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Introduction

The Bus Ticket Reservation System is a web application developed using Spring Boot for the backend and React.js for the frontend. It allows customers to search, book, and manage bus tickets seamlessly while providing administrators with tools to manage buses, trips, and bookings.

Objectives

• Develop a user-friendly interface for customers to book tickets online.

• Provide an admin panel for managing buses, trips, and bookings.

• Implement authentication and authorization using JWT.

• Ensure secure password encryption and role-based access.

Tools and Technologies Used

• Backend: Spring Boot (v3.5.5), Spring Security, JPA, MySQL

• Frontend: React.js, Bootstrap, CSS

• Database: MySQL

• Authentication: JWT (JSON Web Token)

• API Documentation: Swagger / OpenAPI

• Additional Libraries: Lombok, ZXing (QR code generation)

Work Progress

Day 1

• Setup project structure using Spring Boot and React. • Configured database connection with MySQL. • Implemented basic models like User, Bus, Trip, Booking. • Installed required dependencies including JWT, Lombok, Swagger.

Day 2

• Implemented authentication and authorization using JWT. • Created REST APIs for user registration, login, and bus search. • Developed frontend pages for login, registration, and search functionality. • Integrated APIs with frontend using Axios. • Faced challenges with password encryption and debugging 403 errors in Swagger.

Day 3

• Implemented booking flow including seat selection and ticket booking. • Designed interactive UI components with hover effects and validations. • Added admin functionalities to manage buses and trips. • Performed testing of all modules and fixed integration issues. • Finalized CSS design for a clean and modern look.

Challenges Faced

• Encountered 403 errors while integrating Swagger with Spring Security.

• Implementing password encryption and JWT decoding took extra effort to debug.

• Designing responsive UI with consistent hover effects required iterations.

Screenshots

Below are the key screens of the application: