Project Design Phase–II

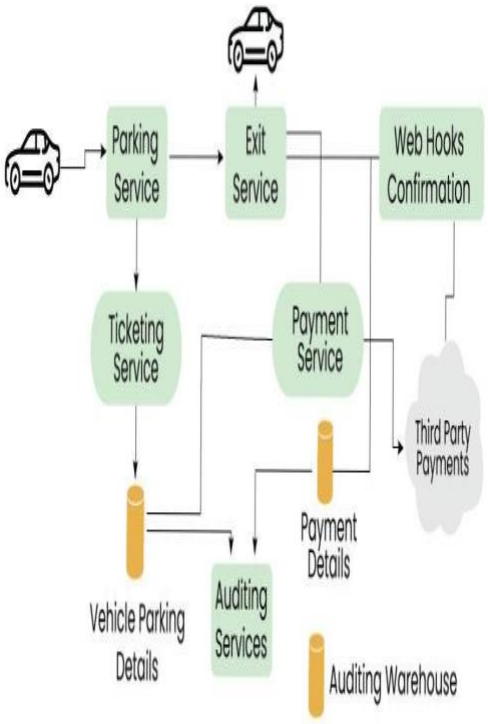
Technology Stack (Architecture & Stack)

Date	02/11/2025
Team ID	NM2025TMID03021
Project Name	Garage Management System
Maximum Marks	4 Marks

Technical Architecture:

The deliverable shall include the architectural diagram as below and the information as per Table 1 and Table 2.

Example: Garage Management system



Guidelines:

Include all the processes (as an application logic / technology block)

Provide infrastructural demarcation (Local / Cloud)

Indicate external interfaces (third-party APIs, payment gateways, etc.)

Indicate Data Storage components / services

Indicate interface to any IoT or Machine Learning models (if applicable)

Table 1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	User and admin interact via web/mobile dashboard.	HTML, CSS, React / Flutter
2	Application Logic–1	Handles vehicle registration, service booking, and scheduling.	Node.js / Python Flask
3	Application Logic–2	Assigns mechanics automatically based on workload.	Backend Logic / Algorithm
4	Application Logic–3	Sends notifications and updates to customers.	Twilio API / SMTP Email
5	Database	Stores vehicle, user, mechanic, and billing details.	MySQL / MongoDB
6	Cloud Database	Managed via cloud backend.	Firebase / AWS RDS
7	File Storage	Stores service records, invoices, and reports.	AWS S3 / Firebase Storage
8	External API–1	(Optional) Payment Gateway integration	Razorpay / Stripe API
9	External API–2	(Optional) Vehicle info lookup service	Vehicle API
10	Machine Learning Model	(Optional) Predicts service time or maintenance schedule.	Python ML Model (Scikit-learn)

11	Infrastructure (Server / Cloud)	Hosted and managed on cloud platform.	AWS / Azure / Google Cloud

Table 2: Application Characteristics

S.NO	Characteristics	Description	Technology
1	Open-Source Frameworks	Uses open-source tools for front-end and backend development.	React, Node.js
2	Security Implementations	Role-based access control for admin, mechanic, and customers.	JWT Authentication
3	Scalable Architecture	Cloud-based scalable architecture for large data handling.	AWS / Firebase
4	Availability	High availability using cloud hosting and load balancing.	AWS EC2 / Cloud Run
5	Performance	Optimized using caching and asynchronous API calls.	Redis, Node.js Async