A Documentation Report On

Railway Reservation System

Submitted in partial fulfillment of the requirement for the award

of the degree

Bachelor of Computer Applications (HONS.)

Academic Year 2022– 23

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Certificate

This is to certify that the documentation work entitled

Railway Reservation System

submitted in partial fulfillment of the requirement for
the award of the degree of

Bachelor of Computer Applications (HONS.)

of the

Marwadi University

is a result of the bonafide work carried out by

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during the academic year 2022-23

Faculty Guide	HOD	Dean

DECLARATION

I/We hereby declare that this project work entitled **Railway Reservation System** is a record done by us.

I also declare that the matter embodied in this project is genuine work done by me and has been submitted to this University for the partial fulfillment of the requirement for the course of study.

Place :   Rajkot

Sanjana Nandania (92100527145)   **Signature : _____**

Amaan Khojani (92100527008)   **Signature : _____**

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INTRODUCTION

If a passenger wants to reserve tickets, firstly, he/she has to log in to the Railway system with valid credentials. Then, the passenger has to provide his/her details with the date of the journey, names of the passengers and their details, origin station details, destination station details, and the class type of the required tickets.

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The Railway Reservation System will provide the available Train-list, and Seat-availability, via-details. To book a ticket passengers can pay through online/offline mode. After successful payment of the ticket fare the System will generate the ticket and PNR no. will be given to the passenger. The System also keeps the payment details and sends them to the system Admin.

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The Passenger can check PNR status (confirmed, RAC, waiting list) by entering the PNR no. into the Reservation system.The Reservation system will store all train details, fare details (by zone, class, and date wise), PNR no, date of trains, etc. This maintenance should be controlled by the Admin.

-

 The System also has refund rules which have a date of reservation, ticket fare, and refundable percentage. The passenger can simply cancel the ticket(s) by entering the PNR no and a cancel ticket request.

Technical Description

Hardware Requirements

- Minimum **2GB RAM** for smooth execution.
- A **multi-core processor** to handle multiple operations efficiently.
- Sufficient **storage space** for maintaining database records.
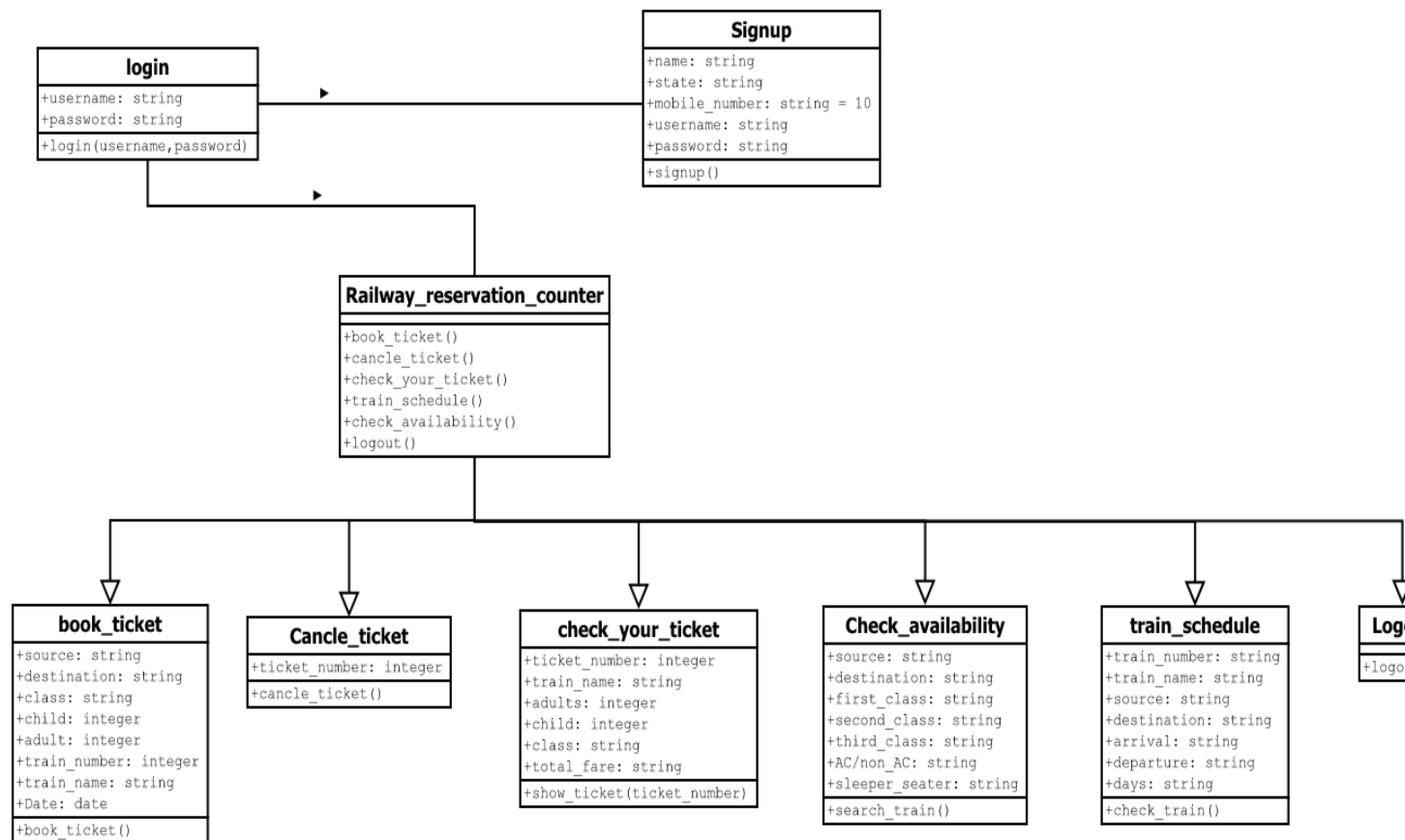
Software Requirements

