PROJECT TITLE:

Garage Management System

College Name: KAYPEEYES COLLEGE OF ARTS & SICENCE

College Code: bru5j

TEAM ID: NM2025TMID27468

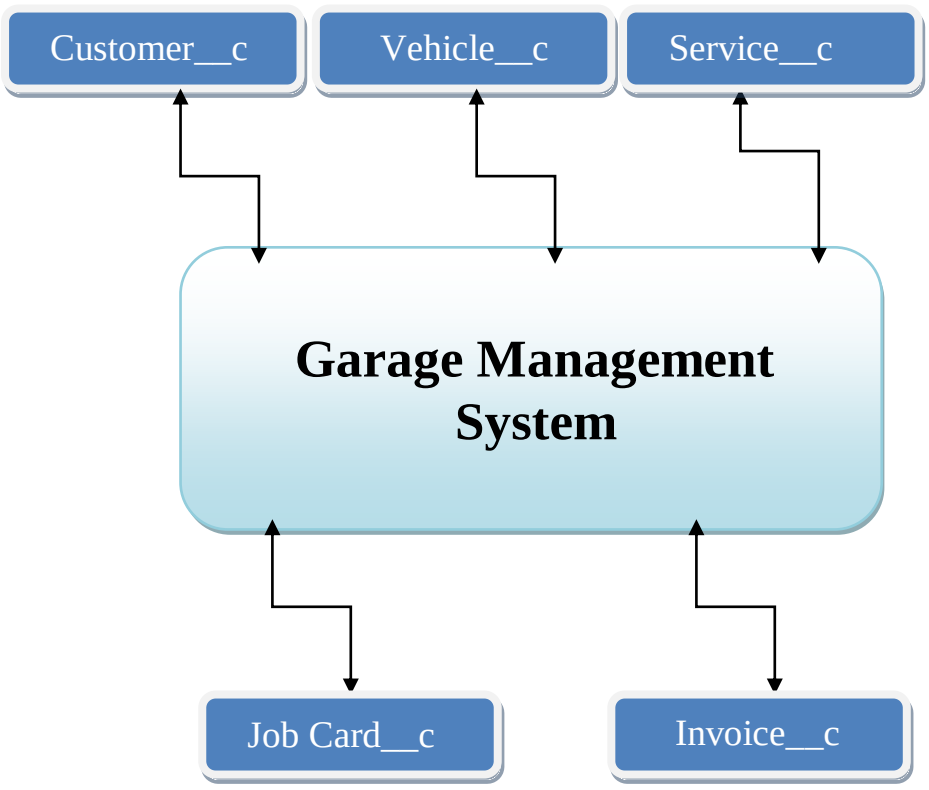
TEAM MEMBERS: 1

1. INTRODUCTION

1.1 Project Overview

The **Garage Management System (GM System)** is a software solution designed to streamline and automate the operations of a vehicle service garage or workshop. Traditional garage operations, such as vehicle check-ins, job card creation, service tracking, billing, and inventory management, are often managed manually, leading to inefficiencies, errors, and delays.

This system provides an integrated digital platform for managing all aspects of a garage, ensuring improved productivity, better customer service, and accurate record-keeping. It allows garage owners and employees to efficiently handle service requests, assign mechanics, track spare parts inventory, generate invoices, and maintain a detailed history of vehicles and customers.



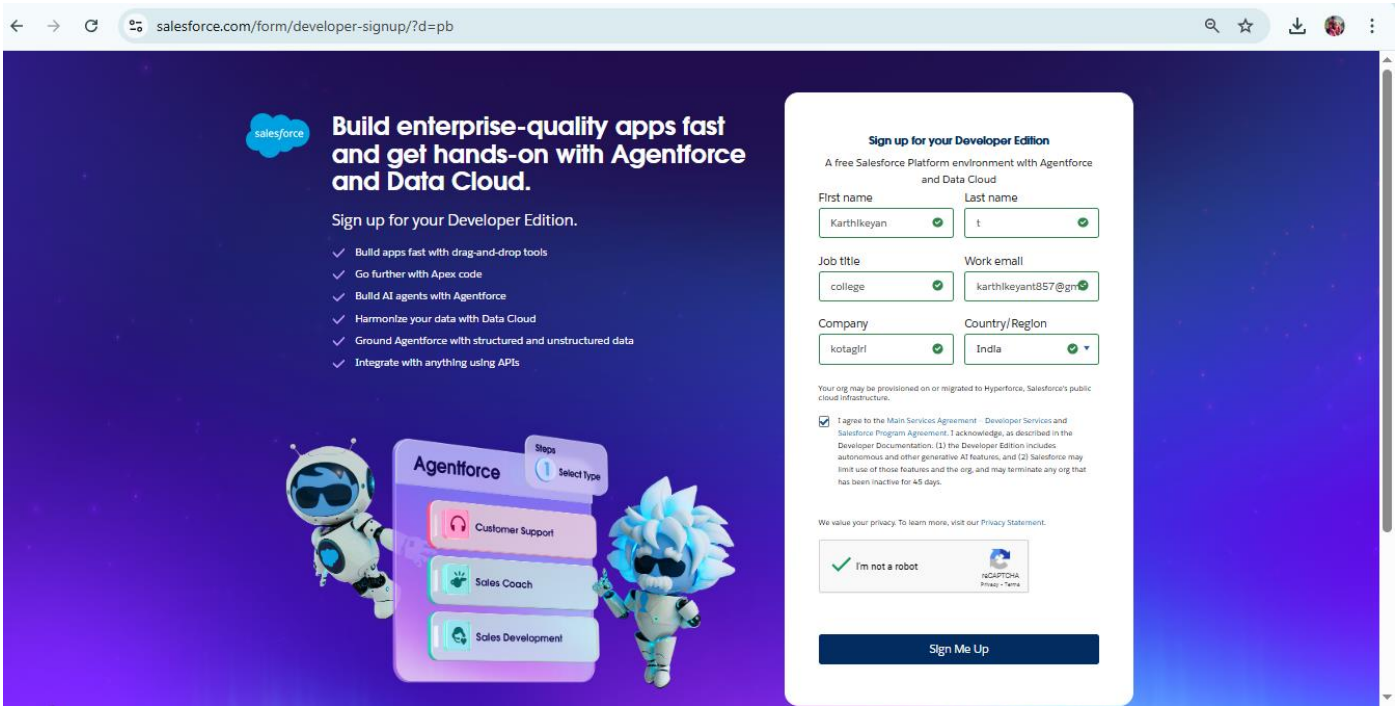
1.1 Purpose:

The purpose of the **Garage Management System (GMS)** is to provide a comprehensive and automated solution to manage all activities of a garage or automobile service center. The system is designed to replace manual record-keeping with a digital platform, ensuring accuracy, speed, and efficiency in daily operations. It aims to simplify the process of managing customer details, vehicle information, service requests, job cards, billing, and inventory, while reducing errors and saving time.

DEVELOPMENT PHASE

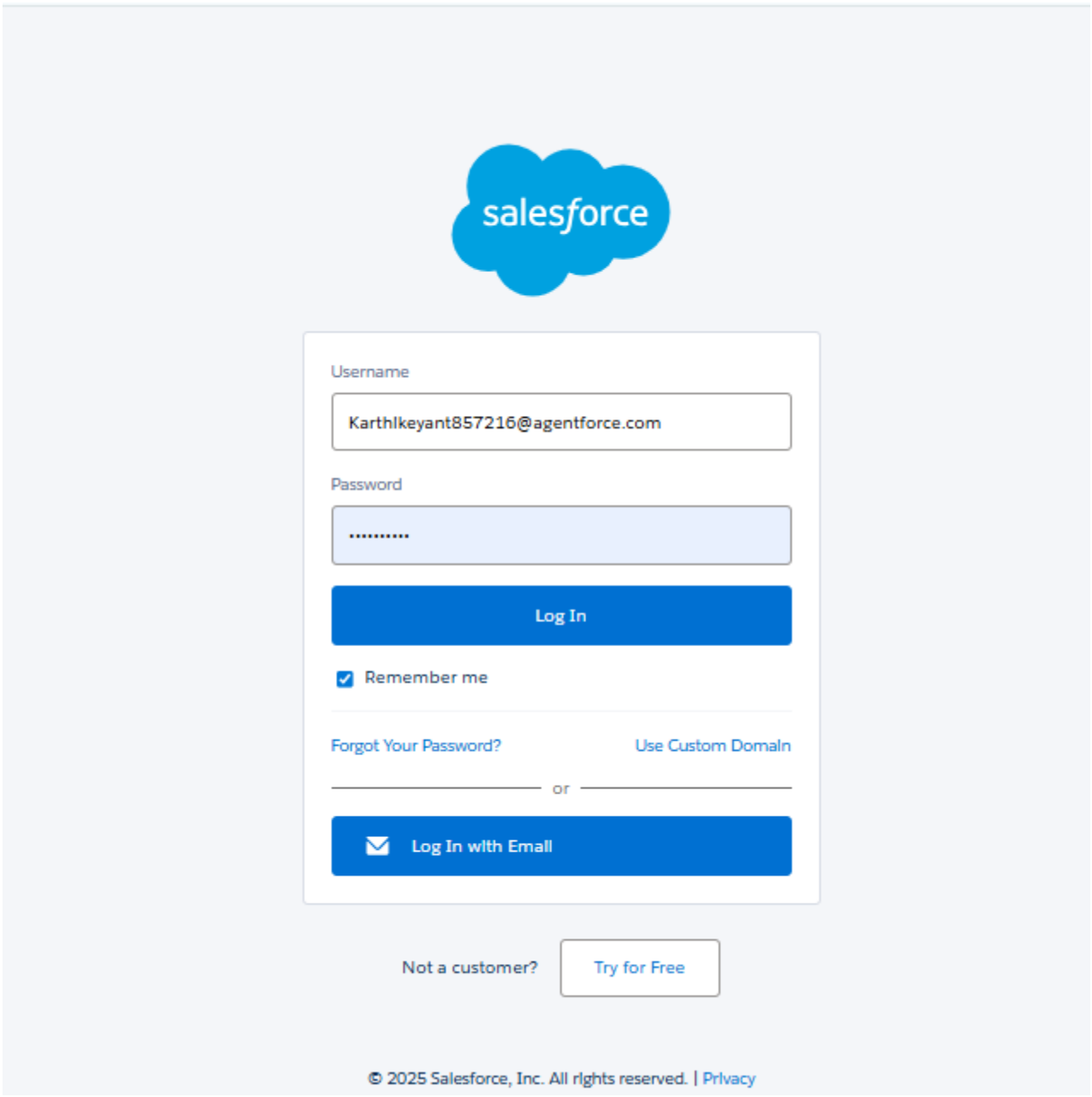
Creating Developer Account:

By using this URL - **https://www.salesforce.com/form/developer-signup/?d=pb**

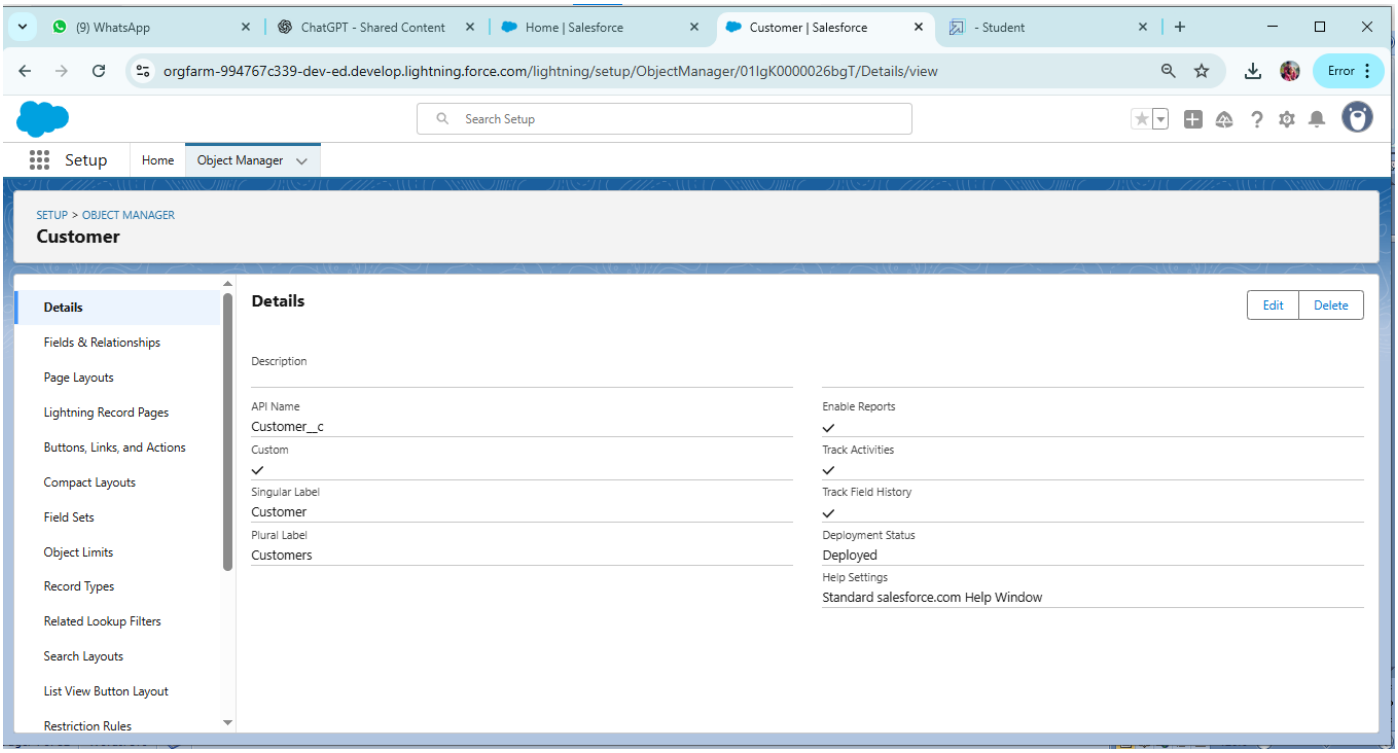


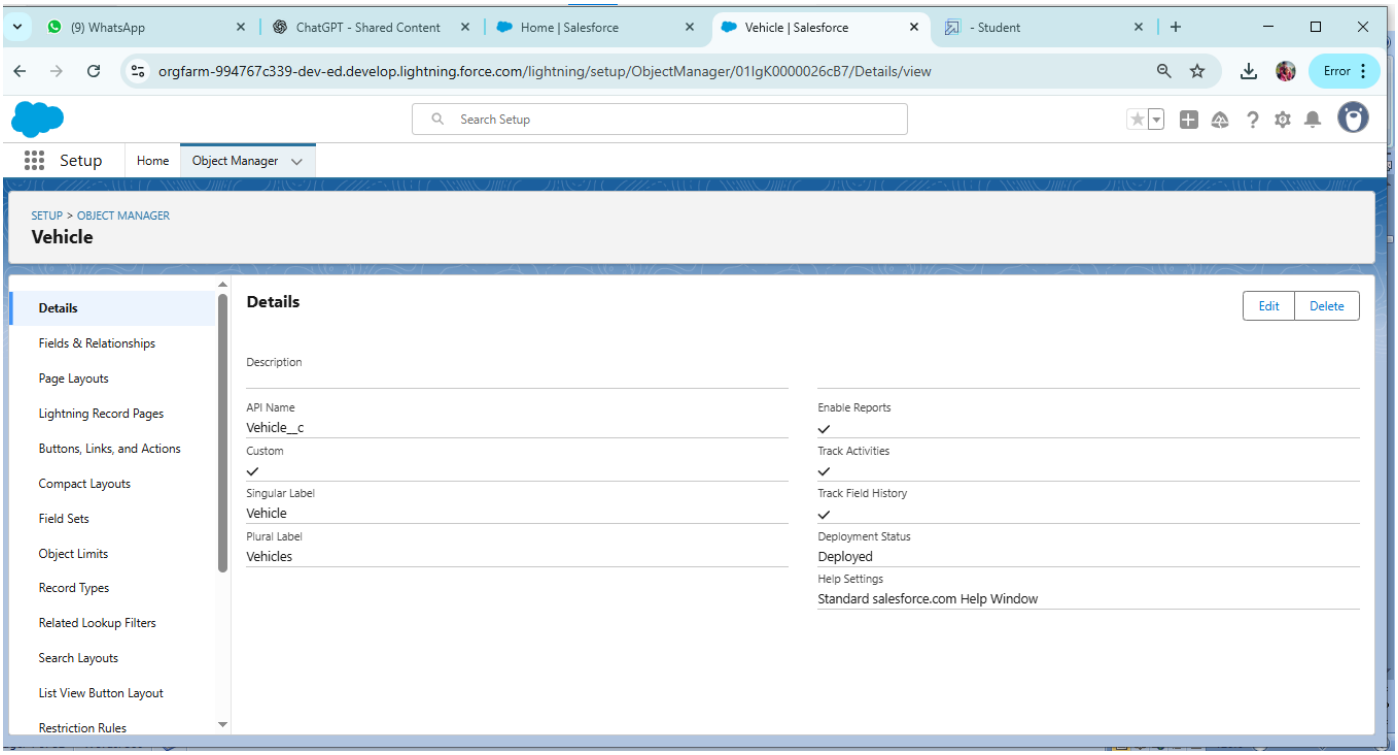
Account activation then next login this link:

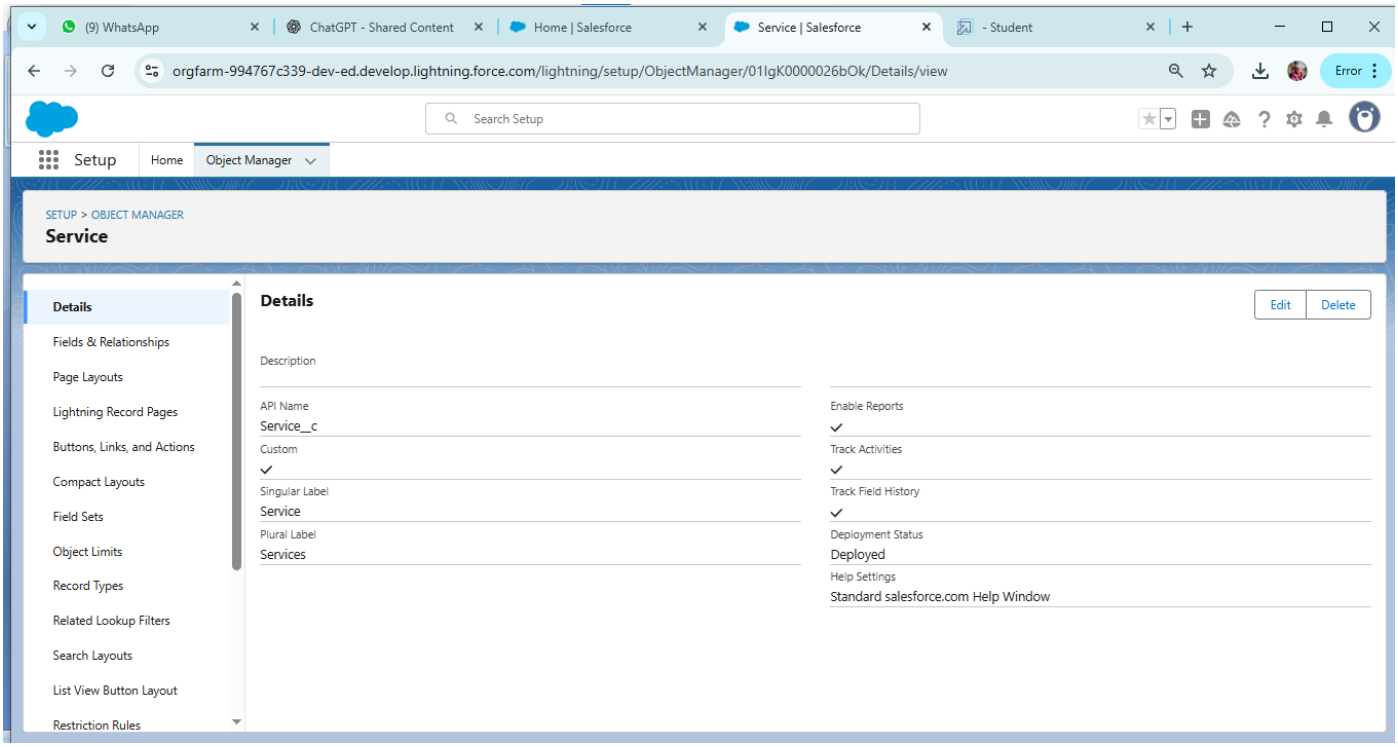
https://login.salesforce.com/?locale=in



- **Created objects**: Customer, Vehicle, Service, Job Card and Invoice.



