Software Requirements Specification for Railway Reservation System

Prepared by: Pankaj Kumar and Anesh Kumar

Instructor: Prof: Abdul Rehman and Assistant Nida Munawar

Table of Contents

1. Introduction **1**
1.1 Purpose 1
1.2 Scope 1
1.3 Definitions, acronyms and abbreviations 1
1.4 Document Convention 2
2. Overall Description **4**
2.1 Product Perspective 4
2.2 Product Functions 4
2.3 User Classes and Characteristics 4
2.4 General Constraints 5
2.5 Assumptions and Dependencies 5
3. Specific Requirements **7**
3.1 Functional Requirements 7
3.1.1 Performance Requirements 7
3.1.2 Design Requirements 7
3.1.3 Hardware Requirements 7
3.2 Non-Functional Requirements 7
3.2.1 Security 7
3.2.2 Reliable 8
3.2.3 Accessibility 8
4. Diagrams/Graphs/Matrices **10**
4.1 Use Case 10
4.2 Requirement Matrix for Managing Conflicts 113
4.3 Engagement Matrix 124

INTRODUCTION

1. Introduction

This document is the SRS of the Railway Reservation System done by the group members Pankaj Kumar and Anesh Kumar. A software is to be developed in order to automate the railway reservation process.

1.1 Purpose

The purpose of this source is to describe the railway reservation system which provides the train
details, reservations made, billing and cancellation on various types of reservations namely.

• Confirm Reservation

• Cancellation of a Reserved Ticket

• Inquire about Trains.

1.2 Scope

To provide an improved and optimal method to revolutionize the railway systems. We have implemented a very user-friendly GUI so that a user of any skill level can easily access the system. We have designed the system to perform these tasks:

- Search for specific train
- Booking at any specific train (if available)
- Doing Payments
- Cancelling a booked ticket
- Improved and faster service of PAKRAIL

1.3 Definitions, acronyms and abbreviations

GUI: Graphical User Interface
PAKRAIL: Pakistan Railways

SRS: Software Requirements Specification
RRS: Railway Reservation System

1.4 Document Convention

The font size and color that will be used throughout this document are:
Font Size: 24 for headings, 16 for sub-headings, and 14 for text.

Font color: Black

OVERALL DESCRIPTION

2. Overall Description

2.1 Product Perspective

Before our proposed system we saw some drawback in the existing system of our PAKRAIL. The system was slow, involved a lot of manual labor which resulted in frequent errors. Manual data comes with the risk of someone meddling with it causing damage. Updating data is difficult as well due to the data being on manual terms. Therefore, our new automated system comes with the following features in hopes of revolutionizing the railway system. Making the system automated through our computerized system. Chances of errors are less due to machine's involvement meanwhile updating data will also be easier through our system. No meddling will be there because every user will be provided by his ID in order to access the system.

2.2 Product Functions

- Book Ticket: User can book ticket in any available train.
- Search: Function allows a user to search for a specific person's record.
- Payment Method: A user is prompted to make the payments according to his will.
- Review: A person having booked his ticket can review it as well for confirmation.
- Cancel: A person who has his ticket booked, can also cancel his ticket.

2.3 User Classes and Characteristics

- ***BASIC EDUCATIONAL TYPE:*** User should be comfortable with English language in order to better access the system.

- ***TECHNICAL EXPERTISE:*** User should be familiar with general daily life applications of computer and should have a slight knowhow of it.

2.4 General Constraints

The software would at least need an operating system of Windows XP or higher. While for interaction a keyboard and monitor working on a fully functioning system is necessary.

2.5 Assumptions and Dependencies

The first assumption is that a user must have a computer system with internet access in order to use this RRS. The admin must have complete knowledge of the system. User must be logged in to the system with a valid username/password.

SPECIFIC REQUIREMENTS

3. Specific Requirements

3.1 Functional Requirements

3.1.1 Performance Requirements

- ***User Satisfaction:*** The system will stand up to the expectations of the user.
- ***Error Management:*** Responses to errors has been given so that system doesn't lag behind in the case of an error.
- ***User Friendly:*** The system is easy to use having a very friendly GUI.
- ***Response Time:*** The system has optimal response time to all types of queries through some efficient programming.
- ***Robustness:*** The system is robust as it protects your safety and safeguards against unwanted events.

3.1.2 Design Requirements

- ***Hardware Limit:*** The software must operate on existing hardware. Hardware must support the minimum requirements in order to run the RRS smoothly.
- ***Reliable:*** Recovery is important factor in this RRS. This would ensure the protection of data.