- **Operating System:** Compatible with **Windows, macOS, or Linux**.
- **Programming Language:** Developed using **Java** with **Swing** for the graphical user interface.
- **Database:** Uses **MySQL** for storing user details, train schedules, and reservation data.
- **Development Environment:** Built using **Eclipse or NetBeans**.
- **JDBC Connectivity:** Ensures seamless communication between Java and MySQL.
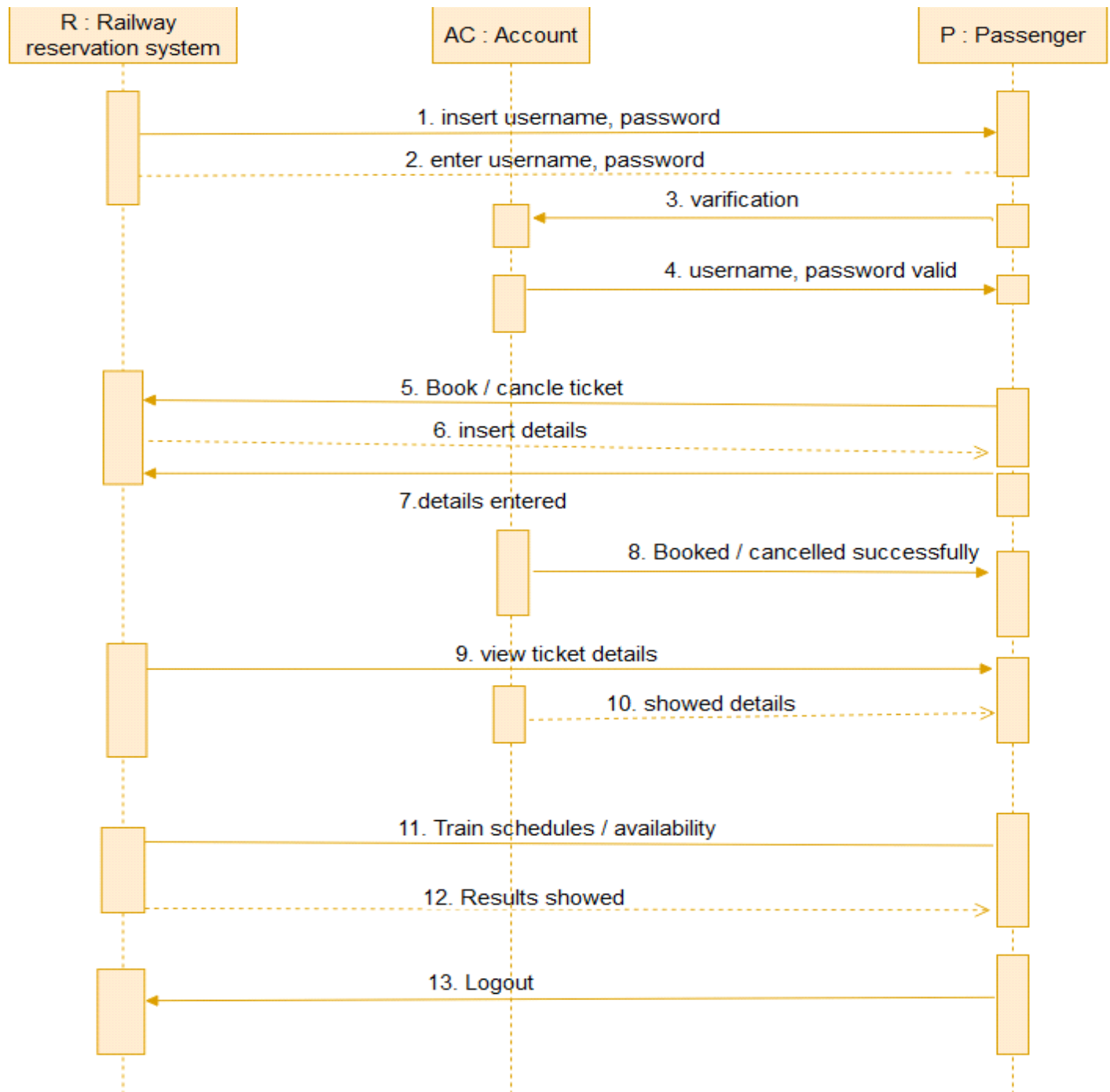
System Architecture
- **Presentation Layer:** Developed using **Java Swing** for an interactive user interface.
- **Business Logic Layer:** Handles **user authentication, ticket booking, and cancellations**.
- **Data Layer:** Uses **MySQL** to store train details, user credentials, and reservation records securely.

