Garage-Management-System

1. Project Overview :

This project is focused on developing a **Garage Management System**, designed to address the primary challenges of manual operations, inefficient resource utilization, and fragmented customer interactions in automotive service centers. The goal is to deliver a comprehensive solution by leveraging modern **software technologies** and an intuitive **user-centric design approach**.

Through this project, we aim to enhance **operational efficiency**, **customer experience**, and **data accuracy** while supporting the long-term goals of **automotive garages and service centers** to streamline their operations, improve service delivery, and achieve sustainable growth.

2. Objectives :

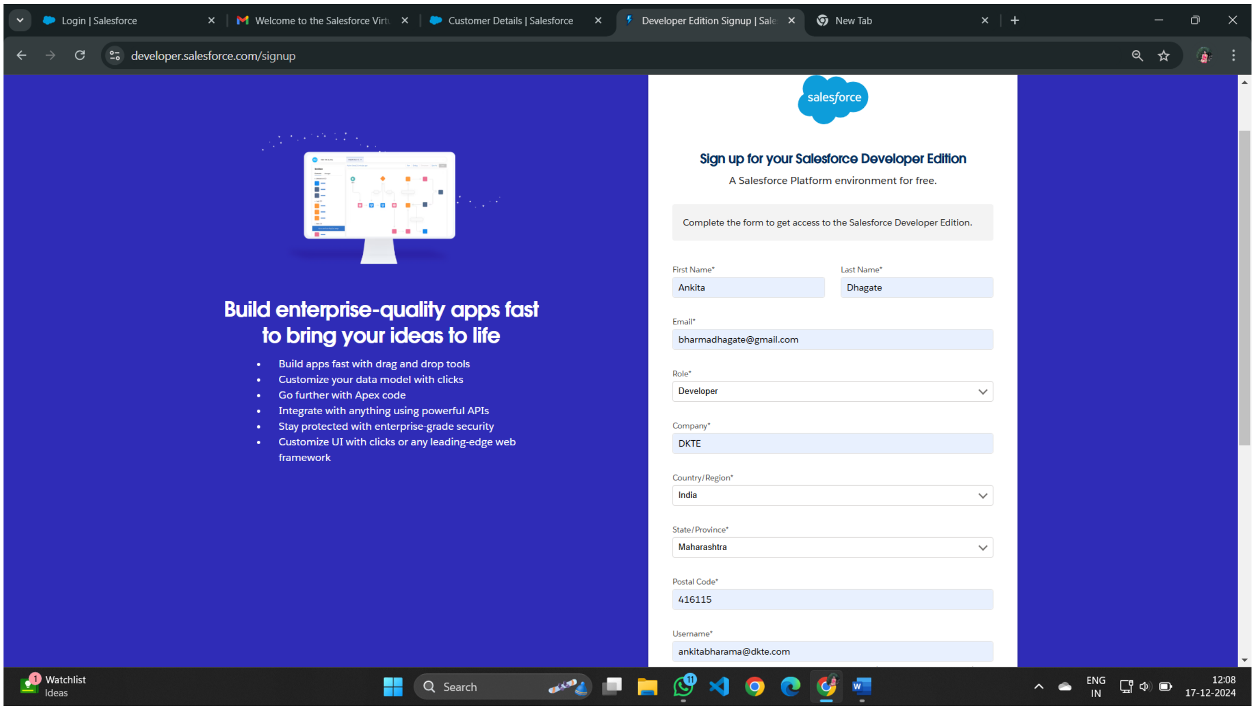
- **Business Goals:**
  - **Enhance Operational Efficiency**: Reduce manual effort by automating scheduling, inventory management, and billing processes.
  - **Improve Customer Experience**: Provide a seamless, transparent, and user-friendly service experience.
  - **Increase Profitability**: Minimize resource wastage, optimize workflows, and attract more customers through improved service quality.
  - **Support Business Growth**: Develop a scalable platform that can adapt to the growing needs of garages and service centers.
- **Specific Outcomes:**
  - **Appointment Scheduling Module**: An online system for booking, rescheduling, and managing service appointments efficiently.
  - **Inventory Management System**: A tool to track stock levels, send alerts for low inventory, and generate purchase orders.
  - **Billing and Payment Gateway Integration**: Automated invoicing and multiple payment options for customers.
  - **Customer Database and History**: A CRM module to store customer profiles, vehicle details, and service history for personalized service.
  - **Performance and Analytics Dashboard**: Generate detailed reports on key metrics such as service completion rates, revenue trends, and customer feedback.
  - **Resource Allocation System**: Assign jobs to mechanics based on their expertise and availability, ensuring effective utilization of manpower.

3. Salesforce Key Features and Concepts Utilized :

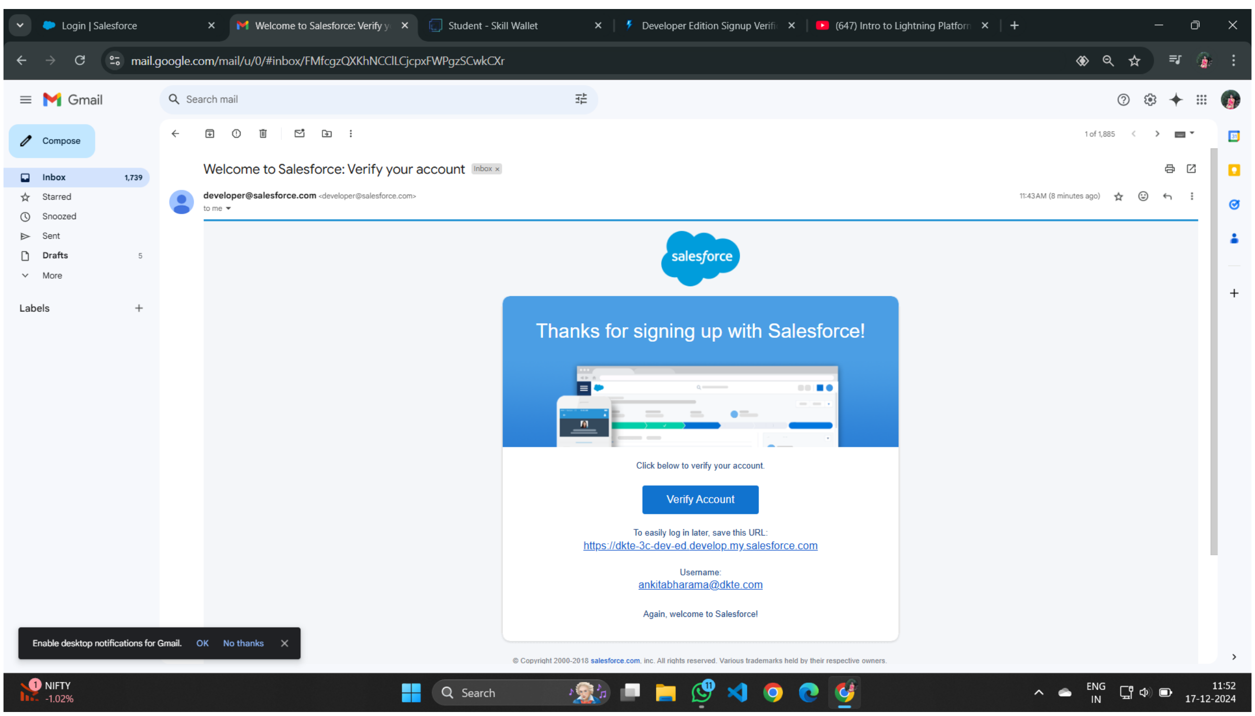
- **Customer Relationship Management (CRM):**
  Utilize Salesforce's CRM capabilities to store and manage customer information, including service history, contact details, and preferences, enabling personalized interactions and improved customer retention.
- **Appointment Scheduling:**
  Leverage Salesforce's scheduling tools to allow customers to book, modify, and track their service appointments seamlessly.
- **Service Workflow Automation:**
  Automate task assignments, track service progress, and notify customers about updates using Salesforce automation features.
- **Inventory Management:**
  Implement tools to monitor spare parts inventory, manage stock levels, and generate alerts for reordering critical items.
- **Billing and Invoicing:**
  Integrate invoicing features within Salesforce to streamline the billing process, ensuring accurate and transparent payment transactions.
- **Analytics and Reporting:**
  Use Salesforce's reporting and dashboard features to generate insights into garage operations, customer satisfaction, and financial performance.
- **Mobile Accessibility:**
  Ensure mobile-friendly access to the system for both customers and garage employees, enabling real-time updates and service management on the go.
- **Scalability and Integration:**
  Design the system to integrate seamlessly with existing tools and support scalability as the business grows, ensuring long-term adaptability.

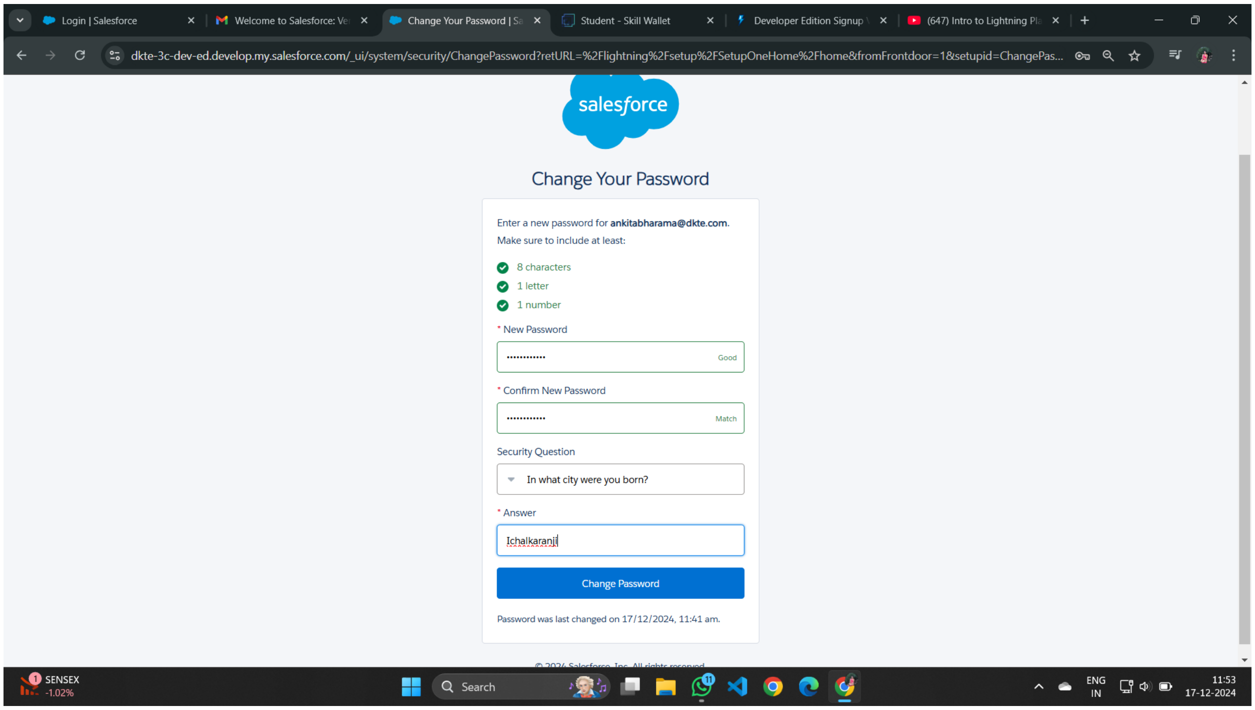
4. Detailed Steps to Solution Design :

