Phase 3: Project Design Phase

Project Title: Garage Management System

Introduction

The design phase is an essential stage in project development. It converts the planned requirements and ideas into a structured system model. In this phase, the design of the Garage Management System is developed to show how the system will function, what components it contains, and how data flows between modules. The goal is to ensure the system is user-friendly, efficient, and supports smooth garage operations such as service management, vehicle tracking, and billing.

System Design Overview

The Garage Management System is designed using Salesforce tools and follows a modular and scalable approach. It includes several components such as objects, relationships, flows, reports, and dashboards. The design connects vehicle details, customers, mechanics, and service orders for effective management and data tracking.

Architectural Design

The system follows a **Client–Server Architecture** using Salesforce's cloud-based infrastructure.

- **Client Side:** Accessed by users such as garage managers, mechanics, and customers through Salesforce's web or mobile interface.
- **Server Side:** Salesforce servers store and process all garage-related data such as customer details, service requests, billing, and reports.

All users interact through Salesforce's cloud platform, ensuring secure storage, fast access, and real-time updates.

Entity Relationship (ER) Design

he ER Diagram defines the logical structure of the Garage Management System:

1. **Customer Object:** Stores customer details like Name, Contact Number, Email, and Address.

2. **Jewellery Object:** Contains fields such as Item Name, Type, Material, Weight, and Price.
3. **Service Object:** Contains Service ID, Type of Service, Service Date, Mechanic Assigned, and Cost.
4. **Mechanic Object:** Stores Mechanic Name, Contact Info, and Specialization..
5. **Relationships:**
   - A **Customer** can own multiple **Vehicles**.
   - A **Vehicle** can have many **Service Records.**
   - Each **Service** is performed by one **Mechanic.**

This structure ensures all garage operations are connected and easily accessible.

Data Flow Design

The data flow in the Garage Management System proceeds as follows:

1. Customer and vehicle details are entered and stored in their respective objects.
2. A service request is created for a specific vehicle.
3. The assigned mechanic performs the service and updates job details.
4. Once the service is completed, an invoice is automatically generated.
5. Reports and dashboards summarize daily services, earnings, and mechanic performance.

This design minimizes manual work and improves data consistency.

User Interface Design

The user interface is developed using Salesforce Lightning App Builder.

- **Home Page:** Displays total customers, vehicles, and ongoing service requests.
- **Customer Page:** Allows adding, editing, and viewing customer and vehicle details.
- **Service Page:** Displays current and past service records with assigned mechanics.
- **Mechanic Page:** Lists all mechanics with specialization and service workload.
- **Reports & Dashboards:** Provide visual summaries of revenue, service types, and mechanic efficiency.

The layout is clean, simple, and easy to navigate for both managers and staff.

Functional Design

The system includes the following functions:

- **Customer Management:** Add, update, and view customer profiles.
- **Vehicle Management:** Maintain vehicle details and link them to customers.
- **Service Management:** Record service requests, assign mechanics, and track completion..
- **Billing & Invoicing:** Automatically generate and manage service bills.
- **Reporting & Dashboards:** Analyze performance metrics such as daily revenue, top services, and customer visits.

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Security and Access Design

The system ensures secure access control and data integrity.

- Only authorized users can access or modify records.
- Admin users have full system privileges.
- Salesforce's built-in authentication, encryption, and permission sets ensure high-level security.
- Mechanics can access only service-related data.

Output Design

The expected outputs from the system include:

- Auto-generated invoices for services completed.
- Reports on services, revenue, and customer visits.
- Dashboards showing mechanic performance and service statistics.
- Notifications for pending service approvals or overdue bills.

Conclusion

The Project Design Phase defines the structure and flow of the Garage Management System. With properly designed objects, relationships, and automated workflows, the system provides a reliable and efficient solution for managing daily garage operations. The Salesforce-based platform ensures security, automation, and ease of use, enhancing both productivity and customer satisfaction.