ARCHITECTURAL DESIGN

Class Diagram :

login

+username: string
+password: string

+login(username,password)

Signup

+name: string
+state: string
+mobile_number: string = 10
+username: string
+password: string

+signup()

Railway_reservation_counter

+book_ticket()
+cancle_ticket()
+check_your_ticket()
+train_schedule()
+check_availability()
+logout()

book_ticket

+source: string
+destination: string
+class: string
+child: integer
+adult: integer
+train_number: integer
+train_name: string
+Date: date

+book_ticket()

Cancle_ticket

+ticket_number: integer

+cancle_ticket()

check_your_ticket

+ticket_number: integer
+train_name: string
+adults: integer
+child: integer
+class: string
+total_fare: string

+show_ticket(ticket_number)

Check_availability

+source: string
+destination: string
+first_class: string
+second_class: string
+third_class: string
+AC/non_AC: string
+sleeper_seater: string

+search_train()

train_schedule

+train_number: string
+train_name: string
+source: string
+destination: string
+arrival: string
+departure: string
+days: string

+check_train()

Logo

+logo

Sequence Diagram :

Sequence diagram showing interactions between R : Railway reservation system, AC : Account, and P : Passenger.

- 1. insert username, password
- 2. enter username, password
- 3. varification
- 4. username, password valid
- 5. Book / cancle ticket
- 6. insert details
- 7. details entered
- 8. Booked / cancelled successfully
- 9. view ticket details
- 10. showed details
- 11. Train schedules / availability
- 12. Results showed
- 13. Logout

DATABASE DESIGN

Database name – BCAPROJECT
Tables :   1) Signup
              2) Traindetails
              3) Pnrdetails

Signup Table:

This database table is created in order to store the details
of the user who register their account with the application.
When a user logs in with his/her created username and
password the data is verified fromt this table.The mobile
number field is given a limit of 10 characters as a user
must enter only the registered 10 digit mobile number.

SQL TABLE :

```
mysql> DESC SIGNUP;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| name   | varchar(40) | YES  |     | NULL    |       |
| state  | varchar(20) | YES  |     | NULL    |       |
| mobile | varchar(10) | YES  |     | NULL    |       |
| user   | varchar(40) | YES  |     | NULL    |       |
| pass   | varchar(40) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
5 rows in set (0.01 sec)
```

