

~~A CRM APPLICATION TO MANAGE THE MALL~~

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Naan mudhalvan project report

1. Project Overview:

This project involves the development of a Customer Relationship Management (CRM) application tailored for mall management, leveraging the Salesforce platform for its robust features and scalability. The application is designed to manage tenants, leases, and issue tracking efficiently. It includes creating custom objects such as Tenant, Lease Tracking, and Tenant Issues, along with corresponding fields, relationships, and custom tabs.

A Lightning App will integrate these components for seamless navigation. Automation is implemented using flows, including record-triggered and scheduled flows, while Apex triggers handle advanced logic like email notifications for unpaid rents and validation for PAN card entries. Asynchronous Apex is utilized for scheduled tasks, and detailed reporting and dashboards are provided for lease management, tenant issues, and overall tenant data. This comprehensive solution aims to streamline mall operations and enhance tenant management.

2. Objectives:

The primary objective of this project is to design and implement a robust CRM application using the Salesforce platform to streamline mall management operations. The system aims to efficiently manage tenant information, lease agreements, and tenant issue tracking while providing actionable insights through reports and dashboards.

By creating custom objects like Tenant, Lease Tracking, and Tenant Issues, the application ensures that all critical data points are captured and organized. The integration of custom tabs and a Lightning App allows for intuitive navigation and centralized access to relevant information. This application enhances operational efficiency by automating key processes, such as sending email alerts for unpaid rents and validating tenant PAN card entries, ensuring accuracy and timely follow-ups.

Another key objective is to harness Salesforce's capabilities to deliver a data-driven approach to mall management. Through the creation of flows and Apex triggers, the application automates repetitive tasks, saving time and minimizing human errors. The use of asynchronous Apex ensures that scheduled processes run seamlessly without affecting system performance. Additionally, by generating comprehensive reports and dashboards, the application provides stakeholders with valuable insights into tenant performance, lease management, and issue resolution trends. Ultimately, this project seeks to enhance tenant satisfaction, reduce administrative overhead, and empower mall management with tools to make informed decisions.

3.Salesforce key Features and concepts Utilised:

□Custom Object and fields:

Custom objects like Tenant, Lease tracking and tenant issues are created to capture specific mall management data. These objects include Tailored fields and relationships to ensure accurate and relevant information storage.

□ Lightning app Builder

A customer Lightning App is designed to provide a centralized and user friendly interface for managing tenant data, lease agreements, and issue tracking within the salesforce environment

□Automation with Flows

Record triggered and scheduled flows are implemented to automate repetitive processes, such as generating alerts for lease renewals or tracking overdue rents enhancing operational efficiency.

□Apex Triggers and Asynchronous Apex:

Advanced business logic is implemented using Apex triggers for tasks like sending email

notifications for overdue payments and validating tenant data. Scheduled Apex jobs are utilized for time-based automated tasks.

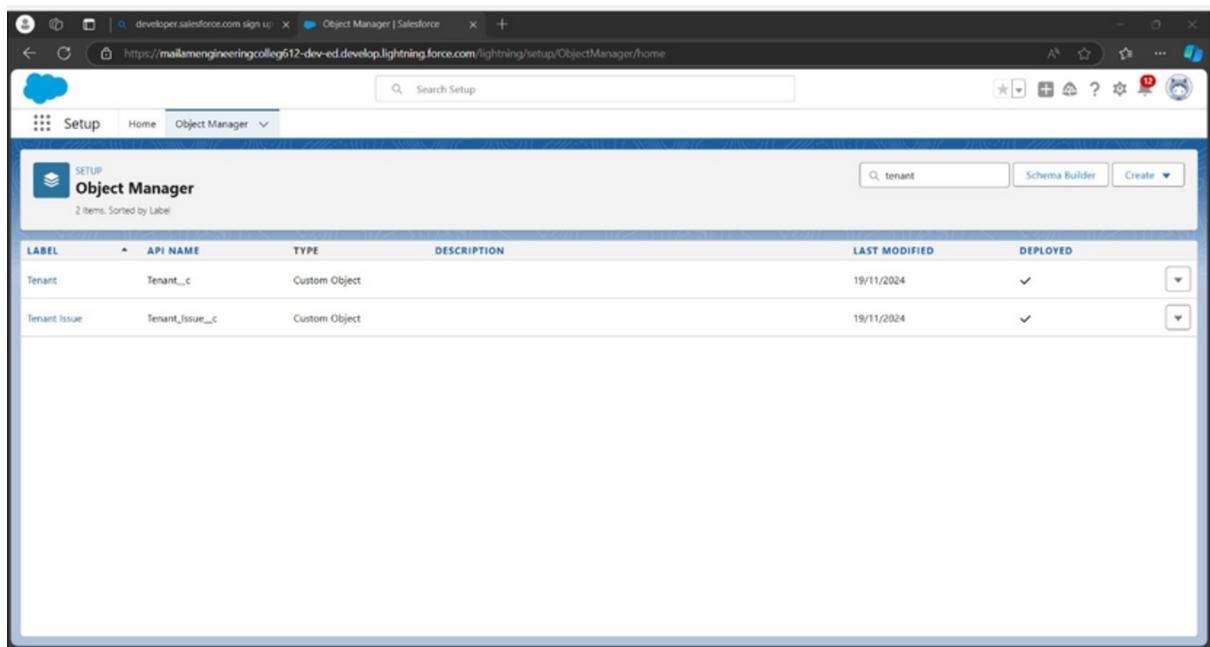
□Reports and Dashboards:

Custom reports and dashboards are created to provide actionable insights into lease management, tenant performance, and issue resolution trends, enabling data-driven decision-making.

