

CS-241|Data Structures and Algorithms

Vehicle Management System

(Documentation)

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Section: E

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**Summary**

The project focuses on the development of a comprehensive Vehicle Management System (VMS) designed to streamline car sales and repairs within one organization. This system caters to dedicated Sales and Repair departments, managing car details, customer information, sales processes, and repair workflows. The VMS fosters efficient operations through centralized data, automated tasks, and insightful reports, ultimately enhancing communication and customer service. This project specifically addresses the needs of the car industry, offering a unified solution for managing both sales and repair operations.

**Project Scope: Vehicle Management System for Car Sales and Repair**

**1. Project Objectives:**

* Develop a comprehensive Vehicle Management System (VMS) to manage both car sales and repair operations within a single organization.
* Cater to the specific needs of two departments: Sales and Repair.
* Streamline workflows, improve efficiency, and enhance customer service.

**2. System Functionalities:**

* **Car Management:**
  + Maintain a central database with details like make, model, year, mileage, condition, price (sale), and repair status (repair).
* Customer Management:
  + Store customer information including contact details, purchase history, and repair requests.
* Sales Management:
  + Manage car listings, customer inquiries, sales orders, and generate invoices.
  + Integrate with payment processing systems (optional).
* Repair Management:
  + Schedule appointments, diagnose issues, track repair progress, manage parts inventory, and generate repair invoices.

**Functional Requirements:**

* System shall let the customer to register (Array List)
* System shall let the customer to login in the system
* System shall let the mechanic to login in the system
* System shall let the admin to remove Mechanic (Array List)
* System shall let the admin to remove customer (Array List)
* System shall let the admin to add Mechanic (Array List)
* System shall let the customer to add vehicle for repairing (Queue)
* System shall let the admin to remove vehicle after it is repaired (Queue)
* System shall let the admin to update the inventory of vehicles (Tree)
* System shall let the customer to select between services (Linked List)
* System shall let the admin to generate Invoice (Array List)
* System shall let the customer to purchase vehicle
* System shall let the customer to sell vehicle
* System shall let the admin to see payment record
* System shall let the customer to check salary