TRAINDETAILS TABLE

This table is basically used to store all the information related to the trains available for a particular route long with the arrival and departure of the trains from destination and source respectively. It also has the details of the days on which the trains operate. It also stores the seat availability details of the various coaches like FIRST CLASS AC, SECOND AC,
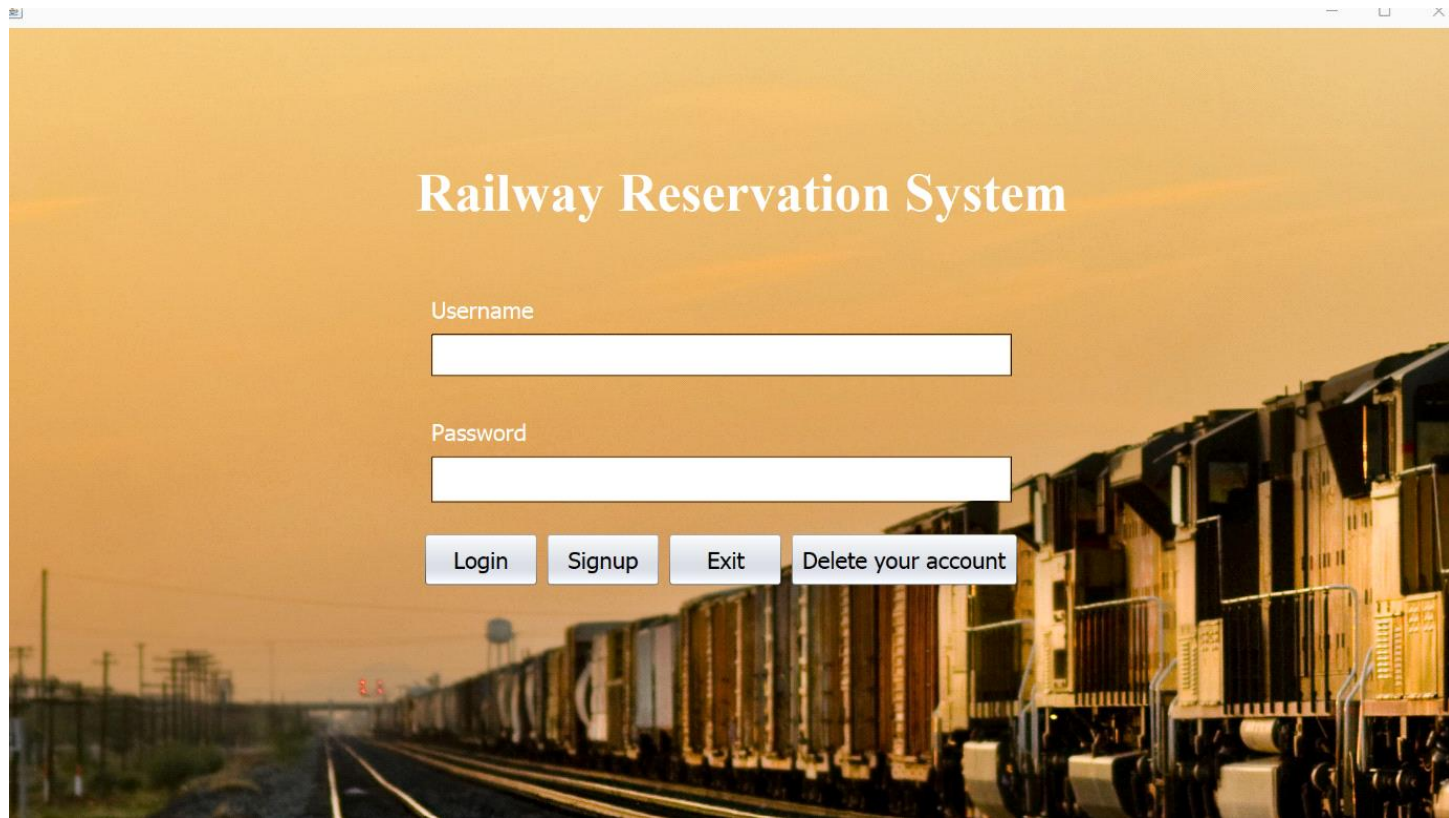and THIRD AC along with the total number of coaches a particular train has.

```
mysql> DESC TRAINDETAILS;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| tno         | int         | NO   | PRI | NULL    |       |
| tname       | varchar(50) | YES  |     | NULL    |       |
