# Garage Management System

## 1. Project Overview

The Garage Management System (GMS) is designed to streamline and optimize operations for automotive repair facilities. This project aims to address the common challenges in garage management, such as service tracking, inventory management, and customer relationship management, by leveraging an intuitive, feature-rich platform. Through this project, we aim to enhance operational efficiency, improve customer satisfaction, and boost data accuracy within repair facilities. GMS supports the long-term goals of automotive businesses by providing a comprehensive solution that fosters efficiency, quality service, and customer loyalty in a competitive market.

## 2.Objectives

### Business Goals:

- Improve operational efficiency by automating routine tasks, reducing manual errors, and optimizing resource allocation within the garage.
- Enhance customer satisfaction by providing a seamless, transparent service experience, with clear communication on repair status and estimated completion times.
- Increase revenue through better service management and customer retention, enabling garages to handle higher service volumes and foster long-term customer relationships.

### Specific Outcomes:

- Develop a user-friendly interface for easy booking, service tracking, and communication, ensuring an efficient workflow for both customers and staff.
- Implement an inventory management module to track parts and supplies, reducing stockouts and overstocking, and ensuring timely availability of resources.
- Integrate a customer management system that stores service history and preferences, enabling personalized service and follow-up for repeat business.
- Provide data analytics and reporting tools to give garage managers insights into performance metrics, enabling data-driven decision-making and process improvements.

## 3.Salesforce Key Features and Concepts Utilized

**Service Cloud:** Enables streamlined case management and customer support, allowing garage staff to track and resolve customer inquiries and service requests efficiently

**Salesforce CRM:** Centralized customer relationship management to store and access customer profiles, service history, and contact details, supporting personalized service and enhancing customer loyalty.

**Inventory Management:** Utilizes Salesforce to manage parts and supplies, track stock levels, and set automatic reorder points, ensuring that garages are well-prepared for service demands.

**Workflow Automation:** Automates repetitive tasks such as booking confirmations, reminders, and follow-ups, reducing manual workload and improving communication with customers.

**Reports and Dashboards:** Provides customizable, real-time insights into key performance indicators (KPIs) like service turnaround time, parts usage, and customer satisfaction, supporting data-driven decision-making.

**Mobile Accessibility:** Ensures that technicians and managers can access essential information on mobile devices, enabling real-time updates and increased flexibility in service operations.

**Customization with Salesforce Lightning:** Utilizes the Lightning platform for a customized, user-friendly interface tailored to garage-specific workflows, making it easy to adapt Salesforce features to the unique needs of automotive repair.

