CRM APPLICATION TO MANAGE THE MALL

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.

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 the 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.

- The Management App is a comprehensive solution built on the Salesforce platform to streamline and enhance the management of commercial malls. This innovative app offers a suite of features designed to optimize the lease tracking process, improve tenant interactions, and provide actionable insights for effective decision-making.

  Business Goals:

  - Streamline mall management operations by digitizing tenant, lease, and issue management processes.
  - Enhance tenant satisfaction through efficient communication and issue resolution.
  - Improve decision-making with actionable insights via reports and dashboards.

- Automate repetitive tasks to reduce manual effort and operational overhead.

Specific Outcomes:

- A Salesforce-based CRM application with custom objects for tenant, lease, and issue tracking.
- Automated workflows for notifications (e.g., unpaid rents, lease renewals).
- Validated data entries (e.g., PAN card accuracy) for improved reliability.
- Comprehensive reports and dashboards for lease performance and tenant analysis.
- A user-friendly Lightning App for centralized access to all functionalities.

Salesforce key Features and concepts Utilized:

- **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.

Detailed Steps to Solution Design:

- **Create custom objects:**

  - To store the data as per business requirement.
  - we should create a custom object in salesforce, follow these details:

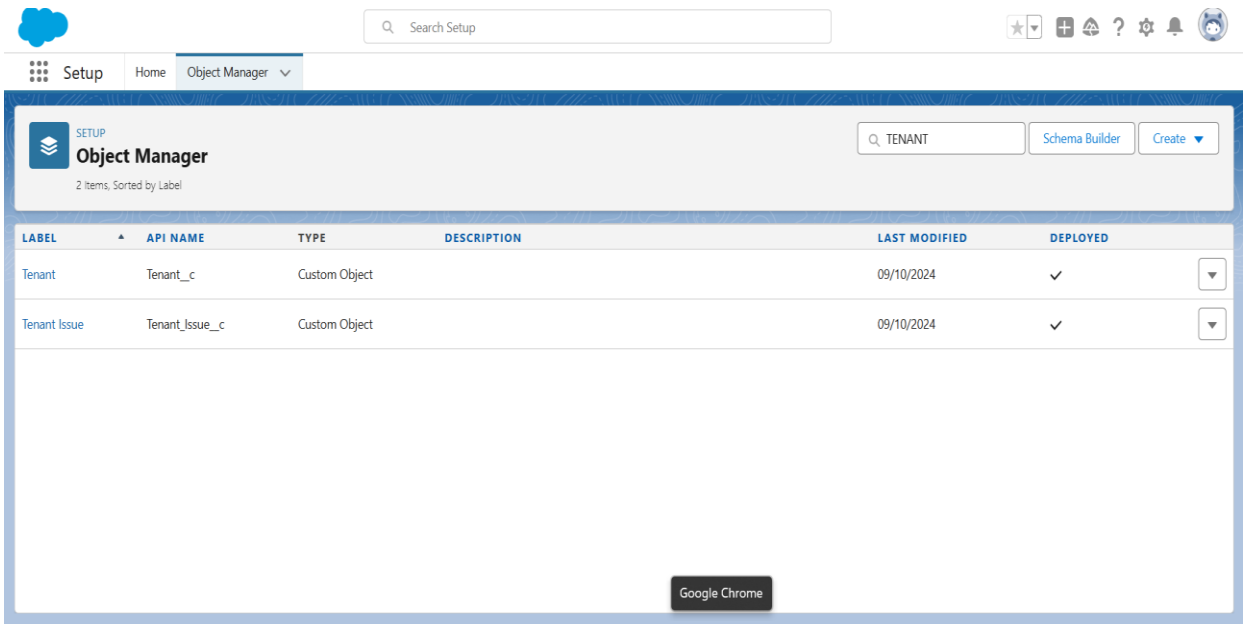

Figure 1

- **Create fields on Tenant objects:**
    - From the setup page ==> Click on Object Manager ==> Click on Create ==> Click on Custom Object.
    - To create a Tenant object.
    - To create a fields on Tenant.

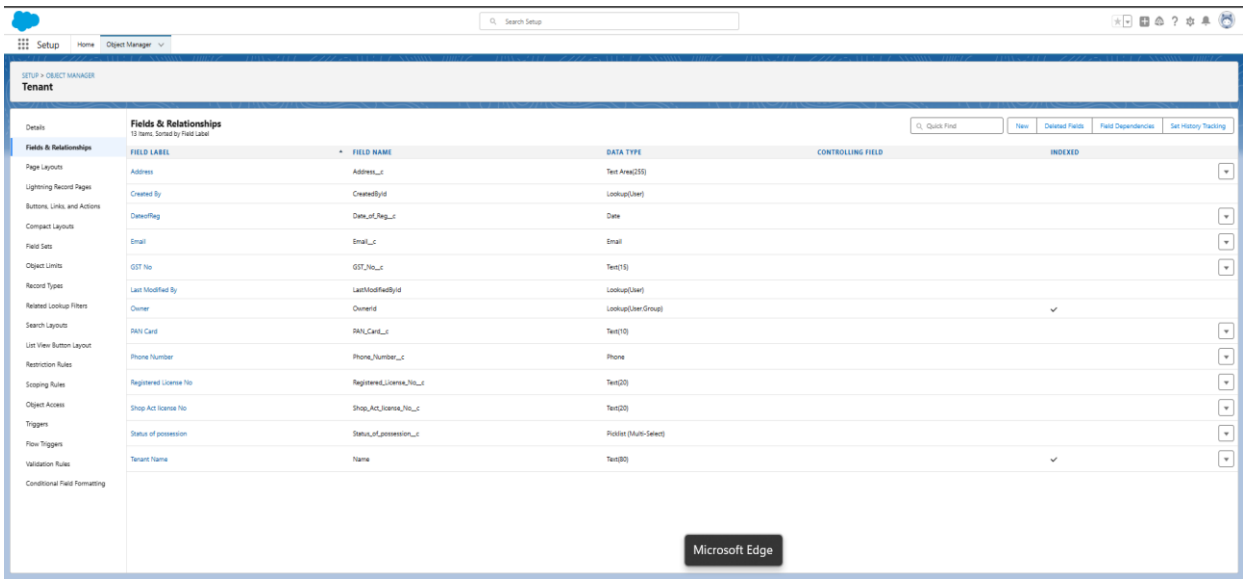

Figure 2

- **Create fields on Lease tracking:**
    - From the setup page ==> Click on Object Manager ==> Click on Create ==> Click on Custom Object.
    - To create a Lease tracking object.
    - To create a fields on Lease tracking.