| source      | varchar(50) | YES  |     | NULL    |       |
| destination | varchar(50) | YES  |     | NULL    |       |
| arrival     | varchar(40) | YES  |     | NULL    |       |
| departure   | varchar(40) | YES  |     | NULL    |       |
| days        | varchar(50) | YES  |     | NULL    |       |
| first       | int         | YES  |     | NULL    |       |
| second      | int         | YES  |     | NULL    |       |
| third       | int         | YES  |     | NULL    |       |
| coaches     | int         | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
11 rows in set (0.01 sec)
```
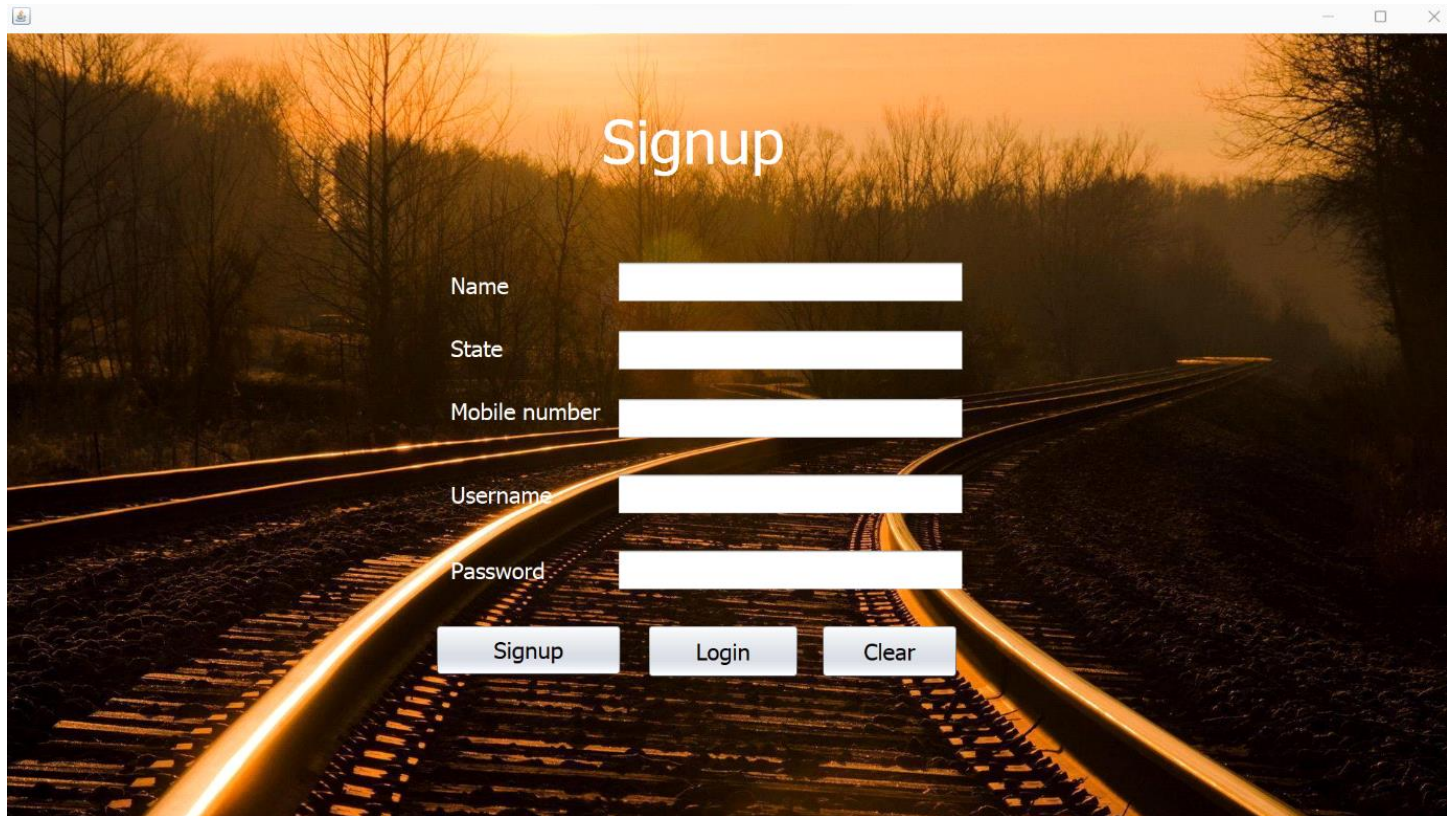
USER INTERFACE DESIGNS