4.Solution Design Steps for the Salesforce Mall Management CRM Application:

□Create custom objects:

we should create a custom objects in salesforce, follow these details:



>Create a tabs:

Tabs in a CRM (Customer Relationship Management) application for a mall typically serve as organized sections to manage various aspects of customer and business interactions. Here are common tab ideas.

Overview of key metrics, such as footfall, sales data, and tenant performance.

The screenshot shows the Salesforce Setup interface under the 'Tabs' section. It displays three categories of tabs:

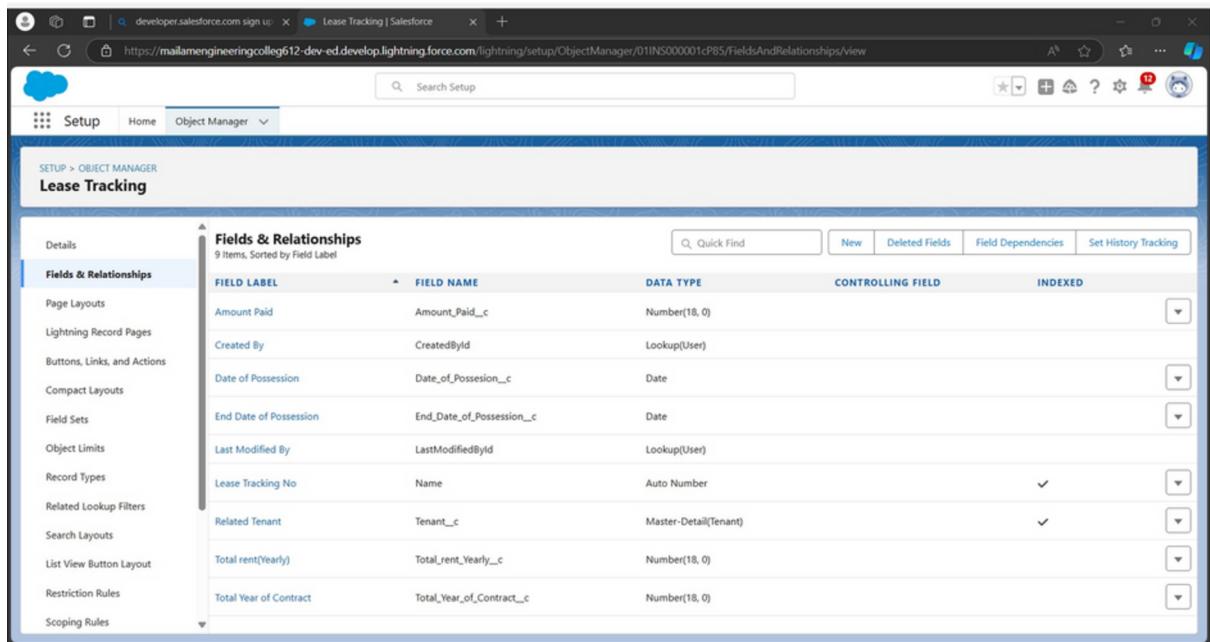
- Custom Object Tabs**: Contains three tabs: 'Leases_Tracking' (Airplane icon), 'Tenant_Issues' (Building icon), and 'Tenants' (Apple icon).
- Web Tabs**: No Web Tabs have been defined.
- Visualforce Tabs**: No Visualforce Tabs have been defined.
- Lightning Component Tabs**: No Lightning component tabs have been defined.

☐ Create fields on tenant objects:

The screenshot shows the Salesforce Setup interface under the 'Object Manager' section for the 'Tenant' object. The left sidebar lists various configuration options like Details, Fields & Relationships, Page Layouts, etc. The main area displays the 'Fields & Relationships' list:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address__c	Text Area(255)		
Created By	CreatedById	Lookup(User)		
Date of Reg	DateofReg__c	Date		
Email	Email__c	Email		
GST No	GST_No__c	Text(20)		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		
PAN Card	PAN_Card__c	Text(20)		
Phone Number	Phone_Number__c	Phone		
Registered License No	Registered_License_No__c	Text(32)		