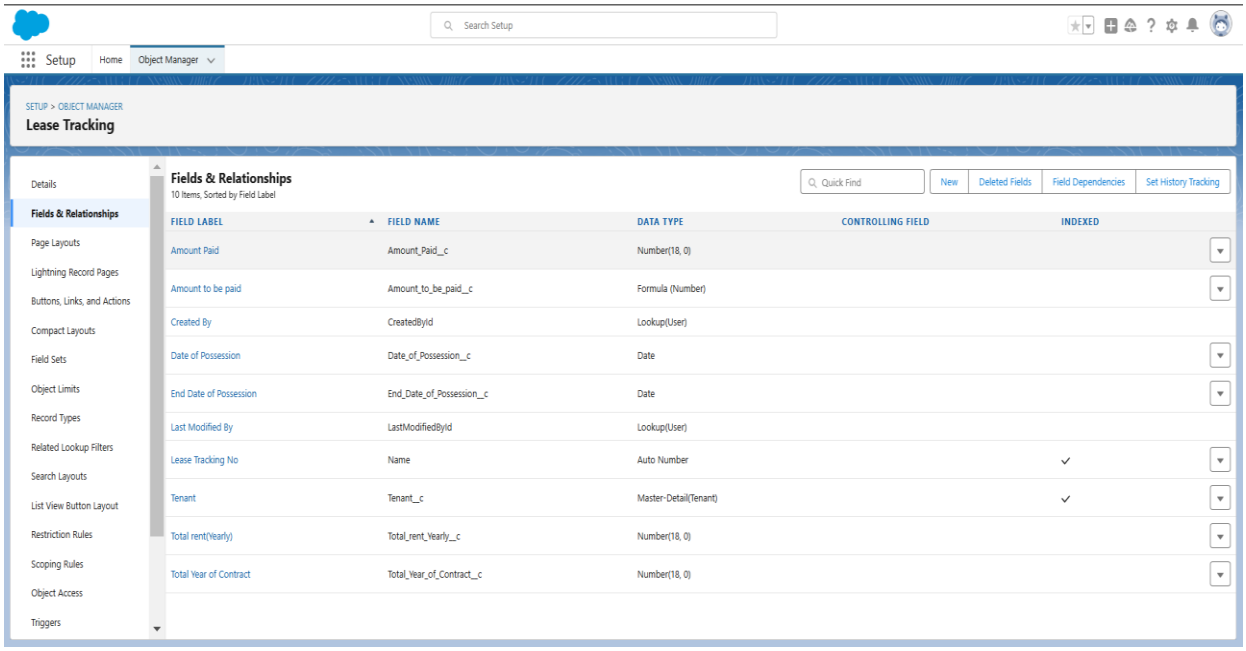

Figure 3

- **Create fields on Tenant issues:**
    - From the setup page ==> Click on Object Manager ==> Click on Create ==> Click on Custom Object.
    - To create a lease Tenant issues object.
    - To create a fields on Tenant issues.

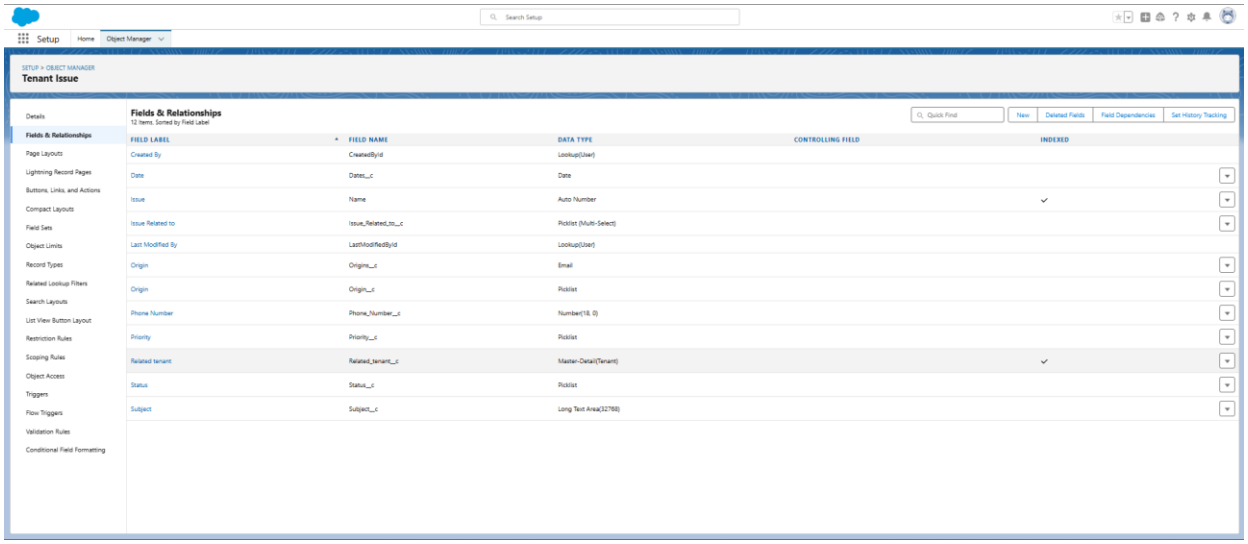

Figure 4

- **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.

A tab is like a user interface that is used to build records for objects and to view the records in the objects.