- LOGIN SCREEN

Railway Reservation System

Username

Password

Login   Signup   Exit   Delete your account

- SIGNUP SCREEN

- Main Page

- Ticket Booking page

- Ticket Availability
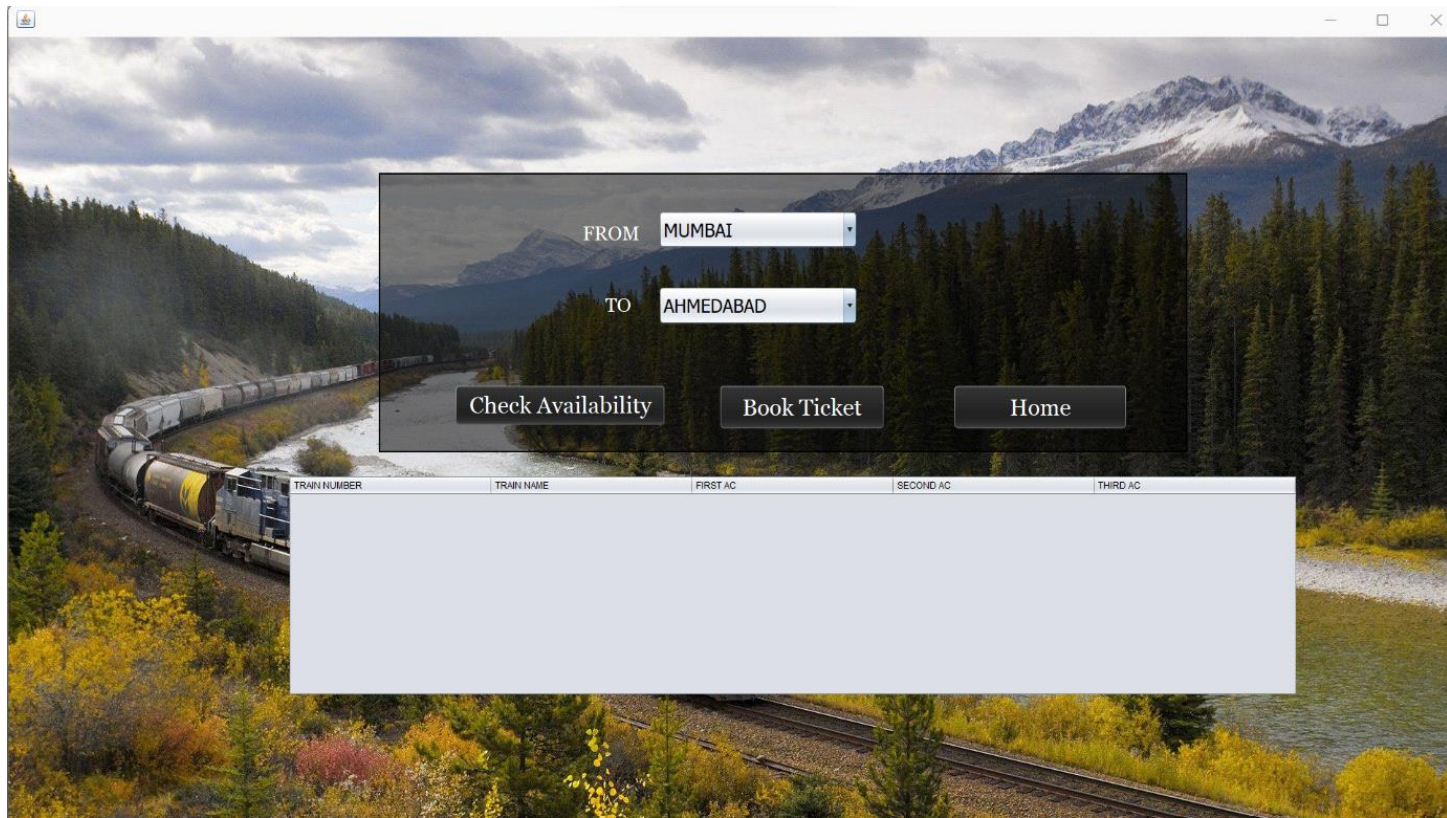
- Ticket Checker
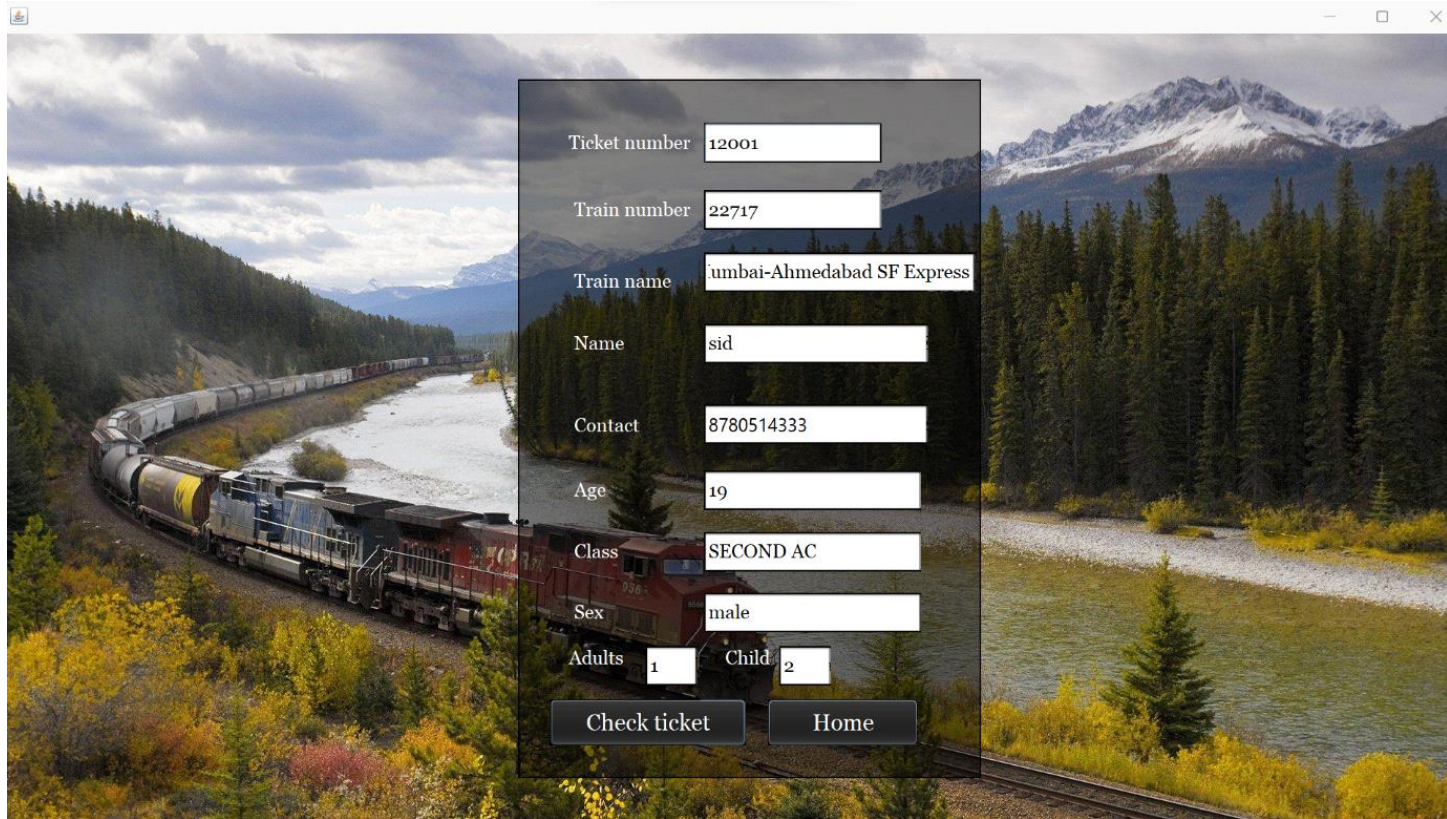
Github Repository and Project Download

A **GitHub repository** has been created for this project, where users can **download the project as a ZIP file** and use it on their local system.

🔗 GitHub Repository Link:

https://github.com/sanjana0329/Railway-Reservation-Project

Users can clone or download the source code, set up the project, and explore its functionalities.

Conclusion

The **Railway Reservation System** project successfully provides a streamlined and efficient platform for booking train tickets,

checking seat availability, and managing reservations. The system ensures **user authentication, secure data handling, and session management**, making it a reliable and user-friendly application. By implementing features such as **password recovery, ticket verification, and PNR status checks**, the project enhances the overall booking experience for passengers.

This project demonstrates the application of **database management, user interface design, and security principles** in real-world railway systems, making it a valuable learning experience and a foundation for more advanced reservation systems in the future.

Bibliography

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