BANNARI AMMAN INSTITUTE OF TECHNOLOGY

Stay Ahead

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SOFTWARE REQUIREMENT SPECIFICATION FOR BIT TRANSPORTATION

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Seat no	419
Project ID	19
Problem Statement	TRANSPORT

PROBLEM STATEMENT:

Develop a web for managing bus seating for day-scholar students, including registration, seat allocation, attendance recording, and communication of route and timing changes via email/SMS.

1. Student Registration: Allow the students to register for their transportation in starting of each semester by getting the necessary details for contacting them and for identification.
2. Seat Allocation: Implement a system to allocate seats to students for the duration of The semester by considering the rules and regulations.
3. Attendance Recording: Enable the website to record student attendance during bus journeys, providing administrators with accurate attendance data.
4. Notifications: Develop a system for automating the process of sending email/SMS to students regarding their seat allocation, bus registration and bus timings.
5. Managing the combination of Routes: Develop a system to manage the seat allocation when the

bus routes are combined and ensuring that the students receive the SMS/email regarding the changes in the seat allocation and changes in the bus.

TECHNICAL COMPONENTS:

Components	Tech Stack
Frontend	HTML, CSS, JavaScript
Backend	Python, Django
Database	PostgreSQL
API	RESTful API, SOAP API

1. INTRODUCTION

1.1. PURPOSE:

The purpose of this project is to develop a web or website for bus seating management for day scholar students, aiming to streamline the process of bus registration, seat allocation, attendance tracking, and communication of updates to students via email/SMS. This project will provide a convenient and efficient solution for managing bus services and ensuring smooth transportation.

1.2. SCOPE OF PROJECT:

The scope of the project includes designing and developing a website that xallows day scholar students to register for bus services, allocate specific seats throughout semester, mark attendance, and receive notifications via email/SMS regarding seat allocations and changes in the bus routes or timings. This will provide a comprehensive solution for bus seating management

and communication with students, enhancing overall efficiency and convenience of bus transportation system.

2. SYSTEM OVERVIEW:

2.1. USERS:

1. STUDENTS:

The bus seating management website will allow student users to register for bus services throughout the semester and receive notifications. It will provide a user-friendly interface for students to manage their bus preferences and stay informed about seat allocations and updates through email/SMS.

2. FACULTY:

The faculty members have the access to the bus management web Application. They can view students seating information, including assigned seats and bus routes. They can monitor and register the student's attendance. They receive the notifications about the bus route and timing updates which will allow the faculty to effectively coordinate with students and ensure a smooth transportation.

3. ADMINS:

The admin in the bus seating management web will have access to a dashboard for managing buses, student attendance and various other notifications and information. They can monitor and update system settings handle user registrations and send important notifications and ensure the smooth functioning and security of website.

2.2. FEATURES:

1. LOGIN AND REGISTRATION:

Students can register for an account or login with their existing account

2. BUS REGISTRATION:

Enable students to register for bus services at the start of the semester. Collect necessary information such as preferred bus route.

3. SEAT ALLOCATION:

Automatic allocation of seats to students based on the predefined rules.