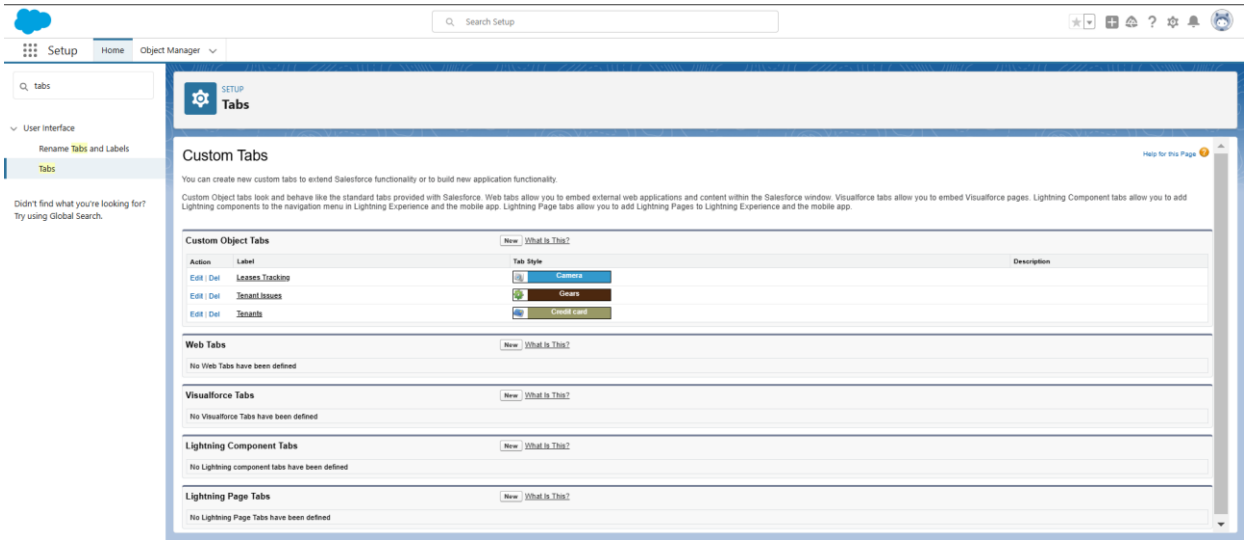

Figure 5

- **Create a lightning app:**

An app is a collection of items that work together to serve a particular function. In Lightning Experience, Lightning apps gives users access to sets of objects, tabs, and other items all in one convenient bundle in the navigation bar.

Lightning apps let you brand your apps with a custom color and logo. You can even include a utility bar and Lightning page tabs in your Lightning app. Members of your org can work more efficiently by easily switching between apps.

There are two types of Salesforce Applications:

- Standard Apps
- Custom Apps

Standard Apps:

Standard apps come with every occurrence of Salesforce as default. Community, Call Centre, Content, Sales, Marketing, Salesforce Chatter, Site.com, and App Launcher are included in these apps. The description, logo, and label of a standard app cannot be altered.

Custom Apps:

Custom apps are created according to the needs of a company. They can be made by putting custom and standard tabs together. Logos for custom apps can be changed.

From the setup page ==> Search for Apps ==> Click on App manager ==> Click on New Lightning App.

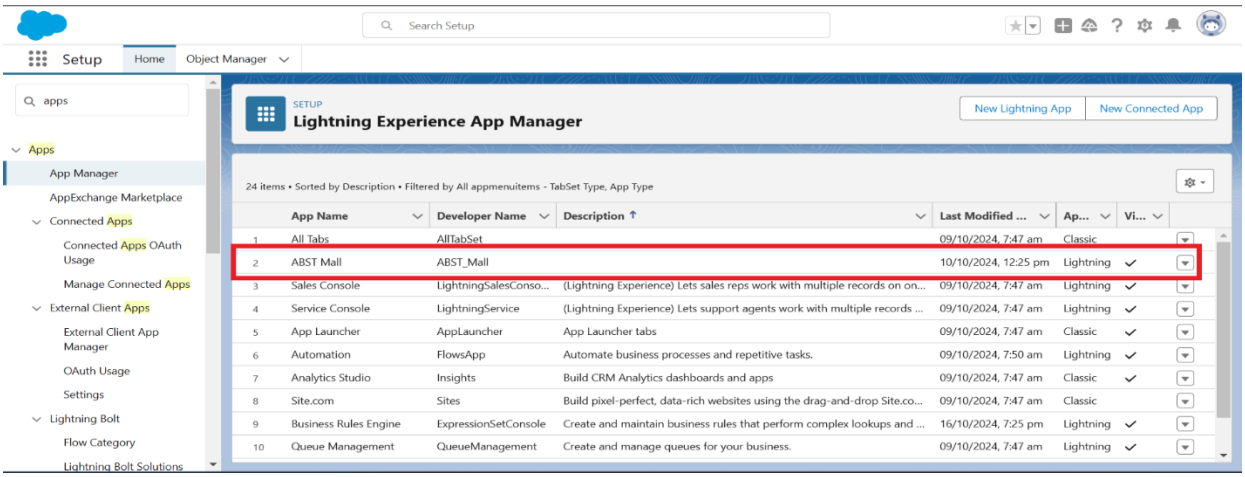

Figure 6

- **Record Insertion**

Creating records in Salesforce is a fundamental and essential activity that serves multiple purposes, contributing to the effective management of data, streamlined processes, and overall success of an organization.

Inserting records in lease tracking:

Click on the App Launcher and search Tenant Object then click New in the right corner to create a record.

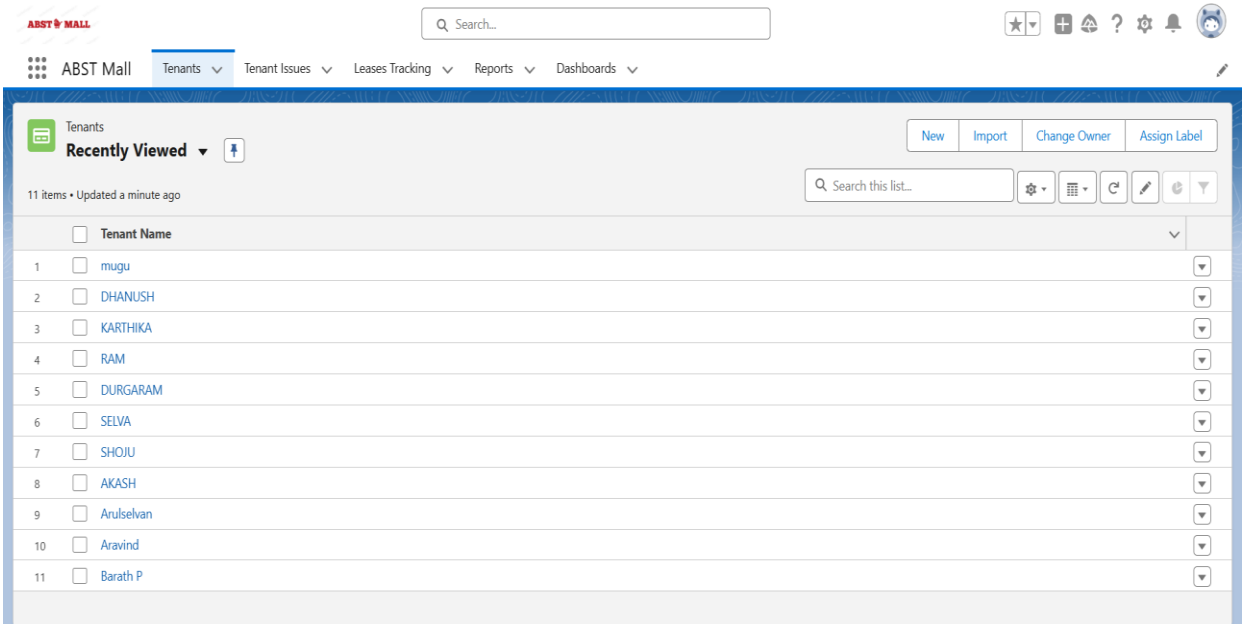

Figure 7

Inserting records in lease tracking:

Click on the App Launcher and search Lease Tracking Object then click New in the right corner to create a record.

