PONDICHERRY UNIVERSITY

(*A Central University*)

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SEMESTER : 4TH

SUBJECT : MAIN PROJECT REPORT

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Project Report: PU Student Sphere

1. Abstract

PU Student Sphere is a next-generation classroom management application designed to enhance online learning by providing more flexible and interactive features. The platform aims to provide an enhanced learning experience by integrating better course management, assignment handling, and student-teacher interaction. The project leverages the MERN stack for the backend and React Native with Expo Router for the mobile application. The objective is to create a seamless and efficient educational ecosystem that overcomes the limitations of existing platforms.

2. Existing System

Many existing online learning platforms offer course management, assignment submissions, and student-teacher communication, but they often have limitations in flexibility and customization. While it offers essential functionalities, several limitations exist, including limited customization, lack of personalized course management, and a rigid structure that does not cater to diverse learning requirements. Additionally, students and teachers often face difficulties in managing course registrations and tracking assignments effectively.

3. Proposed System

PU Student Sphere is designed to address these limitations by introducing an intuitive, user-friendly interface and additional functionalities such as:

- Course Registration System: Students can register for courses, and teachers can approve or reject requests.

- Assignment Management: Students can submit assignments directly, and teachers can review and grade them.
- Attendance Tracking: Teachers can mark attendance digitally, reducing manual effort.
- Enhanced Communication & Scheduling: Integrated messaging, notifications for real-time updates, options for virtual classroom links via Zoom or Google Meet, and a scheduling system to organize and manage virtual sessions efficiently.
- Personalized Dashboard: A structured dashboard for both students and teachers to view important updates efficiently.

4. System Architecture

- Frontend: React Native (Expo) for a cross-platform mobile experience.
- Backend: Node.js with Express.js for API handling.
- Database: MongoDB for storing user data, courses, and assignments.
- Navigation: Expo Router for structured routing.
- Authentication: Basic authentication without JWT for now, with user roles (teacher/student).

5. Implementation Plan

- Phase 1: Authentication & User Roles (Completed)
- Phase 2: Course Management & Registration (In Progress)
- Phase 3: Assignments & Submissions (Planned)
- Phase 4: Attendance & Notifications (Planned)
- Phase 5: Final Testing & Deployment (Planned)

6. Challenges & Future Enhancements While PU Student Sphere aims to provide a seamless learning experience, certain challenges may arise during development, such as ensuring scalability, optimizing performance for large user bases, and enhancing security features. Future updates may include AI-powered insights for student progress tracking, multilingual support, and deeper integrations with third-party learning tools. While PU Student Sphere aims to provide a seamless learning experience, certain challenges may arise during development, such as ensuring scalability, optimizing performance for large user bases, and enhancing security features. Future updates may include AI-powered insights for student progress tracking, multilingual support, and deeper integrations with third-party learning tools

7. Development Progress & Achievements

The development of PU Student Sphere is progressing steadily. The following milestones have been achieved:

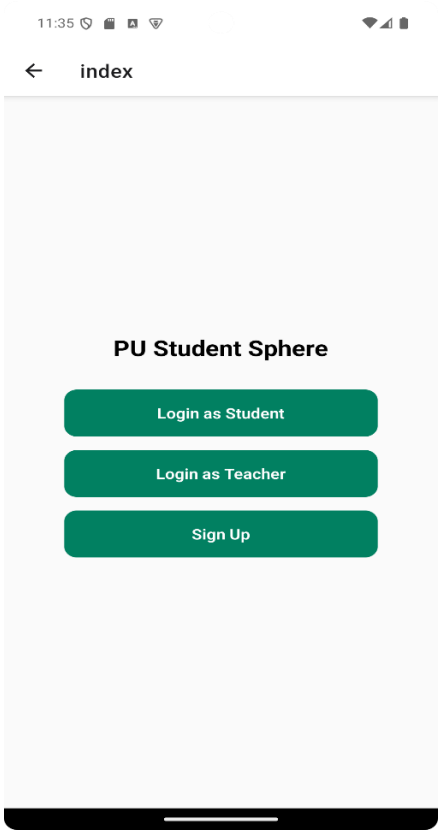
- Authentication & User Roles: Implemented basic authentication and user roles for students and teachers.
- Course Management & Registration: Backend API and frontend UI for course creation and student registration are in progress.
- Initial UI Design: The main dashboard, navigation system, and basic UI components have been created.
- Backend Setup: The MERN stack backend is fully configured with Express, MongoDB, and API endpoints.

