ONLINE RAILWAY RESERVATION SYSTEM

Project submitted to the
SRM University – AP, Andhra Pradesh
for the course project of

CSE305L Software Engineering Lab

Submitted by

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Abstract

Every day, the Indian Railways transports roughly 5.5 lakh people in reserved seating. From any of the 4000 terminals, the Computerised Passenger Reservation System (PRS) makes it easy to order and cancel tickets. These tickets can be purchased or cancelled for trips starting in any location in India and finishing in any location, with a maximum travel time of 72 hours and a maximum distance of several thousand kilometres.

In this project we will be developing an online application that enables users to book train tickets and make seat reservations. This system simplifies the ticket booking process, making it more efficient and convenient for both passengers and railway authorities. The system allows users to search for available trains, select their preferred route, and book seats based on their travel requirements. The Online Railway Reservation system project is expected to enhance the overall experience of passengers, and reduce long queues at booking counters.

1. Introduction

1.1 Purpose

The main purpose is to provide passengers an efficient means to reserve seats or berths on trains ahead of time. The ticketing procedure is optimized as a result, and passengers no longer have to wait in lengthy lines at train stations.

1.2 Scope

The scope of this is for Ticket Booking and managing their reservations, including making changes or cancellations to their bookings, subject to certain terms and conditions. The system oversees the distribution of berths or seats on trains, making sure that travelers are seated in the appropriate class and berth style.
For Processing of payments the system manages the processing of payments for purchasing tickets using a variety of payment methods, including credit/debit cards, net banking, e-wallets, etc.

1.3 Objectives

The objective of this is to design software to fully automate the process of issuing a railway ticket. i.e;
1. To create a database of the trains
2. To search the trains arrival and departure time, distance between source and destination.
3. To check the availability of the ticket.
4. To calculate fare.
5. To book the ticket.
6. To cancel the ticket if necessary.

2. Software Requirements Specification

2.1 Hardware configuration

Intel Pentium or higher processor.
65 MB RAM or higher.

