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.