## 4. Detailed Steps to Solution Design

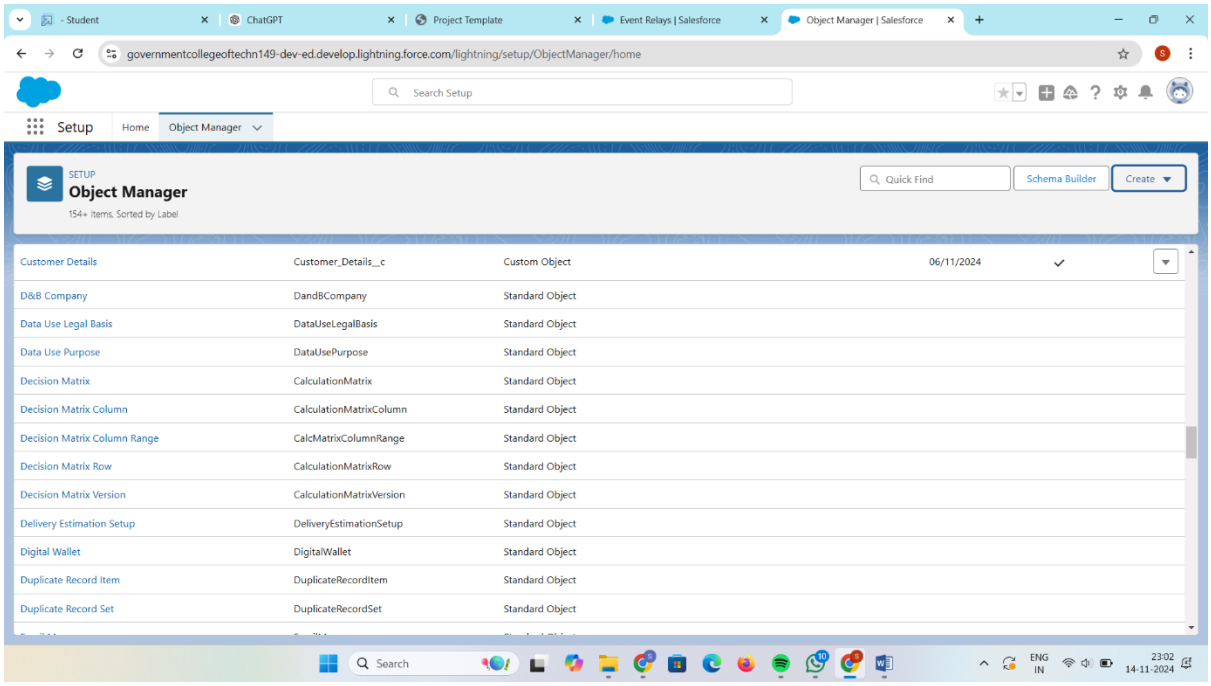
To develop a comprehensive Garage Management System (GMS) on Salesforce, we'll focus on designing the data structure, user interfaces, and business logic required to streamline garage operations. Below is a step-by-step breakdown of the solution design, including details of each component and key screenshots to illustrate the process.

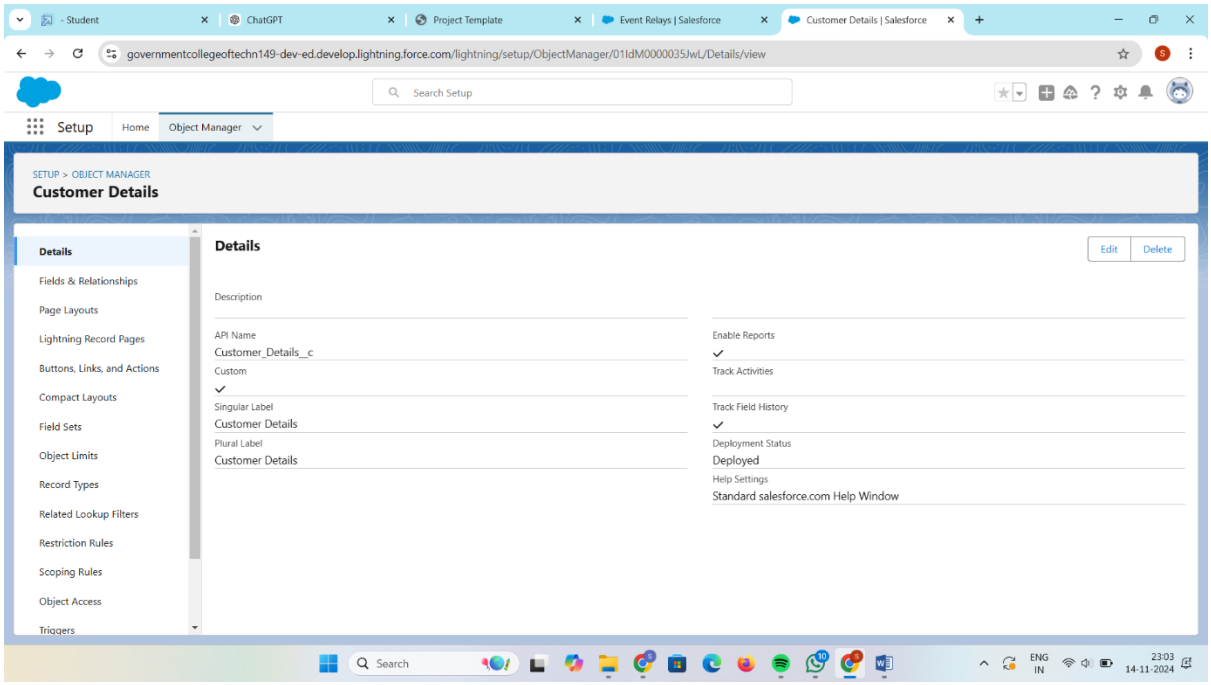
## Step 1: Creating the Customer Details Object

**Objective:** Develop a structured data model to store information about customers, vehicles, service history, parts inventory, and staff roles.

