

# **GARAGE MANAGEMENT SYSTEM**

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## Project Overview

The **Garage Management System** is designed to automate and streamline the operations of a vehicle service center. It manages customer details, service appointments, repair records, billing, and feedback through a centralized Salesforce application.

This system minimizes manual data entry and ensures efficient tracking of service processes — from appointment scheduling to billing and feedback collection.

The project leverages **Salesforce automation tools** such as *Custom Objects, Lookup Relationships, Validation Rules, Flows, Apex Triggers, and Reports/Dashboards* to create a smart and efficient garage management experience.

## Objective

The primary objective of the Garage Management System is to simplify and automate the vehicle service process, enabling smooth interaction between customers, mechanics, and the management team.

### Business Goals:

#### A. Simplify Customer and Appointment Management

Create a digital system that stores and manages all customer and appointment information efficiently.

#### B. Automate Billing and Service Records

Generate accurate billing details and automatically calculate service costs using triggers and flows.

#### C. Enhance Transparency and Feedback

Provide customers with clear billing summaries and enable feedback collection for service quality improvement.

#### D. Improve Workflow Efficiency

Automate repetitive tasks using Salesforce automation tools to save time and reduce human error.

#### E. Build Analytical Dashboards

Generate insightful reports and dashboards to track service performance, customer satisfaction, and revenue trends.

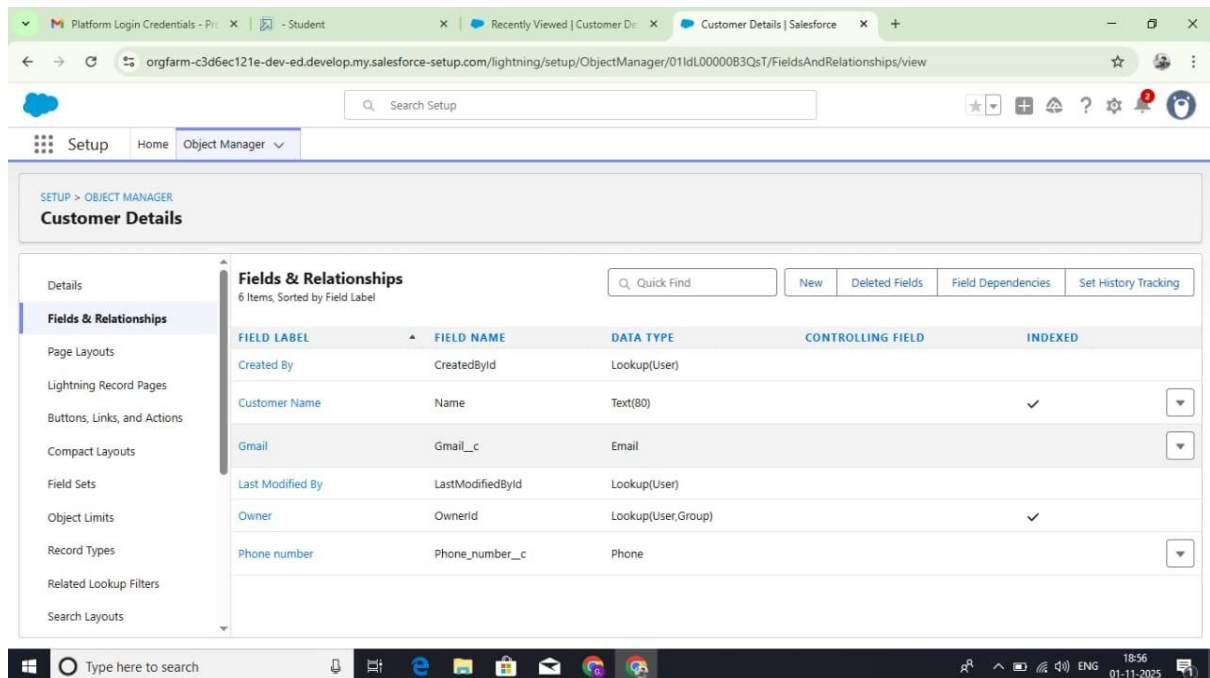
## Salesforce Key Features and Concepts Utilized Custom

### Objects

#### 1. Customer Details

Stores customer information such as name, phone number, and email. Fields include:

- Customer Name (Record Name)
- Phone Number (Phone)
- Gmail (Email)

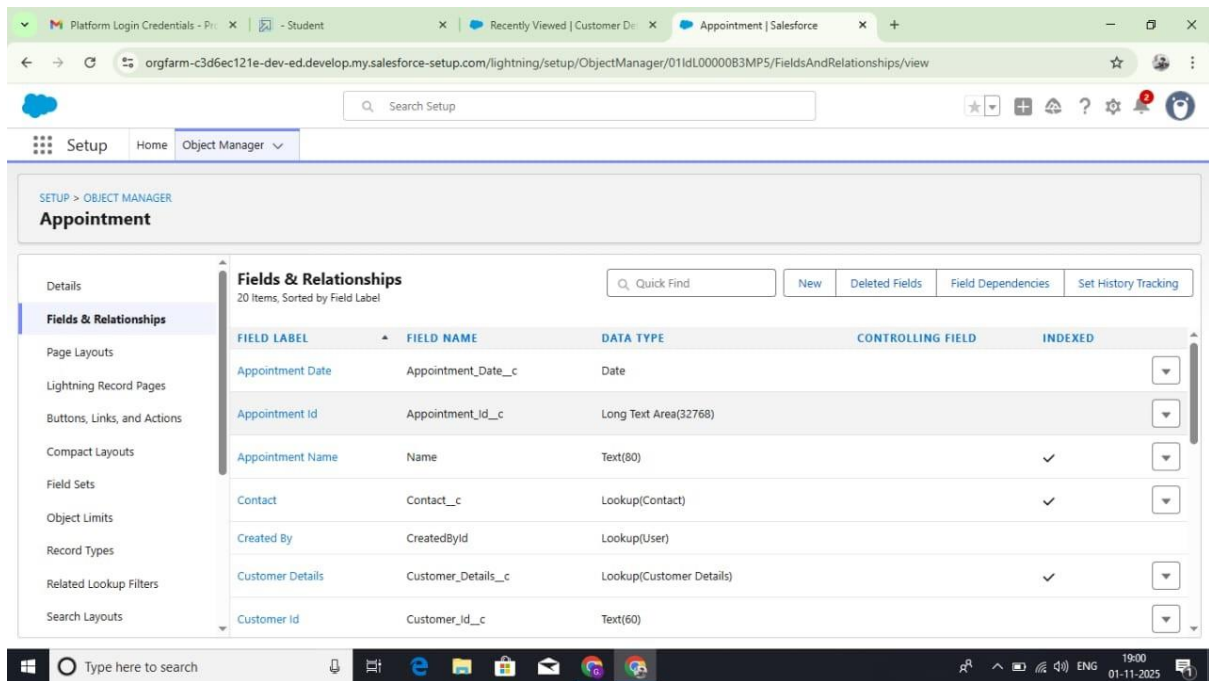


#### 2. Appointment

Manages all service appointments with customers. ○

Record Name: Auto Number (app-{000})

- Key Fields: Appointment Date, Vehicle Number Plate, Service Amount, Maintenance Service, Repairs, Replacement Parts



The screenshot shows the Salesforce Setup interface for the 'Appointment' object. The left sidebar lists various setup options, with 'Fields & Relationships' selected. The main area displays a table of fields for the 'Appointment' object, sorted by field label. The table includes columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status.

