

Project Design Phase

Problem – Solution Fit Template

Date	05 NOV 2025
Team ID	NM2025TMID01008
Project Name	Garage Management System
Team Members	Arasu M Lokeshwaran M Jayabalan R Jaya Surya J

Design Phase – Problem–Solution Fit :

The **Problem–Solution Fit** represents how effectively the designed solution addresses the key challenges faced by garage administrators and service managers. In the **Garage Management System using Salesforce**, the identified problem was the **accidental deletion or modification of customer and vehicle records linked to active service requests**, leading to confusion, data loss, and workflow disruption. The Salesforce-based solution introduces **automated validation rules, dependency checks, and alert notifications** that directly resolve these challenges by ensuring data integrity and operational reliability.

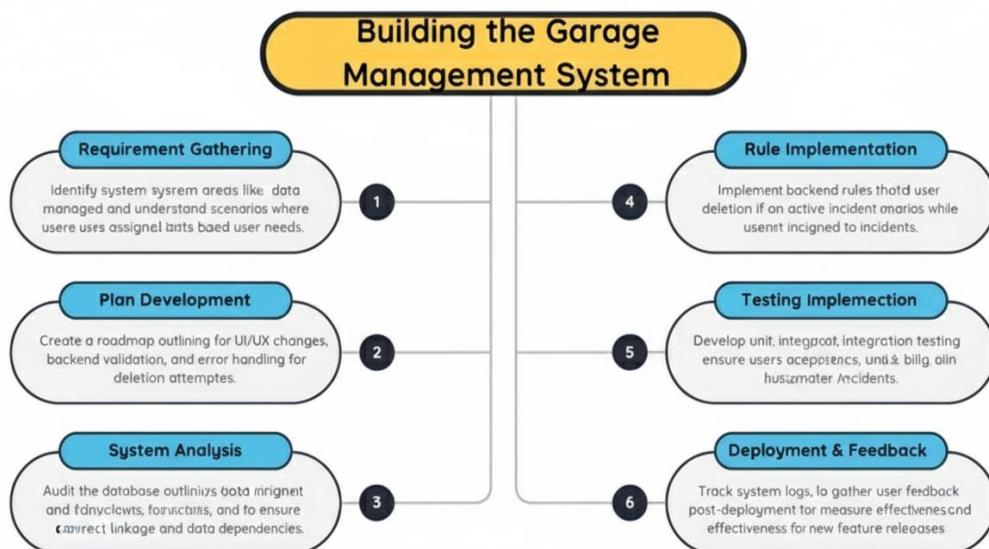
Purpose :

- **Solve Operational Challenges:**
Address real-world issues in garage operations by preventing record deletion when linked to active services.
- **Improve Workflow Efficiency:**
Enable faster and smoother processes by automating alerts and validation through Salesforce Flow and Rules.
- **Enhance Data Accuracy and Trust:**
Maintain clean, reliable data to build user confidence and ensure consistent service tracking.
- **Boost User Adoption:**
Provide a simple, intuitive interface for admins and staff, making it easier to manage customer, vehicle, and service details without confusion.

- **Strengthen Decision-Making:**

Offer insights into dependencies and service progress, helping garage managers make informed operational decisions.

Template :



References :

1. <https://www.ideahackers.network/problem-solution-fit-canvas/>
2. <https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe>

Project Summary :

The project “Garage Management System using Salesforce” addresses a critical need in managing customer, vehicle, and service data efficiently within automotive workshops. By ensuring that no customer or vehicle record linked to an active service request can be accidentally deleted or modified, the system greatly enhances data accuracy, accountability, and workflow consistency.

This Salesforce-based solution integrates validation rules, automation flows, and dependency checks to maintain clean and reliable records. It prevents data loss, improves transparency across service operations, and ensures that all actions are traceable and compliant. With the successful implementation of these rule-based mechanisms, the project sets a strong foundation for creating smarter, safer, and more reliable digital management systems for garages and service centers.