4. ATTENDANCE TRACKING:

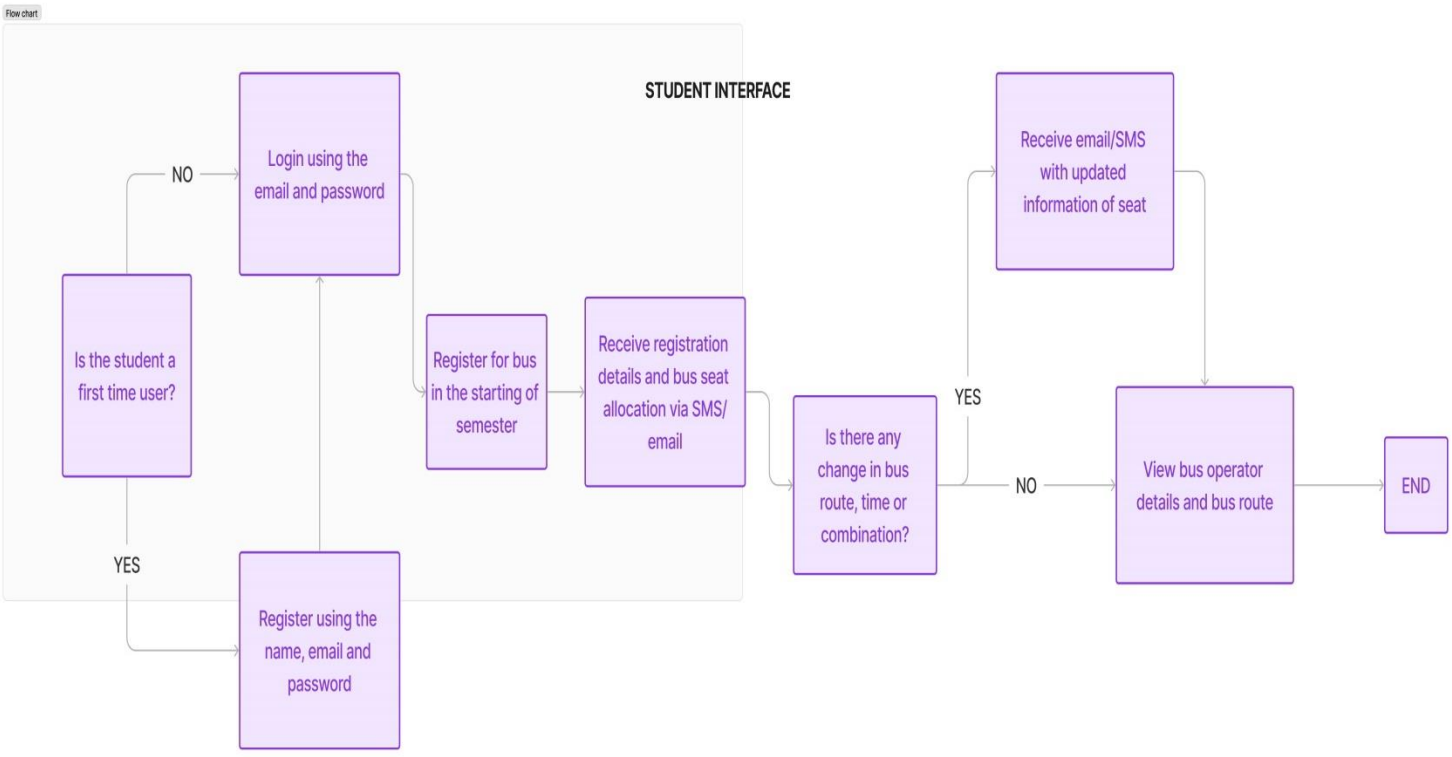
Provide a feature for admin to mark student attendance in the website. Track the student's attendance to monitor the bus utilization.

