Project Design Phase
Solution Architecture

Date	5 November 2025
Team ID	NM2025TMID04471
Project name	Garage management system
Maximum Marks	4 Marks

Solution Architecture

Goals of the Architecture

- **Automation of Garage Operations** – Reduce manual work in service management, billing, and inventory tracking.
- **Data Centralization** – Maintain a single source of truth for customers, vehicles, services, and inventory.
- **Scalability and Flexibility** – Easily accommodate additional modules or garage branches.
- **Improved Customer Experience** – Enable online bookings, real-time updates, and notifications.
- **Data-Driven Decision Making** – Provide dashboards and reports for revenue, service trends, and performance insights.
- **Security and Role Management** – Ensure that staff, technicians, and admins have appropriate access to sensitive data.

Key Components

- **Customer Management Module** – Stores and manages customer profiles and vehicle details.
- **Service Booking Module** – Allows customers to schedule service appointments online or via app
- **Job Card Management** – Tracks assigned tasks, service progress, and technician responsibilities
- **Inventory Management** – Monitors spare parts stock, usage, and reordering alerts.
- **Billing and Invoicing Module** – Automates invoice generation and records payments.
- **Notifications & Alerts** – Sends SMS/email updates for service status, reminders, or promotions.
- **Reports & Analytics Dashboard** – Provides insights into revenue, service trends, and operational efficiency.

- **User Roles & Permissions** – Defines access control for staff, technicians, and admins.
- **Integration Layer** – Connects with external systems like payment gateways and messaging services.

Development Phases

- **Requirement Analysis** – Gather detailed requirements from garage stakeholders.
- **Design Phase** – Define system architecture, database models, and workflows.
- **Module Development** – Build core modules: Customer, Vehicle, Service Booking, Job Card, Inventory, Billing.
- **Integration & Automation** – Connect modules, implement notifications, and automate workflows using Salesforce Flows and Apex.
- **Testing Phase** – Conduct unit, integration, and user acceptance testing to ensure functionality.
- **Deployment Phase** – Deploy the system on Salesforce platform and configure for real-time operations.
- **Maintenance & Updates** – Monitor system performance, fix issues, and implement enhancements.

Solution Architecture Description

The **Garage Management System (GMS)** is designed as a modular, scalable, and automated platform built on Salesforce. It centralizes customer, vehicle, service, and inventory data to eliminate manual record-keeping and reduce operational errors. The architecture consists of multiple layers: a **presentation layer** for web and mobile interfaces, an **application layer** handling business logic and automation, a **data layer** for secure storage of all garage information, an **integration layer** connecting external systems like payment gateways and messaging services, and an **analytics layer** providing dashboards and reports for decision-making. The system ensures smooth workflows by linking service booking, job card management, inventory tracking, billing, and notifications, while role-based access control secures sensitive information. Overall, this architecture improves operational efficiency, enhances customer experience, and provides actionable insights for garage management.

Example - Solution Architecture Diagram: