Project Design Phase-II

Technology Stack (Architecture & Stack)

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

Technical Architecture:

The Technical Architecture of the Garage Management System (GMS) defines how different system components interact, communicate, and function together to provide a seamless user experience.It follows a Three-Tier Architecture Model, which divides the application into Presentation, Application (Business Logic), and Data layers. This structure improves scalability, maintainability, and system performance.

Example: Service Booking Flow

1. Customer selects service type and date in the browser- Presentation Layer

2. Booking details sent to the server via API-Application Layer

3. System validates data and stores booking in the database - Database Layer

4. Server confirms booking and sends confirmation back to the user interface - Application + Presentation Layer

References:

- Sommerville, I. (2015). *Software Engineering (10th Edition)*. Pearson Education.
- Pressman, R. S. (2019). *Software Engineering: A Practitioner's Approach (8th Edition)*. McGraw Hill

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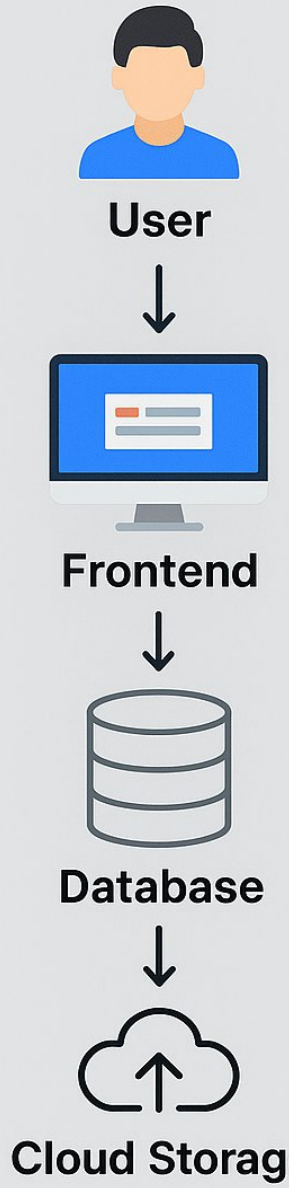

Garage Management System

Tools & Technologies:

Category	Tools / Technologies
Programming Language	Python / JavaScript
Frameworks	Django / Flask / Streamlit
Database	MySQL / SQLite
Version Control	Git / GitHub
Authentication	JWT / Django Auth
API Integration	REST API
Deployment	Heroku / Render / Local Server
UI/UX Tools	Figma / Bootstrap / Tailwind CSS
Testing Tools	Postman / PyTest / Selenium

Application Characteristics:

S.No.	Characteristic	Description	Purpose
1	User-Friendly Interface	Provides a clean and intuitive interface for customers, mechanics, and admin users	Enhances user experience and reduces training effort
2	Multi-User Access	Supports multiple roles like Admin, Mechanic, and Customer with different privileges	Ensures role-based operations and security.
3	Real-Time Data Processing	Updates service status, billing, and inventory instantly	Keeps information accurate and up to date
4	Scalability	The system can easily handle an increasing number of users or garages	Supports future expansion without major redesign