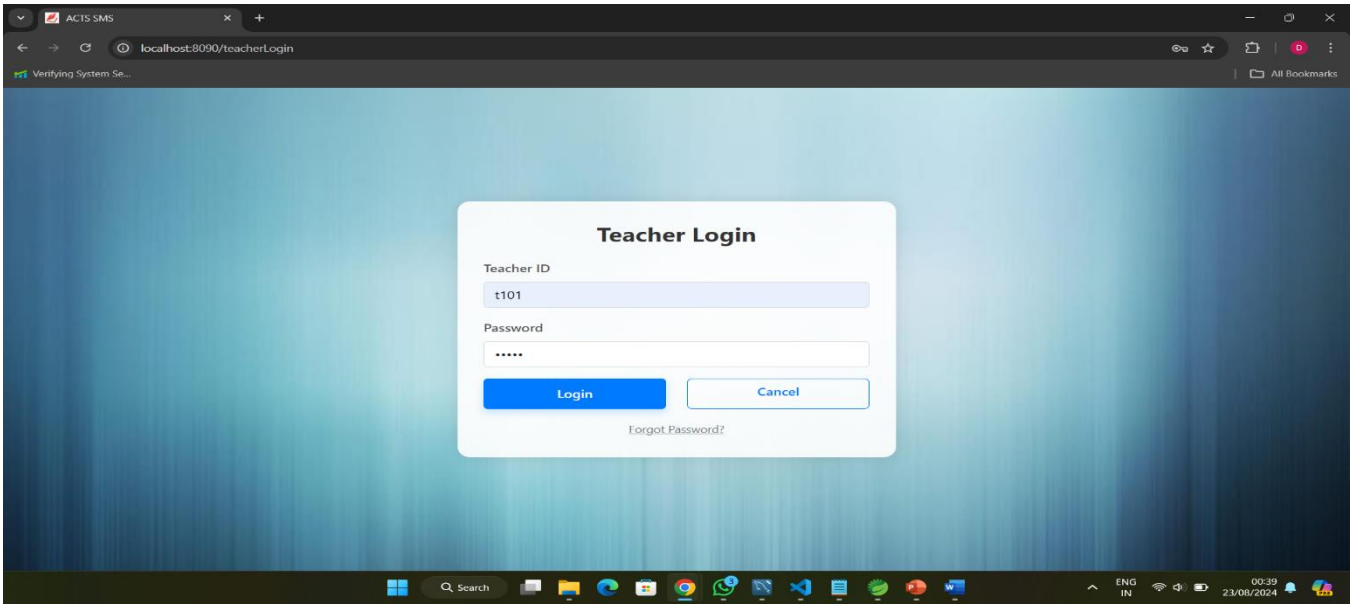


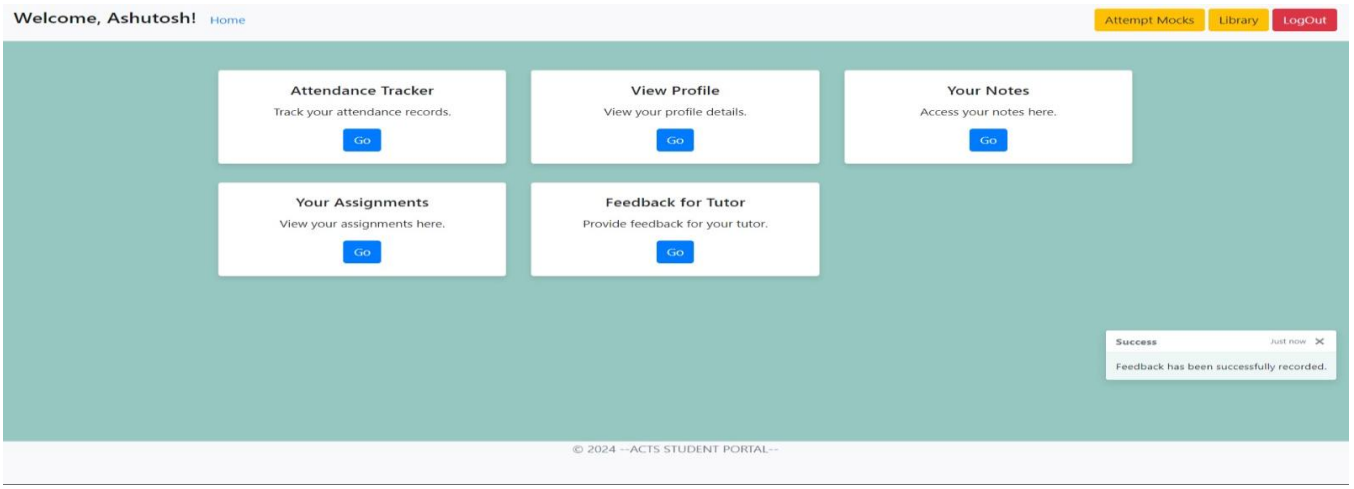


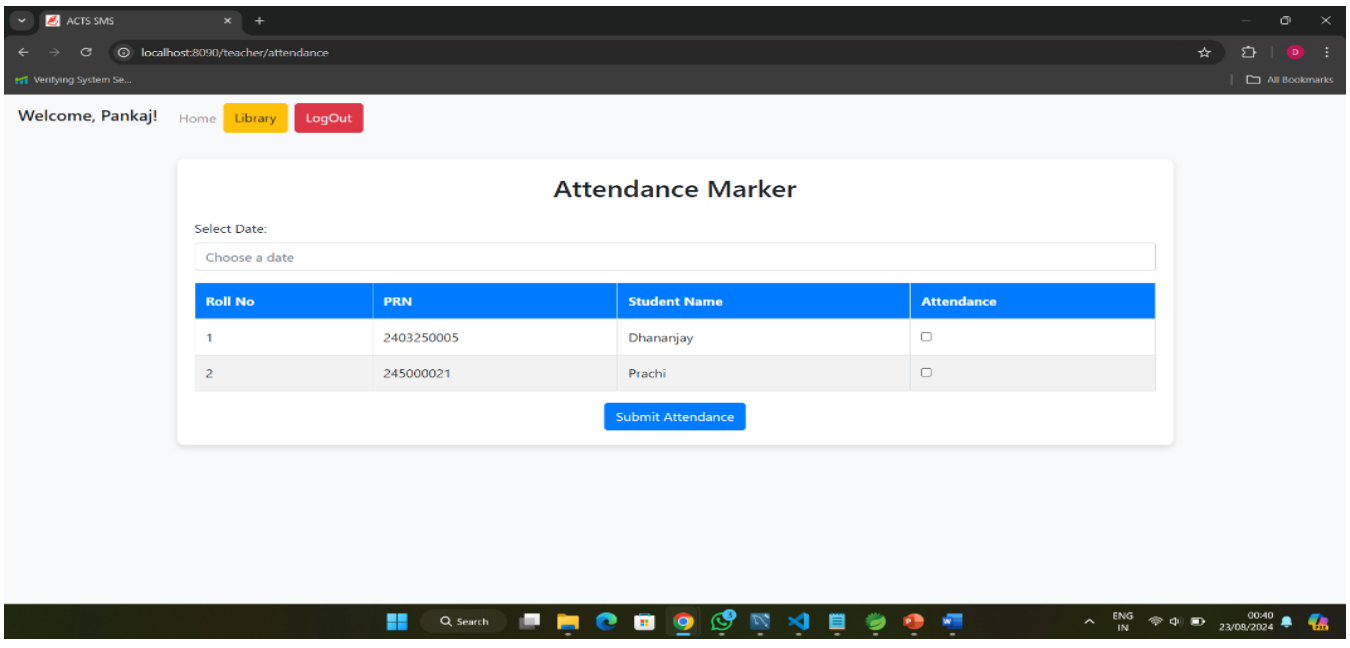

ACTS SMS
localhost:8090/updateTeachers
Welcome, admin!
Home
Library
LogOut
List of Teachers
Add New
Teacher ID
First Name
Last Name
Email Id
Edit
Delete
t101
Pankaj
Mahto
pankaj@gmail.com
t102
Anurag
Singh
anurag@gmail.com
© 2024 --ACTS ADMIN PORTAL--


ACTS SMS
localhost:8090/updateTeachers
Welcome, admin!
Home
Library
LogOut
New Teacher
Teacher ID:
First Name:
Last Name:
Email Id:
Close
Save
© 2024 --ACTS ADMIN PORTAL--