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Service | Salesforce
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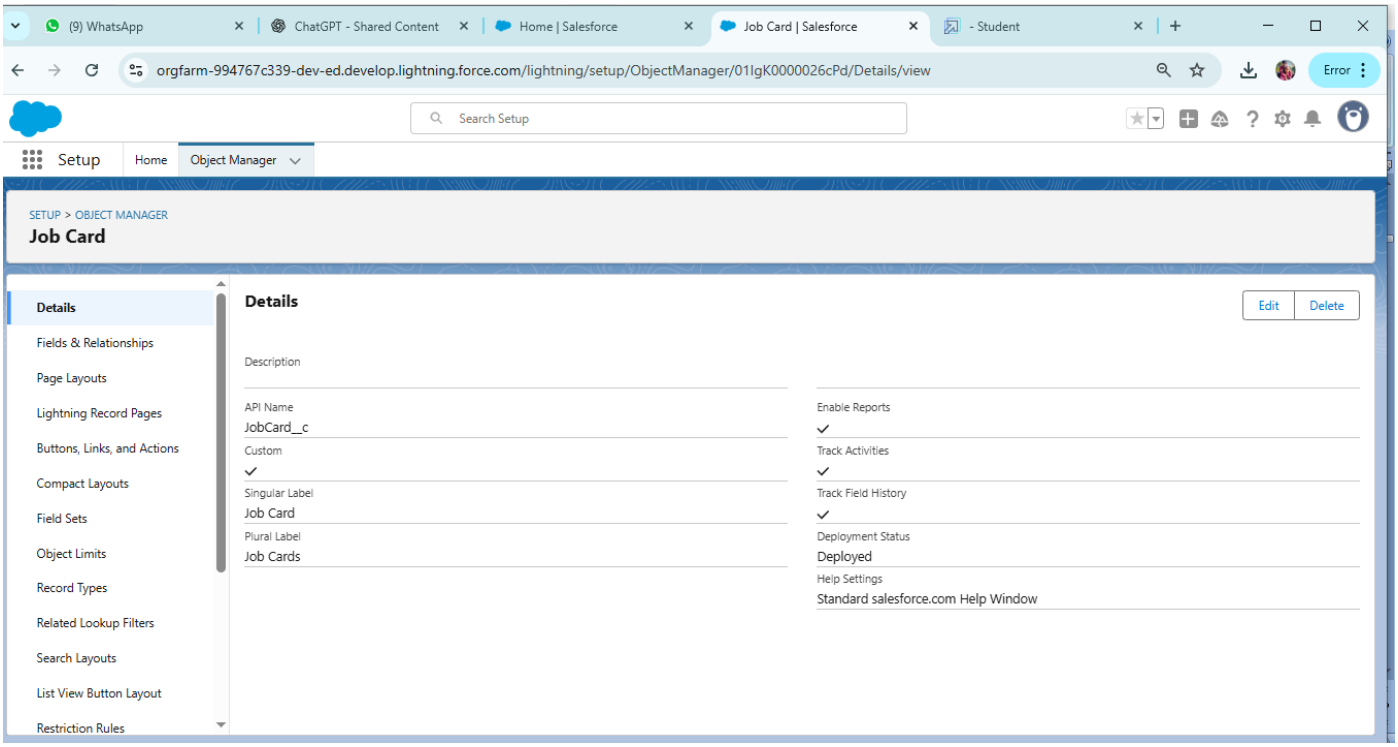
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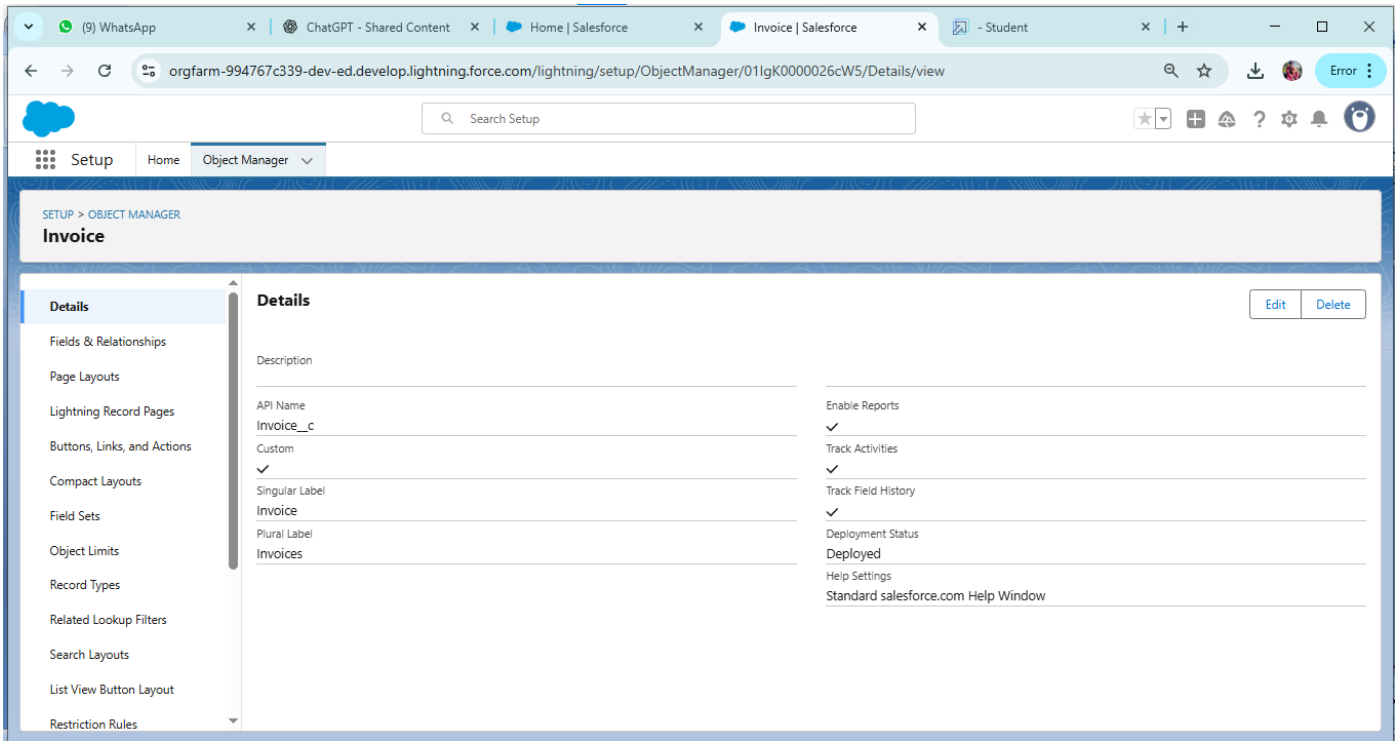
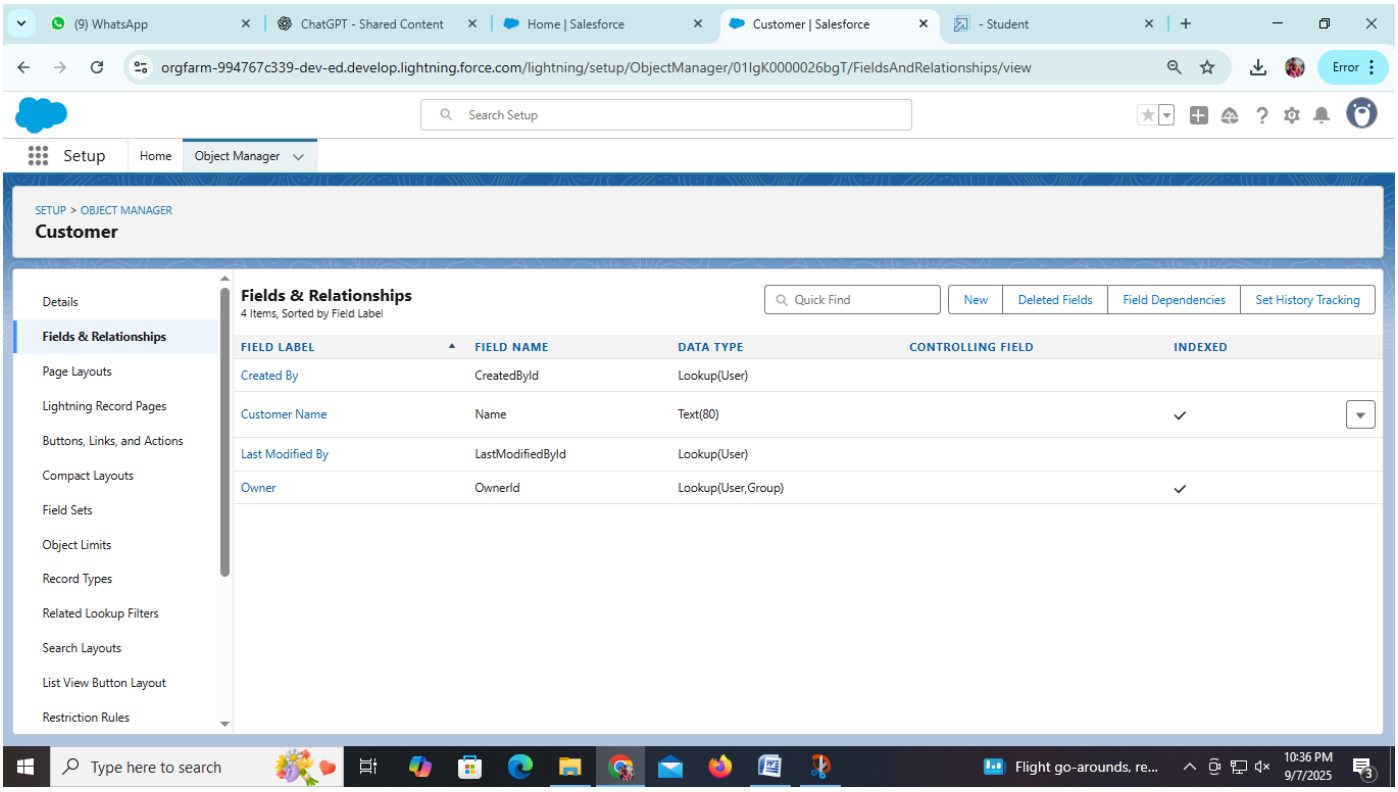
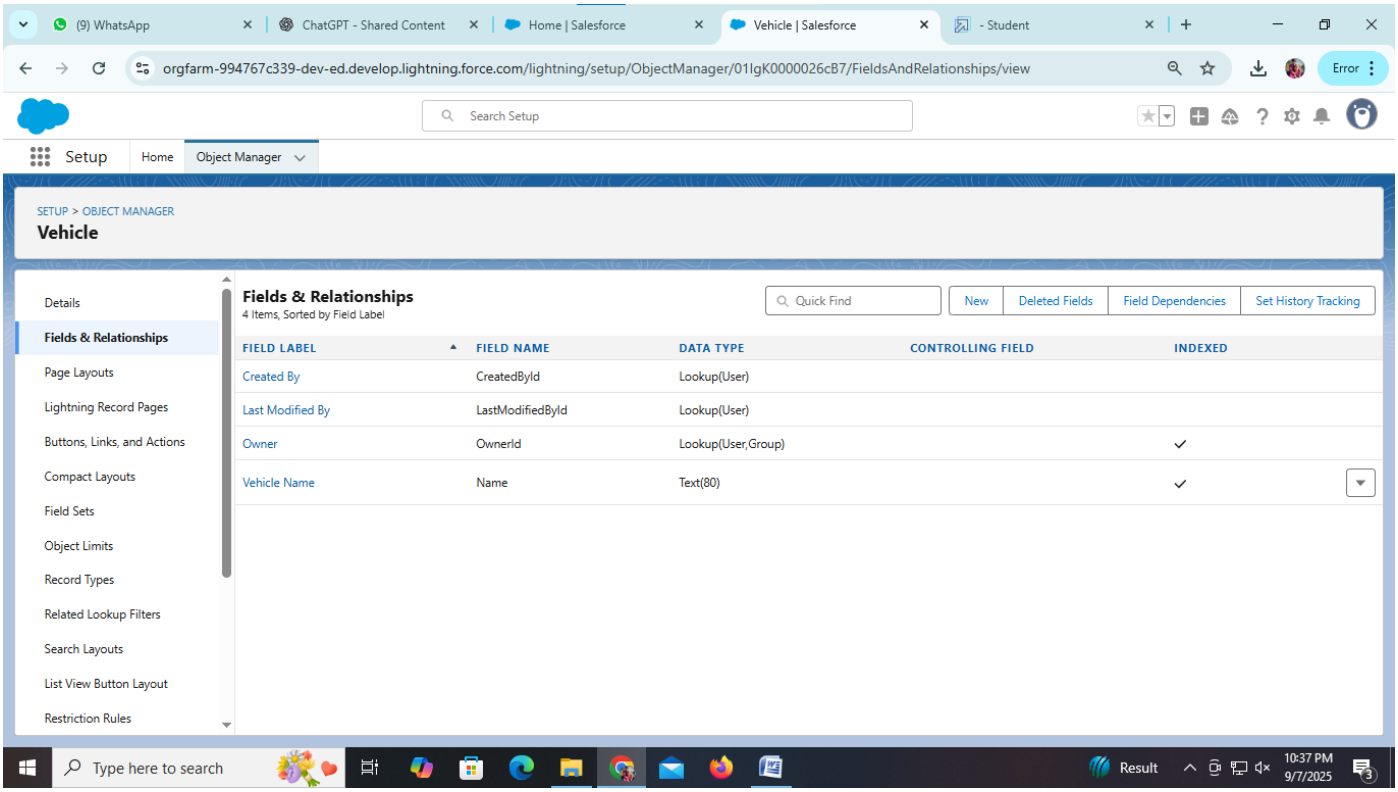


