Web Design and Programming – Final Project Report

https://github.com/merrtkb/blackline-web

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Project Description

This project is a full-stack web application developed as the final project for the Web Design and Programming course. The application is designed as a vehicle showcase and request platform, following an e-commerce–like structure.

Users can browse vehicle models on the homepage, view detailed information for each vehicle, and submit a request for a selected vehicle. All vehicle data displayed on the website is fetched dynamically from a backend service, and submitted requests are stored persistently in a database.

The frontend of the application is developed using the React framework together with the Material UI component library to ensure a modern and responsive user interface. The backend is implemented using Spring Boot and provides RESTful APIs for data communication between the frontend and the database. PostgreSQL is used as the database management system.

Features of the Project

The most important feature that differentiates this project from static web applications is the complete integration of frontend, backend, and database layers. All vehicle data is retrieved from the backend dynamically, and user requests are stored permanently in the database.

Additional features include:

- Dynamic vehicle listing retrieved from backend services
- Detailed vehicle pages with real-time data
- Vehicle request submission system
- Persistent data storage using PostgreSQL
- Clear separation between frontend, backend, and database layers

Project Features Table

Feature	Description
React Framework Usage	The frontend is developed using React with a component-based architecture.
Material UI Components	Material UI is used to create a modern and responsive user interface.
Backend Data Fetching	All vehicle data is retrieved dynamically from backend REST APIs.
Home Page Product Listing	Vehicle models are displayed on the homepage using backend data.
Database Integration	User requests and vehicle data are stored in a PostgreSQL database.
REST API Communication	Frontend and backend communicate via REST web services.

Resources & References

The following resources and platforms were utilized during the research, learning, and development phases of the project:

Automotive Brand Websites:
Porsche Official Website and Lamborghini Official Website
(Used for analyzing vehicle presentation, product detail pages, and visual design inspiration.)

Technical Education:
YouTube – Enes Bayram
W3Schools (w3schools.com)
(Used for learning React, Spring Boot, and full-stack web development concepts.)

Technical Documentation:
React Official Documentation
Material UI Documentation (mui.com)
Spring Boot Official Documentation (spring.io)

AI Assistance:
ChatGPT & Gemini
(Used to support technical understanding, general development tasks, AI-based image generation, and the preparation of SQL scripts from CSV files.)

Design Experience & Prior Work:
Previous e-commerce store designs developed using the Shopify platform
(Used as a reference for layout structure, product listing design, and user experience decisions.)