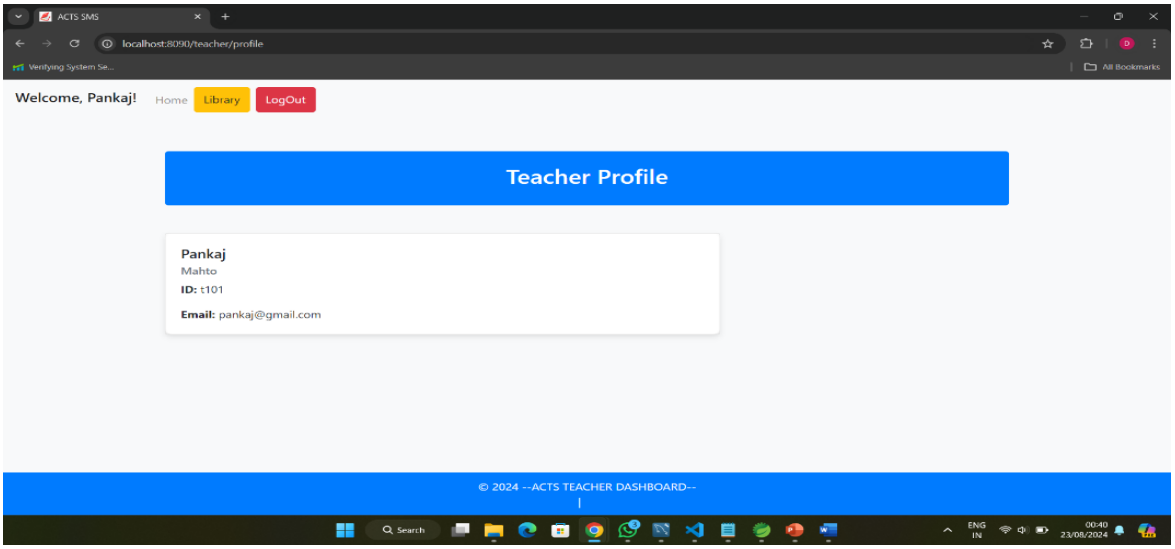
- **Teacher Login and Dashboard:**

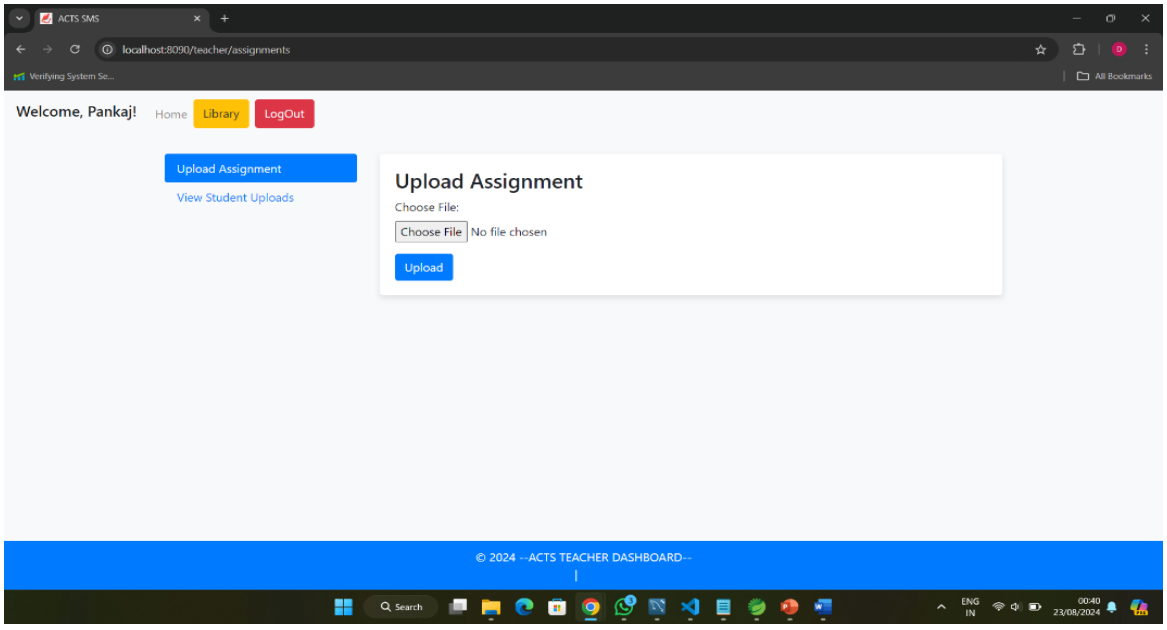


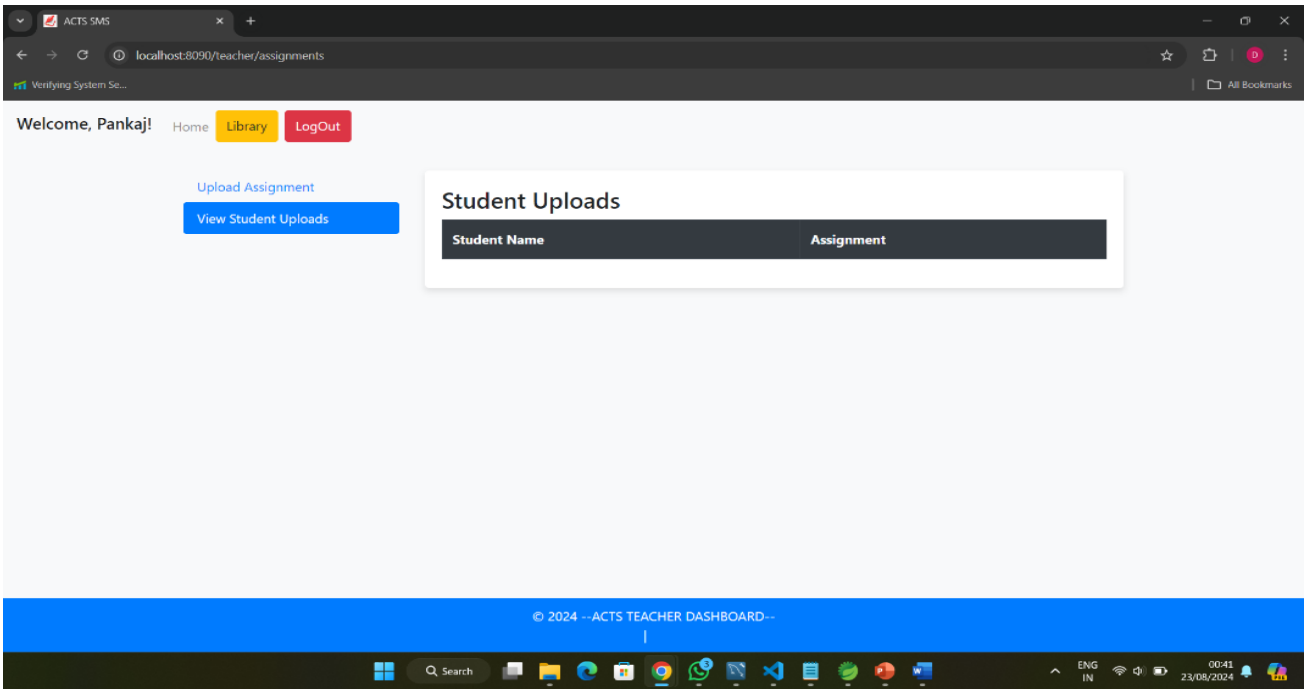


