Bus Ticket Booking System

1, Project Overview

- **Title of the Project:** Bus Ticket Booking System.
- **Package Name:** CapstoneProject.
- **Purpose**: A Bus Ticket Booking System streamlines the process of finding and purchasing bus tickets online, offering convenience to travelers. It typically displays available routes, schedules, and allows for seat selection and secure payment.
- **Architecture:** MVC design pattern.
- **Core Functionality**: This bus ticket booking system empowers passengers with a seamless online experience, enabling them to effortlessly search and access all necessary functionalities. By centralizing operations on the internet, it provides a streamlined way for users to manage their bus travel needs.
- **Technologies Used:**
  - ◆ Front-end - React Js.
  - ◆ Back-end - Spring Boot(Java).
  - ◆ Database - MySQL.
  - ◆ API Documantation: Postman.

2, Database Structure

Booking Info Entity:

Column	Type	Description
bookingInfo_id	String(PK)	Booking info unique identifier
bus_id	String	To know which bus is booked
bus_name	String	Bus Name
availableSeaterSeats	Int	No of seater seats available
availableSleeperSeats	Int	No of sleeper seats available
routeInfo_id	String	To know the route of bus
boardingDateTime	Date/Time	Source Date/Time
droppingDateTime	Date/Time	Drop Date/Time
travelTime	Time	Travel duration
Origin	String	From city
Destination	String	To city
total_distance	int	Distance in km

Bus Entity:

Column	Type	Description
Bus_id	String(PK)	Bus unique identifier
Bus_name	String	Name of the bus
ratePerKm	Double	Rate Per Km charges
isUpperDeck	Boolean	Yes if upper available
lower_left	String	Type of seats
lower_right	String	Type of seats
numOfSeaterSeats	Int	No of seater seats
numOfSleeperSeats	Int	No of sleeper seats
isACBus	Boolean	AC available or not
waterBottle	Boolean	Water Bottle available or not
blanket	Boolean	Blanket available or not
chargingPoint	Boolean	Charging point available or not

Bus Booking Info Entity:

Column	Type	Description
busBookingInfo_id	String	Bus Booking Info unique identifier
bus_id	String	To know which bus is booked
bookedSeatNum	String	Seat Number
booked_date	Date	Booked Date
passenger_gender	String	For secretariat the seats

Passenger Entity:

Column	Type	Description
passenger_id	String	Passenger unique identifier
passenger_name	String	Name of the passenger
passenger_dob	Date	Date of Birth
passenger_gender	String	Passenger Gender
passenger_mobile	String	Passenger Mobile Number
passenger_email	String	Passenger Email Information

Passenger Booking Info Entity:

Column	Type	Description
passengerBookingInfo_id	String(PK)	Passenger Booking Info unique identifier
pnr_Number	String	Unique number for ticket
bookingInfo_id	String	Booking info id
booking_datetime	Date/Time	To know the date and time of booking
passenger_id	String	Which passenger booked
passenger_name	String	Passenger Name

passenger_gender	String	Passenger Gender
seat_num	String	Seat Number
paymentType	String	Payment method
passenger_mobile	String	Passenger Mobile Number
passenger_email	String	Passenger Email Information

Role Entity:

Column	Type	Description
id	Integer(PK)	Role unique identifier
name	String	Role name

Route Info Entity:

Column	Type	Description
routeInfo_id	String(PK)	Role Info unique identifier
routeInfo_origin	String	Origin
routeInfo_destination	String	Destination
routeInfo_distance	Int	Travel distance
routeInfo_traveltime	Time	Travel duration

User Role Entity:

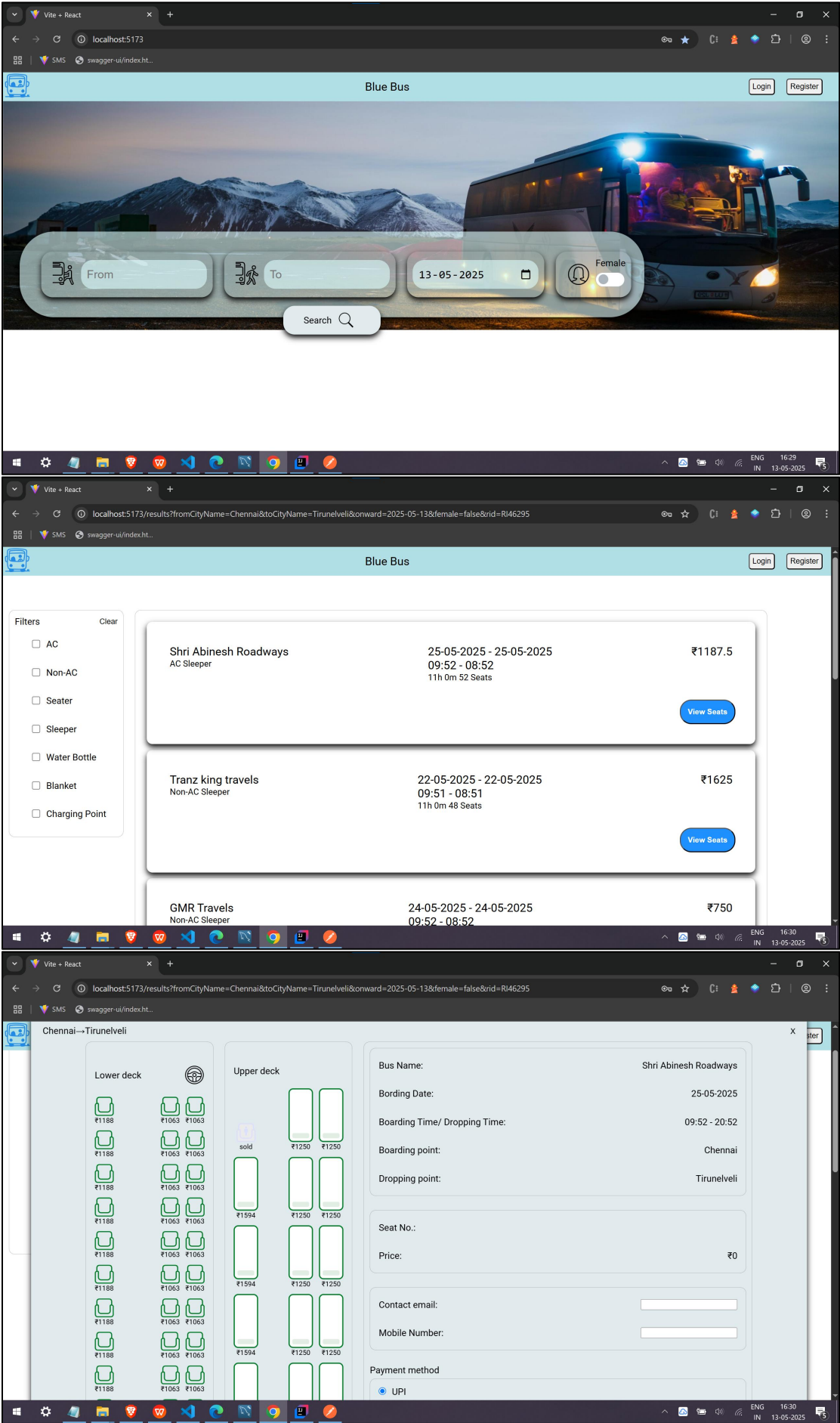| Column	Type	Description
Id	Integer(PK)	User Id unique identifier
passenger_id	String	To find the passenger
Username	String	Unique username
Paassword	String	Securet code

3, Frontend

React is a popular JavaScript library for building dynamic and interactive user interfaces. Its component-based architecture allows for efficient development and code re-usability.

