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A CRM APPLICATION FOR WHOLESALE RICE MILL

Project Overview:

This project focuses on developing a CRM Application for a Wholesale Rice Mill, designed to address the daily reporting and operational challenges of rice production and sales. The primary goal is to streamline data collection and enhance customer experiences through Salesforce. By leveraging advanced CRM features like Reports, Dashboards, Roll-Up Summary Fields, Validation Rules, and Role Hierarchy, this project aims to optimize operational efficiency and improve data accuracy, supporting long-term business growth.

Objective:

1. Business Goals:

- Streamline daily reporting of rice production and sales.
- Improve resource allocation by identifying key trends.
- Enhance customer experience with accurate tracking and reporting.

2. Specific Outcomes:

- Automated daily reports for rice production, sales, and revenue.
- Role-based access for owners, employers, and workers.
- Integration of dashboards for visualizing sales trends.

Salesforce Key Features and Concepts Utilized

- **Reports and Dashboards:** Track daily rice sales, revenue, and customer data.
- **Roll-Up Summary Fields:** Calculate total rice distributed to suppliers and shops.
- **Cross-Object Formula Fields:** Compute values like total payments using related object fields.
- **Validation Rules:** Ensure mandatory fields like phone numbers and email addresses are filled.

- **Permission Sets:** Establish Organization-Wide Defaults (OWD) for tailored data access.
- **Roles and Profiles:** Hierarchical structure to assign specific access rights to users.
- **Lightning App Builder:** Custom app interfaces for the rice mill operations.

Detailed Steps to Solution Design

- **Data Models:**
  - Objects like Supplier, Consumer, Rice Mill, and Rice Details were created.
  - Junction Objects established many-to-many relationships between Suppliers and Rice Details.
- **User Interface Design:**
  - Lightning App with tabs for Supplier, Rice Mill, Consumer, and Rice Details.
  - Page layouts categorized fields into sections like Personal Details, Rice Details, and Receipt Details.
- **Business Logic:**
  - Validation rules ensure mandatory data fields are filled.
  - Roll-Up Summary Fields compute aggregate values across objects.

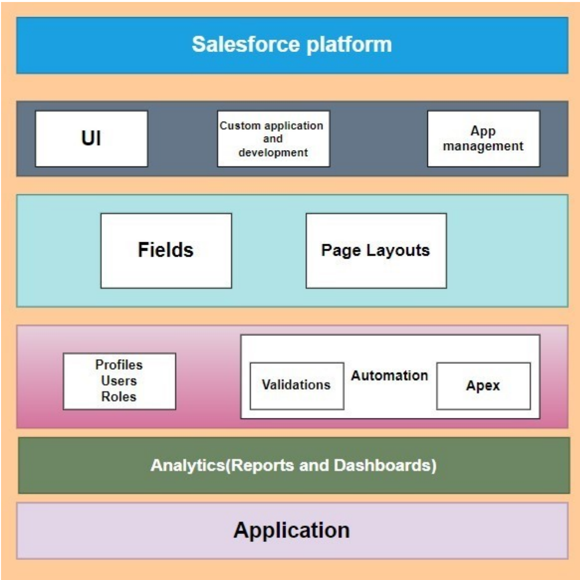
Testing and Validation

- **Unit Testing:**
  - Apex Triggers and Classes were validated for correctness and functionality.
  - Roll-Up Summary Fields and Validation Rules were tested thoroughly.
- **User Interface Testing:**
  - Lightning App navigation, Reports, and Dashboards were tested for usability and performance.

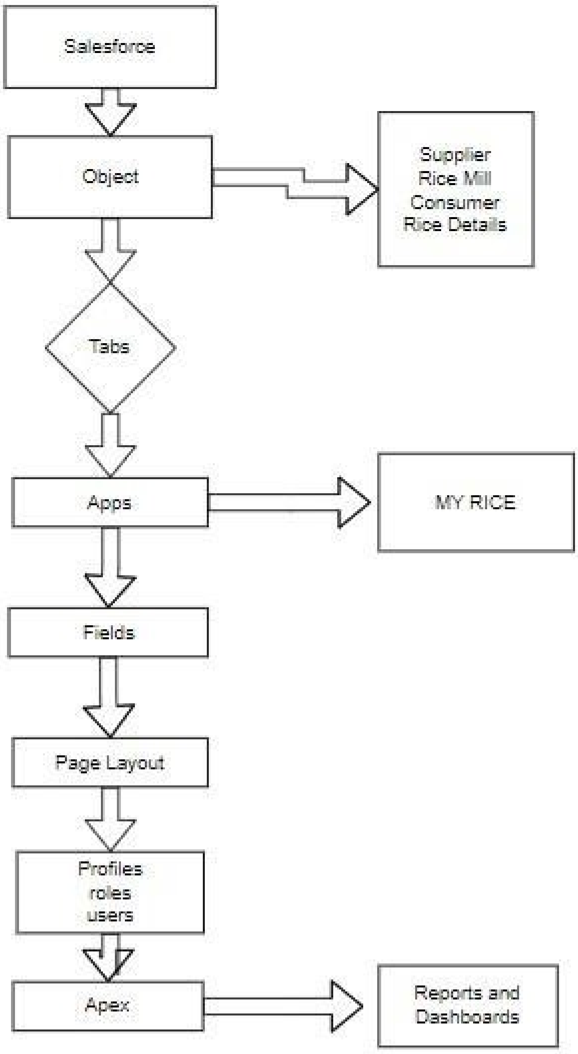
Key Scenarios Addressed by Salesforce in the Implementation Project

- **Daily Rice Sales Reporting:** Automated calculations of rice sold and revenue generated.
- **Role-Based Access:** Owners see all records, employers access worker data, and workers have restricted views.
- **Customer Data Accuracy:** Validation ensures all customer contact details are provided.

Architecture:



Flowchart:



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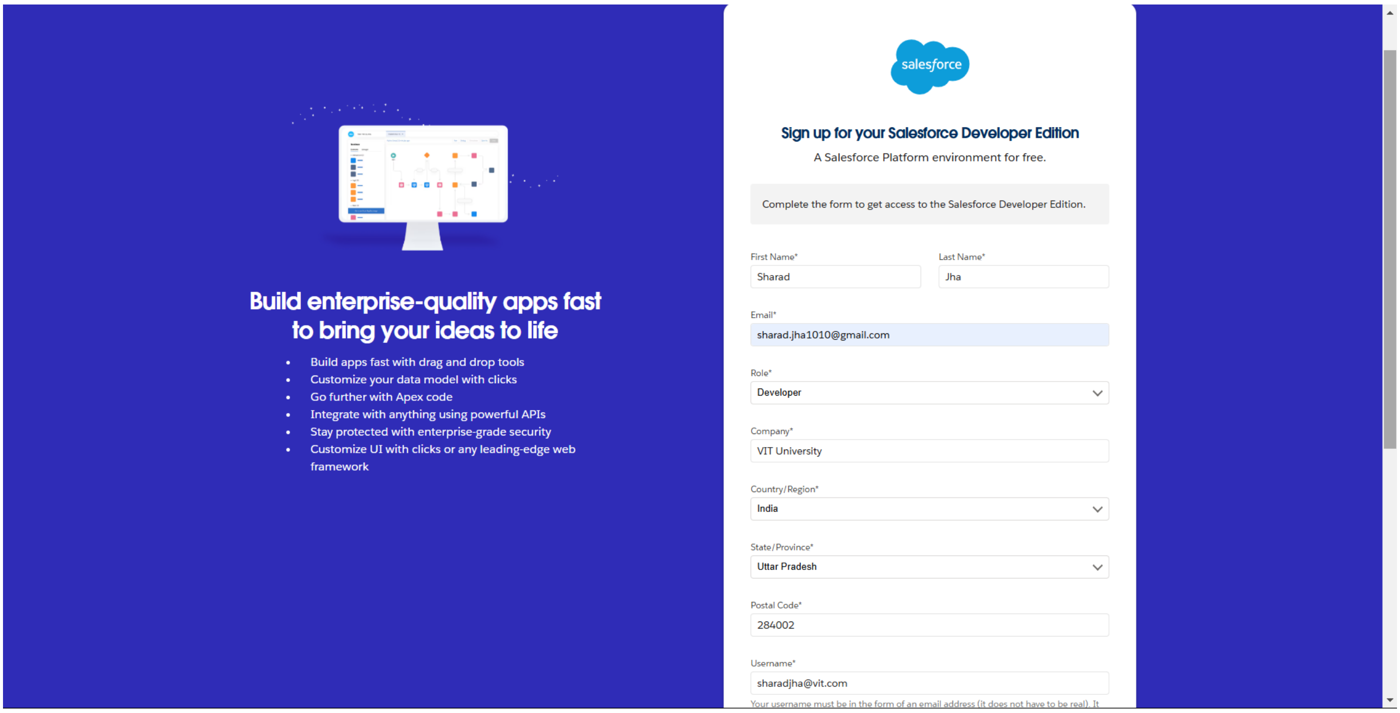
Activity 1: Introduction to Salesforce

1.1. Creating Developer Account



- **First and Last Name:** Sharad Jha
- **Email:** sharad.jha1010@gmail.com
- **Role:** Developer
- **Company:** VIT University
- **Country:** India
- **Postal Code:** 284002
- **Username:** sharadjha@vit.com

1.2. Account Activation

1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 5-10mins.
2. Click on Verify Account
3. Give a password and answer a security question and click on change password.
4. Then you will redirect to your salesforce setup page.

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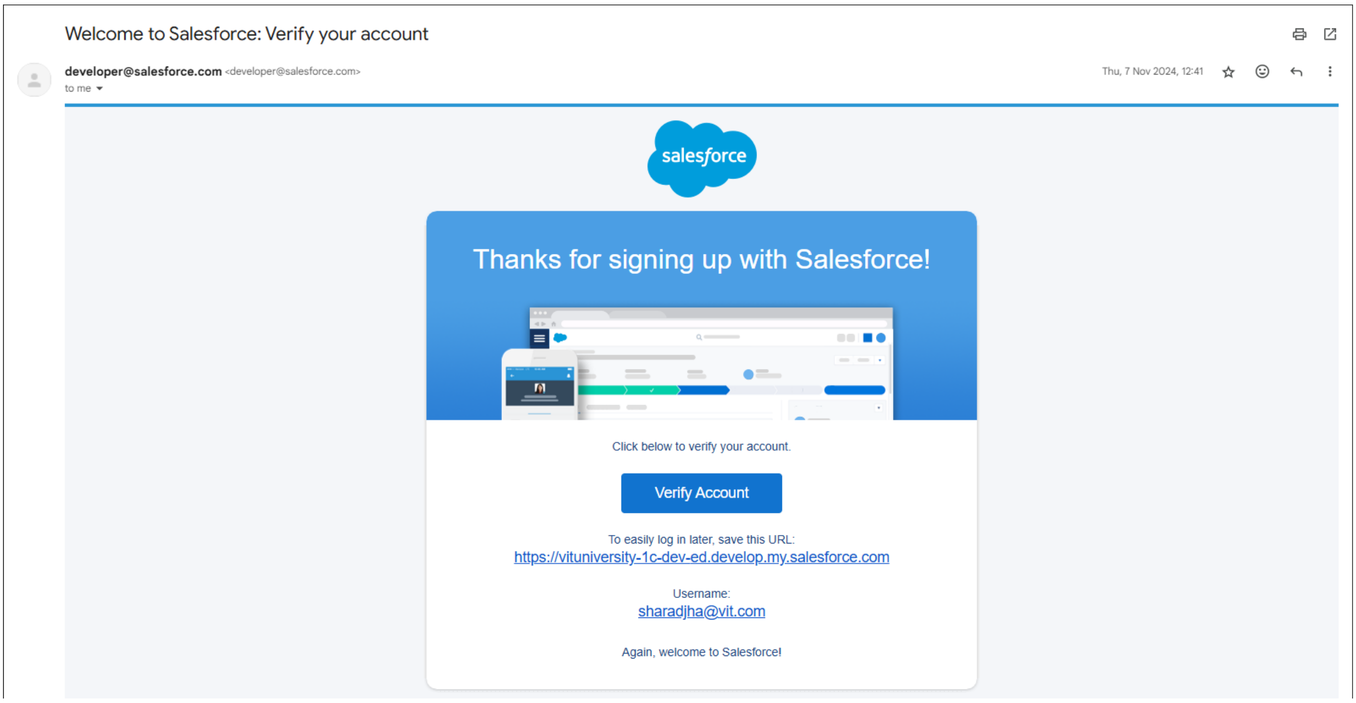
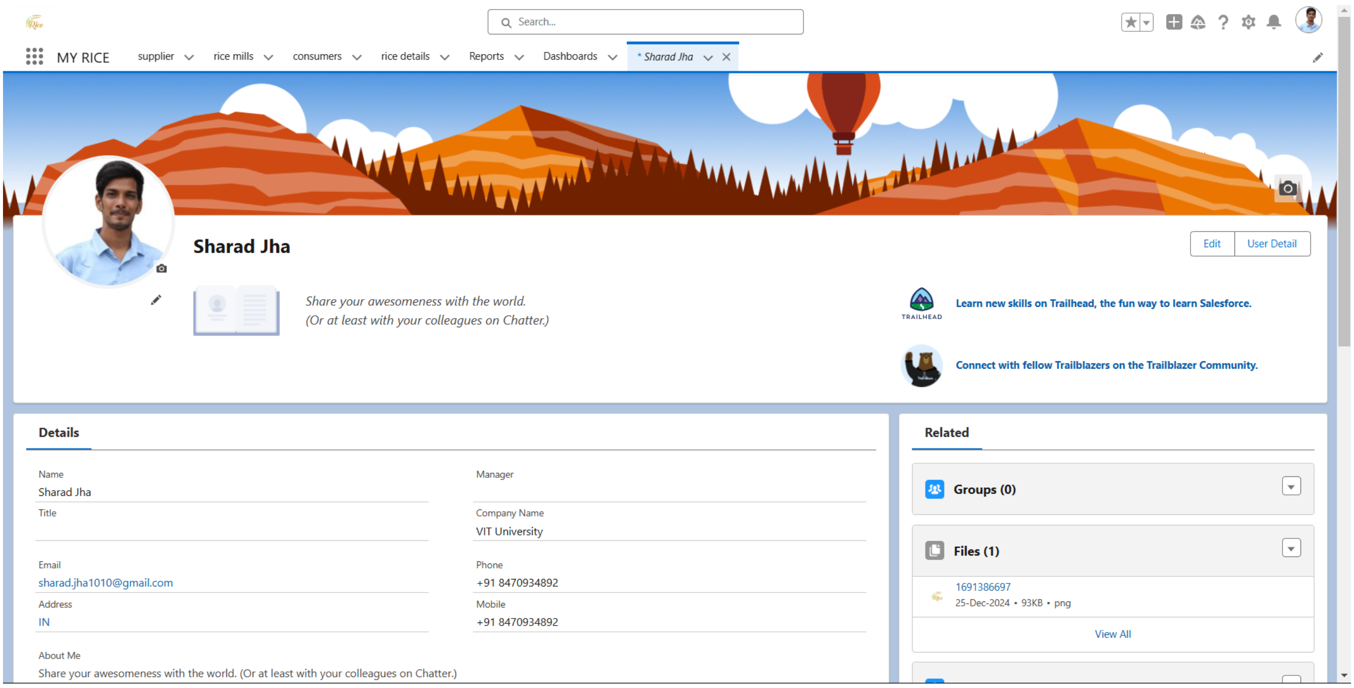