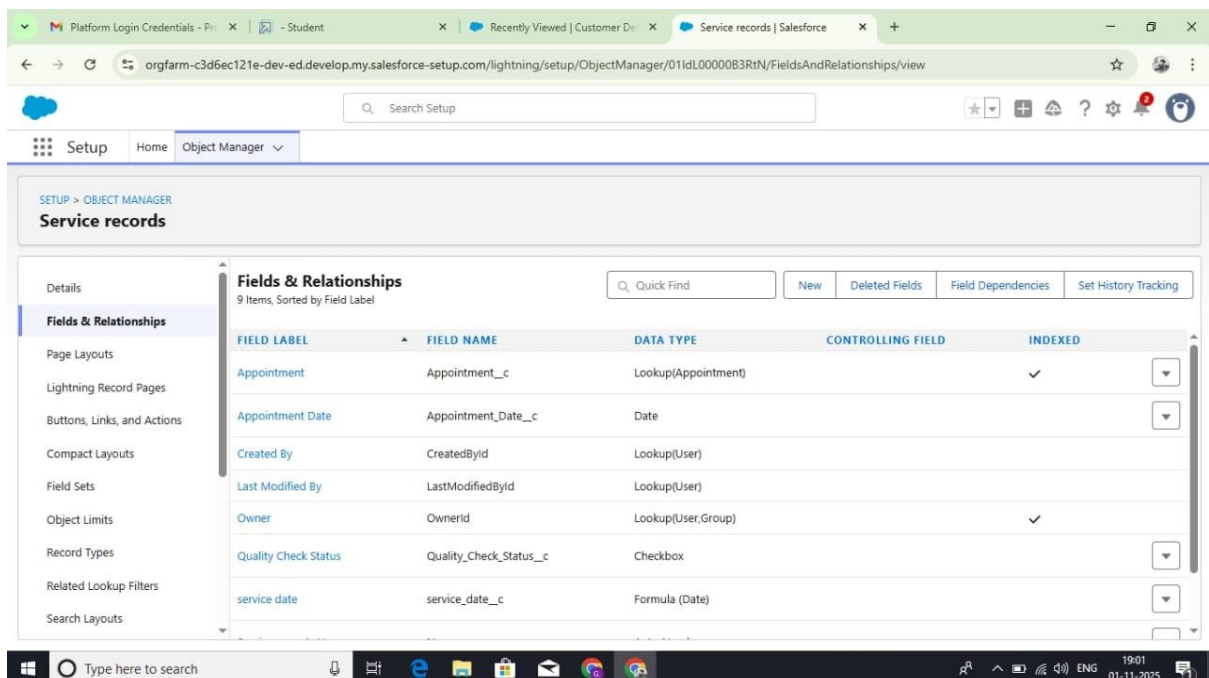
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Appointment Date	Appointment_Date_c	Date		
Appointment Id	Appointment_Id_c	Long Text Area(32768)		
Appointment Name	Name	Text(80)		✓
Contact	Contact_c	Lookup(Contact)		✓
Created By	CreatedById	Lookup(User)		
Customer Details	Customer_Details_c	Lookup(Customer Details)		✓
Customer Id	Customer_Id_c	Text(50)		

### 3. Service Records

Tracks all service details linked to appointments. ○

Record Name: Auto Number (ser-{000})

- Key Fields: Service Status (Picklist), Quality Check Status (Checkbox), Service Date (Formula)



The screenshot shows the Salesforce Setup interface for the 'Service records' object. The left sidebar lists various setup options, with 'Fields & Relationships' selected. The main area displays a table of fields for the 'Service records' object, sorted by field label. The table includes columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status.

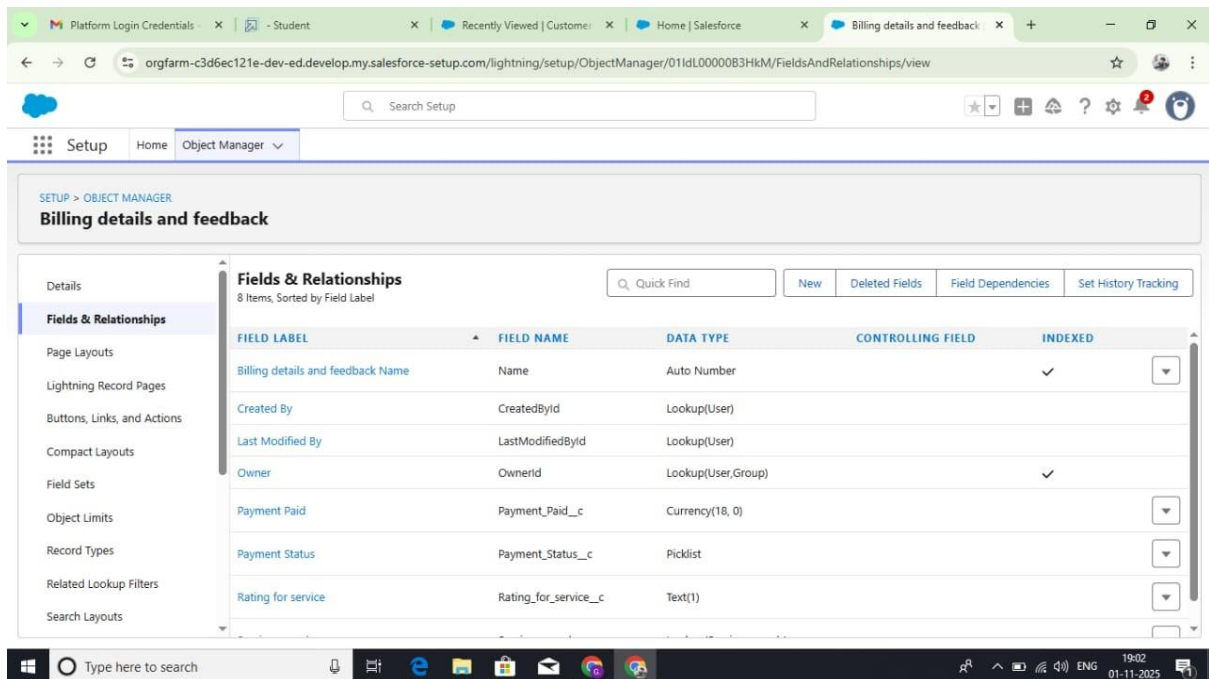
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Appointment	Appointment_c	Lookup(Appointment)		✓
Appointment Date	Appointment_Date_c	Date		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Quality Check Status	Quality_Check_Status_c	Checkbox		
service date	service_date_c	Formula (Date)		

### 4. Billing Details and Feedback

Handles payment details and customer feedback after services.

- Record Name: Auto Number (bill-{000})

- Key Fields: Payment Paid (Currency), Payment Status (Picklist), Rating for Service (Text)



SETUP > OBJECT MANAGER

### Billing details and feedback

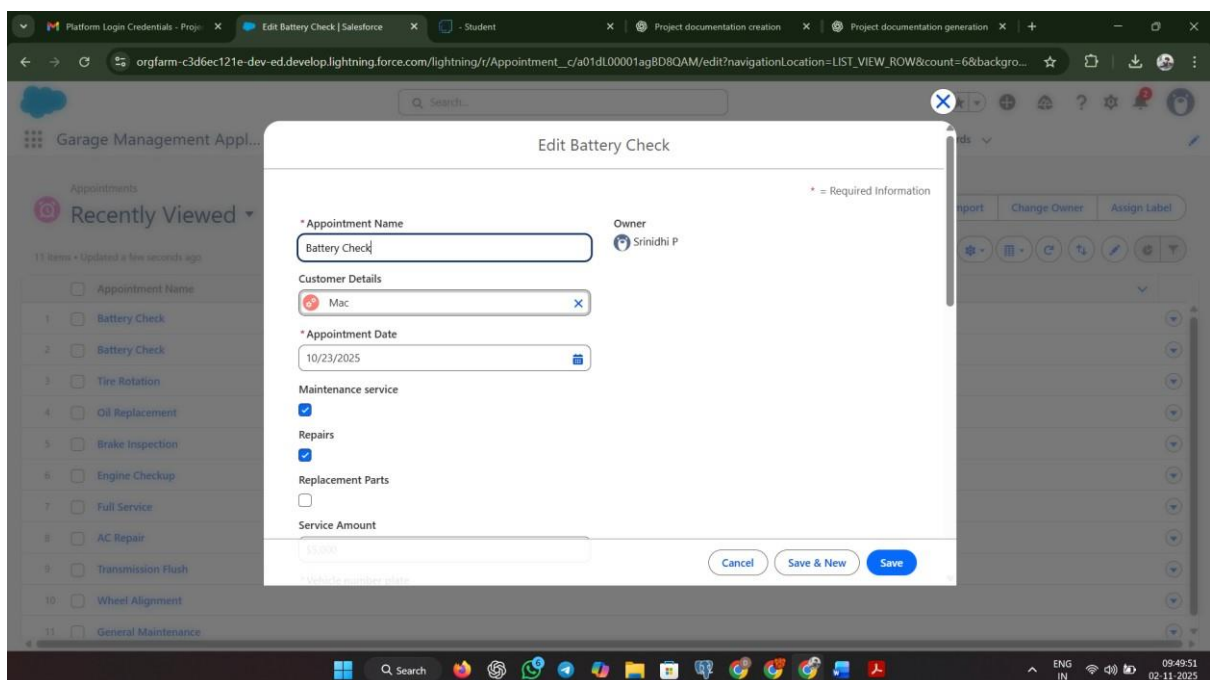
Details

**Fields & Relationships**  
8 Items, Sorted by Field Label

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)		

## Relationships

1. **Appointment ↔ Customer Details (Lookup Relationship)** ○ Each appointment record is linked to a customer. ○ Ensures easy tracking of which customer booked which appointment.



