



GARAGE MANAGEMENT SYSTEM USING SALESFORCE

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Project Overview

Garage Management system

The Garage Management System is a valuable tool for automotive repair facilities, helping them deliver top-notch service, increase operational efficiency, and build lasting customer relationships. With its user-friendly interface and powerful features, GMS empowers garages to thrive in a competitive market while ensuring a seamless and satisfying experience for both customers and staff.

Objectives

The main goal of the Garage Management System is to enhance the efficiency and productivity of automobile workshops through Salesforce automation and customization.

It focuses on delivering a better customer experience, reducing manual workload, and providing real-time insights into service operations.

Business Goals:

A. Improve Service Efficiency:

Automate appointment scheduling, vehicle tracking, and technician assignment to reduce delays and improve service quality.

B. Enhance Customer Experience:

Offer a transparent system for customers to track service status, view history, and receive timely updates.

C. Optimize Inventory Management:

Monitor spare part usage, stock levels, and reorder requirements to ensure availability during service operations.

D. Streamline Billing and Payments:

Generate digital invoices linked to completed services for faster and more accurate billing.

Salesforce Key Features and Concepts Utilized

The Garage Management System leverages Salesforce's features to create a powerful, user-friendly environment for managing garage operations.

1. Custom Objects

Customer Details: Stores key customer information such as name, contact number, email, and vehicle details. It helps garages maintain a complete customer database for quick access and personalized service.

The screenshot shows the Salesforce Object Manager interface. The top navigation bar includes tabs for Setup, Home, and Object Manager, with Object Manager currently selected. A search bar labeled "Search Setup" is present. The main content area displays the "Customer Details" object under the "Object Manager" section. On the left, a sidebar lists various configuration options under "Fields & Relationships". The main table, titled "Fields & Relationships", lists six fields: Created By, Customer Name, Gmail, Last Modified By, Owner, and Phone number. Each row includes columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status. The "Data Type" column shows types like Lookup(User), Text(80), Email, and Phone. The "Controlling Field" column indicates which field controls relationships. The "Indexed" column shows checkmarks for some fields. The bottom of the screen shows the standard Windows taskbar with various pinned icons.

Appointments : Manages service bookings with details such as date, time, vehicle number, assigned technician, and service type. It helps avoid scheduling conflicts and ensures timely service delivery.

Fields & Relationships
13 Items, Sorted by Field Label

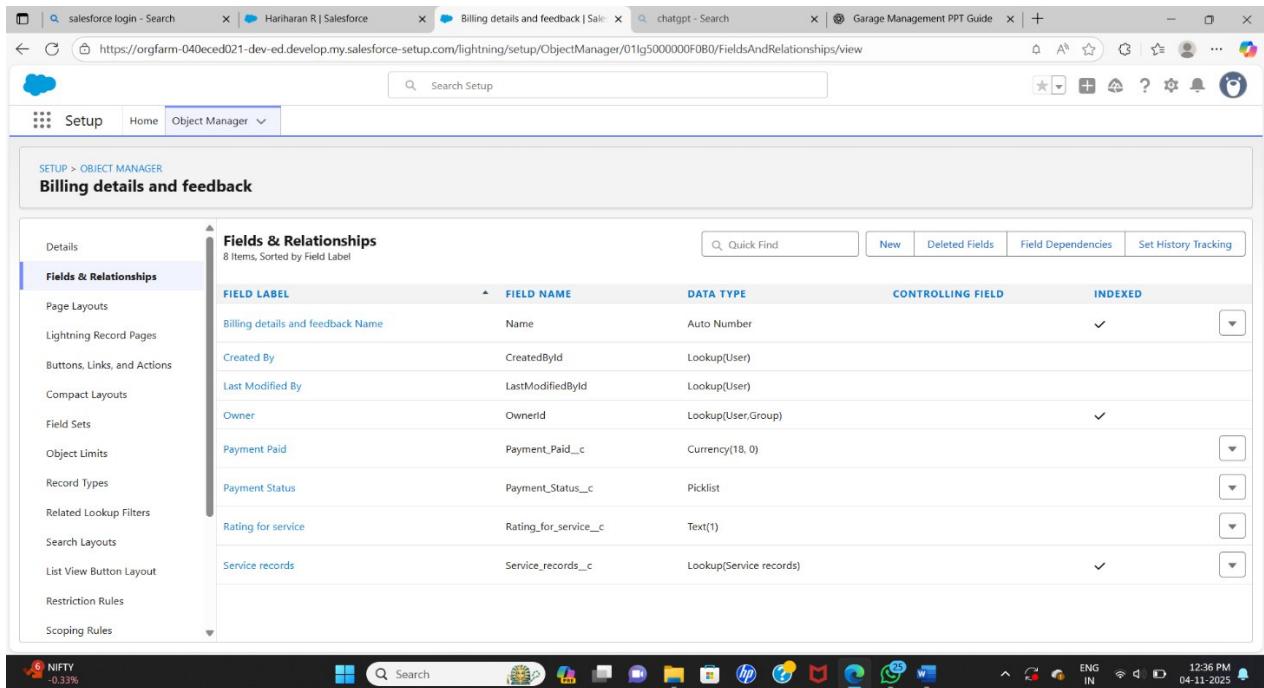
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Appointment Date	Appointment_Date_c	Date		
Appointment Name	Name	Auto Number		
Contact	Contact_c	Lookup(Contact)		
Created By	CreatedBy	Lookup(User)		
Customer Details	Customer_Details_c	Lookup(Customer Details)		
Customer Name	Customer_Name_c	Lookup(Contact)		
Last Modified By	LastModifiedBy	Lookup(User)		
Maintenance service	Maintenance_service_c	Checkbox		
Owner	OwnerId	Lookup(User,Group)		

Service records: Keeps a detailed log of all services performed on each vehicle, including service status , service date , appointments and technician involved. This ensures transparency and makes it easy to view service history.

Fields & Relationships
9 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Appointment	Appointment_c	Lookup(Appointment)		
Created By	CreatedBy	Lookup(User)		
Last Modified By	LastModifiedBy	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		
Quality Check Status	Quality_Check_Status_c	Checkbox		
service date	service_date_c	Formula (Date)		
Service records	Service_records_c	Lookup(Appointment)		
Service records Name	Name	Auto Number		
Service Status	Service_Status_c	Picklist		

Billing details & Feedback : Handles billing operations by automatically generating invoices after service completion. It also collects customer feedback to evaluate service quality and improve future operations.



The screenshot shows the Salesforce Object Manager interface. The left sidebar has a 'Fields & Relationships' section selected. The main area displays a table titled 'Fields & Relationships' with 8 items. The columns are: FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The data is as follows:

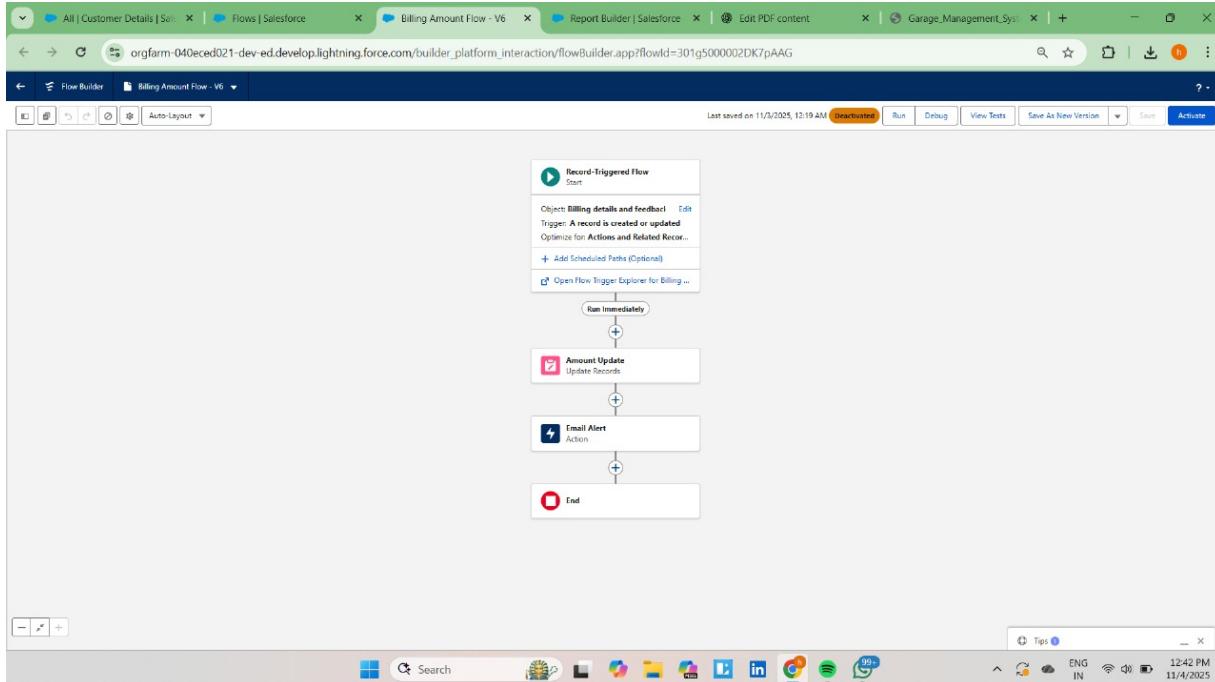
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Billing details and feedback Name	Name	Auto Number		✓
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Payment Paid	Payment_Paid__c	Currency(18, 0)		
Payment Status	Payment_Status__c	Picklist		
Rating for service	Rating_for_service__c	Text(1)		
Service records	Service_records__c	Lookup(Service records)		✓

2. Relationships

- Master-Detail Relationships:** Establish structured data connections, such as linking **Service Records** to **Billing Details**, ensuring accurate billing and consistent tracking of completed services.
- Lookup Relationships:** Provide flexible associations, such as linking **Appointments** to **Customer Details** and **Mechanics**, allowing dynamic scheduling based on availability and service type.

3. Automations and Workflows

Flows: Automate key processes like generating billing records once a service is marked as completed, guiding users through a step-by-step workflow that reduces manual entry errors.



Apex Triggers: Implement custom logic to automatically update spare part inventory quantities after a service or to notify managers when a job is completed, improving operational accuracy and response times.

Apex Trigger Detail

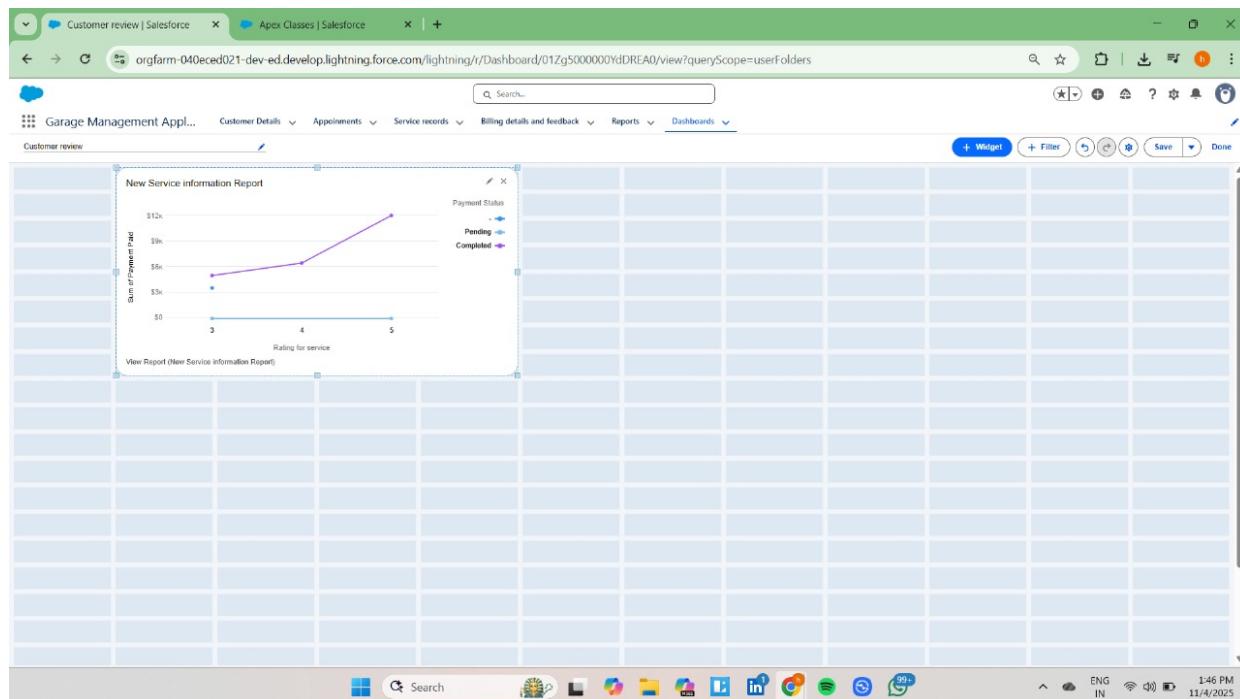
Name	AmountDistribution	sObject Type	Appointment
Code Coverage	0% (0/2)	Status	Active
Created By	Hanitharan_R_	Last Modified By	Hanitharan_R_
Namespace Prefix		11/1/2025, 11:47 AM	