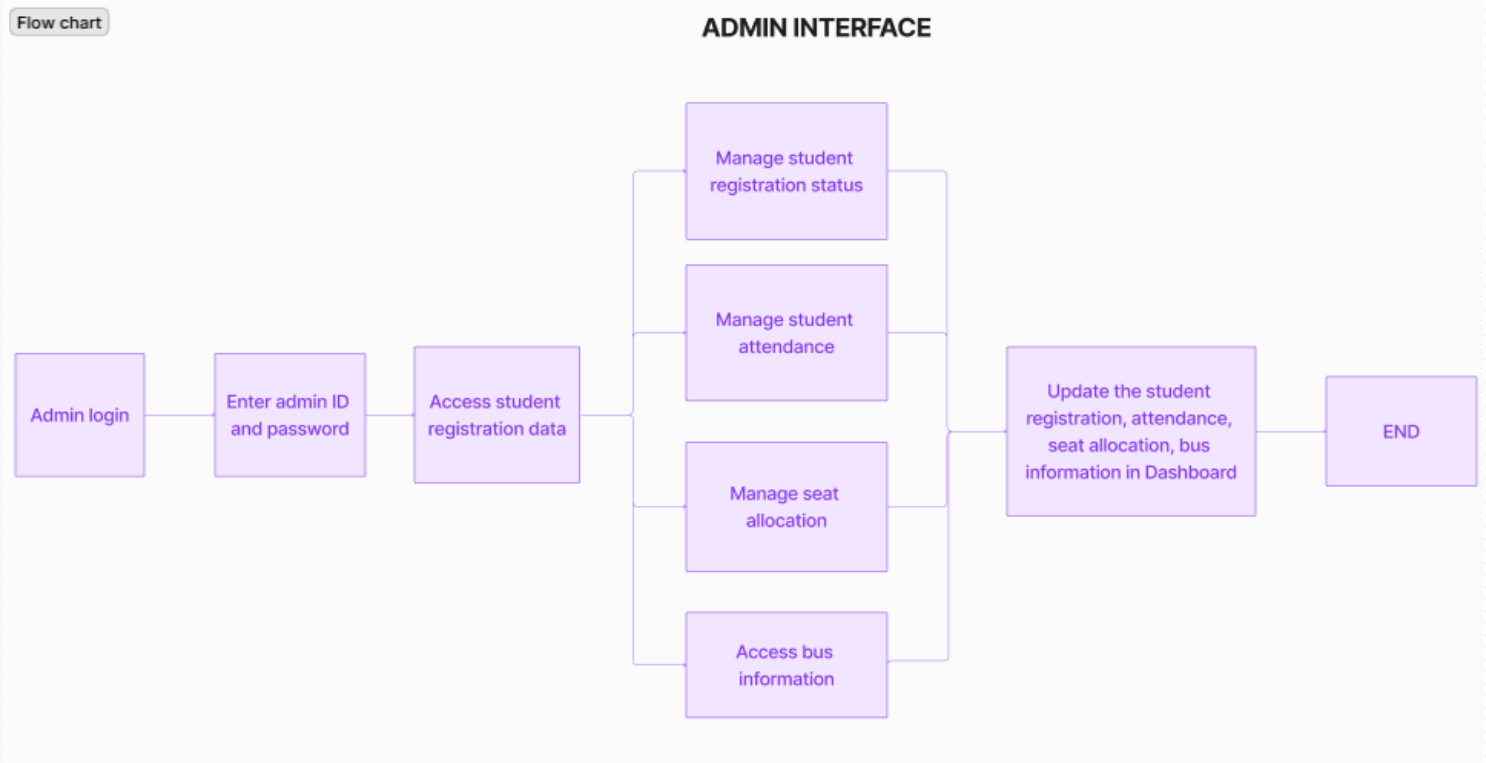
5. NOTIFICATIONS:

Integrate email/SMS services to send notifications to students. Notify students about their seat allocations, changes in bus routes or timing and other relevant updates.

6. ADMIN'S DASHBOARD:

Provide an admin dashboard with comprehensive functionalities to manage bus, seat, student's attendance, notifications and system settings.





3.1 FUNCTIONAL REQUIREMENTS:

1. **USER REGISTRATION:**
   students sign up with name, id, and contact info. Check info for accuracy and prevent duplicates.

2. **BUS REGISTRATION:**
   Show bus routes and times. Students pick route and time, ensuring availability.

3. **SEAT BOOKING:**
   Book seats for the semester. Choose seats without double booking.

4. **ATTENDANCE TRACKING:**
   Admin marks attendance online. Record date and time. Keep attendance records.

5. **COMMUNICATION (EMAIL/SMS):**
   Send emails/SMS for registration, seat allocation, route changes, and timing updates.

6. **BUS ROUTE AND TIME UPDATES:**
   Admin updates routes and times. Notify students via email/SMS. Update database.

7. **SEAT ALLOCATION NOTIFICATION:**
   Auto notifications for route or seat changes. Include seat details. Ensure timely delivery.

3.2. NON-FUNCTIONAL REQUIREMENTS:

1. **PERFORMANCE:**
   Quick response times, even with many users.
   No slowdowns or crashes during peak times.

2. **USABILITY:**
   Easy-to-use interface for all users.
   Clear instructions and guidance for every function.

3. **RELIABILITY:**
   Available during registration periods.
   Error handling and data integrity ensured. Regular backups for data safety.

4. **SECURITY:**
   Secure authentication and data encryption.
   Compliance with data protection laws.

5. **SCALABILITY:**
   Can handle more users and data as it grows.
   Infrastructure scales with increased traffic.

6. **INTEGRATION:**
   Works with email, SMS gateways, and student databases.

7. **MAINTAINABILITY:**
   Modular code for easy updates and fixes.
   Documentation for future maintenance.