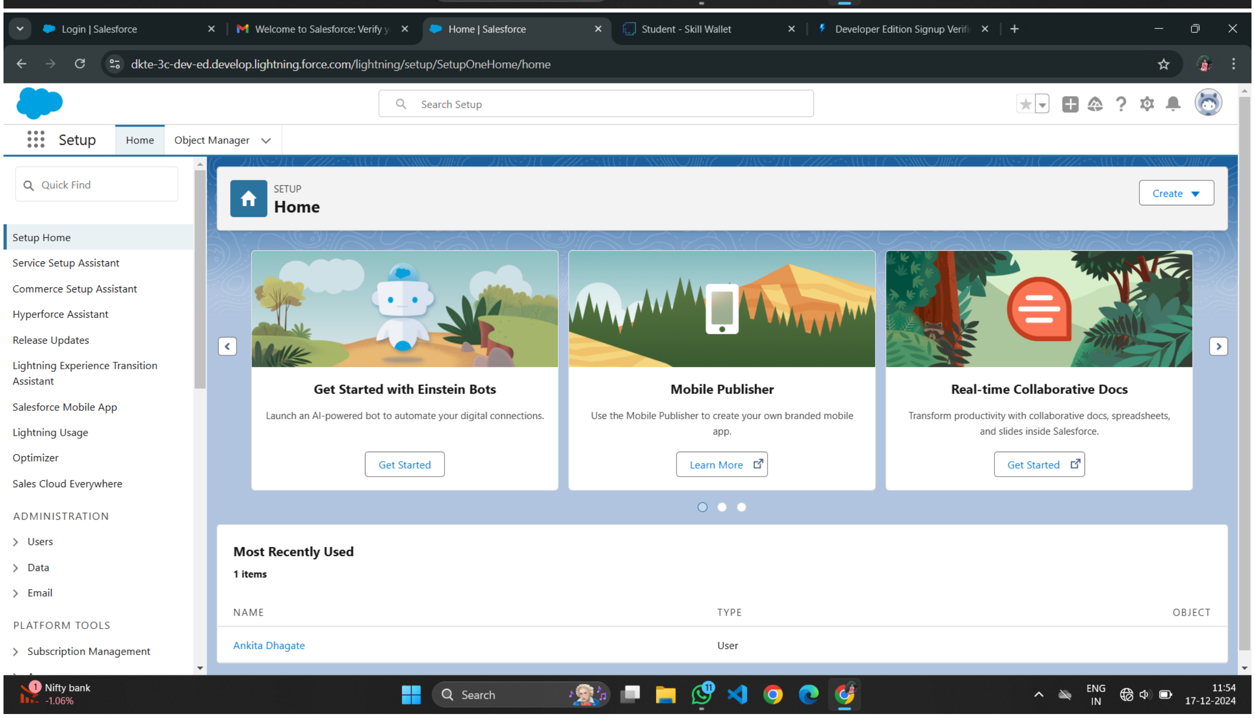
1.Creating Developer account



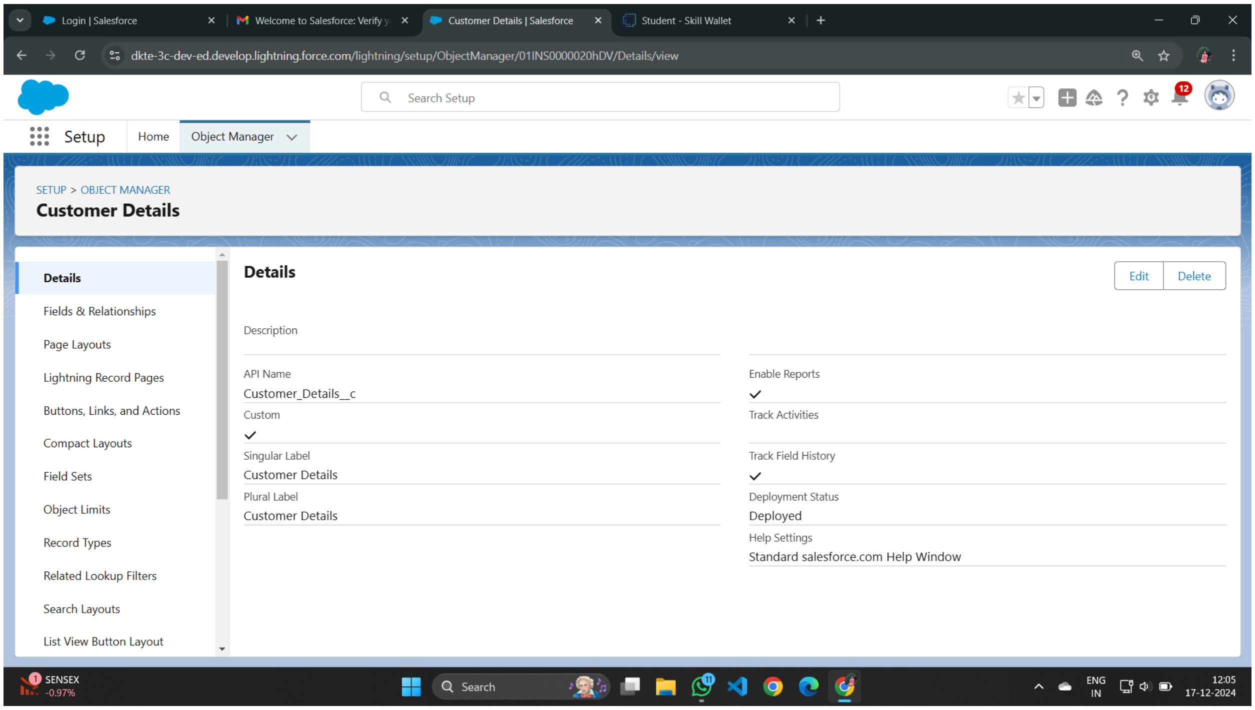
2.Accoount Activation



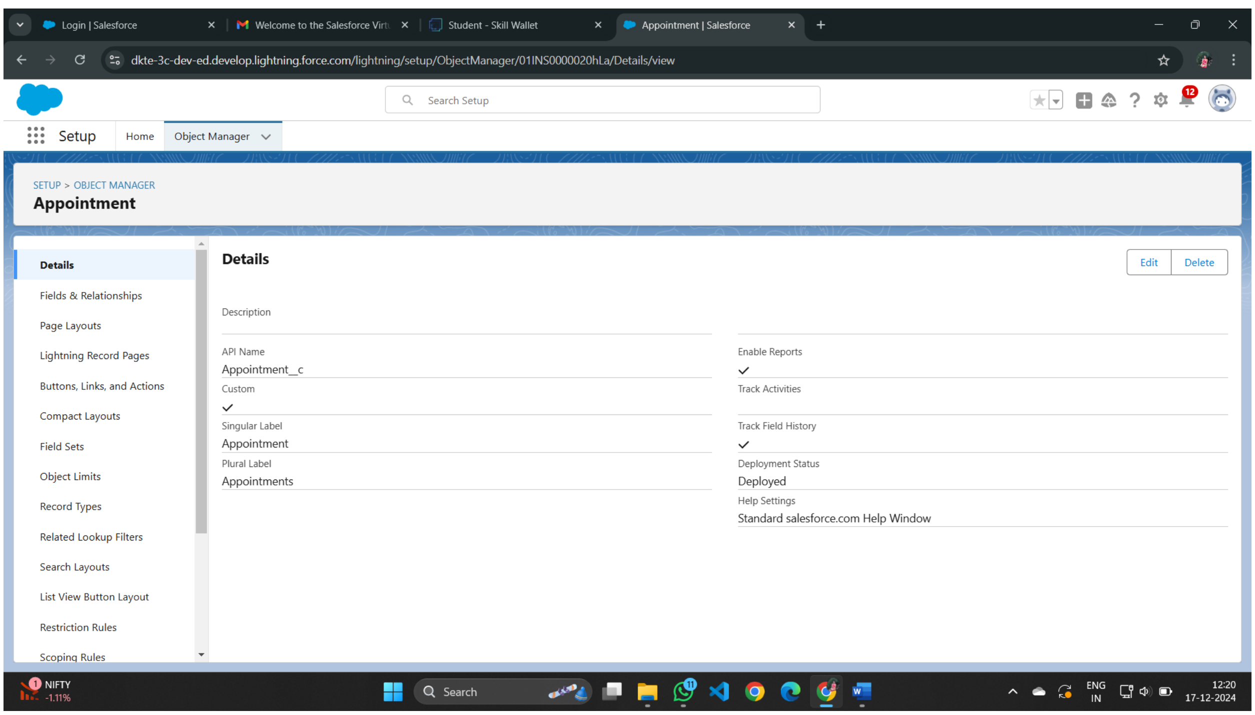




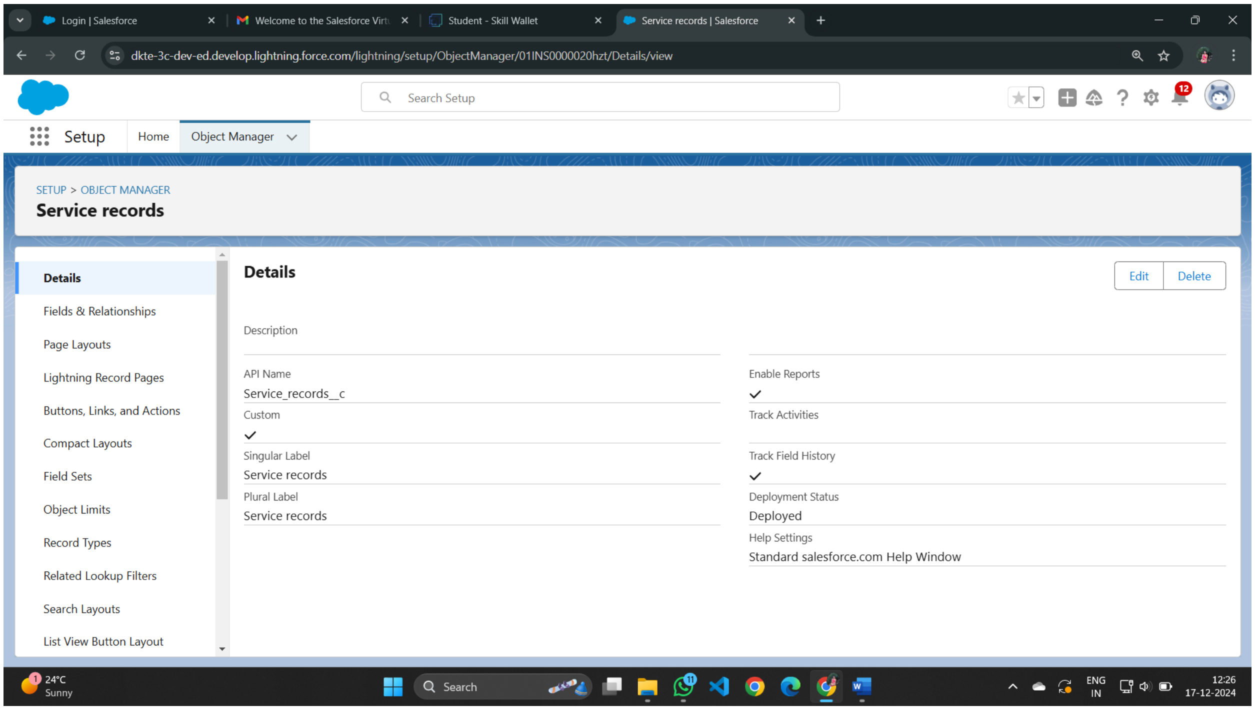
3. Create Customer DetailsObject



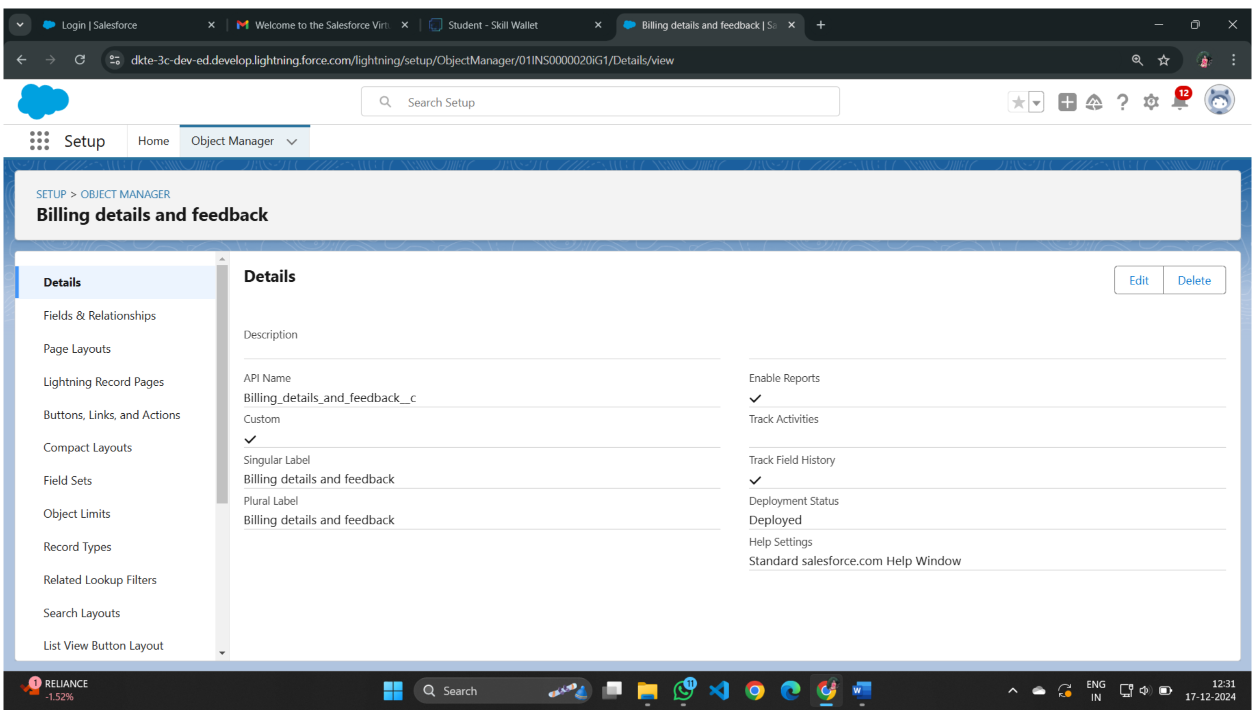
4. **Create Appointment Object**



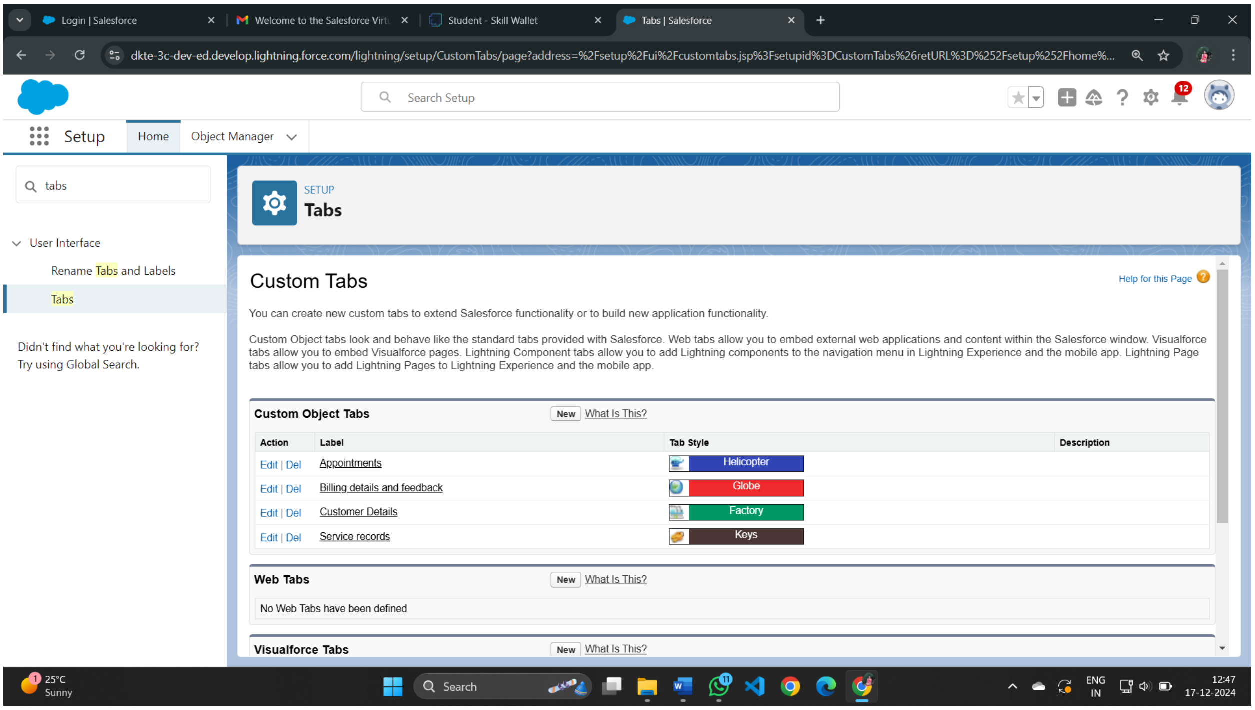
5. **Create Service records Object**



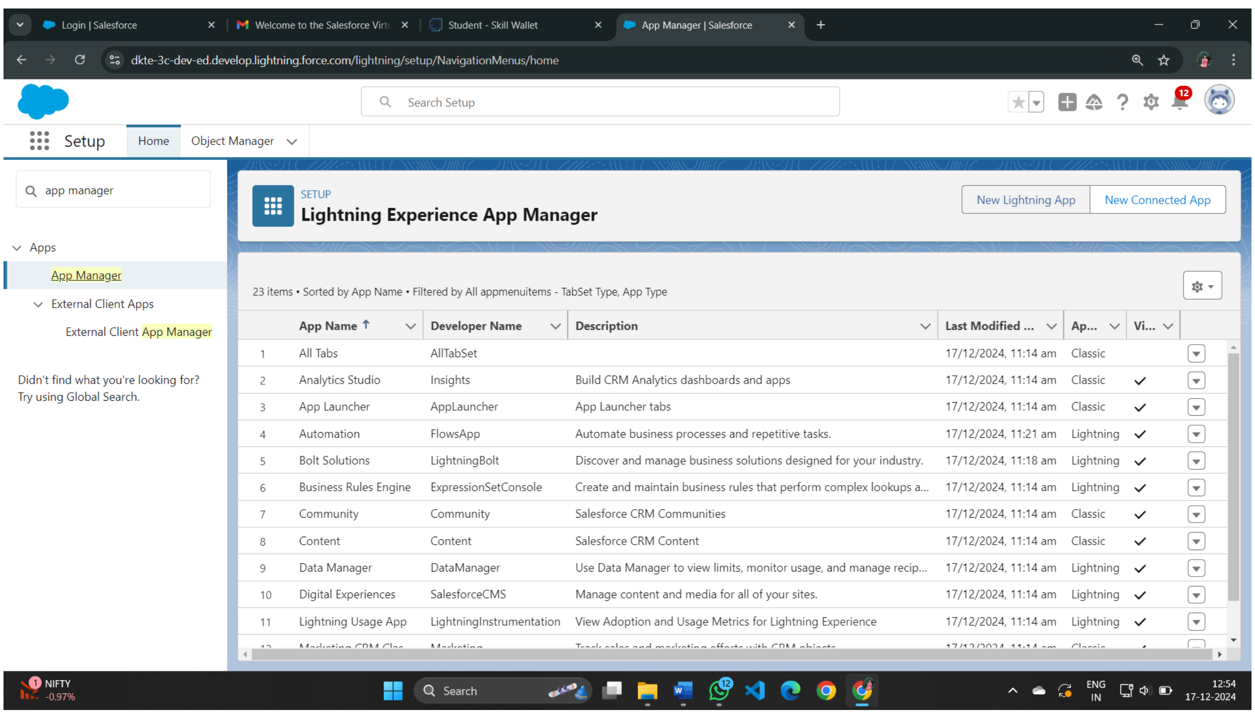
6. **Create Billing details and feedback Object**

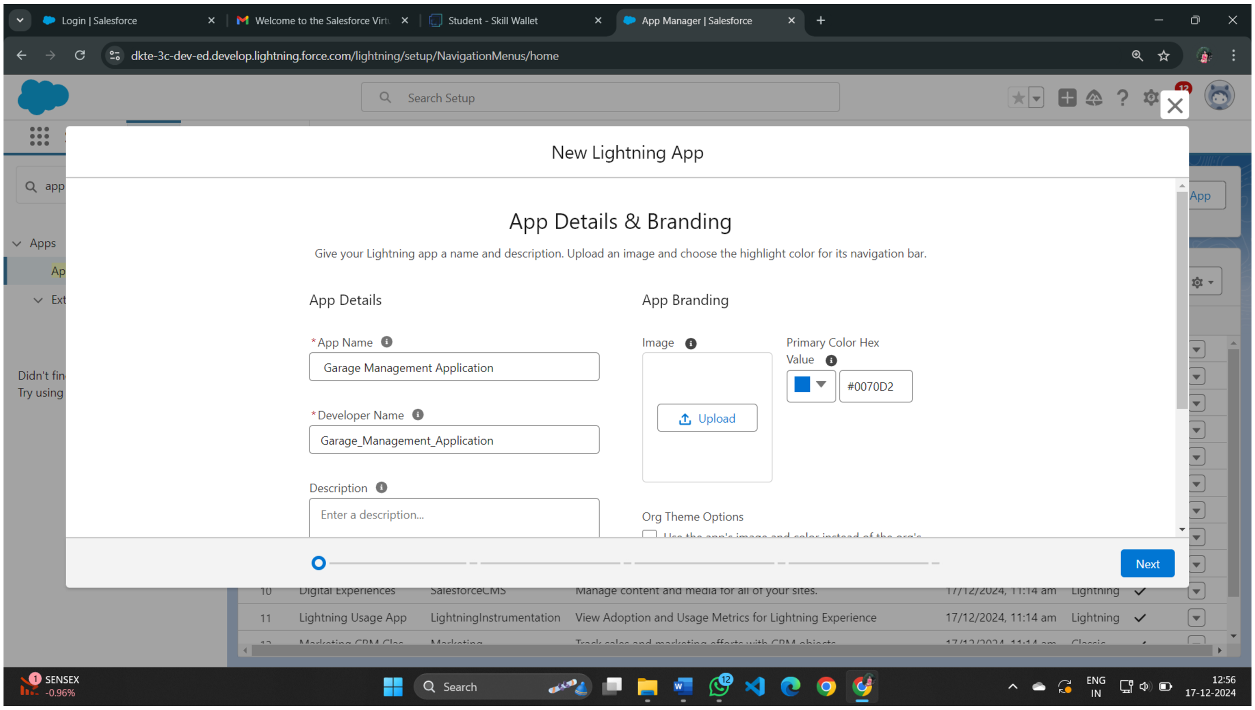
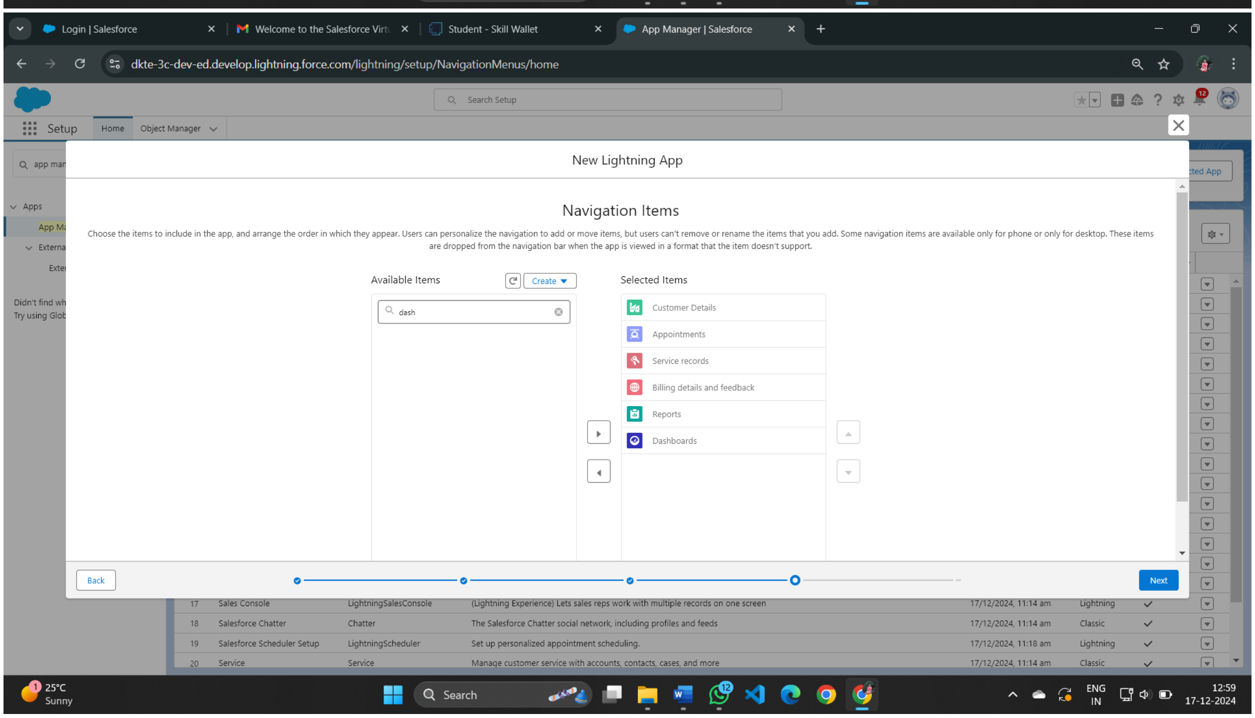


