

# RAILWAY RESERVATION SYSTEM

## Software Requirement Specification(SRS)

### 1 Introduction:

- 1.1 **Purpose of this Document:** The purpose of this SRS document is to describe the functionalities- which includes functional and non-functional requirements of the Railway Reservation System, its purpose and stakeholders involved. It helps railway authorities maintain the database of various trains scheduled throughout the day. It keeps track of reservations made by individuals with details of the train, seat, date and time.
- 1.2 **Scope of this document** – Railway Reservation System is a software application that is designed to automate and streamline the operations of railways. It enables smooth and easier management of the system by administration and railways personnel and makes the ticket-booking process hassle-free for the customers.
- 1.3 **Overview** – The railway reservation system is a computer-based application that enables passengers to book and manage train tickets, as well as for railway staff to manage the train schedules, seat availability, and other related information. The system typically involves multiple components, including a user interface for passengers to make reservations, a database to store ticket and train-related information, and an administrative interface for railway staff to manage the system.

- 2 **General description:** A railway reservation system is a software application that automates the process of booking train tickets and managing reservations. It enables passengers to reserve seats or berths in advance for a specific train, route, date, and time. The system helps to eliminate the need for long queues at railway stations, as passengers can make their reservations online or through designated reservation counters. It typically consists of several modules, including, user registration and login, seat availability and booking, payment and ticketing, cancellation and refund, reporting and analytics etc...

The railway reservation system helps to improve the efficiency of the ticket booking process, reduce errors and fraud, and provide a better experience for passengers. It is an essential component of modern railway operations, helping to streamline the process of managing reservations, inventory, and revenue.

- 3 **Functional Requirements:** The functional requirements of this system are:
  - The system should be able to track, record, and manage incidents that occur on the railway network, such as train delays, equipment failures, and accidents.
  - The system should be able to notify relevant stakeholders, such as train drivers, maintenance crews, and passengers, of incidents and provide real-time updates on the status of incidents.

- The system should be able to allocate resources, such as maintenance crews, equipment, and alternative transport, to resolve incidents and minimize disruption to train services.
- The system should be able to generate reports and analytics on incident trends and performance metrics, such as incident response time, resolution time, and customer satisfaction.
- The system should be able to integrate with other railway systems, such as train scheduling systems, signaling systems, and passenger information systems, to provide a seamless and coordinated response to incidents.
- The system should have user management capabilities to control access to the system and assign roles and permissions to users based on their responsibilities.

#### **4. Interface Requirements:**

- The interface should have a modern and visually appealing design.
- The interface should be easy to navigate.
- The interface should be responsive and adapt to different screen sizes.
- The interface should allow for customization, such as the ability to change colors, logos, and fonts.
- The interface should support multiple languages.
- The interface should allow for easy search and filtering of information.
- The interface should provide alerts and notifications to keep passengers informed of important events.
- The interface should be able to integrate with other systems used by the system, such as payment gateways.

#### **5. Performance Requirements:**

- **Response Time:** The system should be responsive and provide real-time updates to users. Response times should be within acceptable limits, typically a few seconds for search queries, seat availability, and booking transactions.
- **Throughput:** The system should be able to handle a high volume of transactions simultaneously, including ticket bookings, cancellations. It should be able to handle peak loads without any service interruptions.
- **Availability:** The system should be available 24x7, with minimum downtime for maintenance and upgrades.
- **Scalability:** The system should be scalable to accommodate a growing number of users, trains, and routes. The system should be able to scale up or down without affecting performance, response times, or availability.

- **Data Integrity:** The system should ensure the integrity and consistency of data, with proper validation of user inputs, transaction logs, and backups. The system should also be able to recover from crashes or corruption quickly.

## **6. Design Constraints:**

- It must operate on hardware that is available within the railway network.
- It must be designed to operate within the software environment of the railway network.
- It must be designed to protect sensitive information, such as passenger data, payment information, and reservation details, from unauthorized access or use.
- It must be cost-effective, taking into account the available budget and resources.
- It must be designed and developed within a specified timeframe, such as before the launch of a new train service or the start of a busy travel season.
- It must be compatible with existing railway systems and processes, such as ticketing, scheduling, and inventory management.
- It must be designed to meet the needs and expectations of different user groups, including passengers, railway staff, and administrators.

## **7. Non-Functional Attributes:**

- The system should be able to handle a large number of incidents and users, respond quickly to incidents, and provide real-time updates to stakeholders.
- The system should be highly available and reliable, with a low likelihood of downtime or data loss.
- The system should be available 24/7, with minimal planned and unplanned downtime.
- The system should be easy to maintain and upgrade, with minimal impact on operations during maintenance activities.
- The system should be easy to use and navigate, with a user-friendly interface and intuitive workflows.
- The system should be able to handle a growing number of users and incidents without significant degradation in performance.
- The system should have robust security measures in place to protect against unauthorized access, data breaches, and other security threats.

**8. Preliminary Schedule and Budget:** The project is scheduled to be completed within six months of the start date. The budget is allotted only for the man-hours and not for different softwares used.