- **Configured Fields and Relationships:**

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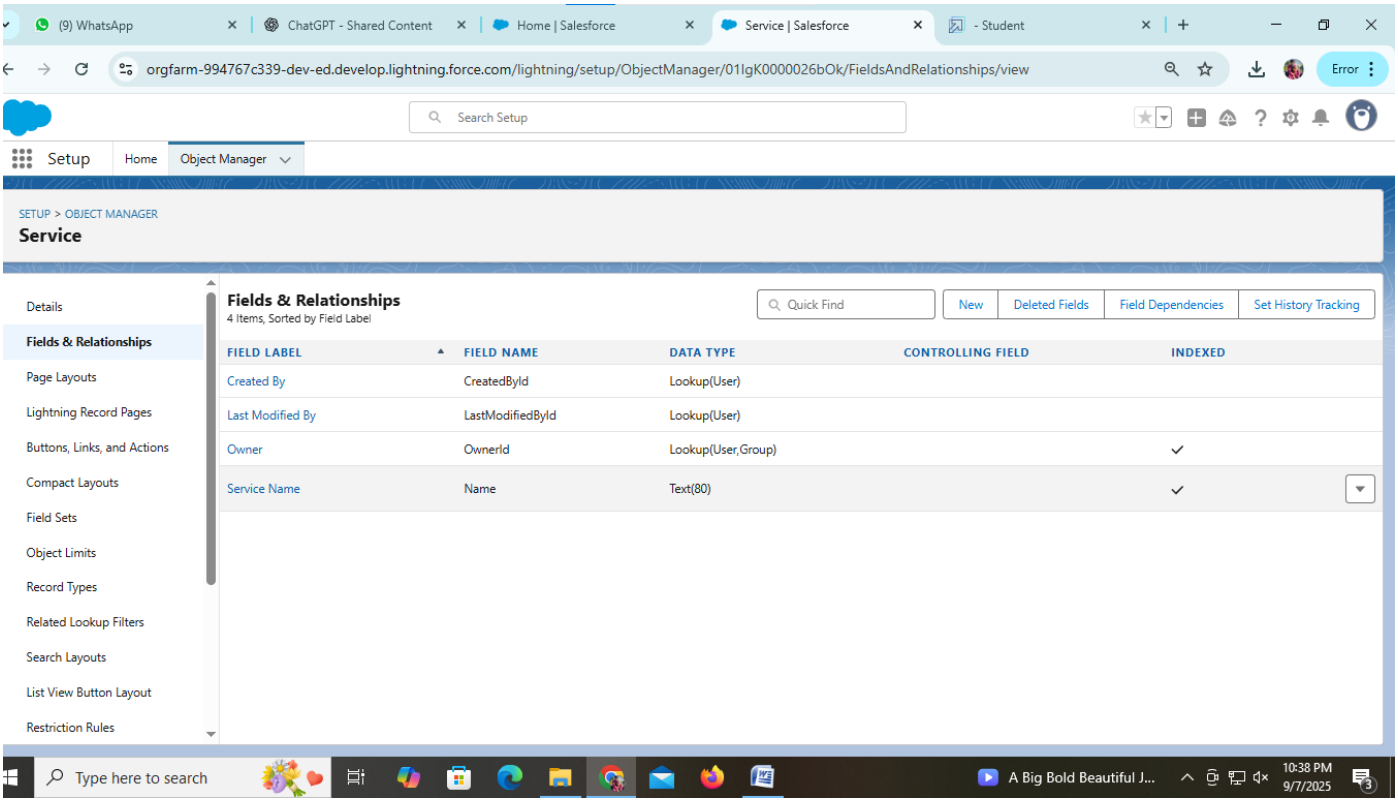
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Quick Find
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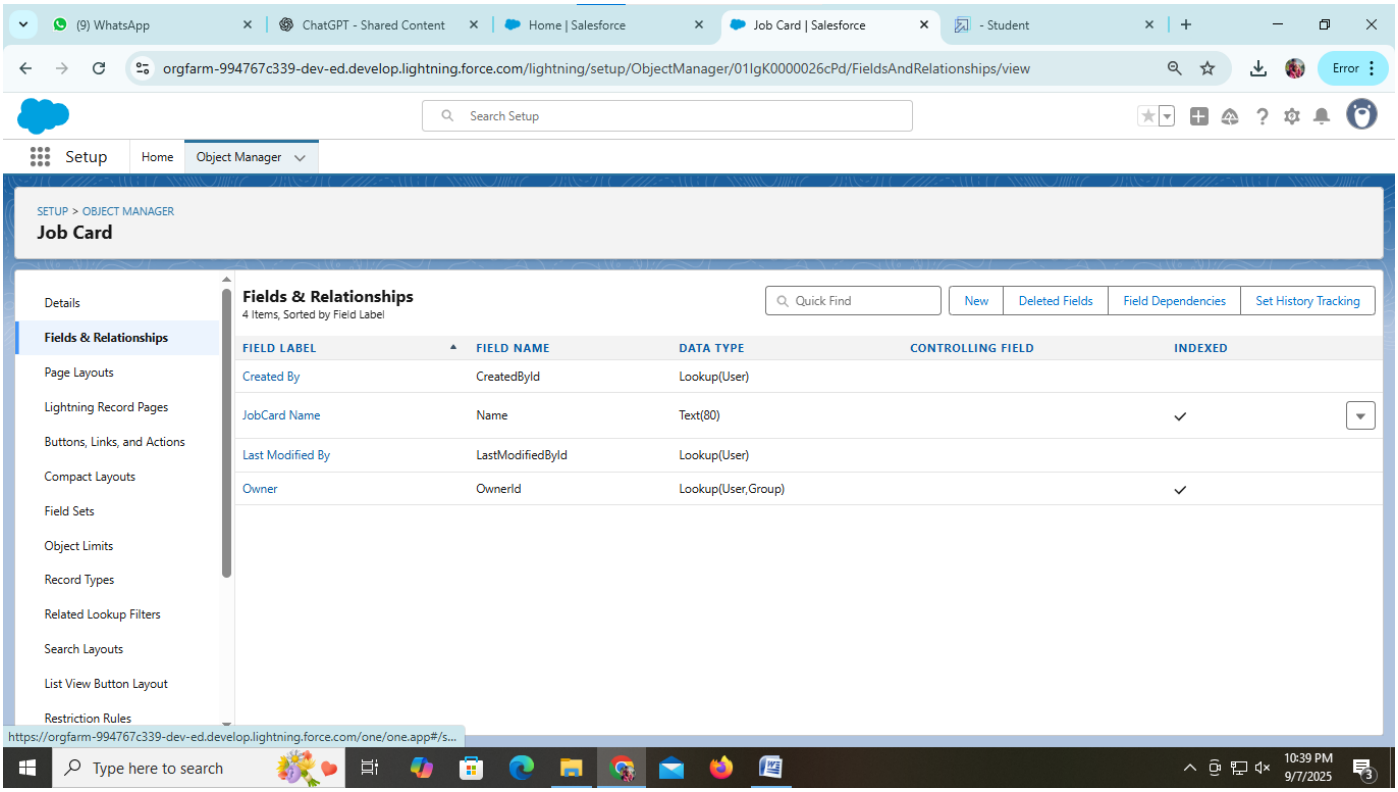
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Related Lookup Filters
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4 Items, Sorted by Field Label
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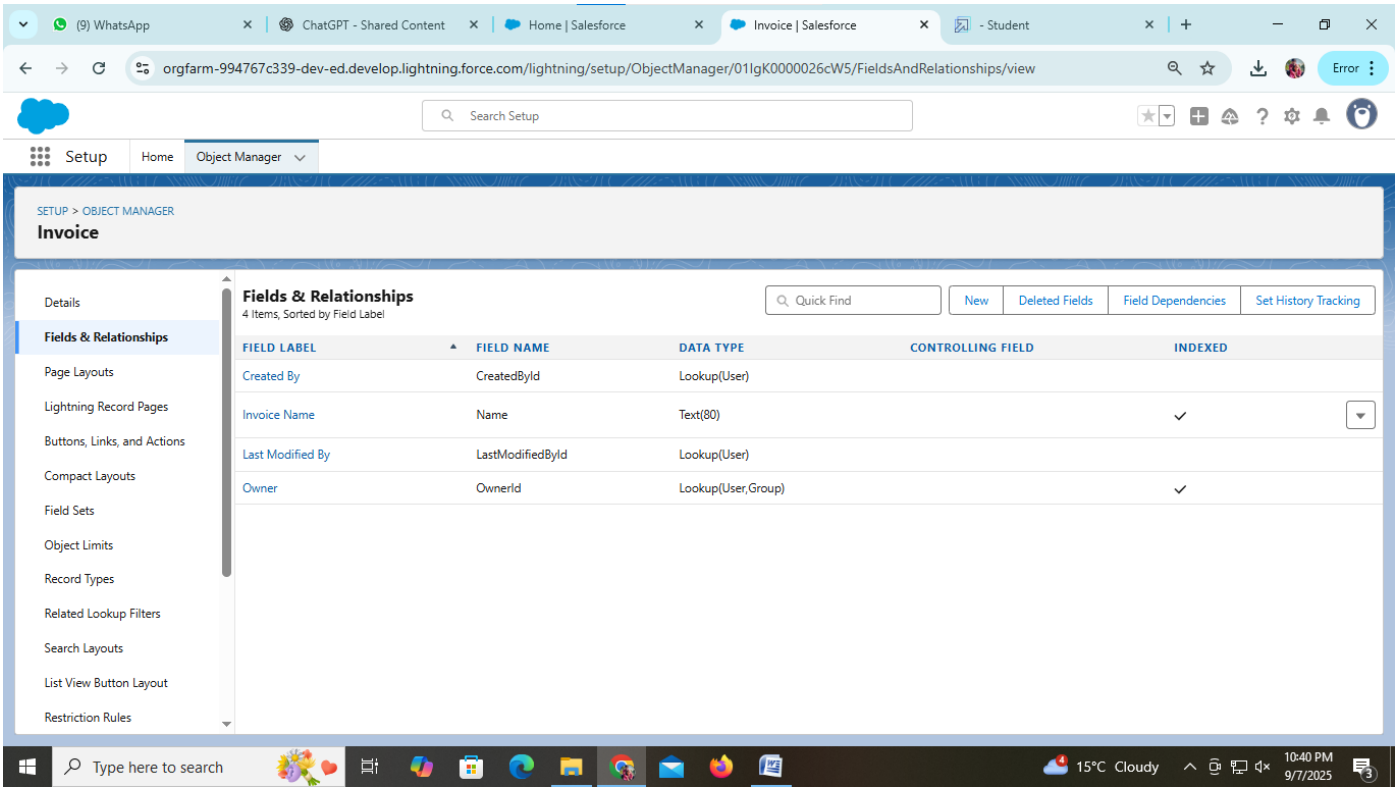
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Invoice | Salesforce
- Student
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Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
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Fields & Relationships
4 Items, Sorted by Field Label
Quick Find
New
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Field Dependencies
Set History Tracking
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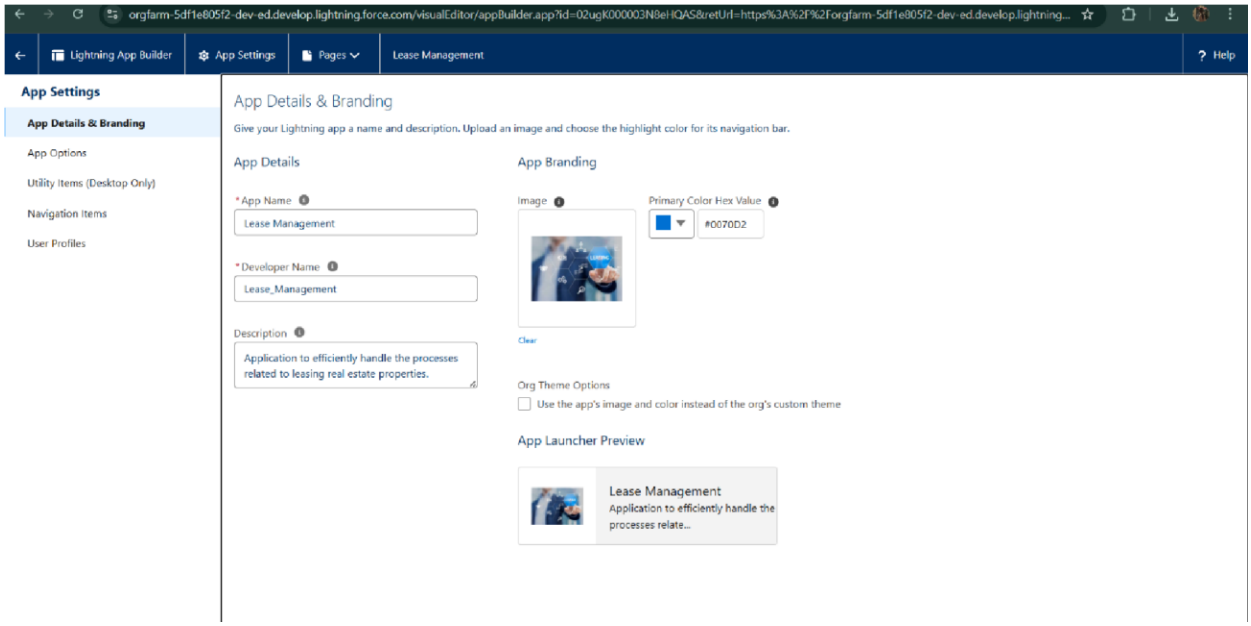
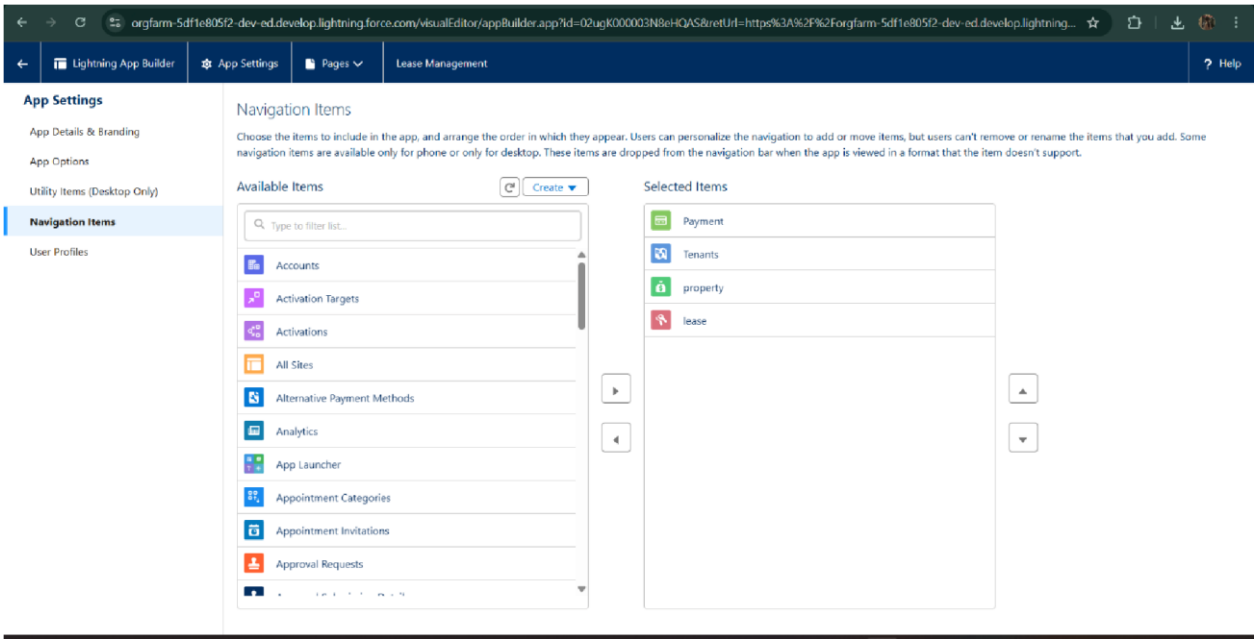
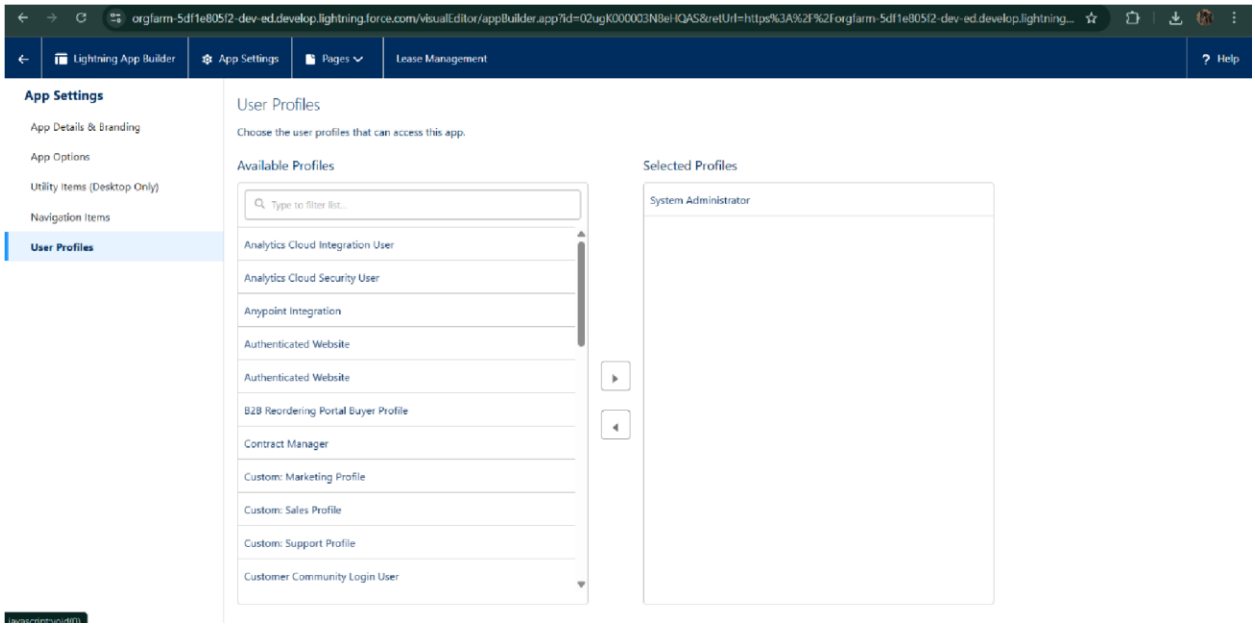
Developed Lightning App with relevant tabs:






Lightning App Builder
App Settings
Pages
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Help
App Settings
App Details & Branding
App Options
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User Profiles
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Available Profiles
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Analytics Cloud Integration User
Analytics Cloud Security User
Anypoint Integration
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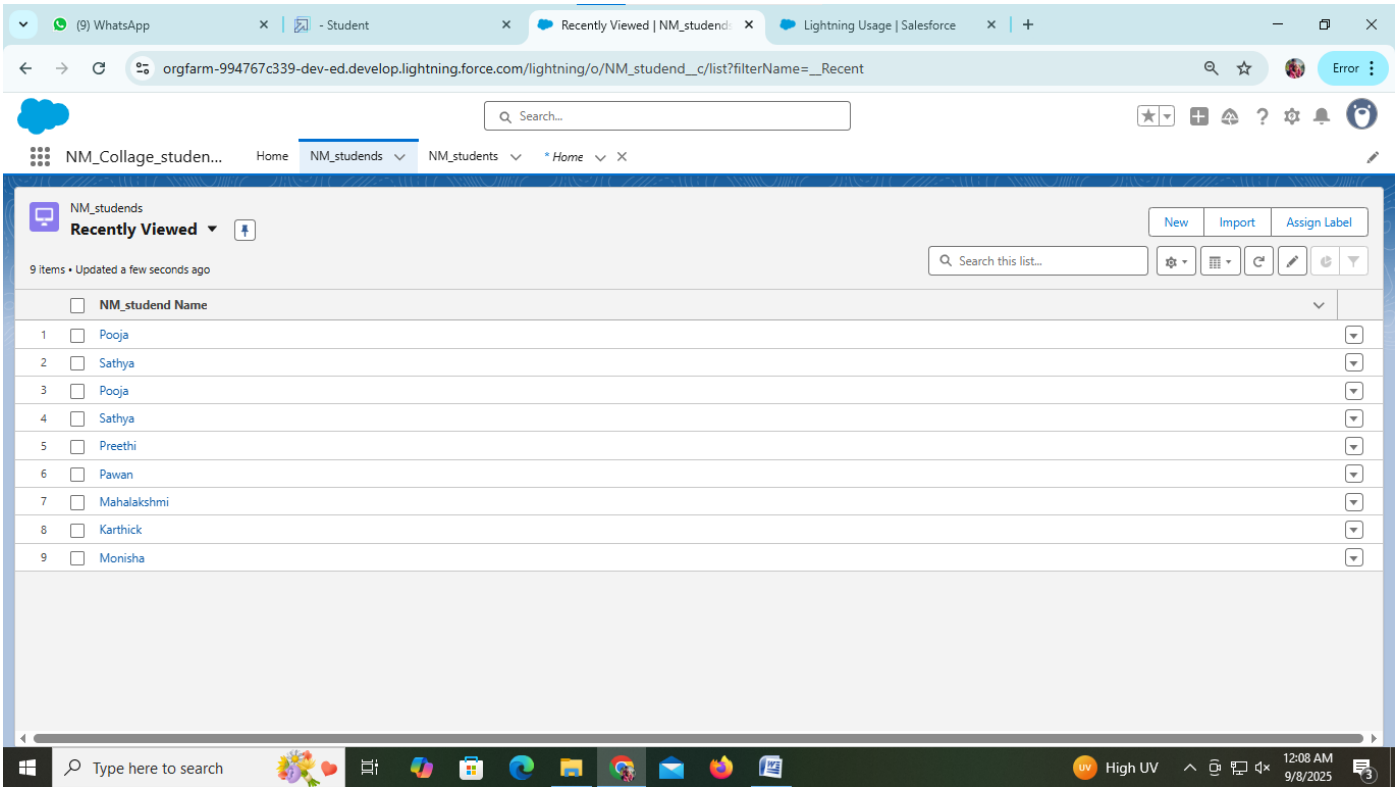
B2B Reordering Portal Buyer Profile
Contract Manager
Custom: Marketing Profile
Custom: Sales Profile
Custom: Support Profile
Customer Community Login User
Selected Profiles
System Administrator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2 Sathya
3 Pooja
4 Sathya
5 Preethi
6 Pawan
7 Mahalakshmi
8 Karthick
9 Monisha
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High UV
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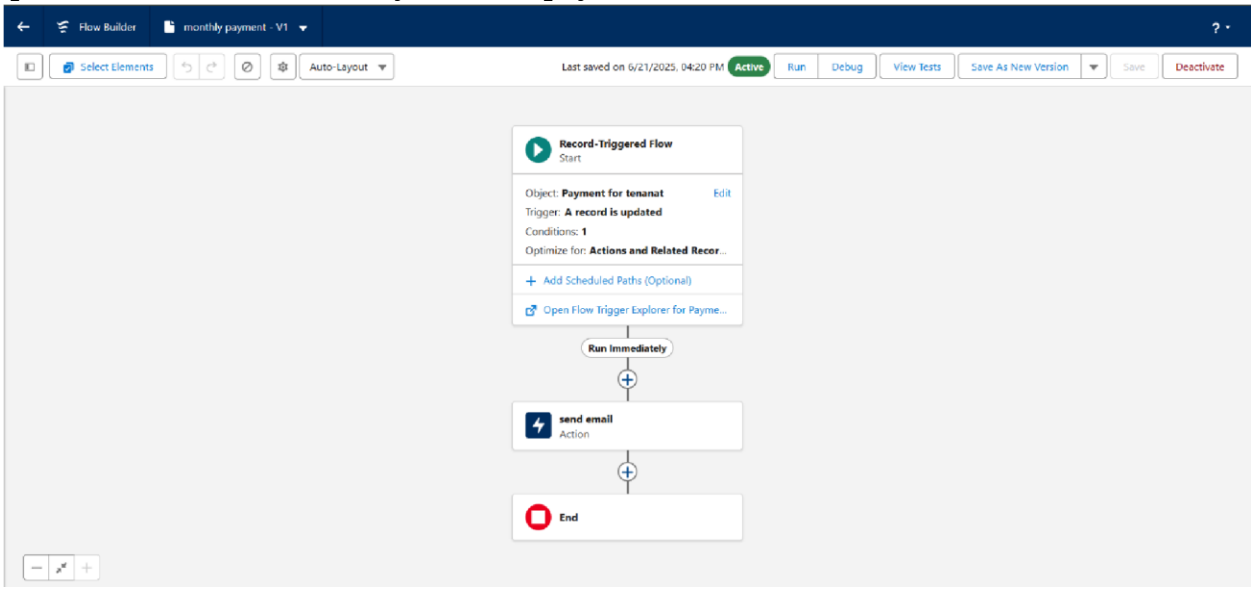
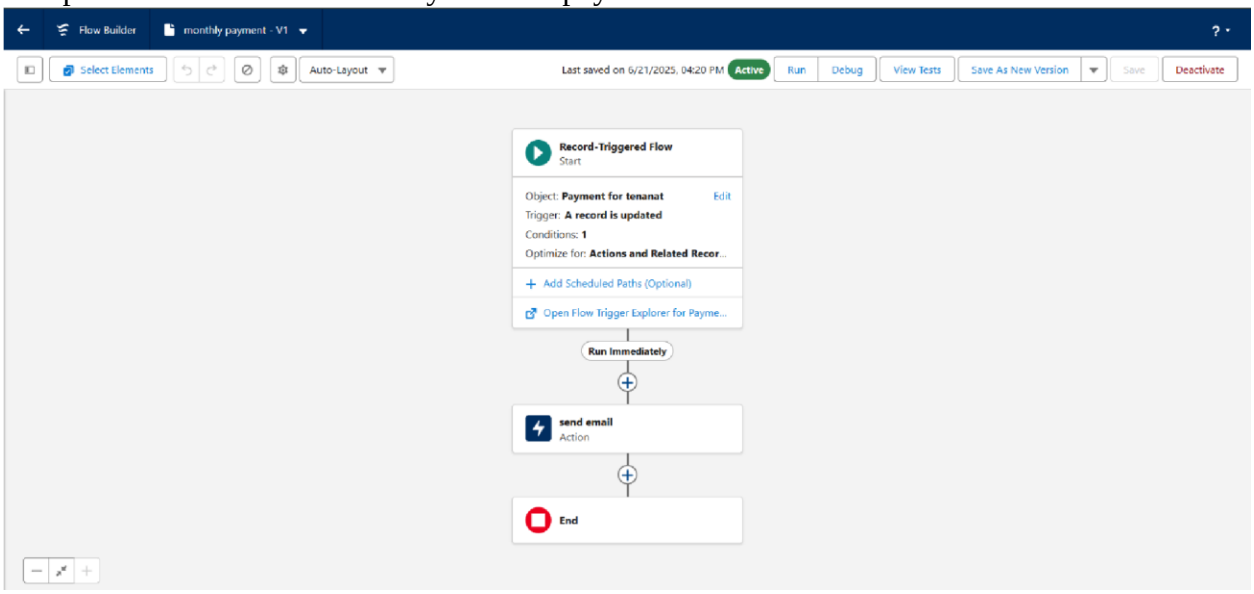
9/8/2025

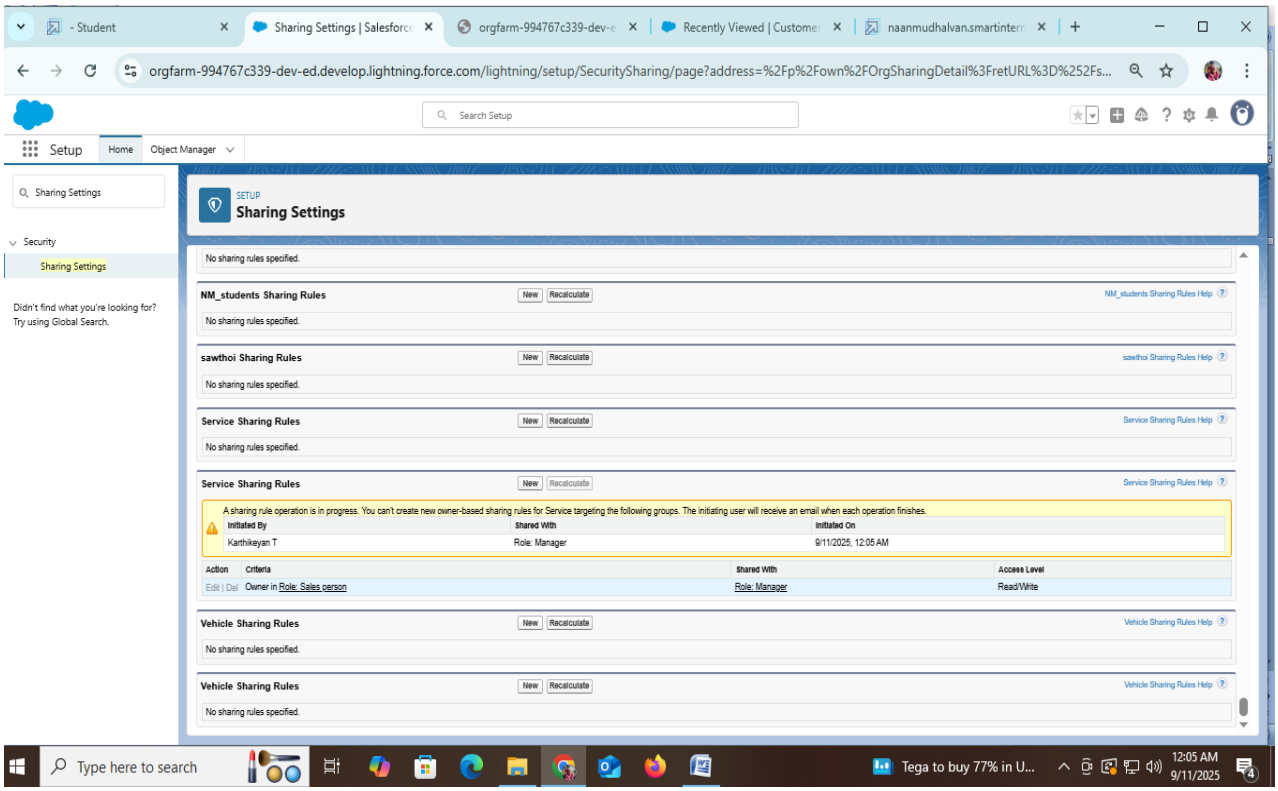
- **Implemented Flows for monthly rent and payment success:**