Apex Trigger Code:

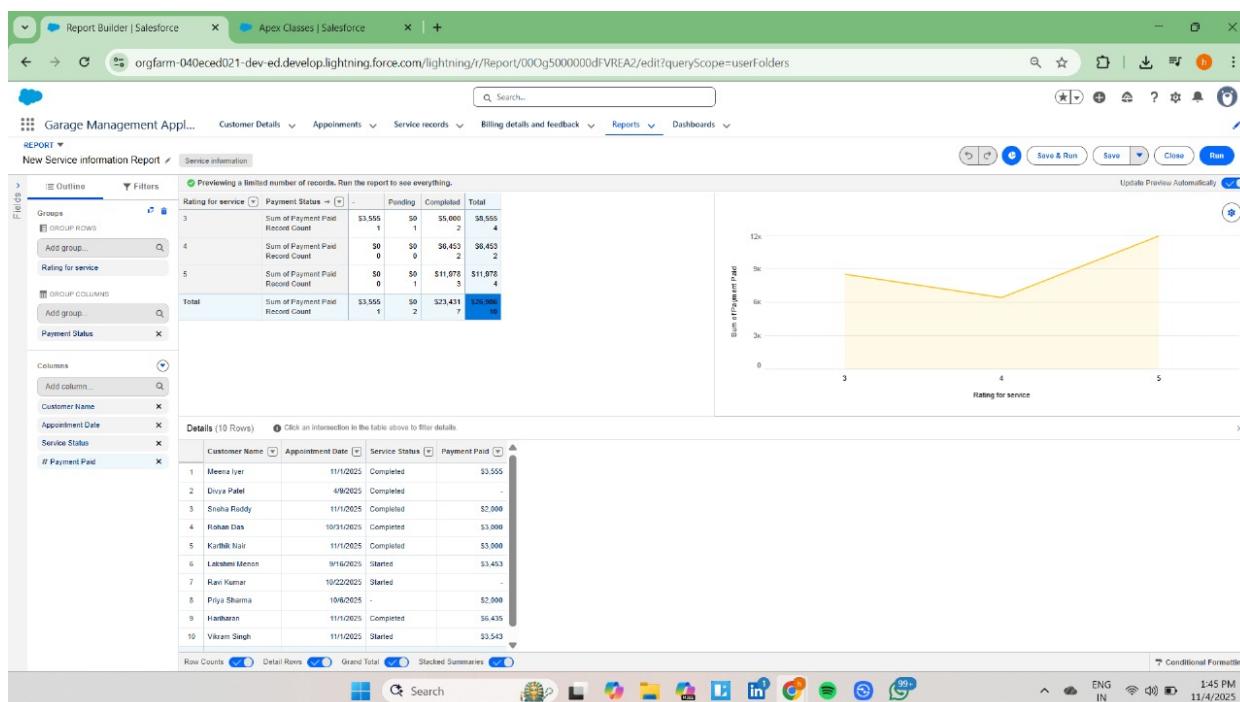
```
1trigger AmountDistribution on Appointment__c (before insert, before update) {  
2    3  
4    5        if(trigger.isbefore && trigger.isinsert || trigger.isupdate){  
6            7                AmountDistributionHandler.amountDist(trigger.new);  
8  
9            10           }  
11        }  
12  
13  
14  
15}
```

4. Dashboards and Reports

Dashboards: Provide visual representations of crucial garage data, including total services completed, mechanic workload, customer satisfaction, and revenue trends. These dashboards empower administrators to make informed decisions and improve overall performance.



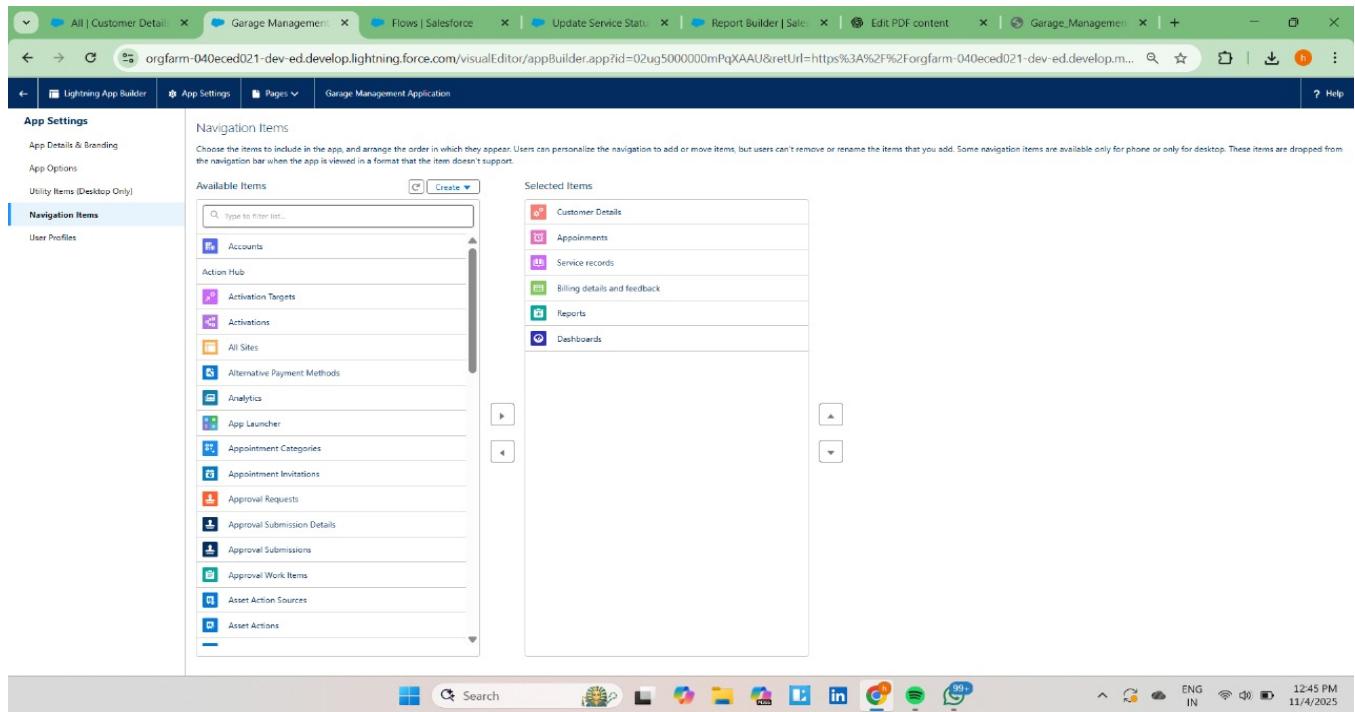
Reports: Generate detailed analytics on customer activity, service volume, and income, helping identify areas for efficiency and business growth.