- React JS Package:
  - ◆ Axios.
  - ◆ Date-fns.
  - ◆ Jwt-decode.
  - ◆ React-route-dom.
  - ◆ Sonner.
  - ◆ Jspdf
  - ◆ Html2canvas

Frontend Screenshots:

NON-AUTH:

Passenger:

Booking History

PNR number: 9302
Passenger BookingInfo id:	PBI18568
Booked Date/Time:	2025-05-13T05:33:44
Passenger id:	P34209
Passenger Name:	Bava
Passenger Gender:	Male
Passenger Mobile:	9988776655
Passenger Email:	bava@gmail.com
Booking Info id:	BI11617
Seat Number:	UR2
Payment Type:	UPI

PNR number: 6004
Passenger BookingInfo id:	PBI30076
Booked Date/Time:	2025-05-13T05:33:44
Passenger id:	P34209
Passenger Name:	Bava
Passenger Gender:	Male
Passenger Mobile:	9988776655
Passenger Email:	bava@gmail.com
Booking Info id:	BI11617
Seat Number:	UL1
Payment Type:	UPI

PNR number: 5114
Passenger BookingInfo id:	PBI72228
Booked Date/Time:	2025-05-13T09:32:58
Passenger id:	P34209
Passenger Name:	Bava
Passenger Gender:	Male
Passenger Mobile:	9988776655
Passenger Email:	bava@gmail.com
Booking Info id:	BI11617
Seat Number:	UL1
Payment Type:	UPI

PNR number: 3435
Passenger BookingInfo id:	PBI83534

PNR number: 4813
Passenger BookingInfo id:	PBI99268

Blue Bus — History | Profile | Logout

Personal Informations

Name	Bava
DOB	2000-09-01
Gender	Male
Mobile	9988776652
Email	bavakhan@gmail.com

Change Password   Update

Passenger Signup

Name: Bava

Date of Brith: 01-09-2000

Gender: ● Male ○ Female

Email: bavakhan@gmail.com

Mobile Number: 9988776652

[Update]

Change password

Username:

Old Password:

New Password:

Confirm Password:

[Submit]

ADMIN:

Blue Bus   PassengerForm   RouteForm   BusForm   BookingForm   ListPassenger   ListBus   ListRoute   ListBookingInfo   History   Profile   Logout

From   To   13-05-2025   Female

Search

Blue Bus PassengerForm RouteForm BusForm BookingForm ListPassenger ListBus ListRoute ListBookingInfo History Profile Logout

Register Route

Origin:

Destination:

Distance:

Travel Time: -- : --

Submit

Blue Bus PassengerForm RouteForm BusForm BookingForm ListPassenger ListBus ListRoute ListBookingInfo History Profile Logout

Register Bus

Bus Name:

Rate Per Km:

Lower Deck Available

Left Side Right Side
Select Type Select Type

Upper Deck Not Available

Left Side Right Side
Select Type Select Type

localhost:5173/busform

Blue Bus PassengerForm RouteForm BusForm BookingForm ListPassenger ListBus ListRoute ListBookingInfo History Profile Logout

New Travel Route

Bus ID: Select Bus

Bus Name:

Seater:

Sleeper:

Route ID: Select Route

Origin:

Destination:

Distance:

Total Travel Time:

Boarding Date/Time: dd - mm - yyyy -- : --

localhost:5173/bookingform

Blue Bus   PassengerForm   RouteForm   BusForm   BookingForm   ListPassenger   ListBus   ListRoute   ListBookingInfo   History   Profile   Logout

Passenger List

S No	Name	DOB	Gender	Mobile	Email	Action
1	Bava	01-Sep-2000	Male	9988776652	bavakhan@gmail.com	Update Delete
2	Ashika	01-Sep-2000	Female	9088776644	ashika@gmail.com	Update Delete

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Blue Bus   PassengerForm   RouteForm   BusForm   BookingForm   ListPassenger   ListBus   ListRoute   ListBookingInfo   History   Profile   Logout

Bus List

S No	Name	Rate/Km	Lower Deck Left	Lower Deck Right	No of Seater Seats	No of Sleeper Seats	Upper Deck	AC	Water Bottle	Blanket	Charging Point	Action
1	VKV Travels	1.6	Seater	Seater	36	0						Update Delete
2	PALSLNT Travels	2.4	Sleeper	Sleeper	0	18		✓	✓	✓		Update Delete
3	KNR Tranz	1.75	Seater	Sleeper	12	12		✓				Update Delete
4	Tranz king travels	2.6	Sleeper	Seater	24	24	✓				✓	Update Delete
5	Senthur velan Travels	2.4	Sleeper	Sleeper	0	36	✓	✓	✓	✓	✓	Update Delete
6	GMR Travels	1.2	Seater	Sleeper	12	30	✓					Update Delete
7	Shri Abinesh Roadways	1.9	Seater	Seater	36	18	✓	✓				Update Delete
8	IntrCity SmartBus	2.1	Sleeper	Seater	24	6		✓		✓		Update Delete

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Blue Bus   PassengerForm   RouteForm   BusForm   BookingForm   ListPassenger   ListBus   ListRoute   ListBookingInfo   History   Profile   Logout

Bus List

S No	Name	Rate/Km	Lower Deck Left	Lower Deck Right	No of Seater Seats	No of Sleeper Seats	Upper Deck	AC	Water Bottle	Blanket	Charging Point	Action
1	VKV Travels	1.6	Seater	Seater	36	0						Update Delete
2	PALSLNT Travels	2.4	Sleeper	Sleeper	0	18		✓	✓	✓		Update Delete
3	KNR Tranz	1.75	Seater	Sleeper	12	12		✓				Update Delete
4	Tranz king travels	2.6	Sleeper	Seater	24	24	✓				✓	Update Delete
5	Senthur velan Travels	2.4	Sleeper	Sleeper	0	36	✓	✓	✓	✓	✓	Update Delete
6	GMR Travels	1.2	Seater	Sleeper	12	30	✓					Update Delete
7	Shri Abinesh Roadways	1.9	Seater	Seater	36	18	✓	✓				Update Delete
8	IntrCity SmartBus	2.1	Sleeper	Seater	24	6		✓		✓		Update Delete

4, Backend (Spring Boot)

- **Spring Dependencies(Backend/Java):**
  - ◆ Spring Web.
  - ◆ Spring Data JPA.
  - ◆ MySQL Driver.
  - ◆ Spring Boot DevTools.
  - ◆ Lombok.
  - ◆ Validation.
  - ◆ Spring Security.
  - ◆ Swagger.
  - ◆ Jjwt-impl.
  - ◆ Jjwt-jackson.
  - ◆ Jjwt-api.

- **Controller Layer:**
  - ■ BookingInfoController
  - ■ BusBookingInfoController
  - ■ PassengerBookingInfoController
  - ■ BusController
  - ■ PassengerController
  - ■ RouteInfoController
  - ■ UserController

- **Database Interaction:**
  Used JPA (Java Persistence API) for connect spring into database.

- **Service Layer:**

  Encapsulated business logic in service classes

  - BookingInfoService
  - BusBookingInfoService
  - PassengerBookingInfoService
  - BusService
  - PassengerService
  - RouteInfoService
  - UserService

- **Global Exception Handling:**

  Used @ControllerAdvice to handle exceptions like ResourceNotFoundException.

- **Application.properties**

  ```
  #custom config
  server.port = 3000

  #db config
  spring.datasource.url=jdbc:mysql://localhost:3310/capstonedb
  spring.datasource.username=root
  spring.datasource.password=root
  spring.datasource.driver.class-name=com.mysql.cj.jdbc.Driver

  #Hiberate config
  spring.jpa.hibernate.ddl-auto=update
  spring.jpa.show-sql=true
  spring.jpa.hibernate.format_sql=true
  spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.MySQLDialect

  logging.level.org.springframework.security=DEBUG
  ```