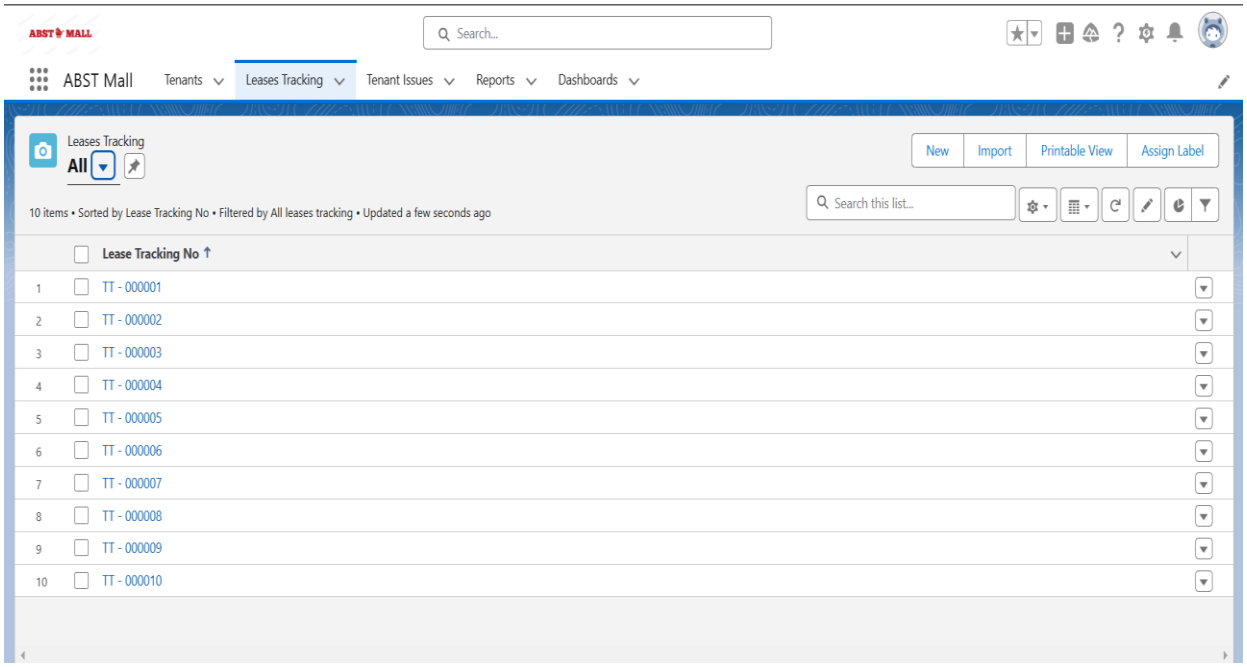

Figure 8

Inserting records in tenant issues object:

Click on the App Launcher and search Tenant Issues Object then click New in the right corner to create a record.

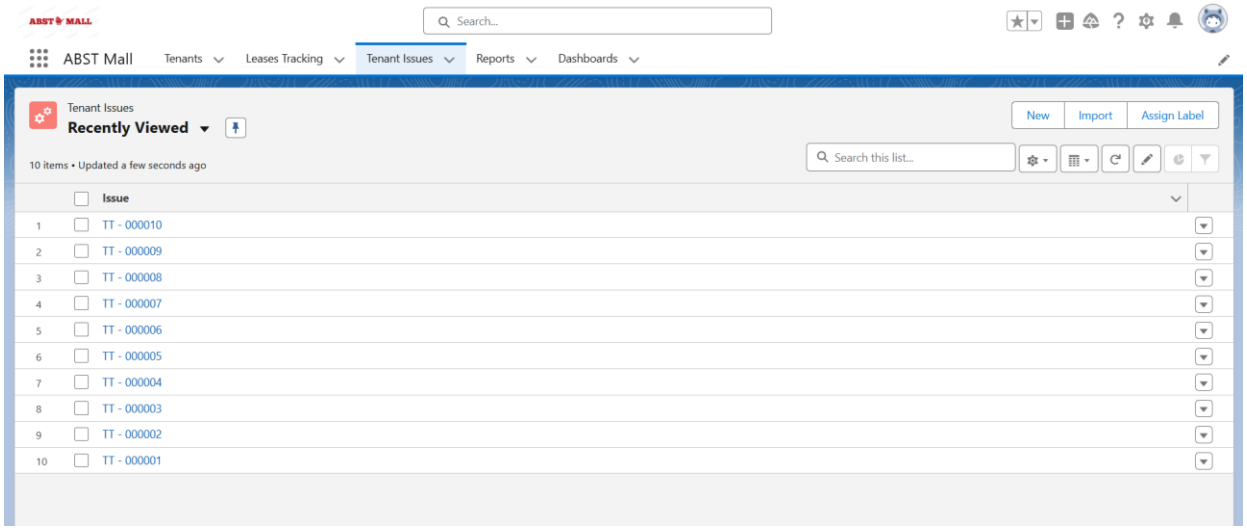

Figure 9

- **Create flows:**

In Salesforce, Flow is a powerful tool that allows users to automate complex business processes by orchestrating and automating sequences of tasks, data manipulations, and user interactions. Flows are designed through a visual interface, making them accessible to users with varying technical expertise.

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

Create a Record Triggered flow on tenant Object:

Whenever tenant record is created and the GST No field in tenant Object is empty a mail should be sent to the tenant requesting the GST No.

To create a flow, click on setup==> Flow ==> Click on New Flow==> Select Record Triggered Flow