5. User Experience Enhancements

Lightning App

A custom app was developed to deliver an intuitive, user-friendly interface. The app consolidates navigation for all major components Customers, Appointments, Service Records, Billing, Reports, and Dashboards ensuring quick access and smooth interaction across the platform.



Detailed Steps to Solution Design

Building the **Garage Management System (GMS)** involved a structured and thoughtful approach to ensure the platform meets the needs of customers, mechanics, and administrators while leveraging the robust capabilities of Salesforce. Below is a step-by-step breakdown of the design and implementation process:

Step 1: Developer Account Setup

- Registered for a Salesforce Developer account to create a dedicated environment for development and testing.
- Verified the account to unlock full access to Salesforce features, ensuring a smooth setup process.

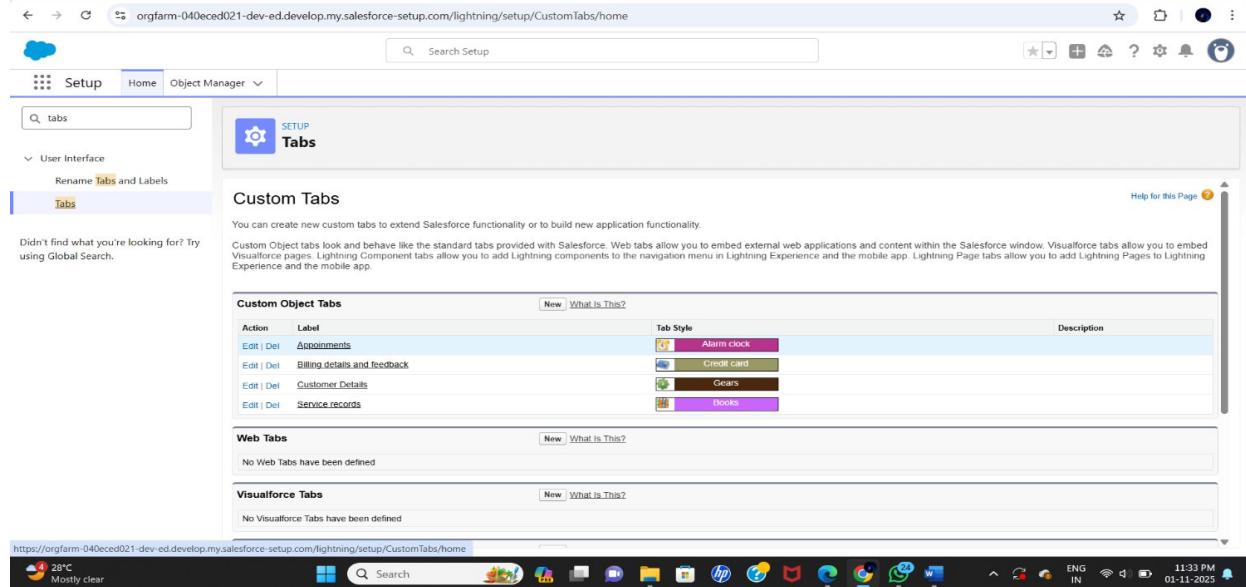
Step 2: Custom Object Creation

- Used Salesforce Object Manager to design custom objects for **Customer Details, Appointment, Service Records, and Billing Details & Feedback**.
- Configured fields such as text, numbers, currency, and lookup relationships to capture all relevant data, ensuring each object accurately reflects the real-world requirements of a garage management system.

The screenshot shows the Salesforce Object Manager page. At the top, there's a header with a back arrow, forward arrow, and a refresh icon. The URL is orgfarm-040ec021-dev-ed.develop.my.salesforce-setup.com/lightning/setup/ObjectManager/home. Below the header is a navigation bar with 'Setup' and 'Object Manager' selected. The main area is titled 'Object Manager' with a sub-header '108+ Items. Sorted by Label'. There are three tabs at the top of this section: 'Quick Find', 'Schema Builder', and 'Create'. A table below lists objects with columns: 'LABEL', 'API NAME', 'TYPE', 'DESCRIPTION', 'LAST MODIFIED', and 'DEPLOYED'. The table includes rows for Account, Activity, Address, Agent Work, Alternative Payment Method, API Anomaly Event Store, Appointment, Appointment Category, Appointment Invitation, Appointment Invitee, Appointment Topic Time Slot, Approval Submission, and Approval Submission Detail. The 'Appointment' row is highlighted with a blue background. The bottom of the screen shows a Windows taskbar with various icons and system status information.

