Project Synopsis

Project Title: Vehicle Registration Application

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Track: JAVA

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1. Abstract: The Vehicle Registration App is a full-stack web application that streamlines the process of vehicle registration, viewing vehicle records, and managing customer orders. This system is designed to simplify manual vehicle data management by allowing users to register vehicles, view their details, and generate order summaries. The project ensures secure and user-friendly access to vehicle and customer information in real-time.

2. Objective: The objective of this project is to create an efficient, scalable, and responsive web-based platform that:

- Allows registration of vehicles with complete user and vehicle information.
- Retrieves and displays existing registered vehicles.
- Summarizes orders with associated pricing and details.
- Makes use of modern web and backend technologies for seamless integration and performance.

3. Scope of the Project: This system is intended for use by vehicle registration agencies, dealers, or internal administrative teams. It can be expanded to include features like admin login, payment processing, vehicle verification status, and automated report generation. Currently, it supports CRUD operations on user and vehicle data and displays order summaries.

4. System Architecture Overview:

- Frontend: React.js for dynamic and component-based UI.

- Backend: Spring Boot with Hibernate ORM for RESTful APIs
- Database: MySQL (or SQLite during development)
- Communication: Axios for frontend-backend API calls

5. Technologies Used:

- Java & Modern Java: Core backend language used to implement business logic
- Spring Boot: To create RESTful APIs and manage backend logic.
- Hibernate ORM: To map Java classes to database tables using annotations.
- JDBC: Used for basic database interactions where needed.
- MySQL/SQLite3: RDBMS used to store user, vehicle, and order data.
- React.js: Frontend framework for building UI components.
- HTML, CSS, JavaScript: Core technologies for designing and structuring the user interface.
- VS Code: The primary code editor used for development.

6. Modules in the Application:

- User Module: Create and view user profiles.
- Vehicle Module: Register a vehicle and link it to a user.
- Order Summary Module: Display a detailed view of vehicles and their pricing.
- Search Module: Search vehicles by registration number.

7. Database Design:

- User Table: Stores name, email.
- Vehicle Table: Stores vehicle model, brand, registration number, and user_id (FK).

8. Conclusion:

This project successfully implements a real-world vehicle registration system using modern technologies. It provides a structured, maintainable, and scalable system that can be enhanced with future capabilities like authentication, admin dashboards, and automated

emails. It demonstrates full-stack integration, practical use of Hibernate ORM, and efficient UI/UX design using React.js.

9. Future Scope:

- Integration of payment gateway for orders.
- Adding authentication and role-based access.
- Export data to PDF/Excel.
- SMS/Email notifications on successful registrations.