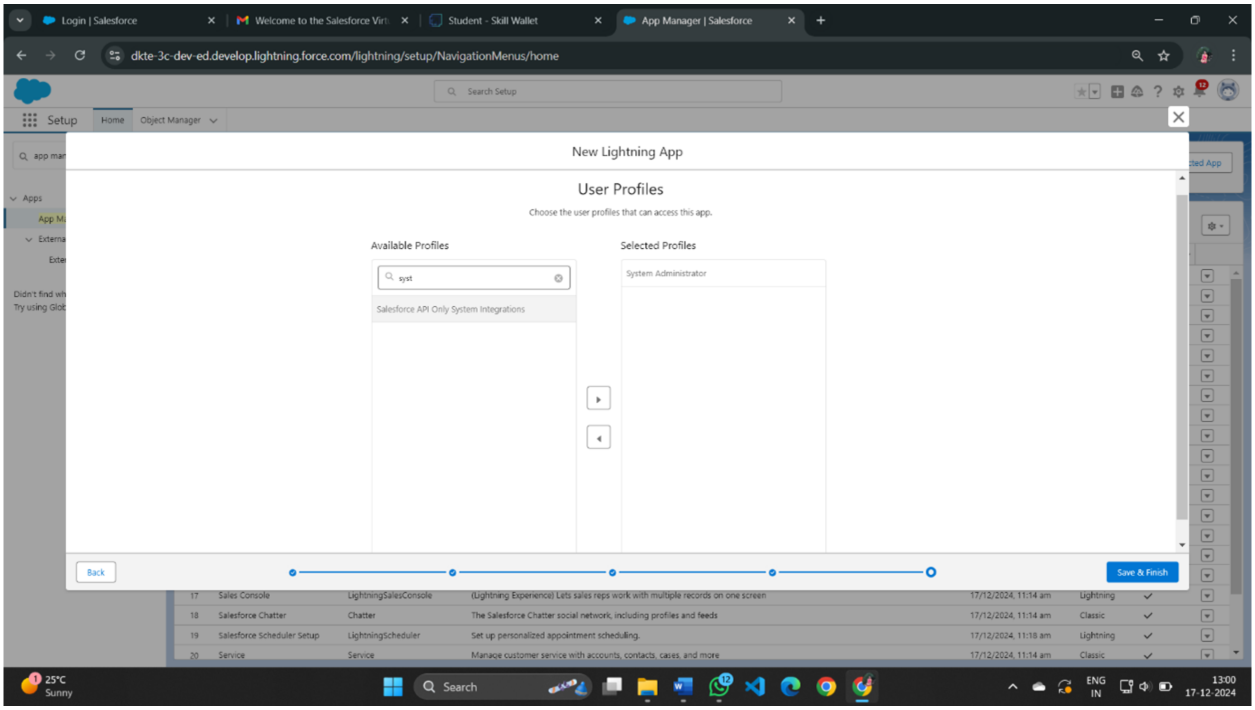
7. **Creating a Custom Tab**



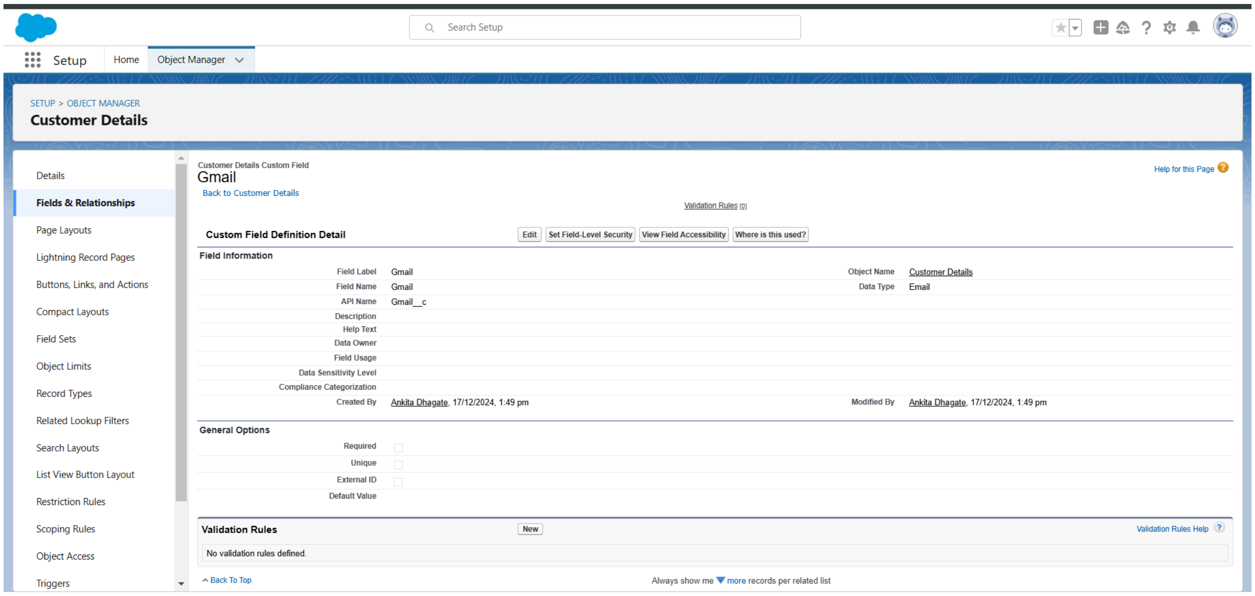
9. Create a Lightning App

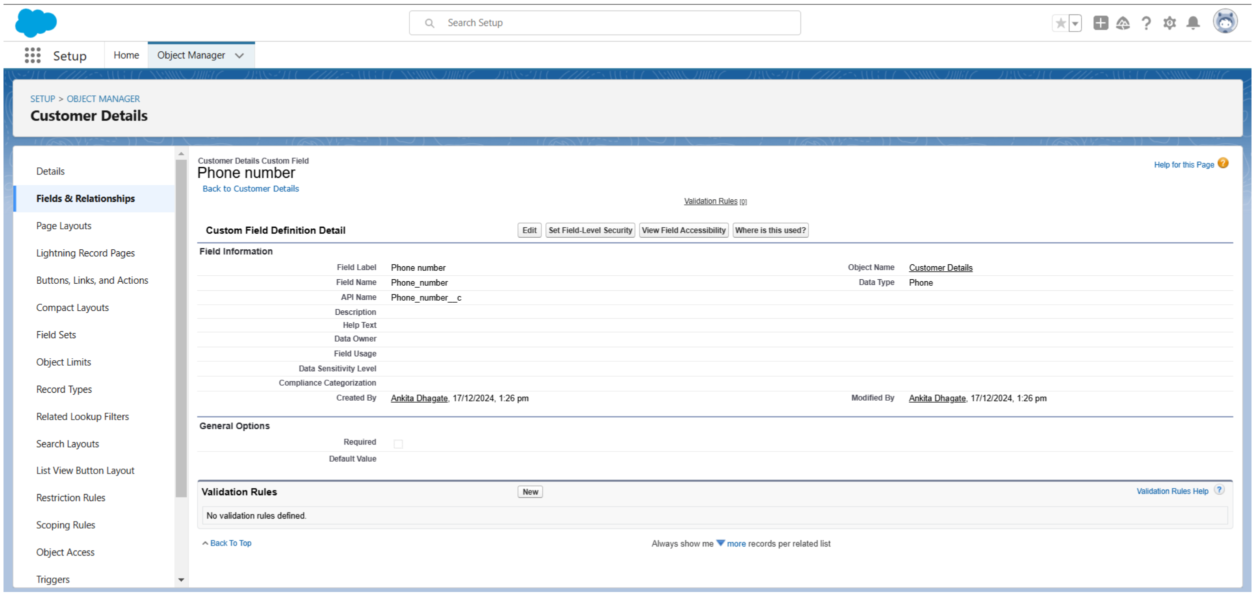



Login | Salesforce
Welcome to the Salesforce Virt
Student - Skill Wallet
App Manager | Salesforce
dkte-3c-dev-ed.develop.lightning.force.com/lightning/setup/NavigationMenus/home
Search Setup
New Lightning App
App Details & Branding
Give your Lightning app a name and description. Upload an image and choose the highlight color for its navigation bar.
App Details
*App Name
Garage Management Application
*Developer Name
Garage_Management_Application
Description
Enter a description...
App Branding
Image
Upload
Primary Color Hex Value
#0070D2
Org Theme Options
Next
Lightning Usage App
LightningInstrumentation
View Adoption and Usage Metrics for Lightning Experience
17/12/2024, 11:14 am
Lightning
Search
12:56
17-12-2024

Login | Salesforce
Welcome to the Salesforce Virt
Student - Skill Wallet
App Manager | Salesforce
dkte-3c-dev-ed.develop.lightning.force.com/lightning/setup/NavigationMenus/home
Setup
Home
Object Manager
New Lightning App
Navigation Items
Choose the items to include in the app, and arrange the order in which they appear. Users can personalize the navigation to add or move items, but users can't remove or rename the items that you add. Some navigation items are available only for phone or only for desktop. These items are dropped from the navigation bar when the app is viewed in a format that the item doesn't support.
Available Items
Create
dash
Selected Items
Customer Details
Appointments
Service records
Billing details and feedback
Reports
Dashboards
Back
Next
Search
12:59
17-12-2024

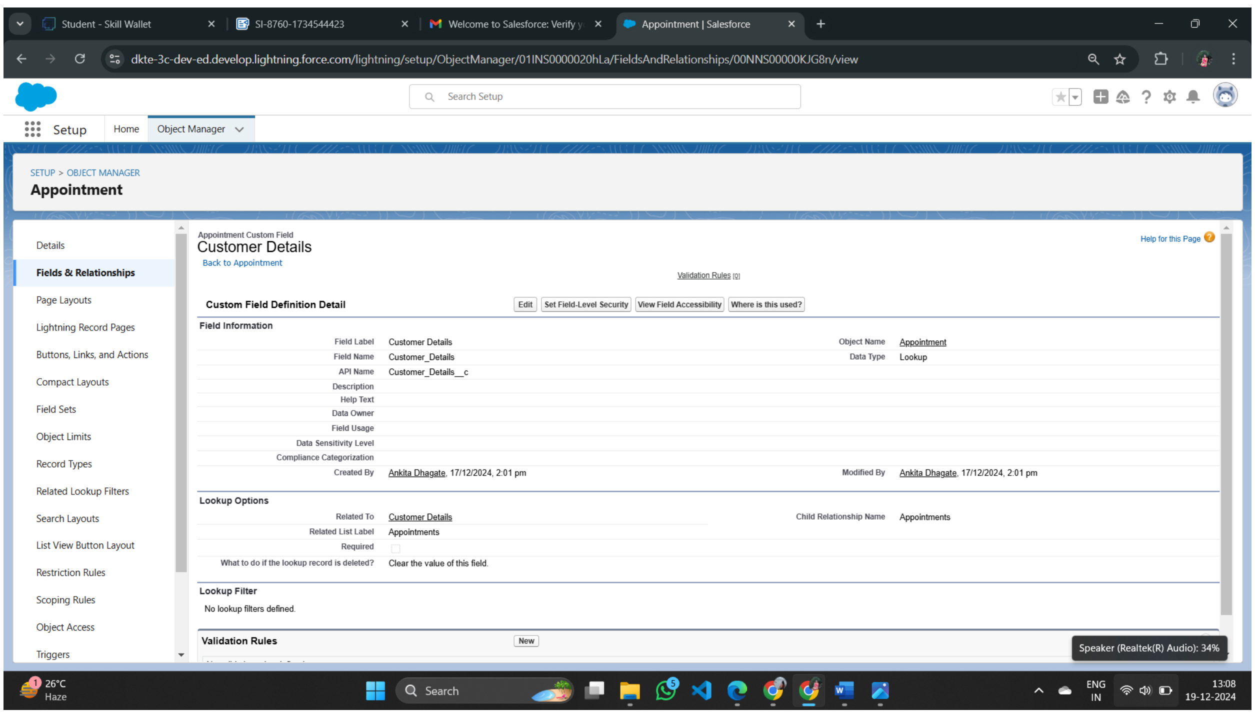


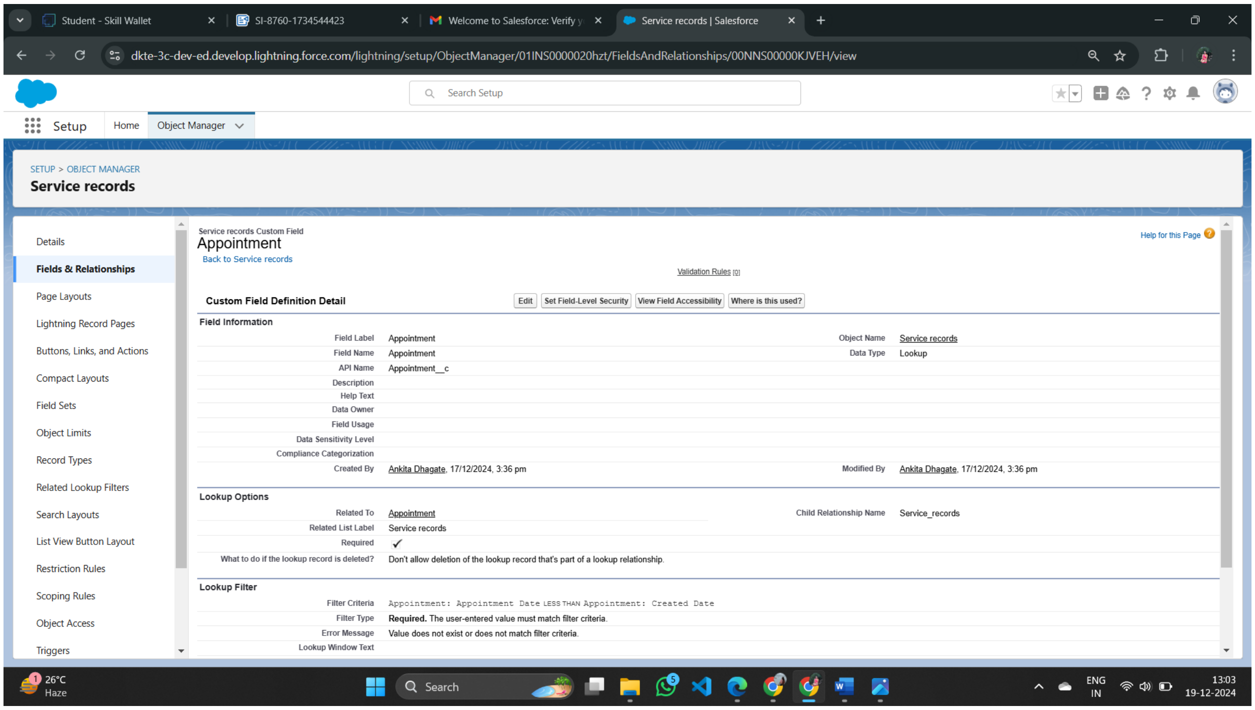
10. **Creation of fields for the Customer Details object**

