Railway Reservation System

Problem Statement

The current system of railway reservation in India involves long queues at railway stations, manual booking of tickets, and limited access to booking facilities. These issues often lead to inconvenience for passengers, delays in booking, and even fraudulent activities. Moreover, the system does not provide a convenient way for passengers to check train schedules, seat availability, and fares, which further adds to the inconvenience.

In addition, the manual process of ticket booking and cancellation is time-consuming and prone to errors. This often results in overbooking, underbooking, and discrepancies in passenger information, causing inconvenience to both passengers and railway authorities.

Hence, there is a need for a modernized and efficient railway reservation system that can overcome these challenges and provide a seamless and convenient booking experience for passengers. The new system should allow passengers to book and cancel tickets online, check train schedules, seat availability, and fares, and provide real-time updates on train status and delays. Moreover, the system should ensure secure transactions and provide reliable data management to prevent fraudulent activities and discrepancies in passenger information.

Introduction:

The purpose of this Software Requirements Specification (SRS) is to specify the requirements for a modernized and efficient railway reservation system. The system will allow passengers to book and cancel tickets online, check train schedules, seat availability, and fares, and provide real-time updates on train status and delays. This document outlines the functional and non-functional requirements, interfaces, performance and design constraints, and other system attributes.

Scope:

The railway reservation system will be designed to cater to the needs of passengers who wish to travel by train. The system will be accessible through a web-based interface and a mobile application. The system will provide features such as ticket booking, cancellation, train schedule, seat availability, fare information, and real-time train status updates. The system will be designed to ensure secure transactions and reliable data management to prevent fraudulent activities and discrepancies in passenger information.

Overview:
The railway reservation system will be a user-friendly and convenient platform for passengers to book and manage their train travel. The system will provide real-time updates on train status, delays, and cancellations, and allow passengers to choose their preferred seats and class of travel. The system will also provide secure payment options and reliable data management to prevent fraud and discrepancies.

General Description:
The railway reservation system will have the following general features
- User-friendly interface for easy navigation
- Secure login and registration for passengers
- Ability to search and book trains based on origin, destination, date, and time
- Real-time train status updates and alerts for delays and cancellations
- Ability to choose preferred seats and class of travel
- Secure payment options and reliable data management
- Option for canceling tickets and receiving refunds

Functional Requirements:

User Management:
The system shall allow passengers to register, login, and maintain their profiles.The system shall allow users to recover their passwords in case of loss.

Train Management:
The system shall provide information on train schedules, seat availability, and fares.The system shall allow passengers to search and book trains based on their preferences.

Ticket Management:
The system shall allow passengers to book, cancel, and modify their tickets.The system shall provide real-time updates on train status and delays.

Payment Management:
The system shall provide secure payment options for booking tickets.The system shall ensure reliable data management to prevent fraudulent activities and discrepancies in passenger information.

Interface Requirements:

Web-based Interface:
The system shall have a web-based interface accessible through a web browser.The web interface shall be responsive and accessible on various devices.

Mobile Application Interface:
The system shall have a mobile application interface for Android and iOS platforms.The mobile interface shall provide all the features of the web interface.

Performance Requirements:

Response Time:
The system shall have a response time of less than 5 seconds for each user action.The system shall provide real-time updates on train status and delays.

Capacity:
The system shall be able to handle at least 5000 concurrent users at any given time.The system shall be able to handle a minimum of 50,000 bookings per day.

Design Constraints:

Technology Stack:
The system shall be developed using Java programming language.The system shall use the Spring framework for back-end development.The system shall use ReactJS for front-end development.

Security:
The system shall ensure secure login and registration for passengers.The system shall use HTTPS protocol for secure communication.The system shall use encryption techniques for storing and managing sensitive data.

Non-Functional Requirements:

Performance: The system should be able to handle a large number of concurrent users without any lag or delay in response time. The system should be able to process requests and update reservations in real-time.

Availability: The system should be available 24/7 with minimum downtime for maintenance and updates.

Security: The system should provide secure login for users with encrypted data transmission to protect user privacy and prevent unauthorized access to confidential data.

Usability: The system should have a user-friendly interface that is easy to navigate and use by users with varying levels of computer literacy.

Reliability: The system should be reliable with minimal data loss and errors during reservation and cancellation processes.

Scalability: The system should be able to handle a large number of users and expand as the business grows.

Compatibility: The system should be compatible with different web browsers and operating systems.

Preliminary Schedule and Budget:

The development of the railway reservation system is estimated to take 6 months, including requirements gathering, design, development, testing, and deployment. The budget for the project is estimated at $200,000, including salaries for the development team, hardware and software costs, and other expenses.

Conclusion:

This Software Requirements Specification document outlines the functional and non-functional requirements of the railway reservation system. It provides a clear understanding of the system's features, constraints, and limitations, along with the estimated schedule and budget for the project. This document serves as a basis for communication between the development team and stakeholders, ensuring that the project meets the desired objectives and is delivered on time and within budget.