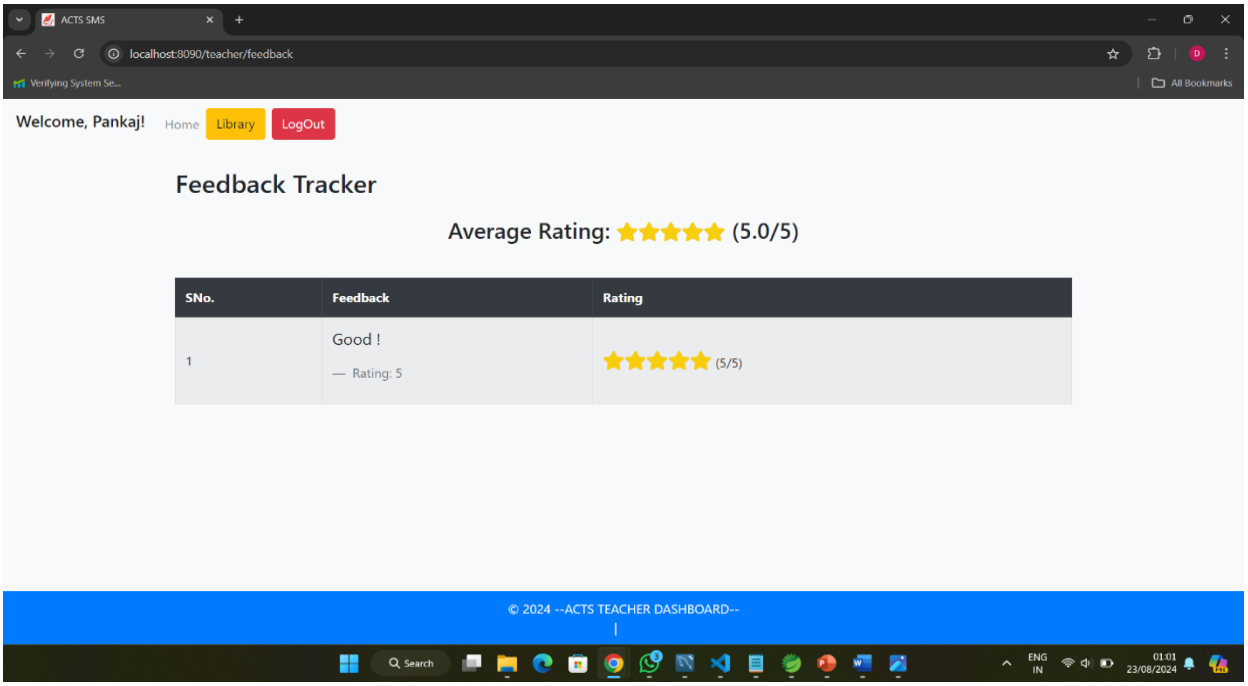


- **Teacher Options:**

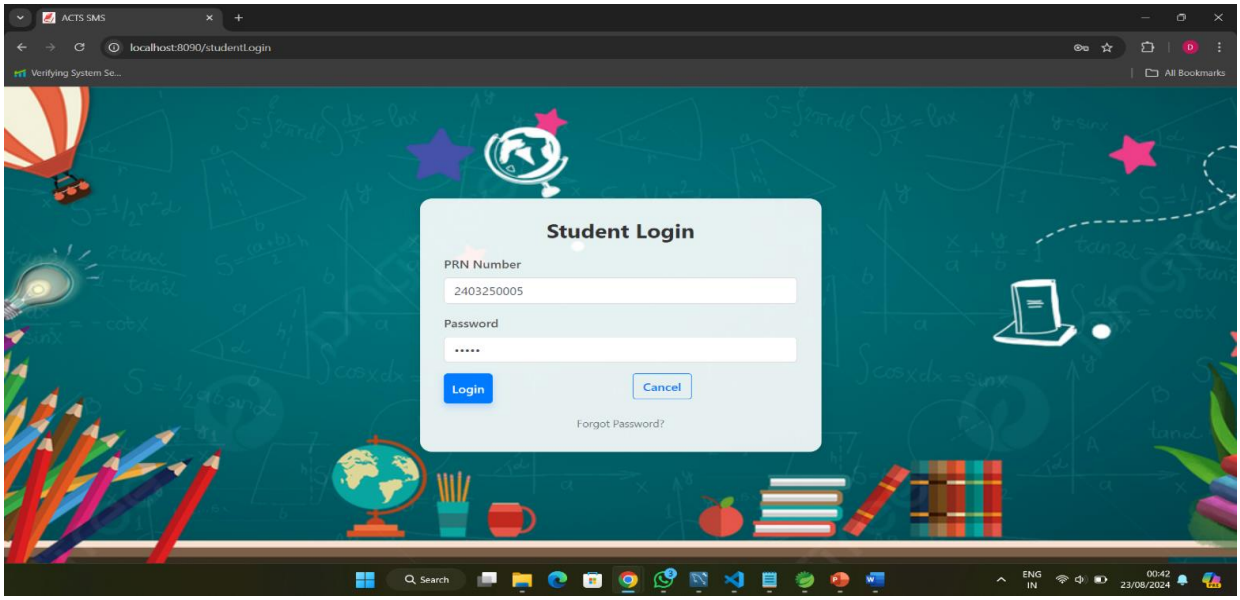


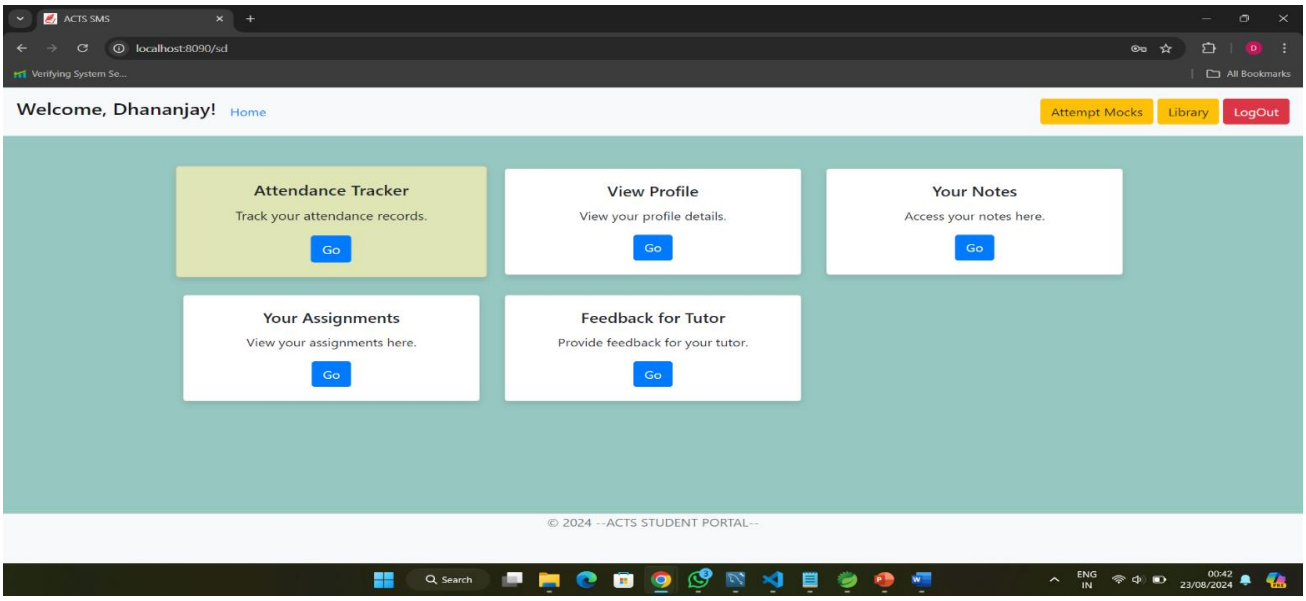



ACTS SMS
localhost:8090/teacher/assignments
Welcome, Pankaj!
Home
Library
LogOut
Upload Assignment
View Student Uploads
Student Uploads
Student Name
Assignment
© 2024 --ACTS TEACHER DASHBOARD--

