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.

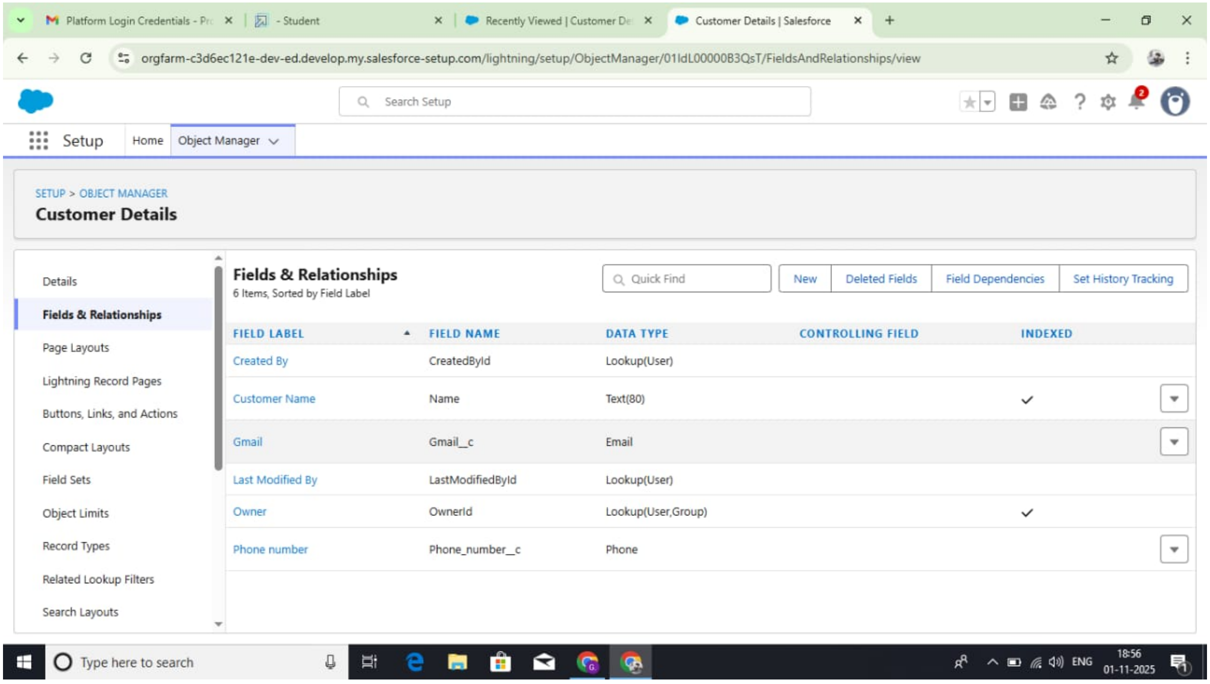
E. Build Analytical Dashboards
Generate insightful reports and dashboards to track service performance, customer satisfaction, and revenue trends.

Salesforce Key Features and Concepts Utilized

Custom Objects

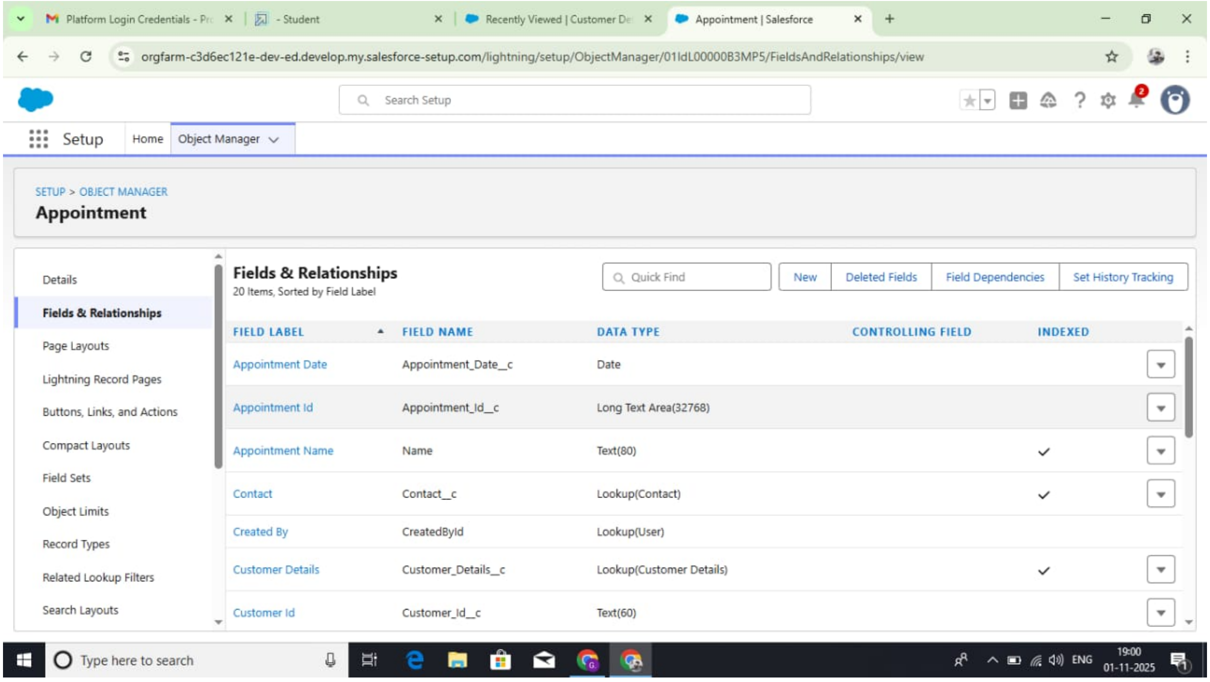
1. **Customer Details**
   Stores customer information such as name, phone number, and email.
   Fields include:

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



2. **Appointment**
   Manages all service appointments with customers.

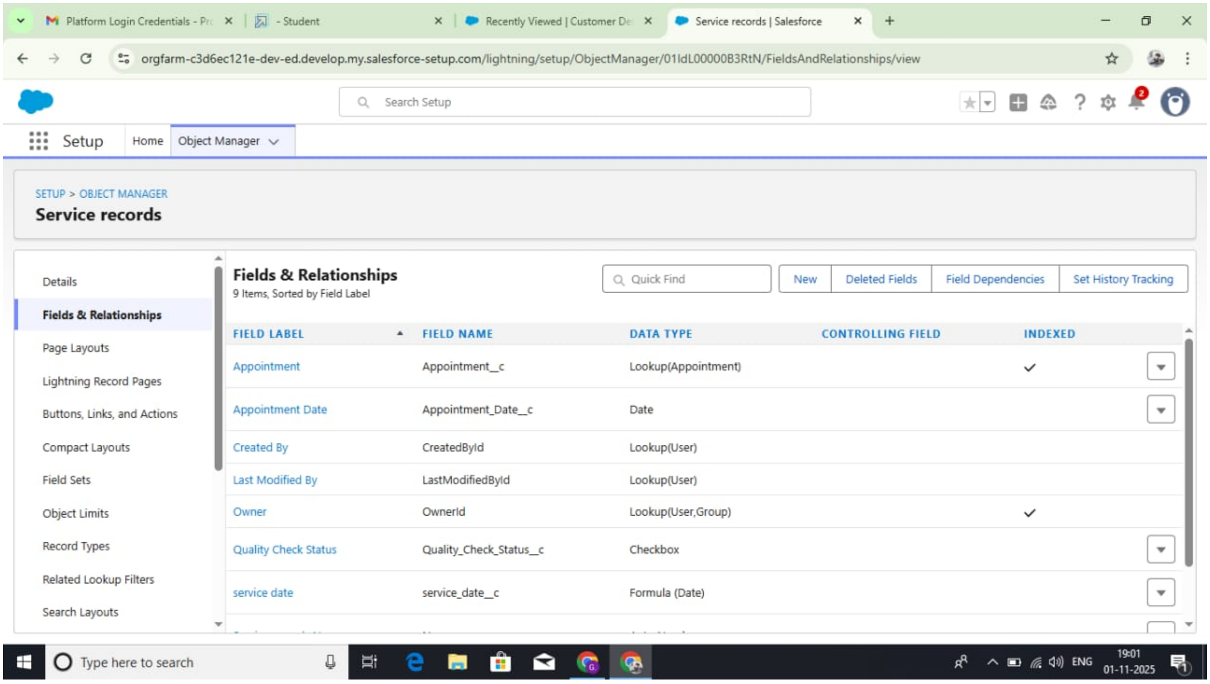
   - Record Name: Auto Number (app-{000})
   - Key Fields: Appointment Date, Vehicle Number Plate, Service Amount, Maintenance Service, Repairs, Replacement Parts



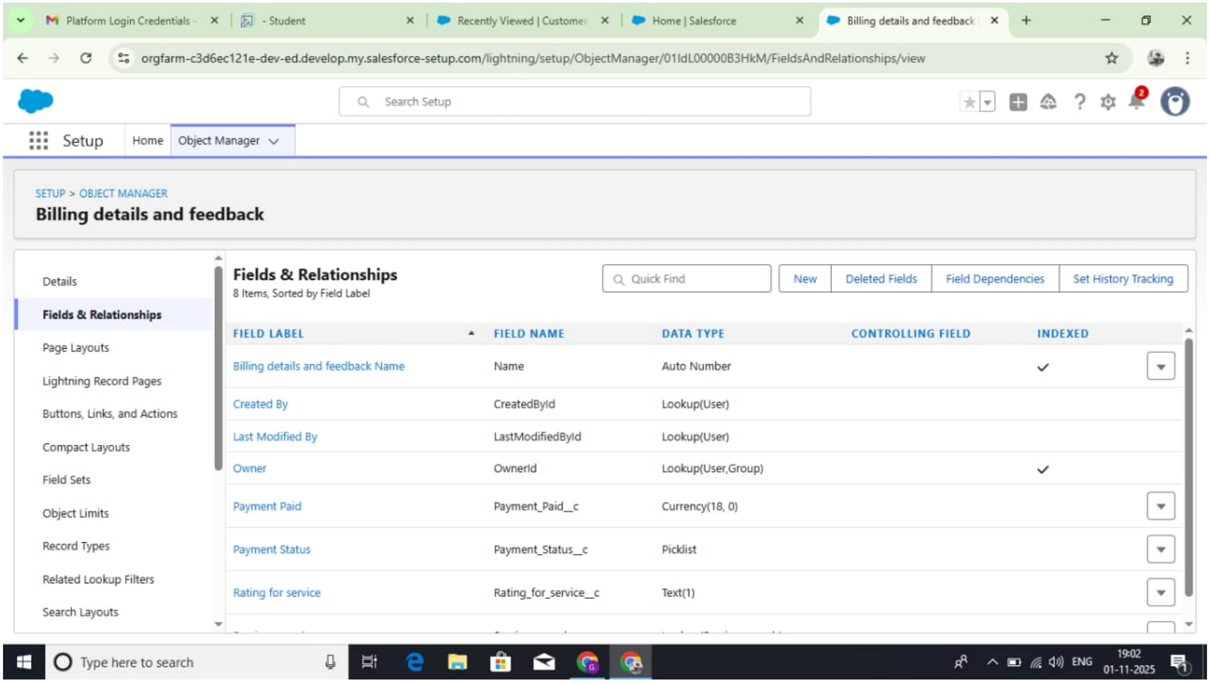
3. **Service Records**

   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)