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Proposed Solution

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Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	In traditional garage systems, customer or vehicle records can be deleted even if they are linked to active service requests. This causes data loss, incomplete service tracking, and confusion among service staff.
2.	Idea / Solution Description	A validation rule and automation flow are implemented in Salesforce to check whether a customer or vehicle record is associated with any ongoing service. If such a link exists, the system blocks the deletion and displays an error message to the user.
3.	Novelty / Uniqueness	The solution provides a simple yet powerful safeguard using Salesforce's native automation tools—without requiring external applications. It ensures data accuracy and operational transparency in a way easily adaptable to different garage workflows.
4.	Social Impact / Customer Satisfaction	It increases reliability and trust between customers and the service center by preventing accidental data loss, maintaining service history, and improving coordination among garage staff.
5.	Business Model (Revenue Model)	While not a direct revenue generator, the system reduces operational errors, saves time, and improves customer satisfaction , resulting in better productivity and long-term cost savings for the garage.
6.	Scalability of the Solution	The same concept can be expanded to include other modules such as billing, spare parts management, and technician assignments . It can also be adapted for role-based restrictions in large garage chains or service franchises.

Solution Description:

To prevent the accidental deletion of customers or vehicles linked to active service requests in the **Garage Management System using Salesforce**, a set of **custom validation rules** and **automation flows** have been implemented. These configurations check whether a particular customer or vehicle record is currently associated with any ongoing service. If an active service request is detected, Salesforce automatically **blocks the deletion process** and displays an **error notification** to the user, ensuring that no dependent records are lost. This solution uses **Salesforce's native tools**—such as Flow Builder, Validation Rules, and Record Triggers—making it **simple, plugin-free, and highly adaptable** for garage operations. By enforcing data consistency and preventing workflow disruptions, this approach strengthens **accountability, operational accuracy, and customer trust** while ensuring a smooth and error-free management process within the system.

Conclusion

The Garage Management System project addresses key challenges within modern auto service centers by digitizing operations and improving workflow efficiency. By automating appointment scheduling, technician task management with parts inventory, and streamlining invoicing, the system significantly enhances accountability and data integrity. This solution not only ensures smoother service delivery but also provides valuable insights for management and compliance. With its implementation, the GMS sets a new standard for smarter, safer, and more efficient garage administration.

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Solution Architecture

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Solution Architecture :

Goals of the Architecture

- Provide a system safeguard using **Validation Rules** and **Automation Flows**
- Maintain **data integrity** between customer, vehicle, and service request records
- Reduce **manual monitoring** and prevent accidental data deletion

Key Components

- **Customer Object** – Stores customer details and is linked to their vehicles and service requests
- **Vehicle Object** – Holds vehicle information and references the associated customer
- **Service Request Object** – Represents ongoing or completed services linked to a vehicle
- **Validation Rule (Before Delete)** – Prevents deletion of any customer or vehicle record that is tied to an active service
- **Salesforce Flow / Trigger Logic** – Checks for dependencies and displays a warning message when a deletion attempt is made

Development Phases

1. **Create test data** (e.g., customers and their vehicles)
2. **Link vehicles** to service requests in progress
3. **Implement Validation Rule and Flow** to prevent deletion of linked records
4. **Test both cases** – deletion of a linked record (blocked) and unlinked record (allowed)

❖ Solution Architecture Description :

The solution architecture for the **Garage Management System using Salesforce** is designed to protect critical data and ensure operational reliability. It introduces an automated safeguard that prevents the deletion of any customer or vehicle record currently associated with an active service request.

This is achieved using Salesforce's "**before delete**" validation and automation flow logic, which cross-checks record relationships before allowing any deletion. When a dependency is detected, the system blocks the action and displays an error message to the user.

The development process includes creating test records, linking them with active services, applying validation logic, and verifying behavior through different test scenarios. This architecture minimizes manual oversight, enhances **data consistency**, and ensures a **secure, error-free workflow** for garage operations.

Example - Solution Architecture Diagram:

Garage Management System