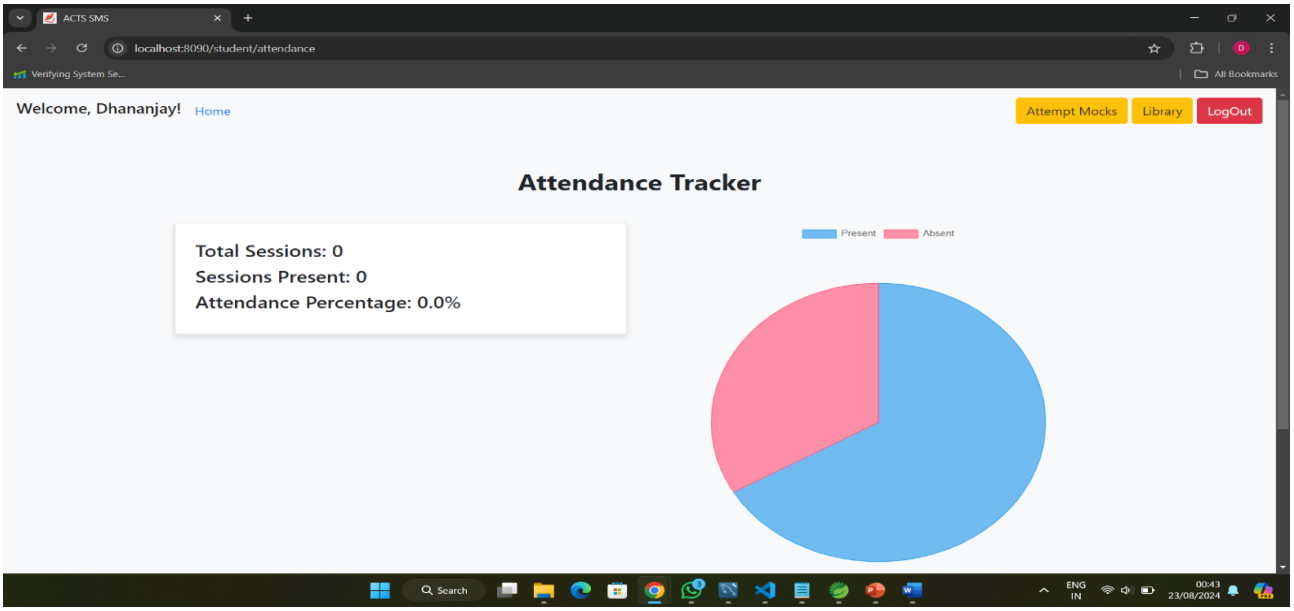

ACTS SMS
localhost:8090/teacher/feedback
Welcome, Pankaj!
Home
Library
LogOut
Feedback Tracker
Average Rating: (5.0/5)
SNo.
Feedback
Rating
1
Good !
— Rating: 5
(5/5)
© 2024 --ACTS TEACHER DASHBOARD--