3.1.3 Hardware Requirements

- ***Minimum Hardware Requirements:***
  Core 2 Duo processor, 20 GB storage, 2 GB RAM, 1 Mbps Internet.
- ***Preferred Hardware Requirements:***
  I3 processor, 30 GB storage, 4 GB RAM, 2 Mbps Internet.

3.2 Non-Functional Requirements

3.2.1 ***Security:*** The system uses login signup with an authentic account so that no third user can access it making the data confidential and secure. Moreover, if credit card payments are made then they are also done through secure methods to avoid the risk of any loss. Moreover, passwords are also kept secured to remove the possibility of them falling in the wrong hands.

3.2.2 Reliable:
The system would be reliable as the one component that is very necessary for it will be its database. All efforts are made to have the database running without having any issues. Thus, the reliability of RRS can be trusted.

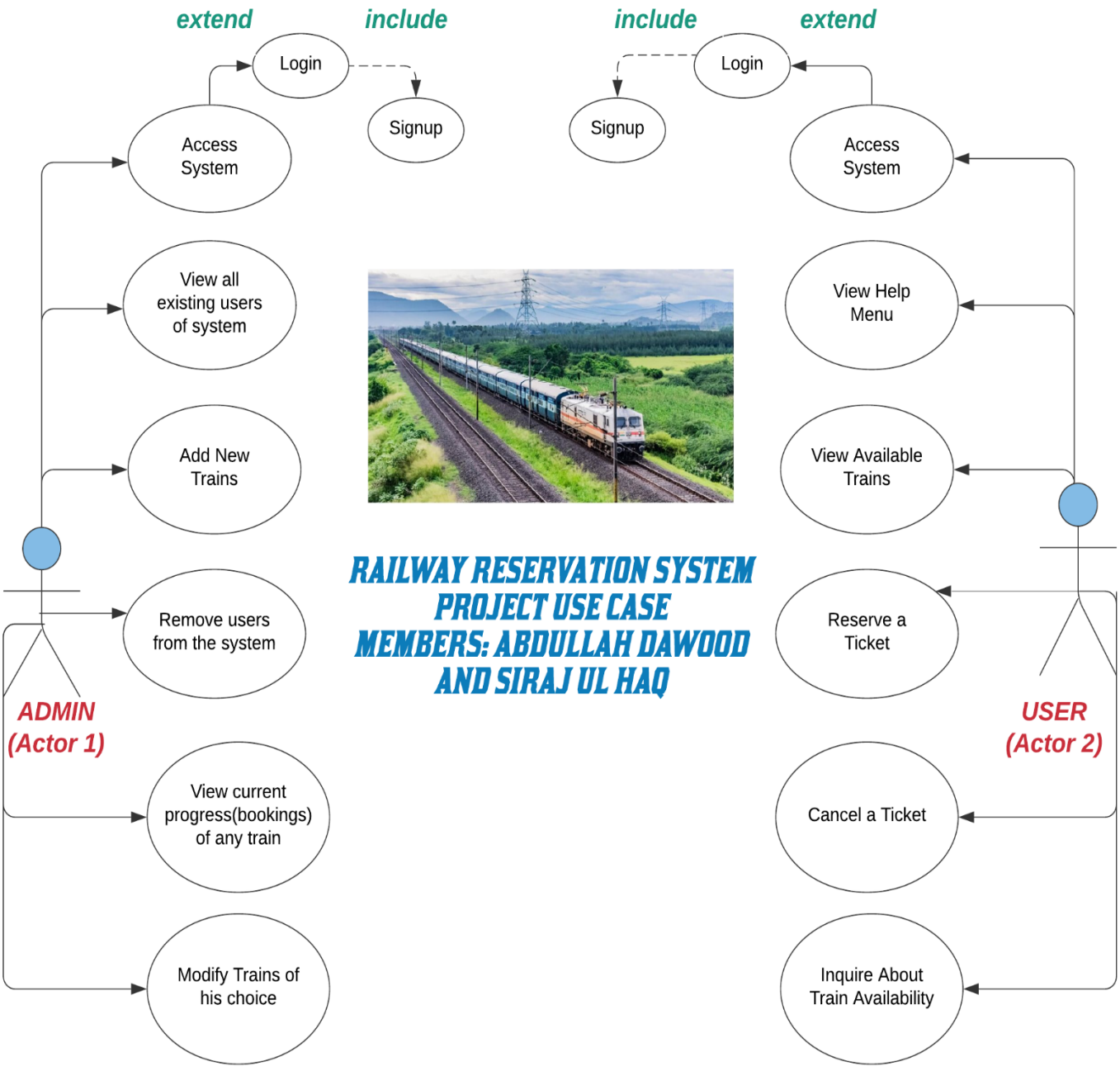
3.2.3 Accessibility:
The system would be accessible at all times. System would be available for user through web browsers with an internet connection. A server maintenance would be dealt with quickly however during that time queries can be made using our helpline. The service is available 24/7.