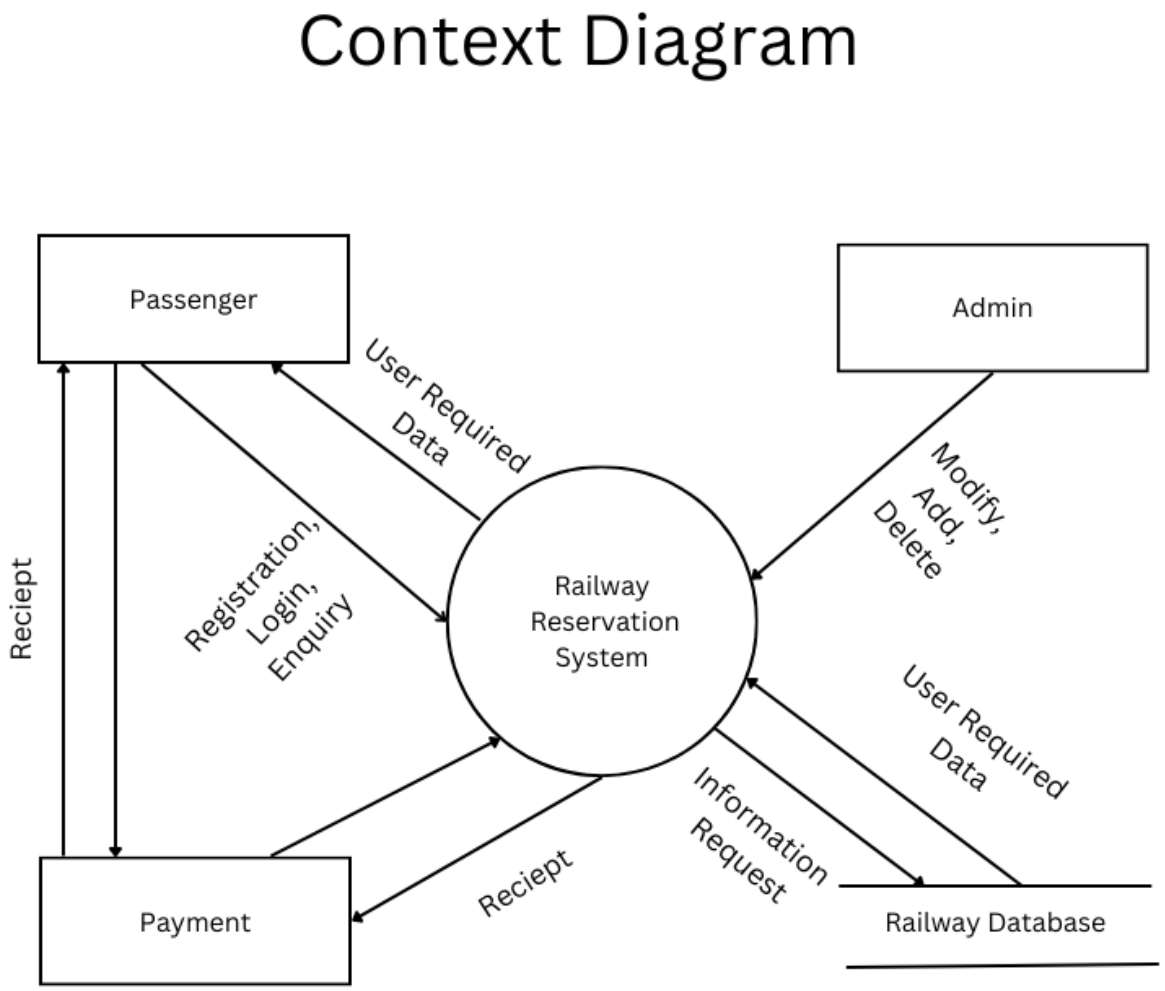
2.2 Software configuration

Microsoft Windows XP or later versions.
A standard web browser.
Net framework.

