

## Project Design Phase

### Solution Architecture

Date	27 October 2025
Team ID	NM2025TMID05681
Project Name	Garage Management System
Maximum Marks	4 Marks

#### **Solution Architecture:**

##### **Goals of the Architecture:**

- Implement a safeguard to prevent deletion of mechanics or staff who are assigned to ongoing service jobs.
- Maintain data accuracy between staff records and vehicle service assignments.
- Reduce manual tracking and prevent accidental removal of active staff members.

##### **Key Components:**

- **Staff Table** – stores mechanic and employee records.
- **Service Job Table** – holds vehicle service job details linked via *assigned\_mechanic*.
- **Validation Rule / System Logic** – triggers before staff deletion.
- **Script/Logic Check** – verifies if the staff member is assigned to any active service job.

##### **Development Phases:**

1. Create test staff profiles (e.g., Ravi, Imran).
2. Assign staff to an active service job in the workshop.
3. Configure and implement the validation rule/system safeguard.
4. Test deletion attempts for both assigned and unassigned staff profiles.

#### **❖ Solution Architecture Description:**

The solution architecture for the Garage Management System ensures that no staff member or mechanic assigned to an active vehicle service job can be deleted from the system. This safeguard maintains data consistency between staff records and service job assignments. The logic is configured to run before a delete action is executed on a staff record. When triggered, it checks the *Service Job Table* for any ongoing or pending jobs linked to that staff member. If an active assignment is detected, the system blocks deletion and displays a warning message.

The development of this architecture includes creating sample staff profiles, assigning them to service jobs, implementing the validation rule, and testing both valid and restricted deletion scenarios. This approach eliminates manual verification, increases system reliability, and improves accountability within workshop operations. It ensures that vehicle service tasks remain properly assigned and uninterrupted, supporting a smoother garage workflow and better service delivery.

### Example - Solution Architecture Diagram:

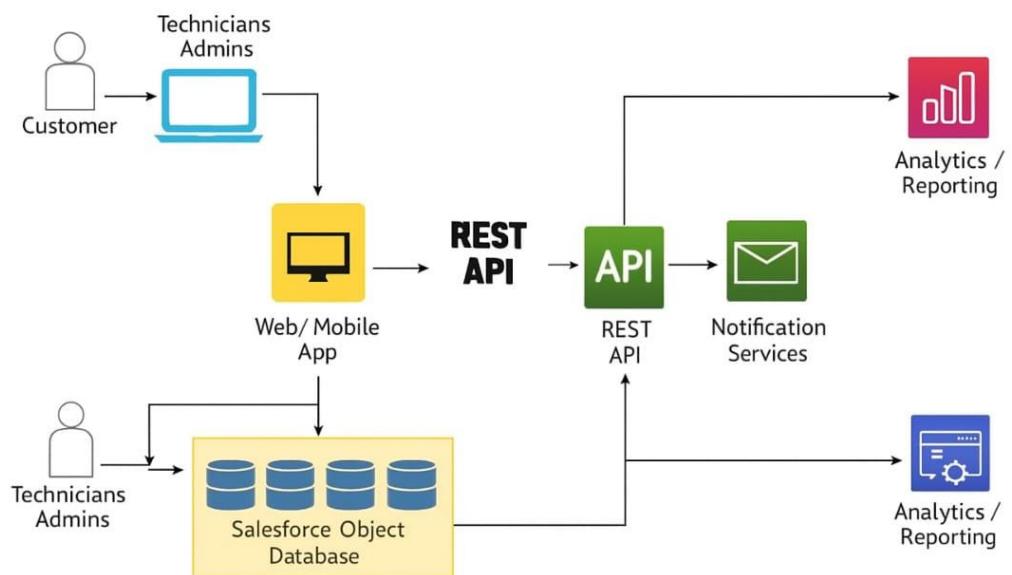


Figure 1: Architecture and data flow of the Garage Management System

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Reference: <https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/>