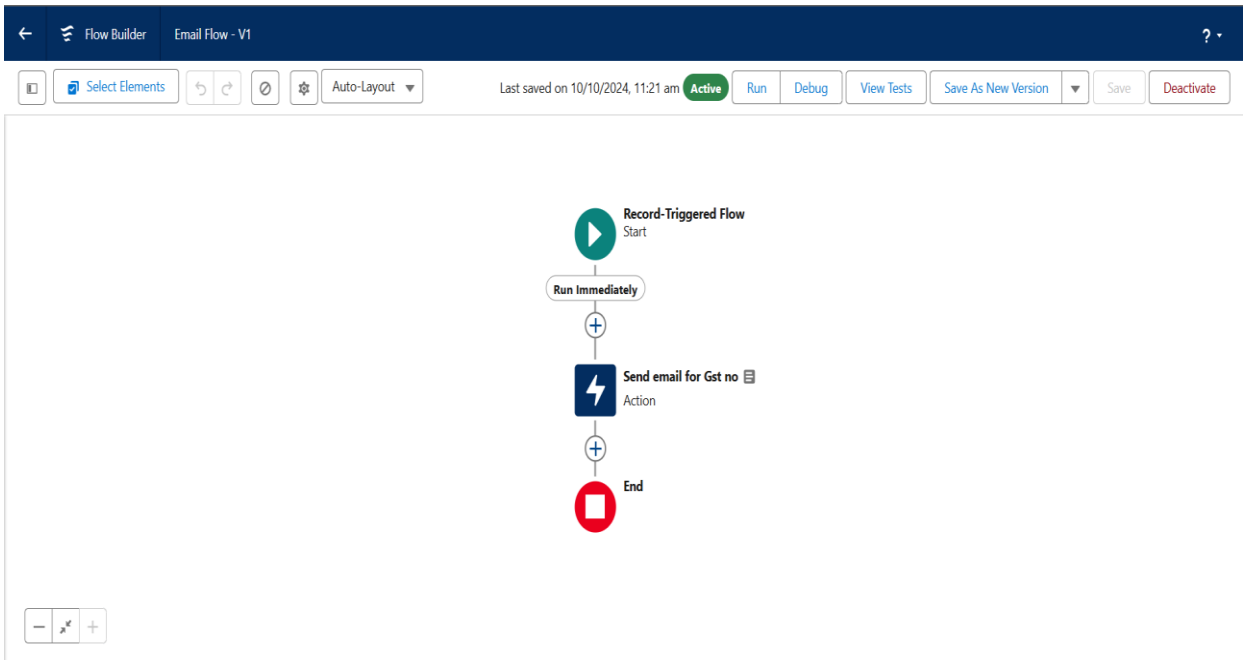

Figure 10

Creating a flow on lease management object:

If the End Date is within Next 1 year create a task to the Lease tracking weekly on every Monday.

To create a flow click on setup ==> Flow ==> Click on New Flow==> Select Schedule-Triggered Flow

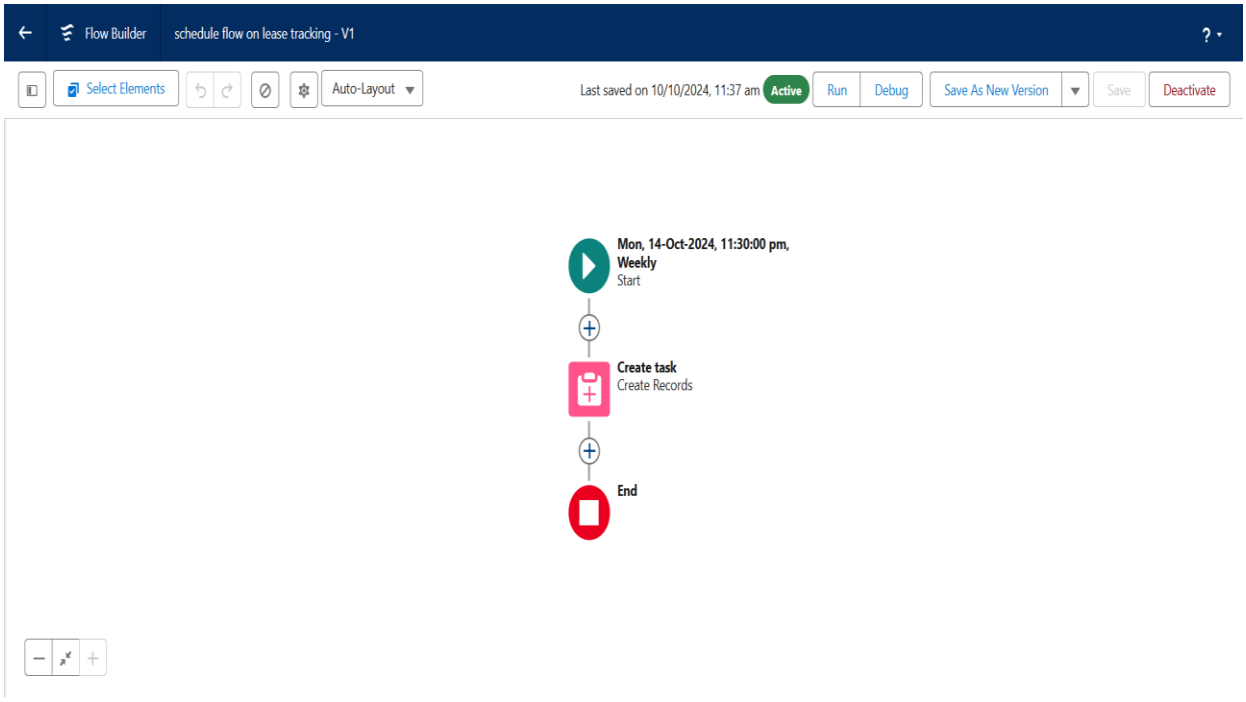

Figure 11

- **Apex Triggers:**

A trigger is a set of Apex code that runs before or after DML (Data Manipulation Language) events.

A DML event could be a variety of data processing tasks that include the standard insert, update, and delete commands.
With Apex triggers, you can automate tasks that would otherwise be nearly impossible to accomplish using only the Salesforce user interface. Triggers enable you to create custom scripts that you can implement according to your needs, and the only limitation is your coding skills.

There are two Salesforce Apex trigger types:

Before triggers. These are helpful in cases that require a validation process before accepting a change. They run before any database changes. After triggers. These are helpful in cases where you need to modify your database records and when the necessary value is stored in other records. They run after any database changes. Both types will help you perform custom tasks and manage records effectively. They can help you perform bulk actions as they can handle several records simultaneously.

How to create a new trigger:

1. While still in the trailhead account, navigate to the gear icon in the top right corner.
2. Click on developer console and you will be navigated to a new console window.
3. Click on the File menu in the toolbar and click on new Tigger.

Enter the trigger name and the object to be triggered.

Write an Apex Trigger to send an email if the tenant has not paid 50 Percent of Total Rent.

1) Click on the gear icon and click on the developer console.

2) Click on file select New Apex Trigger

3) Name- leasetrackingtrigger, Object —> Lease_Tracking__c

4) Use Event - After insert and After Update and Use Trigger Context Variables as IsAfter and IsUpdate.