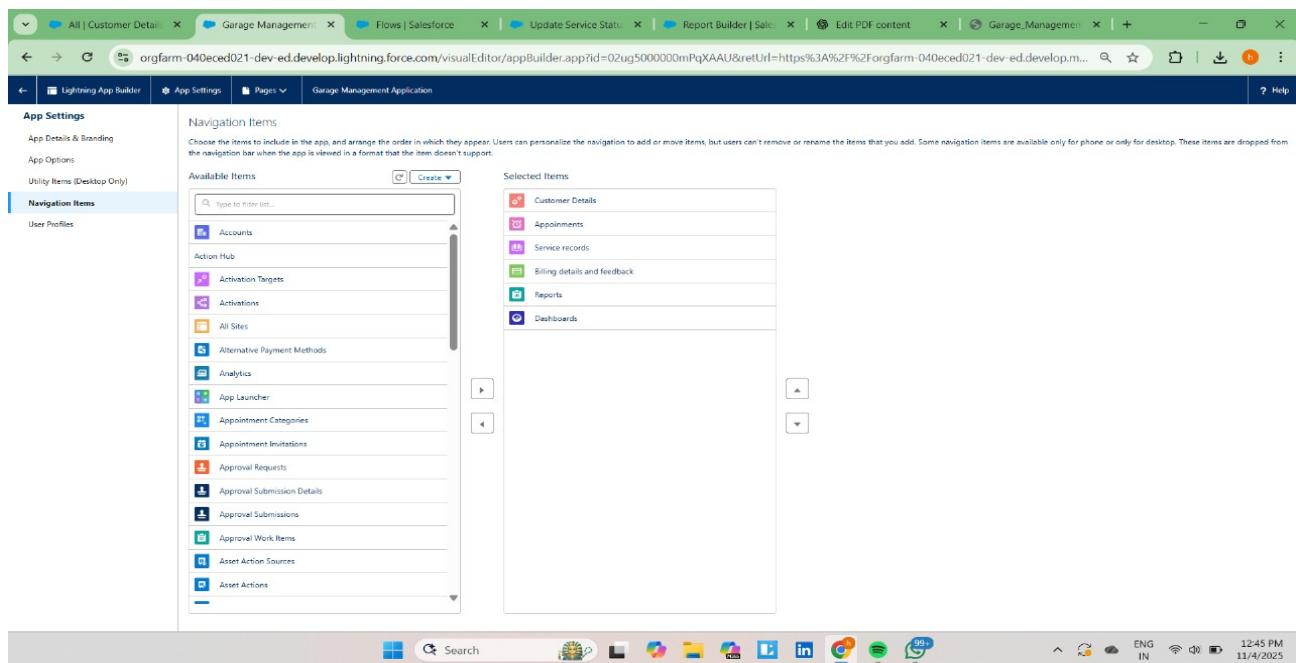
Step 3: Custom Tabs for Navigation

Created custom tabs for each object, improving navigation and making it easier for users to access



Step 4: Lightning App Development

- Developed a Lightning App and included essential navigation items like custom objects, reports, and dashboards to provide a user-friendly interface.
- Assigned user profiles to ensure role based access and operational security.



Step 5: Establishing Data Relationships

- Defined relationships between objects using **Lookup** and **Master-Detail** fields.
- Examples include: Lookup between **Appointment** and **Customer Details** to link customers with service appointments. Master-Detail between **Service Records** and **Billing Details** to maintain connected service and payment data.

The screenshot shows the Salesforce Setup interface. The left sidebar is titled 'SETUP > OBJECT MANAGER' and lists various options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Appointment Custom Field Customer Details'. It shows the 'Custom Field Definition Detail' page for the 'Customer_Details' field. The field information includes:

- Field Label: Customer Details
- Field Name: Customer_Details
- API Name: Customer_Details_c
- Description: (empty)
- Help Text: (empty)
- Data Owner: (empty)
- Field Usage: (empty)
- Data Sensitivity Level: (empty)
- Compliance Categorization: (empty)

Details about the lookup:

- Related To: Customer Details
- Related List Label: Appointments
- Required: (checkbox)
- What to do if the lookup record is deleted: Clear the value of this field.

At the bottom, there's a 'Lookup Filter' section. The status bar at the bottom shows system information like NIFTY -0.37%, battery level, and system time.

The screenshot shows the Salesforce Setup interface. The left sidebar is titled 'SETUP > OBJECT MANAGER' and lists various options like Details, Fields & Relationships, Page Layouts, etc. The main content area is titled 'Billing details and feedback'. It shows the 'Fields & Relationships' page for the 'Billing details and feedback' object. The table lists the following fields:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Billing details and feedback Name	Name	Auto Number		✓
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Payment Paid	Payment_Paid__c	Currency(18, 0)		
Payment Status	Payment_Status__c	Picklist		
Rating for service	Rating_for_service__c	Text(1)		
Service records	Service_records__c	Lookup(Service records)		✓

At the bottom, there's a 'Fields & Relationships' summary: 8 items, Sorted by Field Label. The status bar at the bottom shows system information like NIFTY -0.37%, battery level, and system time.

Step 6: Field Configuration

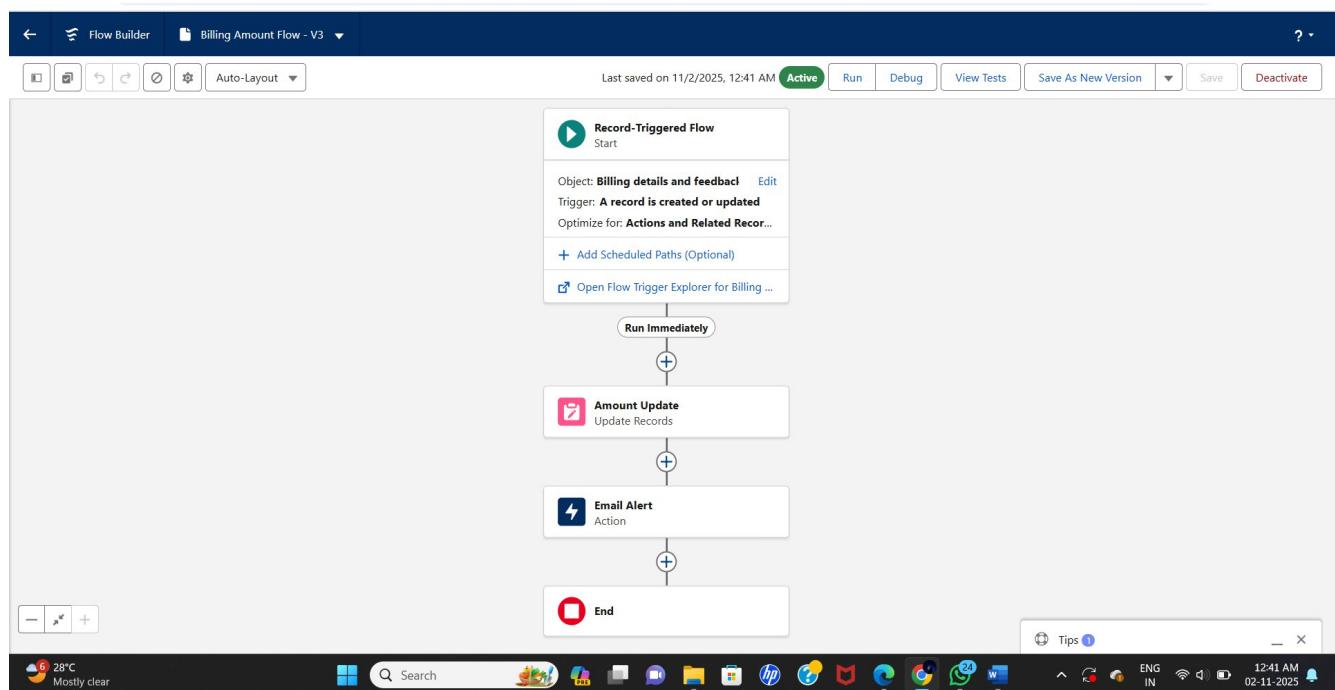
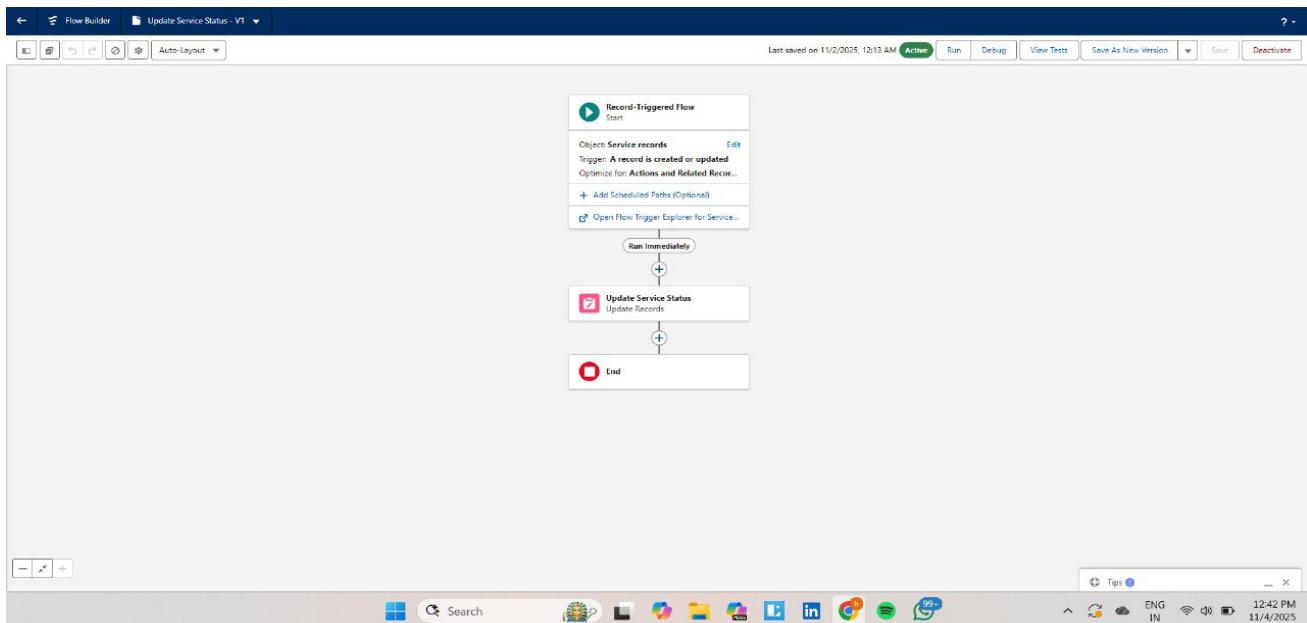
- Configured fields for each custom object to capture critical details, such as:
 - Customer Details:** Name, Contact Number, Email, Vehicle Model.
 - Appointment:** Date, Time, Vehicle, Assigned Mechanic.
 - Service Records:** Service Type, Cost, Status, Completion Date.
 - Billing & Feedback:** Amount, Payment Status, Customer Comments.