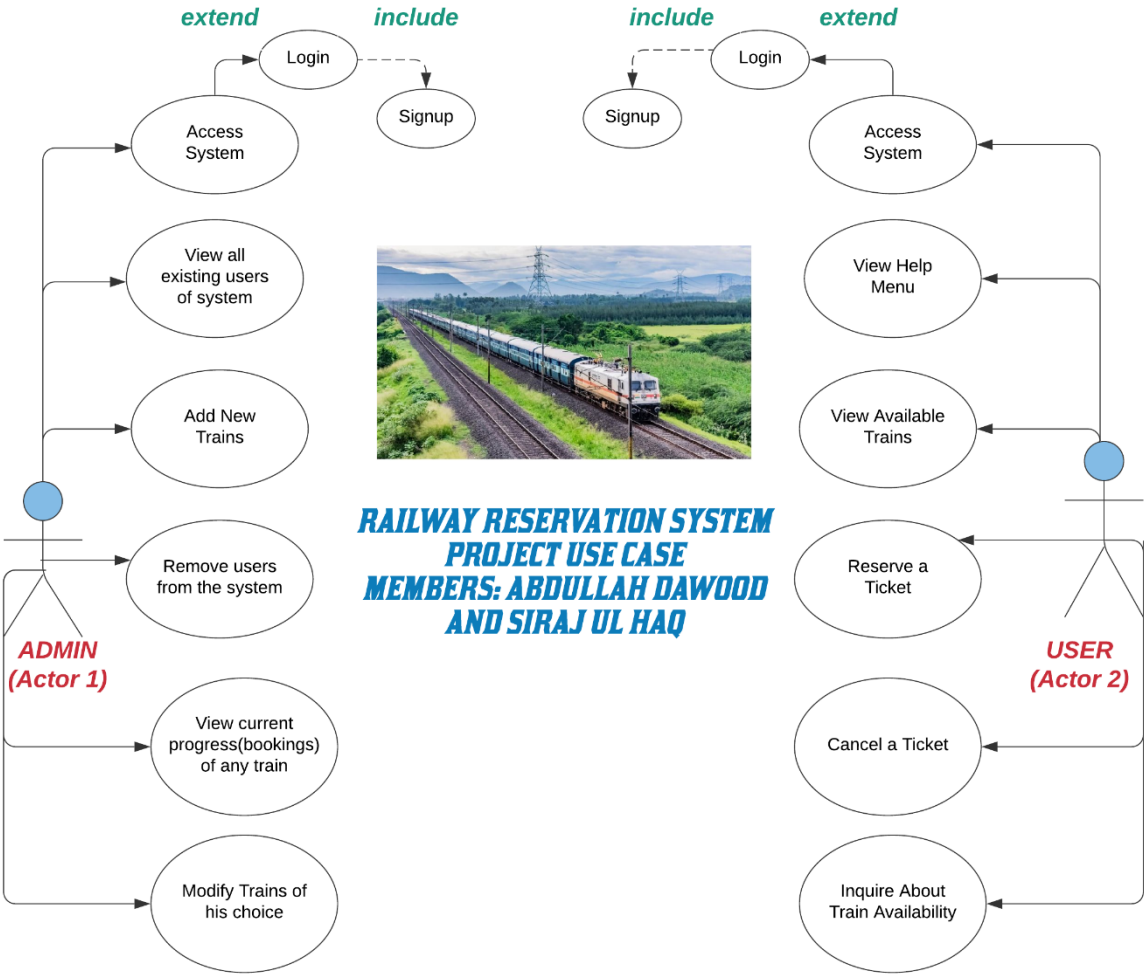
DIAGRAMS/ GRAPHS/ MATRICES.