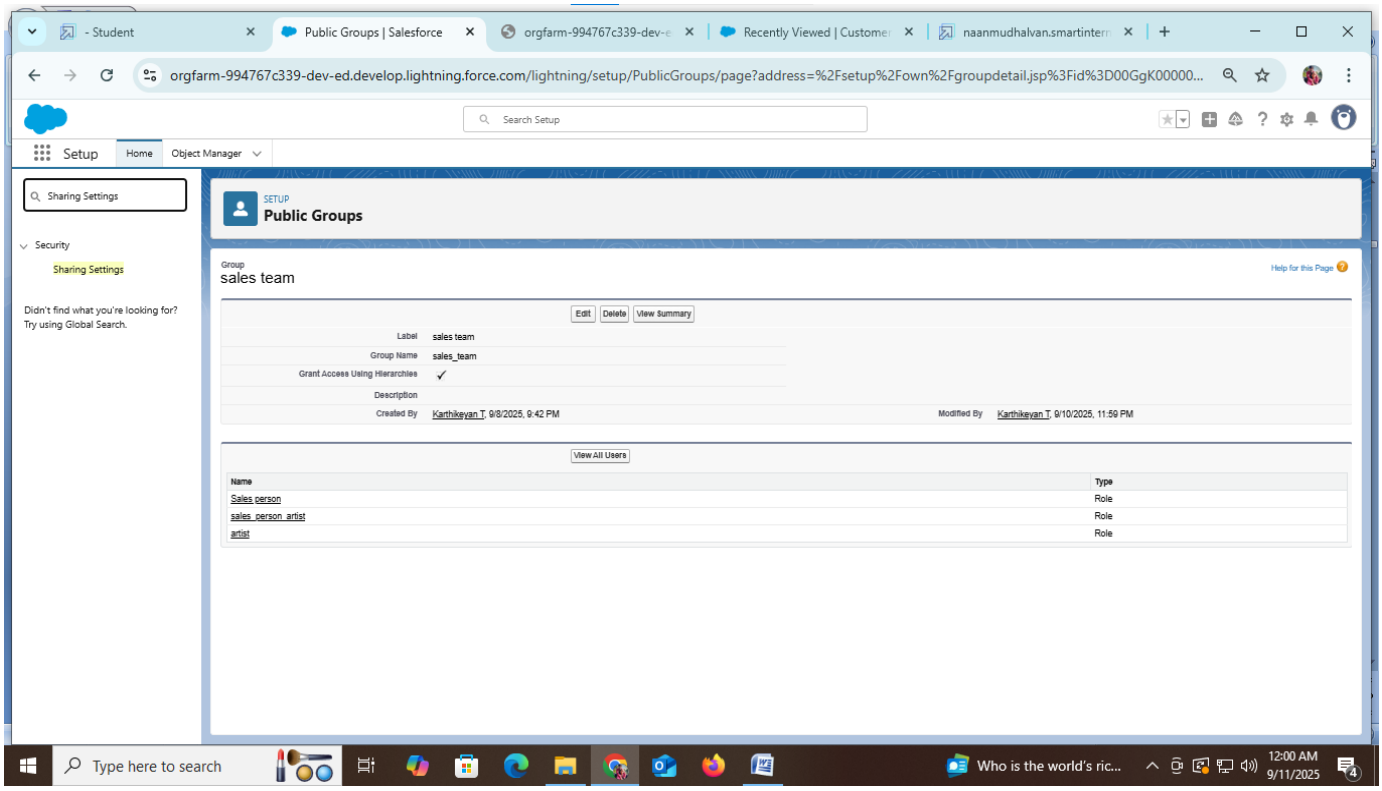


- Implemented Flows for monthly rent and payment success

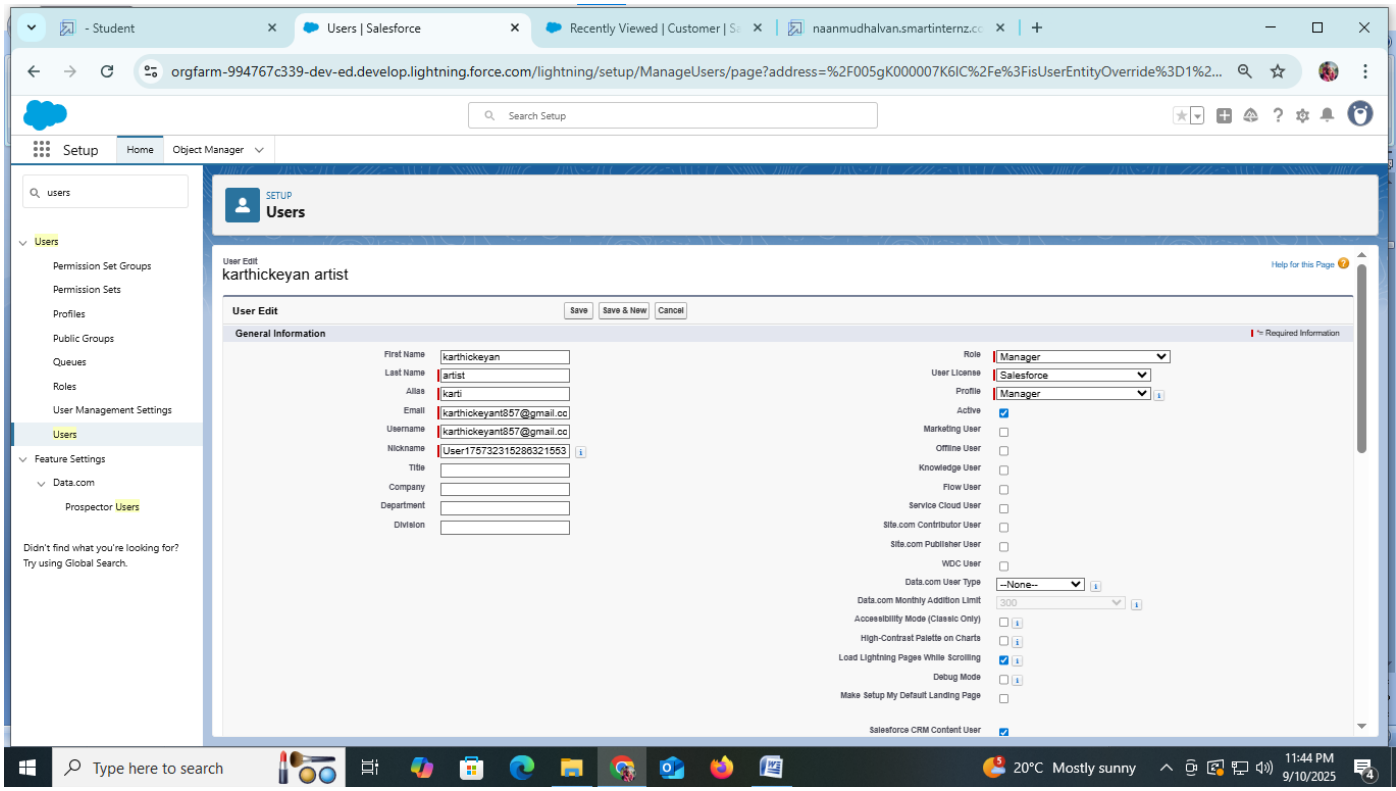


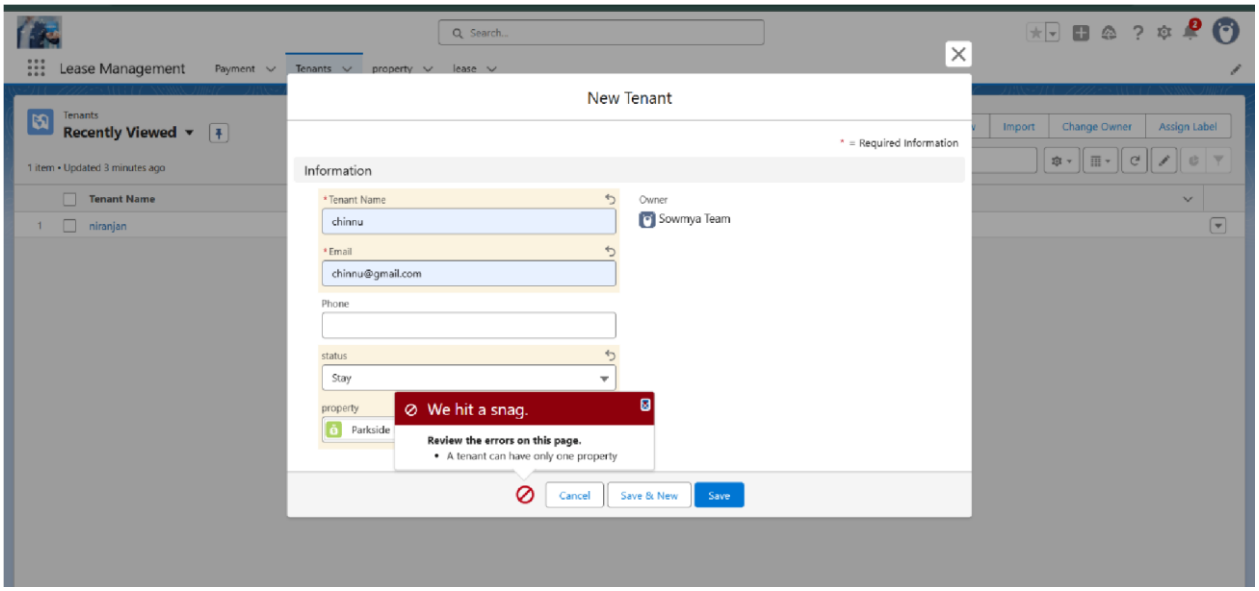
- **To create a validation rule to a Lease Object**



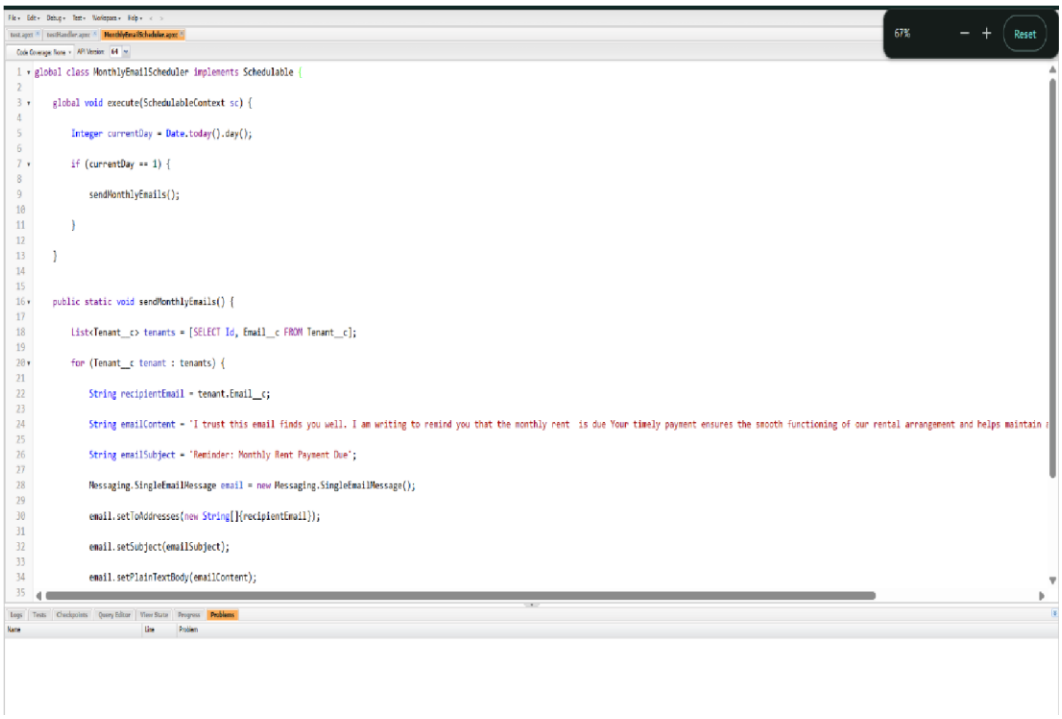


- **Added Apex trigger to restrict multiple tenants per property**



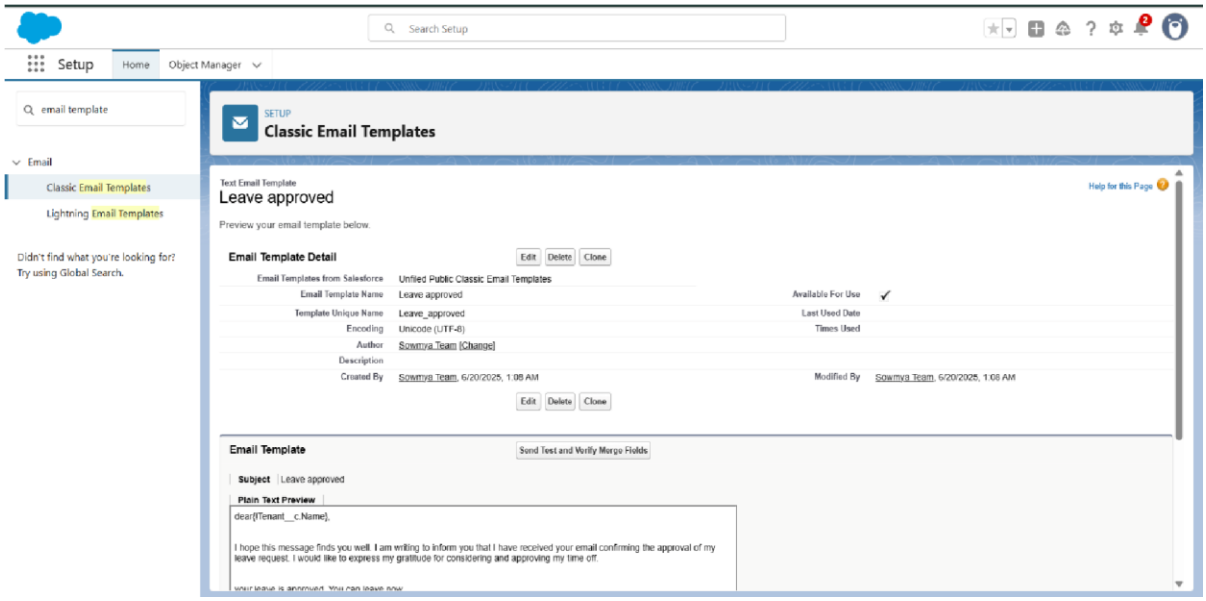


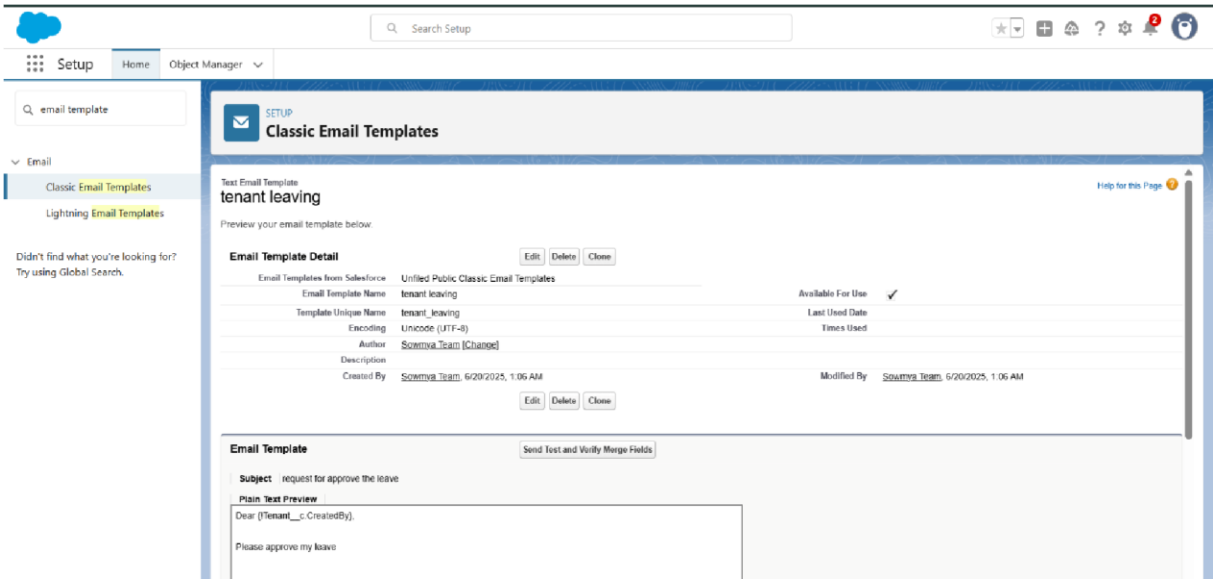
- Scheduled monthly reminder emails using Apex class

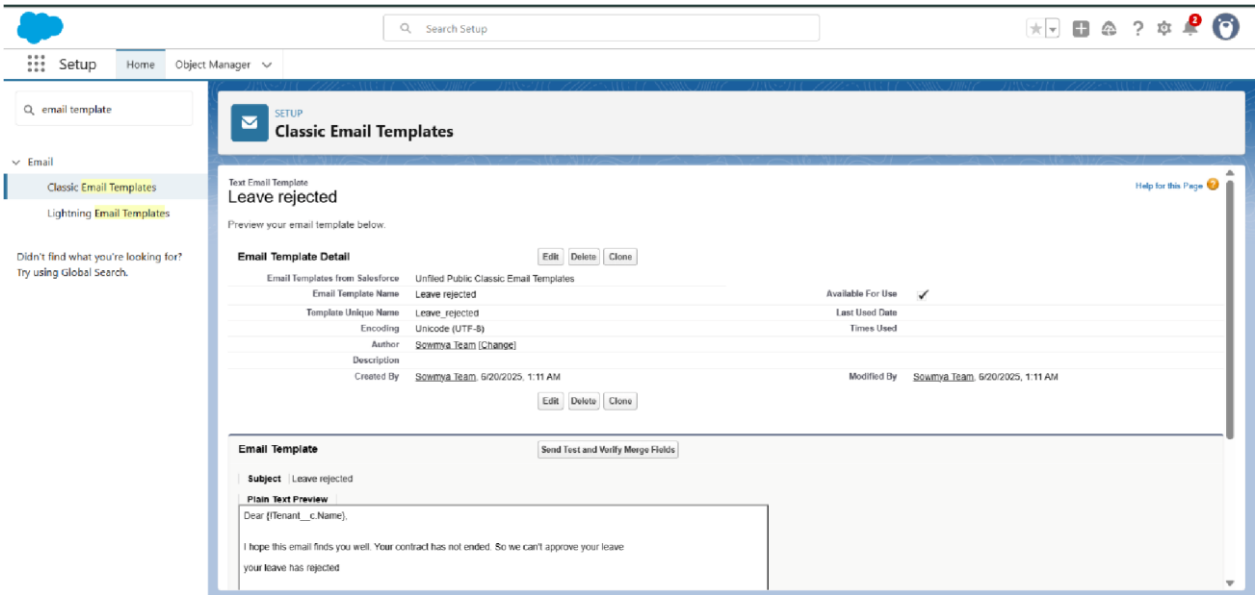


```
global class MonthlyEmailScheduler implements Schedulable {

    global void execute(SchedulableContext sc) {

        Integer currentDay = Date.today().day();

        if (currentDay == 1) {

            sendMonthlyEmails();

        }

    }


public static void sendMonthlyEmails() {

        List<Tenant__c> tenants = [SELECT Id, Email__c FROM Tenant__c];

        for (Tenant__c tenant : tenants) {

            String recipientEmail = tenant.Email__c;

            String emailContent = 'I trust this email finds you well. I am writing to remind you that the monthly rent  is due Your timely payment ensures the smooth functioning of our rental arrangement and helps maintain

            String emailSubject = 'Reminder: Monthly Rent Payment Due';

            Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();

            email.setToAddresses(new String[]{recipientEmail});

            email.setSubject(emailSubject);

            email.setPlainTextBody(emailContent);
```

