Omar Al-Mukhtar University

Faculty of Science

Department of Computer Science

Course Title: Advanced Object-Oriented Programming Course (PGCS653)

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Course Project - Sprint 1

Car Maintenance Management System

1. System Summary

The Car Maintenance Management System is a software application designed to automate and organize the operations of vehicle repair workshops and service centers. The system allows users to register vehicles, create maintenance orders, assign technicians, manage spare parts, and generate invoices.

It is mainly used by the workshop's staff, including the receptionist, technicians, storekeeper, and manager. The receptionist records customer and vehicle details, while technicians update repair progress and status. The manager can monitor performance, view reports, and assign work to technicians.

The main goal of this system is to increase efficiency, reduce manual errors, and improve customer satisfaction by streamlining daily workshop operations such as maintenance tracking, spare part management, and billing.

2. Main Use Cases

Use Case Name	Actor	Brief Description
Register Vehicle	Receptionist	The receptionist records a new vehicle in the system, including license plate, model, and owner information.
Create Maintenance Order	Receptionist	A new maintenance order is created based on the customer’s request and the type of service required.
Assign Technician	Manager	The manager assigns a specific technician to handle a particular maintenance order.
Update Repair Status	Technician	The technician updates the current repair status, such as 'In Progress', 'Waiting for Parts', or 'Completed'.
Manage Spare Parts	Storekeeper	The storekeeper records the availability of spare parts and updates inventory when parts are used or restocked.
Generate Invoice	Receptionist	Once the maintenance is completed, an invoice is automatically generated including service and spare part costs.
View Reports	Manager	The manager can generate reports about workshop performance, revenue, and number of cars serviced.

3. Use Case Diagram

The diagram below illustrates the relationships between the actors and the main use cases of the system.