

# Project Design Phase

## Data Model Design

### Project Design Phase

Team ID : NM2025TMID05586

Project Title : Garage Management System

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### 3.1 Purpose of the Phase

The Project Design Phase focuses on translating the system requirements into a detailed technical architecture within Salesforce. This phase outlines the data model, object relationships, automation, and interface design required to implement the Garage Management System effectively.

### 3.2 System Architecture & Salesforce Components

The Garage Management System is designed using Salesforce Platform's declarative and programmatic tools. The system consists of multiple interconnected custom objects that manage customer, vehicle, appointment, service, billing, and feedback data. Automation components such as Flows, Validation Rules, and Apex Triggers ensure seamless processing and accurate record updates.

### 3.3 Object & Data Model Design

Custom objects were created to structure key modules:

- \*\*Customer Details:\*\* Stores customer information such as name, phone number, and Gmail.
- \*\*Appointment:\*\* Manages service bookings with auto-numbered records and lookup to Customer.
- \*\*Service Records:\*\* Tracks service activities linked to Appointments.
- \*\*Billing Details and Feedback:\*\* Captures payment and customer feedback linked to Service Records.

Relationships are defined using lookup and master-detail fields to maintain referential integrity. This relational model ensures all data is connected from customers to feedback.

### 3.4 Field Configuration

Each object includes a variety of fields designed for operational accuracy:

- \*\*Text Fields:\*\* Vehicle Number Plate (unique, required)
- \*\*Phone and Email Fields:\*\* Capture customer contact details
- \*\*Date Fields:\*\* Appointment Date and Service Date
- \*\*Currency Fields:\*\* Service Amount and Payment Paid
- \*\*Checkbox Fields:\*\* Maintenance Service, Repairs, Replacement Parts, Quality Check Status
- \*\*Picklist Fields:\*\* Service Status (Started, Completed), Payment Status (Pending, Completed)

- **Formula Fields:** Service Date automatically captures record creation date. These fields ensure structured and validated data entry across the application.

### **3.5 Automation Design**

Salesforce automation tools were implemented to streamline workflows:

- Flows: Triggered on Billing Details and Feedback object to update payment status and send email alerts to customers after successful payment.
- Validation Rules: Enforce data quality, e.g., Vehicle Number Plate format, Service Status completion, and Feedback rating range (1–5).
- Duplicate Rules: Prevent duplicate Customer records based on phone and Gmail.
- Apex Trigger & Handler: Automates calculation of Service Amount based on selected checkboxes (Maintenance, Repair, Replacement Parts).

### **3.6 User Interface Design**

User interaction is facilitated using custom tabs, Lightning App, and page layouts:

- Tabs: Created for each object—Customer Details, Appointments, Service Records, Billing & Feedback.
- Lightning App: Bundles all tabs and utilities in a single application called 'Garage Management Application'.
- Page Layouts: Include sections for related records, dashboards, and key fields.
- Dashboards: Visual representation of key performance indicators such as Service Ratings and Payment Status.
- Reports: Provide analytics on revenue, services completed, and customer satisfaction metrics.

### **3.7 Security & Access Control**

Security is maintained through Profiles, Roles, and Sharing Settings:

- Profiles: Two profiles created — Manager and Sales Person, each with specific access permissions.
- Roles: Manager (superior) and Sales Person (subordinate) roles define record visibility.
- Public Groups: 'Sales Team' created for group-level permissions.
- Sharing Settings: Organization-Wide Default set to Private for Service Records, with Sharing Rules allowing managers to access salesperson data.

This ensures data security and proper role-based access across users.

### **3.8 Reports & Dashboards**

Custom reports and dashboards are designed for real-time analytics:

- Report Type: 'Service Information' combines Customer, Appointment, Service, and Billing objects.
- Reports: Track Appointment Dates, Service Status, Payment Amounts, and Ratings.
- Dashboards: 'Service Rating Dashboard' visualizes report data using charts and graphs.
- Subscriptions: Weekly automated delivery of reports to managers ensures continuous performance monitoring.

### **3.9 Expected Outcome**

The Project Design Phase results in a complete Salesforce system blueprint detailing the database schema, automation flows, UI layouts, and security configuration. This design ensures a scalable,

secure, and user-friendly Garage Management System capable of managing all garage operations efficiently.