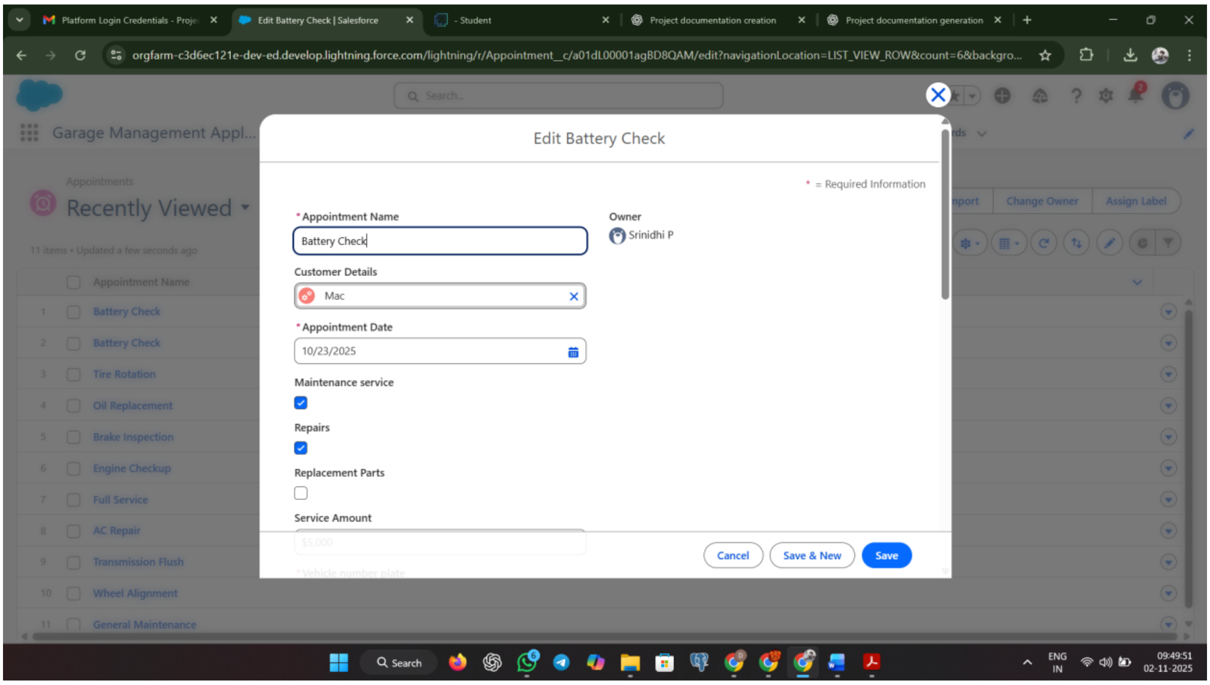


4. **Billing Details and Feedback**
   Handles payment details and customer feedback after services.
   - Record Name: Auto Number (bill-{000})
   - Key Fields: Payment Paid (Currency), Payment Status (Picklist), Rating for Service (Text)

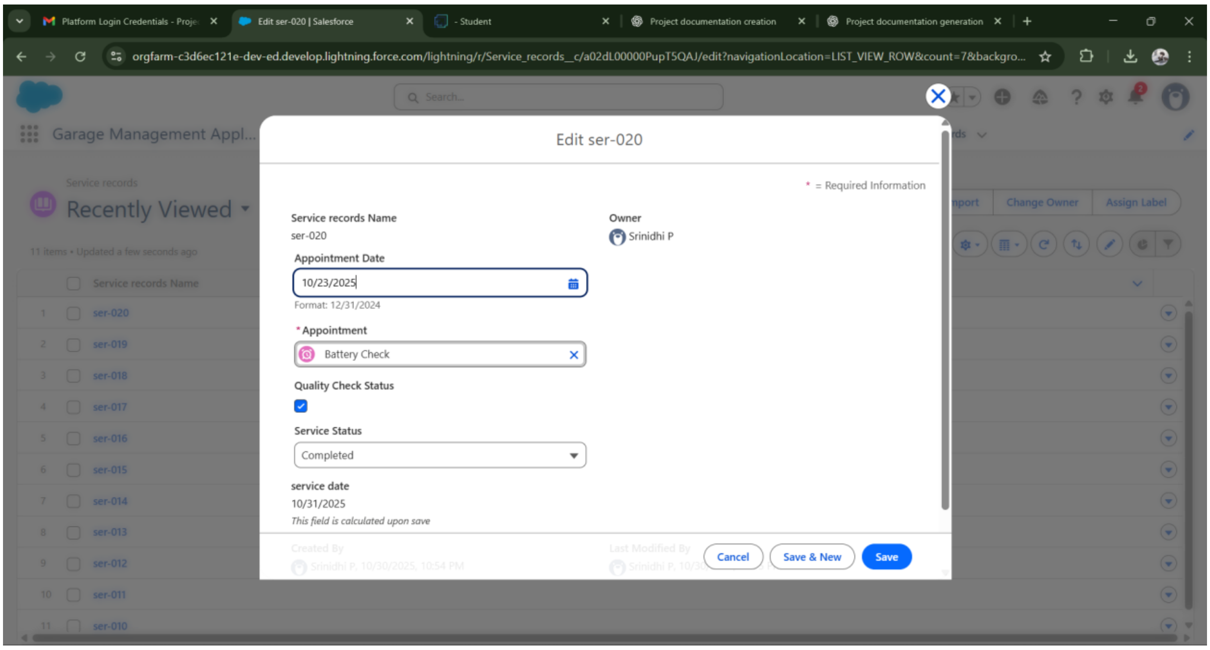


Relationships

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

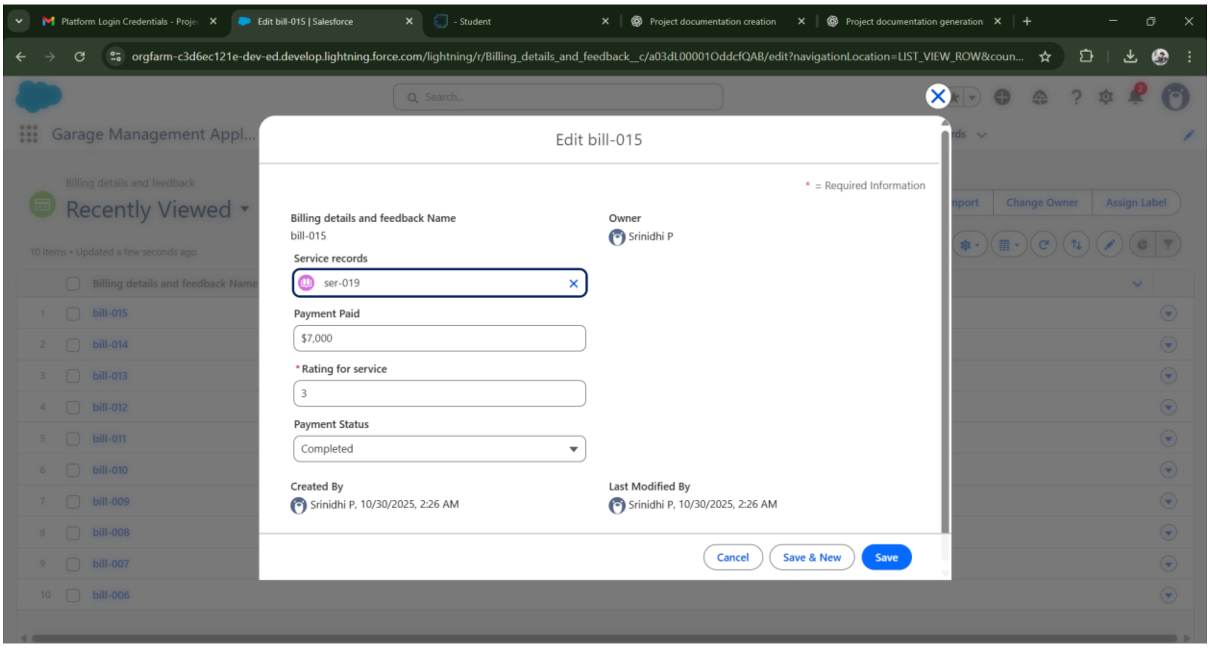


2. **Service Records ↔ Appointment (Lookup Relationship)**
   - Each service record belongs to an appointment.
   - Automatically updates service status based on quality checks.



