Martin's Garage – Car shop system

Software Overview

Purpose:

"Car Shop Management System "

Key Features:

Customer registration/management

Order processing with status tracking

Inventory management

Software Architecture

Tech Stack:

Backend: Spring Boot (MVC, Data JPA)

Justification: Rapid development, ORM support- ORM (Object-Relational Mapping) is a programming technique that It allows developers to interact with databases using objects and classes instead of writing raw SQL queries.

Frontend: Thymeleaf + Bootstrap

Component	Example File	Technology Used	Purpose
Order List	order-history.html	Thymeleaf + Bootstrap Tables	Display all orders
Customer Form	customer-add.html	Bootstrap Forms	Add/edit customers
Navigation	fragments/header.html	Bootstrap Navbar	Site navigation

Justification: Server-side rendering; The server generates complete HTML pages and sends them to the browser., responsive UI

Database

PostgreSQL is a robust, scalable relational database used in live environments.

Justification:

Scalability: Handles high traffic and large datasets.

ACID Compliance: Ensures data integrity for transactions (critical for orders).

Spring Compatibility: Works seamlessly with Spring Data JPA.

<u>Development Challenges</u>

Complex Order Processing:

Handling order items with cascading updates

- *Live Demo*

Scenarios to Demonstrate:

Customer Flow:

Add customer → View list

Order Flow:

Create order → Add items

Error Handling:

Show validation for duplicate personal codes