The screenshot shows the Salesforce Object Manager interface for the 'Customer Details' object. The left sidebar lists various setup options like Page Layouts, Lightning Record Pages, and Fields & Relationships. The main content area displays the 'Fields & Relationships' section with a table showing field details. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The indexed column contains checkboxes, some of which are checked. The table rows include: Created By (CreatedById, Lookup(User)), Customer Name (Name, Text(80)), Gmail (Gmail__c, Email), Last Modified By (LastModifiedById, Lookup(User)), Owner (OwnerId, Lookup(User,Group)), and Phone number (Phone_number__c, Phone).

The screenshot shows the Salesforce Object Manager interface for the 'Service records' object. The left sidebar lists various setup options. The main content area displays the 'Fields & Relationships' section with a table showing field details. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The indexed column contains checkboxes, some of which are checked. The table rows include: Appointment (Appointment__c, Lookup(Appointment)), Created By (CreatedById, Lookup(User)), Last Modified By (LastModifiedById, Lookup(User)), Owner (OwnerId, Lookup(User,Group)), Quality Check Status (Quality_Check_Status__c, Checkbox), service date (service_date__c, Formula (Date)), Service records Name (Name, Auto Number), and Service Status (Service_Status__c, Picklist).

Step 7: Flow Design

- Designed a guided **screen flow** to simplify service booking and automate the creation of appointment records.
- Implemented an automatic process to generate a billing record once a service is marked as



Step 8: Trigger Implementation

- Developed **Apex Triggers** to enhance automation, such as updating spare part stock quantities after each completed service.
- The triggers reduce manual effort and maintain accuracy in inventory tracking and billing..

The screenshot shows the Salesforce Setup Home page with the 'Users' tab selected. The main content area displays a table titled 'All Users' with columns for Action, Full Name, Alias, Username, Role, Active, and Profile. The table lists several users, including 'Chatter Expert', 'EPIC_OrgFarm', 'harinran_Harimaran', 'krushika_Harimaran', 'Mikaelson_Niklaus', 'naveen', 'R_Haritharan', 'B_Haritharan', 'User_Integration', and 'User_Security'. Each user row includes edit links and checkboxes for selecting multiple users. The 'Profile' column shows profiles like 'Chatter Free User', 'System Administrator', 'sales person', 'Manager', and various salesperson profiles. The 'Active' column has checkboxes, some of which are checked. The 'Role' column indicates the user's function within the organization. The 'Action' column contains checkboxes and edit links. The 'Username' column lists unique email addresses for each user. The 'Alias' column provides shorter, more manageable names for users. The 'Full Name' column lists the full names of the users. The 'New User' and 'Reset Password(s)' buttons are located at the top of the table. The URL in the browser bar is <https://orgfarm-040eced021-dev-ed.develop.my.salesforce-setup.com/lightning/setup/ManageUsers/home>.

Step 9: User Management and Permissions

- Set up user profiles for **Managers, Mechanics, and Sales Personnel**.
- Configured permissions to ensure each role accesses only the relevant objects and records needed for their tasks.

1. **User List Page** – shows all created users with their assigned roles and profiles.