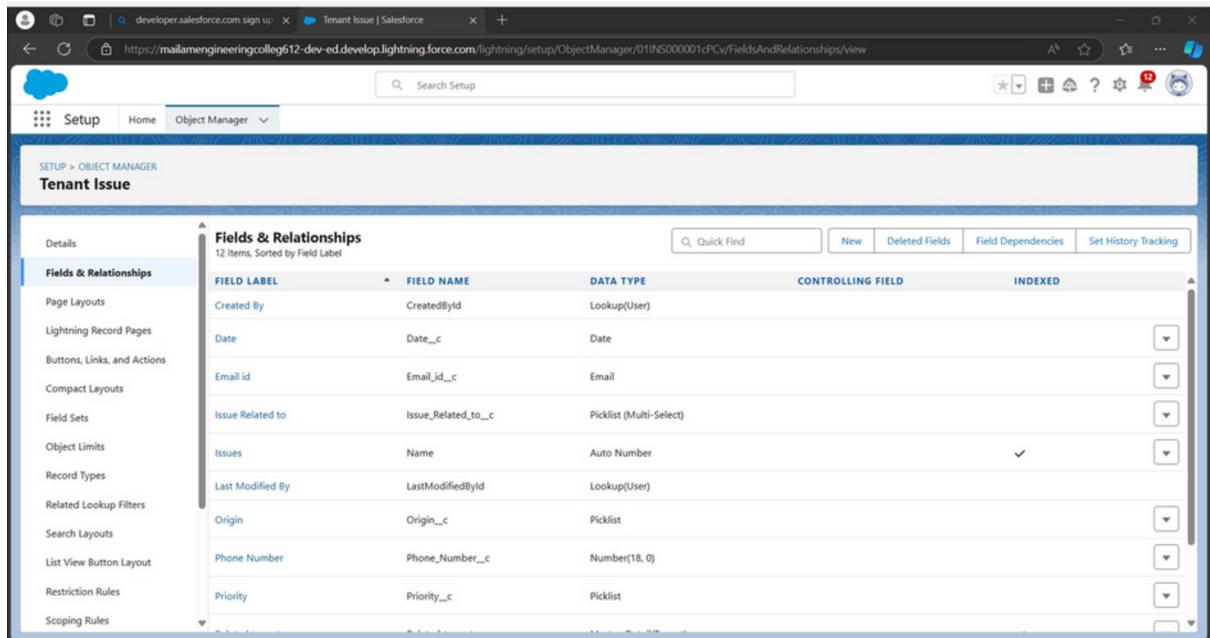
☐ Create fields on lease tracking:



The screenshot shows the Salesforce Setup interface under the Object Manager for the 'Lease Tracking' object. The left sidebar lists various setup categories like Details, Fields & Relationships, Page Layouts, etc. The main area displays a table titled 'Fields & Relationships' with 9 items. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount Paid	Amount_Paid__c	Number(18, 0)		
Created By	CreatedBy	Lookup(User)		
Date of Possession	Date_of_Possession__c	Date		
End Date of Possession	End_Date_of_Possession__c	Date		
Last Modified By	LastModifiedBy	Lookup(User)		
Lease Tracking No	Name	Auto Number		✓
Related Tenant	Tenant__c	Master-Detail(Tenant)		✓
Total rent(Yearly)	Total_rent_Yearly__c	Number(18, 0)		
Total Year of Contract	Total_Year_of_Contract__c	Number(18, 0)		

☐ Create fields on Tenant issues:



The screenshot shows the Salesforce Setup interface under the Object Manager for the 'Tenant Issue' object. The left sidebar lists various setup categories like Details, Fields & Relationships, Page Layouts, etc. The main area displays a table titled 'Fields & Relationships' with 12 items. The columns are FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedBy	Lookup(User)		
Date	Date__c	Date		
Email Id	Email_Id__c	Email		
Issue Related to	Issue_Related_to__c	Picklist (Multi-Select)		
Issues	Name	Auto Number		✓
Last Modified By	LastModifiedBy	Lookup(User)		
Origin	Origin__c	Picklist		
Phone Number	Phone_Number__c	Number(18, 0)		
Priority	Priority__c	Picklist		

Create a lightning app:

Create a custom Lightning App that integrates the following components:

