Name: Md . Imran Khan

Id: 0242220005341049

Section: B (39)

Course Title: Object Oriented Design

Project Idea

Online Bus Ticket System

Project Overview:

The Online Bus Ticket System is a user-friendly web-based application designed to simplify the process of booking bus tickets. The system provides a platform where users can log in, view available buses, book seats, make payments, and manage their bookings efficiently. Administrators can manage bus schedules and view booking details, ensuring smooth operations and an enhanced user experience.

Objectives:

- **User Authentication: Secure login and registration for users.**
- **Bus Information: Display available buses with details such as type and names.**
- **Seat Booking: Allow users to select and book seats.**
- **Payment Processing: Secure payment gateway integration.**
- **Booking Management: View, modify, and cancel bookings.**
- **Admin Tools: Manage bus schedules and view booking data.**
- **User Assistance: Provide help and support information.**

Features:

User Authentication:

- **Login and Registration: Users can log in with a username and password.**
- **Password Management: Secure handling of user credentials.**

Bus Listing and Selection:

- **View Buses: Users can see a list of buses categorized by type (e.g., business class, AC, non-AC).**
- **Bus Details: Detailed information about each bus including names.**

Seat Booking:

- **Select Seats: Users can choose the number of seats to book.**
- **Booking Confirmation: Display booking details and confirm payment.**

Payment Processing:

- **Fare Calculation: Calculate total fare based on the number of seats.**
- **Secure Payment: Process payments and confirm booking via OTP.**

Booking Management:

- **View Bookings: Users can view their current and past bookings.**
- **Cancel Booking: Users can cancel bookings and get refunds.**

Admin Dashboard:

- **Manage Buses: Add, update, and delete bus schedules.**
- **View Bookings: Monitor all bookings and generate reports.**

User Assistance:

- **Help Information: Provide contact details for user support.**
- **Developer Information: Display developer contact and credentials.**

Technology Stack:

- **Frontend: HTML, CSS, JavaScript (React or Angular)**
- **Backend: Java Spring Boot**
- **Database: MySQL or PostgreSQL**
- **Authentication: Spring Security**
- **Payment Gateway: Integration with services like Stripe or PayPal**
- **Deployment: Docker, AWS, or Heroku**

Detailed Workflow:

User Registration and Login:

- **Users register by providing personal information and creating credentials.**
- **Registered users log in to access the system.**
- **Bus Selection and Booking:**
- **View Buses: Users see a list of buses categorized by type.**
- **Select Bus and Seats: Choose a bus and specify the number of seats.**
- **Confirm Booking: Enter personal details and proceed to payment.**

Payment Processing:

- **Fare Calculation: Display the total fare based on the number of seats.**
- **Payment Gateway: Securely process the payment and verify via OTP.**

Booking Management:

- **View and Cancel Bookings: Users can view booking details and cancel if needed.**
- **Refund Processing: Handle refunds for canceled bookings.**

Admin Management:

- **Manage Buses: Administrators can add, update, and delete bus schedules.**
- **Monitor Bookings: View all bookings and generate performance reports.**

User Assistance:

- **Help Line: Provide contact information for user support.**
- **Developer Info: Display developer details for credibility and contact.**

Implementation Plan:

Initial Setup:

- **Set up project repository and initialize the environment.**
- **Configure database and integrate Spring Boot.**

Frontend Development:

Design user interfaces for registration, login, bus listing, booking, and admin dashboard.

Backend Development:

Implement user authentication and session management.

Develop APIs for bus listing, seat booking, payment processing, and booking management.

Payment Integration:

Integrate a payment gateway and implement secure payment processing.

Testing:

Perform unit and integration testing to ensure all components work correctly.

Conduct user acceptance testing (UAT) to validate functionality.

Deployment:

Deploy the application using Docker on a cloud platform like AWS or Heroku.

Monitor and maintain the application post-deployment.

Project Timeline:

- **Week 1-2: Project setup, initial frontend and backend development.**
- **Week 3-4: Implement core features (bus listing, booking, payment).**
- **Week 5: Admin dashboard development, testing, and integration.**
- **Week 6: Final testing, bug fixing, and deployment.**

Budget and Resources:

- **Development Tools: Java IDE, database, and cloud services.**
- **Personnel: Developers, testers, and project manager.**
- **Miscellaneous: Hosting, domain registration, and marketing expenses.**

Conclusion:

The Online Bus Ticket System aims to revolutionize the bus booking process by providing a seamless and user-friendly platform. It will simplify the booking process, ensure secure transactions, and offer efficient booking management for users and administrators. With a robust technology stack and well-defined workflow, the project is set to deliver a high-quality solution that meets the needs of modern travelers and bus operators alike.

This proposal outlines the comprehensive plan for developing and deploying the Online Bus Ticket System, ensuring all key aspects are covered for successful project execution.