**1) Navigate to Object Manager**:

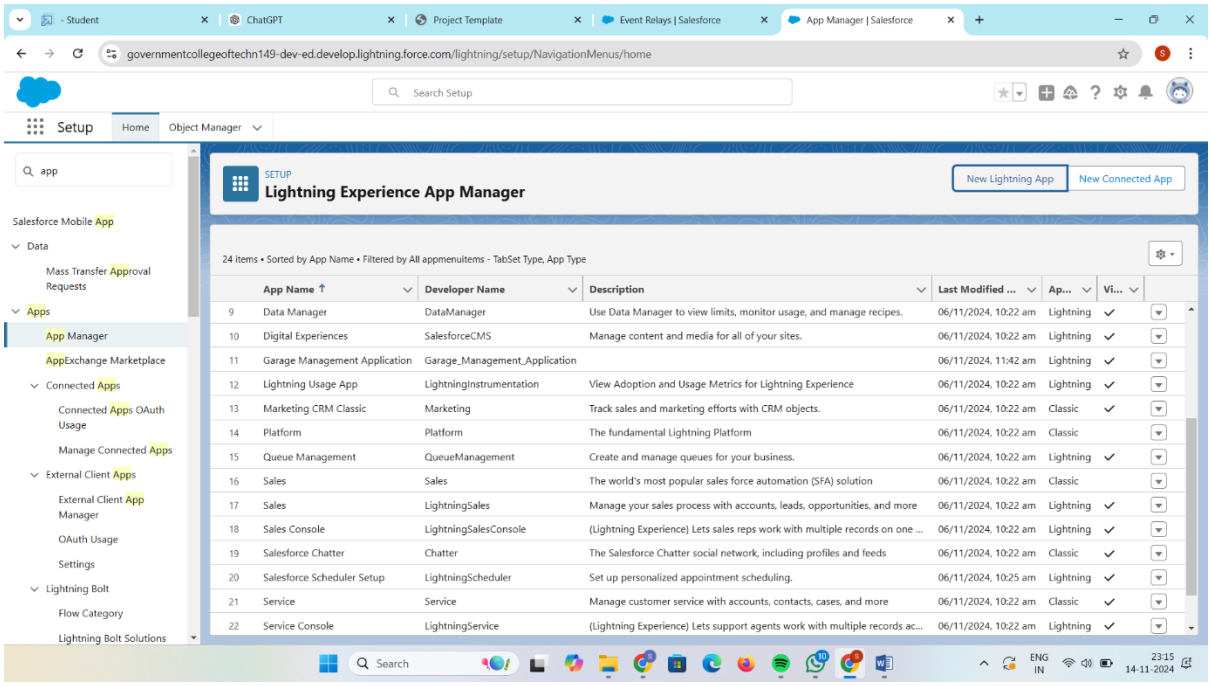
- Go to the setup page and select **Object Manager**.
- Click **Create** > **Custom Object**.