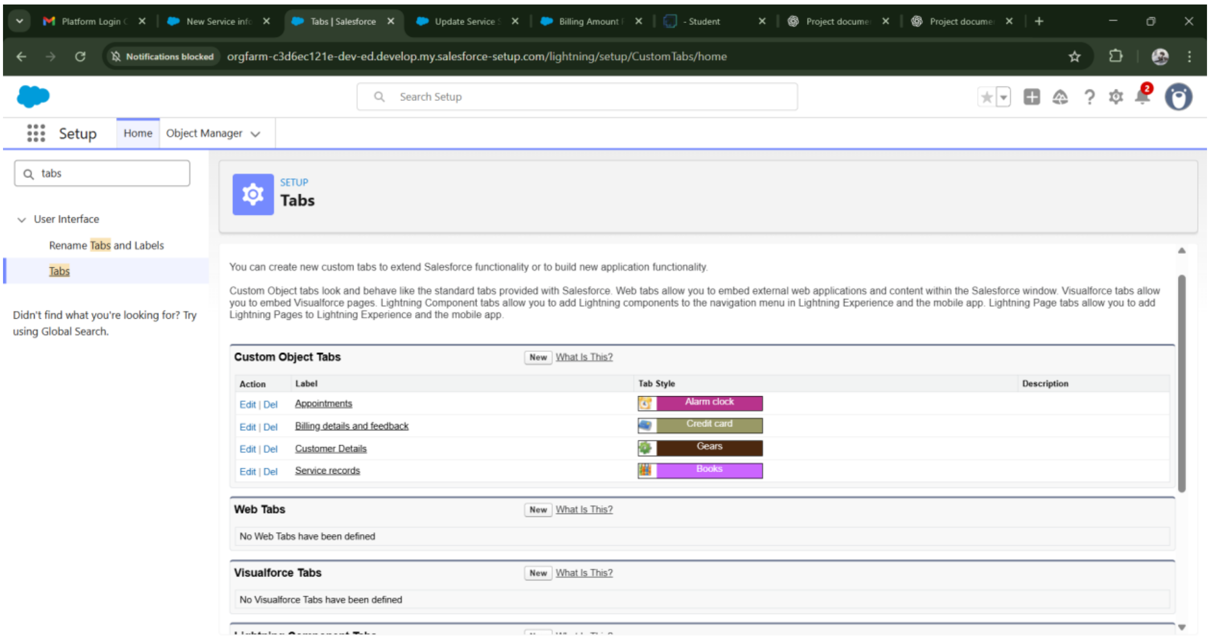
3. **Billing Details and Feedback ↔ Service Records (Lookup Relationship)**
   - Each billing record connects to a service record.

- Ensures that billing and feedback are tied to the correct service instance



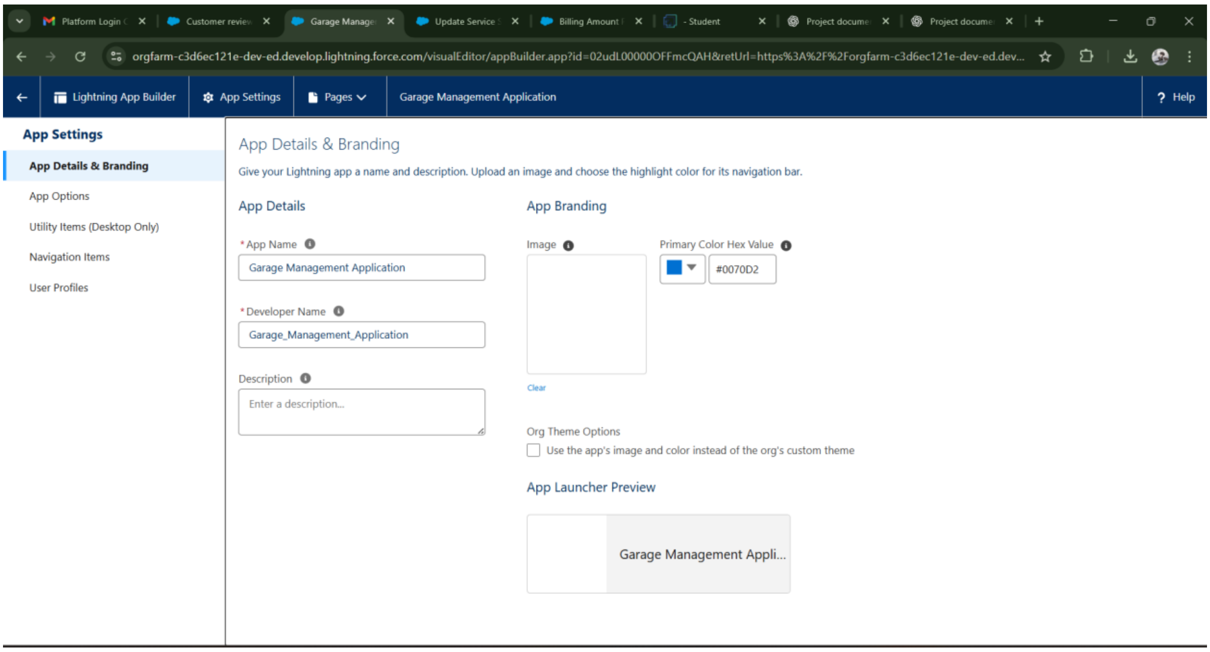
Tabs:

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

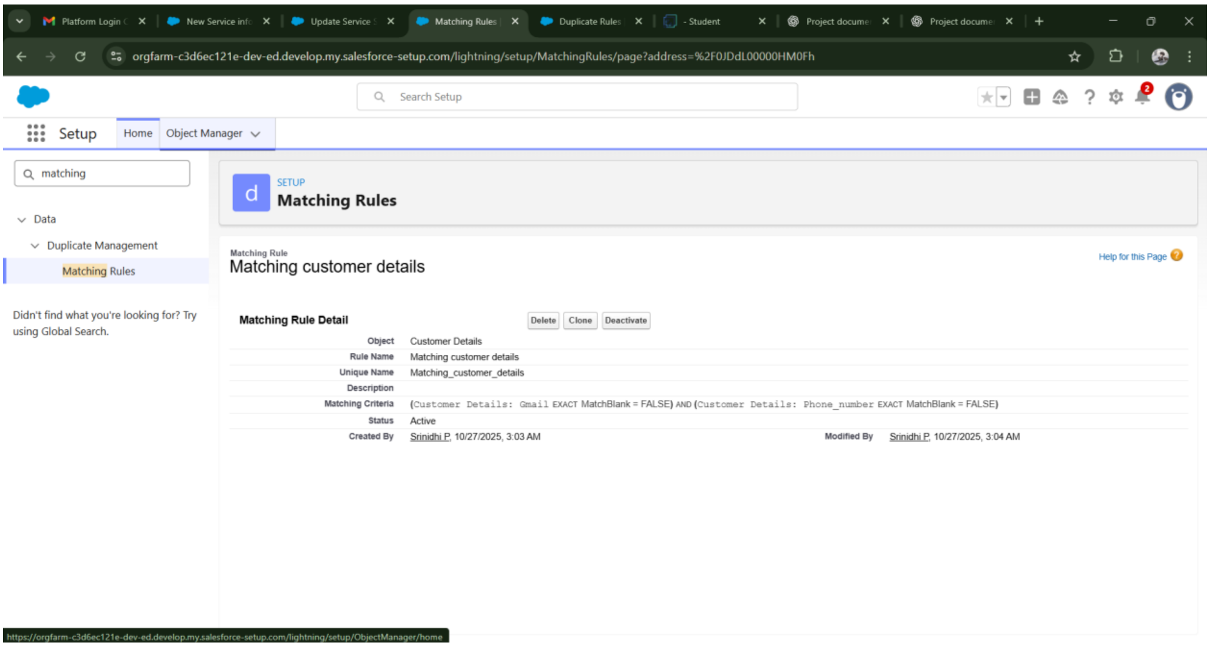
- **App Name:** Garage Management Application
- Added Tabs: Customer Details, Appointments, Service Records, Billing Details & Feedback, Reports, Dashboards
- Profile Access: System Administrator
- Ensures all essential modules are accessible within one interface.



Duplicate Rules:

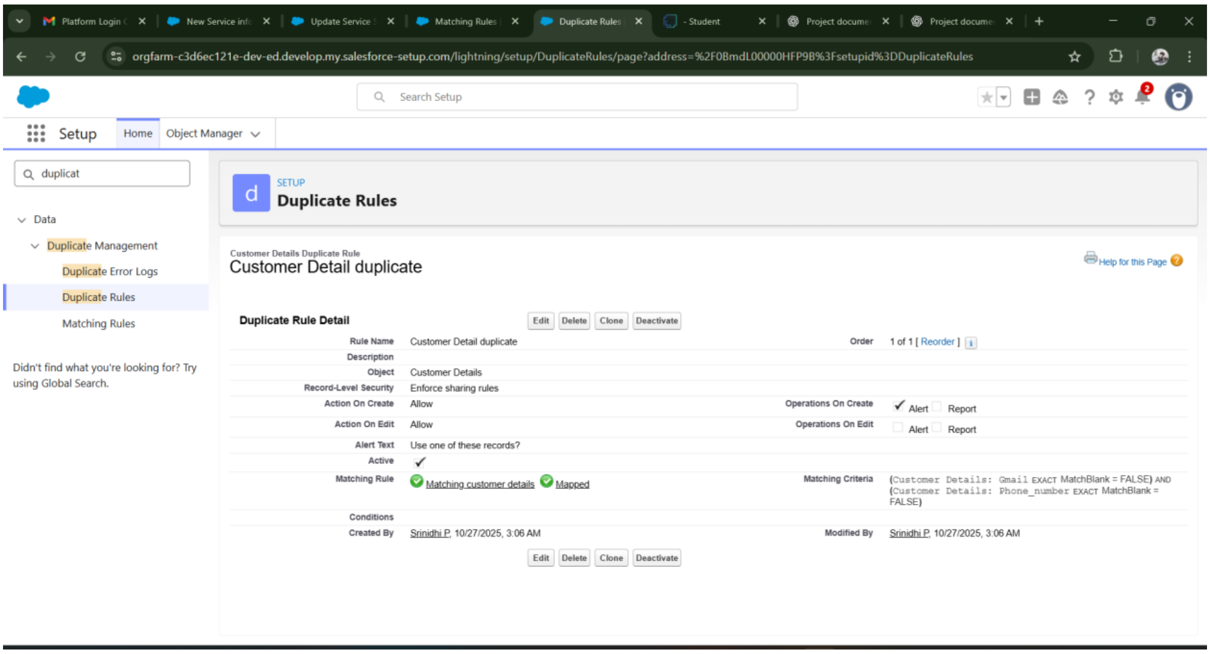
Matching Rule:

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:

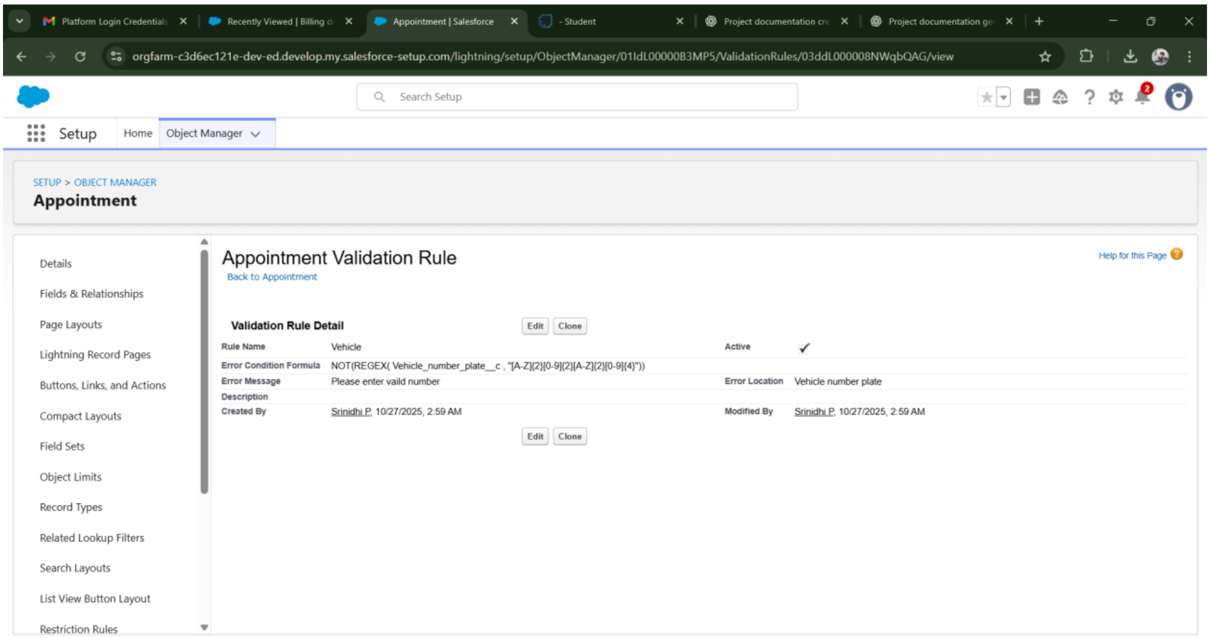
A duplicate rule was configured for the **Customer Details** object using the created matching rule. It prevents users from adding duplicate customer records by displaying a warning or blocking the save action when a matching Gmail or phone number already exists.



Validation Rules

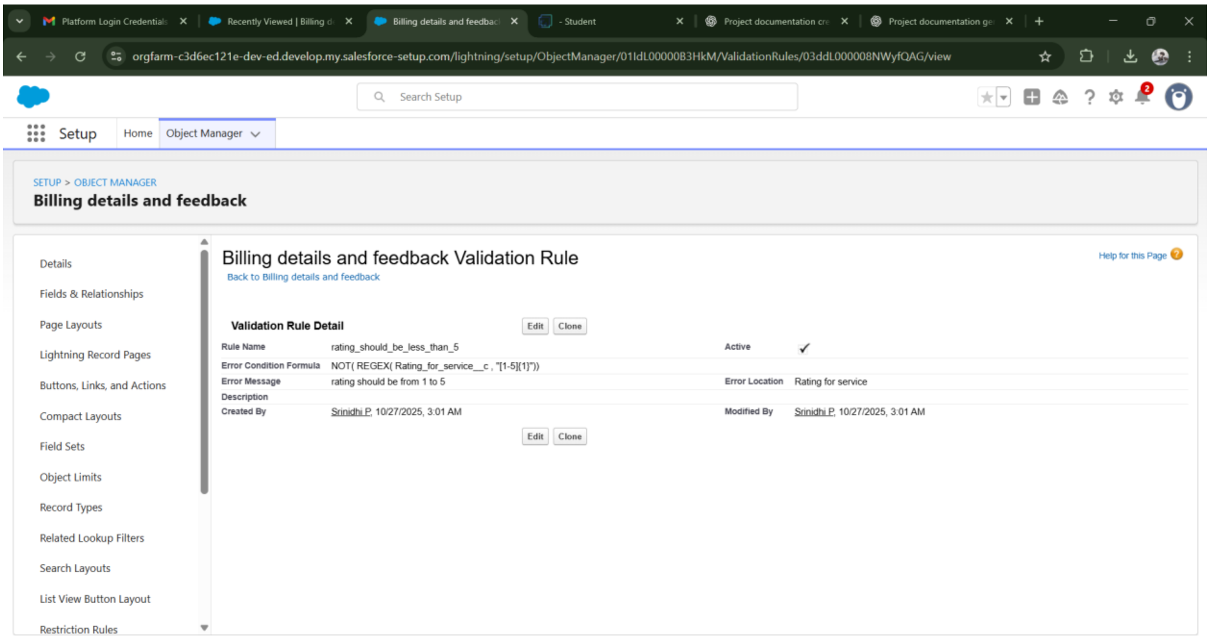
1. **Appointment Object – Vehicle Number Plate Validation**
   Ensures that vehicle numbers follow a proper format.

   Error Message: "Please enter valid number."



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

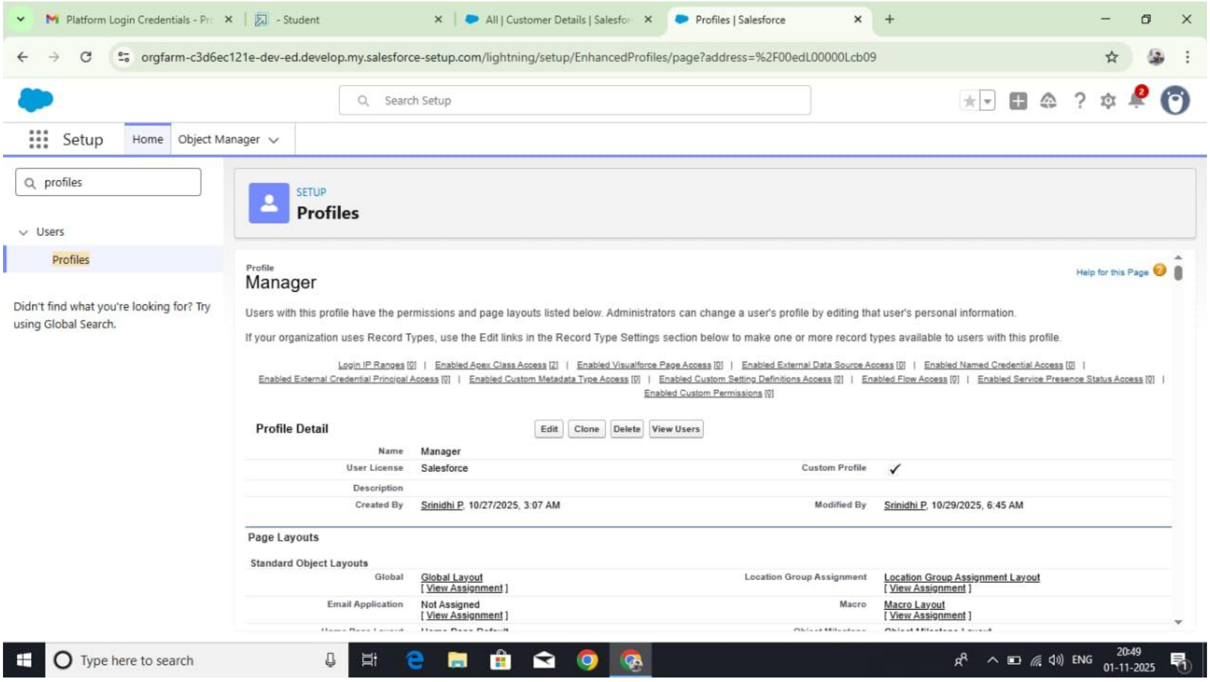
   Error Message: "Rating should be from 1 to 5."



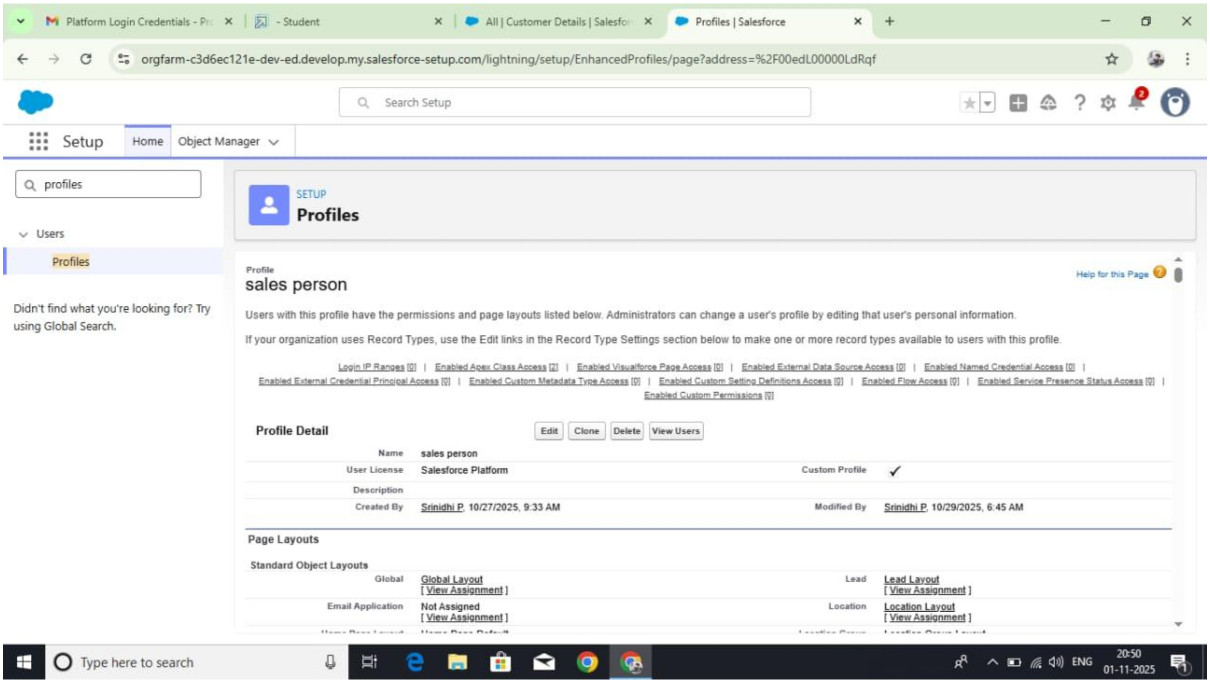
Profiles

1. **Manager**
   - Full access to all objects.

- Session timeout: 8 hours.
- Passwords never expire.

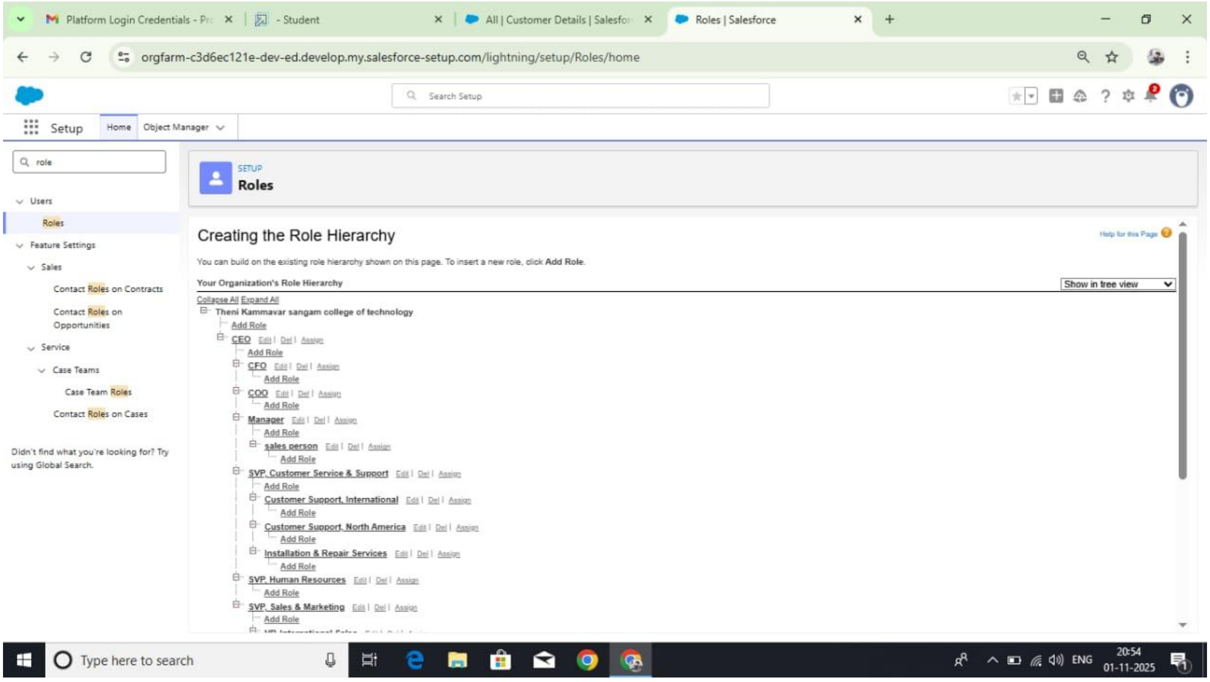


2. **Sales Person**
   - Limited access (create/view own records).
   - Default app: Garage Management.



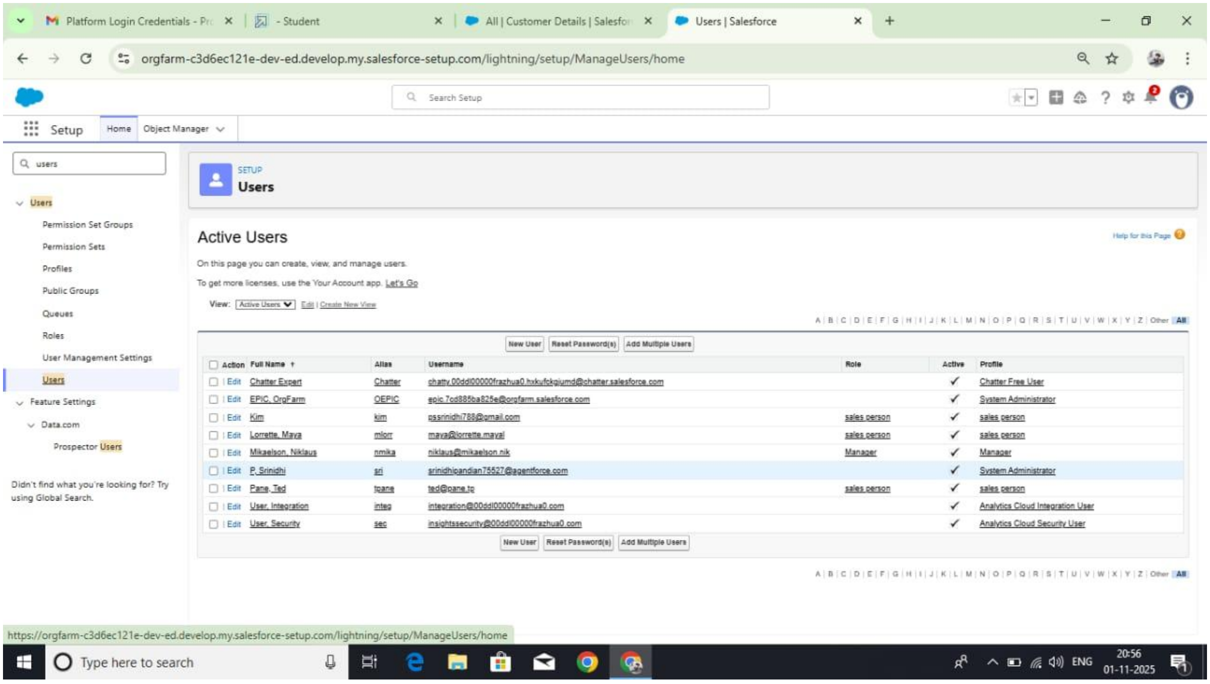
Roles

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



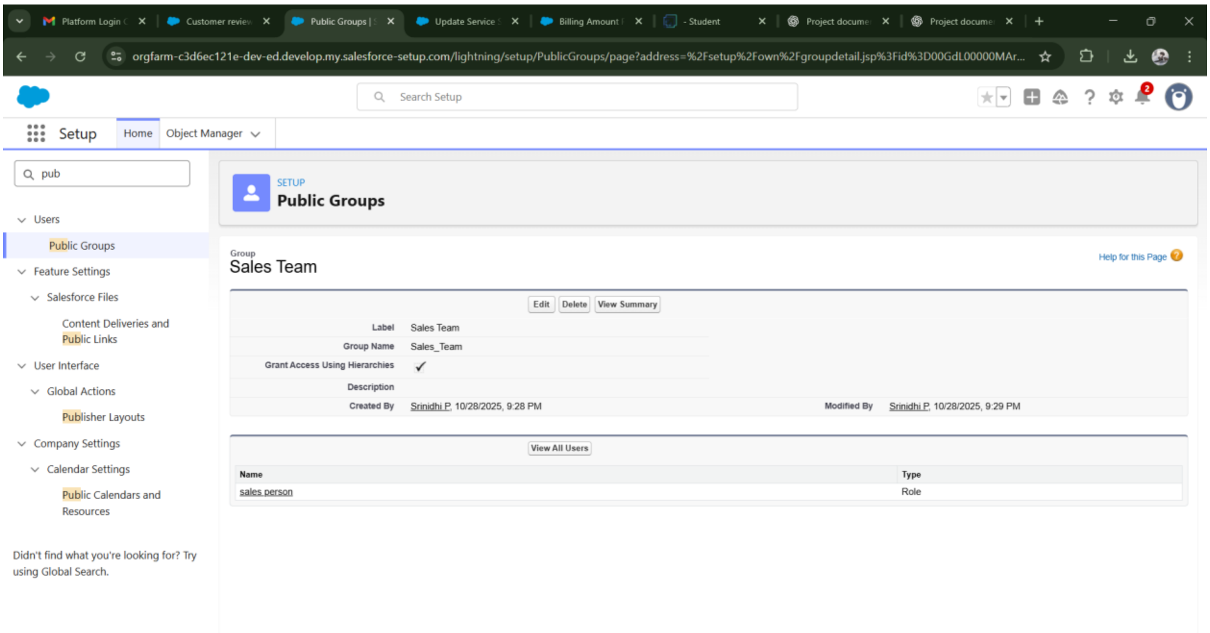
User Details:

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



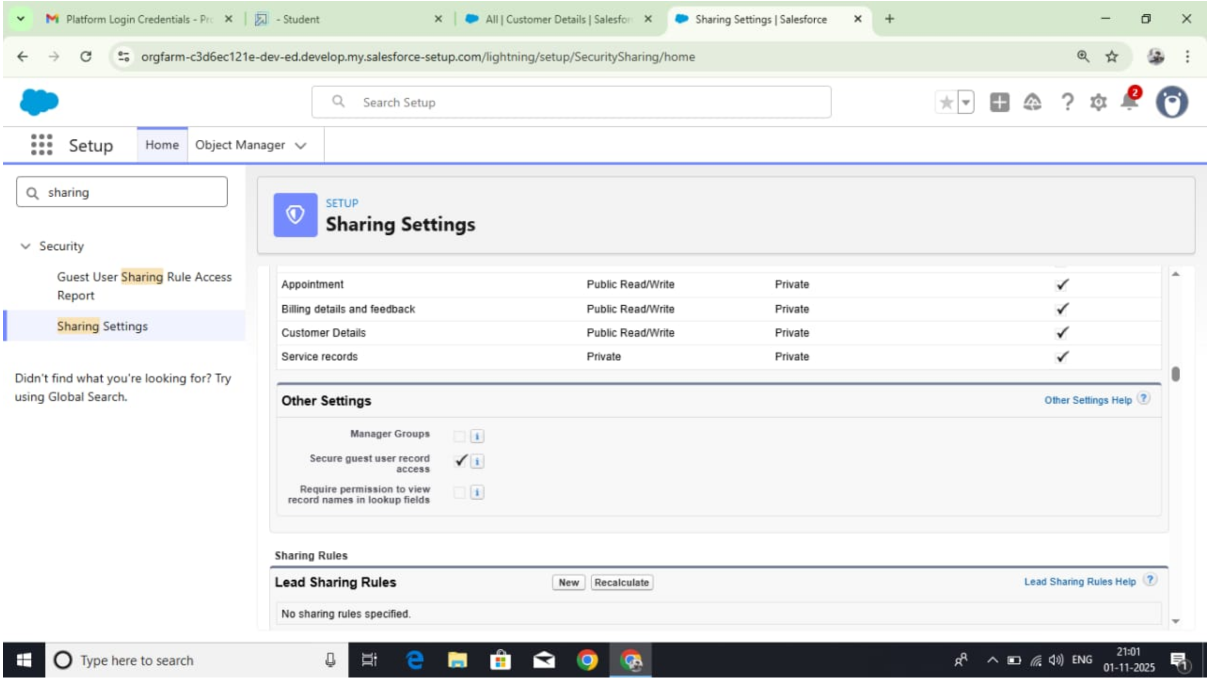
Public Group

- Group Name: *Sales Team*
- Members: Users with Sales Person Role.



Sharing Settings

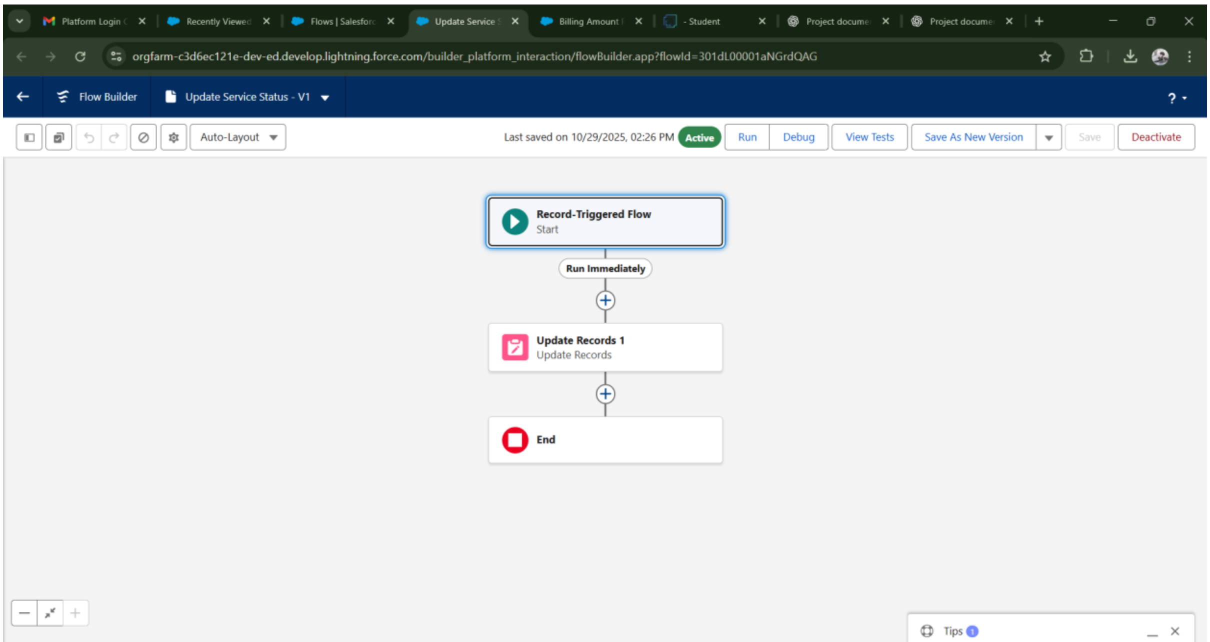
- Service Records → Private.
- Sharing Rule:
    - Records owned by Sales Person are shared with Manager (Read/Write access).



Automations and Flows

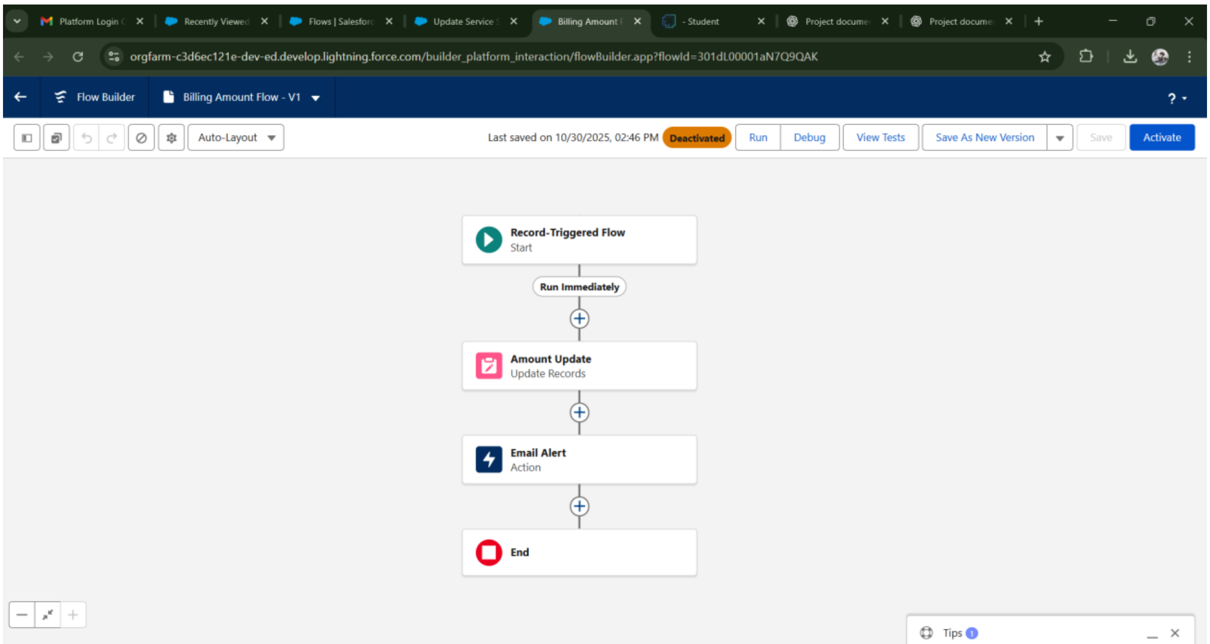
Update Service Status Flow:

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.



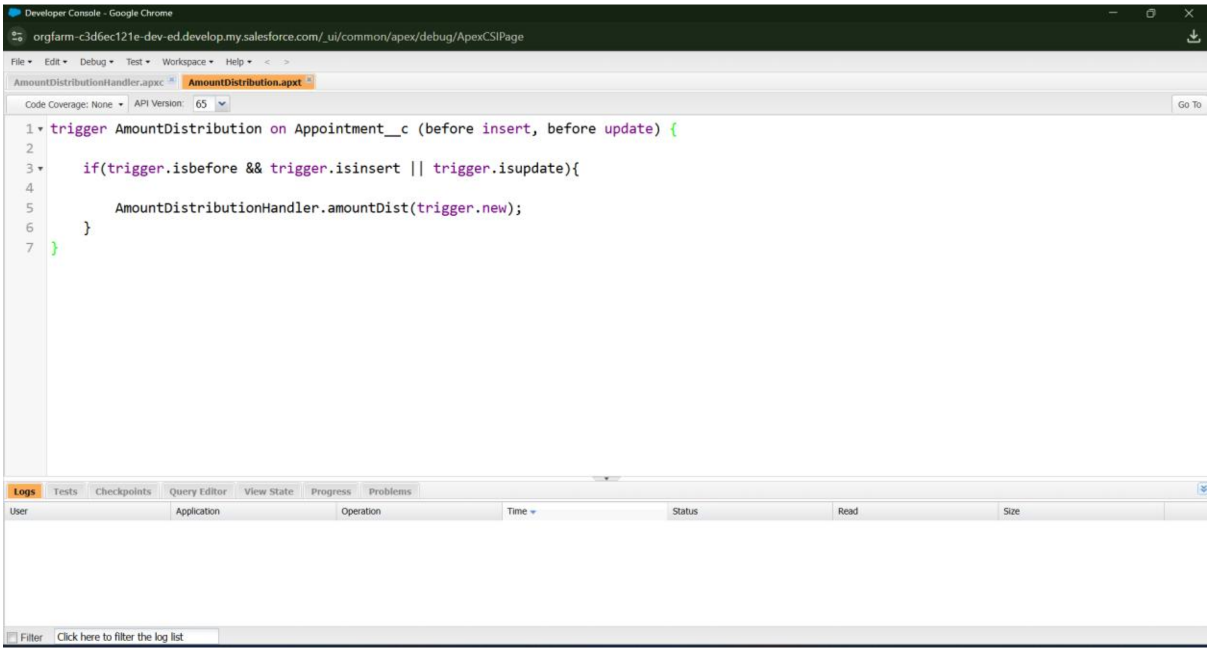
Billing Amount Flow:

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.

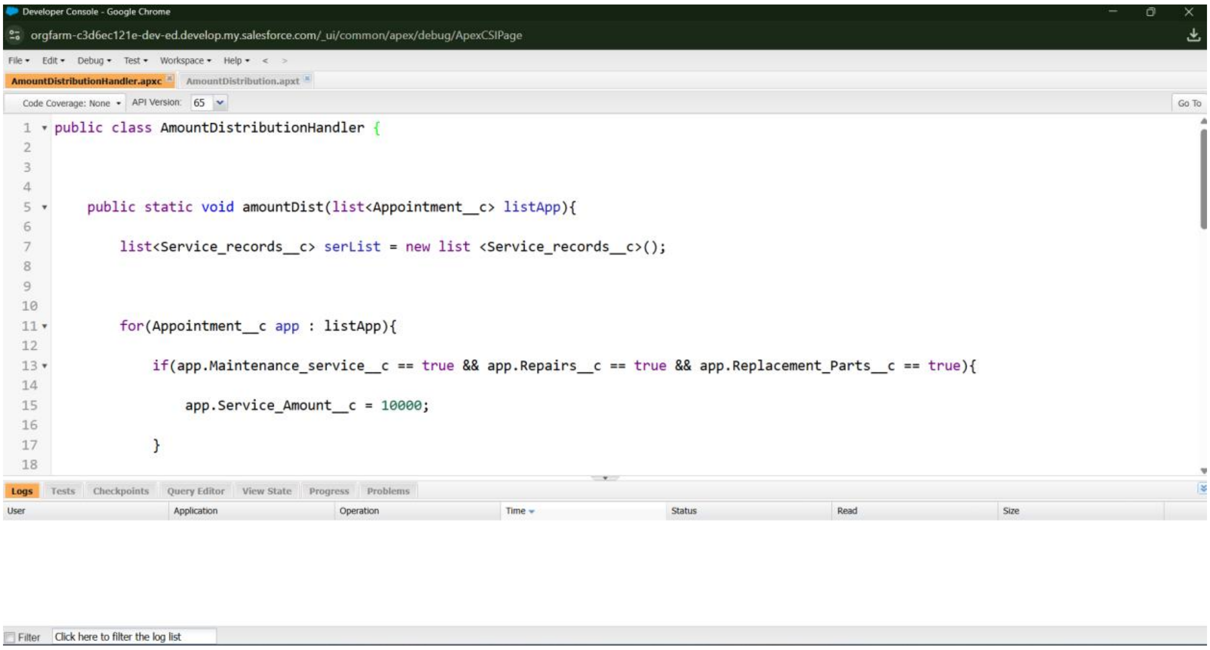


Apex Trigger and Handler

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.



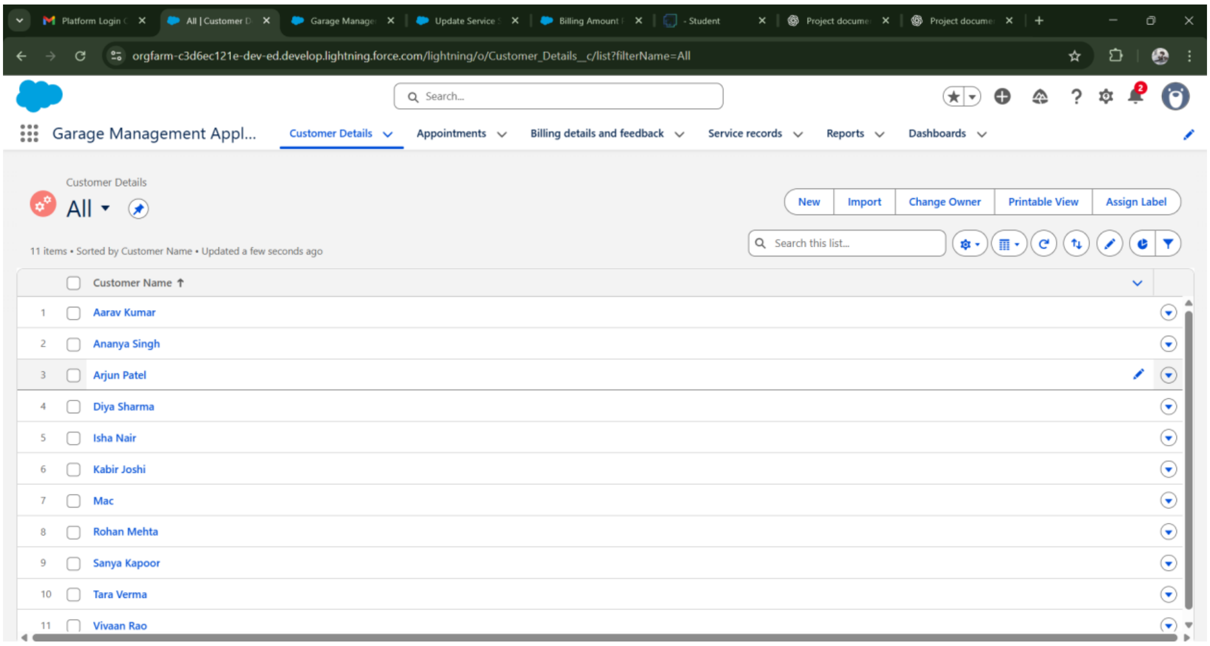
2. **Apex Handler:**
   The **AmountDistributionHandler** class automatically calculates the total *Service Amount* based on selected services like Maintenance, Repairs, and Replacement Parts, ensuring accurate and consistent billing.



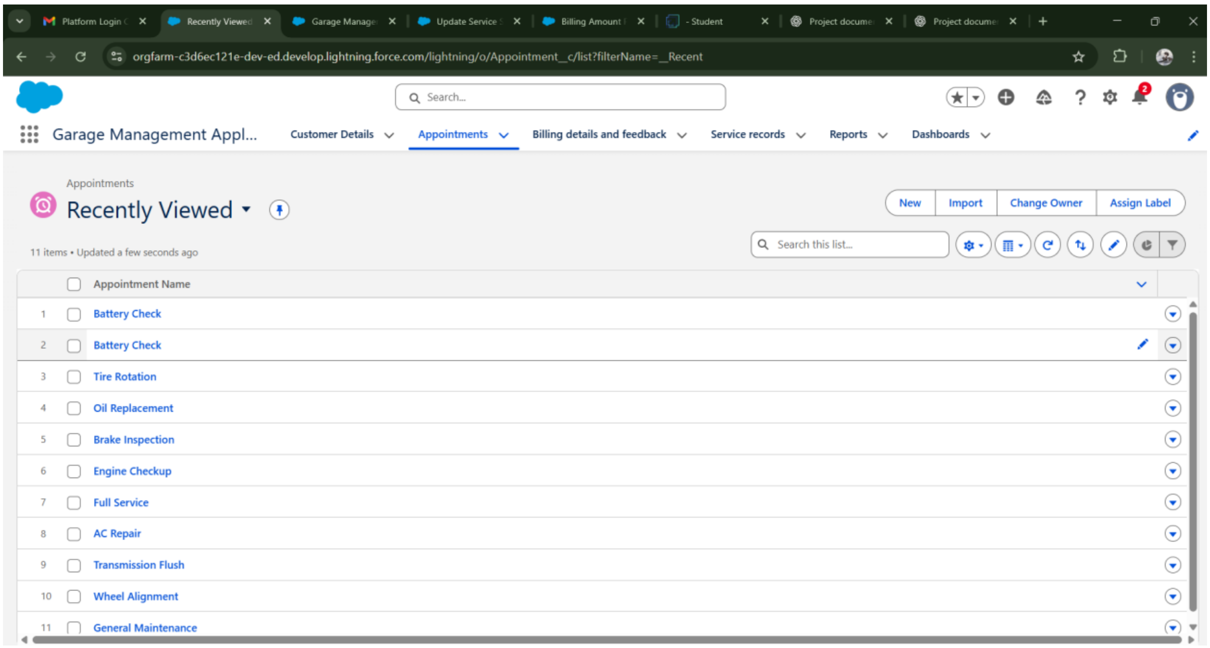
Reports:

Record Creation:

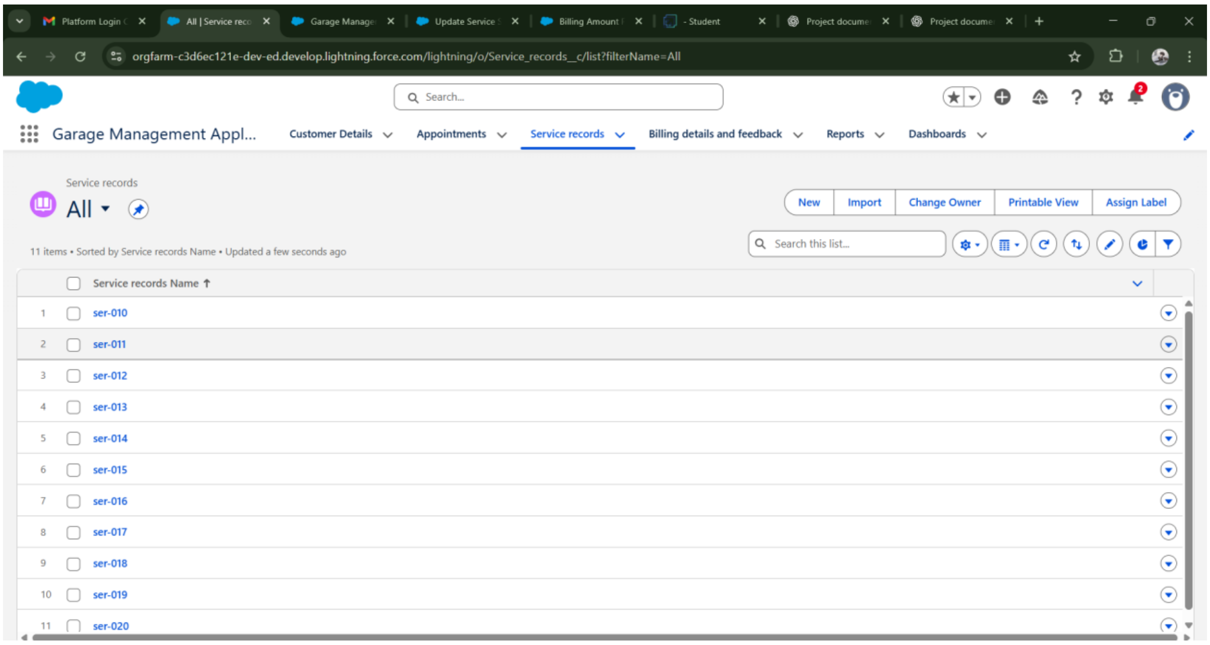
1. Customer Details: Created records with customer name, phone number, and Gmail to store client information.