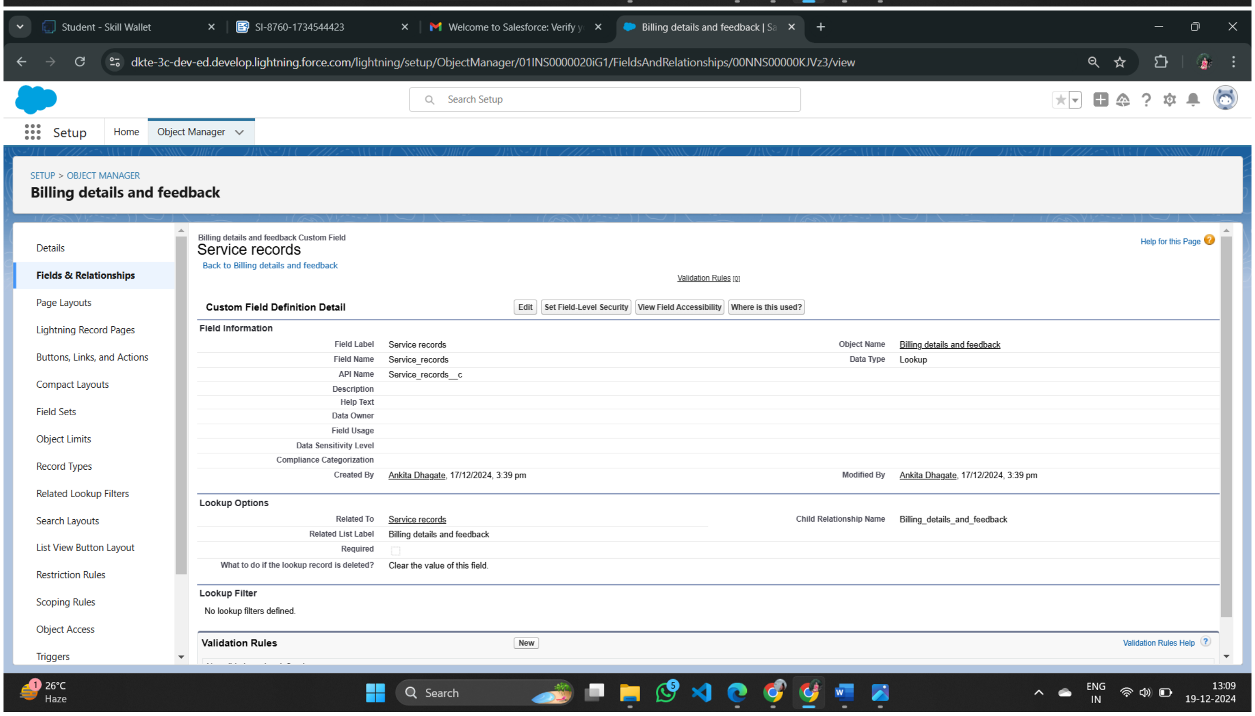




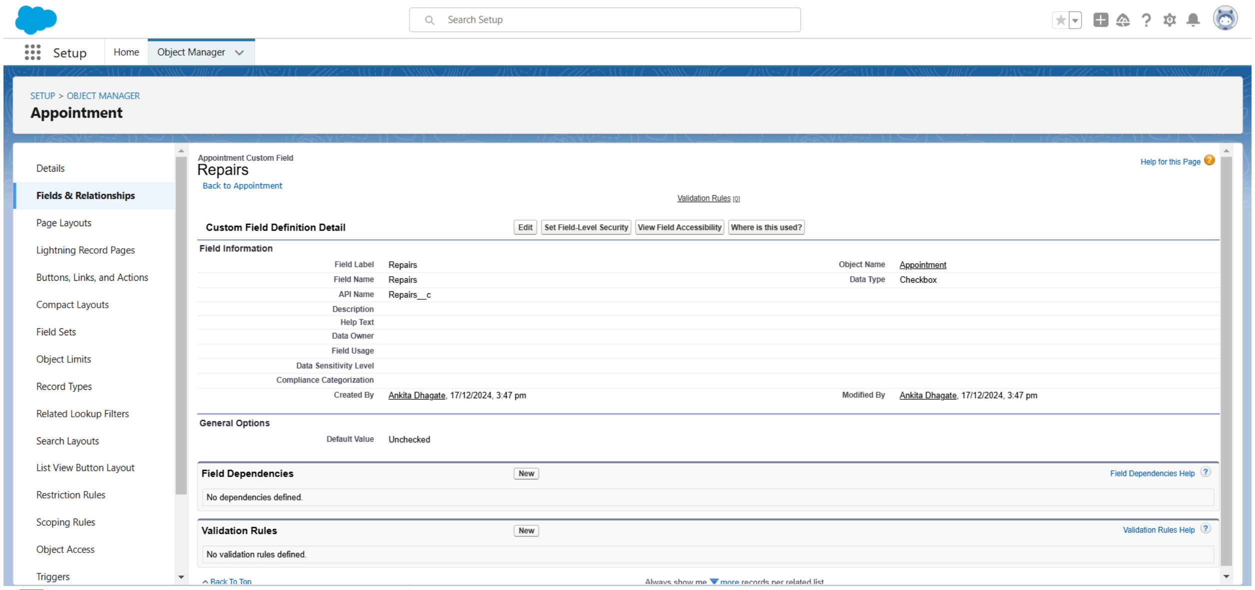
11.Creation of Lookup Fields

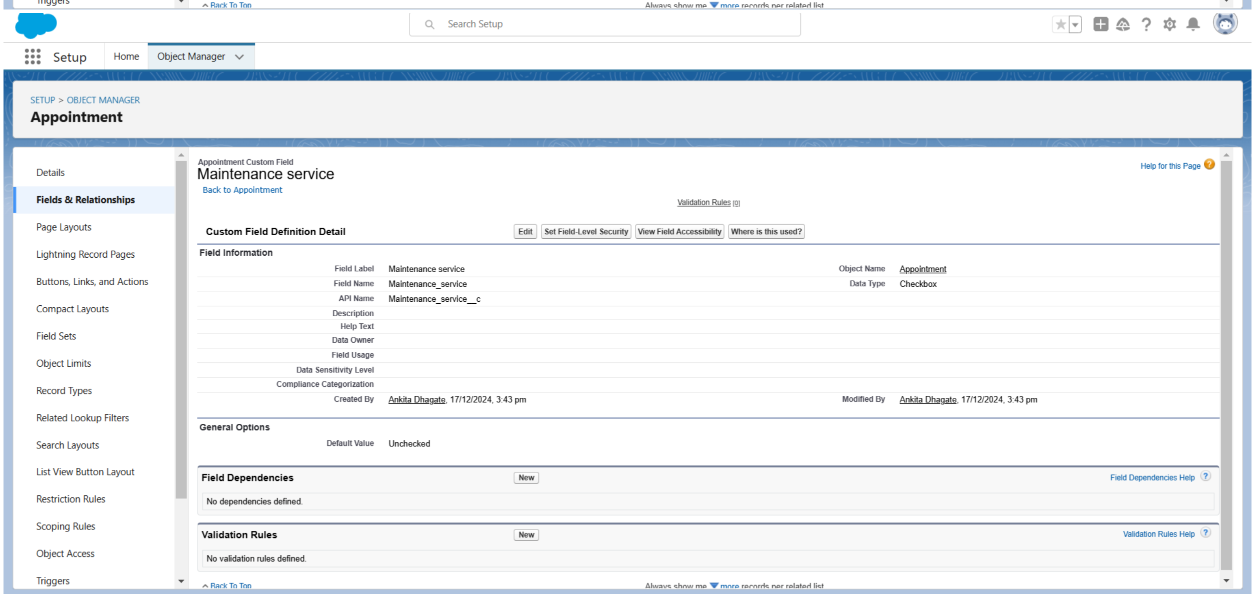


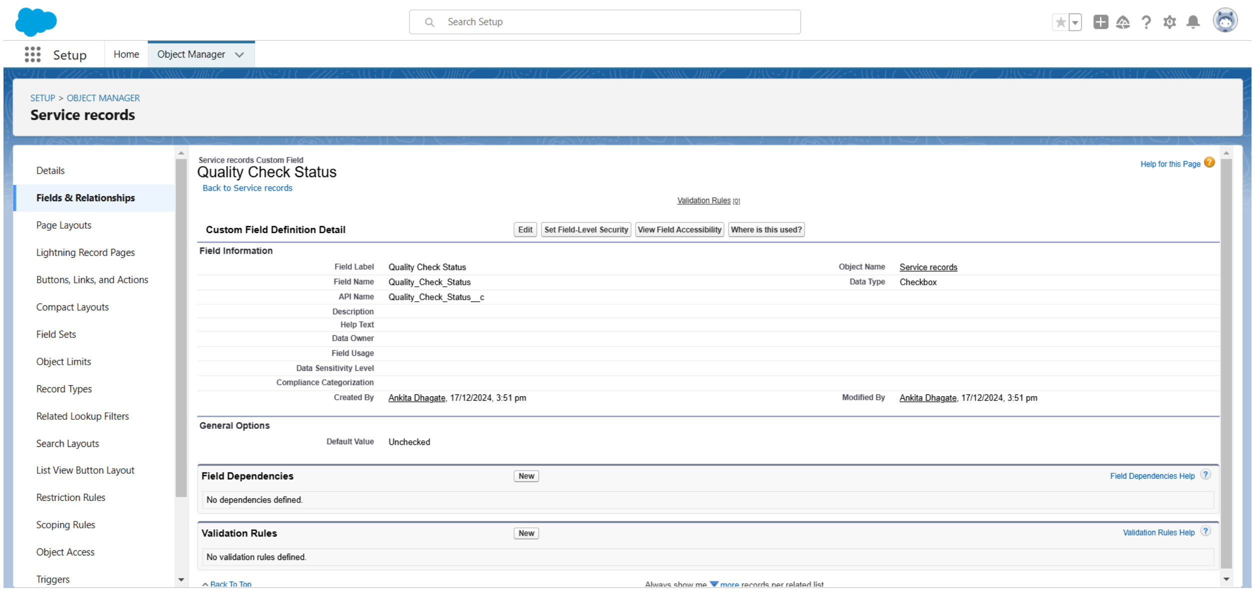




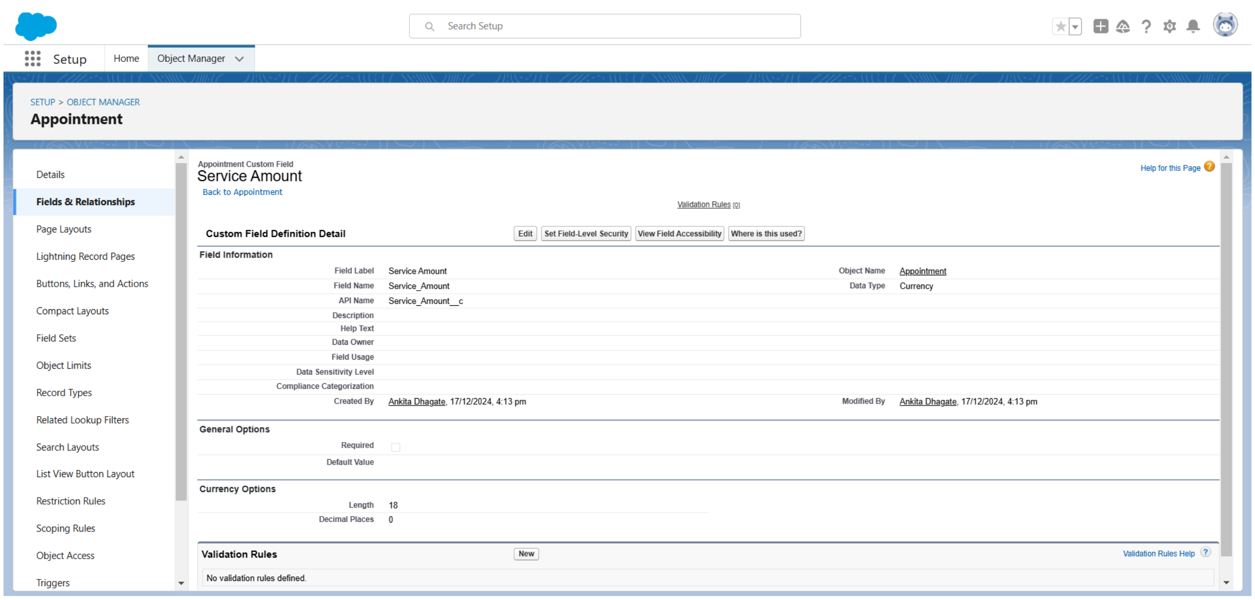
12.Creation of Checkbox Fields

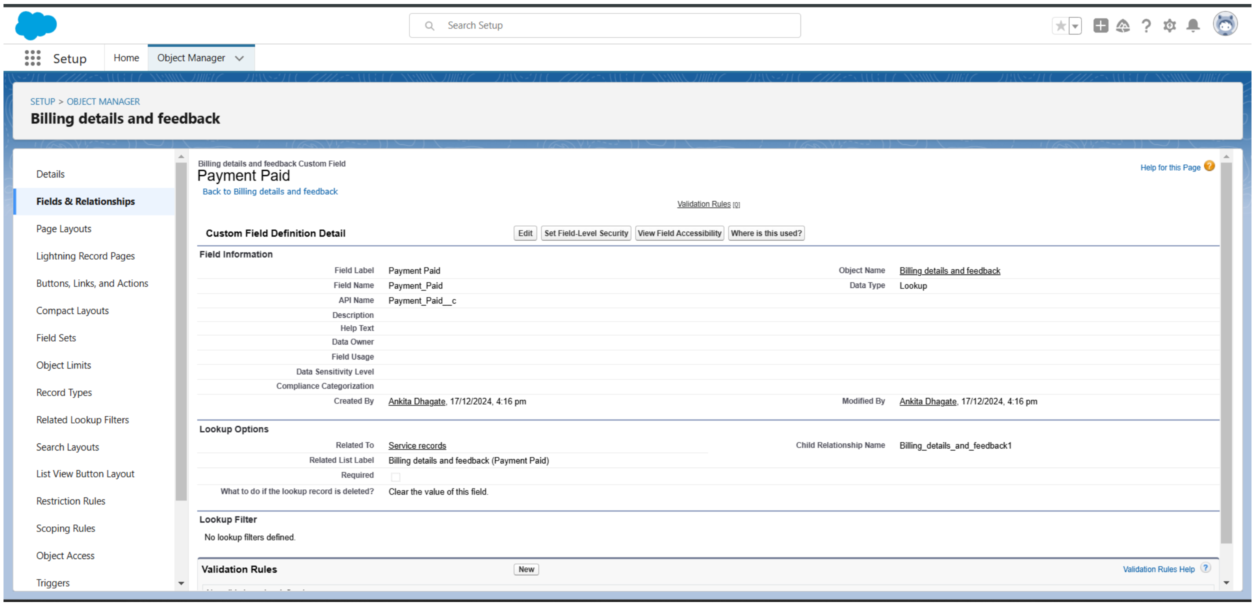

Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
Appointment
Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Appointment Custom Field
Repairs
Back to Appointment
Help for this Page
Validation Rules [0]
Custom Field Definition Detail
Edit
Set Field-Level Security
View Field Accessibility
Where is this used?
Field Information
Field Label Repairs
Object Name Appointment
Field Name Repairs
Data Type Checkbox
API Name Repairs__c
Description
Help Text
Data Owner
Field Usage
Data Sensitivity Level
Compliance Categorization
Created By Ankita Dhagate, 17/12/2024, 3:47 pm
Modified By Ankita Dhagate, 17/12/2024, 3:47 pm
General Options
Default Value Unchecked
Field Dependencies
New
Field Dependencies Help
No dependencies defined.
Validation Rules
New
Validation Rules Help
No validation rules defined.


Search Setup
Setup
Home
Object Manager
SETUP > OBJECT MANAGER
Appointment
Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers
Appointment Custom Field
Maintenance service
Back to Appointment
Help for this Page
Validation Rules [0]
Custom Field Definition Detail
Edit
Set Field-Level Security
View Field Accessibility
Where is this used?
Field Information
Field Label Maintenance service
Object Name Appointment
Field Name Maintenance_service
Data Type Checkbox
API Name Maintenance_service__c
Description
Help Text
Data Owner
Field Usage
Data Sensitivity Level
Compliance Categorization
Created By Ankita Dhagate, 17/12/2024, 3:43 pm
Modified By Ankita Dhagate, 17/12/2024, 3:43 pm
General Options
Default Value Unchecked
Field Dependencies
New
Field Dependencies Help
No dependencies defined.
Validation Rules
New
Validation Rules Help
No validation rules defined.