Opportunity records

Automobile information records

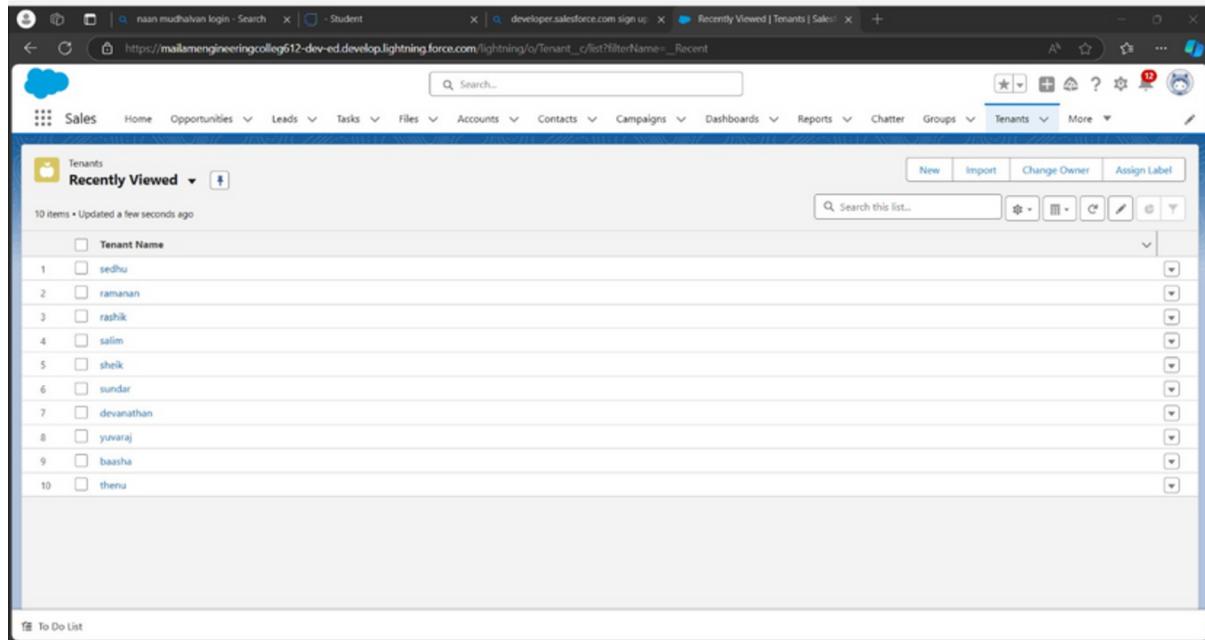
Invoices related to opportunities

The app should include:

Navigation to all relevant objects

A dashboard to visualize total Sales, Invoices due, opportunity stage

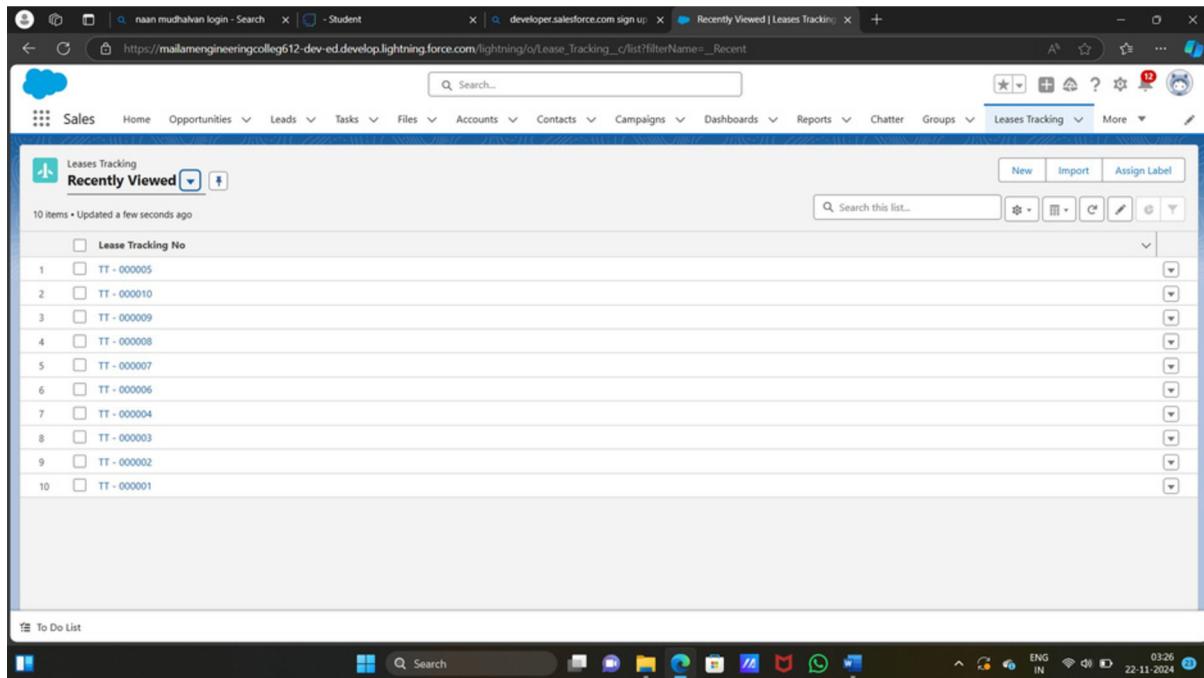
Inserting records into tenant object:



The screenshot shows the Salesforce Lightning Experience interface. The top navigation bar includes links for Home, Opportunities, Leads, Tasks, Files, Accounts, Contacts, Campaigns, Dashboards, Reports, Chatter, Groups, Tenants, and More. The current page is 'Tenants' under the 'Recently Viewed' section. The main content area displays a list of 10 recently viewed tenant names, each with a checkbox and a small blue circular icon. The names listed are: sedhu, ramanan, rashik, salim, sheik, sundar, devanathan, yuvraj, baasha, and thenu. The bottom of the screen shows a 'To Do List' button.

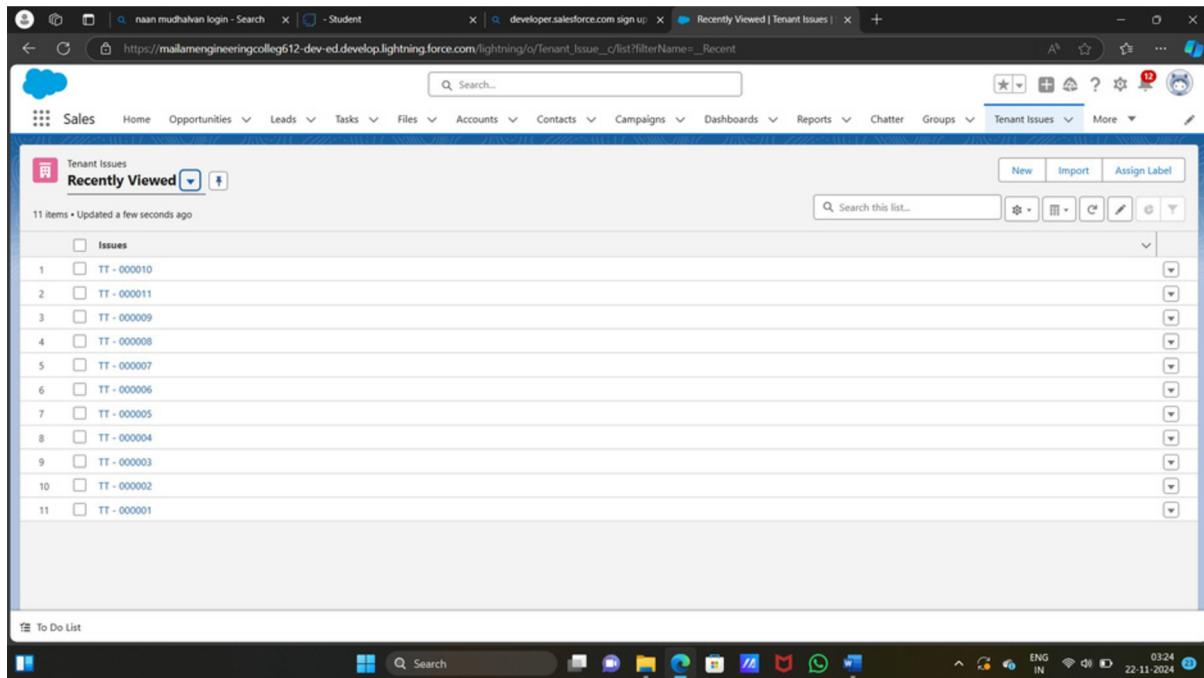
Rank	Tenant Name
1	sedhu
2	ramanan
3	rashik
4	salim
5	sheik
6	sundar
7	devanathan
8	yuvraj
9	baasha
10	thenu

Inserting records in lease tracking:



The screenshot shows the Salesforce Leases Tracking list view. The header includes the Sales navigation bar and a search bar. Below the header, a section titled "Recently Viewed" displays 10 items, each with a checkbox and the text "TT - 000005" through "TT - 000001". To the right of the list are various list management tools like "New", "Import", and "Assign Label". A "Search this list..." input field is also present. The bottom of the screen shows a Windows taskbar with icons for various applications.

Inserting records in tenant issues object:

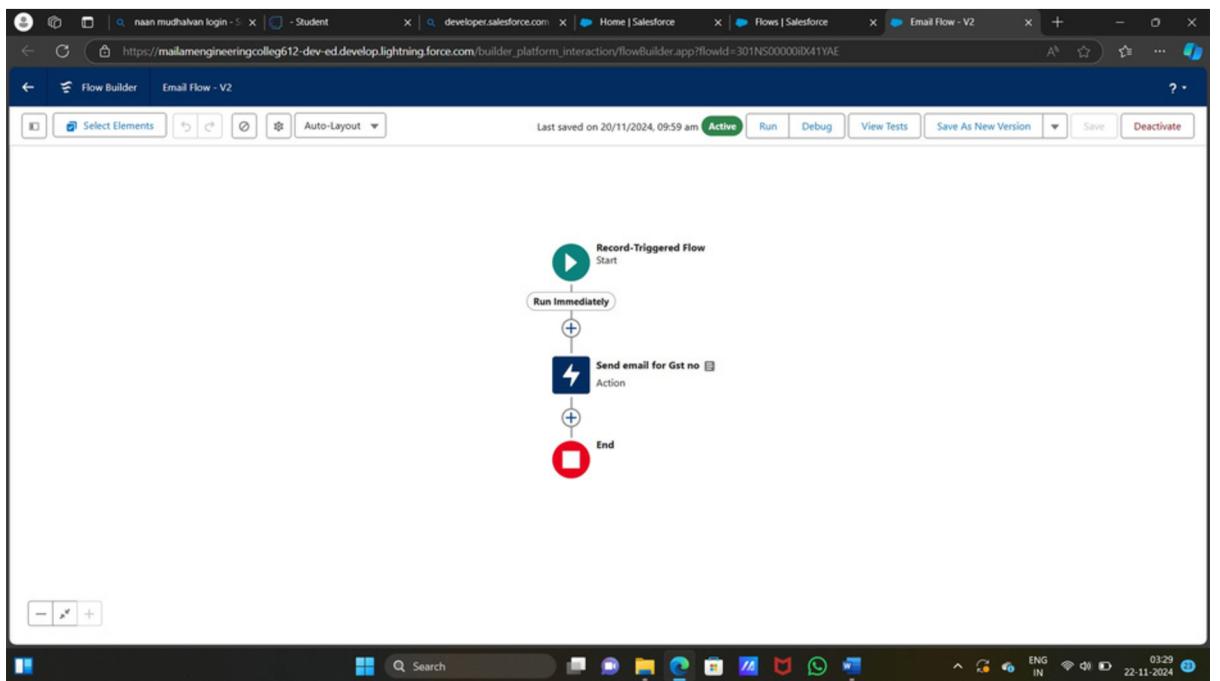


The screenshot shows the Salesforce Tenant Issues list view. The header includes the Sales navigation bar and a search bar. Below the header, a section titled "Recently Viewed" displays 11 items, each with a checkbox and the text "TT - 000010" through "TT - 000001". To the right of the list are various list management tools like "New", "Import", and "Assign Label". A "Search this list..." input field is also present. The bottom of the screen shows a Windows taskbar with icons for various applications.

>Create flows:

Designing a CRM(Customer Relationship management) application for a mall involves creating a set of comprehensive, user-centric workflows to optimize operations and working flow model was created

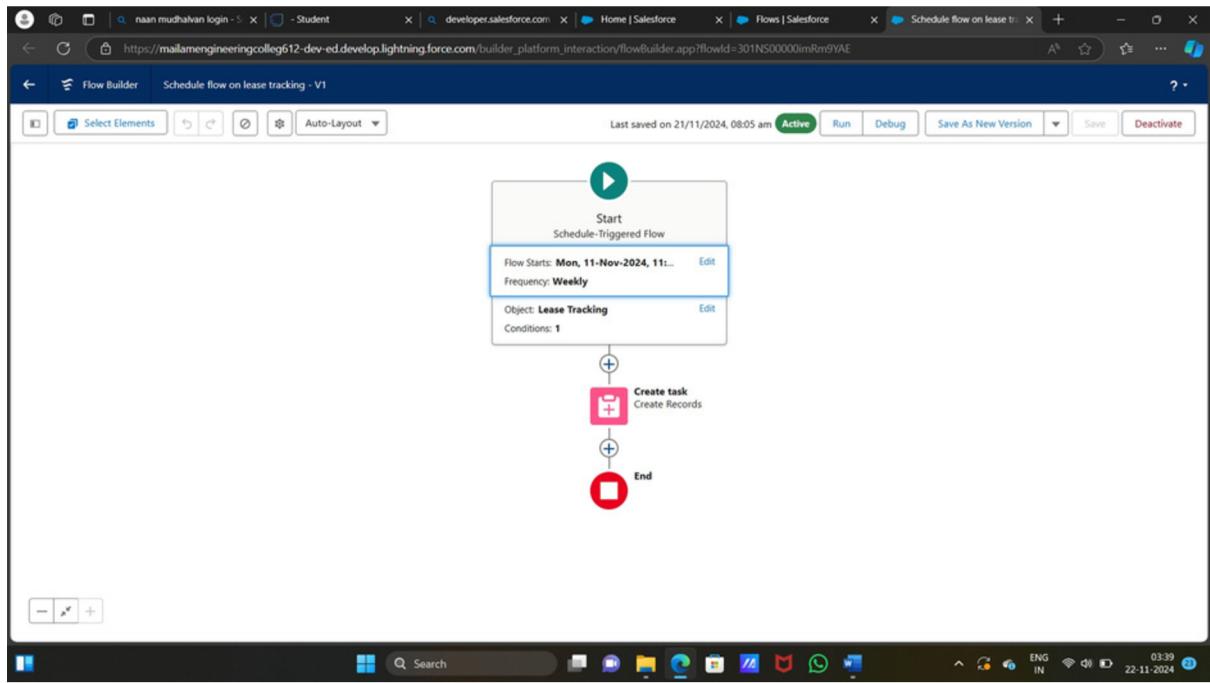
Below are the detailed flow on the tenant object:



Creating a flow on lease management object:

In lease management the control flow through the start and then it will goes for the records and finally it will end in the flow

The object was created in the record and object was managed to get a control flow



Apex Triggers:

In Apex trigger creating the lease tracking trigger and lease tracking trigger handler and this is to handle the error in the lease tracking trigger and this was handled.