The screenshot shows the Salesforce Setup Home page with the 'Users' section selected. The main content area displays a table titled 'All Users' with the following data:

Action	Full Name	Alias	Username	Role	Active	Profile
Edit	Chatter Expert	Chatter	chatty_00dtrg5000000B03eal b8nbhbxzg6hry@chatter.salesforce.com		<input checked="" type="checkbox"/>	Chatter Free User
Edit	EPIC_OrgFarm	OEPIIC	epic.a758b18d012@orgfarm.salesforce.com		<input checked="" type="checkbox"/>	System Administrator
Edit	bharanan_Hanharan	bhar	bhanaran@yellow.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sales person
Edit	krushika_Hanharan	kru	mrdoubleh123@gmail.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sales person
Edit	Mikelton_Niklaus	nmika	hari@hanharan.yellow	Manager	<input checked="" type="checkbox"/>	Manager
Edit	daveen	nave	naveen@yellow.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sales person
Edit	B_Hanharan	mrd	mrdoubleh123292@agentforce.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	System Administrator
Edit	B_Hanharan	hr	narkin@wsgroupkh.com	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	sales person
Edit	User_Integration	integ	integration000d5000000B03eal.com		<input checked="" type="checkbox"/>	Analytics Cloud Integration User
Edit	User_Security	sec	insightssecurity@000dg500000B03eal.com		<input checked="" type="checkbox"/>	Analytics Cloud Security User

2. **Public Groups List Page** – shows the created group used for sharing rules.

The screenshot shows the Salesforce Setup Home page with the 'Public Groups' section selected. The main content area displays a 'New Group' form for a 'New Public Group' with the following details:

Group Information

- Label: sales team
- Group Name: sales_team
- Grant Access Using Hierarchies:
- Description: (empty)

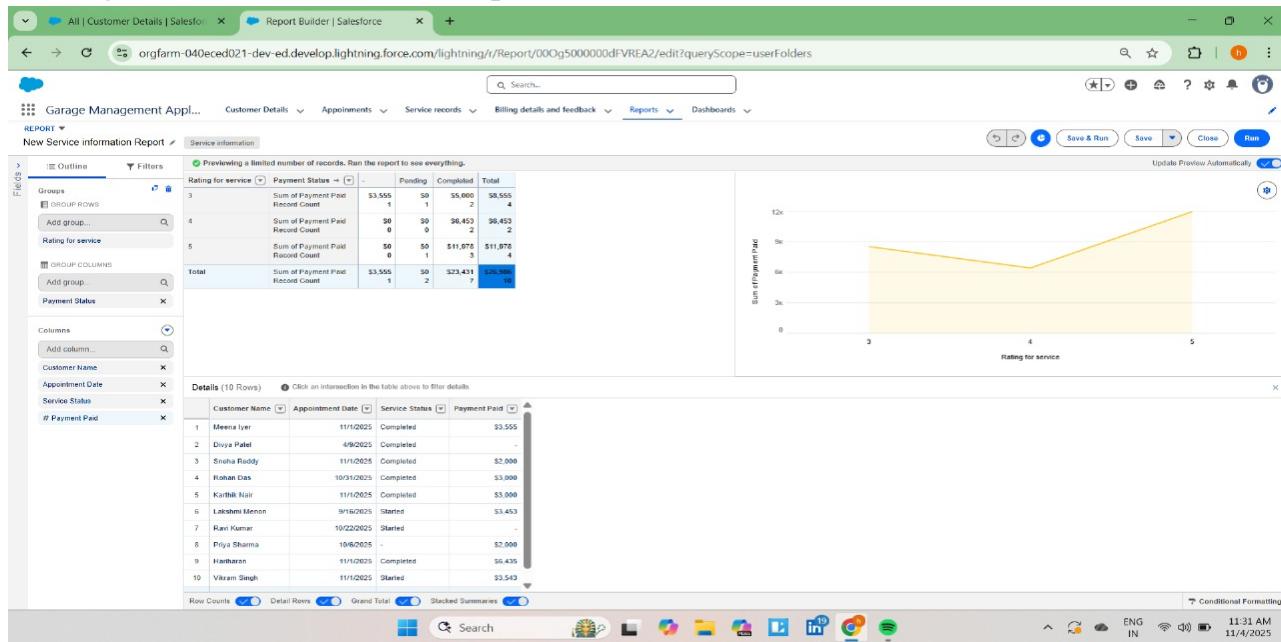
Available Members (List of various roles and profiles)

Selected Members (List showing 'Role: sales person')

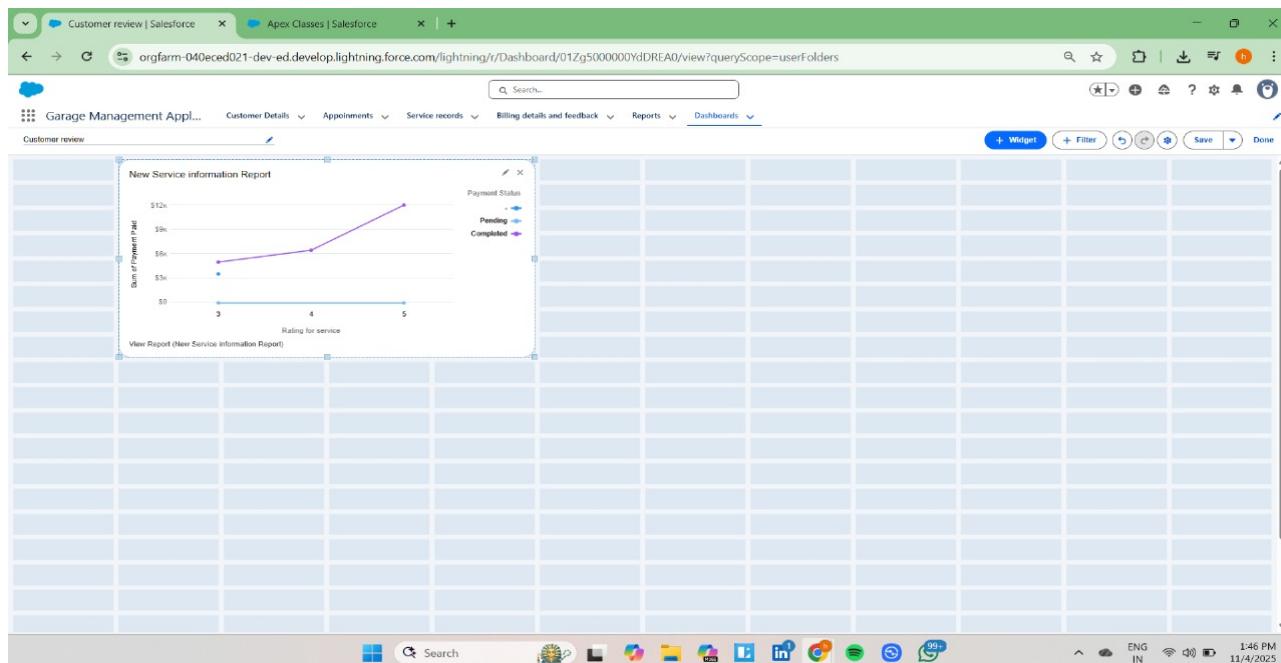
Add to Delegated Administration Groups

Step 10: Reporting and Dashboards

Report : Created custom **report** types to analyze key garage metrics, such as total services, revenue generation, and mechanic performance.