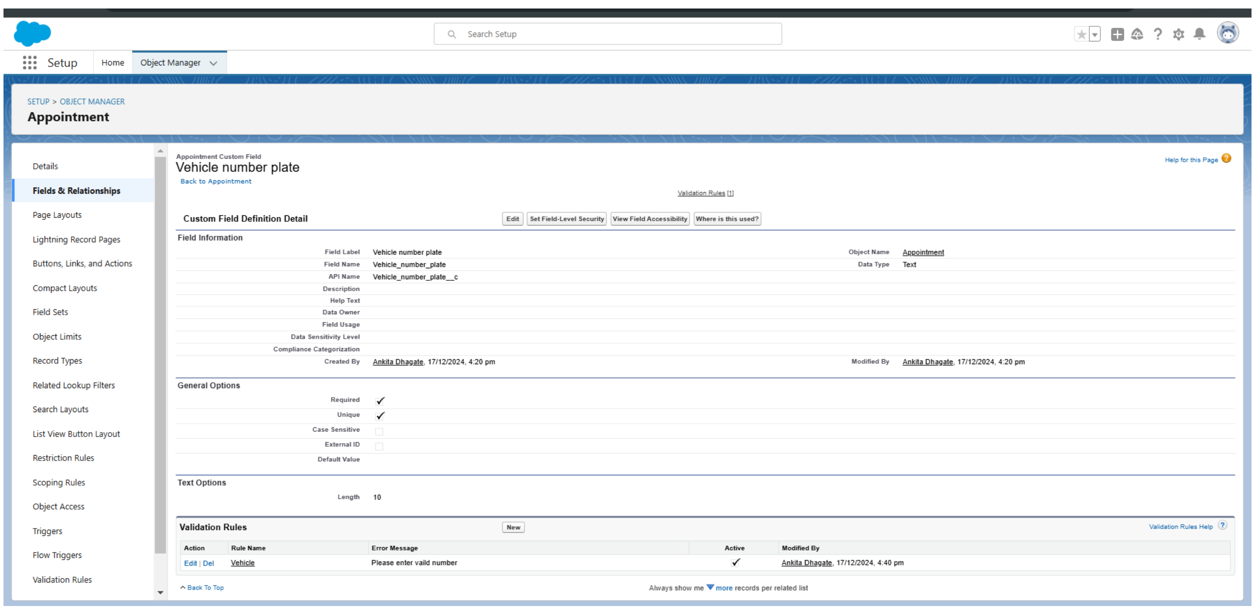


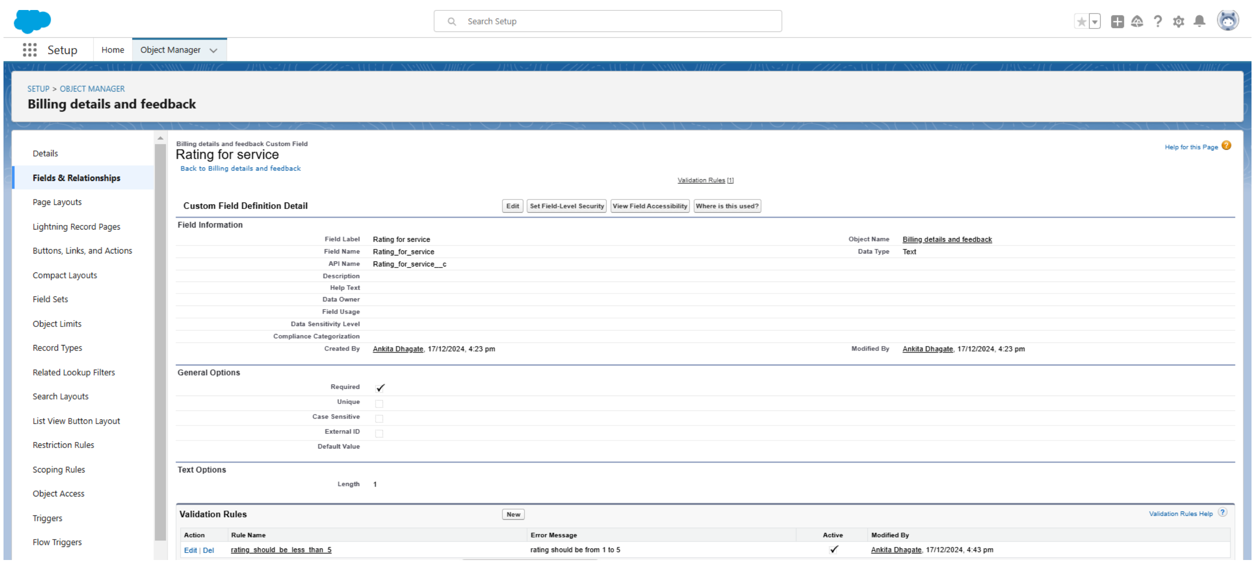
13.Creation of Currency Fields



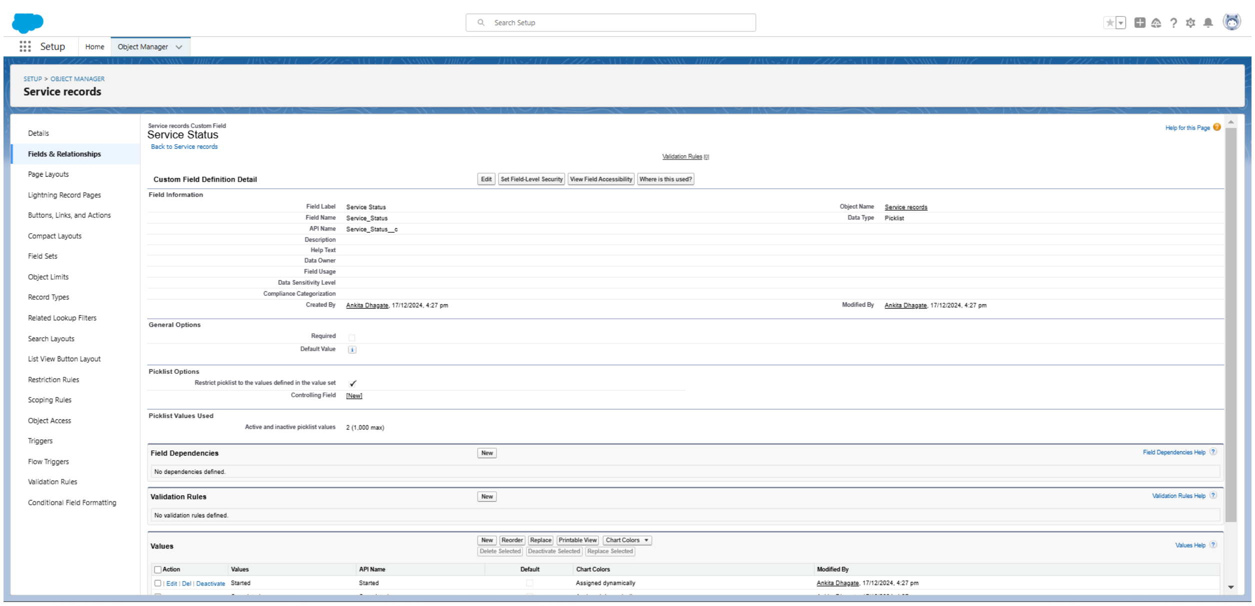


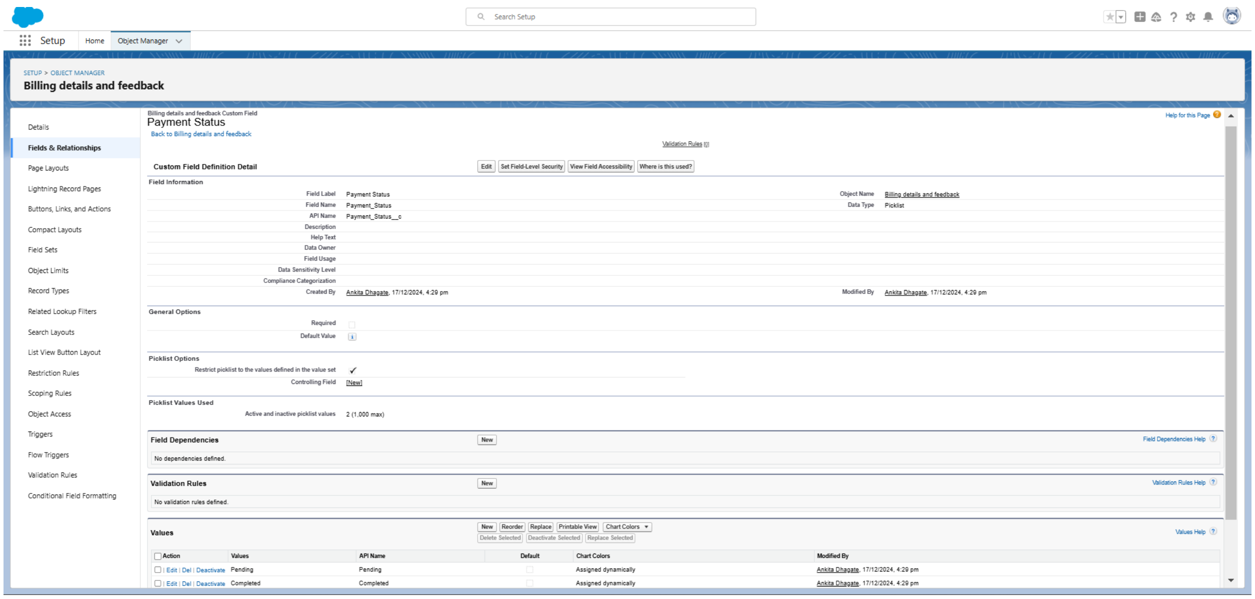
14. Creation of Text Fields



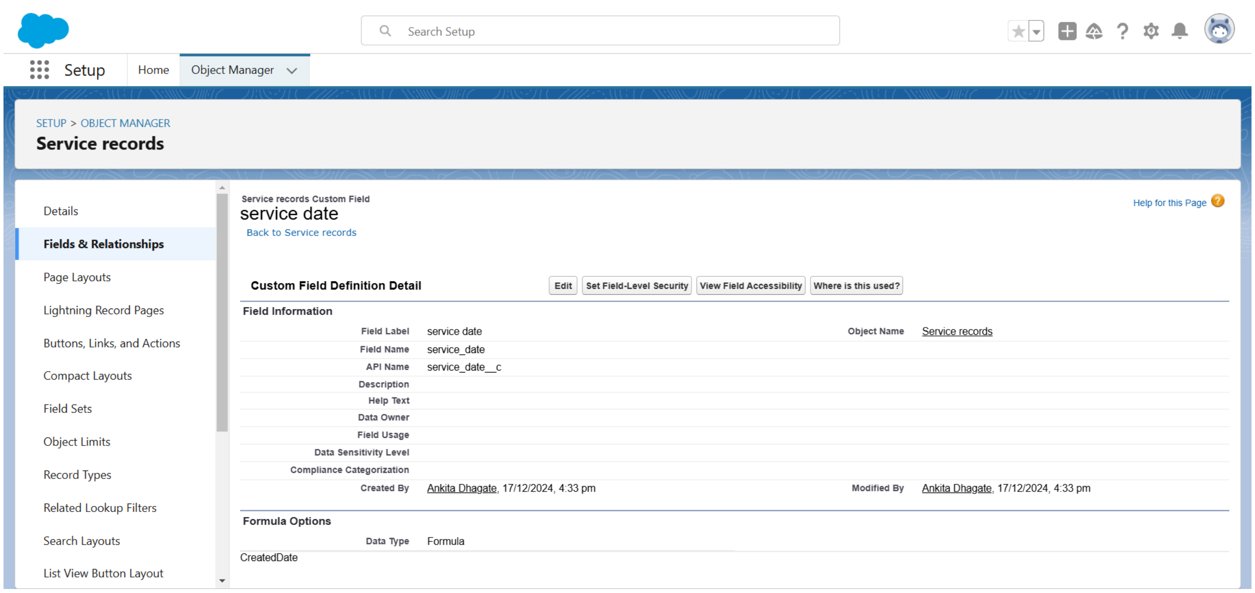


15.Creation of Picklist Fields:

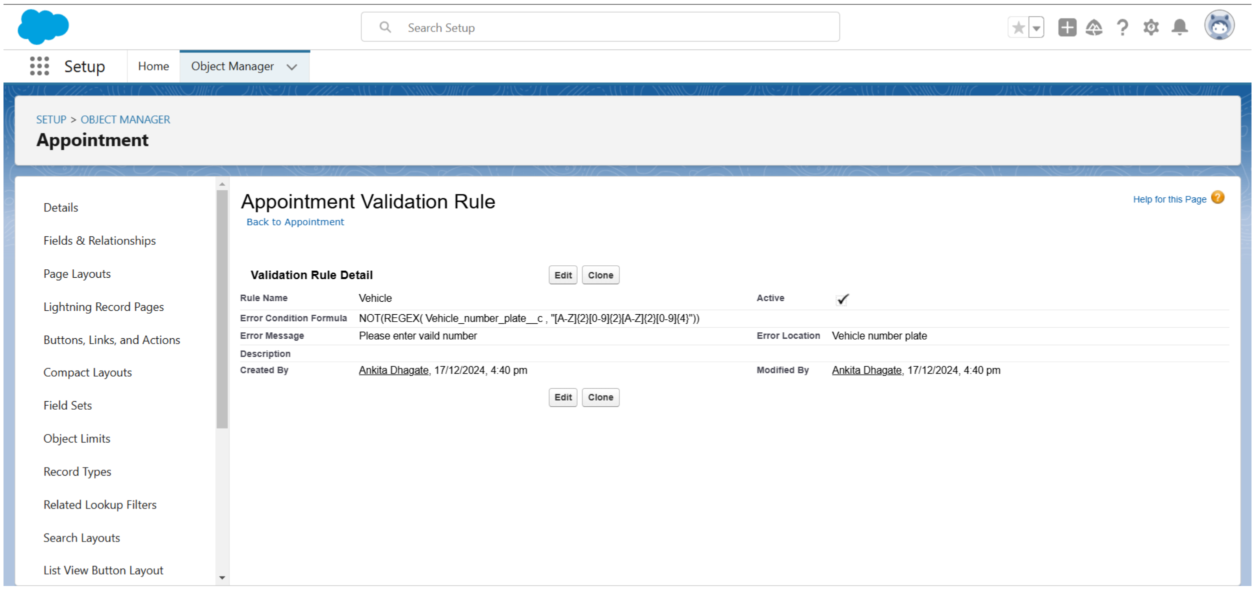




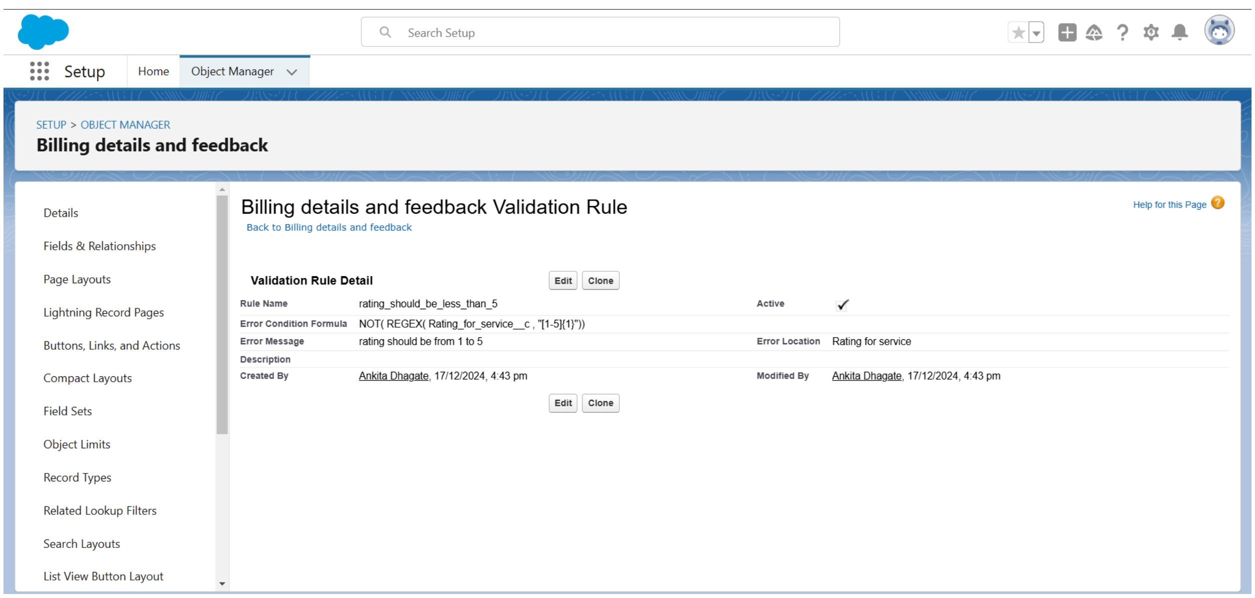
16.Creating Formula Field in Service records Object



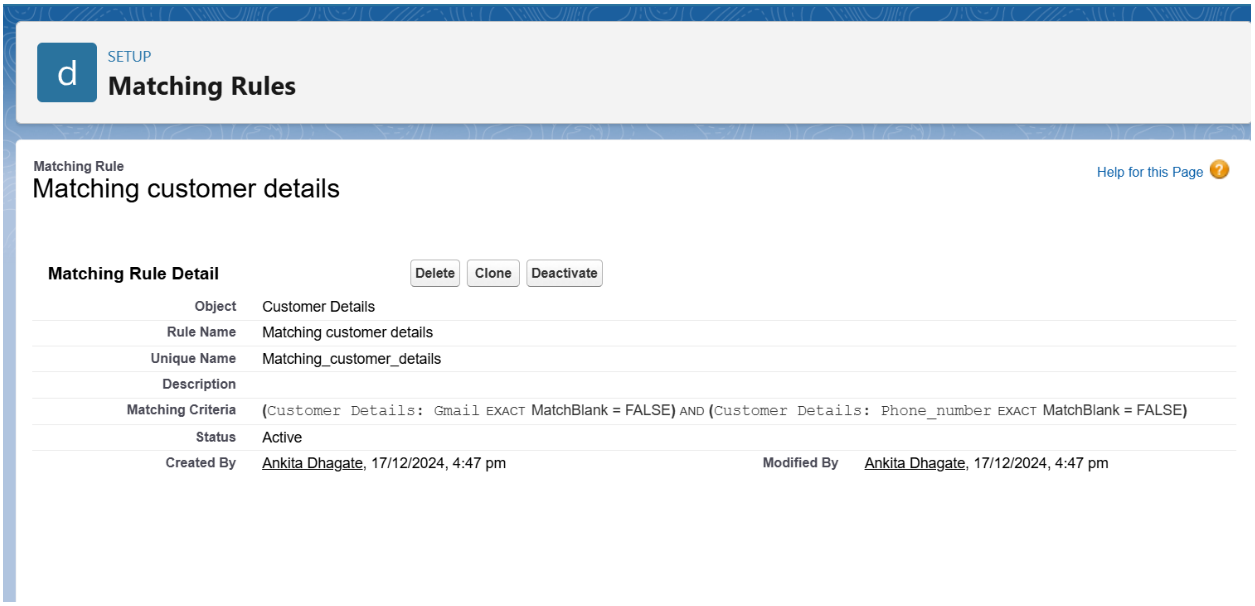
17.To create a validation rule to an Appointment Object