Garage Management Appl...

Appointments

Recently Viewed

11 Items • Updated a few seconds ago

1 Appointment Name

2 Battery Check

3 Tire Rotation

4 Oil Replacement

5 Brake Inspection

6 Engine Checkup

7 Full Service

8 AC Repair

9 Transmission Flush

10 Wheel Alignment

11 General Maintenance

**Edit Battery Check**

\* = Required Information

\* Appointment Name: Battery Check

Owner: Srinidhi P

Customer Details: Mac

\* Appointment Date: 10/23/2025

Maintenance service: ☒

Repairs: ☒

Replacement Parts: ☐

Service Amount: \$0.00

Cancel Save & New Save

2. **Service Records ↔ Appointment (Lookup Relationship)** ○ Each service record belongs to an appointment. ○ Automatically updates service status based on quality checks.

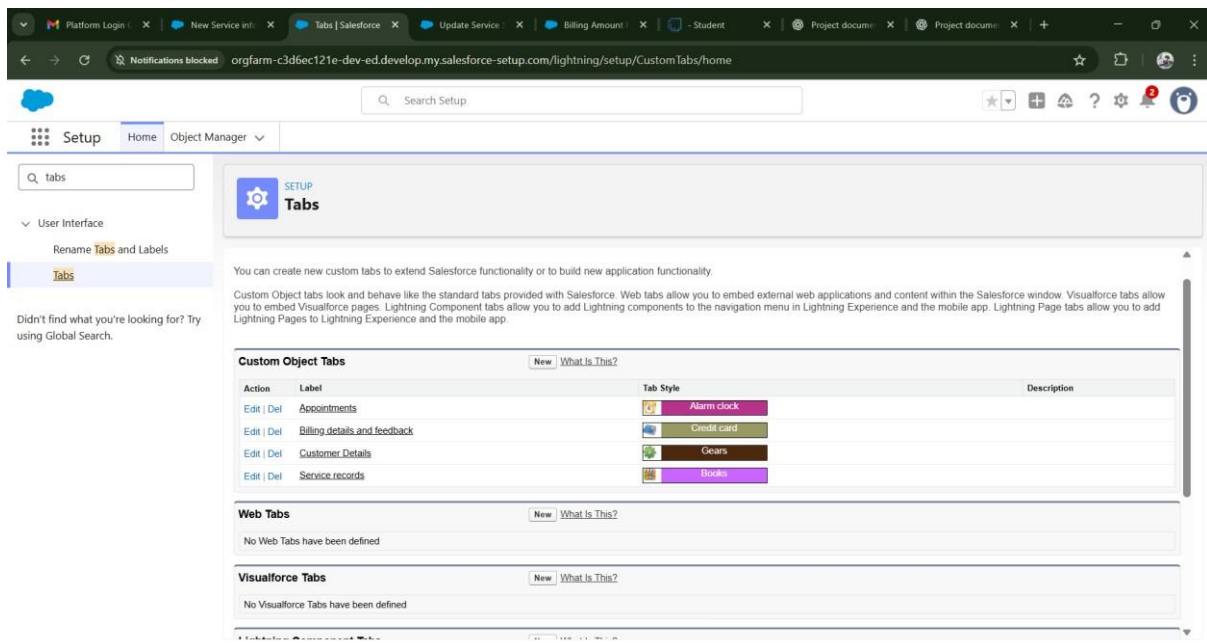
The screenshot shows the Salesforce interface for editing a service record named 'ser-020'. The form is titled 'Edit ser-020' and includes a sidebar with a 'Recently Viewed' list of service records. The main form fields are: 'Service records Name' (ser-020), 'Owner' (Srinidhi P), 'Appointment Date' (10/23/2025), 'Appointment' (Battery Check), 'Quality Check Status' (checked), 'Service Status' (Completed), and 'service date' (10/31/2025). The form also shows 'Created By' and 'Last Modified By' information, and buttons for 'Cancel', 'Save & New', and 'Save'.

3. **Billing Details and Feedback ↔ Service Records (Lookup Relationship)** ○ Each billing record connects to a service record. ○ Ensures that billing and feedback are tied to the correct service instance

The screenshot shows the Salesforce interface for editing a billing record named 'bill-015'. The form is titled 'Edit bill-015' and includes a sidebar with a 'Recently Viewed' list of billing records. The main form fields are: 'Billing details and feedback Name' (bill-015), 'Owner' (Srinidhi P), 'Service records' (ser-019), 'Payment Paid' (\$7,000), 'Rating for service' (3), 'Payment Status' (Completed), and 'Created By' and 'Last Modified By' information. The form also shows 'Created By' and 'Last Modified By' information, and buttons for 'Cancel', 'Save & New', and 'Save'.

**Tabs:**

Custom tabs were created for **Customer Details**, **Appointments**, **Service Records**, and **Billing Details & Feedback** to enable easy navigation within the Garage Management System. Each tab helps users quickly access and manage related records, improving workflow efficiency.



## Lightning App Development

- **App Name:** Garage Management Application
- **Added Tabs:** Customer Details, Appointments, Service Records, Billing Details & Feedback, Reports, Dashboards
- **Profile Access:** System Administrator
- Ensures all essential modules are accessible within one interface.

## Duplicate Rules:

### Matching Rule:

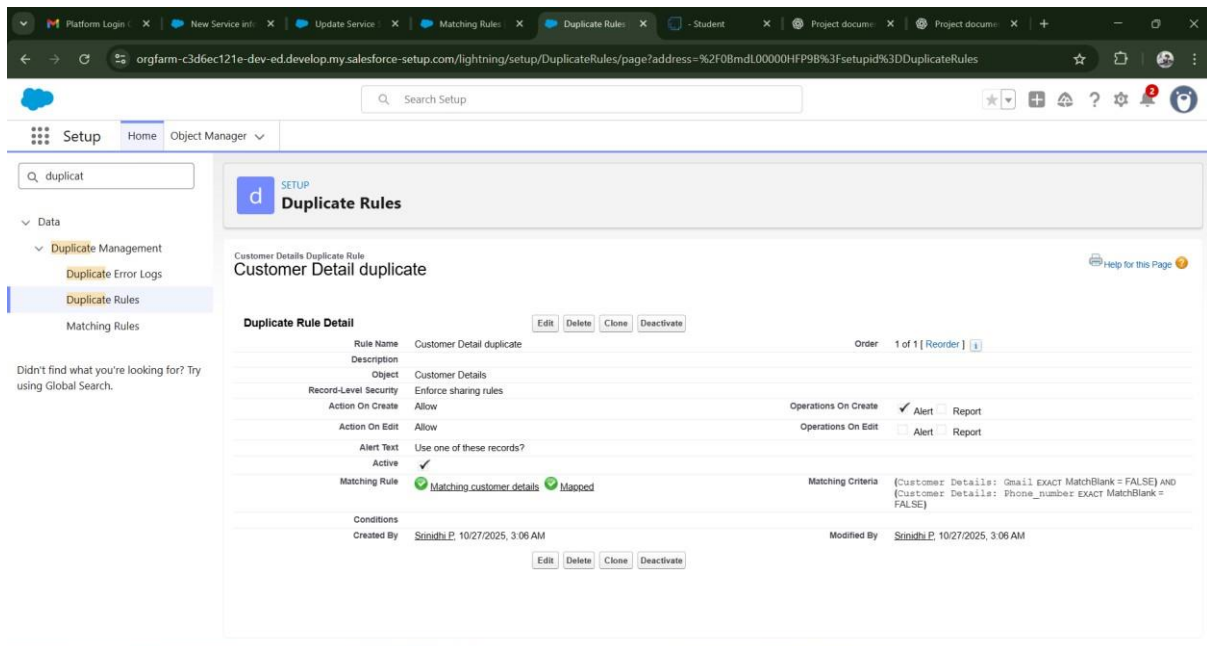
A matching rule was created on the **Customer Details** object to identify duplicate records based on the **Gmail** and **Phone Number** fields. It ensures that each customer is unique by comparing new entries with existing records, maintaining clean and accurate customer data.