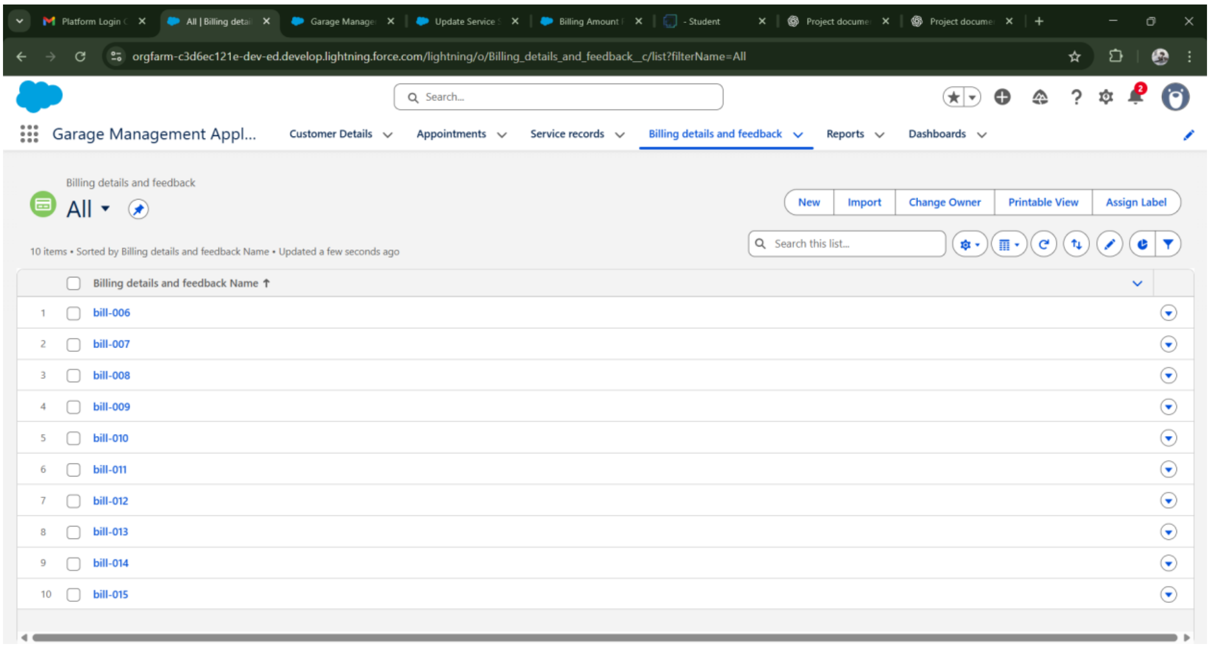
2. Appointment: Created records linked to customers with appointment date, vehicle number plate, and selected service options.



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

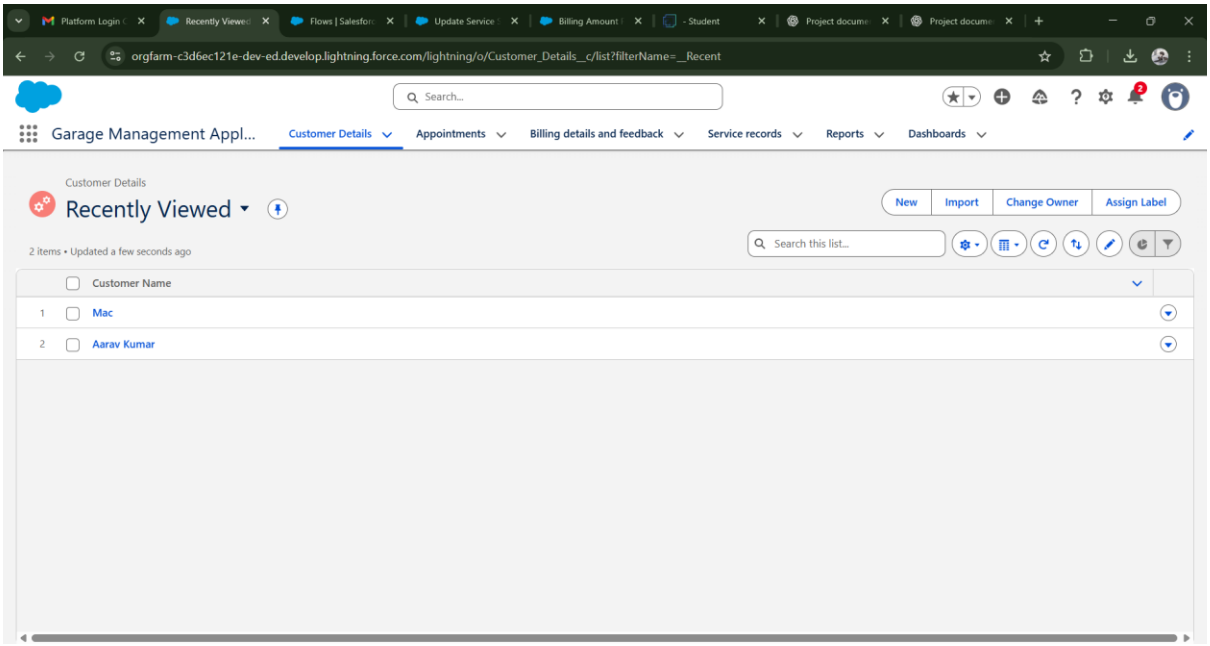


4. Billing Details & Feedback: Added billing records with payment status, payment amount, and service rating to verify automation and flows.



Report Type: "Service Information"

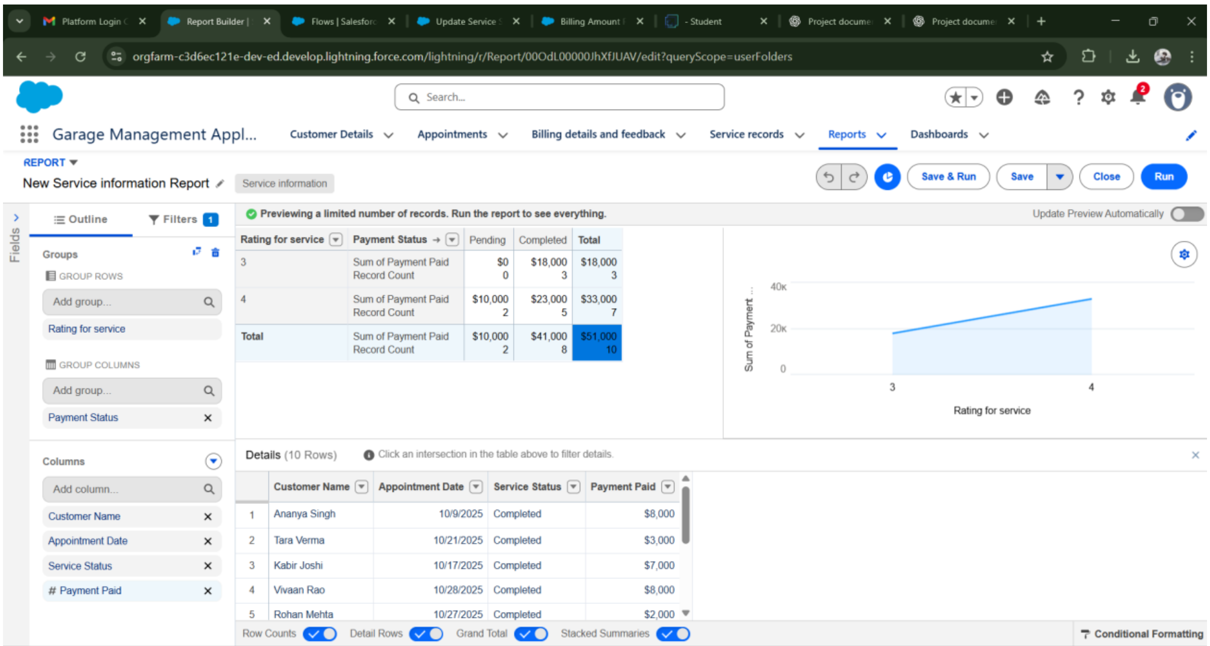
- **Primary Object:** Customer Details
- **Related Objects:** Appointment → Service Records → Billing Details and Feedback
- Displays: Customer Name, Appointment Date, Service Status, Payment Paid, Rating for Service.



Report Creation

- Filters unnecessary fields.

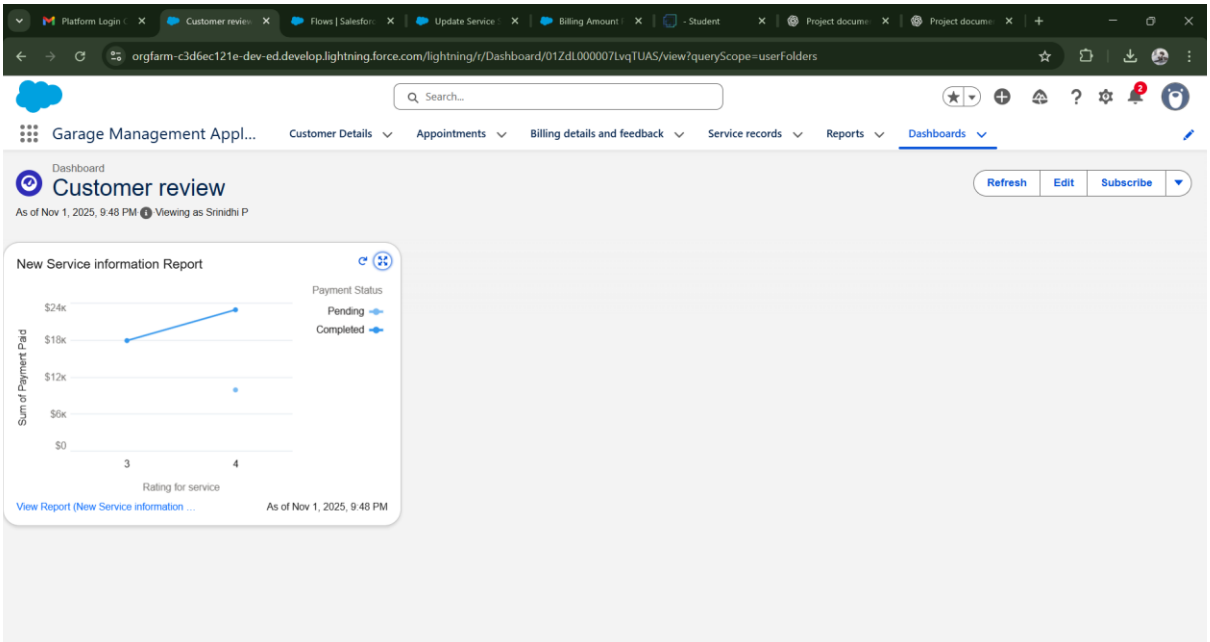
- Groups by *Payment Status* and *Rating for Service*.
- Adds a **Line Chart** for payment insights.



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.