- Built and tested email templates for leave request, approval, rejection, payment, and reminders



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Didn't find what you're looking for?
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SETUP
Classic Email Templates
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Help for this Page
Preview your email template below.
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Modified By
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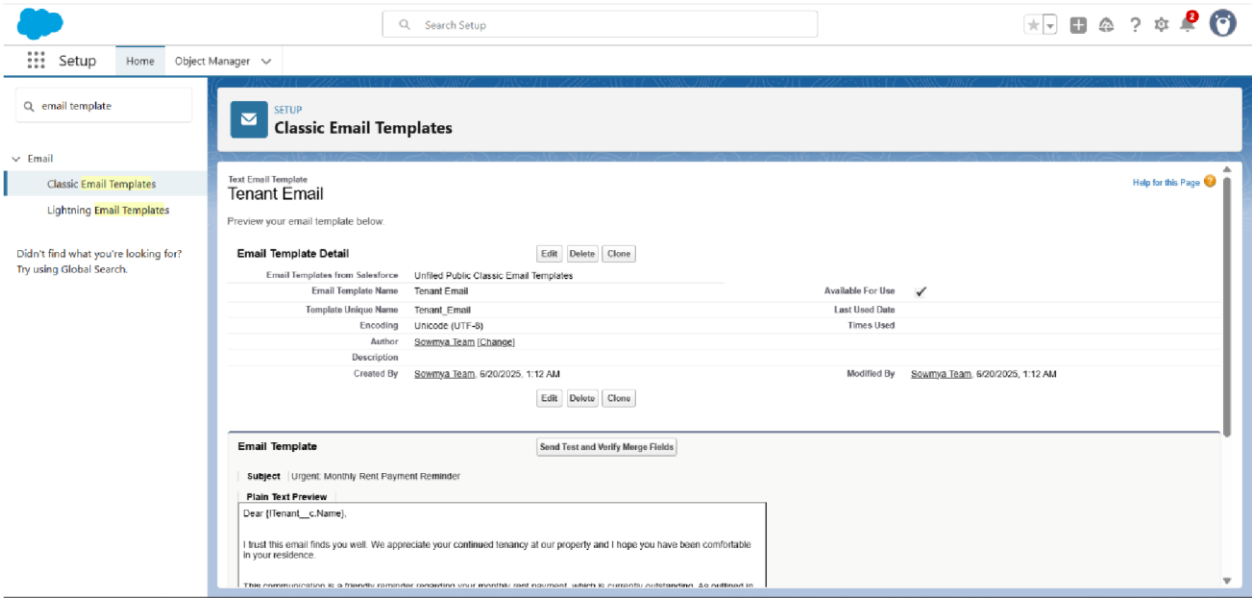
Email Template
Send Test and Verify Merge Fields
Subject
Leave rejected
Plain Text Preview
Dear {!Tenant__c.Name},
I hope this email finds you well. Your contract has not ended. So we can't approve your leave
your leave has rejected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Preview your email template below.
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Sowmya Team, 6/20/2025, 1:12 AM
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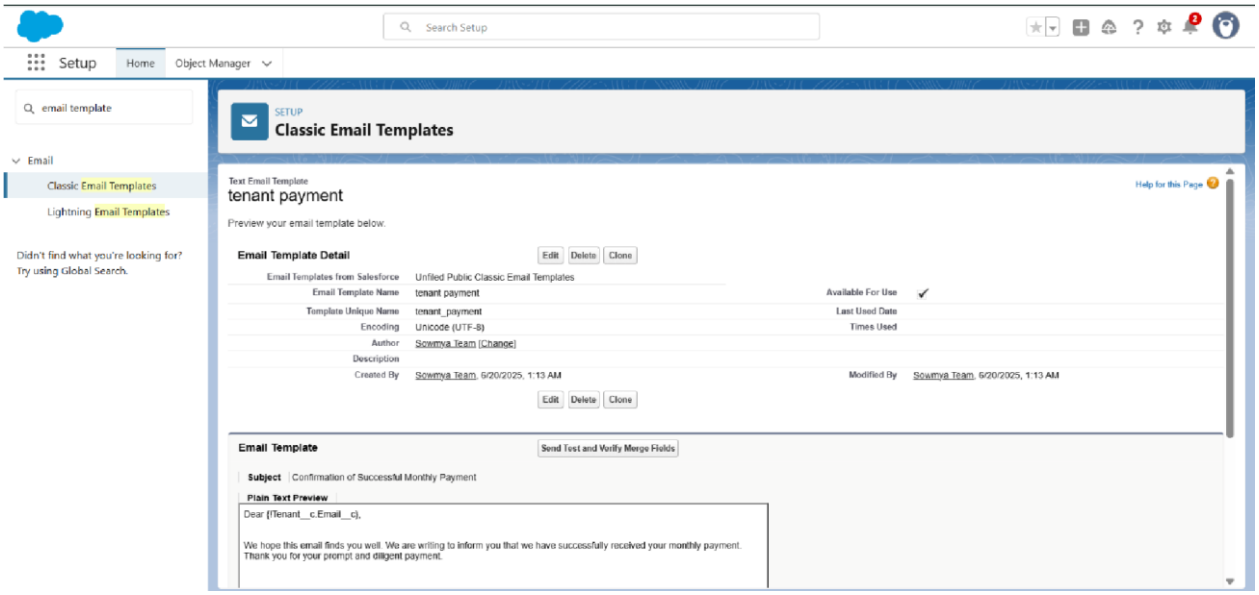
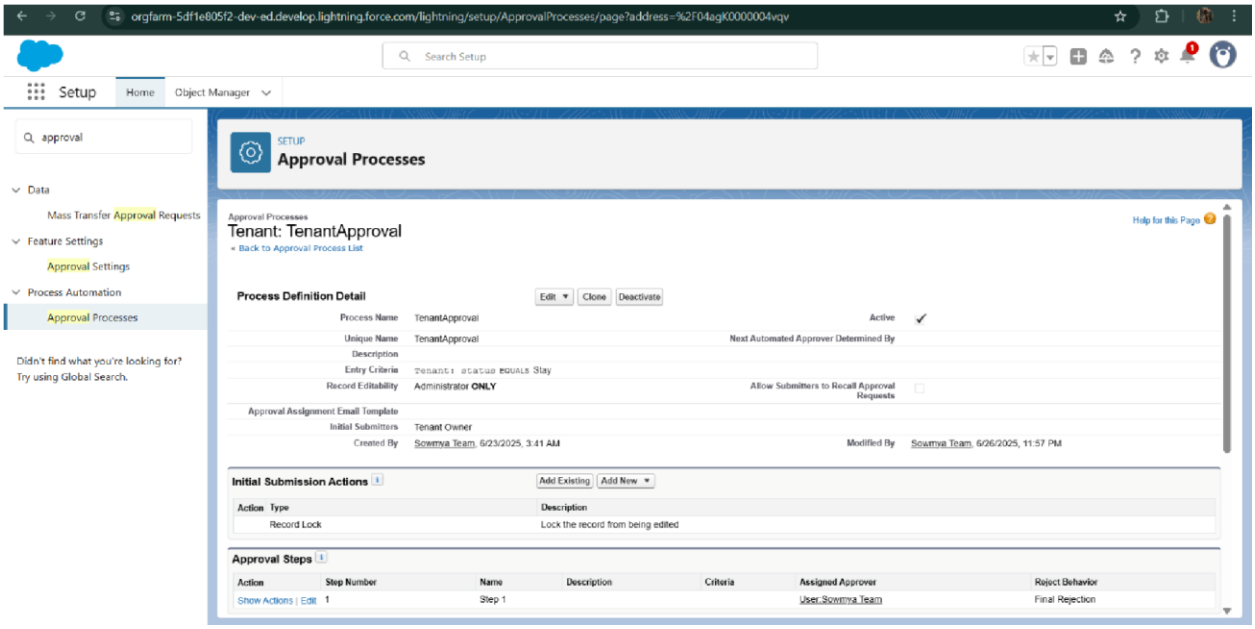
Sowmya Team, 6/20/2025, 1:12 AM
Email Template
Send Test and Verify Merge Fields
Subject
Urgent: Monthly Rent Payment Reminder
Plain Text Preview
Dear {!Tenant__c.Name},
I trust this email finds you well. We appreciate your continued tenancy at our property and I hope you have been comfortable in your residence.

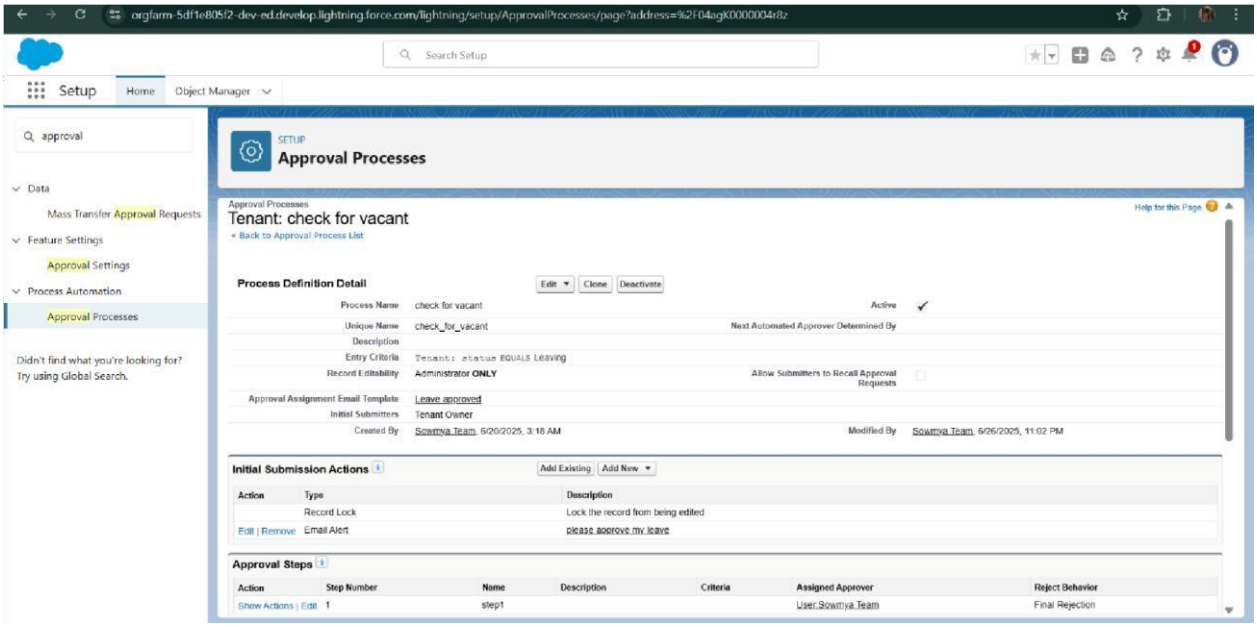


- Approval Process creation

For Tenant Leaving:

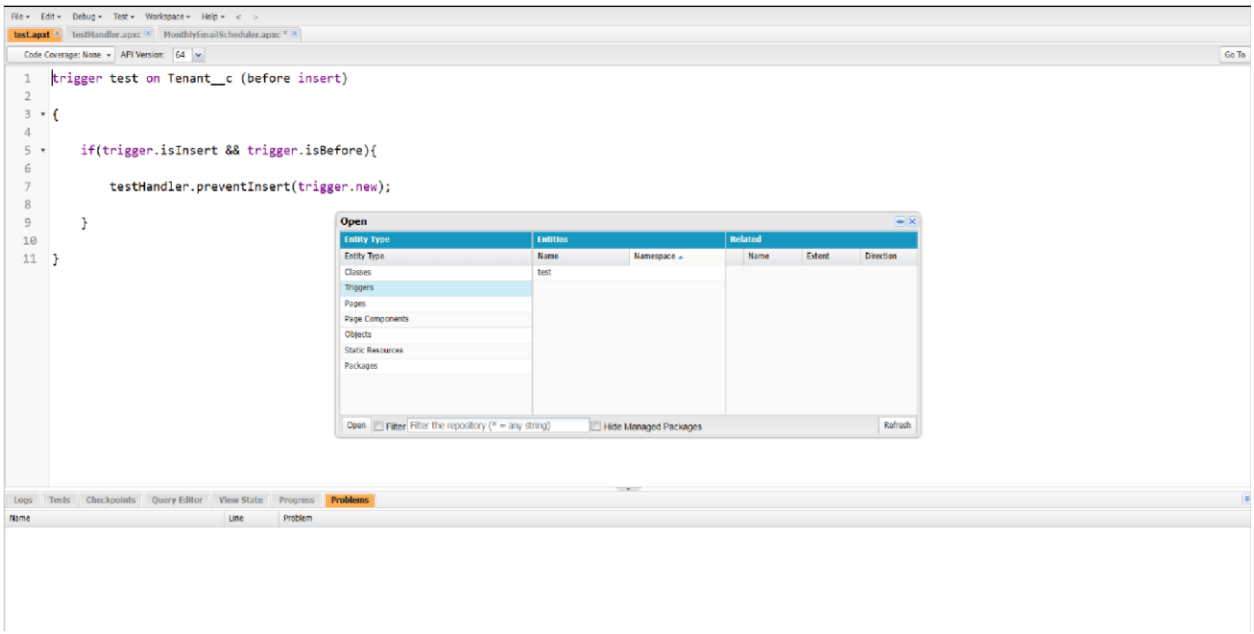


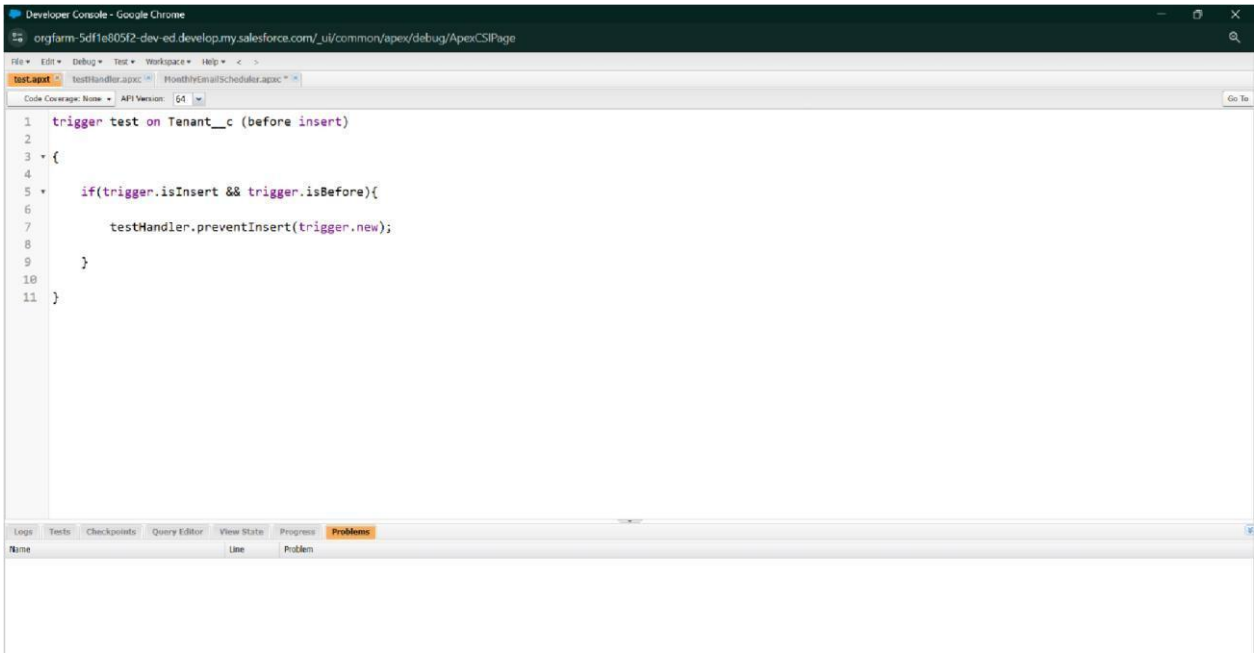
For Check for Vacant:



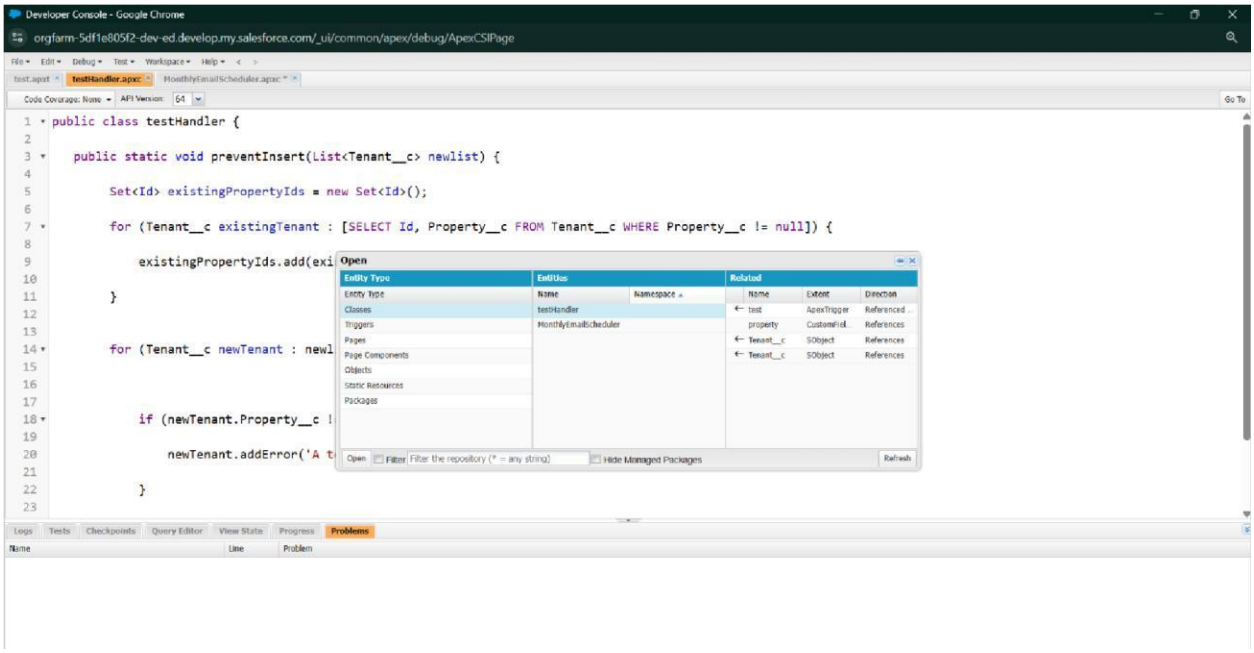
- Apex Trigger

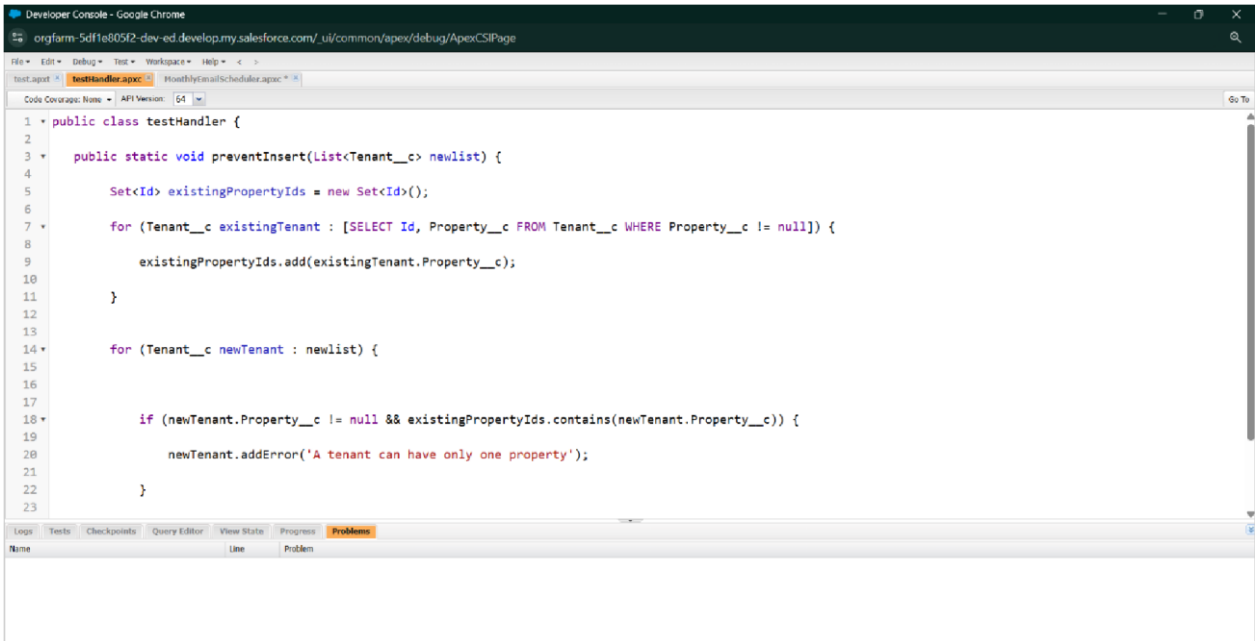
Create an Apex Trigger



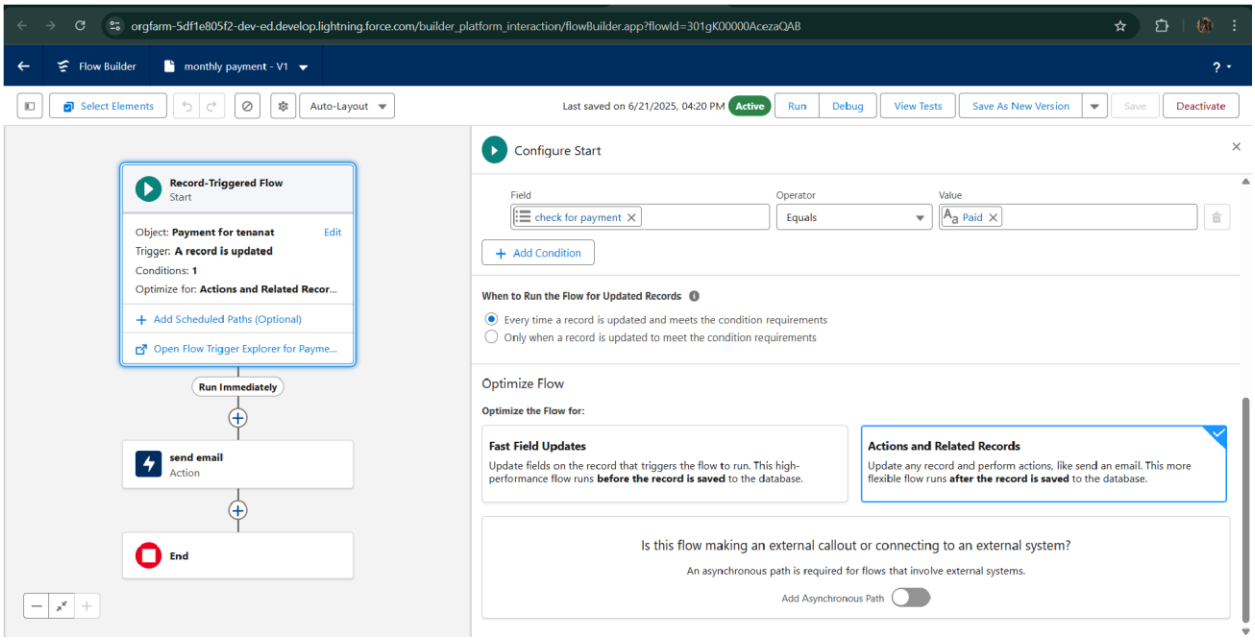


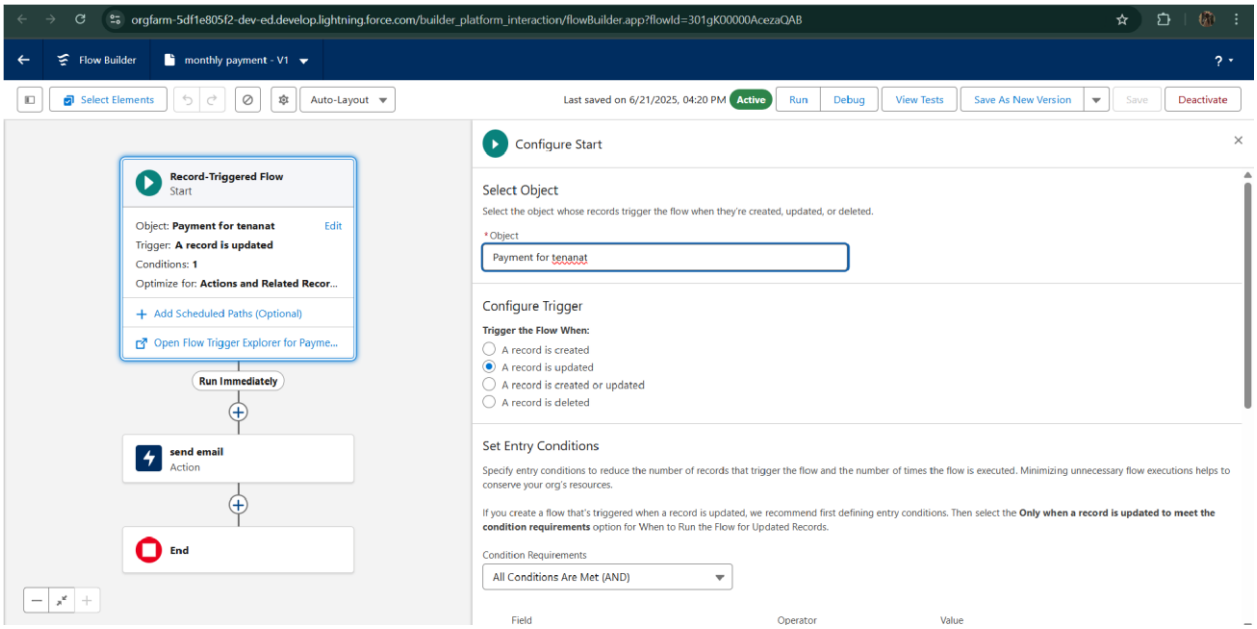
Create an Apex Handler class



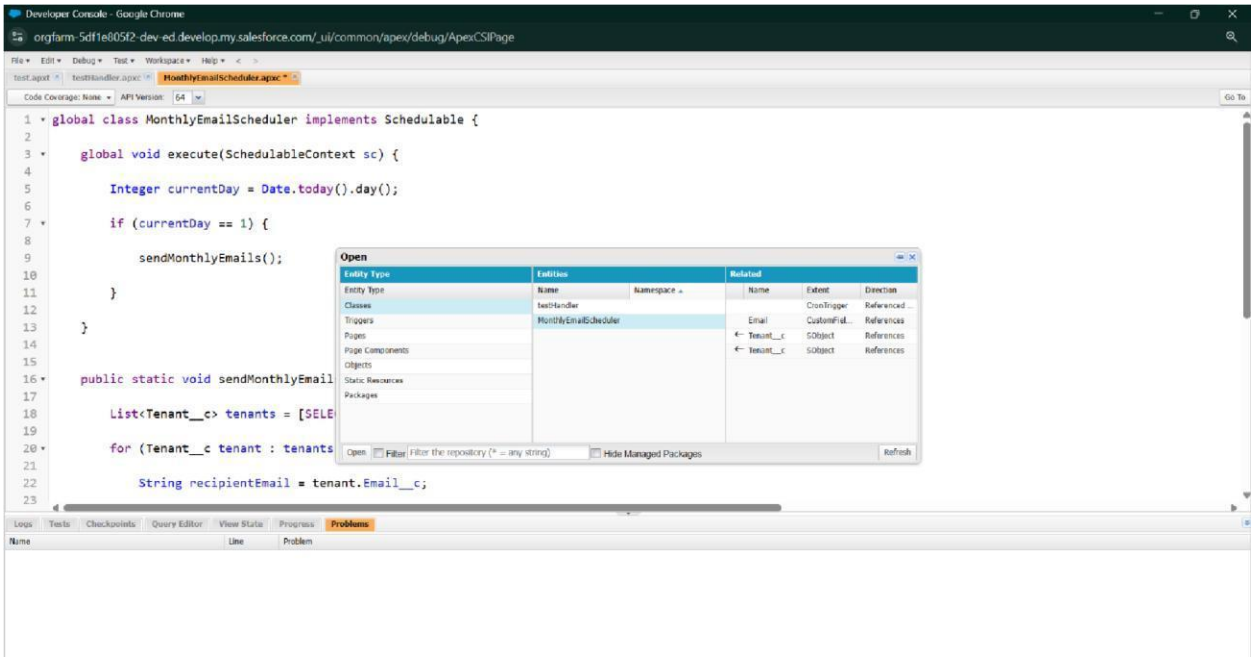

Developer Console - Google Chrome
orgfarm-5df1e805f2-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage
testHandler.apxc
MonthlyEmailScheduler.apxc
Code Coverage: None
API Version: 64
Go To
public class testHandler {
public static void preventInsert(List<Tenant__c> newlist) {
Set<Id> existingPropertyIds = new Set<Id>();
for (Tenant__c existingTenant : [SELECT Id, Property__c FROM Tenant__c WHERE Property__c != null]) {
existingPropertyIds.add(existingTenant.Property__c);
}
for (Tenant__c newTenant : newlist) {
if (newTenant.Property__c != null && existingPropertyIds.contains(newTenant.Property__c)) {
newTenant.addError('A tenant can have only one property');
}
Logs
Tests
Checkpoints
Query Editor
View State
Progress
Problems
Name
Line
Problem

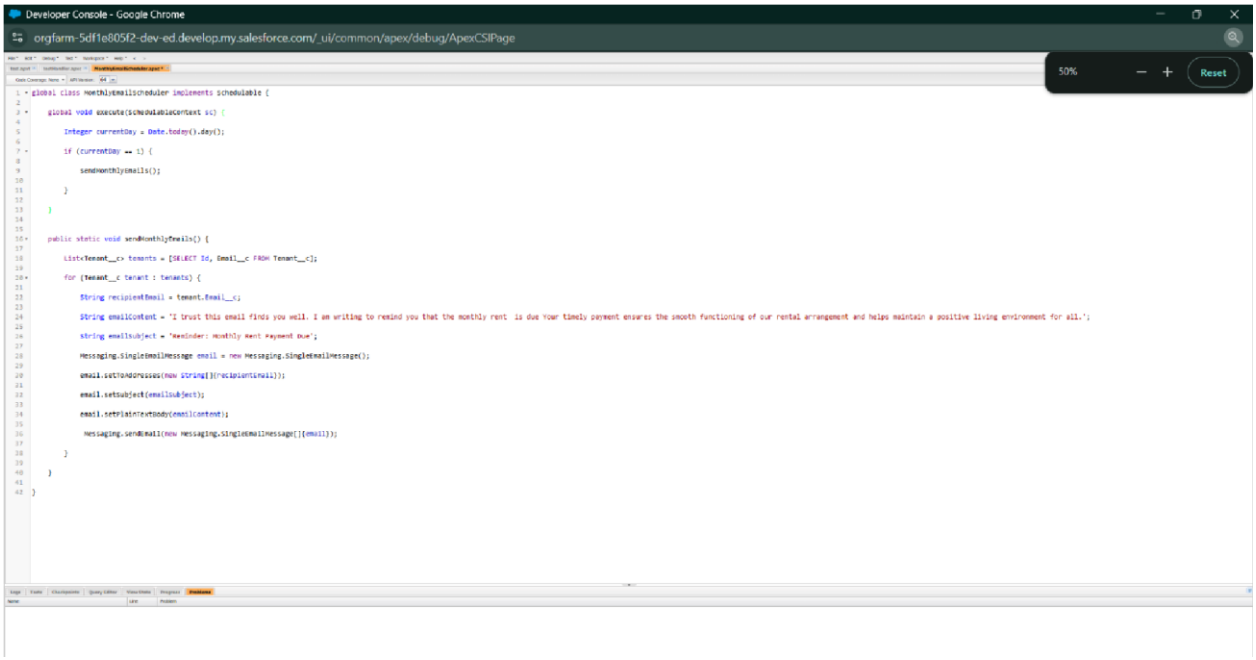
- FLOWS


orgfarm-5df1e805f2-dev-ed.develop.lightning.force.com/builder_platform_interaction/flowBuilder.app?flowId=301gK00000AcezaQAB
Flow Builder
monthly payment - V1
Select Elements
Auto-Layout
Last saved on 6/21/2025, 04:20 PM
Active
Run
Debug
View Tests
Save As New Version
Save
Deactivate
Record-Triggered Flow
Start
Object: Payment for tenanat
Edit
Trigger: A record is updated
Conditions: 1
Optimize for: Actions and Related Recor...
Add Scheduled Paths (Optional)
Open Flow Trigger Explorer for Payme...
Run Immediately
send email
Action
End
Configure Start
Field
Operator
Value
check for payment
Equals
Paid
Add Condition
When to Run the Flow for Updated Records
Every time a record is updated and meets the condition requirements
Only when a record is updated to meet the condition requirements
Optimize Flow
Optimize the Flow for:
Fast Field Updates
Update fields on the record that triggers the flow to run. This high-performance flow runs before the record is saved to the database.
Actions and Related Records
Update any record and perform actions, like send an email. This more flexible flow runs after the record is saved to the database.
Is this flow making an external callout or connecting to an external system?
An asynchronous path is required for flows that involve external systems.
Add Asynchronous Path

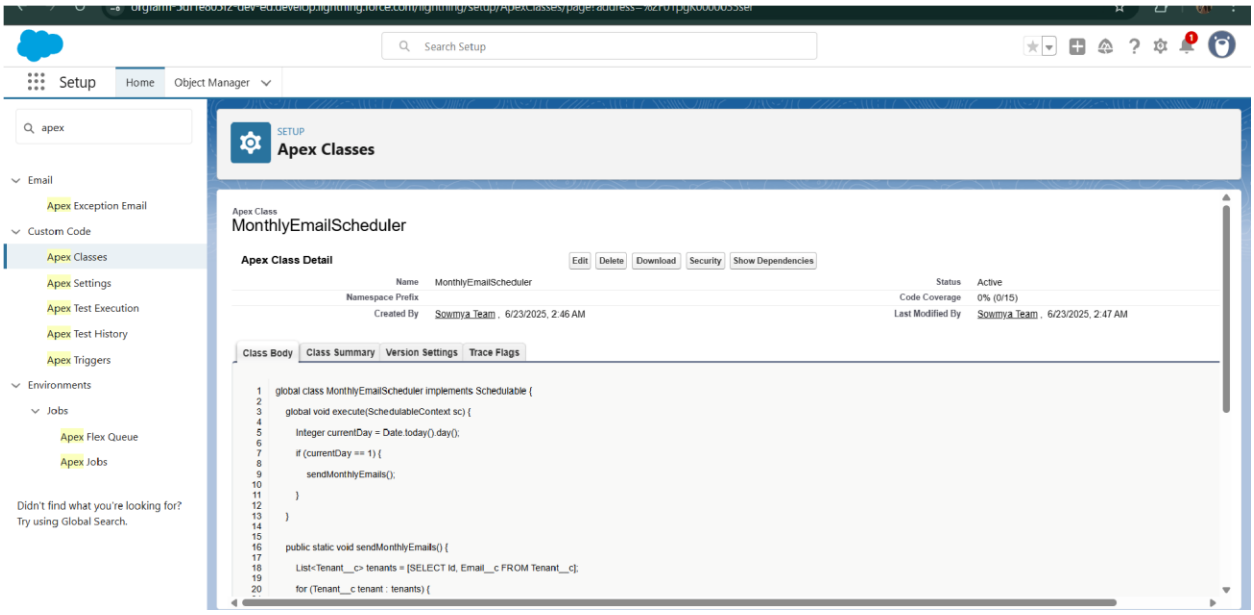


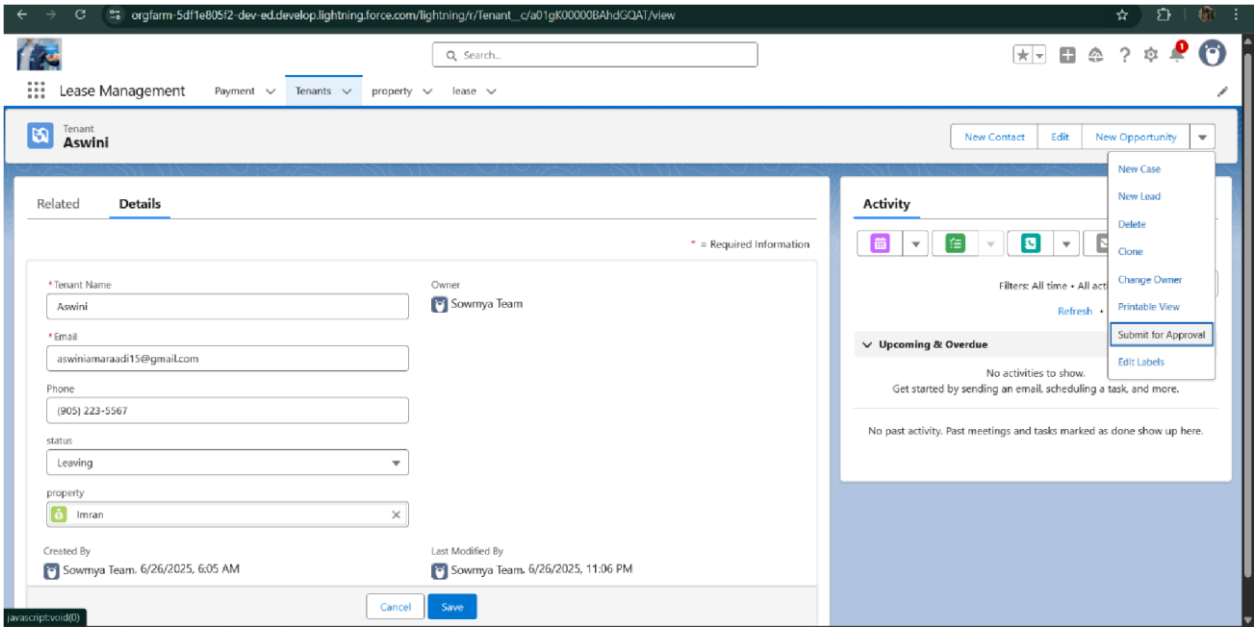
- Schedule class:
  Create an Apex Class

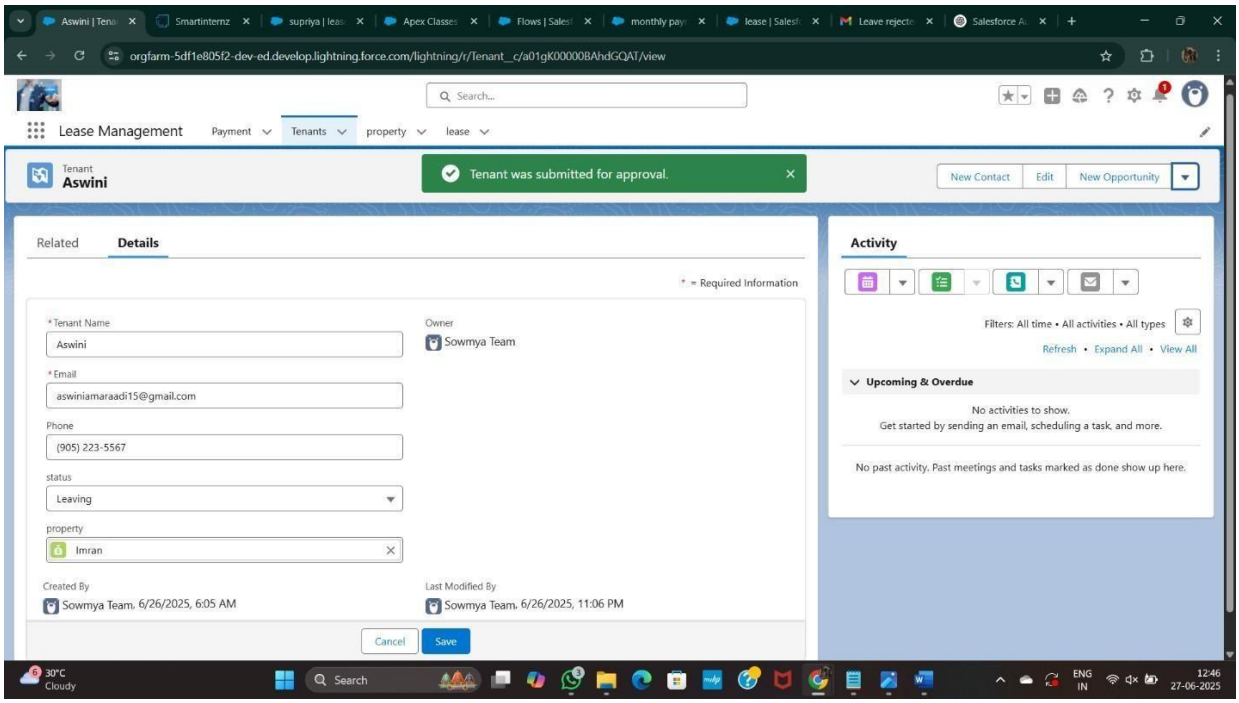


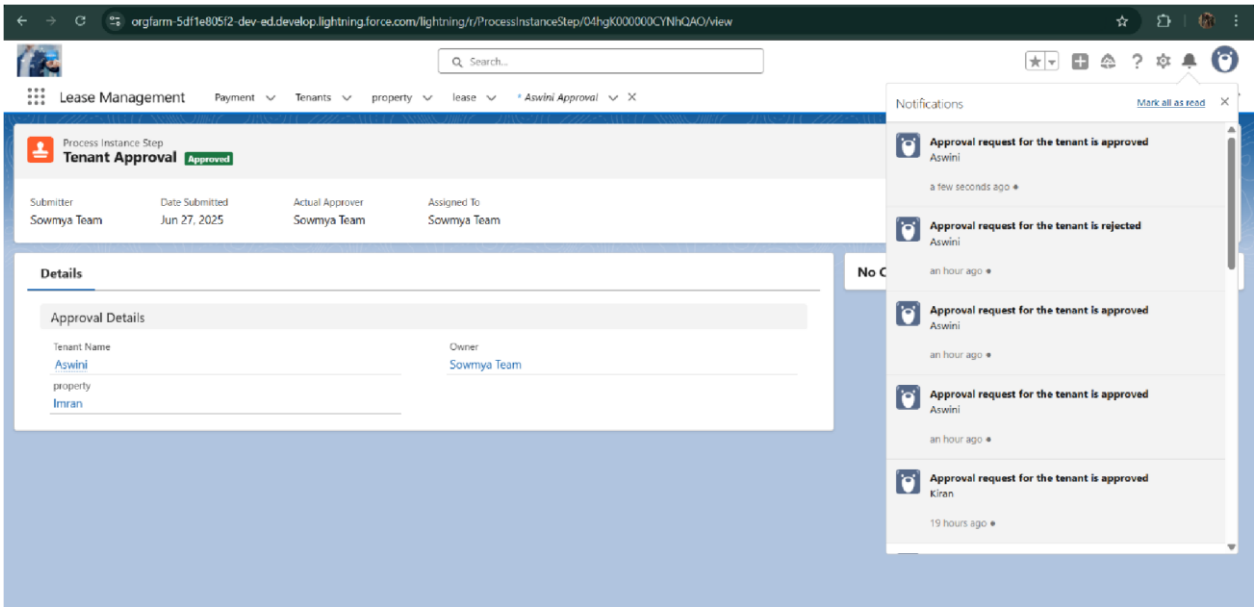


Schedule Apex class




orgfarm-5df1e805f2-dev-ed.develop.lightning.force.com/lightning/r/Tenant__c/a01gK00000BAhdGQAT/view
Search...
Lease Management
Payment
Tenants
property
lease
Tenant
Aswini
New Contact
Edit
New Opportunity
New Case
New Lead
Delete
Clone
Change Owner
Printable View
Submit for Approval
Edit Labels
Related
Details
* = Required Information
*Tenant Name
Aswini
Owner
Sowmya Team
*Email
aswiniamaraadi15@gmail.com
Phone
(905) 223-5567
status
Leaving
property
Imran
Created By
Sowmya Team, 6/26/2025, 6:05 AM
Last Modified By
Sowmya Team, 6/26/2025, 11:06 PM
Cancel
Save
Activity
Filters: All time • All act
Refresh
Upcoming & Overdue
No activities to show.
Get started by sending an email, scheduling a task, and more.
No past activity. Past meetings and tasks marked as done show up here.
javascript:void(0)