An apex trigger is a set of instruction that execute when certain events occur on a salesforce object

□ Lease Tracking Trigger:

The screenshot shows the Microsoft Edge browser window with the developer tools open. The title bar reads "Developer Console - Personal - Microsoft Edge". The address bar shows the URL: "https://mailamengineeringcollege612-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage". The main content area displays the following Apex code:

```
trigger leasetrackingtrigger on Lease_Tracking__c (After insert, After update) {
    if (Trigger.isAfter && Trigger.isUpdate) {
        Handler1.method1(Trigger.old);
    }
}
```

The code editor interface includes tabs for Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected, showing no errors or warnings. The status bar at the bottom right indicates the date and time as "22-11-2024 03:47".

Lease tracking trigger handler:

The screenshot shows the Microsoft Edge browser window with the developer tools open. The title bar reads "Developer Console - Personal - Microsoft Edge". The address bar shows the URL: "https://mailamengineeringcollege612-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage". The main content area displays the following Apex code:

```
public class LeaseTrackingTriggerHandler {
    // This method checks if the tenant has paid less than 50% of the rent and sends an email reminder
    public static void method1(List<Lease_Tracking__c> ltList) {
        for (Lease_Tracking__c lt : ltList) {
            // Check if the Amount to be paid is more than 50% of the Total Rent
            if (lt.Amount_to_be_paid__c < (lt.Total_rent_Yearly__c / 2)) {
                // Send an email reminder if the tenant has not paid 50% of the total rent
                Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
                // Create a list of email addresses from the tenant's Email field
                List<String> toAddresses = new List<String>{lt.Email_id__c};
                // Set the recipient of the email
                email.setToAddresses(toAddresses);
                // Set the email subject
            }
        }
    }
}
```

The code editor interface includes tabs for Logs, Tests, Checkpoints, Query Editor, View State, Progress, and Problems. The Problems tab is selected, showing no errors or warnings. The status bar at the bottom right indicates the date and time as "22-11-2024 03:49".

❑Asynchronous Apex:

Asynchronous Apex can be applied to CRM systems for a mall to handle operations that are long-running, resource- intensive, or time-dependent, such as sending notifications, processing tenant records, or updating analytics dashboards. Below are examples of Asynchronous Apex implementations, including Scheduled Apex for specific scenarios in a mall CRM application.



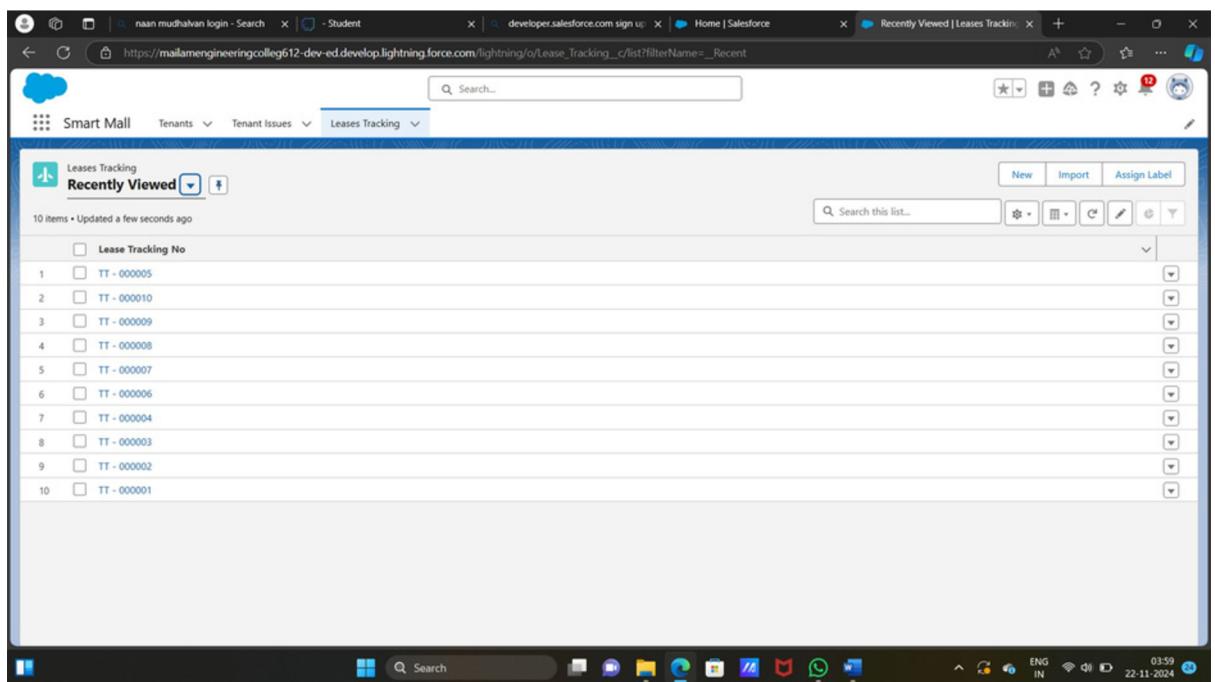
✓ Reports:

Reports give you access to your Salesforce data. You can examine your Salesforce data in almost infinite combinations, display it in easy-to-understand formats, and share the resulting insights with others.

