

Project Design Phase

Problem – Solution Fit

Date	1-11-2025
Team ID	NM2025TMID06969
Project Name	Garage Management System

Introduction

The Solution Fit phase ensures that the proposed system design meets the business and functional requirements of the Garage Management System (GMS). It aligns user needs, system architecture, and technology choices to deliver a seamless, efficient, and scalable solution for automotive service centers.

Objectives

- To map business needs with the technical design.
- To confirm system scalability, security, and maintainability.
- To ensure the system design supports user roles such as Admin, Mechanic, and Customer.
- To validate integration between database, UI, and backend logic.

Architecture Flow (Design Overview)

1. Presentation Layer:

Interfaces where users interact (Admin dashboard, customer booking screen).

2. Business Logic Layer:

Handles requests, applies rules for pricing, scheduling, and job assignments.

3. Data Layer:

Stores data related to vehicles, services, employees, and customers.

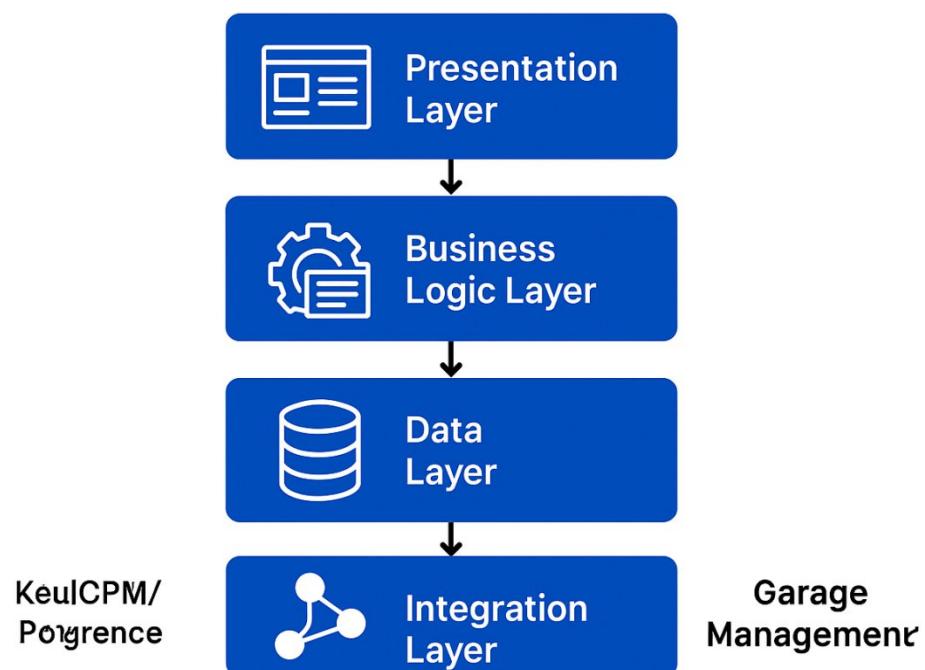
4. Integration Layer:

Connects external systems (e.g., email notifications, payment gateways, API connections).

Example Workflow

1. Customer logs in and books an appointment.
2. The system checks mechanic availability.
3. Data is stored in the database and updated in real time.
4. Admin can monitor all active jobs, parts inventory, and payments

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Solution Fit Overview

Aspect	Proposed Solution	Fit Description
Business Processes	Appointment booking, vehicle tracking, billing, and customer feedback.	Matches end-user expectations and daily garage operations.
Architecture	3-tier Architecture (Presentation, Business Logic, Data)	Ensures modularity and scalability for growing user base
Frontend	HTML, CSS, JavaScript, React or Streamlit	Enables interactive and responsive interface for all users.
Backend	Python (Flask/Django)	Provides secure data handling and logic for garage operations.

Conclusion

The proposed solution design aligns perfectly with the functional and non-functional requirements of the Garage Management System. It provides a structured, modular, and secure environment for efficient garage operations. The layered architecture ensures future scalability, system reliability, and easy maintenance.