Ideation Phase
Define the Problem Statements

Date	27 June 2025
Team ID	LTVIP2025TMID29772
Project Name	GARAGE MANAGEMENT SYSTEM

Problem Statement:

A problem statement is a clear, concise description of the pain points faced by users or stakeholders. It helps the team stay focused on building solutions that address real issues, not just features.

Purpose of This Step:

Defining the problem statement ensures that:

- Everyone on the team **understands the real-world challenges** the system must solve.
- It guides the **design, development, and testing** phases.
- You **don't build unnecessary features**, but focus on solving actual garage problems.

Understanding the Garage Domain:

Before we write the problem statement, we must understand the garage's day-to-day operations:

- Customers arrive for servicing or repairs.
- Appointments are booked manually or informally.
- No real tracking system for which services were provided.
- Billing is calculated manually.
- No structured customer feedback or performance reporting.

All these processes are currently done with **manual effort** (paper-based or Excel), which leads to inefficiency.

Key Problems Identified:

Based on the brainstorming and user needs, we identified six major problems that the Garage Management System aims to solve:

Problem 1: Manual and Error-Prone Data Entry

Garages currently maintain customer and service information in paper registers or spreadsheets, which is prone to data loss, duplication, and inconsistency.

- No centralized database
- No search functionality
- Difficult to retrieve past records

Impact: Reduces efficiency, increases errors, and affects service quality.

Problem 2: Unstructured Appointment Scheduling

Appointments are booked without any structured system, leading to missed, double-booked, or forgotten appointments.

- No notification/reminder system
- No logic to prevent overlaps
- Appointment data not linked to customer details

Impact: Poor customer experience and reduced staff productivity.

Problem 3: Lack of Integration Between Services and Billing

Billing is done manually without tracking what services were performed, making it time-consuming and error-prone.

- No automated service price calculation
- Hard to justify billed amount to customer
- No integration between service performed and invoice generated

Impact: Financial inaccuracies and customer dissatisfaction.

Problem 4: No Feedback Mechanism or Customer Engagement

There is no structured way to collect customer feedback or thank them after service, missing opportunities for service improvement and relationship building.

- No digital feedback form
- No automated thank-you emails

- No rating analysis

Impact: Weak customer retention and no performance metrics.

Problem 5: Insecure and Unstructured Access Control

All users (manager, technician, salesperson) have equal access to data, creating security risks.

- No roles and profiles defined
- No data visibility control
- No audit trail of who made changes

Impact: Increased risk of data misuse or accidental deletion.

Problem 6: No Analytics, Reports, or Insights

Garage owners have no reports or dashboards to view performance, revenue, or customer satisfaction.

- No charts to track payment status
- No service trend analysis
- No summary of customer ratings or visits

Impact: Poor strategic decision-making.

Final Combined Problem Statement:

"Garages lack an automated, role-based system to manage customer information, service appointments, billing, and feedback, leading to operational inefficiency, security risks, and weak customer engagement. Without centralized data and performance reporting, garages are unable to make informed business decisions or deliver a consistent customer experience."

Outcome of This Step:

- A clearly written and well-structured **problem statement**
- Solid foundation for writing the **project objective**

- Inputs for designing **user stories**, **requirements**, and **modules**
- Alignment between the **technical team** and **garage stakeholders**