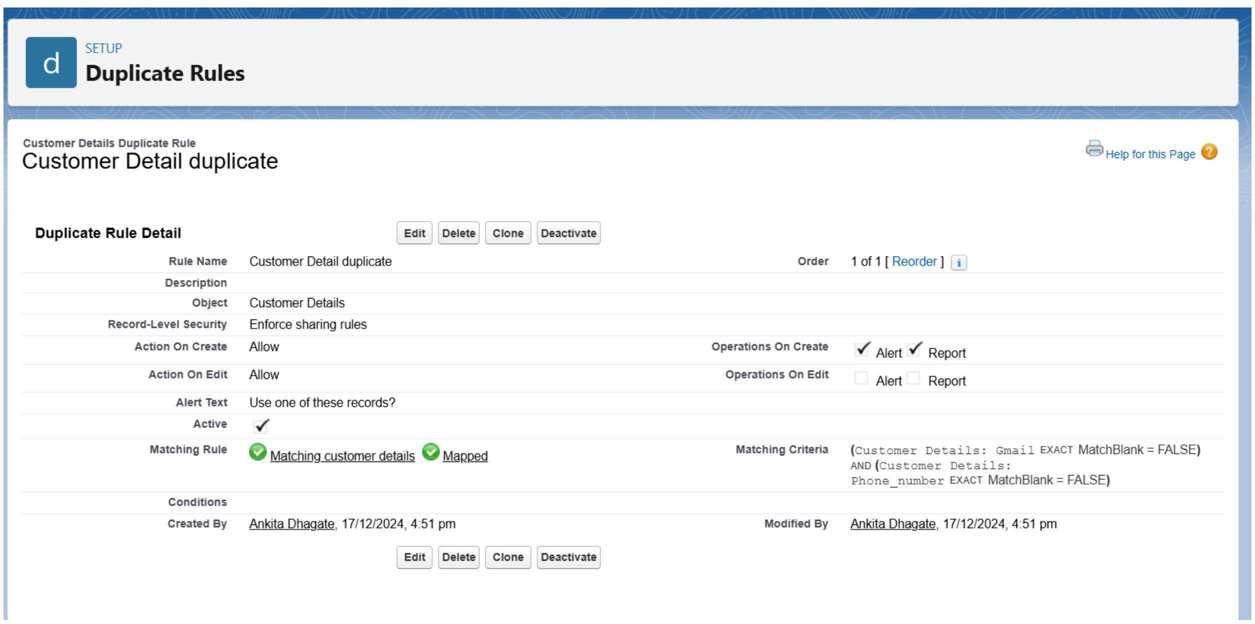
18.To create a validation rule to an Billing details and feedback Object



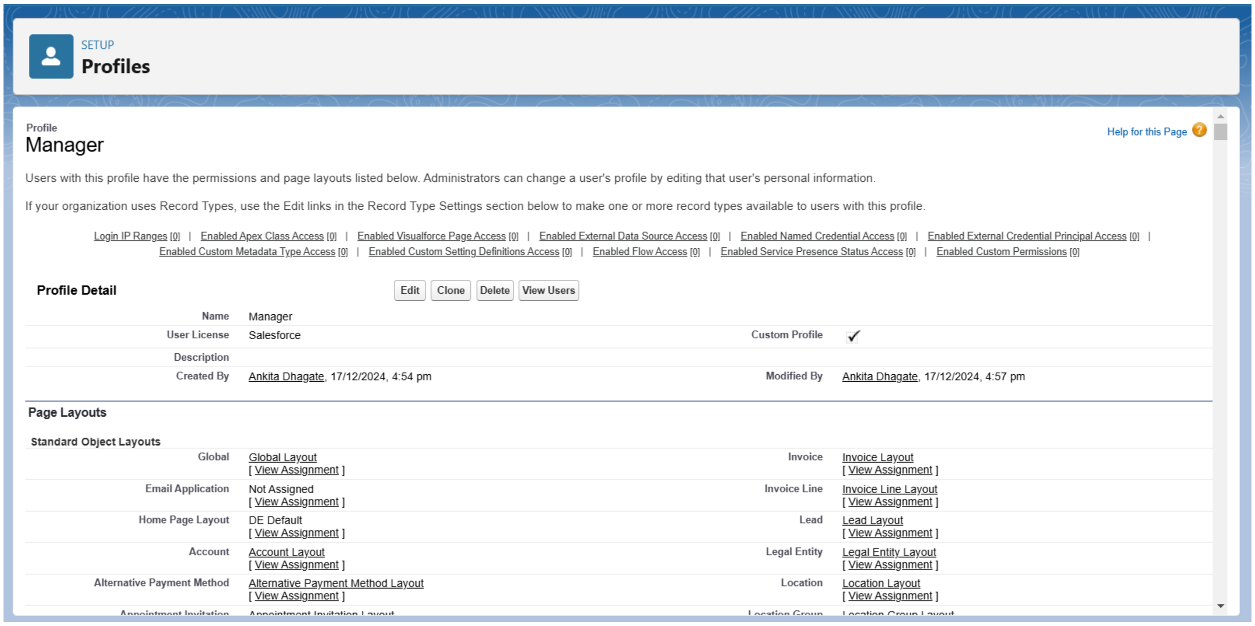
19.To create a matching rule to an Customer details Object



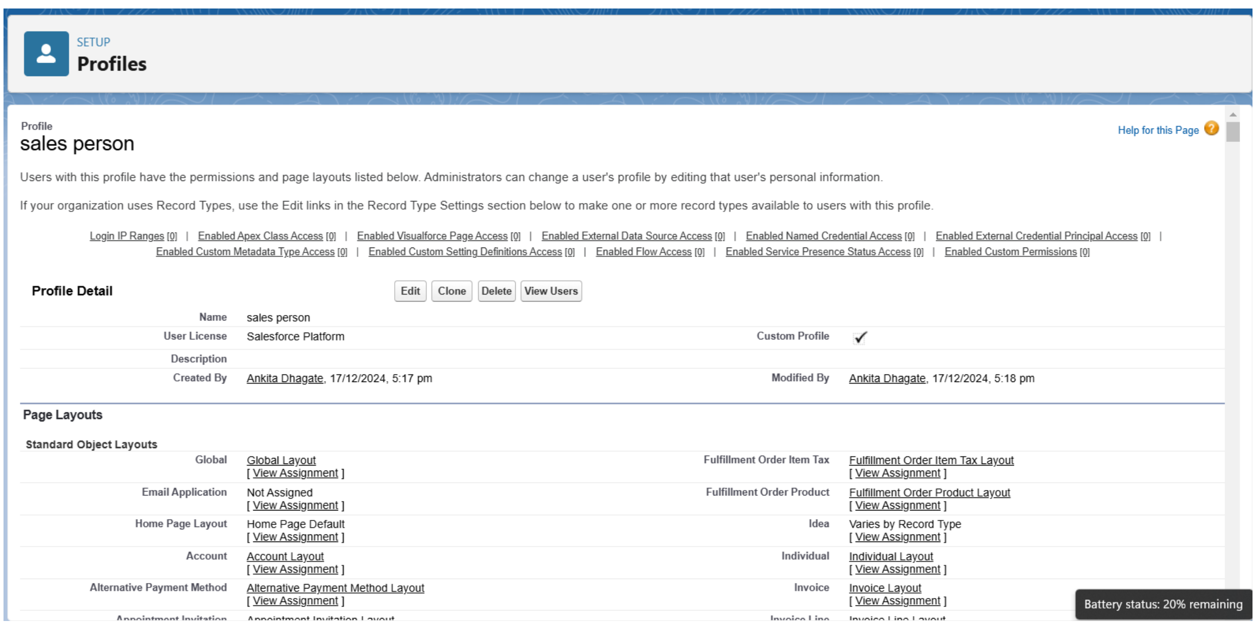
20.To create a Duplicate rule to an Customer details Object



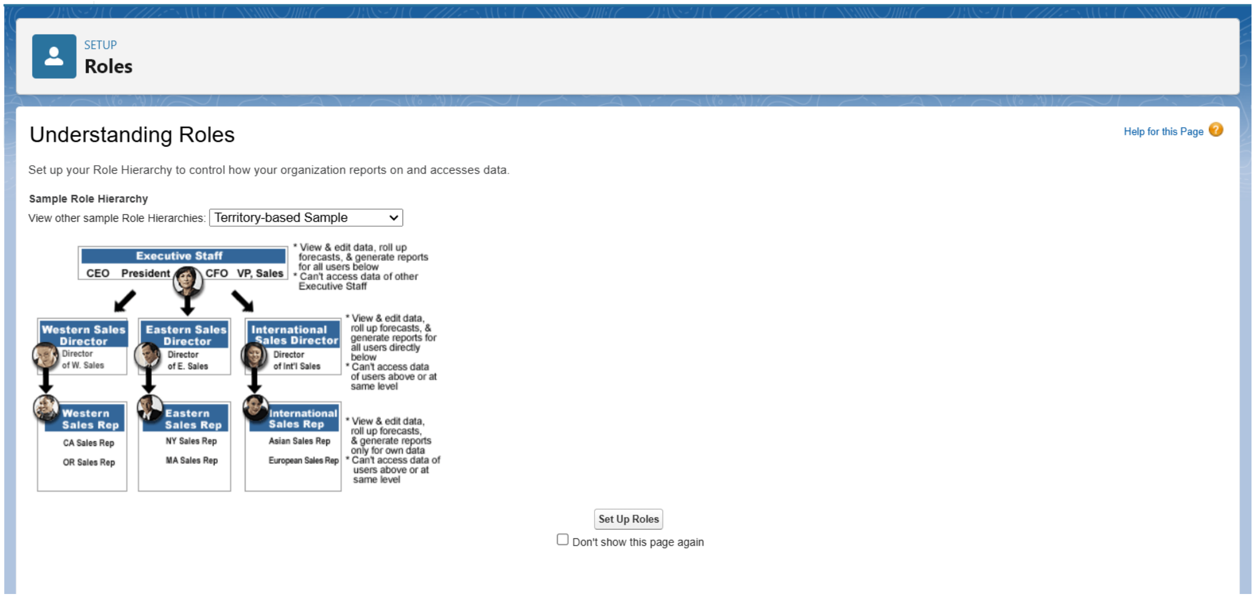
21.Manager Profile

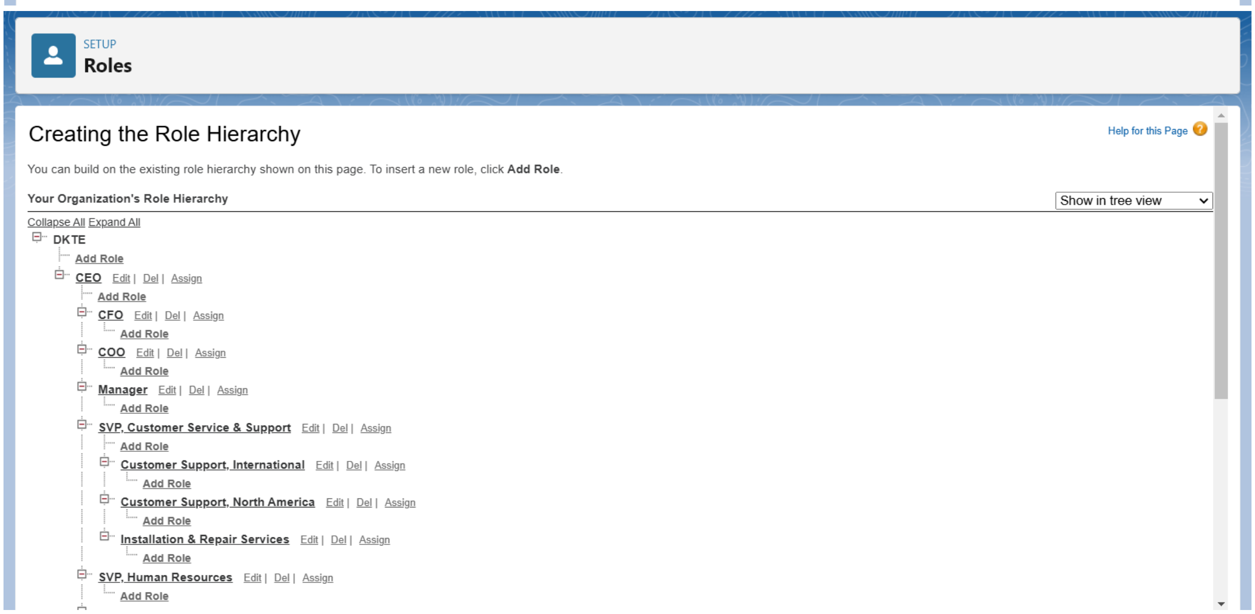


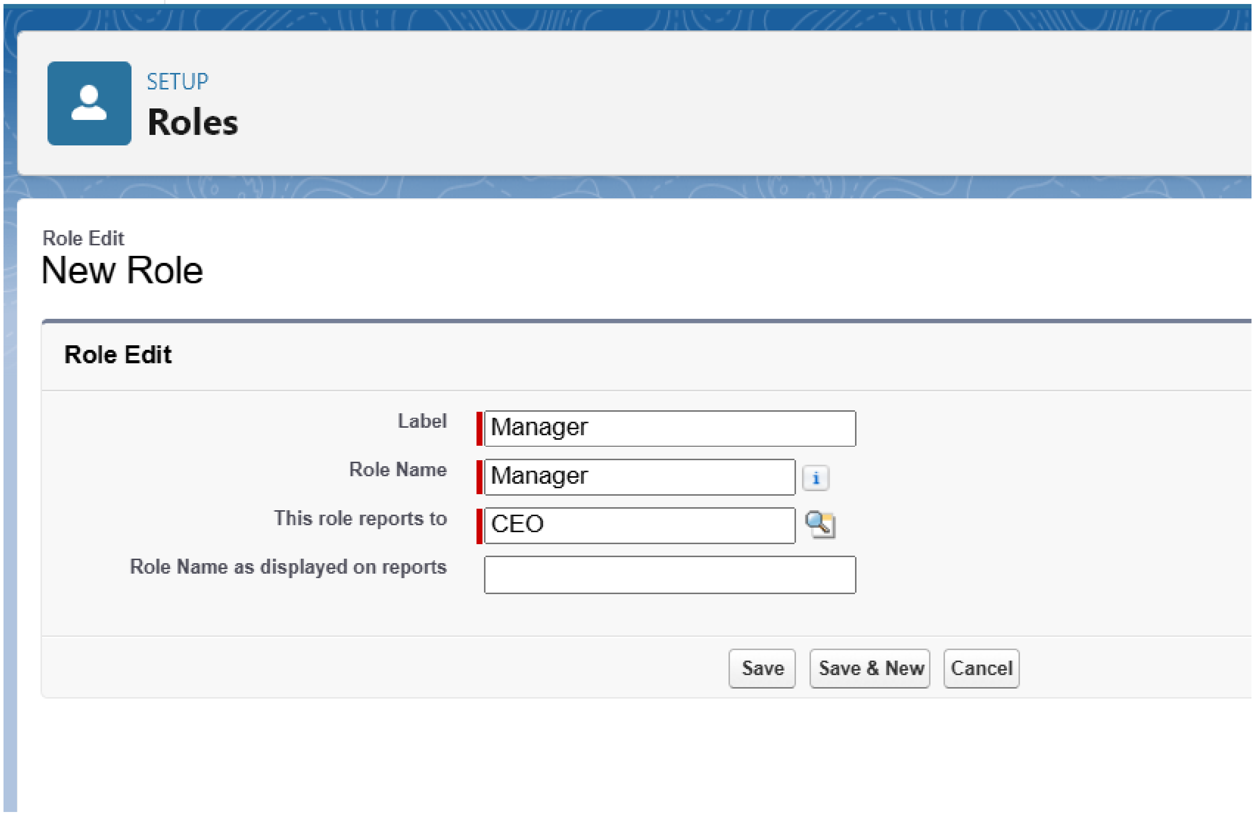
22.sales person Profile



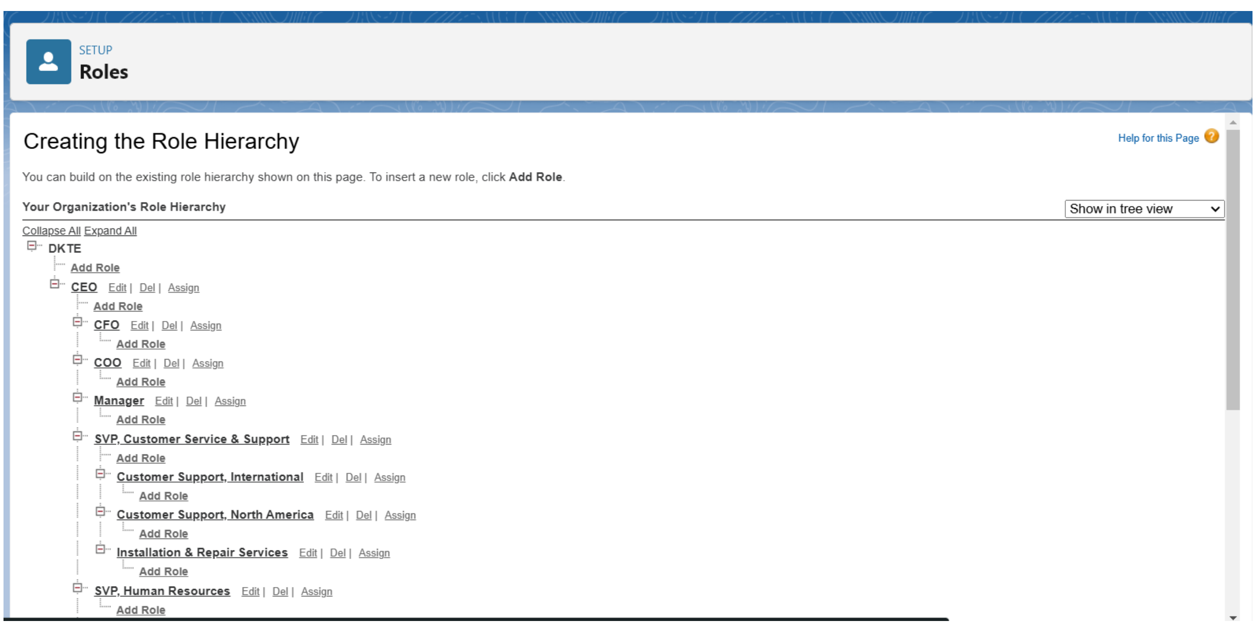
23.Creating Manager Role

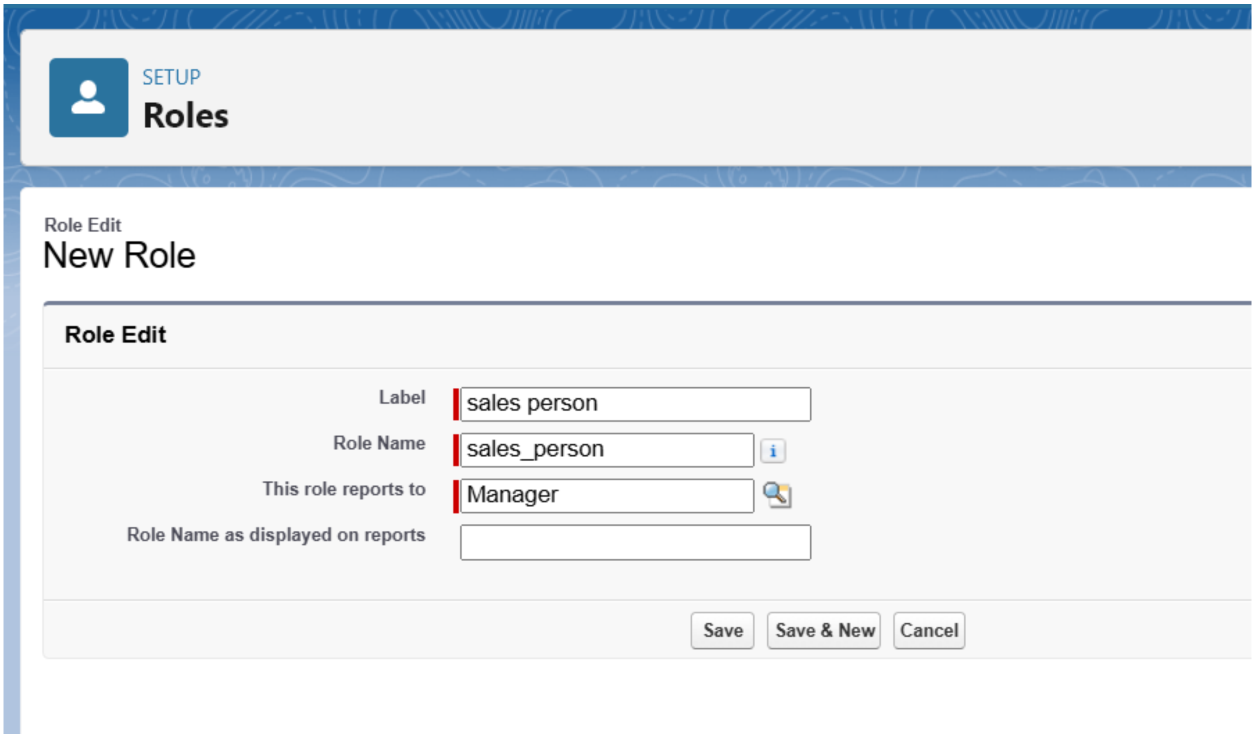

SETUP
Roles
Understanding Roles
Help for this Page
Set up your Role Hierarchy to control how your organization reports on and accesses data.
Sample Role Hierarchy
View other sample Role Hierarchies: Territory-based Sample
Executive Staff
CEO President CFO VP, Sales
* View & edit data, roll up forecasts, & generate reports for all users below
* Can't access data of other Executive Staff
Western Sales Director
Director of W. Sales
Eastern Sales Director
Director of E. Sales
International Sales Director
Director of Int'l Sales
* View & edit data, roll up forecasts, & generate reports for all users directly below
* Can't access data of users above or at same level
Western Sales Rep
CA Sales Rep
OR Sales Rep
Eastern Sales Rep
NY Sales Rep
MA Sales Rep
International Sales Rep
Asian Sales Rep
European Sales Rep
* View & edit data, roll up forecasts, & generate reports only for own data
* Can't access data of users above or at same level
Set Up Roles
Don't show this page again


SETUP
Roles
Creating the Role Hierarchy
Help for this Page
You can build on the existing role hierarchy shown on this page. To insert a new role, click Add Role.
Your Organization's Role Hierarchy
Show in tree view
Collapse All Expand All
DKTE
Add Role
CEO Edit | Del | Assign
Add Role
CFO Edit | Del | Assign
Add Role
COO Edit | Del | Assign
Add Role
Manager Edit | Del | Assign
Add Role
SVP, Customer Service & Support Edit | Del | Assign
Add Role
Customer Support, International Edit | Del | Assign
Add Role
Customer Support, North America Edit | Del | Assign
Add Role
Installation & Repair Services Edit | Del | Assign
Add Role
SVP, Human Resources Edit | Del | Assign
Add Role

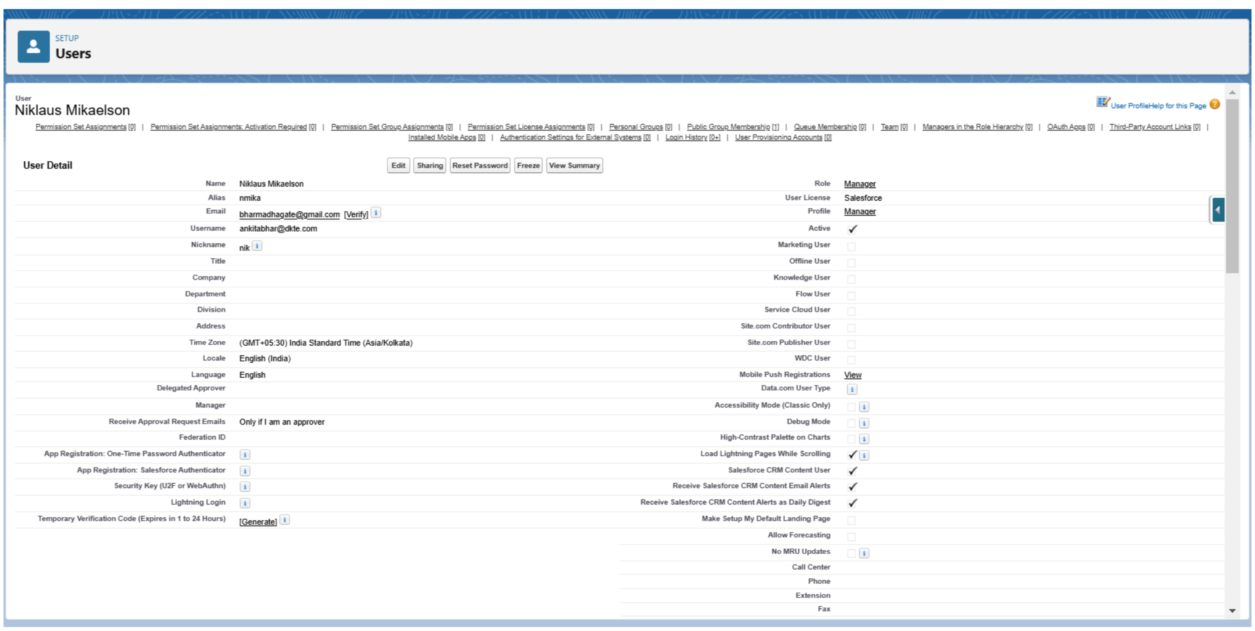


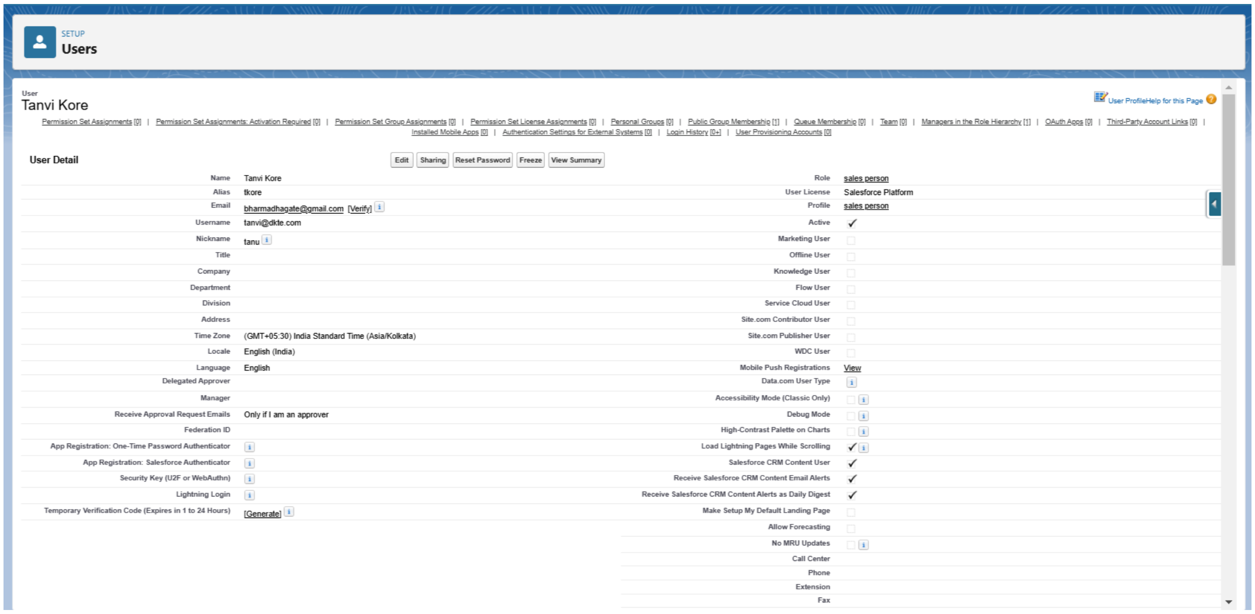
24.Creating another roles

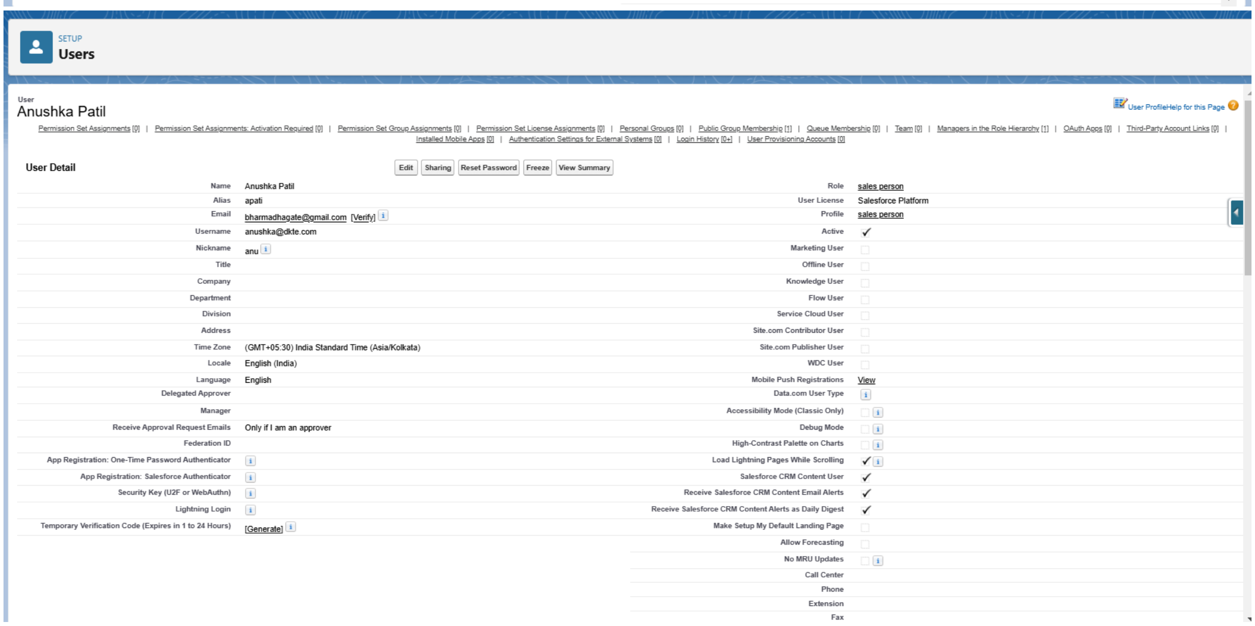


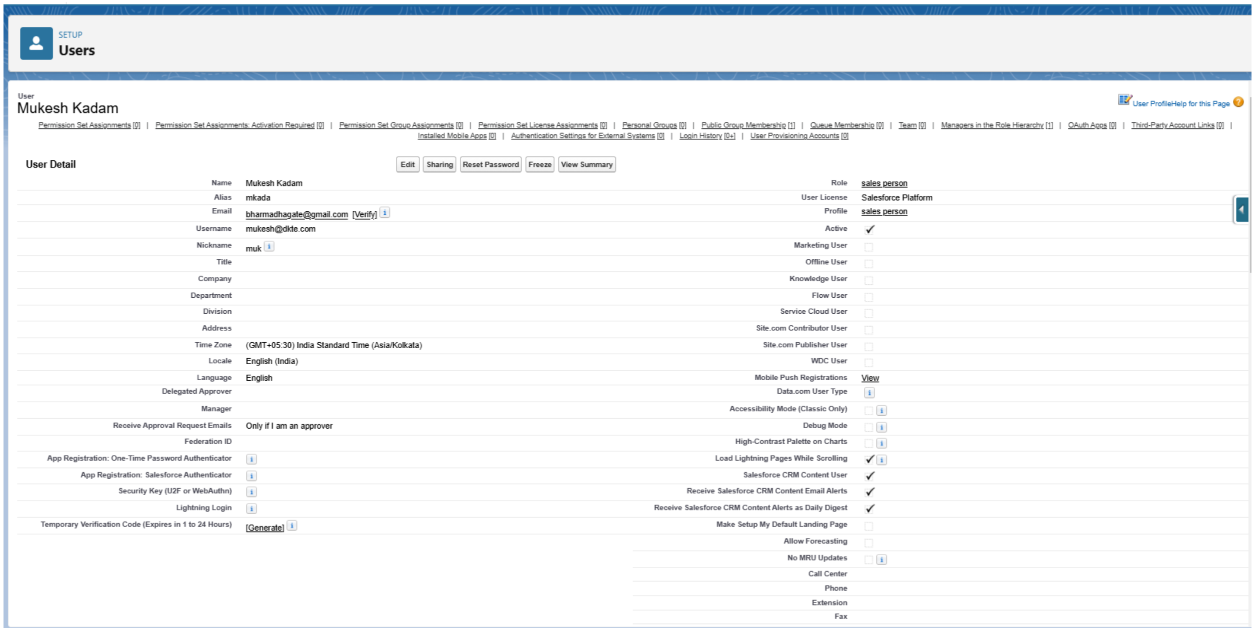


25.Create User

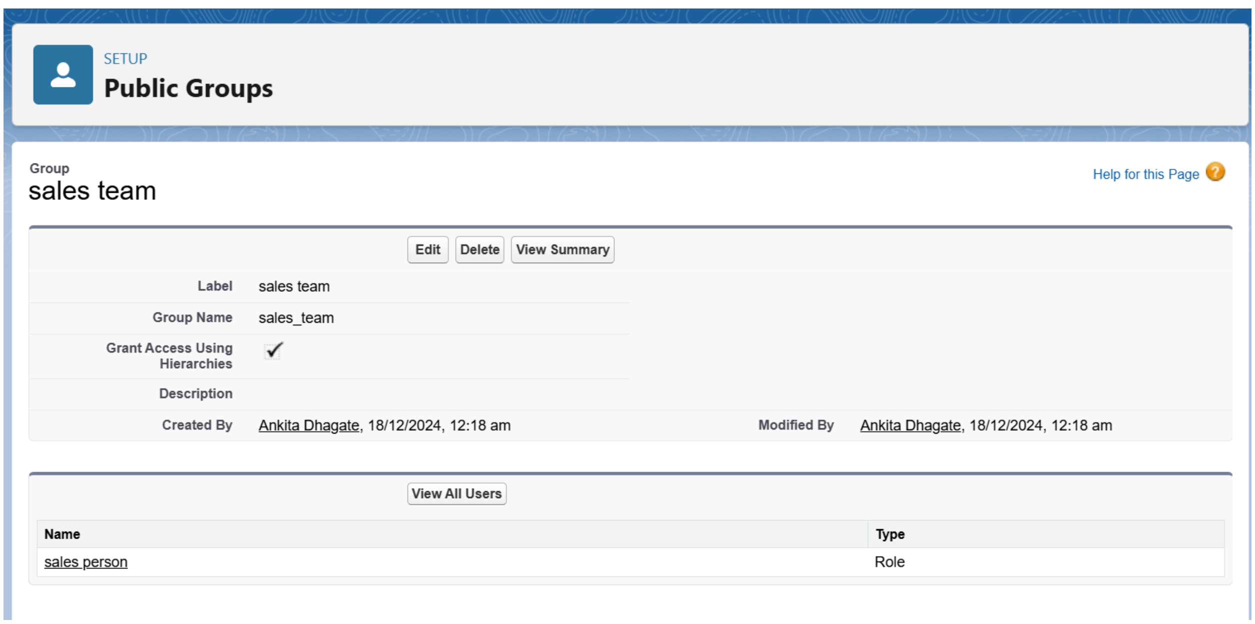



SETUP
Users
User
Tanvi Kore
User ProfileHelp for this Page
User Detail
Edit
Sharing
Reset Password
Freeze
View Summary
Name Tanvi Kore
Alias tkore
Email bharmadhagate@gmail.com [Verify]
Username tanvi@dkte.com
Nickname tanu
Title
Company
Department
Division
Address
Time Zone (GMT+05:30) India Standard Time (Asia/Kolkata)
Locale English (India)
Language English
Delegated Approver
Manager
Receive Approval Request Emails Only if I am an approver
Federation ID
App Registration: One-Time Password Authenticator
App Registration: Salesforce Authenticator
Security Key (U2F or WebAuthn)
Lightning Login
Temporary Verification Code (Expires in 1 to 24 Hours) [Generate]
Role sales person
User License Salesforce Platform
Profile sales person
Active
Marketing User
Offline User
Knowledge User
Flow User
Service Cloud User
Site.com Contributor User
Site.com Publisher User
WDC User
Mobile Push Registrations View
Data.com User Type
Accessibility Mode (Classic Only)
Debug Mode
High-Contrast Palette on Charts
Load Lightning Pages While Scrolling
Salesforce CRM Content User
Receive Salesforce CRM Content Email Alerts
Receive Salesforce CRM Content Alerts as Daily Digest
Make Setup My Default Landing Page
Allow Forecasting
No MRU Updates
Call Center
Phone
Extension
Fax