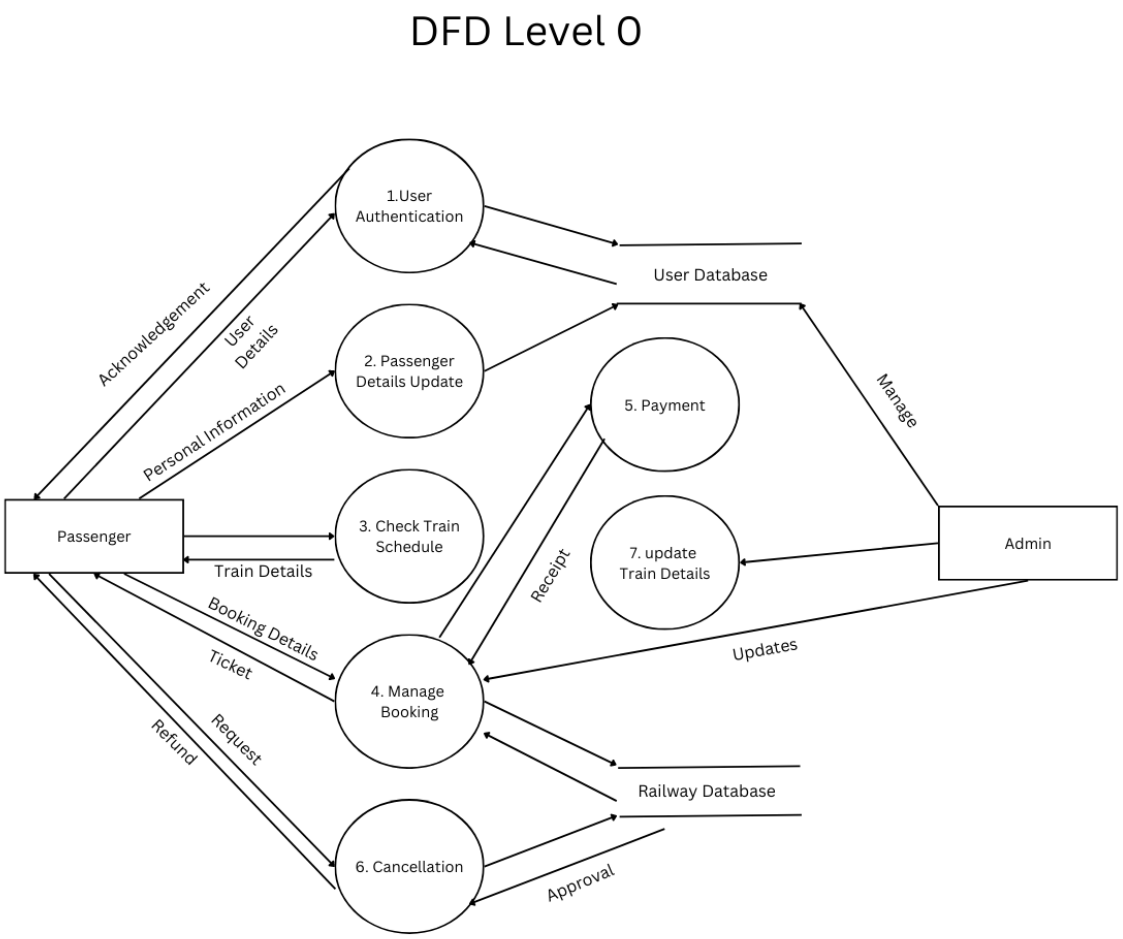
3. Design

3.1 Data Flow Diagram

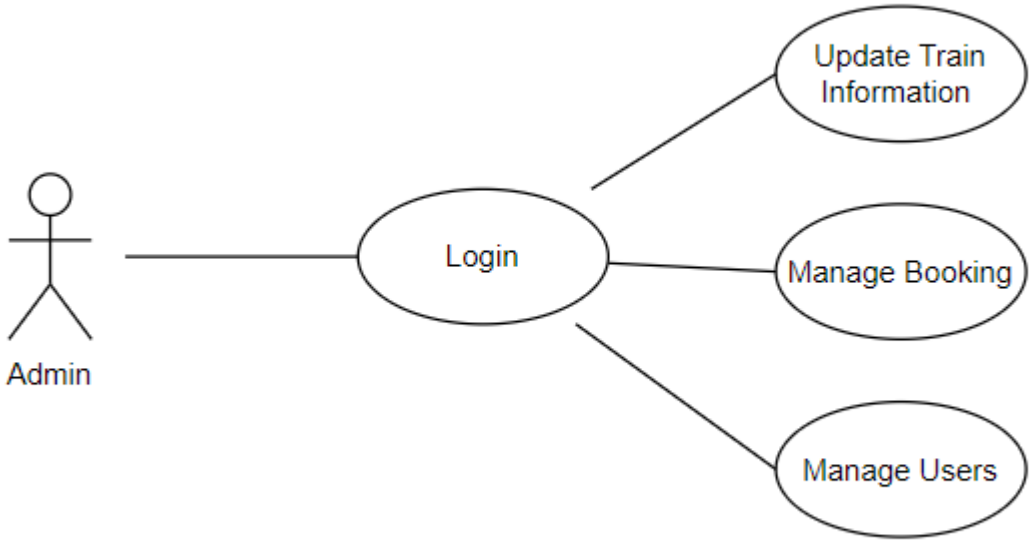
3.1.1 Context Diagram

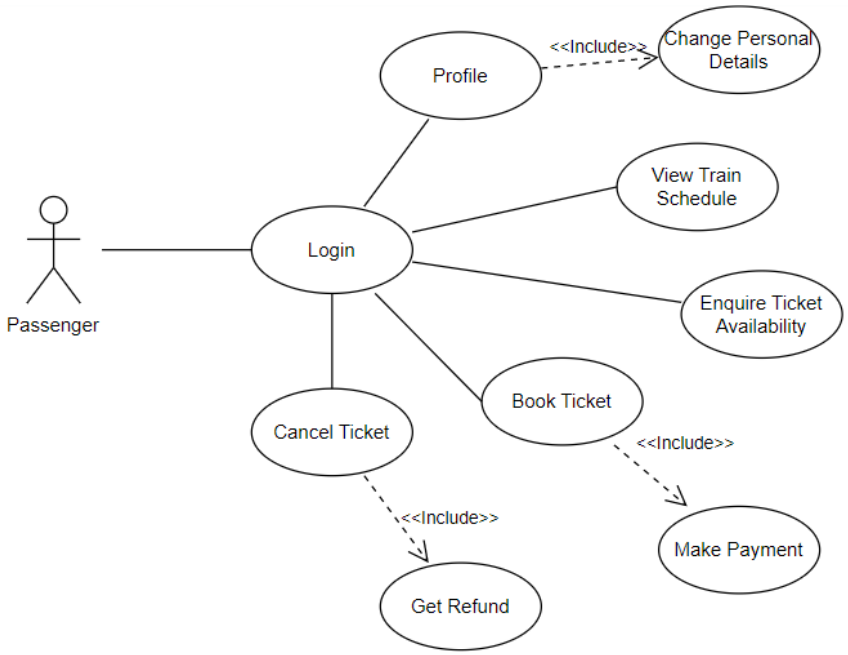


3.1.2 Level 0 DFD

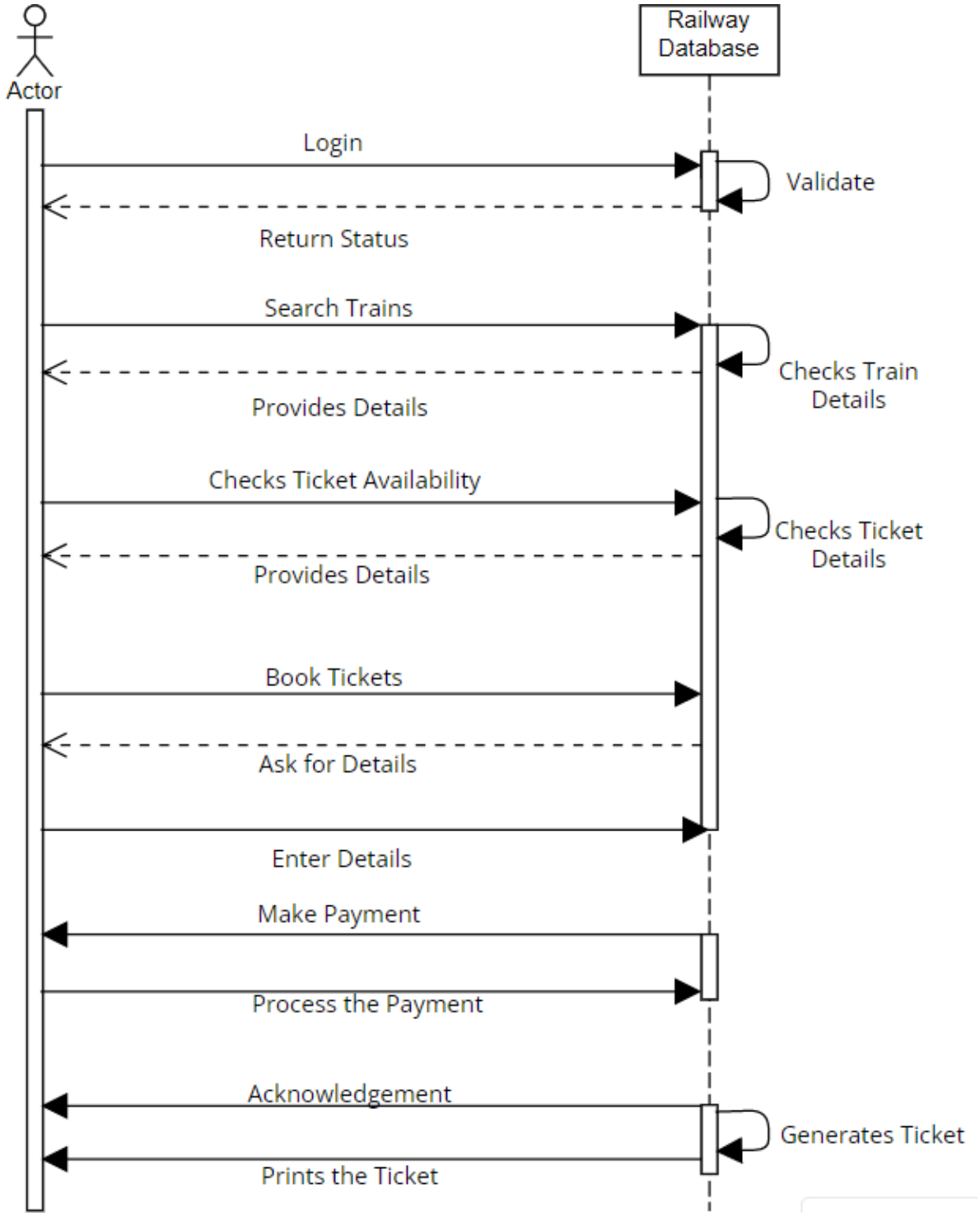


3.2 Use Case Diagram

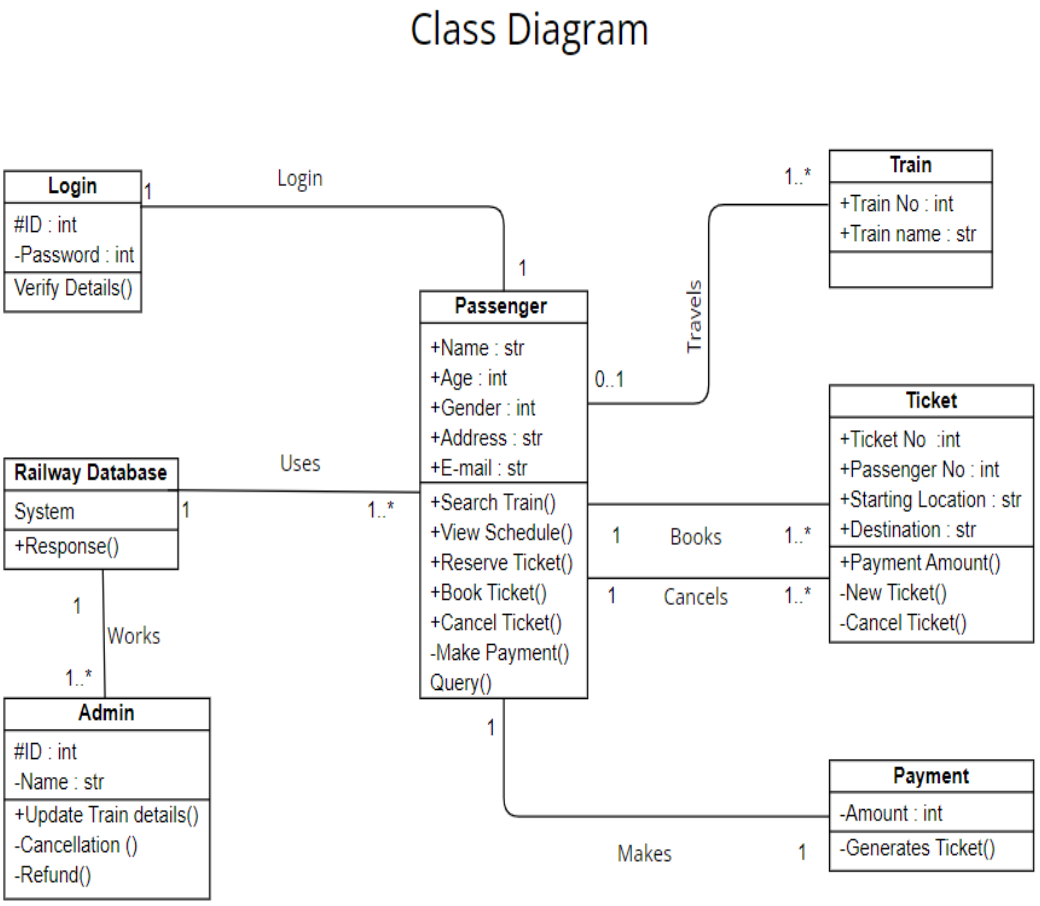




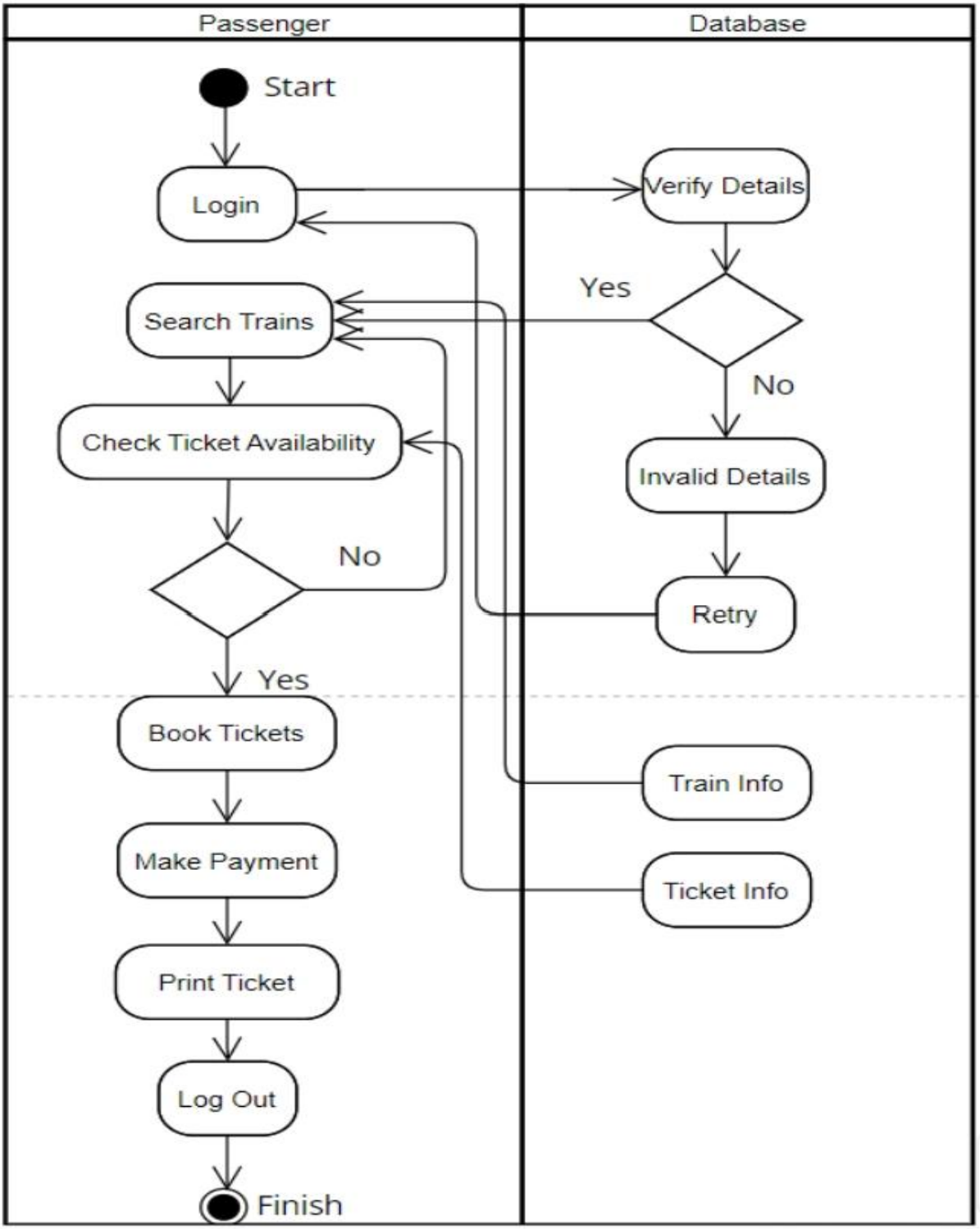
3.3 Sequence Diagram



3.4 Class Diagram



3.5 Activity Diagram



4. Requirements

4.1 Functional Requirements

1. User registration
Users should be able to register their details, including name, address, email, and contact information, and establish accounts on the system.

2. Ticket booking