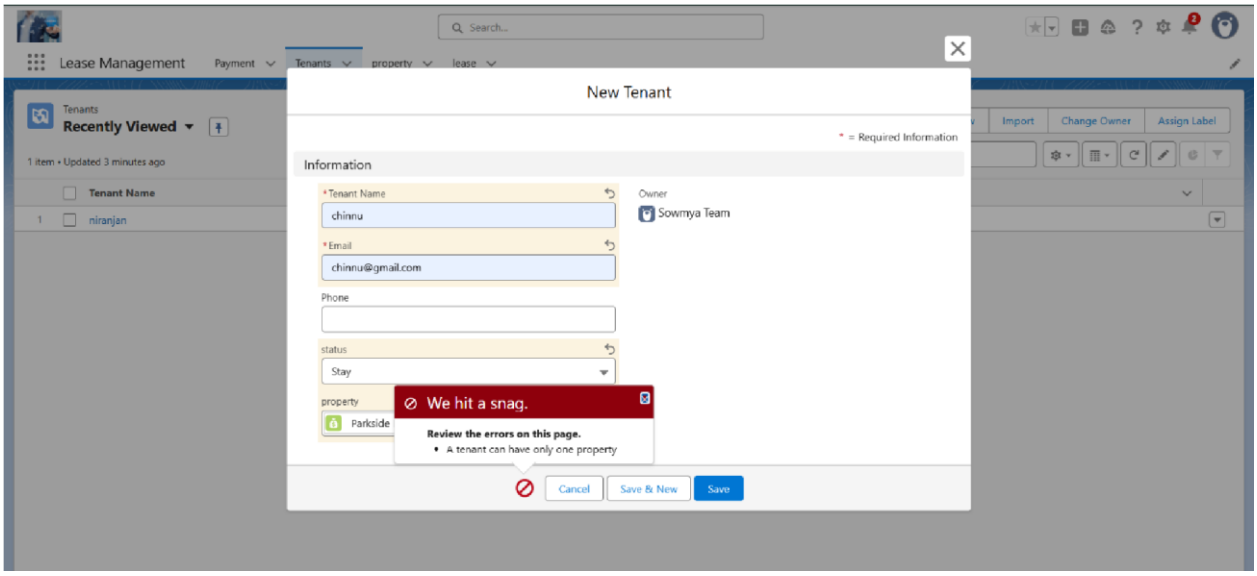

orgfarm-5df1e805f2-dev-ed.develop.lightning.force.com/lightning/r/Tenant__c/a01gK00000BAhdGQAT/view
Search...
Lease Management
Payment
Tenants
property
lease
Tenant
Aswini
Tenant was submitted for approval.
New Contact
Edit
New Opportunity
Related
Details
* = Required Information
*Tenant Name
Aswini
Owner
Sowmya Team
*Email
aswiniamaraadi15@gmail.com
Phone
(905) 223-5567
status
Leaving
property
Imran
Created By
Sowmya Team, 6/26/2025, 6:05 AM
Last Modified By
Sowmya Team, 6/26/2025, 11:06 PM
Cancel
Save
Activity
Filters: All time • All activities • All types
Refresh • Expand All • View All
Upcoming & Overdue
No activities to show.
Get started by sending an email, scheduling a task, and more.
No past activity. Past meetings and tasks marked as done show up here.
30°C
Cloudy
Search
ENG
IN
12:46
27-06-2025



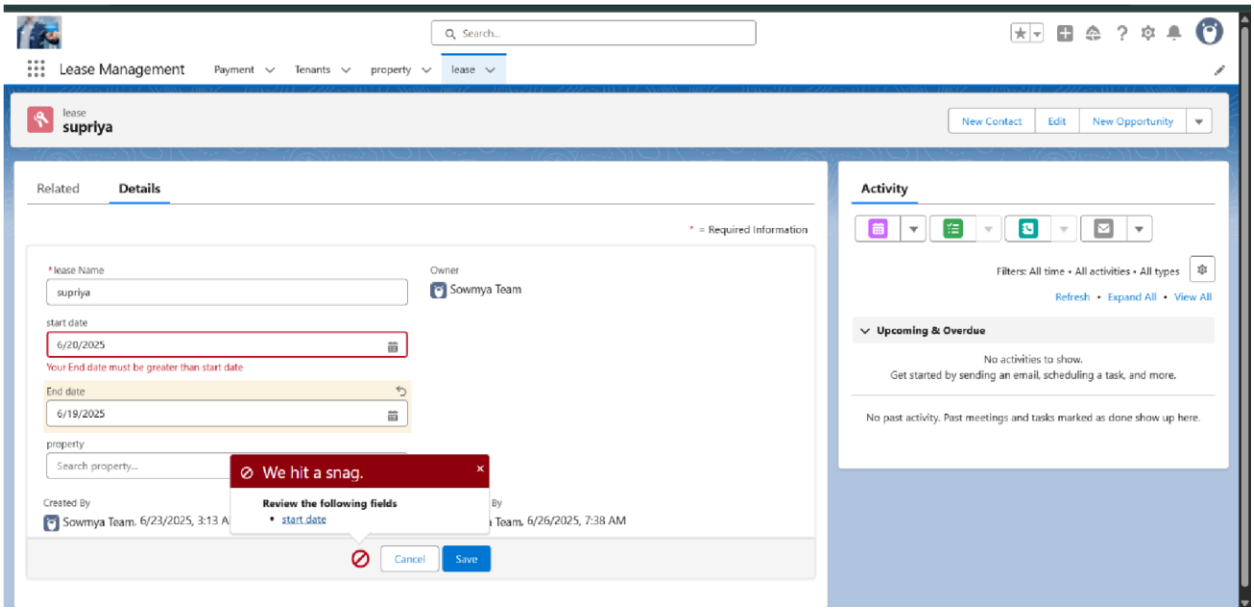
FUNCTIONAL AND PERFORMANCE TESTING

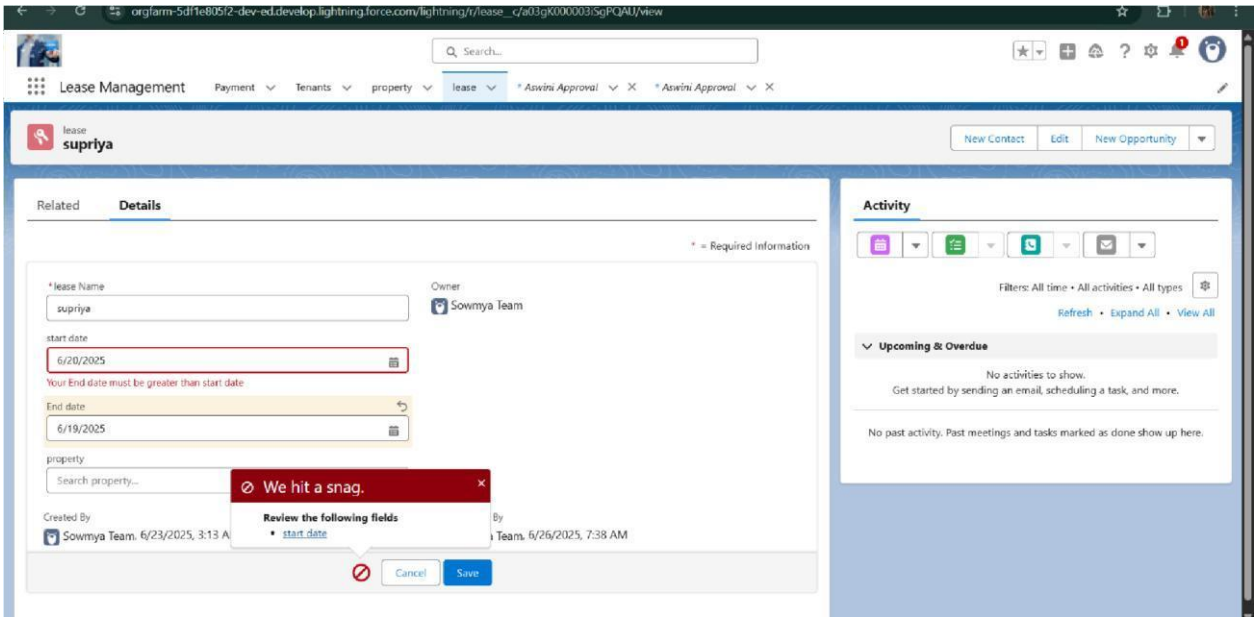
Performance Testing

- Trigger validation by entering duplicate tenant-property records

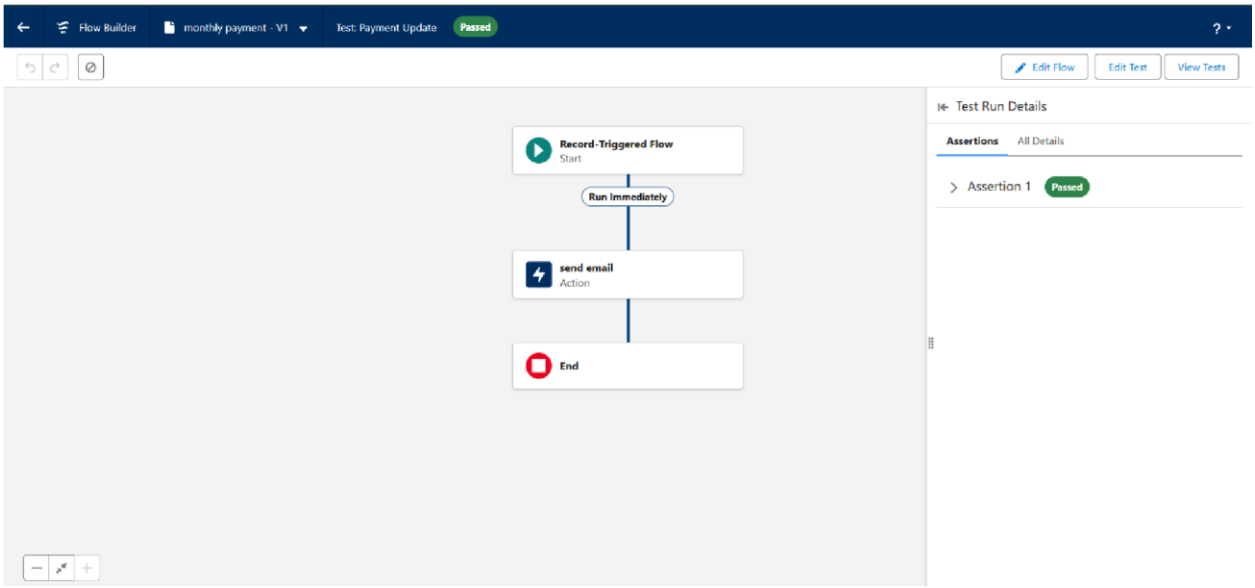


- Validation Rule checking

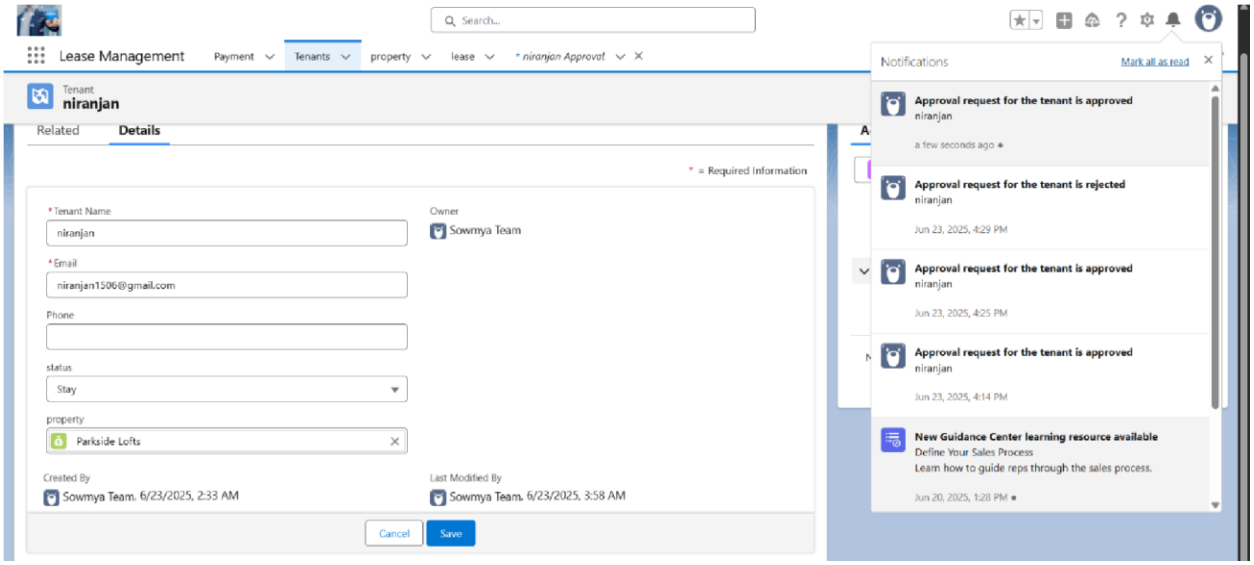


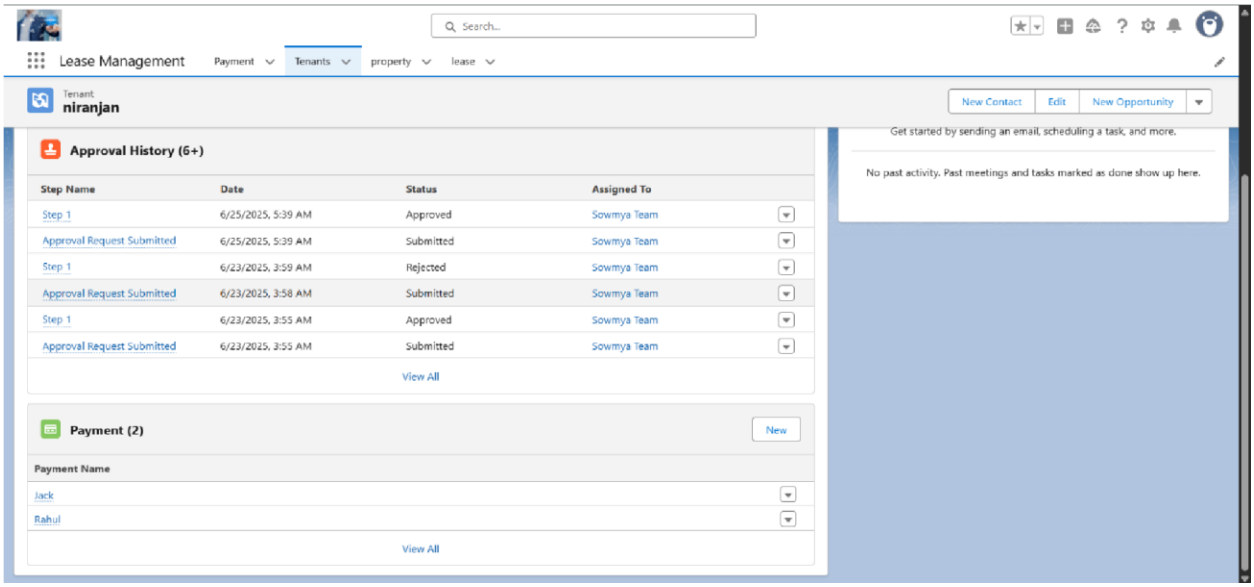


- Test flows on payment update



- Approval process validated through email alerts and status updates

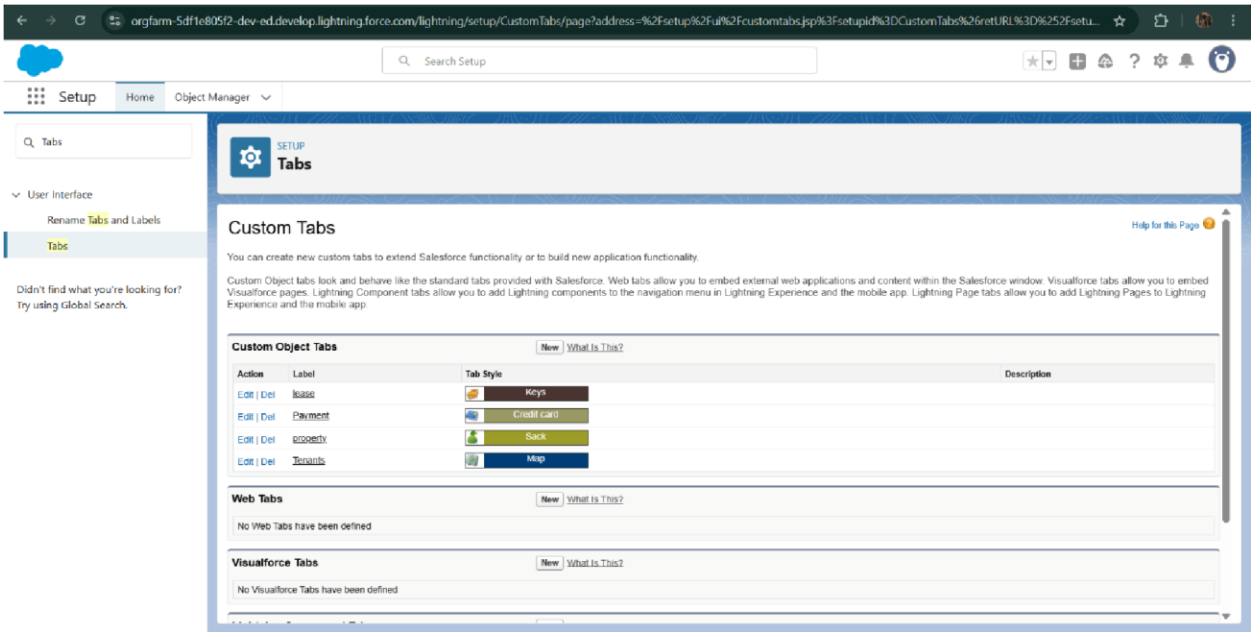

Search...
Lease Management
Payment
Tenants
property
lease
* niranjan Approval
Tenant
niranjan
Related
Details
* = Required Information
*Tenant Name
niranjan
Owner
Sowmya Team
*Email
niranjan1506@gmail.com
Phone
status
Stay
property
Parkside Lofts
Created By
Sowmya Team, 6/23/2025, 2:33 AM
Last Modified By
Sowmya Team, 6/23/2025, 3:58 AM
Cancel
Save
Notifications
Mark all as read
Approval request for the tenant is approved
niranjan
a few seconds ago
Approval request for the tenant is rejected
niranjan
Jun 23, 2025, 4:29 PM
Approval request for the tenant is approved
niranjan
Jun 23, 2025, 4:25 PM
Approval request for the tenant is approved
niranjan
Jun 23, 2025, 4:14 PM
New Guidance Center learning resource available
Define Your Sales Process
Learn how to guide reps through the sales process.
Jun 20, 2025, 1:28 PM


Search...
Lease Management
Payment
Tenants
property
lease
Tenant
niranjan
New Contact
Edit
New Opportunity
Approval History (6+)
Step Name
Date
Status
Assigned To
Step 1
6/25/2025, 5:39 AM
Approved
Sowmya Team
Approval Request Submitted
6/25/2025, 5:39 AM
Submitted
Sowmya Team
Step 1
6/23/2025, 3:59 AM
Rejected
Sowmya Team
Approval Request Submitted
6/23/2025, 3:58 AM
Submitted
Sowmya Team
Step 1
6/23/2025, 3:55 AM
Approved
Sowmya Team
Approval Request Submitted
6/23/2025, 3:55 AM
Submitted
Sowmya Team
View All
Payment (2)
New
Payment Name
Jack
Rahul
View All
Get started by sending an email, scheduling a task, and more.
No past activity. Past meetings and tasks marked as done show up here.