Trigger: -

CODE SNIPPET:

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

Trigger Handler: -

1) Create an apex class and Name it :

LeaseTrackingTriggerHandler

CODE SNIPPET: -

```
public class LeaseTrackingTriggerHandler {
   public static void method1(List<Lease_Tracking__c> lt1)
  {
     for (Lease_Tracking__c lt2: lt1 {
  if (lt2.Amount_to_be_paid__c > (lt2.Total_rent_Yearly__c)/2)
        {
          Messaging.SingleEmailMessage
M = New Messaging.SingleEmailMessage();
           List<String>
ToADD = New List<String>{lt2.Email_id__c};
                M.setToAddresses (ToADD);
                M.setSubject ('Regarding the Pending Rent');
```

M.setPlainTextBody ('Hello, this is a Reminder for you to complete your due rent by the end this month, your due rent thatness to be paid is' +lt2.Amount_to_be_paid__c);

List<Messaging.Email>

AB = New List<Messaging.Email> {};

AB.add(M);

Messaging.sendEmail(AB);

}

}

}

Write an Apex Trigger on Tenant Object to Show error if the pan card is invalid.

1) Click on the gear icon and click on the developer console.
2) Click on file select New Apex Trigger
3) Name- TenantTrigger, Object - Tenant
4) Use Events - Before insert and Trigger context Variable - IsBefore

Trigger: -
CODE SNIPPET: -

```
trigger TenantTrigger on Tenant__c (before insert) {

  if (Trigger.isBefore)
  {
    TenantTriggerhandler.method1(Trigger.New);
  }
}
```

Trigger Handler: -

1) Create an apex class and Name it TenantTriggerhandler

CODE SNIPPET: -

```
public class TenantTriggerhandler {
      public static void method1(List<Tenant__c> te)
   {
       For (Tenant__c tenant: te)
       {
          If (tenant.Pan_Card_no__c.length () > 10)
          {
            tenant.addError ('This Pan Card number is invalid, Please Enter Valid Pan Card number');
          }
       }
   }
}
```

- **Asynchronous Apex:**

  Asynchronous Apex in Salesforce refers to a programming paradigm where code execution is detached from the immediate context and occurs independently, typically in the background. This approach is designed to handle long-running processes, heavy computations, or tasks that should not block user interactions.

  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.

Delete the Tenant Records Monthly whose Status of Possession is closed.

1) Create a class with name tenantschedulable

2) Give extension Schedulable to the class.

3) Open the Anonymous Window.

4) Schedule the class-

```
tenantschedulable a = new tenantschedulable ();
string cron = ‘0 0 0 1 *? * ';
system.schedule('Delete the records monthly', cron, a);
```

CODE SNIPPET : -

```
public class tenantschedulable implements Schedulable
{
public void executes (Schedulablecontext sc)
   {
      list<Tenant__c>
ten = [SELECT Id, Status_of_Possession__c FROM Tenant__c ];
       list<Tenant__c> tenantstodelete = New List<Tenant__c>();
       for(Tenant__c te: ten)
       {
          if(te.Status_of_Possession__c == 'Closed')
          {
             tenantstodelete.add(te);
          }

       }
       Delete tenantstodelete;
   }
```

}

- **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.

Salesforce Reports and Dashboards are powerful tools that empower users to visualize and analyze data within the Salesforce platform. They play a crucial role in providing insights, monitoring performance, and making informed business decisions.

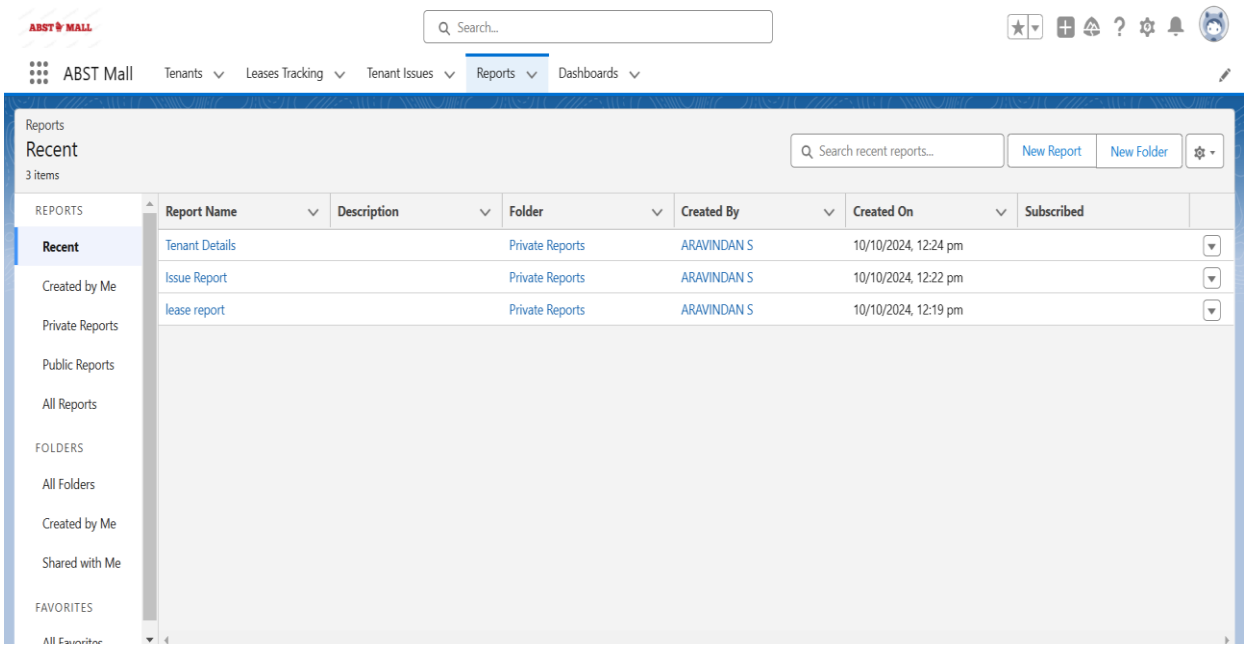

Figure 12

- **Create a report on Tenant Records:**

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

The Manager wants a Report which shows all the pending possessions and also shows the tenant's Pan Card no and GST NO and group date of reg by column and row by Status of Possession.