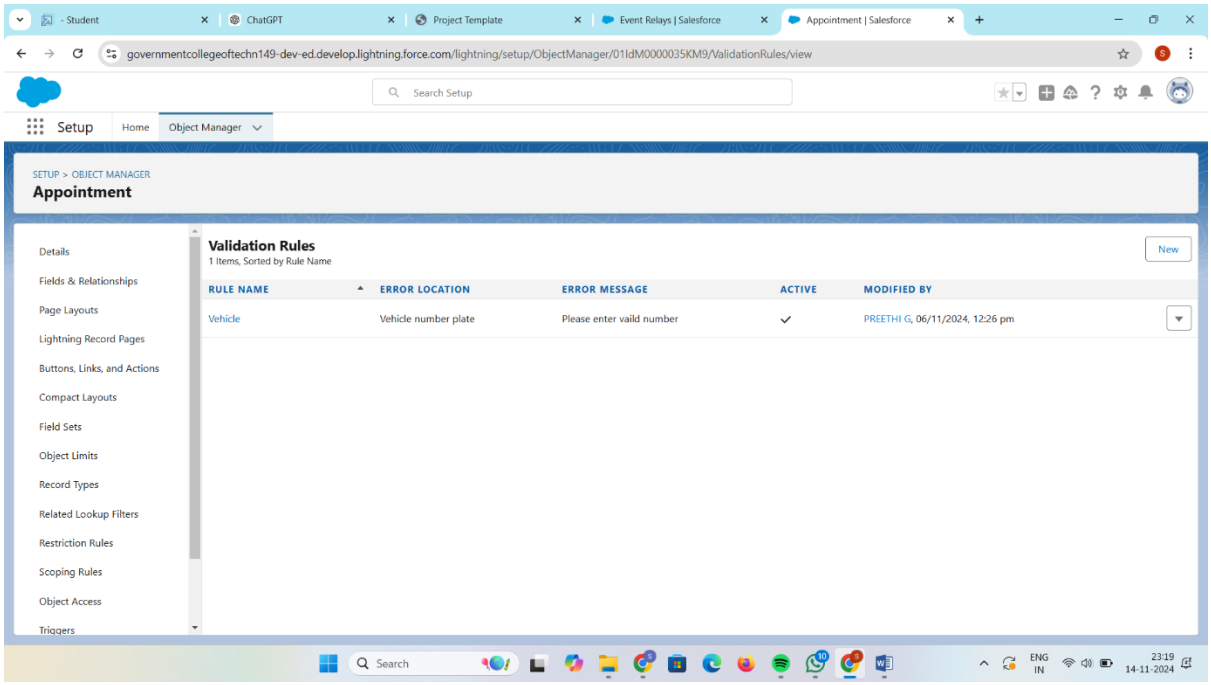



## 2) Define Object Label:

- Set Label Name: Customer Details.
- Set Plural Label: Customer Details.
- Set Record Name: Customer Name.
- Select Data Type: Text.
- Enable Allow Reports, Track Field History, and Allow Search.