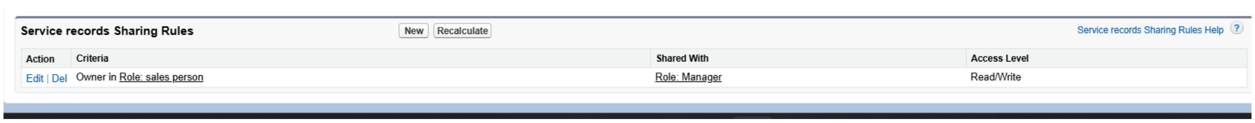

SETUP
Users
User
Anushka Patil
User ProfileHelp for this Page
User Detail
Edit
Sharing
Reset Password
Freeze
View Summary
Name Anushka Patil
Alias apati
Email bharmadhagate@gmail.com [Verify]
Username anushka@dkte.com
Nickname anu
Title
Company
Department
Division
Address
Time Zone (GMT+05:30) India Standard Time (Asia/Kolkata)
Locale English (India)
Language English
Delegated Approver
Manager
Receive Approval Request Emails Only if I am an approver
Federation ID
App Registration: One-Time Password Authenticator
App Registration: Salesforce Authenticator
Security Key (U2F or WebAuthn)
Lightning Login
Temporary Verification Code (Expires in 1 to 24 Hours) [Generate]
Role sales person
User License Salesforce Platform
Profile sales person
Active
Marketing User
Offline User
Knowledge User
Flow User
Service Cloud User
Site.com Contributor User
Site.com Publisher User
WDC User
Mobile Push Registrations View
Data.com User Type
Accessibility Mode (Classic Only)
Debug Mode
High-Contrast Palette on Charts
Load Lightning Pages While Scrolling
Salesforce CRM Content User
Receive Salesforce CRM Content Email Alerts
Receive Salesforce CRM Content Alerts as Daily Digest
Make Setup My Default Landing Page
Allow Forecasting
No MRU Updates
Call Center
Phone
Extension
Fax



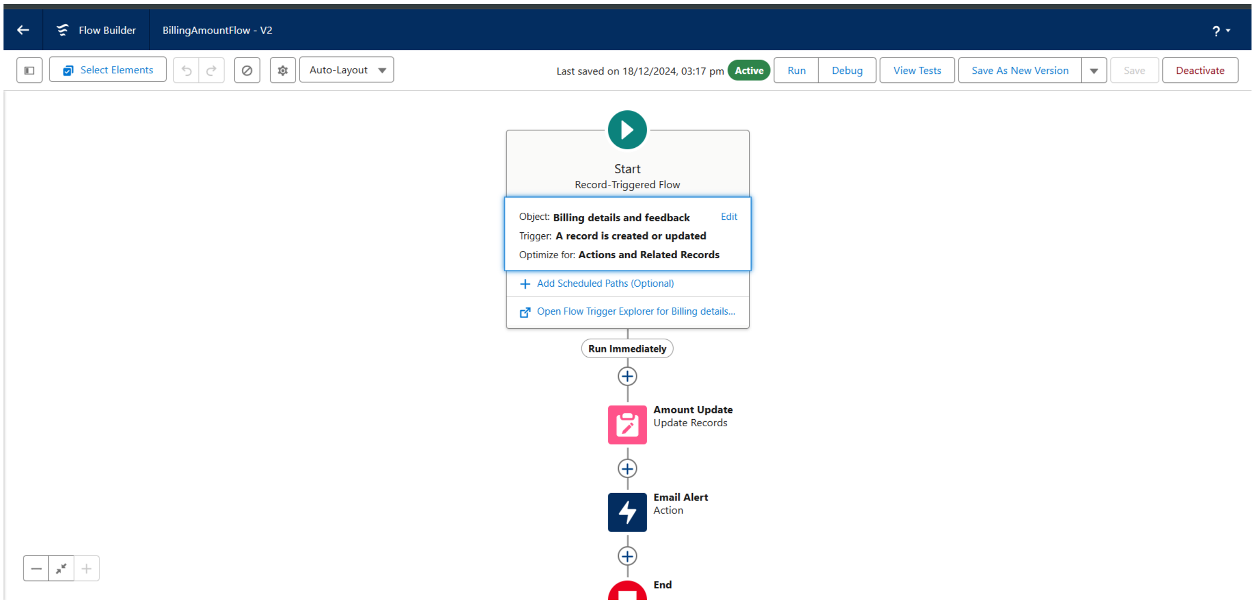
26.Creating Public Group

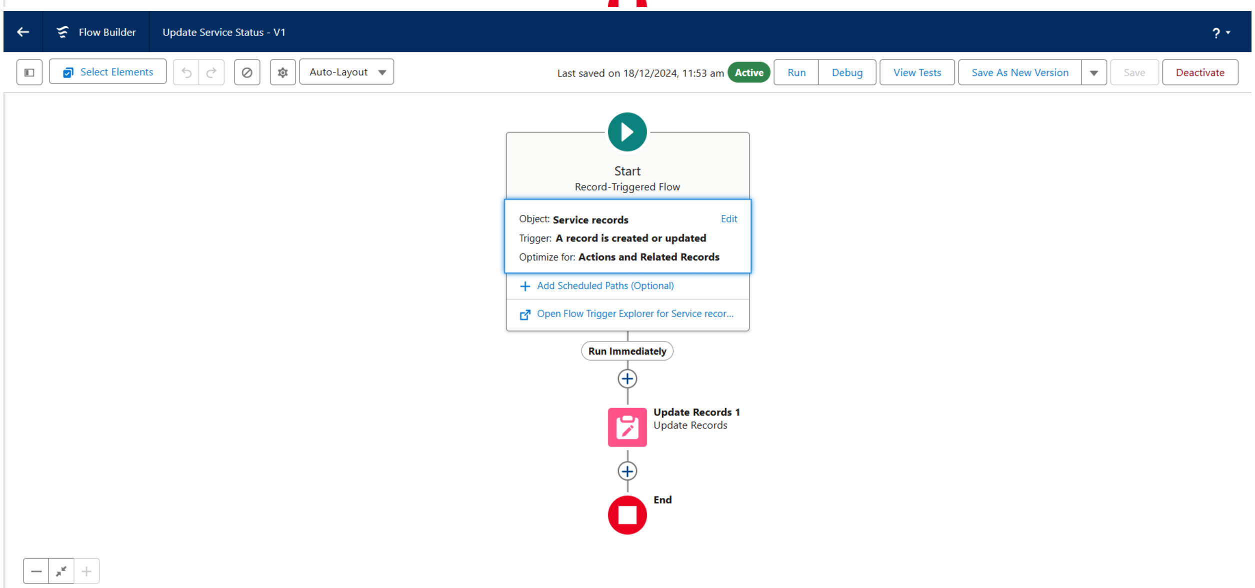


27.Creating Sharing settings

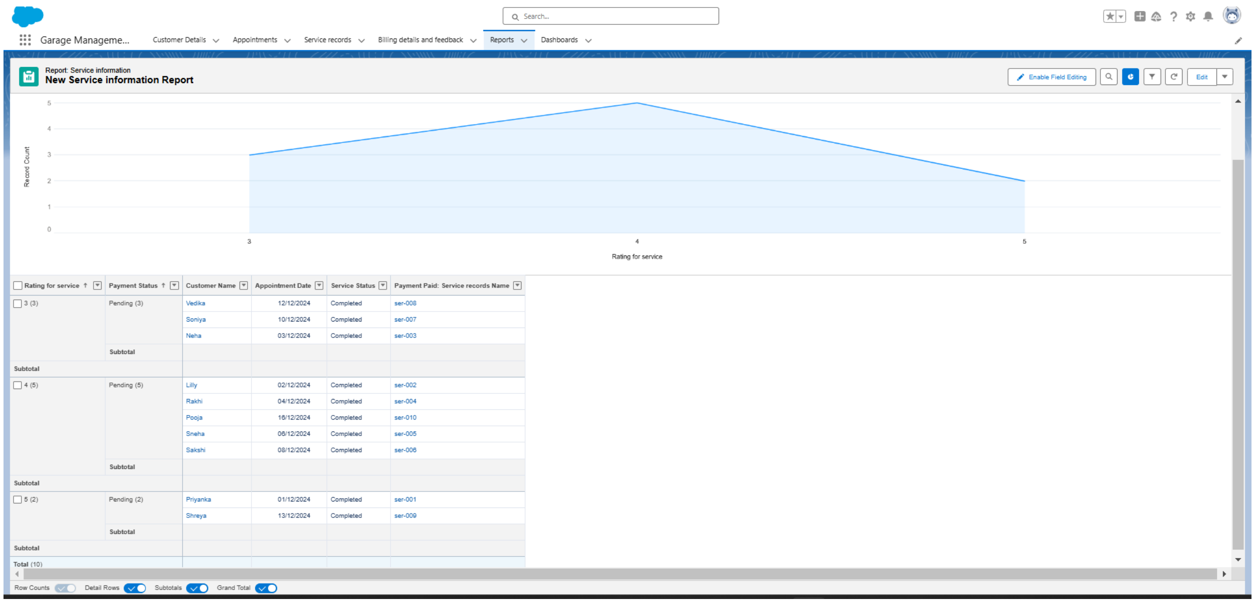


28.Create a Flow

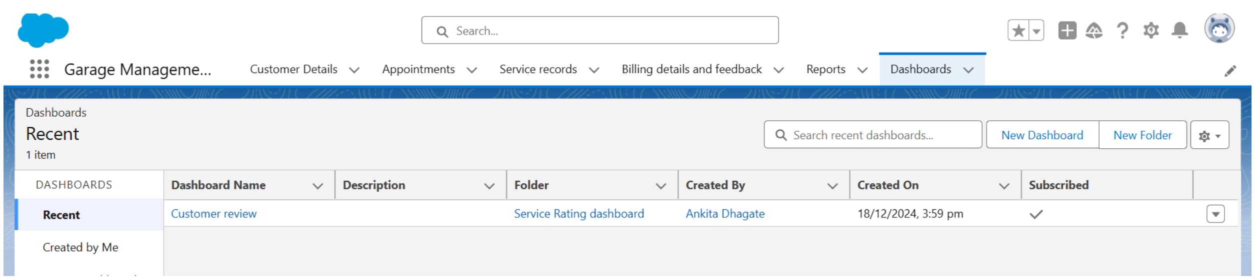

Flow Builder
BillingAmountFlow - V2
Select Elements
Auto-Layout
Last saved on 18/12/2024, 03:17 pm
Active
Run
Debug
View Tests
Save As New Version
Save
Deactivate
Start
Record-Triggered Flow
Object: Billing details and feedback
Edit
Trigger: A record is created or updated
Optimize for: Actions and Related Records
Add Scheduled Paths (Optional)
Open Flow Trigger Explorer for Billing details...
Run Immediately
Amount Update
Update Records
Email Alert
Action
End


Flow Builder
Update Service Status - V1
Select Elements
Auto-Layout
Last saved on 18/12/2024, 11:53 am
Active
Run
Debug
View Tests
Save As New Version
Save
Deactivate
Start
Record-Triggered Flow
Object: Service records
Edit
Trigger: A record is created or updated
Optimize for: Actions and Related Records
Add Scheduled Paths (Optional)
Open Flow Trigger Explorer for Service recor...
Run Immediately
Update Records 1
Update Records
End

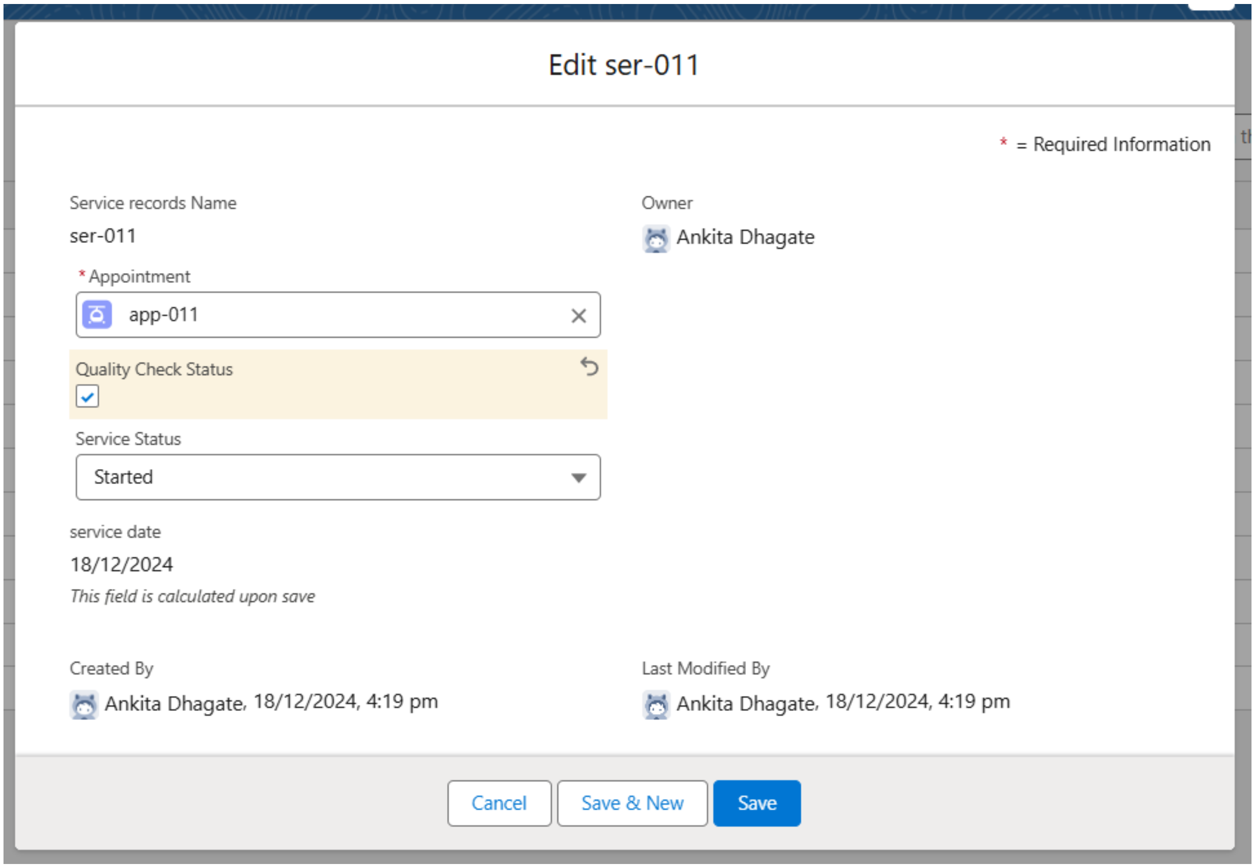
29.Reports



30.Dashboard



31.User Adoption



5. Testing and Validation :

AmountDistributionHandler :

```
public class AmountDistributionHandler {



  public static void amountDist(list<Appointment__c> listApp){

    list<Service_records__c> serList = new list <Service_records__c>();



    for(Appointment__c app : listApp){

      if(app.Maintenance_service__c == true && app.Repairs__c == true &&
app.Replacement_Parts__c == true){
```

```
    app.Service_Amount__c = 10000;

}

else if(app.Maintenance_service__c == true && app.Repairs__c == true){

    app.Service_Amount__c = 5000;

}

else if(app.Maintenance_service__c == true && app.Replacement_Parts__c == true){

    app.Service_Amount__c = 8000;

}

else if(app.Repairs__c == true && app.Replacement_Parts__c == true){

    app.Service_Amount__c = 7000;

}

else if(app.Maintenance_service__c == true){

    app.Service_Amount__c = 2000;

}

else if(app.Repairs__c == true){

    app.Service_Amount__c = 3000;

}

else if(app.Replacement_Parts__c == true){

    app.Service_Amount__c = 5000;

}
```

```
    }
    }
}
```

AmountDistribution:

```
trigger AmountDistribution on Appointment__c (before insert, before update) {

    if(trigger.isbefore && trigger.isinsert || trigger.isupdate){

        AmountDistributionHandler.amountDist(trigger.new);

    }

}
```

6. Conclusion :

The Garage Management System developed using Salesforce demonstrates the potential of cloud-based solutions in streamlining and enhancing garage operations. By leveraging Salesforce's robust features, the system ensures seamless management of customer interactions, vehicle service records, inventory tracking, and billing processes.

This project highlights the importance of automation and centralized data in improving efficiency, reducing errors, and delivering exceptional customer service. The scalability and flexibility of the Salesforce platform allow the system to adapt to varying business needs, making it a valuable asset for modern garage businesses.

In conclusion, this project not only simplifies day-to-day operations but also provides actionable insights through analytics, empowering garages to make informed decisions and stay competitive in the automotive service industry.