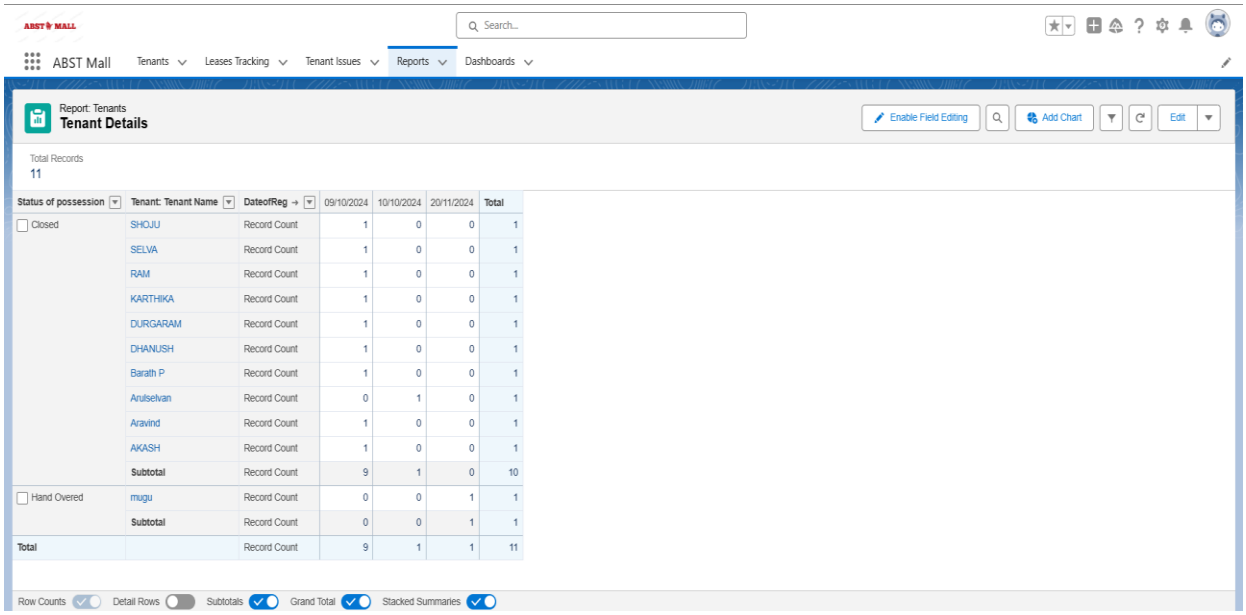

Figure 13

- **Create a report on 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 Manager wants a Report which shows all the pending possessions and also shows the tenant's Pan Card no and GST NO and group date of reg by column and row by Status of Possession.

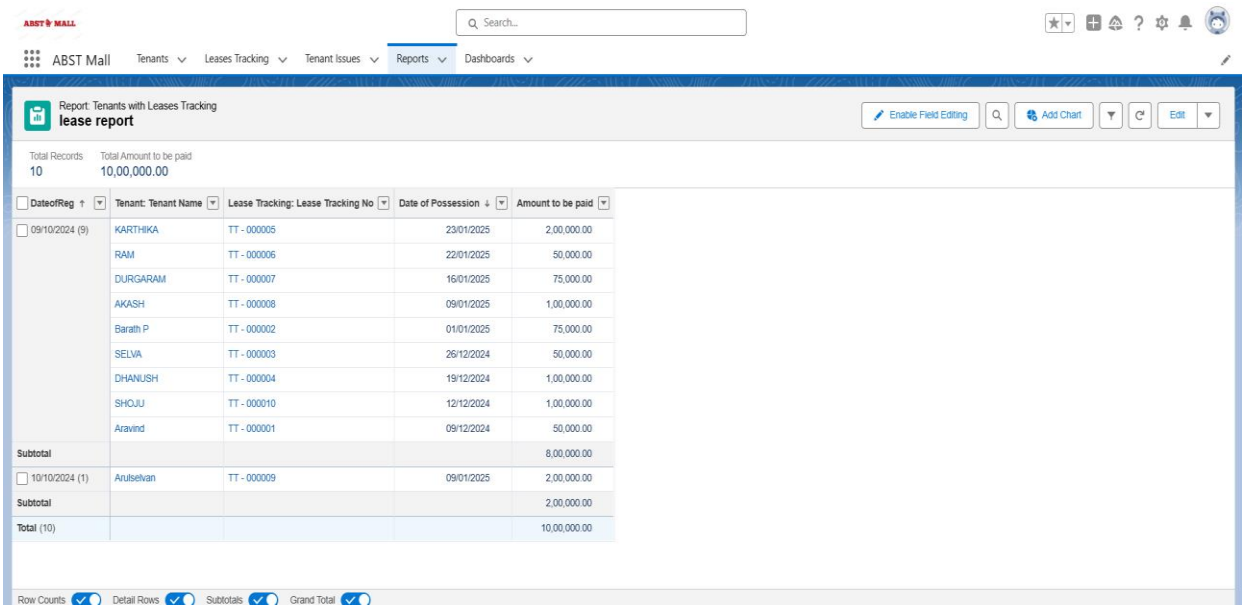

Figure 14

- **Create report on tenant issues:**

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

Now the manager is asking for a report on issues which have not been contacted or Open yet and has high priority which are directly encountered by Phone and Mail and the date of issue is from last 7 days

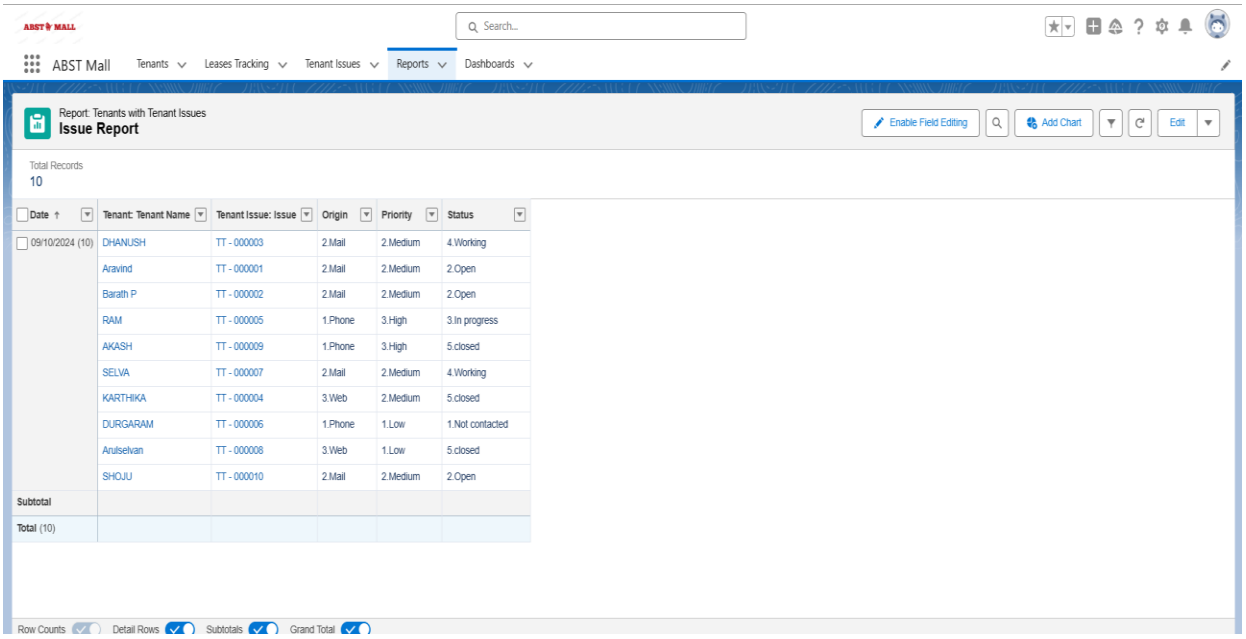

Figure 15

- **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.