Dashboard : Built interactive **dashboards** to visualize trends and provide actionable insights, enabling managers to make informed business decisions.



Key Scenarios Addressed by Salesforce in the Implementation Project

The **Garage Management System** leverages Salesforce's robust features to handle real-world garage operations efficiently. Below are the key scenarios addressed during implementation:

Efficient Management of Customer and Vehicle Details

- **Scenario:** Each customer's vehicle details must be recorded accurately for service tracking.
- **Salesforce Solution:** Custom objects for Customer Details and Vehicle Information ensure accurate data management with lookup relationships between customers and appointments.

Automated Appointment Scheduling

- **Scenario:** Service appointments need to be scheduled efficiently based on mechanic availability.
- **Salesforce Solution:** Appointment records are created through guided Flows, assigning mechanics dynamically using lookup fields and triggers.

Service Record Tracking

- **Scenario:** Garage staff must record service details, cost, and completion status
- **Salesforce Solution:** The Service Records object captures service type, job cost, and completion data, while relationships link each service to the relevant customer and appointment.

Automated Billing and Feedback Collection

- **Scenario:** After a service is completed, invoices and customer feedback must be recorded.
- **Salesforce Solution:** Automated Flows create billing records and trigger notifications, while the Billing & Feedback object stores payment details and customer comments.

Duplicate Customer Prevention

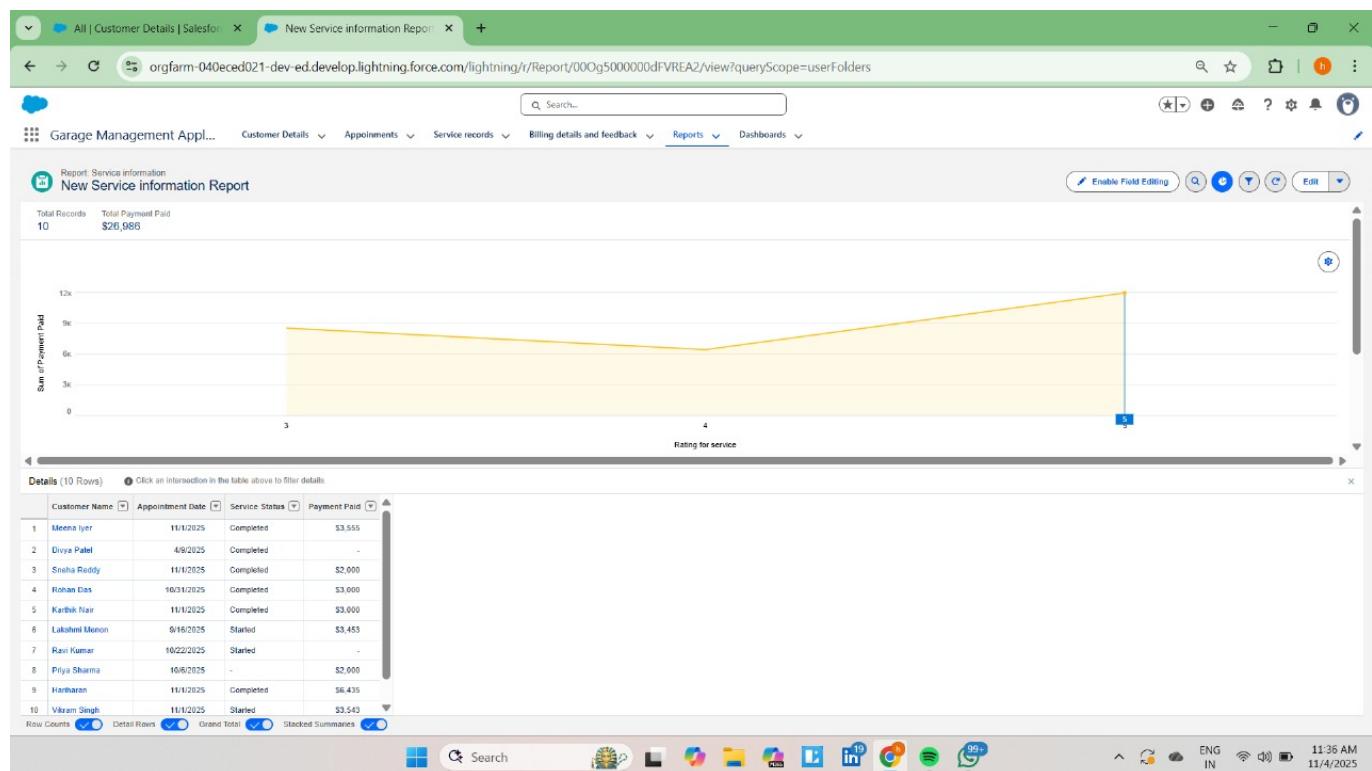
- **Scenario:** Duplicate customer entries can cause confusion and inaccurate service tracking.
- **Salesforce Solution:** Matching Rules and Duplicate Rules prevent repeated entries based on customer name or contact details.

Secure and Role-Based Access Control

- **Scenario:** Different users (managers, mechanics, and staff) require specific data access levels.
- **Salesforce Solution:** Profiles, roles, and sharing settings ensure restricted, role-appropriate access, maintaining data security and confidentiality.

Real-Time Reporting and Analysis

- **Scenario:** Garage owners need clear insights into operations, revenue, and workload.
- **Salesforce Solution:** Custom reports and dashboards present visual summaries of service volume, total revenue, and mechanic performance, driving data-based decision-making.



Conclusion

Summary of Achievements:

The **Garage Management System** successfully delivers an integrated, automated solution for garage operations using Salesforce technology. Key accomplishments include:

- **Streamlined Service Management:** Built a structured system to manage customers, vehicles, appointments, and billing seamlessly.
- **Automation and Efficiency:** Implemented flows and triggers to reduce manual effort and ensure timely task execution.
- **Improved Data Integrity:** Enforced validation and duplicate rules to maintain accurate and consistent records.
- **Role-Based Security:** Established controlled data access through profiles, roles, and sharing rules.
- **Data-Driven Insights:** Designed comprehensive reports and dashboards for analyzing performance and profitability.
- **User-Friendly Interface:** Created an intuitive Lightning App that ensures smooth navigation for all users.