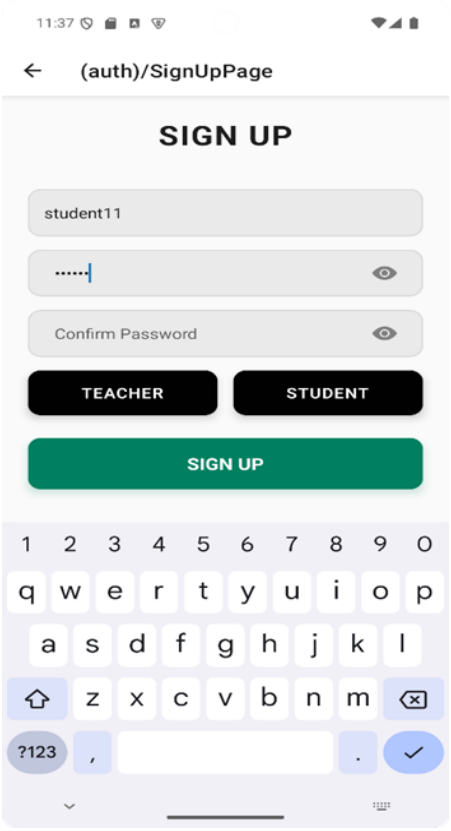
8. Project Demonstration & Visuals

Below are screenshots of the current implementation, showcasing the login screen, dashboard, and course management features:

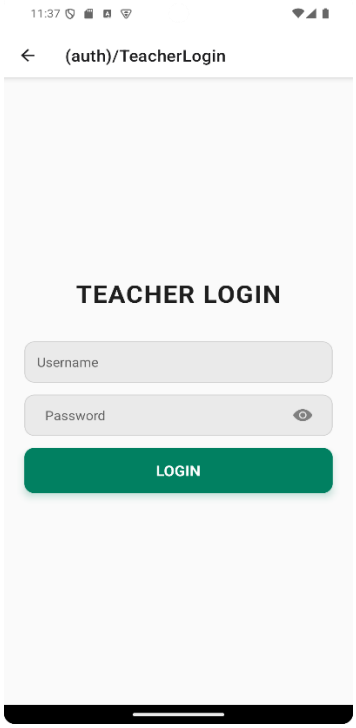
Screenshots:

A. Login Selection Page -login and signup page

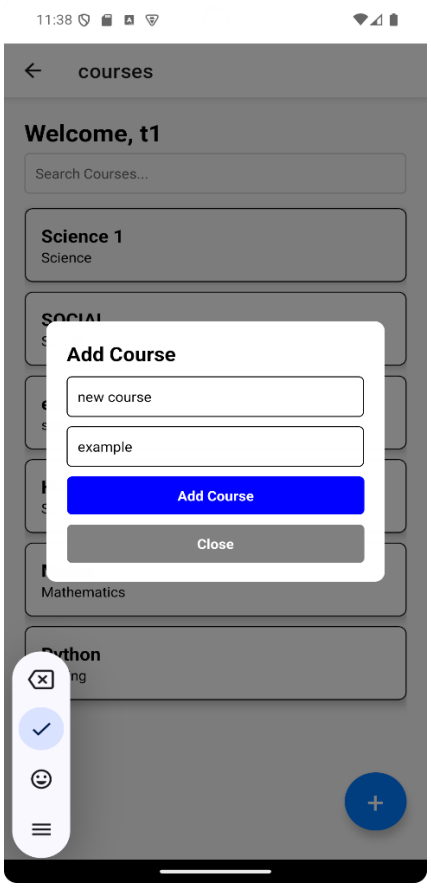


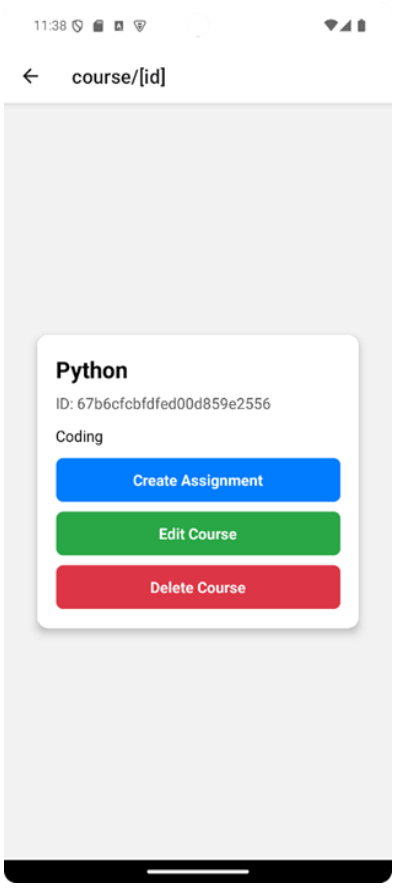


B. Teacher Login Page - Secure login interface for teachers.

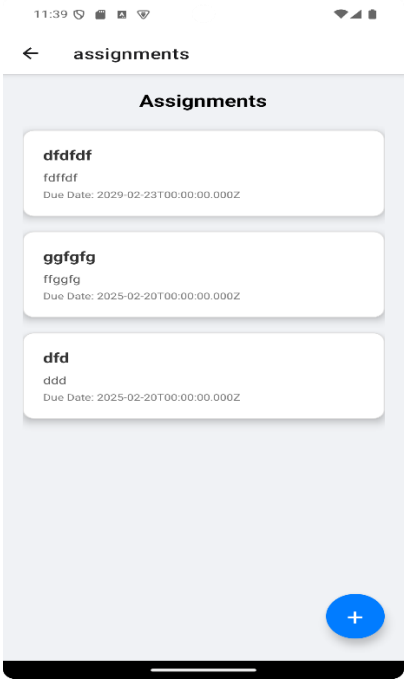


C. Add Course Modal and course edit modal

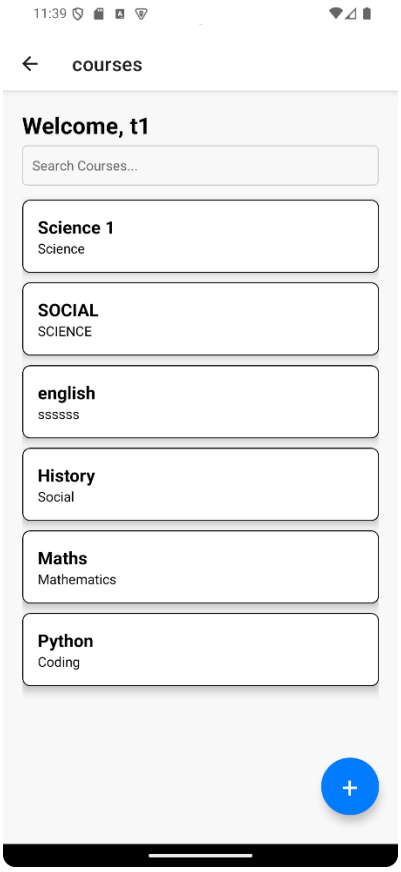




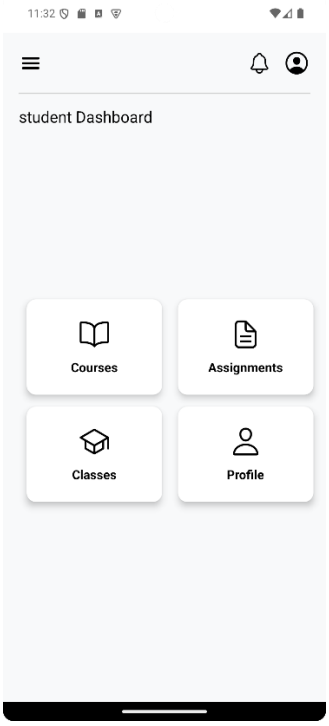
D. Assignment Section - Displays assignments created by the teacher.

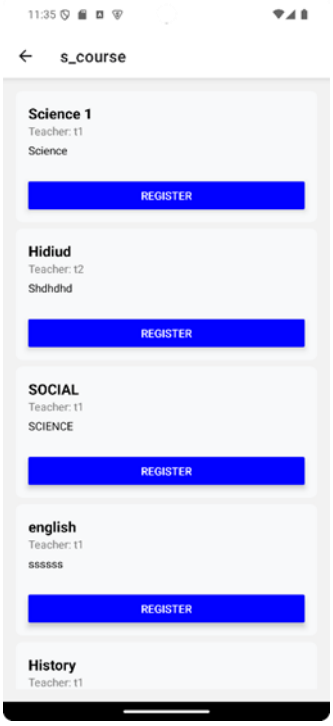


E. Course List Page - Shows all courses managed by the teacher.

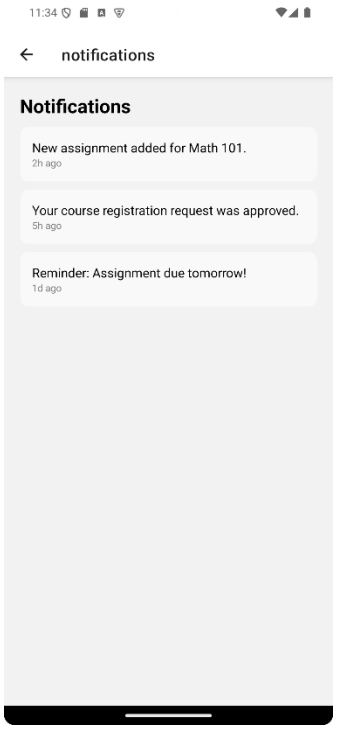


F. Student Dashboard





G. Notification Screen - Displays important alerts and updates.



9. Conclusion

PU Student Sphere is an innovative step toward modernizing classroom management systems. By improving upon the standard online learning features, PU Student Sphere provides a more comprehensive and user-friendly approach to digital education. The project's development will continue to refine and expand functionalities, ensuring a robust solution for academic institutions.