Very Good, you have created multiple reports but now for better convenience the owner wants a Dashboard which shows the data of these reports

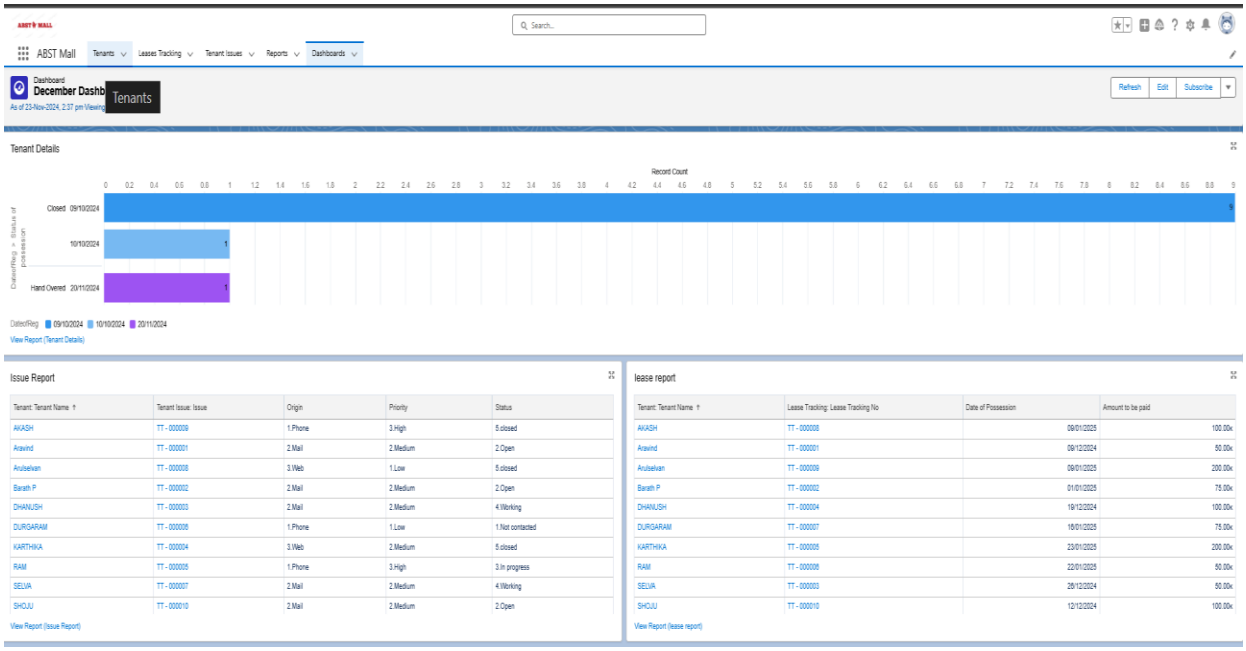

Figure 16

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 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, all 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.

6. Key Scenarios Addressed by Salesforce in the Implementation Project:

1. **Tenant Information Management:**

   Salesforce enables efficient management of tenant information by leveraging custom objects like Tenant. Key details, including tenant profiles, contact details, business types, and payment history, are systematically organized for quick access and updates.

2. **Lease Agreement Tracking:**

   Using the Lease Tracking custom object, the application ensures streamlined management of lease agreements. It tracks critical details such as lease start and end dates, payment terms, and reminders for renewals, ensuring compliance and reducing manual oversight.

3. **Tenant Issue Tracking and Resolution:**

   The Tenant Issues custom object allows for centralized recording, tracking, and resolution of tenant complaints or queries. Automated workflows ensure issues are assigned to the appropriate teams and resolved efficiently, improving tenant satisfaction.

4. **Automated Notifications and Alerts:**

   By implementing workflows and Apex triggers, Salesforce automates key processes such as:
   - Sending email alerts for overdue rent payments.
   - Notifying stakeholders about upcoming lease expirations.
   - Validating tenant PAN card entries to reduce manual errors.

5. **Data Validation and Accuracy:**

   Validation rules ensure critical fields (e.g., PAN card number) are entered accurately, enhancing data integrity and reducing the chances of administrative errors.

6. **Process Automation for Efficiency:**

   Salesforce Flow and asynchronous Apex handle repetitive and time-sensitive tasks, such as:
   - Automated generation of invoices for tenants.
   - Scheduled processing of bulk updates or reporting tasks. This minimizes manual intervention and speeds up operational workflows.

7. **Enhanced Reporting and Dashboards:**

   Custom reports and dashboards provide stakeholders with actionable insights, such as:
   - Lease performance and trends.
   - Outstanding rent amounts.
   - Issue resolution metrics.

   These insights enable data-driven decision-making for effective mall management.

8. **Centralized Navigation with Lightning App:**

   The Lightning App integrates custom tabs for seamless navigation, ensuring all essential functionalities are accessible from a single interface. This centralization reduces complexity and enhances user experience.

9. **Scalability and Adaptability:**

Salesforce's scalable architecture allows for future expansions, such as integrating new functionalities like marketing campaigns or advanced analytics, ensuring the solution evolves with mall management needs.

10. **Stakeholder Empowerment:**

By delivering a comprehensive CRM tailored for mall operations, Salesforce empowers stakeholders with tools to:

- Monitor tenant performance in real time.
- Anticipate and address operational challenges.
- Enhance decision-making through data-driven insights.

8.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. 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 boosts operational efficiency, making it a vital tool in modern retail management.

Summary of Achievements

- Successfully designed and implemented a robust CRM application on the Salesforce platform to streamline mall management operations.

- Developed custom objects, workflows, and Apex triggers to automate lease tracking, tenant issue resolution, and rent reminders, reducing manual effort.
- Ensured data accuracy with validation rules and optimized performance with asynchronous Apex processes.
- Delivered insightful reports and dashboards, empowering stakeholders with actionable data for better decision-making.
- Enhanced tenant satisfaction by enabling efficient communication and quick issue resolution through an intuitive Lightning App.
- Achieved operational efficiency and set a scalable foundation for future enhancements.