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Railway Management System

Problem Statement:

The current railway management system suffers from several issues that limit its user-friendliness and provide an unpleasant experience to passengers. These issues include a lack of accessibility, inconsistent user experience, limited information availability, and a complex ticket booking process.The lack of accessibility of the current system makes it difficult for people with disabilities and those who are not tech-savvy to use the system effectively. The inconsistent user experience of the system leads to confusion and difficulty in performing necessary tasks. The limited information availability on train schedules, delays, or cancellations frustrates passengers. Additionally, the complex ticket booking process requires users to navigate a lengthy and confusing process to book tickets.

The goal of this project is to develop a modern and user-friendly railway management system that provides a seamless and intuitive experience to passengers. The new system should address these issues by incorporating accessibility features, providing consistent user experience, offering real-time information updates, and streamlining the ticket booking process. By developing a user-friendly railway management system, passengers will have a better travel experience, and the railway staff will have an efficient tool to manage their operations. This system will also provide valuable data insights that can be used to improve the railway service and make it more efficient.

Software Requirement Specification(SRS)

1 Introduction

1.1 Purpose of this document

The purpose of this Software Requirements Specification (SRS) document is to specify the requirements of a Railway Management System. This document will outline the functional and non-functional requirements of the system, which will be used as a basis for system design, development, and testing.

1.2 Scope of this document

This document is intended for the development team, stakeholders, and users of the Railway Management System. The SRS document outlines the technical requirements, functional requirements, and constraints of the system.

1.3 Overview

The Railway Management System is an online system designed to manage railway operations efficiently. The system provides users with features such as ticket booking, train schedules, seat availability, and fare details. The system will ensure an excellent user experience and improve the efficiency of the railway service.

2 General Description

The Railway Management System will be developed as a web-based application. The system will be built on a scalable architecture that allows for future expansion and enhancement. The system will have the following features:

- Ticket booking
- Train schedules
- Seat availability
- Fare details
- Passenger details management
- Train management
- Staff management

3 Functional Requirements

The functional requirements of the Railway Management System are as follows:

- Users should be able to register and log in to the system.
- Users should be able to search for train schedules by date, time, and destination.
- Users should be able to view available seats for a particular train.

- Users should be able to book tickets for a particular train and class.
- The system should provide real-time information on train schedules, delays, and cancellations.
- The system should allow staff members to manage train schedules, seat availability, and fare details.
- The system should allow staff members to manage passenger details and bookings.
- The system should provide reports on daily bookings and revenue.

4 Interface Requirements

4.1 User Interface

The user interface of the Railway Management System should be intuitive and easy to use. The system should be responsive and accessible on desktop and mobile devices.

4.2 Integration Interface

The Railway Management System should be able to integrate with other third-party systems, such as payment gateways, to process payments seamlessly.

5 Performance Requirements

The Railway Management System must meet the following performance requirements:

- Response time: The system should respond to user interactions within three seconds or less.
- Concurrent users: The system should be able to handle at least 1,000 concurrent users without significant performance degradation.
- Scalability: The system should be designed to scale to handle up to 10,000 concurrent users in the future.
- Availability: The system should be available 24/7, with a maximum of one hour of scheduled downtime per week for maintenance.

6 Design Constraints

The Railway Management System must meet the following design constraints:

- Platform: The system must be developed as a web-based application and must be compatible with standard web browsers.
- Technology: The system should be developed using industry-standard technologies, such as HTML, CSS, JavaScript, and a server-side language such as PHP or Java.
- Security: The system must be designed with security in mind, including measures such as encryption, firewalls, and access controls.
- Compatibility: The system must be compatible with third-party payment gateways and other systems as required.

7 Non-Functional Attributes

The non-functional attributes of the Railway Management System are as follows:

- Usability: The system should be user-friendly and easy to use.
- Reliability: The system should be reliable and available 24/7.
- Security: The system should be secure and protect user data.
- Scalability: The system should be scalable to handle a growing number of users and transactions.
- Maintainability: The system should be easy to maintain and update.

8 Preliminary Schedule and Budget

The preliminary schedule and budget for the Railway Management System will be determined during the project planning phase. The development team will work with stakeholders to determine the project timeline and budget.

Requirements Gathering:
Timeline: 4-8 weeks
Cost: $20,000-$40,000

Design and Architecture:
Timeline: 8-12 weeks
Cost: $40,000-$80,000

Development:
Timeline: 24-36 weeks
Cost: $200,000-$400,000

Testing and Quality Assurance:
Timeline: 8-12 weeks
Cost: $40,000-$80,000