Before building, reading, and sharing reports, review these reporting basics.

- Create A Report of lease Management Records:

Lease management records play a critical role in the administration of real estate properties, especially for commercial spaces like malls, office buildings, or residential complexes. A well-organized lease management system helps property managers track lease agreements, rental payments, terms, renewals, and compliance with lease conditions



The screenshot shows a Salesforce Lightning interface for a 'Leases Tracking' list view. The page title is 'Leases Tracking'. At the top left, there's a 'Recently Viewed' dropdown and a search bar. On the right, there are buttons for 'New', 'Import', and 'Assign Label'. Below the header, a sub-header reads 'Lease Tracking No'. The main content area displays a table with 10 items, each with a checkbox and the value 'TT - 000001' through 'TT - 000010'. The bottom of the screen shows a Windows taskbar with various icons and the date/time '22-11-2024 03:59'.

Lease Tracking No
1 TT - 000005
2 TT - 000010
3 TT - 000009
4 TT - 000008
5 TT - 000007
6 TT - 000006
7 TT - 000004
8 TT - 000003
9 TT - 000002
10 TT - 000001

- Create report of tenant issues:

This report will outline the key components of lease management records including the structure data and key performance indicators relevant to the key

The screenshot shows a Salesforce Lightning Experience interface. The top navigation bar includes tabs for 'Lightning Usage | Salesforce', 'All | Tenant Issues | Salesforce', and 'Issue Report | Salesforce'. Below the navigation is a search bar and a toolbar with various icons. The main content area displays a table titled 'Report: Tenants with Tenant Issues' under the heading 'Issue Report'. The table has columns: Tenant, Tenant Name, Tenant Issue, Issues, Origin, Priority, and Status. It lists 10 rows of data. The status column includes entries like 'Working', 'Not contacted', and 'In progress'. The bottom of the screen shows a Windows taskbar with icons for Start, Search, Task View, Edge, File Explorer, Mail, and Google Chrome, along with system status indicators.

Tenant	Tenant Name	Tenant Issue	Issues	Origin	Priority	Status	
1	Kavya	TT - 000002	1	Phone	2	Medium	4 Working
2	Lavanya	TT - 000007	1	Phone	1	Low	1 Not contacted
3	Salej	TT - 000018	1	Phone	1	Low	1 Not contacted
4	chandru	TT - 000008	1	Phone	1	Low	1 Not contacted
5	Mansha	TT - 000003	1	Phone	1	Low	1 Not contacted
6	Dhanush	TT - 000004	1	Phone	2	Medium	1 Not contacted
7	Anur	TT - 000005	1	Phone	2	Medium	4 Working
8	Eshani	TT - 000008	1	Phone	2	Medium	3 In progress
9	Sanya	TT - 000007	1	Phone	2	Medium	4 Working
10	Thien	TT - 000006	1	Phone	1	Low	1 Not contacted

□ Dashboard:

A dashboard provides a visual overview of real-time data, helping you monitor and analyze business trends, track key metrics, and make informed decisions based on current information. It's an effective tool for spotting patterns, assessing performance, and measuring the outcomes of various activities. A structured process used to review, verify, and approve workforce-related tasks or transactions. This ensures that actions like hiring, promotions,

leave requests, and payroll updates align with company policies and are properly recorded.

5. Testing and validation of CRM application for the mall project:

Testing and validating the CRM system for a mall is vital to ensure it functions properly and provides a smooth experience for both customers and mall management. The process begins with functional testing to ensure key features like customer registration, profile management, loyalty programs, and marketing campaigns work correctly. Usability testing follows, focusing on the system's ease of use, mobile responsiveness, and overall user-friendliness for both customers and mall staff

Next, performance testing checks how the CRM handles heavy traffic, especially during peak shopping periods or promotions, and whether it can scale as the mall grows. Security testing ensures the protection of customer data and compliance with regulations such as GDPR.

Integration testing makes sure the CRM works well with other mall systems, such as POS, payment systems, and tenant management software.

User acceptance testing (UAT) involves real users to confirm the system meets business needs and

delivers the expected results. Throughout the process, any issues are documented, prioritized, and fixed before the system is fully deployed. After the launch, ongoing monitoring and collecting feedback are essential for identifying and addressing any new issues, ensuring the CRM continues to effectively support the mall's operations.

□ Conclusion:

In conclusion, adopting a CRM system for a shopping mall offers a competitive edge by consolidating customer data, improving operational workflows, and fostering stronger customer interactions. The CRM enables the effective management of customer relationships through tailored marketing efforts, targeted offers, loyalty programs, and responsive support. It provides mall management with critical insights into consumer behavior, sales trends, and the success of marketing campaigns, facilitating more informed, data-driven decisions. Furthermore, by integrating with other systems such as point-of-sale, tenant management, and inventory tracking, the CRM ensures a smooth, cohesive experience for both shoppers and mall operators. In the end, the CRM system not only enhances customer satisfaction and loyalty but also drives the mall's growth and