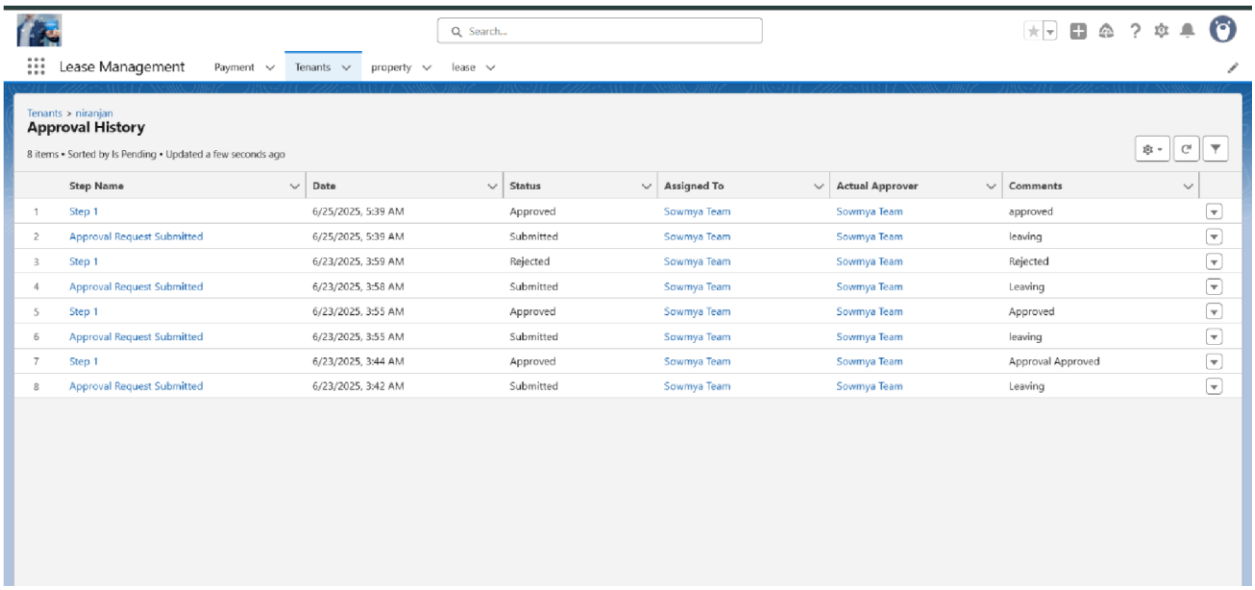
RESULTS

Output Screenshots

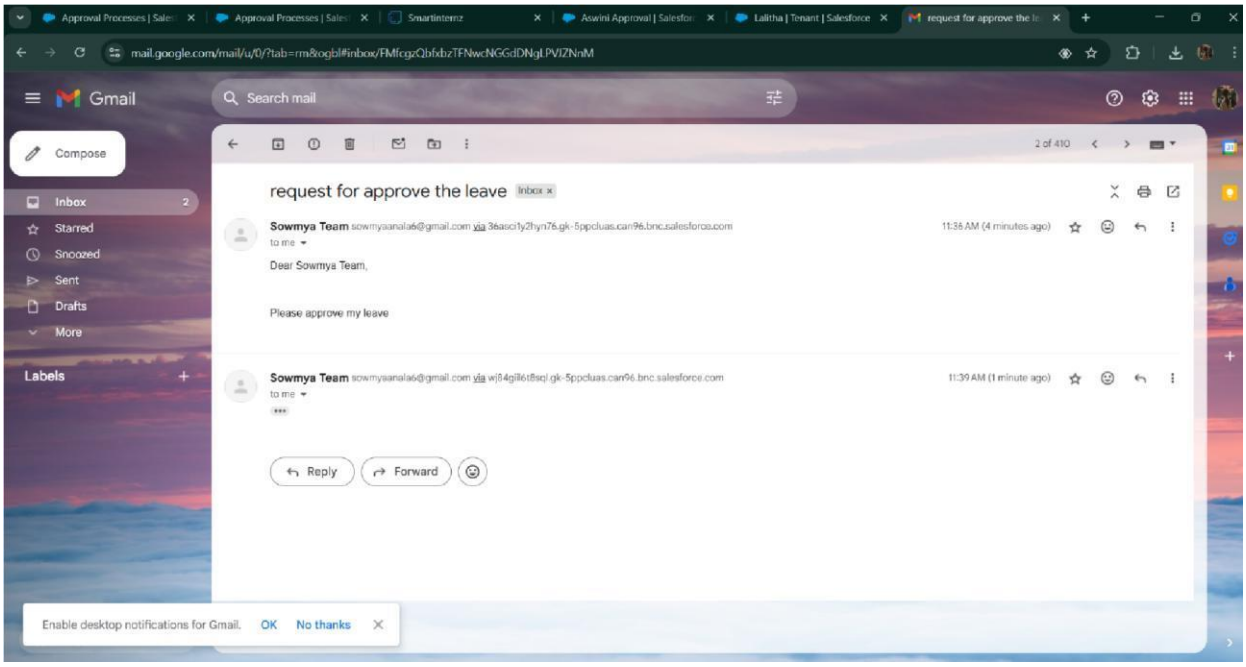
- Tabs for Property, Tenant, Lease, Payment



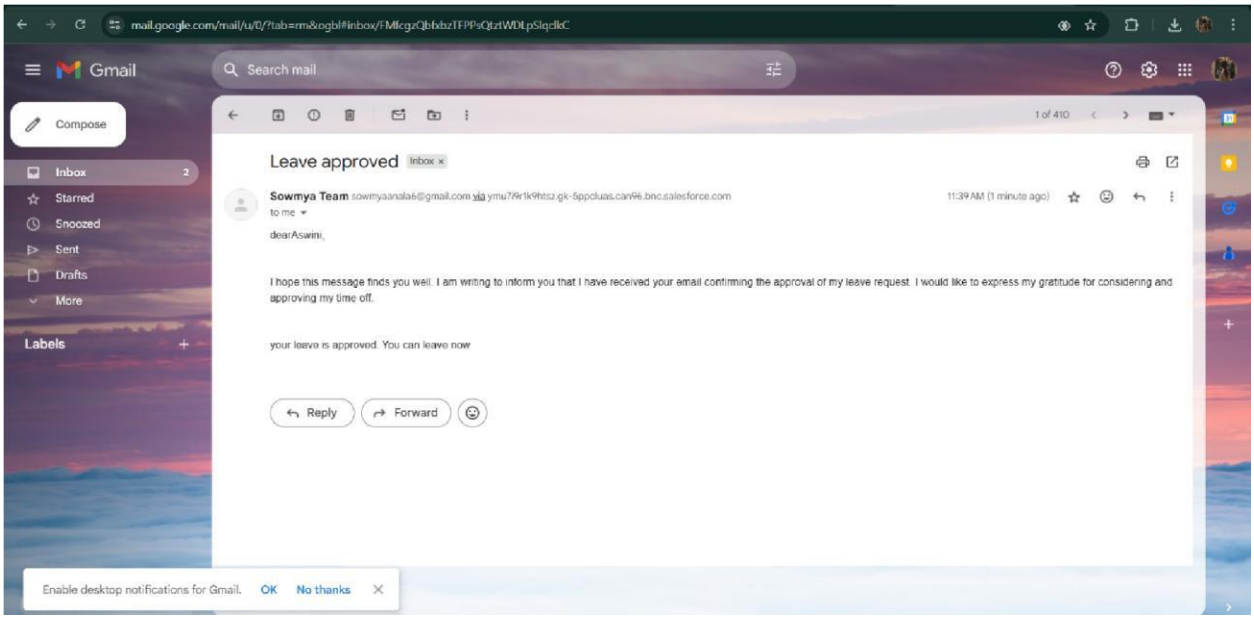
- Email alerts



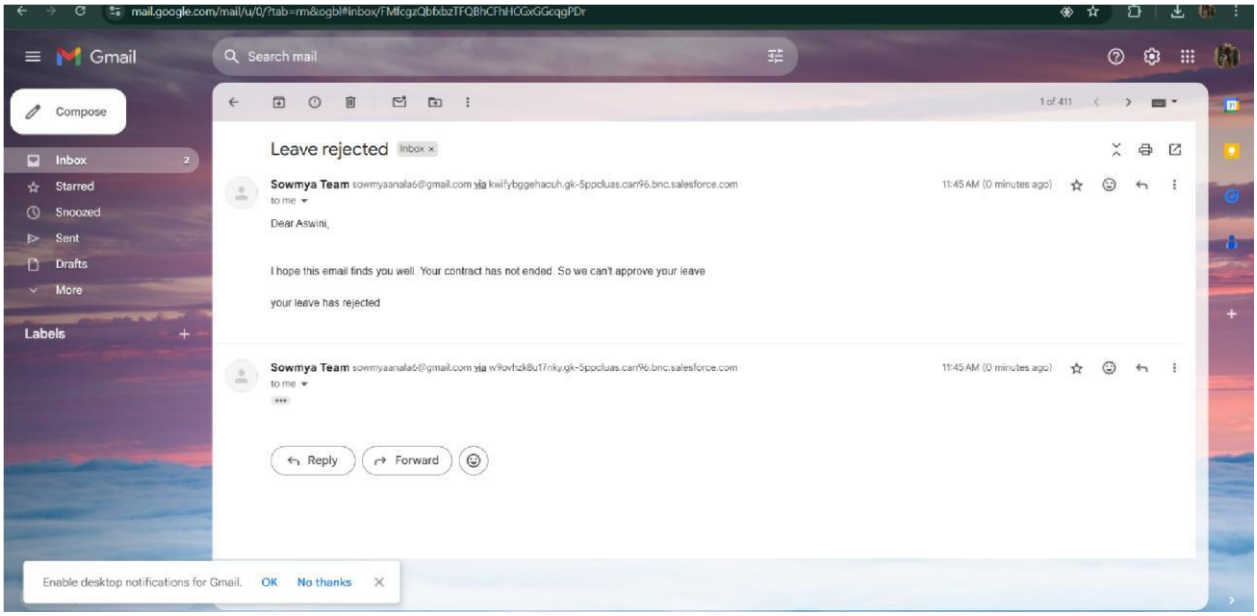
- Request for approve the leave



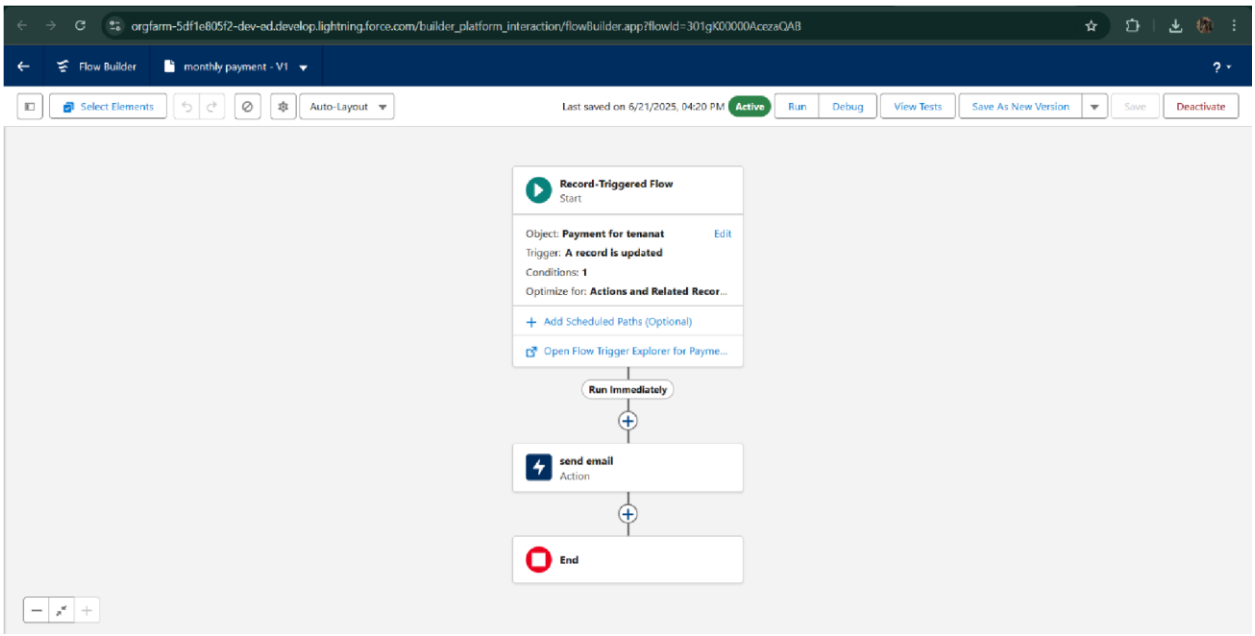
- Leave approved



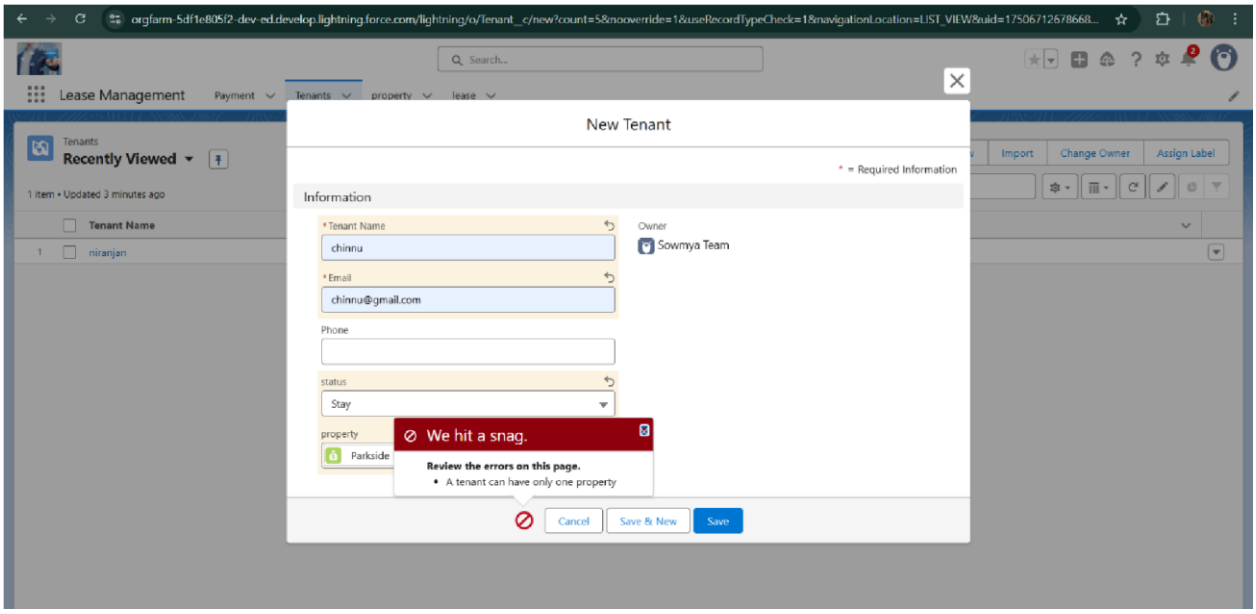
- Leave rejected



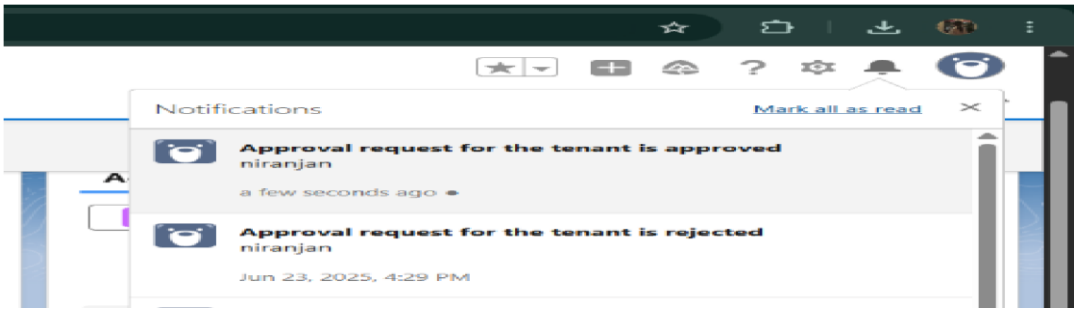
- Flow runs



- Trigger error messages



- Approval process notifications



ADVANTAGES & DISADVANTAGES

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CONCLUSION

The **Garage Management System** developed using **Salesforce Apex Classes and Triggers** provides an efficient way to manage customer information, vehicles, service records, job cards, and invoices in a single platform. By automating key operations such as service cost calculation, job card tracking, and invoice generation, the system minimizes manual effort and reduces errors.

APPENDIX

- **Source Code:** Provided in Apex Classes and Triggers

Test.apxt:

```
trigger test on Tenant__c (before insert) {  if

(trigger.isInsert && trigger.isBefore){

testHandler.preventInsert(trigger.new);

        }  }
```

GarageServiceHandler.cls:

```
public with sharing class GarageServiceHandler {


    // Create a new job card

    public static Id createJobCard(Id customerId, Id vehicleId, List<Id> serviceIds) {

        JobCard__c job = new JobCard__c(

            Customer__c = customerId,

            Vehicle__c  = vehicleId,

            Status__c   = 'Open',

            TotalAmount__c = 0

        );

        insert job;


        List<JobCard_Service__c> jobServices = new List<JobCard_Service__c>();
```

```
        for (Id sid : serviceIds) {
            jobServices.add(new JobCard_Service__c(
                JobCard__c = job.Id,
                Service__c = sid
            ));
        }
        insert jobServices;

        return job.Id;
    }

    // Close JobCard and generate Invoice
    public static Id generateInvoice(Id jobCardId) {
        JobCard__c job = [SELECT Id, Customer__c, TotalAmount__c FROM JobCard__c WHERE Id =
:jobCardId LIMIT 1];

        Invoice__c inv = new Invoice__c(
            JobCard__c  = job.Id,
            Customer__c = job.Customer__c,
            Amount__c   = job.TotalAmount__c,
            Status__c   = 'Pending Payment'
        );
        insert inv;

        job.Status__c = 'Closed';
        update job;
```

```
        return inv.Id;

    }

}
```

ServicePricingUtil.cls:

```
public with sharing class ServicePricingUtil {

    // Calculate total service cost for a job card
    public static Decimal calculateTotal(Id jobCardId) {
        List<JobCard_Service__c> services = [
            SELECT Service__r.Price__c
            FROM JobCard_Service__c
            WHERE JobCard__c = :jobCardId
        ];

        Decimal total = 0;
        for (JobCard_Service__c js : services) {
            total += js.Service__r.Price__c;
        }
        return total;
    }
}
```

JobCardTrigger.trigger:

```
trigger JobCardTrigger on JobCard_Service__c (after insert, after delete) {
    Set<Id> jobCardIds = new Set<Id>();
    if (Trigger.isInsert) {
        for (JobCard_Service__c js : Trigger.new) {
            jobCardIds.add(js.JobCard__c);
        }
    }
    if (Trigger.isDelete) {
        for (JobCard_Service__c js : Trigger.old) {
            jobCardIds.add(js.JobCard__c);
        }
    }

    List<JobCard__c> jobsToUpdate = new List<JobCard__c>();
    for (Id jobId : jobCardIds) {
        Decimal total = ServicePricingUtil.calculateTotal(jobId);
        jobsToUpdate.add(new JobCard__c(Id = jobId, TotalAmount__c = total));
    }

    if (!jobsToUpdate.isEmpty()) {
        update jobsToUpdate;
```

```
    }
}
```

InvoiceTrigger.trigger:

```
trigger InvoiceTrigger on Invoice__c (before insert, before update) {
    for (Invoice__c inv : Trigger.new) {
        if (inv.Status__c == 'Paid' && Trigger.isUpdate) {
            inv.PaymentDate__c = System.today();
        }
    }
}
```