

CINEC Shuttle service-Ticket E booking

User Features:

1. User Registration and Authentication:

- Sign-Up and Login: Allow students to create accounts using their university credentials and emails
- Forgot Password: Enable users to reset their passwords if forgotten.

2. Profile Management:

- Personal Information: Allow users to update their personal details like name, email, phone number, and address.
- Student ID Verification: Include a field for verifying student ID.

3. Booking System:

- Select Route: Users can select their preferred bus route and schedule.
- Monthly Ticket Purchase: Option to buy monthly tickets for different routes.

4. Payment Integration:

- Multiple Payment Options: Support for credit/debit cards, online banking, and mobile wallets.
- Payment History: Users can view their past transactions and print receipts.

5. Notifications:

- Booking Confirmation: Send email/SMS notifications for successful bookings.
- Reminders: Notify users about upcoming renewals and schedule changes.

6. Ticket Management:

- View Tickets: Display current and past tickets.
- Cancel/Modify Booking: Allow users to cancel or modify their bookings if needed.
- QR Code Generation: Generate a unique QR code for each ticket that can be used for bus entry. And download QR

7. Schedule and Route Information:

- Bus Schedules: Display detailed schedules and bus stops for all routes.
- ~~— Real-Time Tracking: Show real-time location of buses (if GPS-enabled). (no interest in this time)~~

8. Feedback and Support:

- Customer Support: Provide a help desk or chat support for user inquiries.
- Feedback System: Allow users to give feedback on their experience.

Admin Features:

1. Dashboard:

- Overview: Display a summary of bookings, cancellations, and revenue.
- User Management: Admins can manage user accounts and access levels.
- Add bus: Admins can manage bus and add new bus to the system

2. Route and Schedule Management:

- Create/Edit Routes: Admins can add new routes or modify existing ones.
- Schedule Management: Update and manage bus schedules.

3. Ticket Management:

- Monitor Bookings: View and manage all bookings.
- Generate Reports: Create reports on bookings, cancellations, and revenue.

4. Payment Management:

- Transaction Overview: Monitor all transactions and handle payment disputes.

5. Notifications:

- Announcements: Send announcements or updates to all users.
- Alerts: Set up alerts for maintenance or emergency changes in schedule.

6. Analytics:

- User Behavior: Analyze user behavior and booking patterns.
- Performance Metrics: Monitor system performance and user satisfaction.

Technical Features:

1. Security:

- Data Encryption: Ensure that user data and payment information are encrypted.
- Secure Authentication: Implement multi-factor authentication.

2. Scalability:

- Cloud Hosting: Use scalable cloud solutions to handle increased traffic.
- Database Management: Efficiently manage the database for fast retrieval.

3. Performance:

- Optimized Load Times: Ensure the system loads quickly.
- Downtime Management: Plan for minimal downtime with backups and failover mechanisms.

4. Usability:

- Responsive Design: Ensure the system works well on desktops, tablets, and smartphones.
- User-Friendly Interface: Design an intuitive interface that's easy to navigate.

5. Localization:

- Multi-language Support: Offer the system in multiple languages if needed.

6. Integration:

- University Systems: Integrate with existing university systems (e.g., student database, ID verification).
- Third-Party Services: Integrate with third-party payment gateways and GPS services.

QR Code Ticket Checking:

1. Ticket Generation:

- Unique QR Codes: Each purchased ticket generates a unique QR code that is sent to the user via email and can be viewed in their profile.

2. QR Code Scanner:

- Bus Entry: Buses are equipped with QR code scanners for ticket validation.
- Real-Time Validation: The system validates the QR code in real-time against the database to check for ticket authenticity and validity.

3. Offline Support:

- QR Code Caching: QR code scanners can cache data for offline use in case of connectivity issues, with automatic sync once back online. And download QR

4. Security:

- Encrypted QR Codes: QR codes are encrypted to prevent tampering and duplication.
- Usage Logs: Maintain logs of scanned QR codes for security and audit purposes.

5. Notifications:

- Scan Alerts: Notify users via email/SMS when their QR code is scanned.

Including QR code-based ticket checking enhances the security and convenience of the bus ticket booking system, ensuring a smooth and efficient boarding process.