# Software Requirements Specification

for  
**Railway Management System**  
Version 1.0 approved  
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## Revision History

| **Name** | **Date** | **Reason For Changes** | **Version** |
| --- | --- | --- | --- |
| Abdur Raafeh | 17-09-2025 | Initial Draft | 1.0 |

## 1. Introduction

### 1.1 Purpose

This document defines the requirements for the Railway Management System (RMS). The system will manage train schedules, tickets, and passenger records. It will be developed using Java with MySQL.

### 1.2 Document Conventions

Requirements are numbered as **REQ-XX**.

Priority: High (H), Medium (M), Low (L).

### 1.3 Intended Audience and Reading Suggestions

**Developers:** Build the software.

**Testers:** Test system features.

**Admins:** Manage data.

**Passengers:** End users.

### 1.4 Product Scope

The system allows ticket booking, cancellation, schedule management, and report generation. It improves efficiency and reduces errors compared to manual systems.

### 1.5 References

IEEE SRS Standard.

Java + MySQL integration guides.

## 2. Overall Description

### 2.1 Product Perspective

A simple client-server desktop application built in Java with MySQL database.

### 2.2 Product Functions

Passenger login and registration.

View train schedules.

Ticket booking and cancellation.

Admin manages trains, routes, and reports.

### 2.3 User Classes and Characteristics

**Passenger:** Uses ticket booking features.

**Admin:** Manages train schedules and data.

### 2.4 Operating Environment

OS: Windows/Linux.

Language: Java.

Database: MySQL.

### 2.5 Design and Implementation Constraints

Must use Java + MySQL.

Should be simple and lightweight.

### 2.6 User Documentation

A short user manual with screenshots.

### 2.7 Assumptions and Dependencies

Assumes valid schedule data from admin.

Depends on correct functioning of MySQL database.

## 3. External Interface Requirements

### 3.1 User Interfaces

Login/Signup page.

Ticket booking form.

Schedule viewer.

Admin dashboard.

### 3.2 Hardware Interfaces

Standard PC, printer for tickets.

### 3.3 Software Interfaces

Java application connects to MySQL.

### 3.4 Communications Interfaces

JDBC for database connectivity.

## 4. System Features

### 4.1 Passenger Module

**REQ-01 (H):** The system shall allow passengers to register and login.

**REQ-02 (H):** The system shall allow passengers to book tickets.

**REQ-03 (H):** The system shall allow passengers to cancel tickets.

### 4.2 Admin Module

**REQ-04 (H):** The system shall allow admin to add and edit train schedules.

**REQ-05 (M):** The system shall allow admin to generate reports.

## 5. Other Nonfunctional Requirements

### 5.1 Performance Requirements

**REQ-06 (M):** The system should handle at least 50 users at once.

### 5.2 Safety Requirements

**REQ-07 (H):** The system shall prevent double booking.

**REQ-08 (M):** The system shall back up the database daily.

### 5.3 Security Requirements

**REQ-09 (H):** The system shall require username and password login.

**REQ-10 (H):** The system shall support role-based access control.

### 5.4 Software Quality Attributes

**REQ-11 (M):** The system shall be easy to use.

**REQ-12 (M):** The system shall be reliable and scalable to add more stations.

### 5.5 Business Rules

**REQ-13 (H):** Each ticket must have a unique ID/PNR.

## 6. Other Requirements

**REQ-14 (M):** The database should support large passenger data.

## Appendix A: Glossary

**PNR:** Passenger Name Record.

**Admin:** Railway staff managing system.

## Appendix B: Analysis Models

ER diagram (Passenger, Train, Ticket, Schedule).

Use case diagram (Passenger, Admin).

## Appendix C: To Be Determined List

Final choice of UI framework (Swing or JavaFX).