Project Design Phase
Solution Architecture

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Project Name	GARAGE MANAGEMENT SYSTEM

Overview:

The Garage Management System is built on the Salesforce Lightning Platform, using a modular architecture with Salesforce's standard and custom tools. It follows a multi-layered architecture that includes:

1. Presentation Layer (User Interface)

2. Application Logic Layer (Business Logic & Automation)

3. Data Layer (Database & Objects)

4. Security & Access Layer

5. Reporting & Analytics Layer

This architecture ensures scalability, modularity, and security, while leveraging Salesforce's declarative and programmatic capabilities.

1. Presentation Layer (User Interface):

This is where users interact with the system.

Components:

- **Lightning App Builder**: Builds custom user interfaces (Garage Management App)

- **Custom Tabs**: For objects like Appointments, Customers, Billing, Feedback

- **Page Layouts & Lightning Pages**: Define what fields and sections appear on each record page

- **Mobile Support**: Automatically supported via Salesforce mobile app

2. Application Logic Layer (Business Logic & Automation):

This layer processes user input and manages the business rules.

Key Tools & Features:

- **Apex Triggers & Handler Class**:
    - Example: Auto-calculate billing amount based on selected services

- **Record-Triggered Flows**:
    - Example: Update service status to "Completed" when quality check is done
    - Example: Send thank-you email on payment completion

- **Validation Rules**:

    - Vehicle number format check
    - Feedback rating must be between 1–5

- **Process Builder (optional)**: For simple automations (replaced mostly by Flow)

- **Email Alerts**: Triggered via Flow to communicate with customers

🗄️ 3. Data Layer (Storage & Relationships)

This is where all data is stored and structured.

Custom Objects:

- Customer_Details__c
- Appointment__c
- Service_Records__c
- Billing_Details_and_Feedback__c

Relationships:

- **Lookup Relationship**:

    - Appointment → Customer
    - Service Record → Appointment
    - Billing & Feedback → Service Record

Fields:

- Standard Fields: CreatedDate, Owner, etc.
- Custom Fields: Phone, Email, Service Type, Quality Check, Payment Paid

4. Security & Access Layer:

This ensures that users only access the data they are authorized to see.

Key Security Controls:

- **Profiles**:
  - *Manager Profile*: Full access to all data
  - *Salesperson Profile*: Limited access (read/create appointments)

- **Roles & Role Hierarchy**:
  - Manager > Salesperson
  - Controls data visibility

- **Organization-Wide Defaults (OWD)**:
  - Service Records = Private

- **Sharing Rules**:
  - Share Service Records from Salesperson → Manager

- **Public Groups**:
  - Example: "Sales Team" used in sharing rules

5. Reporting & Analytics Layer

This provides dashboards and reports for decision-making.

Features:

- **Custom Report Types**:
  - Combining Customer, Appointment, Service, and Billing data
- **Reports**:
  - Example: "New Service Information Report"
  - Grouped by Service Status, Payment Status, Rating

- **Dashboards**:

  - Visual display of key metrics: completed services, revenue, customer ratings

- **Scheduled Reports**:

  - Automatically sent to managers every week

Benefits of This Architecture:

- **Modular** – Easy to maintain or enhance

- **Secure** – Role-based access with object-level & field-level controls

- **Automated** – Less manual work due to Flows and Triggers

- **Insightful** – Visual dashboards drive decisions

- 🎛 **Mobile-Ready** – Built-in mobile compatibility