## Duplicate

## Rule:

A duplicate rule was configured for the **Customer Details** object using the created matching rule. It prevents users from adding duplicate customer records by displaying a warning or blocking the save action when a matching Gmail or phone number already exists.

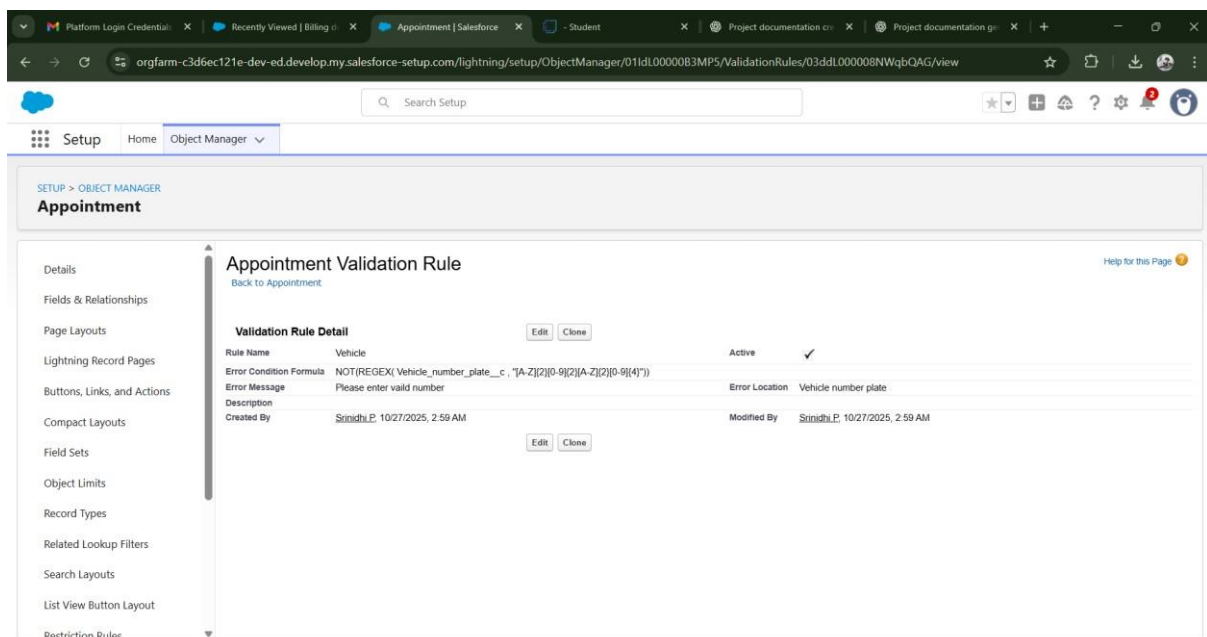




## Validation Rules

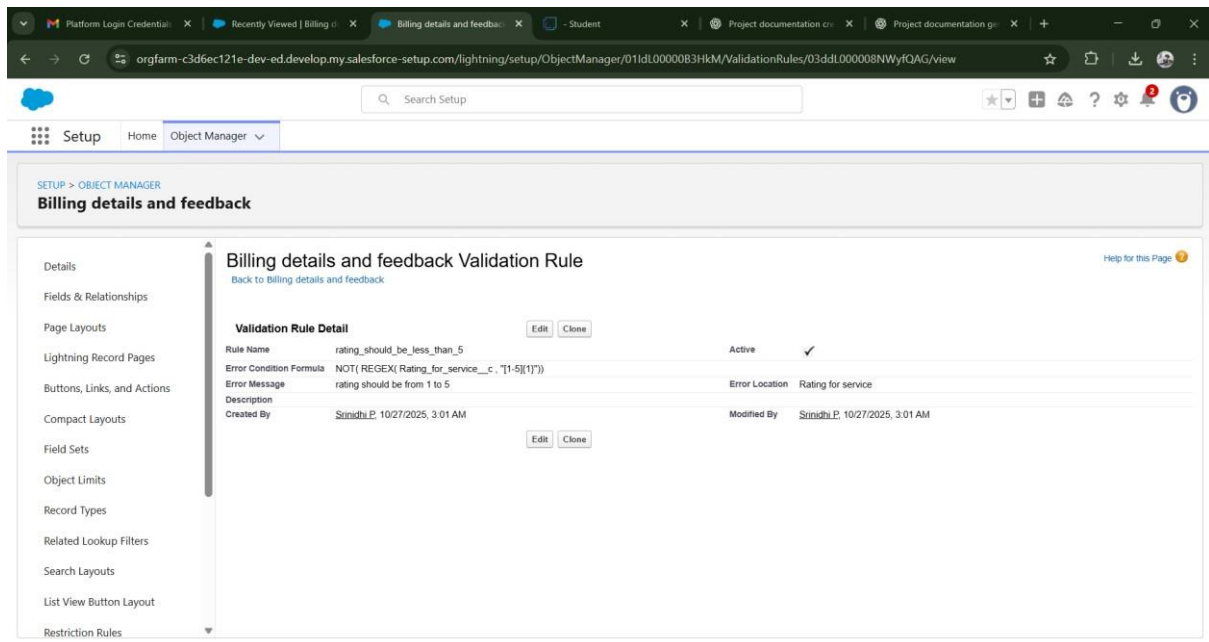
1. **Appointment Object – Vehicle Number Plate Validation** Ensures that vehicle numbers follow a proper format.

**Error Message:** “Please enter valid number.”



2. **Billing Details and Feedback – Rating Validation** Ensures feedback rating is between 1 and 5.

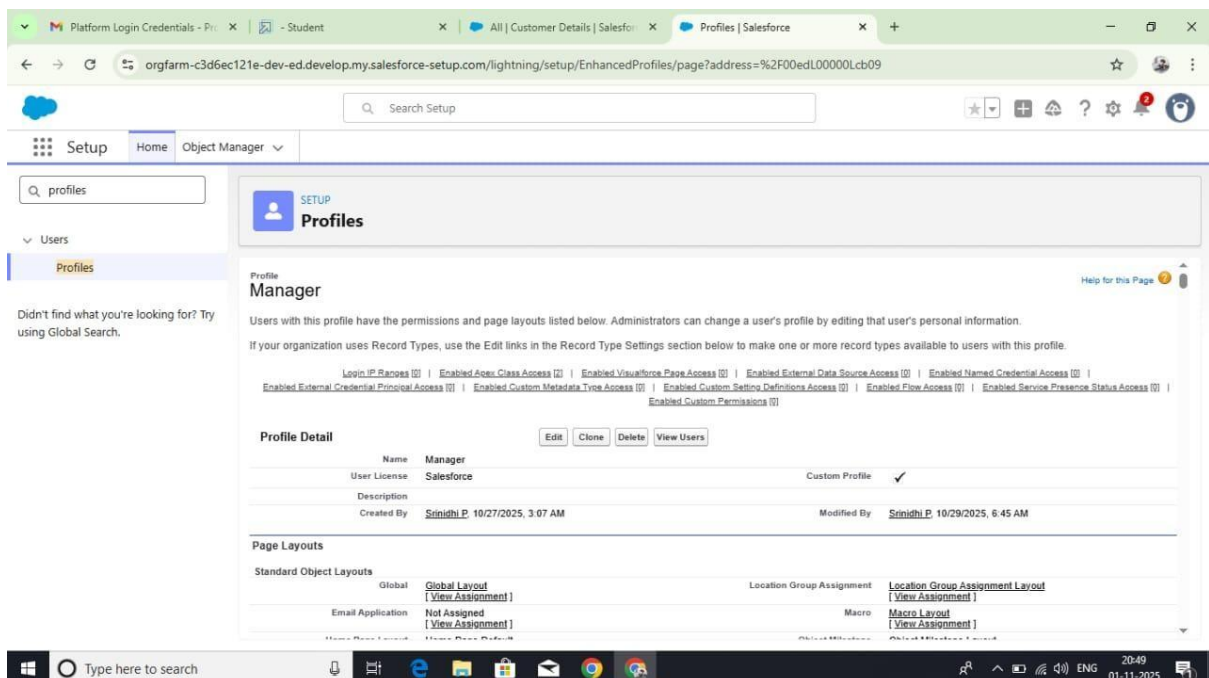
**Error Message:** “Rating should be from 1 to 5.”



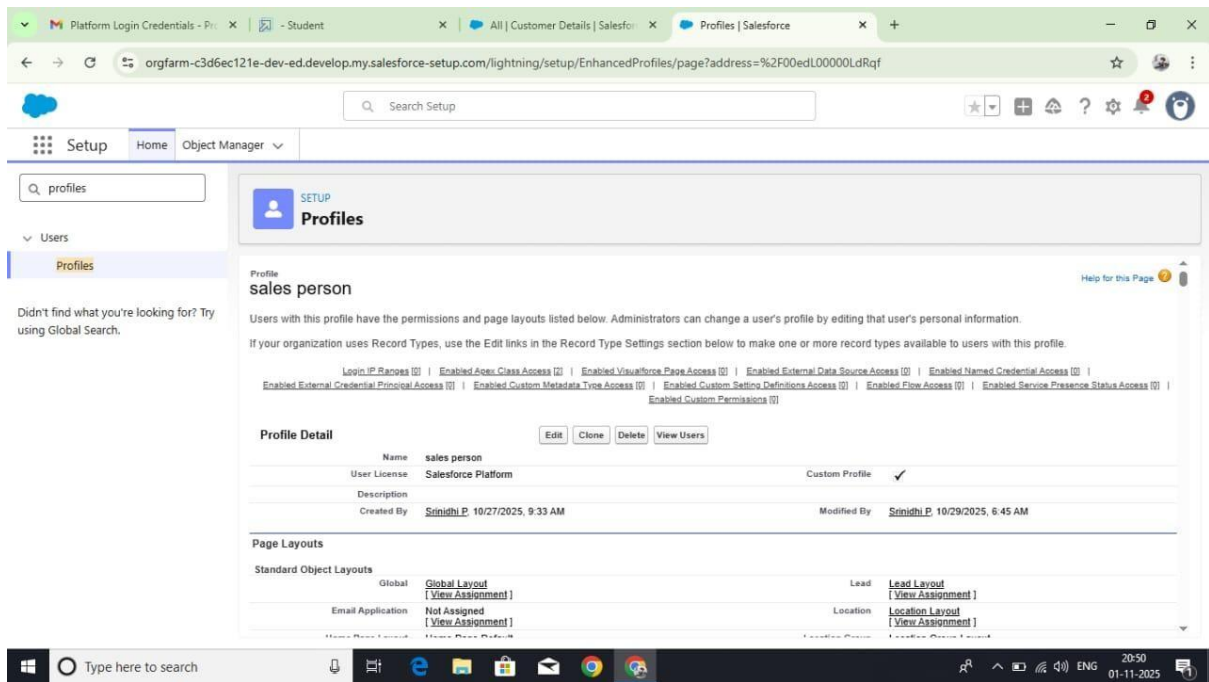
## Profiles

### 1. Manager

- Full access to all objects.
- Session timeout: 8 hours.
- Passwords never expire.

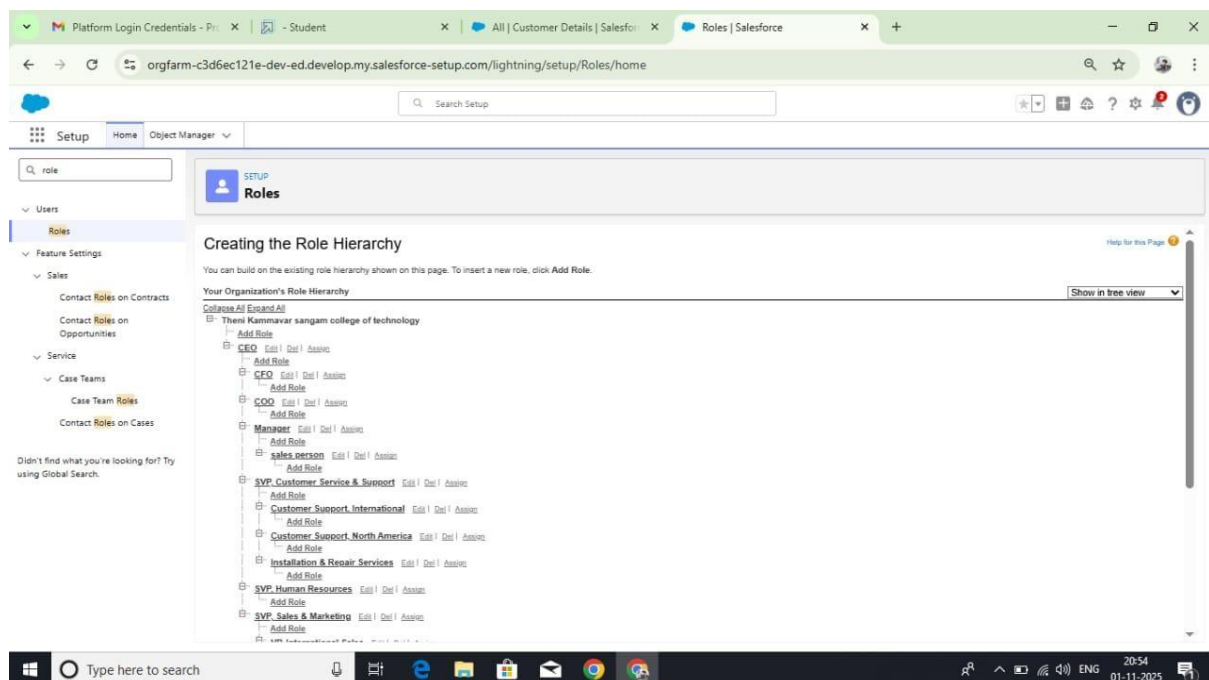


- ### 2. Sales Person
- Limited access (create/view own records).
  - Default app: Garage Management.



## Roles

- **Manager Role** (top level)
- **Sales Person Role** (under Manager)

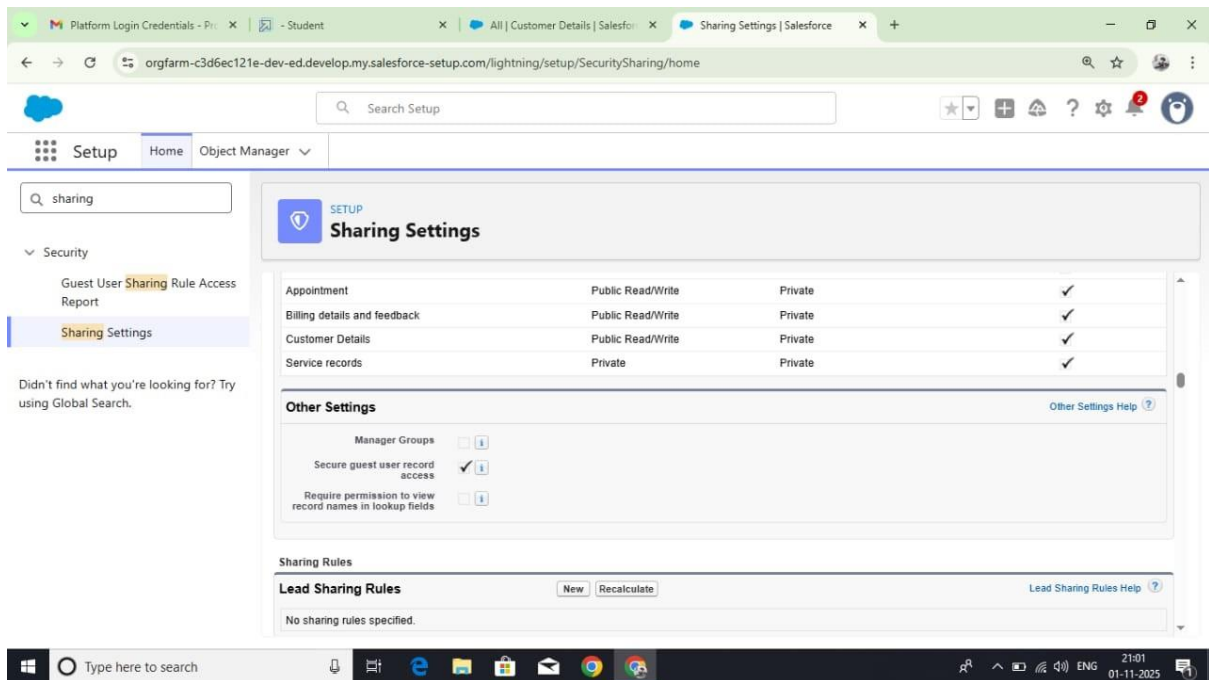


## User Details:

Multiple users were created to manage different roles within the Garage Management System. The **Manager** user oversees all operations and data access, while **Salesperson** users handle appointments, service records, and billing activities. This setup helps test role-based permissions and data-sharing functionalities effectively



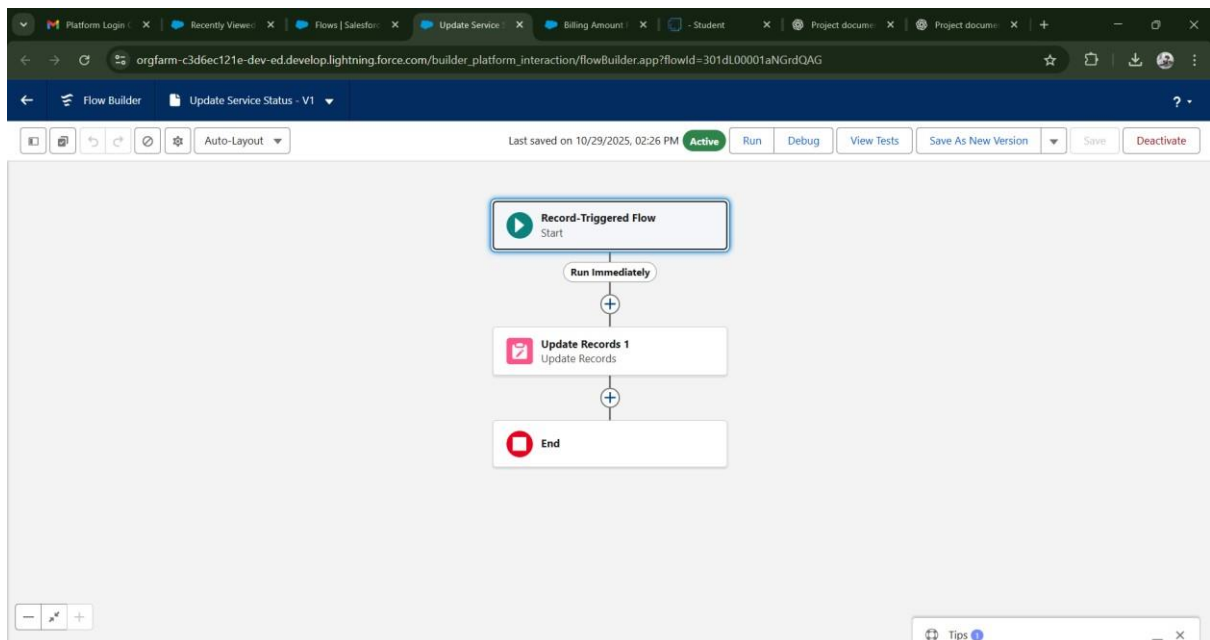
- Records owned by Sales Person are shared with Manager (Read/Write access).



## Automations and Flows

### Update Service Status Flow:

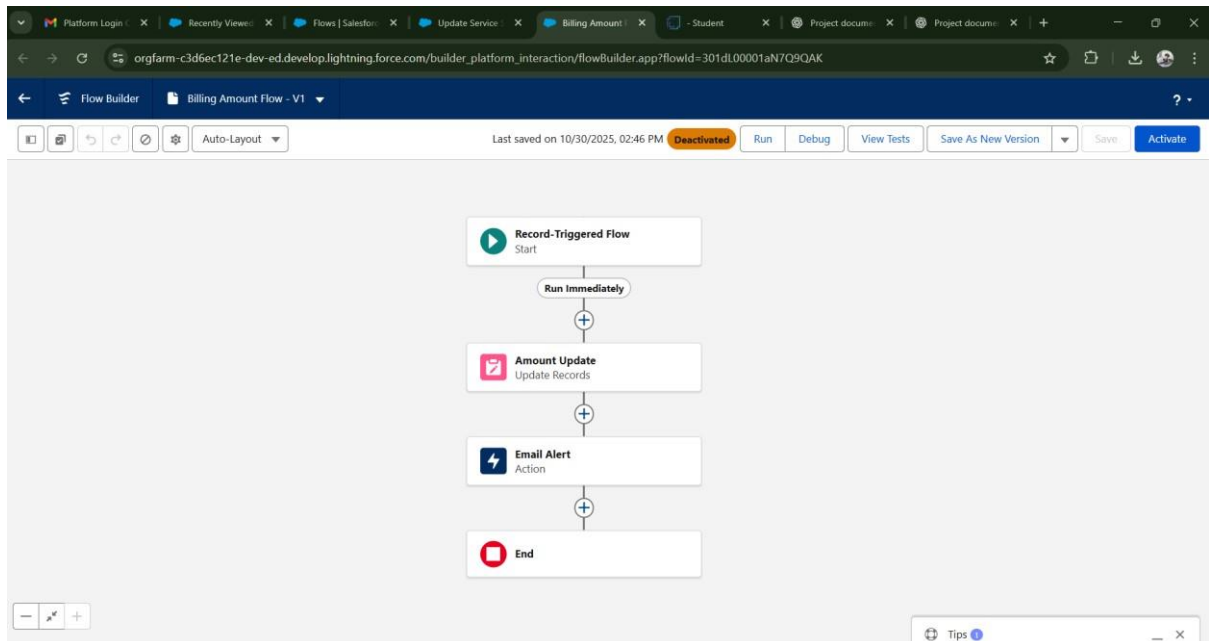
This flow automatically updates the *Service Status* field in the Service Records object to *Completed* when the *Quality Check Status* checkbox is marked true, ensuring that completed services are tracked accurately without manual intervention.



### Billing Amount Flow:

This flow automatically updates the *Payment Paid* field in the Billing Details and Feedback object based on the related *Service Amount* from the Appointment object.

Once the payment status is marked as *Completed*, it also sends a confirmation email to the customer.



## Apex Trigger and Handler

### 1. Apex Trigger:

The **AmountDistribution** trigger runs before insert and update operations in the *Appointment* object, calling the handler to execute the service amount calculation automatically.

The screenshot shows the Salesforce Developer Console with the Apex trigger code for **AmountDistribution**. The code is as follows:

```
1 trigger AmountDistribution on Appointment__c (before insert, before update) {  
2  
3     if(trigger.isbefore && trigger.isinsert || trigger.isupdate){  
4  
5         AmountDistributionHandler.amountDist(trigger.new);  
6     }  
7 }
```

The console also shows the 'AmountDistributionHandler.apxc' file and a 'Logs' tab at the bottom.

### 2. Apex Handler:

The **AmountDistributionHandler** class automatically calculates the total *Service Amount* based on selected services like Maintenance, Repairs, and Replacement Parts, ensuring accurate and consistent billing.

```

1 public class AmountDistributionHandler {
2
3
4
5 public static void amountDist(list<Appointment__c> listApp){
6
7     list<Service_records__c> serList = new list <Service_records__c>();
8
9
10
11 for(Appointment__c app : listApp){
12
13     if(app.Maintenance_service__c == true && app.Repairs__c == true && app.Replacement_Parts__c == true){
14
15         app.Service_Amount__c = 10000;
16
17     }
18
19 }
20
21 }

```

The screenshot shows the Salesforce Developer Console with the Apex code for the AmountDistributionHandler class. The code defines a static method amountDist that takes a list of Appointment\_\_c objects and iterates through them. For each appointment, it checks if Maintenance\_service\_\_c, Repairs\_\_c, and Replacement\_Parts\_\_c are all true. If so, it sets the Service\_Amount\_\_c to 10000. The console also shows the Logs tab at the bottom.

## Reports:

### Record Creation:

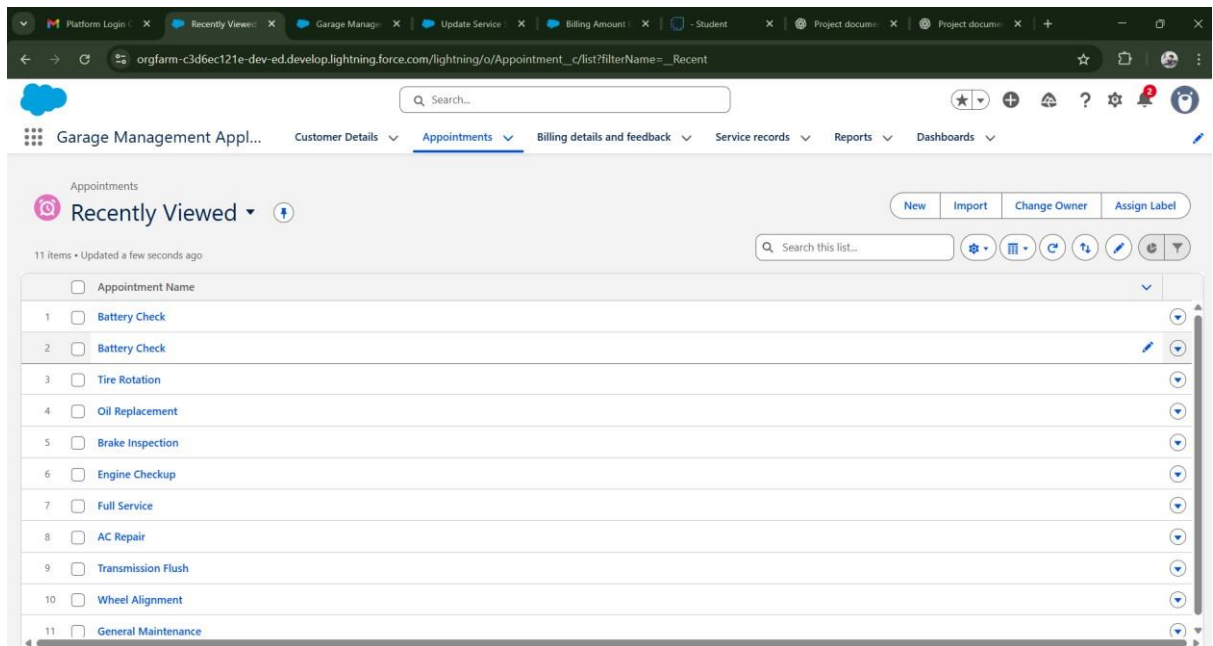
1. Customer Details: Created records with customer name, phone number, and Gmail to store client information.

The screenshot shows the Salesforce Customer Details list view. The table contains 11 records, sorted by Customer Name. The records are as follows:

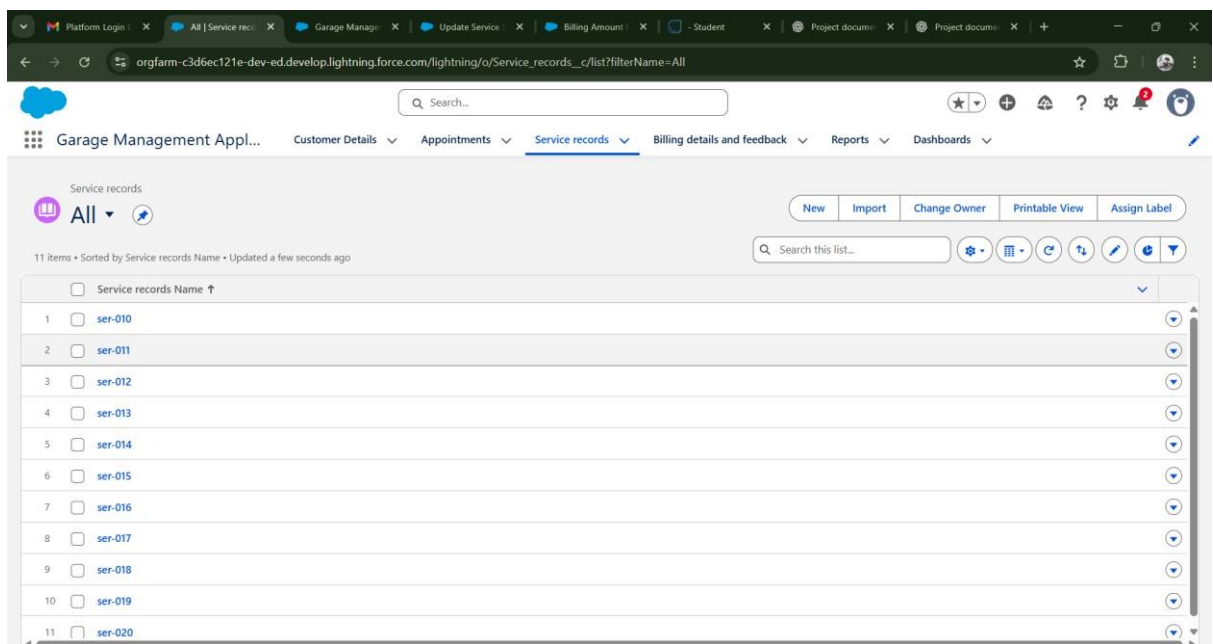
	Customer Name	Actions
1	Aarav Kumar	[Edit] [Delete]
2	Ananya Singh	[Edit] [Delete]
3	Arjun Patel	[Edit] [Delete]
4	Diya Sharma	[Edit] [Delete]
5	Isha Nair	[Edit] [Delete]
6	Kabir Joshi	[Edit] [Delete]
7	Mac	[Edit] [Delete]
8	Rohan Mehta	[Edit] [Delete]
9	Sanya Kapoor	[Edit] [Delete]
10	Tara Verma	[Edit] [Delete]
11	Vivaan Rao	[Edit] [Delete]

2. Appointment: Created records linked to customers with appointment date, vehicle number plate, and selected service options.