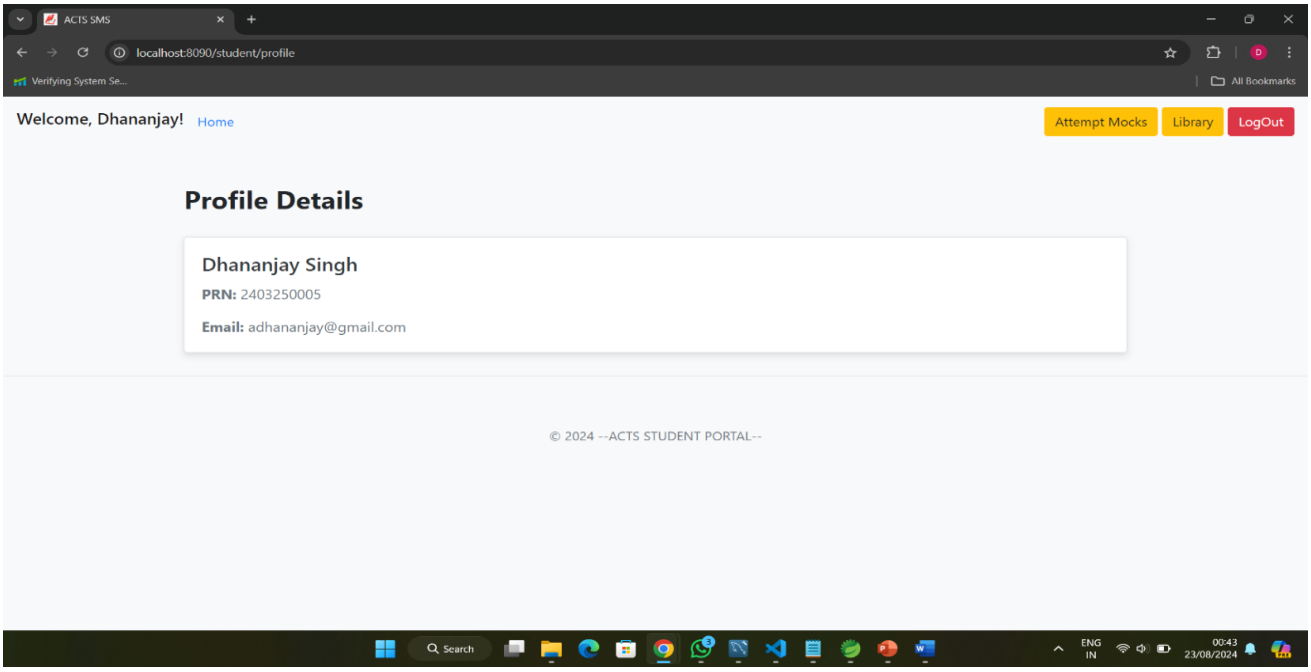
- **Student Login and dashboard:**

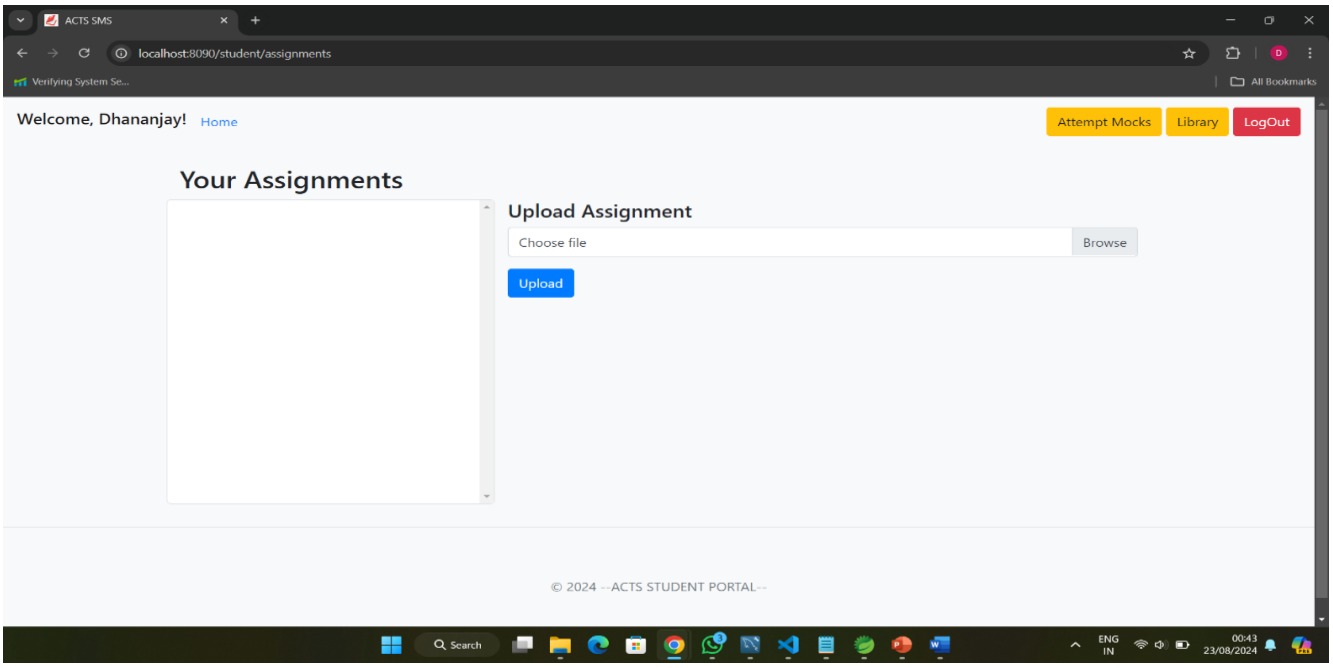


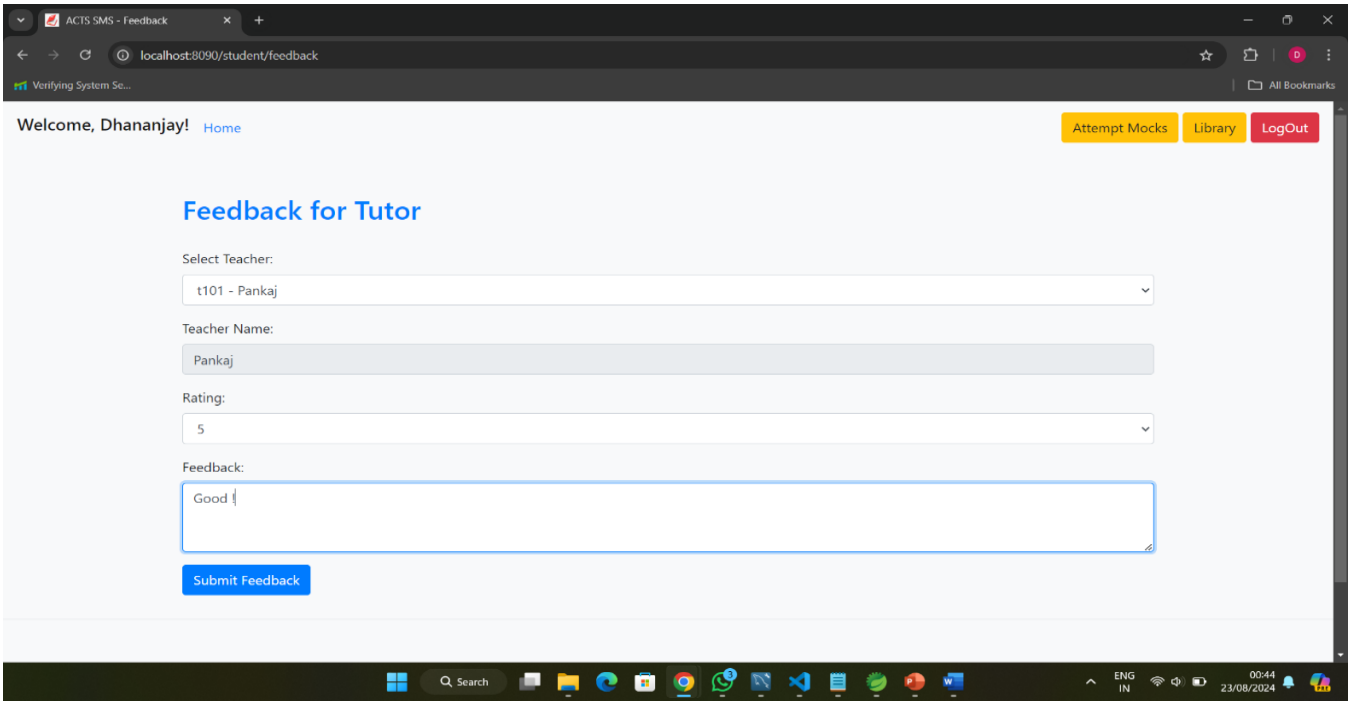


- **Student Options:**






ACTS SMS
localhost:8090/student/assignments
Welcome, Dhananjay!
Home
Attempt Mocks
Library
LogOut
Your Assignments
Upload Assignment
Choose file
Browse
Upload
© 2024 --ACTS STUDENT PORTAL--


ACTS SMS - Feedback
localhost:8090/student/feedback
Welcome, Dhananjay!
Home
Attempt Mocks
Library
LogOut
Feedback for Tutor
Select Teacher:
t101 - Pankaj
Teacher Name:
Pankaj
Rating:
5
Feedback:
Good !
Submit Feedback

9. FEATURES IN FUTURE:

- **Resource Sharing:** Enable targeted sharing and submission of resources by students.
- **Library Portal:** Integrate a portal to provide real-time information on book availability for students.
- **Mock Tests:** Implement customizable mock tests for exam preparation, allowing dynamic creation by students.
- **Mobile Access:** Developing a mobile app version of ACTS SMS would increase accessibility for students and teachers, allowing them to interact with the system on the go. This would be particularly beneficial for quick updates, attendance marking, and accessing study materials.
- **Advanced Analytics and Reporting:** Implementing advanced analytics tools could provide deeper insights into student performance, attendance trends, and feedback patterns. This data could be used to identify areas of improvement and support data-driven decision-making by administrators and faculty.
- **Gamification of Learning:** Adding gamification elements, such as badges, leaderboards, and achievement tracking, could motivate students to engage more actively with their studies and the platform. This could enhance student participation and overall academic performance.
- **Enhanced Security Features:** Future iterations could include more sophisticated security measures, such as two-factor authentication (2FA) and biometric login, to ensure the protection of sensitive data and prevent unauthorized access.

10. CONCLUSION:

- The role Specific Dashboards are the key of this platform. And we had vision of solving the problems that usually student administration faces.
- We designed the simple user interface and management of sessions.
- Finally, system is implemented and tested accordingly to the test cases.
- This Project provided us with nuances of project development, and what actually goes into the planning and successive versioning of the application.

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- https://www.thymeleaf.org/
- https://www.youtube.com/@KindsonTheTechPro
- https://www.w3schools.com/css/
- https://docs.oracle.com/javase/8/docs/api/