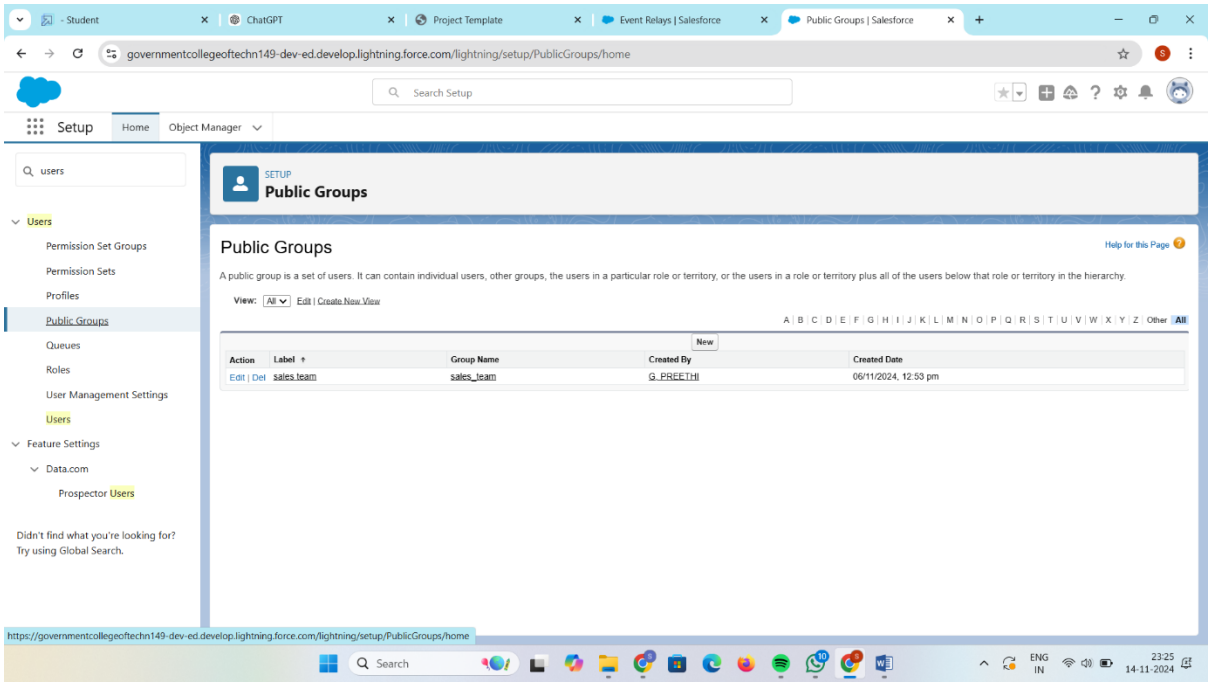


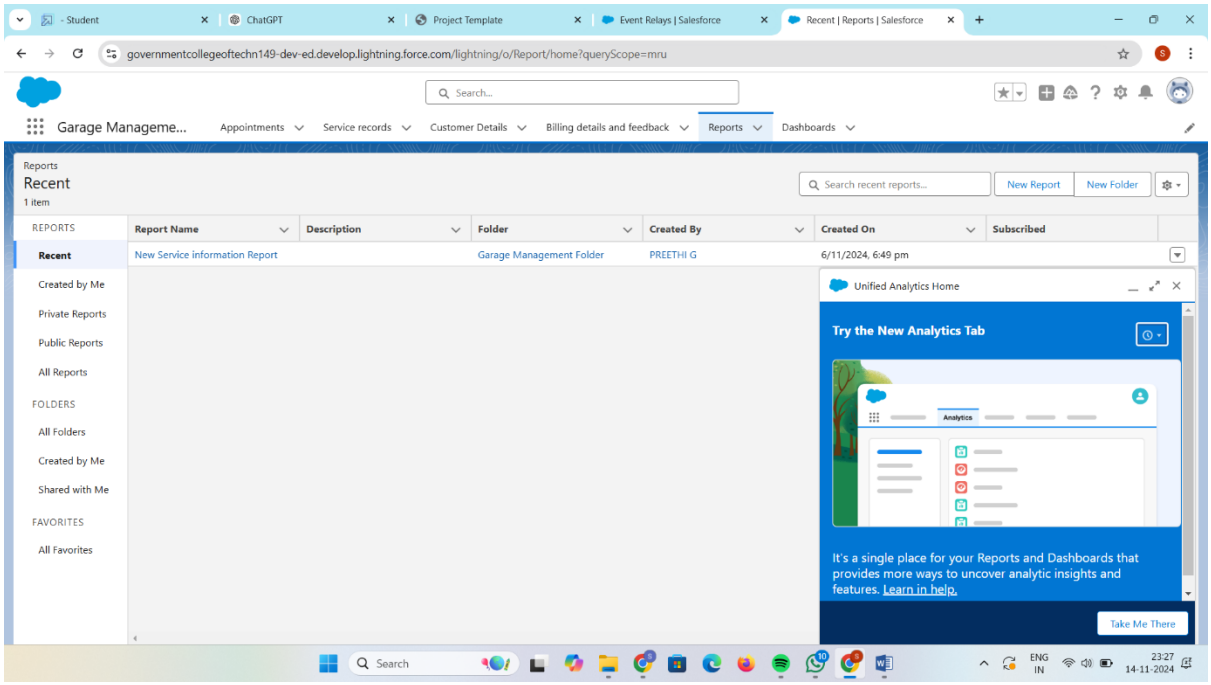




## Step 2: Creating Tabs for Objects

### Navigate to Tabs:

- In Setup, type Tabs in the Quick Find bar.
- Click New under Custom Object Tabs.




