Software Requirements Specification (SRS)

For: Railway Ticket Booking System

1. Introduction

1.1 Purpose

The purpose of this document is to specify the software requirements for the Railway Ticket Booking System. It will be used by developers, testers, and stakeholders to understand the system’s functional and non-functional expectations.

1.2 Scope

This system allows users to search trains, book tickets, make payments, cancel bookings, and view train schedules. It also provides an administrative module to manage train data and monitor bookings.

1.3 Definitions, Acronyms, Abbreviations

PNR: Passenger Name Record

UI: User Interface

Admin: Authorized personnel to manage system backend

OTP: One Time Password

1.4 References

IEEE Std 830-1998 for Software Requirements Specification

Indian Railways online booking reference

Payment gateway documentation

1.5 Overview

This SRS document is organized into sections describing the overall system, its features, external interfaces, functional and non-functional requirements, and other specifications.

2. Overall Description

2.1 Product Perspective

The Railway Ticket Booking System is an independent, web-based application. It interacts with a central database to manage train schedules and booking data.

2.2 Product Functions

User registration and login

Train search and schedule viewing

Ticket booking and cancellation

Payment processing

Admin module for train and user management

2.3 User Classes and Characteristics

Passenger/User: Books and manages tickets

Admin: Manages backend operations

Guest: Can view train schedules without booking

2.4 Operating Environment

Web-based application (browser: Chrome, Edge, Firefox)

Backend: MySQL, Node.js/PHP/Java

Server: Apache/Tomcat

2.5 Design and Implementation Constraints

Must follow Indian Railway security standards

Use of SSL for payment integration

GDPR-compliant data storage

2.6 User Documentation

Online help section

User manual in PDF format

2.7 Assumptions and Dependencies

Internet connectivity is required

Payment gateway integration must be active

3. System Features and Functional Requirements

3.1 User Registration and Login

The system shall allow new users to register.

The system shall authenticate users via email and password.

The system shall allow password recovery through email OTP.

3.2 Train Search and Schedule Viewing

The system shall allow users to search for trains by source, destination, and date.

The system shall display train numbers, names, and timing.

3.3 Ticket Booking

The system shall allow seat selection based on availability.

The system shall calculate fare and show it before booking confirmation.

The system shall generate a unique PNR for each booking.

3.4 Payment

The system shall integrate with payment gateways (UPI, Netbanking, Cards).

The system shall display payment status after processing.

3.5 Ticket Cancellation

The system shall allow users to cancel tickets and calculate refund.

Refund shall be initiated automatically as per cancellation policy.

3.6 Admin Functions

The admin shall be able to add/update/delete train data.

The admin shall view and manage user and booking reports.

4. External Interface Requirements

4.1 User Interfaces

Web-based GUI with login page, booking interface, and admin panel.

4.2 Hardware Interfaces

Runs on desktops and mobile devices with internet access.

4.3 Software Interfaces

Database: MySQL or PostgreSQL

Payment Gateway APIs (e.g., Razorpay, Paytm)

4.4 Communications Interfaces

HTTPS for secure communication between client and server

5. Non-Functional Requirements

5.1 Performance Requirements

The system should respond within 3 seconds for booking requests.

5.2 Security Requirements

All user data must be encrypted.

Only admins can access the admin panel.

5.3 Availability

The system should be available 24/7 except during scheduled maintenance.

5.4 Maintainability

The system must support modular code for easy updates and fixes.

5.5 Usability

The UI must be user-friendly and accessible on mobile devices.

6. Other Requirements

Support for multi-language interface (e.g., English, Hindi).

Compliance with Indian Railways' digital booking standards.

7. Appendices

Sample screenshots

Mock wireframes

Database schema (optional)