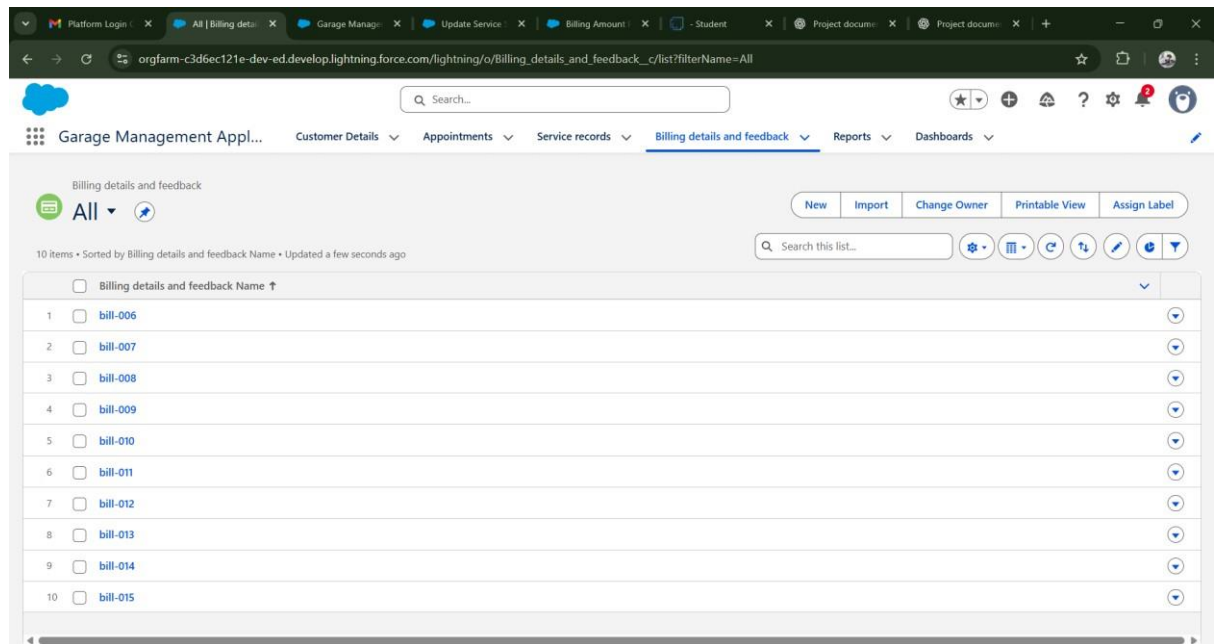


3. Service Records: Generated records connected to appointments, marking service progress and performing quality checks.



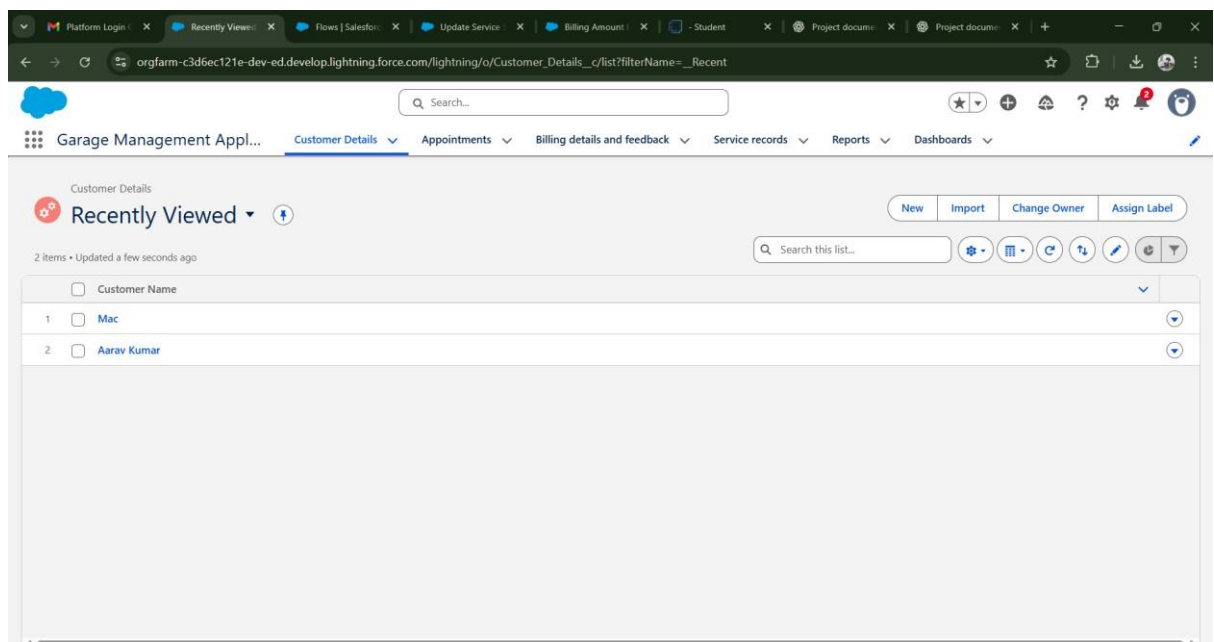
4. Billing Details & Feedback: Added billing records with payment status, payment amount, and service rating to verify automation and flows.





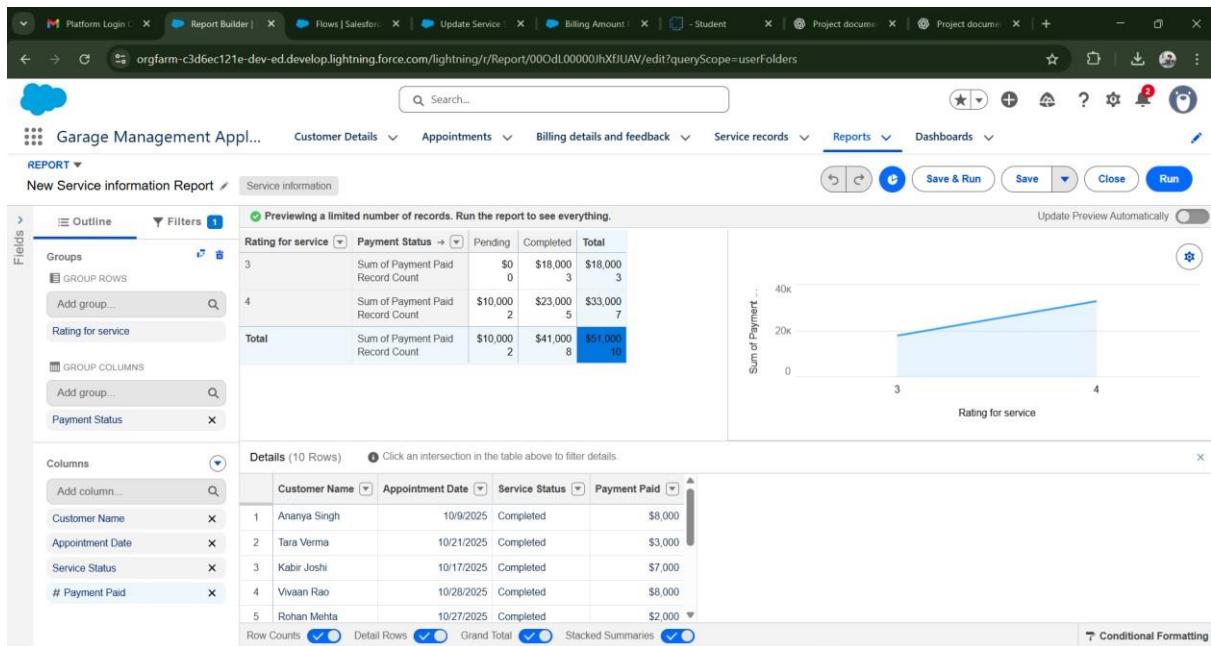
### Report Type: "Service Information"

- **Primary Object:** Customer Details
- **Related Objects:** Appointment → Service Records → Billing Details and Feedback
- Displays: Customer Name, Appointment Date, Service Status, Payment Paid, Rating for Service.



### Report Creation

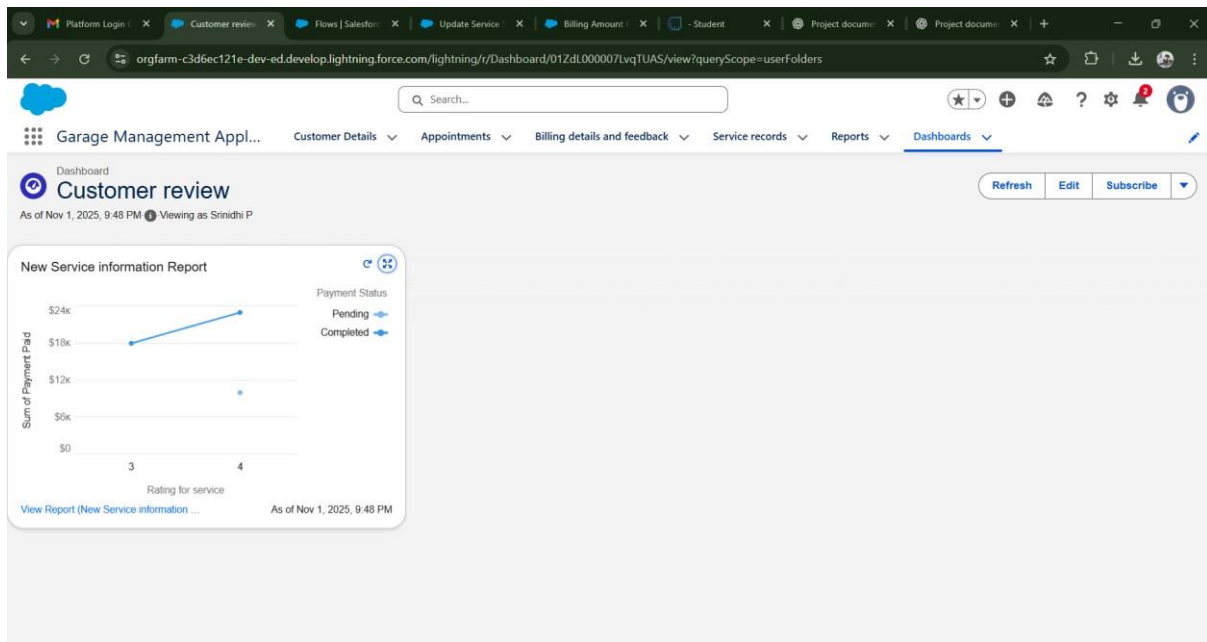
- Filters unnecessary fields.
- Groups by *Payment Status* and *Rating for Service*.
- Adds a **Line Chart** for payment insights.



## Dashboard:

### Dashboard Creation

- Folder Name: *Service Rating Dashboard*
- Displays visual analytics of:
  - Service Completion Rate
  - Payment Status Summary
  - Customer Ratings Overview
- Subscription set to **Weekly (Every Monday)**.



### Key Scenarios Addressed by Salesforce in the Implementation Project:

- **Efficient Customer Management:**  
Salesforce centralized all customer details, making it easy to track contact information and service history.
- **Automated Appointment Scheduling:**  
The system managed appointment creation and linking with customers, reducing manual scheduling errors.
- **Service Tracking and Quality Updates:**  
Automated flows updated service status to *Completed* when quality checks were done, ensuring real-time tracking.
- **Billing and Payment Automation:**  
The Billing Amount Flow updated payment details and sent confirmation emails automatically when payments were completed.
- **Feedback and Performance Monitoring:**  
Customer feedback was collected through billing records, helping assess service quality and customer satisfaction.
- **Role-Based Access and Security:**  
Different profiles and roles ensured that managers and salespersons had proper data access and sharing permissions.
- **Reporting and Dashboard Insights:**  
Custom reports and dashboards provided visual insights into payments, service performance, and customer ratings for better decision-making.

## 12. Conclusion

The **Garage Management System** provides an integrated, automated solution for managing all aspects of vehicle servicing.