## 5. Testing and Validation

To ensure the Garage Management System (GMS) is reliable, functional, and user-friendly, a structured approach to testing will be implemented. This testing phase includes Unit Testing for back-end components and User Interface (UI) Testing for front-end functionality. The testing and validation approach aims to identify and address any bugs or usability issues to provide a seamless experience.

**Unit Testing**

**Objective:** Validate the functionality of Apex classes, triggers, and other automated processes to ensure they perform as expected under different scenarios.

- **Apex Classes Testing:**
    - Write unit tests to cover all methods within Apex classes. This includes testing CRUD operations, business logic methods, and any integrations.
    - Each test should validate expected results, such as successful data updates, correct calculations, or error handling.
    - Example: A unit test for an Apex class managing inventory should confirm that stock quantities update correctly after a service request is processed.
- **Trigger Testing:**
    - Each trigger is tested to confirm that it performs expected actions without errors. For instance, a trigger that updates inventory levels when a part is used in a service request should deduct the correct quantity and trigger reorder workflows as needed.
    - Tests should cover common scenarios (e.g., creating, updating, or deleting records) and edge cases to ensure data integrity.
- **Code Coverage:**
    - Ensure that unit tests achieve a minimum of 75% code coverage as required by Salesforce, though the goal is to achieve full coverage of critical classes and triggers.
    - Test results should be reviewed for any failures, and necessary adjustments should be made to the code or test cases to resolve issues.

*Screenshot:* [Insert screenshot of test coverage summary for Apex classes and triggers].

**User Interface Testing**

**Objective:** Validate that the user interface (UI) components work as expected, ensuring ease of navigation, data accuracy, and appropriate access based on user roles.

- **Customer Profile and Service Request Views:**
    - Test the UI to ensure that customer service agents can view, edit, and update customer and service request information accurately.
    - Check that all linked data, such as vehicle information and service history, displays correctly and that user permissions are enforced (e.g., editing restrictions for certain fields).

- **Inventory Management Interface:**
    - Validate that stock levels are displayed accurately and that low-stock alerts appear as expected.
    - Confirm that users can initiate reorder requests through the interface and that data updates reflect accurately in real time.
- **Technician Dashboard:**
    - Test the dashboard to ensure technicians can view and manage assigned tasks, log completed work, and update statuses.
    - Ensure all actions are intuitive, and data inputs (such as task completion) correctly trigger backend workflows, like updating the service request status.
- **Customer Portal Testing:**
    - Verify that customers can log in, book appointments, view their service history, and receive notifications.
    - Test usability on different devices (desktop, tablet, mobile) to ensure responsive design.
- **Role-Based Access Testing:**
    - Confirm that each user role (e.g., technician, customer service agent, manager) has appropriate access to features, fields, and data.
    - Ensure unauthorized actions are restricted and that each role's UI components are customized for their workflow.

*Screenshot:* [Include screenshots of test cases executed for each UI component, showing expected results for each user action].

## 6. Key Scenarios Addressed by Salesforce in the Implementation Project

During the implementation of the Garage Management System (GMS) on Salesforce, we address several key scenarios that are crucial to garage operations. By leveraging Salesforce's robust features, the system effectively manages these scenarios, ensuring that the platform meets both user needs and operational requirements.

### Scenario 1: Customer Appointment Scheduling and Service Tracking

- **Use Case:** Customers need to schedule service appointments and receive real-time updates on their service status.
- **Salesforce Solution:** Using Service Cloud, customers can book appointments through the Customer Portal. Upon booking, automated workflows confirm the appointment

and update the status based on service progress. Service agents can also use the system to update customers on the service timeline and completion.
- **Benefit:** Reduces manual tracking and improves customer experience by providing a seamless, transparent process.