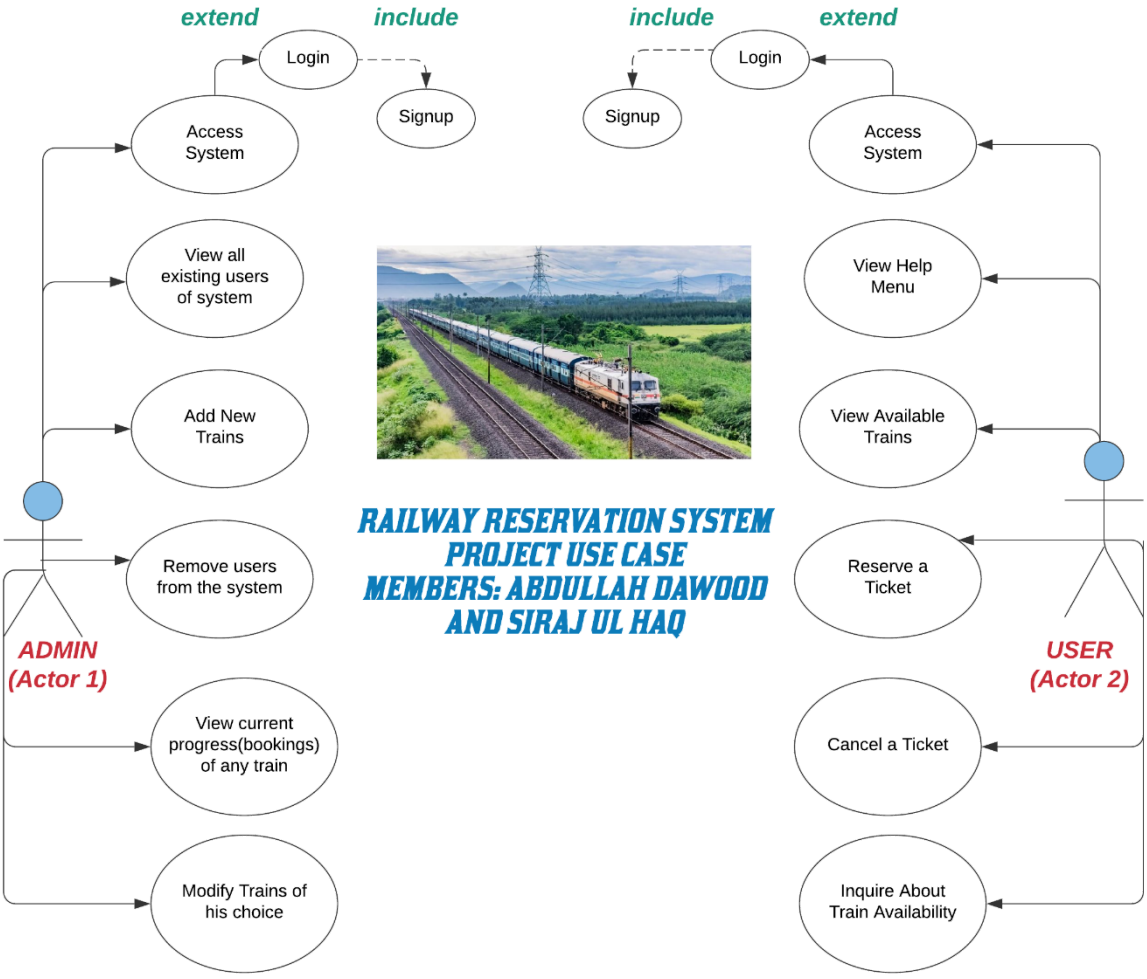
4. Diagrams/Graphs

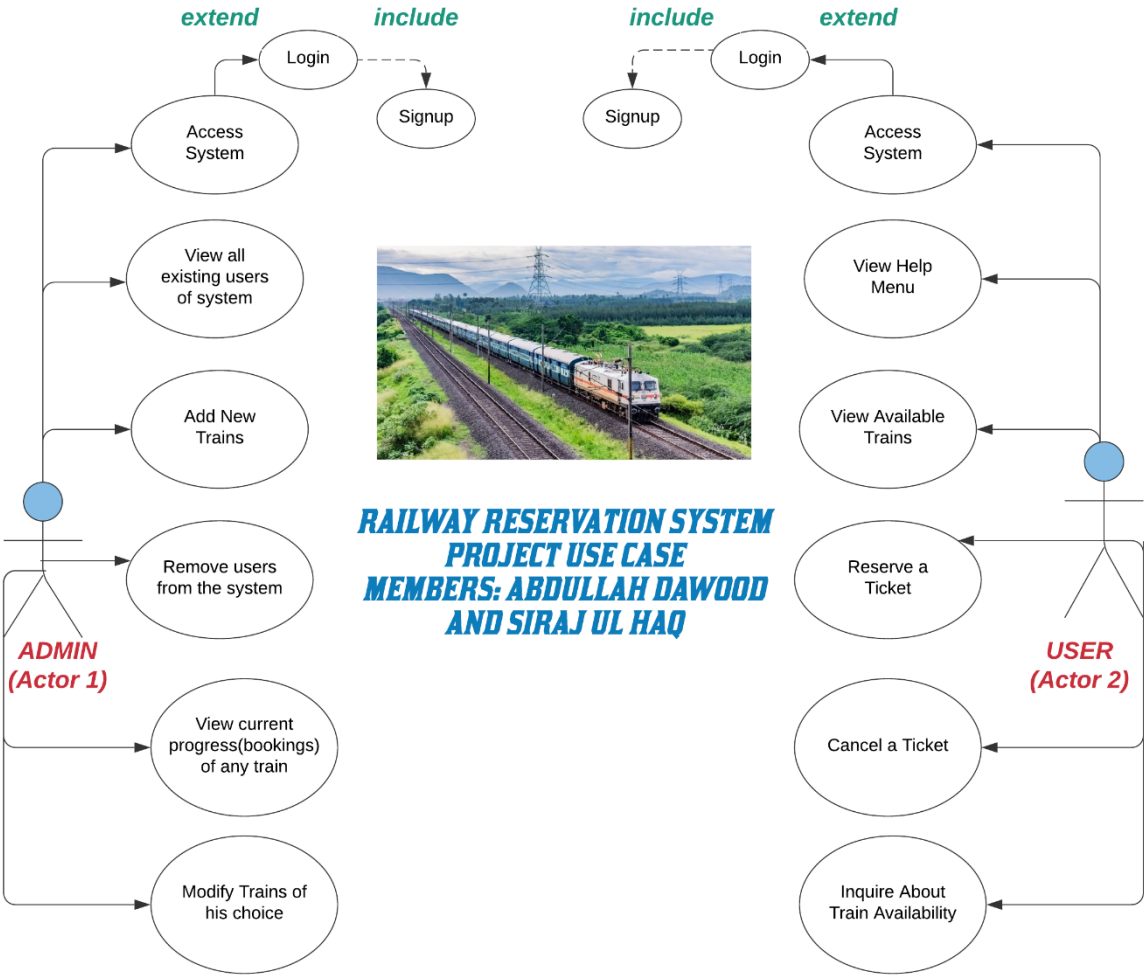
4.1 Use Case

A use case diagram is presented to present a graphical view of the system and its functionalities. Its main purpose is to show what functionalities is performed by which actor in our system. Following is the use case of our system.




extend
include
include
extend
Login
Signup
Login
Signup
Access System
Access System
View all existing users of system
View Help Menu
Add New Trains
View Available Trains
RAILWAY RESERVATION SYSTEM
PROJECT USE CASE
MEMBERS: ABDULLAH DAWOOD AND SIRAJ UL HAQ
Remove users from the system
Reserve a Ticket
ADMIN (Actor 1)
USER (Actor 2)
View current progress(bookings) of any train
Cancel a Ticket
Modify Trains of his choice
Inquire About Train Availability


extend
include
include
extend
Login
Signup
Login
Signup
Access System
Access System
View all existing users of system
View Help Menu
Add New Trains
View Available Trains
RAILWAY RESERVATION SYSTEM
PROJECT USE CASE
MEMBERS: ABDULLAH DAWOOD AND SIRAJ UL HAQ
Remove users from the system
Reserve a Ticket
ADMIN (Actor 1)
USER (Actor 2)
View current progress(bookings) of any train
Cancel a Ticket
Modify Trains of his choice
Inquire About Train Availability



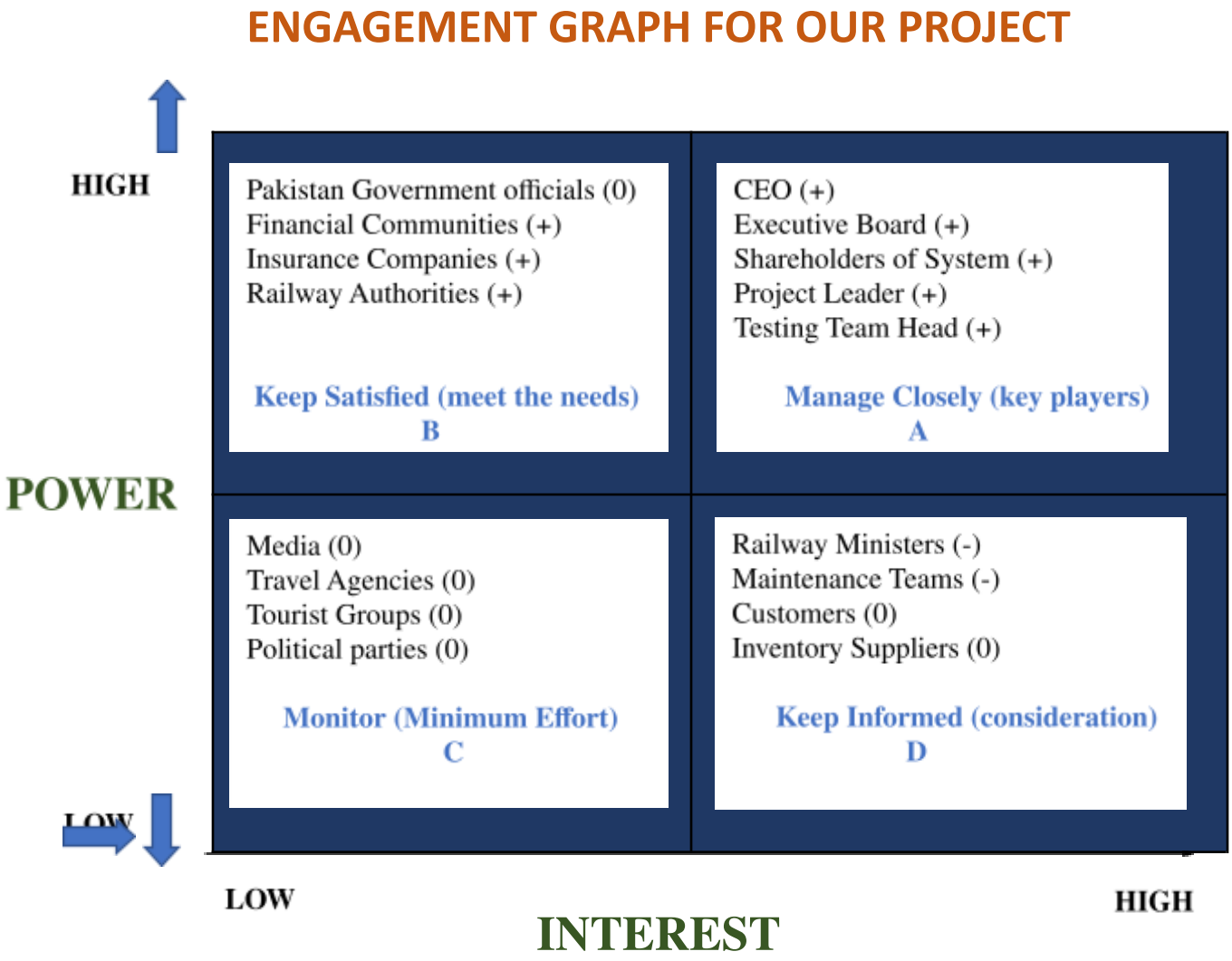
4.2 Requirement Matrix for Managing Conflicts

A requirement matrix shows how requirements interact with each other. Requirements are listed along both rows and columns of matrix.

Requirements Matrix for our project

R1: A database having user's credentials.
R2: Users can book tickets in any available train.
R3: Users can do payments through their desired way or methods.
R4: Admin can add/delete train records whenever he wants.
R5: Admin can check progress of trains.
R6: Users can access through their login credentials only.
R7: Users can do cash payments too.
R8: Users can also cancel their already booked tickets.

Requirements	R1	R2	R3	R4	R5	R6	R7	R8
R1	0	0	0	0	0	0	0	0
R2	0	0	0	0	0	0	0	1000
R3	0	0	0	0	0	0	1000	
R4	0	0	0	0	0	0	0	0
R5	0	0	0	0	0	0	0	0
R6	0	0	0	0	0	0	0	0
R7	0	0	1000	0	0	0	0	0
R8	0	1000	0	0	0	0	0	0

4.3 Engagement Matrix

The engagement matrix is a technique to document desired engagement levels of different stakeholders of the system. It helps identifying the gaps in involvement of stakeholders.