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

STUDENT NAME: SUMALESH K A

PROJECT ID: 19

PROJECT TITTLE: BUS SEATING MANAGEMENT PORTAL

Technical Components

Component	Tech Stack
Backend	Python Django
Frontend	HTML, CSS, JS
Database	MYSQL
API	REST Ful API, OPEN API

Implementation Timeline

Phase	Deadline	Status	Notes
Stage 1	02/05/2024	Completed	Planning and Requirement gathering
Stage 2		Not started	Design and Prototyping
Stage 3		Not started	DB Designing
Stage 4		Not started	Backend Implementation
Stage 5		Not started	Testing & Implementation

1. PROBLEM STATEMENT:

The purpose of this project is to create an online seat registration for the Bus Seating Management Portal. This system aims to optimize bus operations by automating processes like seat reservations, allocating seats to students, tracking daily attendance, facilitating communication regarding bus details and seat assignments, and notifying students of any changes in bus routes The objective is to enhance the efficiency, transparency, and effectiveness of managing seating arrangements and operations within the bus transportation system for day scholar student

2. SCOPE OF THE PROJECT:

This project acts an effective approach in seat management and communication for the students. As move to the project, the students can register their seats by choosing their route, can view their attendance and has an effective communication regarding the bus number and seats through email and also the rapid communication if there is change in bus for the concern route through email authentication. As the faculty need to play a main role in the student's attendance on daily basic. The admin has the major part in bus allocation.

3. CONSIDERATION:

- All users possess active Google accounts for authentication.
- Users have regular access to internet-enabled devices.

4. DEPENDENCIES:

- Integration with Google OAuth for user authentication.
- Consistent performance and availability of the Bus Details.

5. USER PERSONAS:

- **Student:** Registers for their bus for the current semester.
- **Faculty:** Logs the daily attendance for the students and other faculty, and also registers for their bus.
- **Admin:** Manages the seats for registered students with email authentication.

6. USER PERSONAS:

- As student can log in using their institution email ID, view attendance percentage and details on the dashboard, see current bus details, register for the bus, confirm selection, view fees for selected route, confirm payment, check payment status, download bill receipt, and post bus-related queries on the support desk.
- As faculty members want to log in using their email ID to access the portal, view attendance percentage and details on the dashboard, see current bus details for reference, log daily attendance, and filter attendance logs for easier tracking.
- As Admins want to log in using their email ID to access the portal, arrange seats to avoid shortages, send bus numbers and seat numbers to students, combine buses if the student ratio is low, send updated bus details to students, and address student support desk queries.

7. FEATURES:

7.1 LOGIN:

- **Student Login:** Students can log in using their registered accounts.
- **Faculty Login:** Faculty members can log in using their registered accounts.
- **Admin Login:** Administrators can log in using their registered accounts

7.2 REGISTRATION:

- **Student Registration:** Students can register and confirm their route preferences.

7.3 ATTENDANCE:

- **Faculty Attendance Logging:** Faculty members can log the daily attendance of students on their respective bus routes.

7.4 BUS SEAT ARRANGEMENT:

- **Admin Seat Arrangement:** Administrators can arrange seats for registered students on each bus route.

7.5 BUS COMBINING:

- **Admin Bus Combining:** Administrators can change bus seat arrangements and combine buses if needed.

7.6 EMAIL AUTHENTICATION:

- **Automated Email Notifications:** Administrators can send automated email notifications to students containing their assigned seat number and bus number. Additionally, students should receive notifications if there are changes in bus routes.

8. FUNCTIONAL REQUIREMENTS:

8.1 STUDENT PORTAL:

1. **Login:**
   - Students should log in with their respective institution email IDs.
2. **Dashboard:**
   - Students can view their attendance percentage with full details.
   - Display current bus details including route, driver details, and faculty details with emergency phone numbers.
3. **Registration:**
   - Students should be able to register for their bus by providing details of their route.
   - Display the fees according to the selected route and allow confirmation.
4. **Fees Payment Status:**
   - Students can view their fees payment status.
   - Allow students to download the bill receipt.
5. **Support Desk**:
   - Students can post queries to the bus incharge/admin regarding bus-related issues.

