RAILWAY RESERVATION SYSTEM

Problem Statement:

The railway reservation system is a sophisticated software system responsible for managing the booking and availability of seats on trains for passengers. It needs to handle a high volume of concurrent users, offer a seamless booking experience, and ensure efficient seat allocation. The system should be easily accessible for ticket booking, reservations, and train information retrieval. Additionally, it must effectively manage and allocate available tickets without disruptions. Payment transactions through the gateway should be secure and efficient. Real-time updates on train schedules, seat availability, and seat tariffs should be provided by the system.

Software Requirement Specification(SRS) of Hotel management system

1 Introduction:

1.1 Purpose of this Document - This document serves as the foundation for the organization's entire project, providing a framework that all development teams will follow. It is essential in ensuring agreement and alignment among teams, including development, operations, quality assurance (QA), and maintenance. The proposed system aims to address the increasing usage of railways for both travel and transportation of goods.

1.2 Scope of this document – The system primarily focuses on efficiently managing all processes and operations related to train ticket reservations. It comprises an online framework that allows users to preview available seats for reservation. Users can input their travel details, which the system will utilize to provide information on all trains traveling from the source to the destination, including their timings. The system facilitates ticket reservations and cancellations.

1.3 Overview - The system is developed to streamline the complexity associated with railway ticket reservations. It is designed to handle a large user base and provide real-time information on train schedules, ticket availability, and seat tariffs. The system supports various types of seats found on trains, including sleeper coaches, general coaches, and AC coaches.

1.4 General description: The railway reservation system is capable of efficiently handling a large database of users attempting to book tickets simultaneously, ensuring a smooth experience without any errors. With its user-friendly interface, customers can easily search for train schedules and swiftly make bookings. The system allows users to search for trains based on departure and arrival stations, select preferred travel dates, and view available schedules. Once a train is chosen, customers can select their desired ticket type and securely complete the booking process by making online payments. The system also offers convenient features for managing ticket cancellations and refunds, enabling customers to cancel tickets online and receive refunds according to the cancellation policy. Designed to be scalable, reliable, and secure, the railway reservation system supports various payment methods and seamlessly integrates with banking and payment gateways to ensure secure transactions. Overall, the system aims to provide customers with a hassle-free and time-saving booking experience, while efficiently streamlining operations for railway authorities, benefiting both parties involved.

2 Functional Requirements:

- User management: The system enables users to create an account, log in, and manage their profile information.
- Ticket booking: Users can search for available trains and book tickets by specifying the departure and arrival stations, travel date, and class of travel. The system displays seat availability and confirms the booking.
- Ticket cancellation: Users have the option to cancel their booked tickets, and the system follows the designated cancellation policy to provide refunds.
- Payment management: The system ensures secure online payments by supporting various payment methods.
- Seat allocation: Seats are allocated to users based on their preferences, availability, and chosen class of travel.
- Admin management: Administrators have access to features for managing users, train schedules, seat availability, cancellations, refunds, and other relevant activities.

3 Interface Requirements:

- User Interface: The system's user interface is designed to be intuitive, user-friendly, and responsive. It provides users with a seamless experience for searching trains, booking tickets, and canceling tickets. The interface enables easy navigation and ensures a straightforward process for users to interact with the system.
- Payment Interface: The payment interface focuses on security and reliability. It offers users multiple payment options and integrates a secure payment gateway into the system. Users can complete the payment process swiftly and conveniently, ensuring a smooth transaction experience.
- Admin Interface: The admin interface is designed to be user-friendly, providing quick access to essential system information. Administrators can efficiently manage users, train schedules, seat availability, cancellations, refunds, and other related activities. The interface streamlines administrative tasks and facilitates effective system management.

4 Performance Requirements: The software consists of multiple pages which provide various features to the user. The basic features include:

- **Login and sign-up page**: The login page allows a registered user to login to the system with the registered phone number and verified password. The sign-up page helps a user to create an account.
- **Home page**: The home page is the navigation page from which a guest/ user can navigate to view the train schedule and book tickets according to their requirement. The user can log out, provide ratings and reviews/ recommendations for the system. After applying, there is a provision for checking the booked ticket details.
- **Slot Booking page**: The user has to select an appropriate slot and the type of seat class and proceed to confirm their details and booking order.
- **Edit data page** :The entered data can be edited till the day before the booked slot.
- **Database** :The database is used to store details of customers and their reservations.The payment transactions, train bookings and other details are stored in the database.
- **Transaction page:** The user has to pay the charges to the Indian Railway Authority via net banking, UPI payment, or cash.
- **Status page:** Here the user can check whether his application is approved or rejected, and also can check the status of the train.

5 Design Constraints:

- Programming language to be used is Java. The web server used is Apache ● Storage of the data will be done on SQL database/ Firebase storage.
- The system can run on Windows and Linux.
- Internet availability is a must.
- Minimum Processor 1 GHz, 512 MB RAM and 850 MB free HDD for 32-bit or 2 GB for 64-bit.
- Windows 10 and above, Windows server 2016, i5 core and above.
- Internet connection of 4 MBPS or higher.

6 Non-Functional Attributes:

- Security: The system should be secure and protect customer information and payment details.
- Scalability: The system should be scalable to handle a large number of customers/ users.
- Reliability: The system should be reliable and available 24/7.
- Usability: The system should be user-friendly and easy to use for applicants.
- Performance: The system should perform well and respond quickly to user requests without any errors.

7 Preliminary Schedule and Budget:

The preliminary schedule and budget for the project are as follows:

- Gathering requirements: Estimated cost of $10,000
- Database system: Estimated cost of $40,000
- Authentication Requirements: Estimated cost of $50,000
- Software testing and development: Estimated cost of $70,000

The total estimated budget for the project is $170,000. The project is scheduled to be completed within a timeframe of six months from the start date. The budget allocation includes expenses for man-hours as well as the acquisition and utilization of different software and databases required for the project.