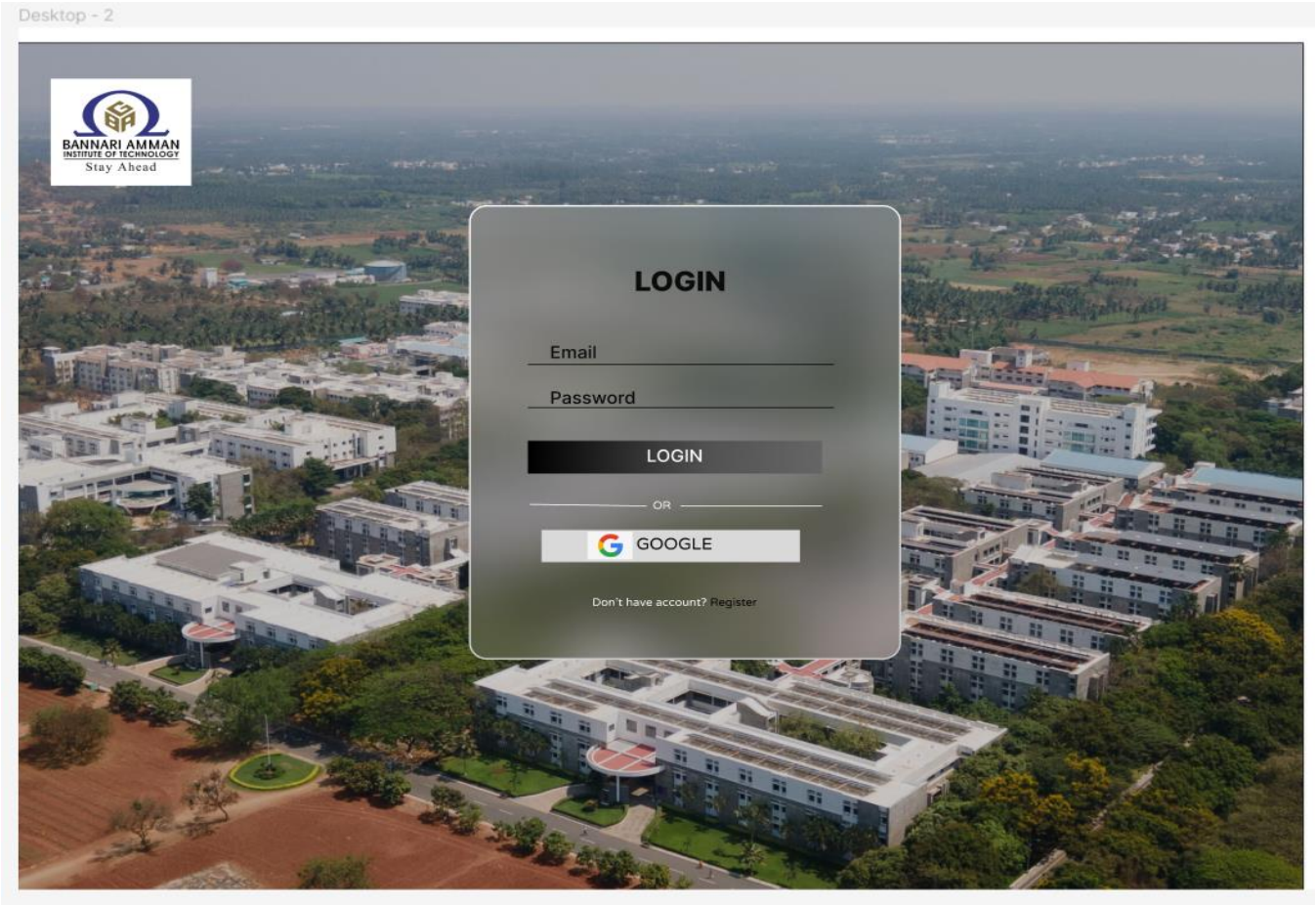
8. **COMPATIBILITY:**
   Works on different devices and screen sizes.

9. **PERFORMANCE MONITORING:**
   Tracks system performance and identifies issues.

10. **COMPLIANCE:**
    Follows all relevant laws and standards.

DESIGN:

LOGIN PAGE: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