

Requirement Analysis

Data Flow Diagram & User Stories

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Team ID	LTVIP2025TMID29772
Project Name	GARAGE MANAGEMENT SYSTEM

Data Flow Diagram: Garage Management System

A Data Flow Diagram (DFD) for the Garage Management System visually represents how data moves between users, processes, and data stores within the system. It shows how customers, salespersons, and managers interact with processes like booking appointments, recording services, billing, and report generation, and how this data is stored and updated across different modules in a structured, organized way.

Context Level (Level 0) DFD:

This is the **highest-level** view of the system, showing the interaction between **external entities** and the **main system**.

Entities:

1. Customer
2. Manager
3. Sales Person

Process:

- **Garage Management System (GMS)** – The core process that handles all operations.

Data Flows:

- Customers send **appointment requests**, **vehicle details**, and receive **service status**, **bill**, and **feedback confirmation**.
- Managers monitor service records, billing, feedback, and generate **reports**.
- Sales persons handle **appointment entries** and customer coordination.

Data Stores (Implied in Level 0):

- Appointment Data

- Customer Data
- Service Record
- Billing & Feedback

Level 1 DFD: Breaks down the core system into major sub-processes

Process 1: Manage Customer Details

- **Input:** Customer personal info (name, phone, email)
- **Output:** Stores data in **Customer Database**
- **Entity involved:** Customer, Sales Person

Process 2: Book Appointments

- **Input:** Vehicle details, services selected, date & time
- **Processing:** Validate entries, check availability
- **Output:** Confirmation, updates appointment store
- **Entities involved:** Customer, Sales Person

Process 3: Record Service Details

- **Input:** Appointment ID, service status (started/completed), quality check
- **Output:** Updates **Service Records**
- **Entity involved:** Garage Technicians (via internal system)

Process 4: Manage Billing & Feedback

- **Input:** Service completed, payment status, rating, comments
- **Processing:** Calculate total, auto-update if “Completed”
- **Output:** Stores in **Billing & Feedback** data store
- **Entity involved:** Customer, Manager

Process 5: Generate Reports & Dashboards

- **Input:** All data stores (Customer, Appointment, Service, Billing)
- **Processing:** Filter, sort, group, calculate
- **Output:** Visual charts, downloadable reports
- **Entity involved:** Manager

Data Stores (Common Across All Levels)

Data Store	Description
Customer DB	Stores customer profiles and contact details
Appointment DB	Stores appointment records including services selected
Service Records DB	Tracks services performed, quality checks
Billing & Feedback DB	Contains billing information, ratings, and comments

External Entities:




Entity	Role in Data Flow
Customer	Sends personal and vehicle details, receives status updates, bills
Sales Person	Creates appointment, updates info
Manager	Views dashboards, monitors reports, manages data access

Sample Data Flow (Example Flow Path):




Customer → Appointment Request → GMS → Appointment DB
GMS → Create Service Record → Service Records DB
After Service → Quality Check → Mark Complete → Update Billing → Billing DB
Customer → Feedback Submission → Billing DB
Manager → Report Generation → Dashboard View

Visual Elements in Diagram (to be drawn or generated):

Entities:

-  Customer
-  Manager
-  Sales Person

Processes:

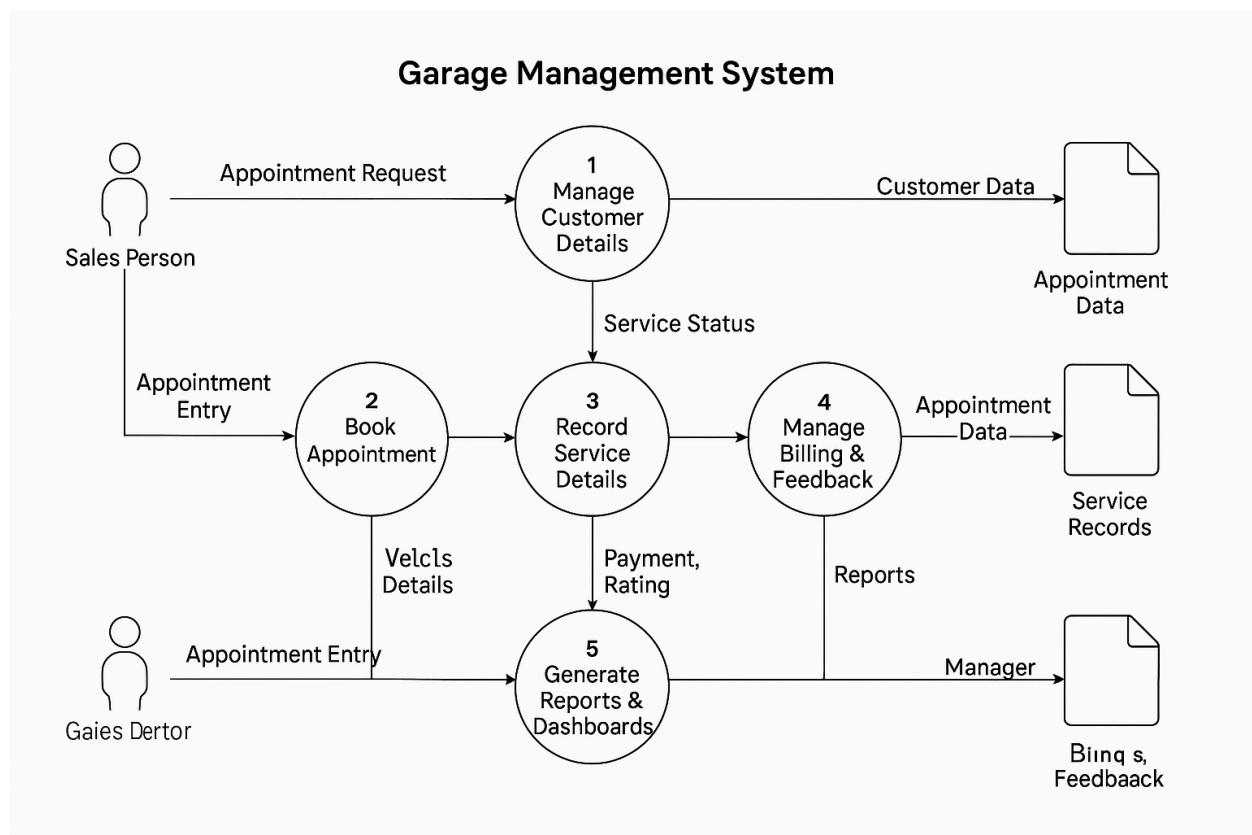
-  1 Manage Customer Info
-  2 Book Appointment
-  3 Service Entry

- 4 Billing & Feedback
- 5 Reporting

Data Stores:

- Customer DB
- Appointment DB
- Service DB
- Feedback & Billing DB

Data Flow Diagram:



User Stories : Garage Management System

A user story is a short, simple description of a feature or functionality told from the perspective of the end user.

Customer User Stories

1. Appointment Booking

As a **customer**, I want to **book a service appointment online** so that I can avoid waiting at the garage.

2. Service Updates

As a **customer**, I want to **receive real-time updates** about my vehicle service status so that I stay informed.

3. View Service History

As a **customer**, I want to **see my past service records** so that I can keep track of vehicle maintenance.

4. Give Feedback

As a **customer**, I want to **rate and review the service** so that I can express my satisfaction or concerns.

5. Receive Bill Summary

As a **customer**, I want to **receive a detailed bill** after service so that I understand what I'm paying for.

Sales Person User Stories:

1. Manage Appointments

As a **sales person**, I want to **create and update customer appointments** so that the garage can plan accordingly.

2. Record Customer Details

As a **sales person**, I want to **enter customer information** so that they can be contacted and billed accurately.

3. Check Slot Availability

As a **sales person**, I want to **view available time slots** so that I can schedule appointments properly.

Garage Technician/Service Staff User Stories:

1. View Appointment Info

As a **technician**, I want to **see service appointment details** so that I know what tasks are needed.

2. Update Service Status

As a **technician**, I want to **mark services as started or completed** so that the system stays updated in real-time.

3. Quality Check Entry

As a **technician**, I want to **mark quality checks** so that only properly serviced vehicles are delivered.

Manager User Stories:

1. Generate Reports

As a **manager**, I want to **generate service, billing, and feedback reports** so that I can track performance.

2. Monitor User Roles

As a **manager**, I want to **assign roles and control access** so that user actions are restricted based on profiles.

3. Dashboard Overview

As a **manager**, I want to **view dashboards showing real-time data** so that I can make informed business decisions.

Automation (System/Flow) User Stories:

1. Send Thank You Email

As a **system**, I want to **send an automated thank-you email** when payment is completed so that customers feel appreciated.

2. Auto-Calculate Charges

As a **system**, I want to **automatically calculate service charges based on selected checkboxes** so that billing is consistent and fast.