Project Design Phase

Solution Architecture

Date	2nd November 2025
Team ID	NM2025TMID02975
Project Name	GARAGE MANAGEMENT SYTEMS
Maximum Marks	4 MARKS

Solution Architecture:

Goals of the Architecture:

- Automate and streamline garage operations such as vehicle service tracking and billing.
- Maintain data integrity between customers, vehicles, and service records.
- Improve operational efficiency and reduce manual record-keeping.
- Provide a centralized system for job assignments, inventory, and service reports.

Key Components:

- **Customer Table** – stores customer details.
- **Vehicle Table** – maintains vehicle information and links to customers.
- **Service Table** – tracks ongoing and completed service jobs.
- **Mechanic Table** – stores mechanic details and assigned jobs.
- **Business Rules / Validation Logic** – ensures service data consistency and prevents errors.

Development Phases:

1. Create test data (customers, vehicles, mechanics).
2. Assign service jobs to mechanics.
3. Implement logic for job tracking, status updates, and billing.
4. Test end-to-end workflow (add, update, complete, and generate reports).

Solution Architecture Description:

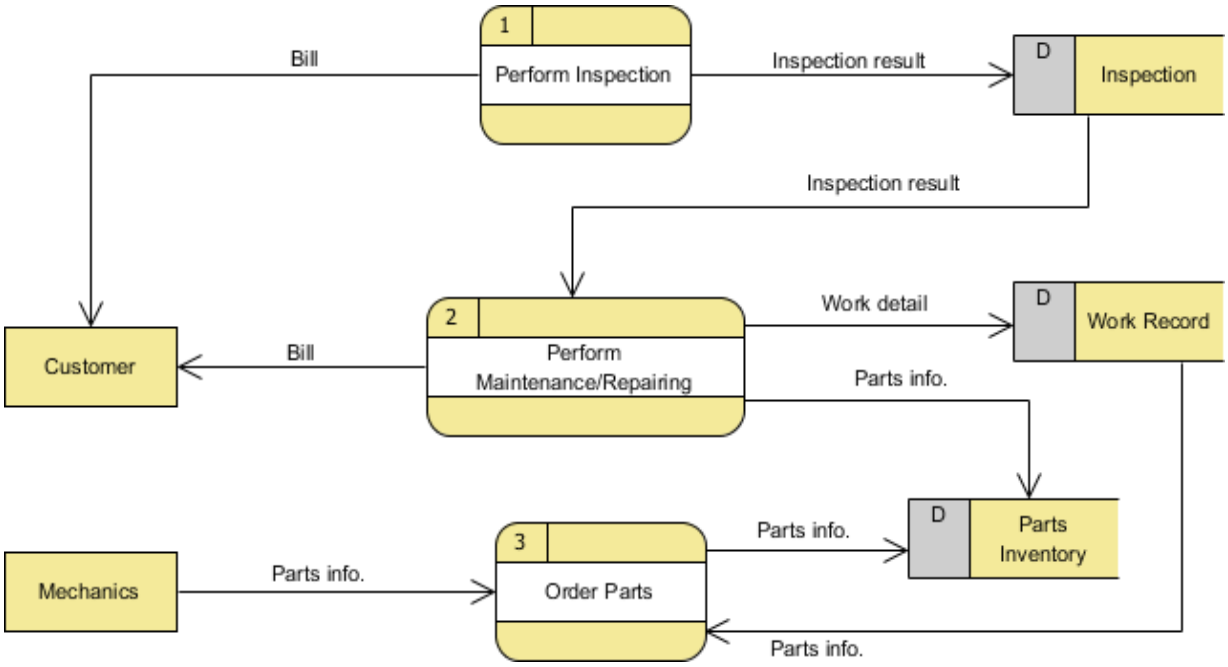
The **Garage Management System** architecture is designed to efficiently manage all garage-related operations through a unified digital platform. The system maintains proper

relationships among **customers, vehicles, mechanics,** and **service records** to ensure data accuracy and operational transparency.

A centralized database handles all records, while the business logic automates repetitive tasks such as assigning jobs, updating service statuses, and generating bills. Each service request passes through different stages — registration, diagnosis, repair, billing, and delivery — ensuring end-to-end process visibility.

This architecture minimizes manual errors, improves customer satisfaction through timely updates, and enhances management control with accurate reports. It supports scalability and reliability, making it suitable for small to medium-sized garages transitioning from manual to digital operations.

Example – Solution Architecture Diagram



Reference:

Self-designed architecture based on ServiceNow-style process automation and ITSM principles.