## Scenario 2: Inventory and Parts Management

- **Use Case:** The garage must manage parts inventory to ensure availability for service requests and maintain optimal stock levels.
- **Salesforce Solution:** Salesforce tracks inventory through custom Inventory Objects, setting reorder thresholds and automating reorder requests when stock falls below these levels. Service agents and technicians can view stock levels in real time, ensuring parts availability before starting repairs.
- **Benefit:** Prevents stockouts and overstocking, minimizing delays and maintaining service efficiency.

## Scenario 3: Technician Assignment and Task Management

- **Use Case:** Each service request requires assigning the right technician based on skills, availability, and workload.
- **Salesforce Solution:** Automated workflows use Flow to assign tasks to technicians with matching skill sets and current availability. The Technician Dashboard provides real-time task lists, allowing technicians to view and update their assignments.
- **Benefit:** Ensures optimal resource allocation, balances technician workloads, and enhances task visibility and tracking.

## Scenario 4: Customer Relationship Management (CRM)

- **Use Case:** The garage needs a centralized system to manage customer details, service history, and communication preferences to offer personalized service.
- **Salesforce Solution:** Salesforce CRM stores customer profiles with detailed service history and contact information. Service agents can access these profiles to personalize interactions and follow up on previous work, while customers receive customized notifications.
- **Benefit:** Strengthens customer relationships and fosters loyalty by maintaining continuity and personalized communication.

### Scenario 5: Customer Feedback Collection and Satisfaction Tracking

- **Use Case:** Gathering customer feedback after each service to evaluate satisfaction and identify improvement areas.
- **Salesforce Solution:** Automated surveys and feedback forms are sent to customers upon service completion. Salesforce captures this data and aggregates it into the Customer Satisfaction Dashboard, providing insights into customer sentiment.
- **Benefit:** Enables proactive response to feedback and helps the garage maintain high service standards.

### Scenario 6: Real-Time Reporting and Analytics for Operational Insights

- **Use Case:** Managers need actionable insights into key metrics such as service volumes, revenue, inventory turnover, and technician performance.
- **Salesforce Solution:** Salesforce reports and dashboards provide managers with real-time data visualizations and KPI tracking. Managers can analyze trends and make data-driven decisions to improve operations and address bottlenecks.
- **Benefit:** Empowers managers to continuously optimize operations and achieve performance targets with data transparency.

### Scenario 7: Automated Customer Notifications and Reminders

- **Use Case:** The garage must keep customers informed about their service status and send reminders for upcoming or overdue services.
- **Salesforce Solution:** Process Builder and Flow automate SMS and email notifications for service confirmations, reminders, and completion alerts. Customized notifications keep customers informed at every stage.
- **Benefit:** Reduces customer uncertainty, ensures timely communication, and minimizes missed appointments.

## 7. Conclusion

**Summary of Achievements:**
The implementation of the Garage Management System (GMS) on Salesforce has successfully transformed key aspects of garage operations. Through this project, we have achieved significant advancements in operational efficiency, customer satisfaction, and data-driven management. Notable accomplishments include:

- **Enhanced Customer Experience:** With a streamlined appointment scheduling system, real-time service tracking, and personalized customer profiles, GMS provides a seamless and transparent experience for customers, fostering loyalty and satisfaction.

- **Improved Inventory Management:** Automated inventory tracking and reorder processes have minimized stock shortages and overstock, ensuring that essential parts are always available for service requests.
- **Optimized Technician Workflow:** Role-based dashboards and automated task assignment enable technicians to manage their workload effectively, reducing downtime and improving task visibility.
- **Data-Driven Decision Making:** Real-time reporting and analytics provide managers with valuable insights into service performance, inventory turnover, and customer satisfaction, empowering continuous operational improvements.
- **Automated Communication:** Timely, automated customer notifications enhance communication, keep customers informed, and reduce missed appointments, building a more dependable service experience.

Overall, the GMS implementation on Salesforce has established a robust, scalable platform that equips automotive repair facilities with the tools to thrive in a competitive market while meeting customer expectations. This project successfully aligns with our goal to support garage businesses with a solution that fosters long-term growth, operational excellence, and lasting customer relationships.