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RAILWAY RESERVATION SYSTEM

Problem Statement:

Railway reservation is a complex software system that is responsible for managing the booking and availability of seats on trains for passengers. The system needs to be able to handle a large number of concurrent users, provide a seamless booking experience, and ensure that seats are allocated efficiently. The system must be accessible to book tickets, make reservations, and provide details of the trains available. The system must be able to help manage and allocate available tickets in an efficient manner without any disturbance. The payment/ gateway transaction must take place securely and efficiently. The system must be able to provide real time information about the train's arrival and departure, available seats in the train, tariff of the seats in a train.

Software Requirement Specification(SRS) of Hotel management system

1 Introduction:

1.1 Purpose of this Document: An SRS forms the basis of an organization's entire project. It sets out the framework that all the development teams will follow. It provides critical information to all the teams, including development, operations, quality assurance (QA) and maintenance, ensuring the teams are in agreement. The proposed system is a way to tackle the growth of the usage of railways for traveling and goods passage.

1.2 Scope of this document – The system is mainly for easy management of all the processes and operations taking place during reservation of train tickets. The system will consist of an online framework through which the user can get a preview of the seat to be reserved. The user can enter their travel details which will be used by the system to find all the trains which will be traveling from the source to destination and their timings. Reservations and cancellations of the tickets will be provided by the system.

1.3 Overview - The system is developed to ease the complexity of reservation of railway tickets. It is designed to handle a large number of users and provides real-time information about train schedules, ticket availability and tariff of the seats. The system is designed to handle all the types of seats in a train such as sleeper coach, general coach and AC coaches.

1.4 General description: It can handle a large database of users trying to book a ticket at once. No error is expected to occur during such a huge traffic at a time. The railway reservation system is designed with a user-friendly interface to help customers search for train schedules and book tickets quickly and easily. Customers can search for trains by their departure and arrival stations, select their preferred travel dates, and view available train schedules. Once they have selected a train, customers can choose their preferred ticket type and complete the booking process by making a payment online. The system also provides features for managing ticket cancellations and refunds. Customers can cancel their tickets online and receive a refund according to the system's cancellation policy. The railway reservation system is designed to be scalable, reliable, and secure. It is capable of handling a wide range of payment methods and integrates with various banking and payment gateways to process payments securely. Overall, the railway reservation system provides a convenient and efficient way for customers to book train tickets online, making the ticket booking process hassle-free and time-saving. The system's features and functionalities are designed to provide a seamless booking experience for customers and streamline the operations of railway authorities, resulting in a win-win situation for both parties

2 Functional Requirements:

- User management: The system should allow users to create an account, log in, and manage their profile information.
- Ticket booking: The system should allow users to search for available trains and book tickets. Users should be able to select the departure and arrival stations, date, and class of travel. The system should display the availability of seats and provide users with a confirmation of their booking.
- Ticket cancellation: The system should allow users to cancel their booked tickets and provide refunds as per the cancellation policy.
- Payment management: The system should allow users to make online payments securely using various payment methods.
- Seat allocation: The system should allocate seats to users based on their preferences, availability, and class of travel.
- Admin management: The system should provide administrators with the ability to manage users, train schedules, seat availability, cancellations, refunds, and other related activities.

3 Interface Requirements:

- User Interface: The user interface of the system should be intuitive, user-friendly, and responsive. The system should provide users with an easy-to-use interface to search for trains, book tickets, cancel tickets and cancel tickets.
- Payment Interface: The payment interface should be secure, reliable, and provide users with multiple payment options. The payment gateway should be integrated with the system, and users should be able to complete the payment process quickly and easily.
- Admin Interface: The admin interface should be easy to use, provide quick access to critical system information, and allow administrators to manage users, train schedules, seat availability, cancellations, refunds, and other related activities.

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 project is scheduled to be completed within six months of the start date. The budget is allotted for the man-hours and the different softwares and databases being used.

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

Total estimated budget is $170,000