8.2 FACULTY PORTAL:

1. **Login:**
   - Faculty should log in with their email IDs.
2. **Dashboard:**
   - Faculty can view their attendance percentage with full details.
   - Display current bus details including route, driver details, and incharge faculty details with emergency phone numbers.

3. **Attendance Logging:**
    - Faculty can log the daily attendance by marking students and themselves as present.
4. **Attendance Filter:**
    - Faculty have the tool to filter the attendance log by student name, roll number, route, and payment status.

8.3 ADMIN PORTAL:

1. **Login:**
    - Admins can log in using their respective email IDs.
2. **Bus Arrangement:**
    - Admins arrange seats based on the number of students registered for the route, ensuring there is no shortage of seats.
    - Send bus numbers and seat numbers to respective student email IDs.
3. **Bus Combine:**
    - If the student ratio is too low, admins can combine buses according to student strength.
    - Send updated bus numbers and seat numbers to respective student email IDs after combining.
4. **Query Page:**
    - Admins address student support desk messages and provide solutions to student queries

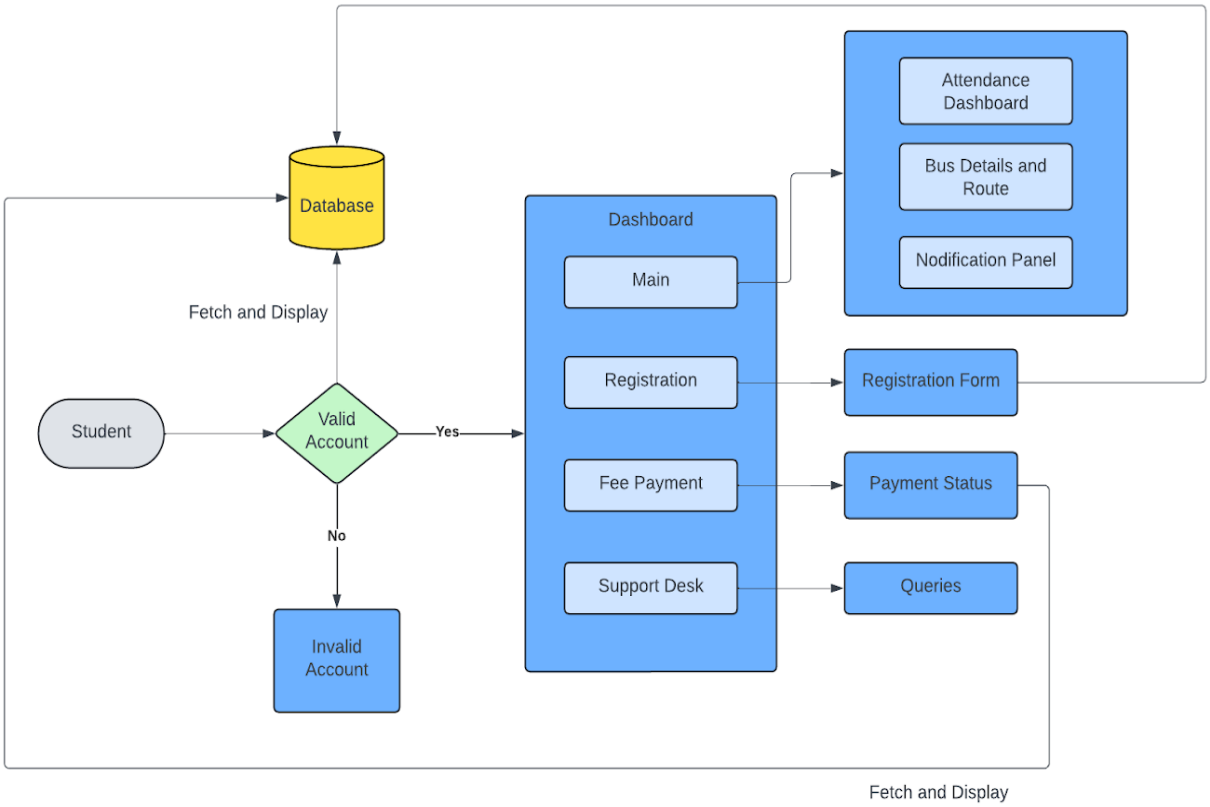
9. NON-FUNCTIONAL REQUIREMENTS:

1. **Performance:**
    - The system must respond to user actions within 2 seconds to ensure efficient usability.
    - It must handle a concurrent user load of at least 100 users without significant performance degradation.
2. **Security:**
    - User data must be encrypted during transmission and storage.
    - Access to sensitive functionalities should be restricted to authorized admin users through secure authentication mechanisms.

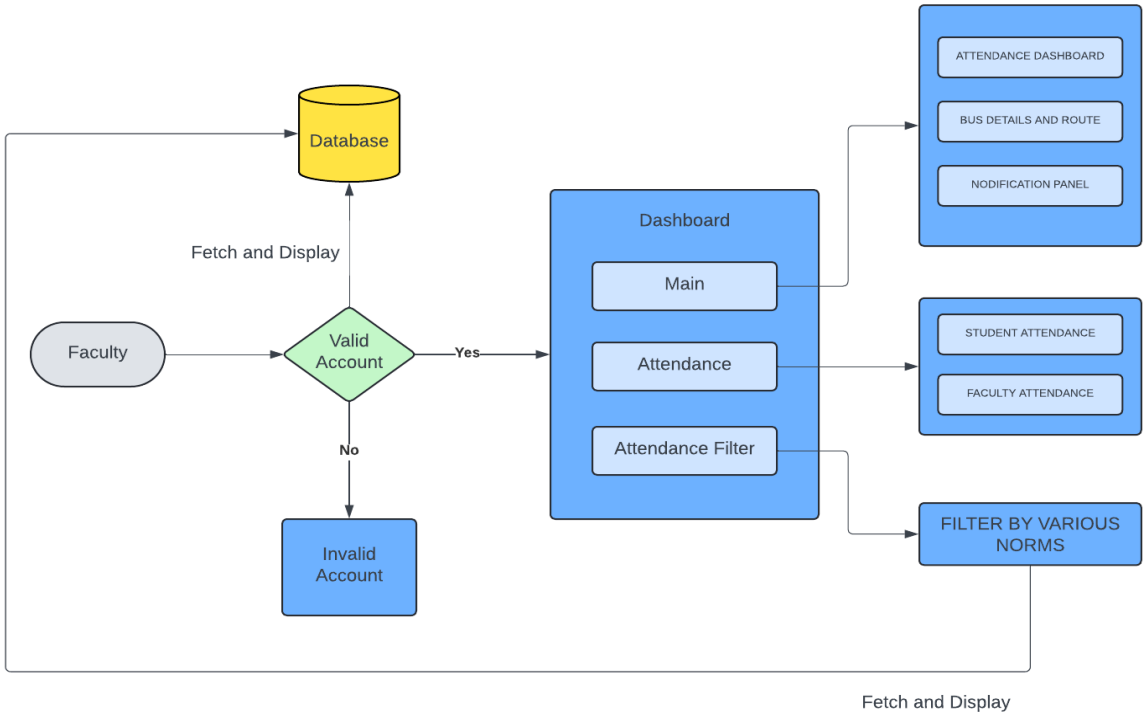
3. **Usability:**
    - The user interface should be intuitive and user-friendly.
    - Clear and concise error messages should be provided to guide users in case of input errors or system failures.
4. **Reliability:**
    - The system should be available 24/7 with minimal downtime.
    - A backup and recovery mechanism should be in place to prevent data loss in case of system failures or crashes.
5. **Scalability:**
    - The system should be designed to accommodate an increasing number of users and data volume over time.
    - It should be scalable to support additional features and functionalities as per future requirements

FLOWDIAGRAM:

STUDENT WORKFLOW



FACULTY WORKFLOW



ADMIN WORKFLOW