Users should be able to use the system to search train availability, choose their preferred train, and purchase tickets.

3. Seat availability
Users should have the chance to pick a seat after the system displays the seats that are vacant on the selected train.

4. Ticket cancellation
Users should be able to cancel their reservations through the system and receive a refund if applicable.

5. Feedback and complaint system
Users should have access to a feedback and complaint system through the system to report any concerns with the booking system, payments, or other features of the system.

4.2 Non-Functional Requirements

1. Safety
During traveling in trains passengers should take care of languages and railway authority is not responsible for loss of luggage.
Items that produce fire are prohibited in trains.

2. Security
The person who is traveling in the train should carry an id as proof that it can be any aadhaar card or voter id.

4.3 System Features

1. Description and priority
While booking tickets, the user can book a ticket based on his preference or priority and availability of tickets. If the passenger is a senior citizen then there is an option to book at least one lower seat. If train journey is long then you can book food along with ticket

2. Action/result
First, for booking we need to login with login details. If login details are valid then we will go to another webpage where we have to fill our journey's source to destination and date after that it will provide availability of trains and seats in it. After selecting a train we have to book a seat and make payment.

4.4 External Interface Requirements

1. User Interface
From each displayed HTML page, the system will provide an assistance (clarification) link that will explain how to use that page. The RRS website will allow users to search for train and ticket information using any input method, along with touch screens on smartphones, keyboards, and mice.

