Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	29 October 2025
Team Id	NM2025TMID03988
Project Name	Garage Management System
Maximum Marks	4 Marks

Technical Architecture

This architecture ensures that data flows securely between customers, mechanics, and administrators through a centralized system hosted on the cloud.

Example Reference:

Garage Management System for cloud-based vehicle servicing and billing automation.

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/

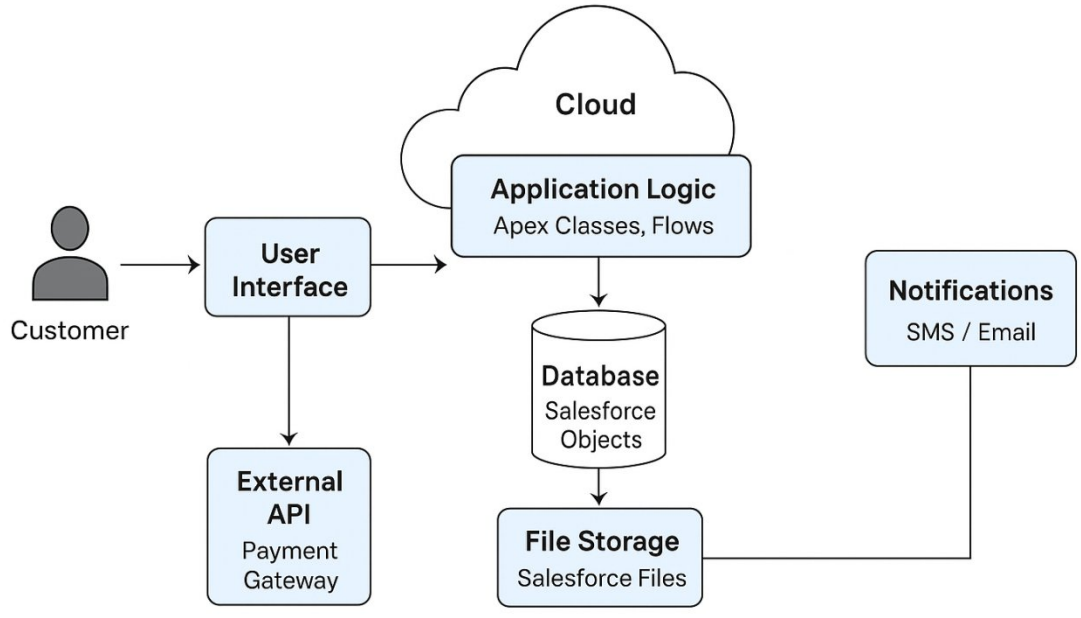

Table 1: Components & Technologies

S.No.	Component	Description	Technology
1	User Interface	Customers, Admins, and Mechanics interact through an intuitive web dashboard.	HTML, CSS, JavaScript, Salesforce Lightning Web Components
2	Application Logic - 1	Handles service booking and scheduling operations.	Salesforce Apex Classes, Flows
3	Application Logic - 2	Manages mechanic assignments, service progress, and updates.	Apex Triggers, Workflow Rules
4	Application Logic - 3	Generates invoices and processes payments automatically.	Apex Controllers, Payment API Integration
5	Database	Stores customer, vehicle, service, mechanic, and billing data.	Salesforce Object Database / SQL
6	Cloud Database	Centralized storage and data management in the cloud.	Salesforce Cloud Database
7	File Storage	Stores digital invoices and service reports.	Salesforce File Storage / AWS S3
8	External API - 1	Integrates with online payment gateways.	REST API (Stripe / Razorpay)
9	External API - 2	Sends real-time notifications via SMS and Email.	Twilio / SendGrid APIs
10	Machine Learning Model (Optional)	Predicts service completion time and maintenance frequency.	Python ML Model (TensorFlow / Scikit-learn)

11	Infrastructure (Server / Cloud)	Hosted on Salesforce Cloud platform for high scalability and reliability.	Salesforce Cloud (SaaS)

Table 2: Application Characteristics

S.No	Characteristics	Description	Technology
1	**Open-Source Frameworks**	Utilizes open-source web technologies for the front-end.	HTML5, CSS3, JavaScript
2	**Security Implementations**	Provides role-based access for Admin, Mechanic, and Customer users.	Salesforce Security, OAuth 2.0, SSL Encryption
3	**Scalable Architecture**	Easily supports additional customers, mechanics, and data without performance degradation.	Cloud-based Multi-Tenant Architecture
4	**Availability**	24/7 uptime through Salesforce cloud servers with data redundancy.	Load Balancing, Distributed Cloud Hosting
5	**Reliability**	Ensures consistent data accuracy for bookings, services, and billing.	Automated Validations & Triggers