2. Hardware Interface
The following elements are usually found in a hardware interface for a railway reservation system
● Computer
A computer that operates the reservation system software serves as the primary element of the hardware interface.
● Input devices
Users will be able to enter their reservation information, including the train path, date, and passenger count, using input devices like keyboards, mice, and touchscreens when using the hardware interface.
● Output devices
For the hardware interface to display reservation information, print tickets, and give audio notifications to users, output devices like monitors, printers, and speakers will also be necessary.
● Payment processing devices
Payment handling equipment, such as credit card readers or cash acceptors, may be needed if the reservation system requests for payment.
● Network devices
The reservation system will need to be connected to the Internet or a private network using network devices like routers, switches, and modems as part of the physical interface.

5. Literature Review

Online Railway Reservation system enables the users to book, change, or cancel tickets for railway travel, .due to this we can reduce long queue

5.1 Advantages of railway reservation system

1. It offers a simple and quick way to look up trains, seats, prices, and routes that are open.
2. It saves the trouble of standing in a queue at the train station or visiting travel agencies to make reservations.
3. Passengers can safely pay online using a variety of payment methods, including credit cards, debit cards, net banking, etc.
4. Each booking is provided with a unique PNR number, and passengers are sent email or SMS confirmations and e-tickets.
5. Passengers can use it to check the status of their PNRs, make changes to their bookings, or request refunds online.

5.2 Challenges in railway reservation system

1. Lack of standardization: The reservation and ticketing systems, procedures, and products used by various train operators vary. This makes it challenging to integrate with other travel service providers, including airlines, hotels, etc., and share data.
2. Lack of technology: Railway companies make insufficient investments in IT system innovation and upgrading. This leads to a slow, unreliable, and out-of-date reservation system that is unable to keep up with increasing demand and passenger expectations.
3. Lack of upgrading: Demand for the railway reservation system is increasing more day by day. In order to meet their needs railway reservation system need to upgraded

6. System Requirements

6.1 Computer Configuration

1. Minimum Hardware Requirements:
Processor Intel Pentium IV HDD 40 GB RAM 256 MB Cache 2Mb.

2. Operating System
The application should be compatible with major operating systems such as Windows, macOS, and Linux.

3. Processor
A modern processor capable of running web applications efficiently.

4. Memory (RAM)
At least 4 GB of RAM is recommended for smooth performance.
A good Internet with Bandwidth for smooth functionality of Websites at least 2 Mbbs.
An Installed Web Browser such as Google Chrome, Mozilla Firefox, Safari, and Microsoft Edge.

Proposed Scheme

The idea is that our team has to develop a railway reservation system website that contains all information related to railway reservations and also some queries about booking a ticket, refunds, cancellations, etc. The website basically works like other websites where the user can login, register, and can change his/her password on their interest, along with their user login the website also has the feature to select the preference date and train for the particular travel day.

The login page also has options for respective users to change their username and password. Once the user is logged in with his or her respective credentials then appears the main page where we can select the preferred train on a preferred date when the user is willing to travel

Once the user selects the options his/her will be transferred into the next page where the user can check fares of the travel and availability of the seats which can be reserved for the travel. Upon checking the availability of seats the user can click on the next page where the user will be transferred to the booking page where he can do the payment.

The user can do the payment through the user willing payment option with safety and security. After doing the payment the user will receive his ticket details in another page.

Once the transaction is done the website will redirect the user to the homepage if in case the user wants to continue checking his/her ticket details or book another one.

Results/Screenshots

Figure 1. Login Page

Figure 2. Register New User

3.Admin login Page

Conclusion

In our railway reservation system we have added information about the train schedule,user booking tickets,status of train,availability of seats,booking confirmation and ticket info etc. This database is useful for the passengers to book the train tickets and check the availability of trains and their status from the nearby systems available to the user. It also avoids the inconvenience of going to a nearby railway station for each and every query for booking a ticket. We only considered the main requirements, more features and details can be added to our project to maintain a user -friendly website to do transitions and booking for trains.

While railway reservation systems have great advantages they also face certain challenges. Growing trust and credibility is crucial as users may have concerns about booking and the reliability of the platform to do ticket bookings. Overcoming these challenges is essential to maintain user satisfaction and loyalty.

In conclusion, railway reservation systems have revolutionized the ticket booking landscape,offering convenience,variety and competitive pricing to the users. Despite the challenges to trust and user experience, the prospects for the railway reservation system are promising. By addressing these challenges,leveraging the technological advancements and adapting to emerging trends,railway reservation system can continue to thrive and meet the evolving needs of users

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2. Indian Railway Directorate

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