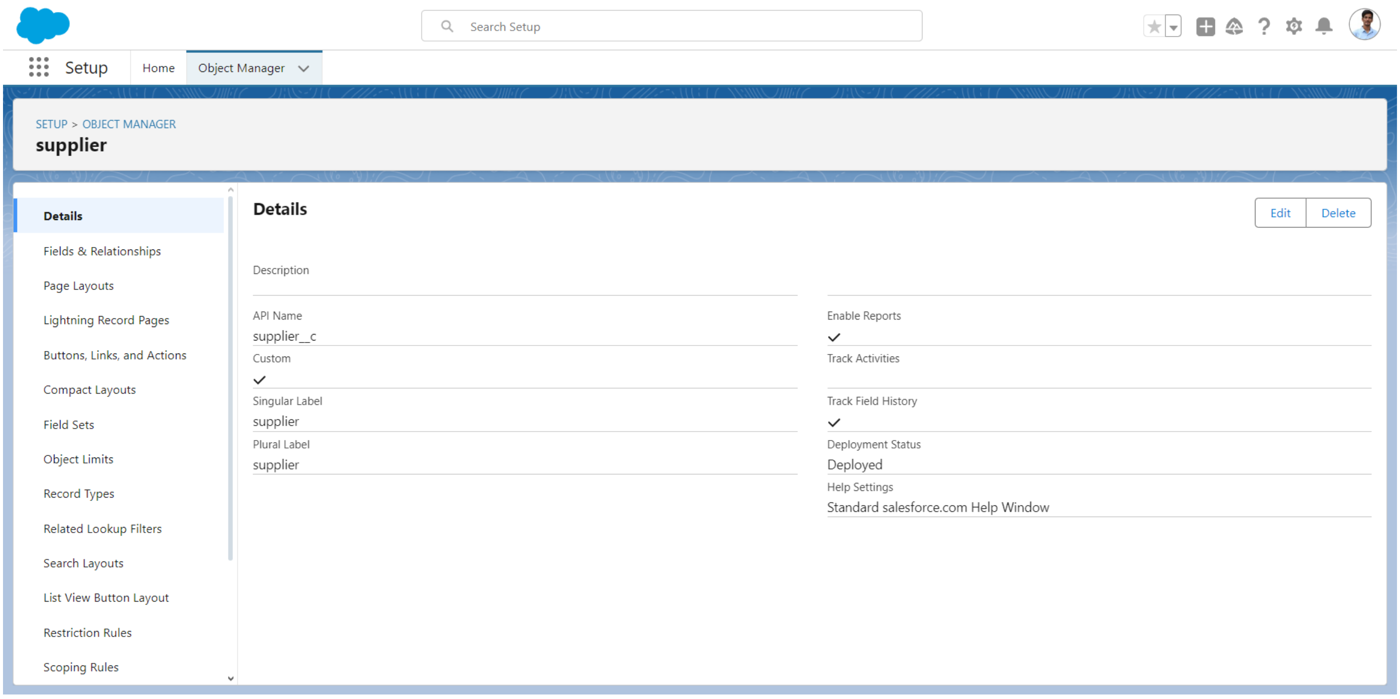


Activity 2: Object

2.1. Create Supplier Object

To create an object:

1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
   i. Enter the label name >> supplier
   ii. Plural label name >> supplier
   iii. Enter Record Name Label and Format
      - Record Name >> supplier Name
      - Data Type >>Text
2. Click on Allow reports and Track Field History and allow search
3. Allow search >> Save.



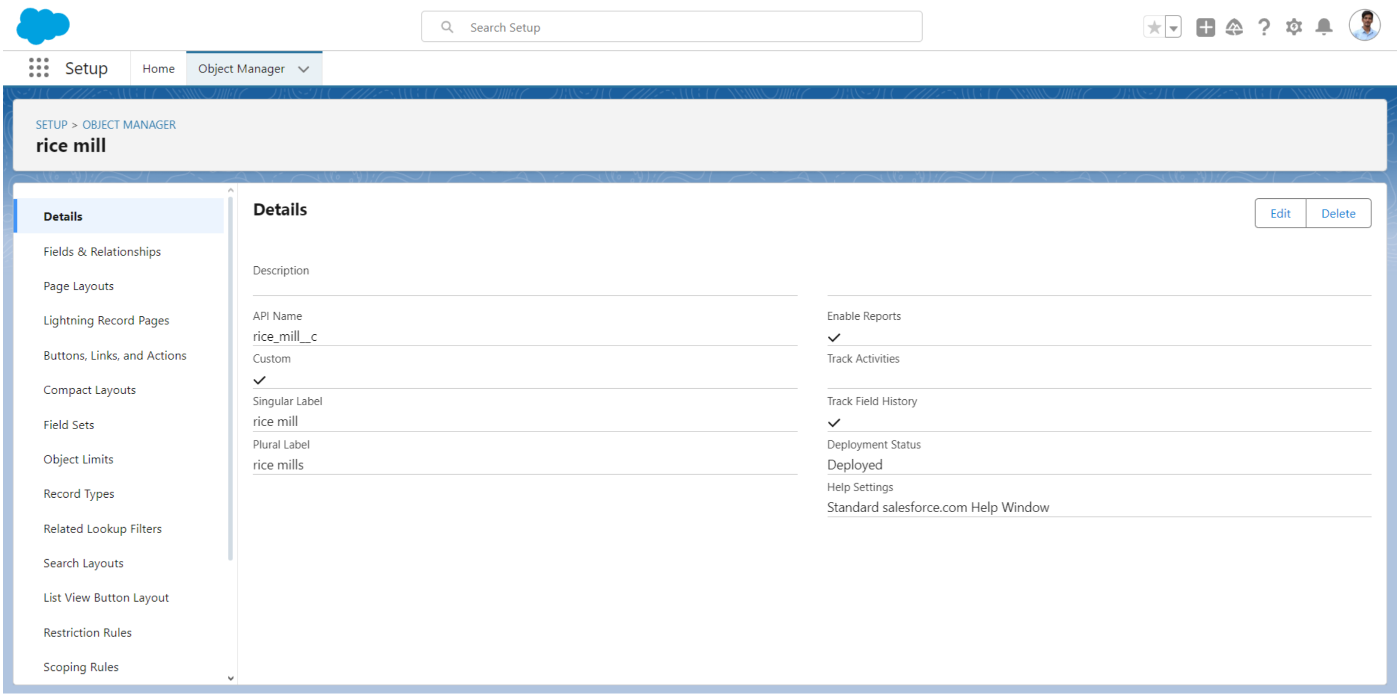
2.2. Create Rice Mill Object

To create an object:

1. From the setup page >> Click on Object Manager >> Click on Create >> Click on Custom Object.
   i. Enter the label name >> rice mill
   ii. Plural label name >> rice mills
   iii. Enter Record Name Label and Format
      - Record Name
      - Data Type >> Auto Number

- Display Format >> rice-{000}
- Starting number >> 1

2. Click on Allow reports and Track Field History, Allow Search and Save.



2.3. Create Consumer Object

Note: Follow the same steps as mentioned in Activity 2 for the and Receipt objects.
Use these display format for the consumer

- label name >> consumer
- Plural label name >> consumers
- Display Format >> consumers-{000}
- Starting number >> 1

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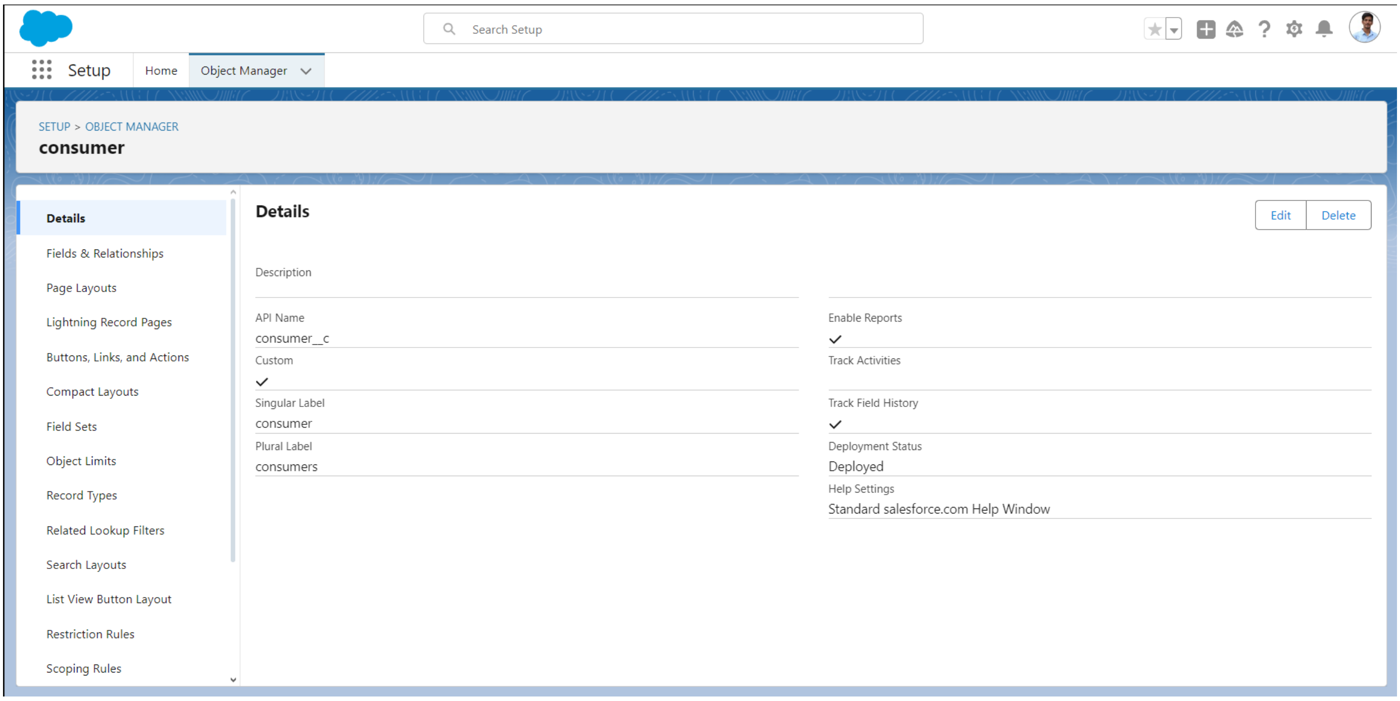
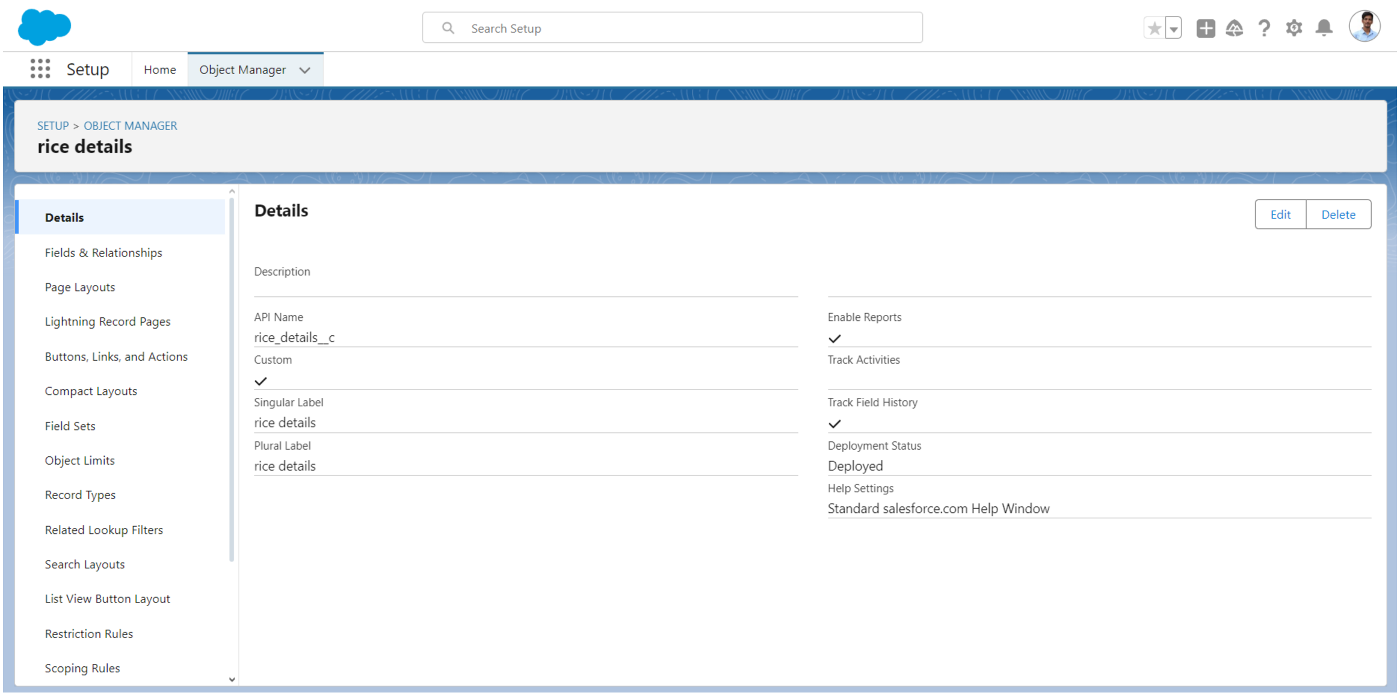


2.4. Create Rice Details Object

Use these display format for the rice details

- label name >> rice details
- Plural label name >> rice details
- Display Format >> rice-{000}
- Starting Number >>1

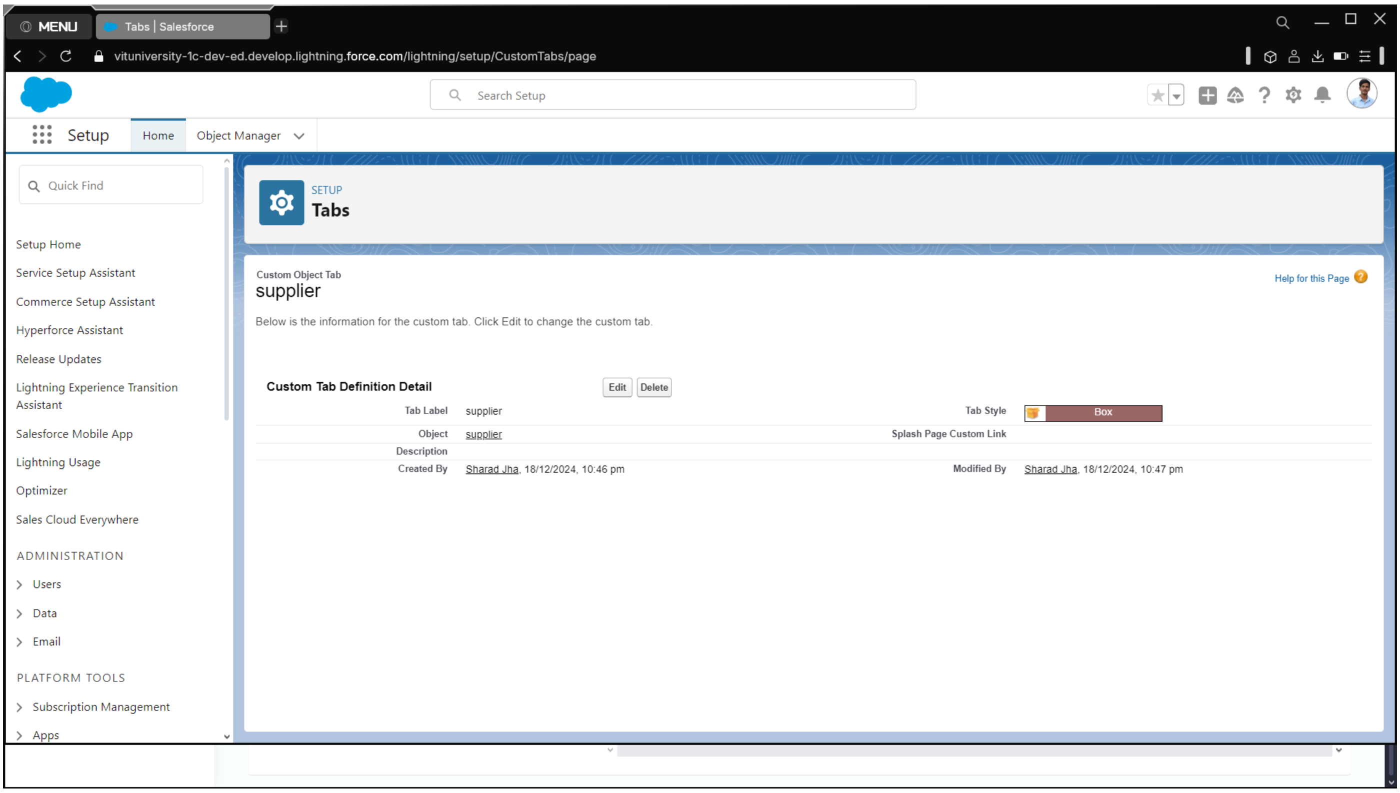


Activity 3: Tabs

3.1. Creating a Custom Tab

To create a Tab: (supplier)

1. Go to setup page >> type Tabs in Quick Find bar >> click on tabs >> New (under custom object tab)
2. Select Object (supplier) >> Select the tab style >> Next (Add to profiles page) keep it as default >> Next (Add to Custom App) uncheck the include tab .
3. Make sure that the Append tab to users' existing personal customizations is checked.
4. Click save.



3.2. Creating Remaining Tabs

1. Now create the Tabs for the remaining Objects, they are “rice mill, consumer, rice details”.
2. Follow the same steps as mentioned in Activity 3.1 .

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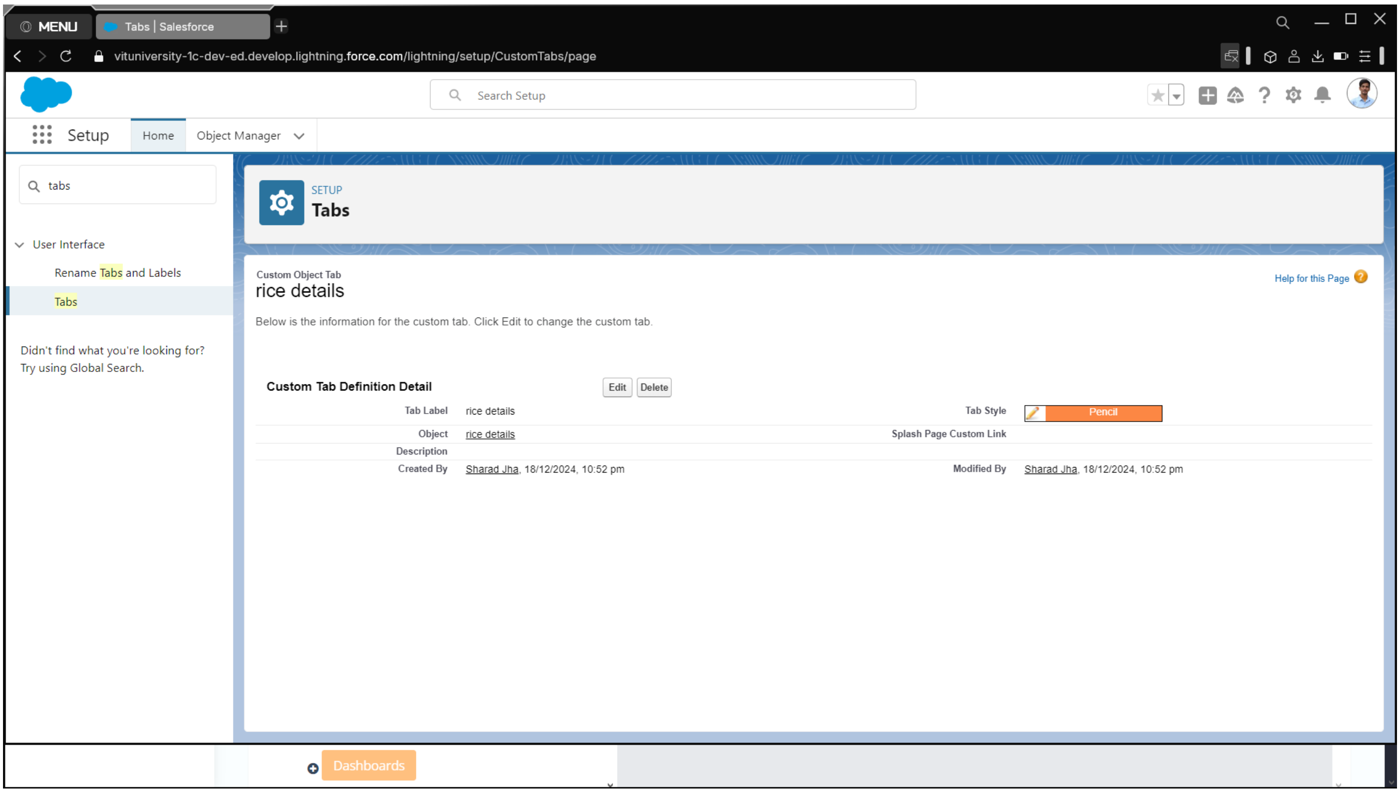

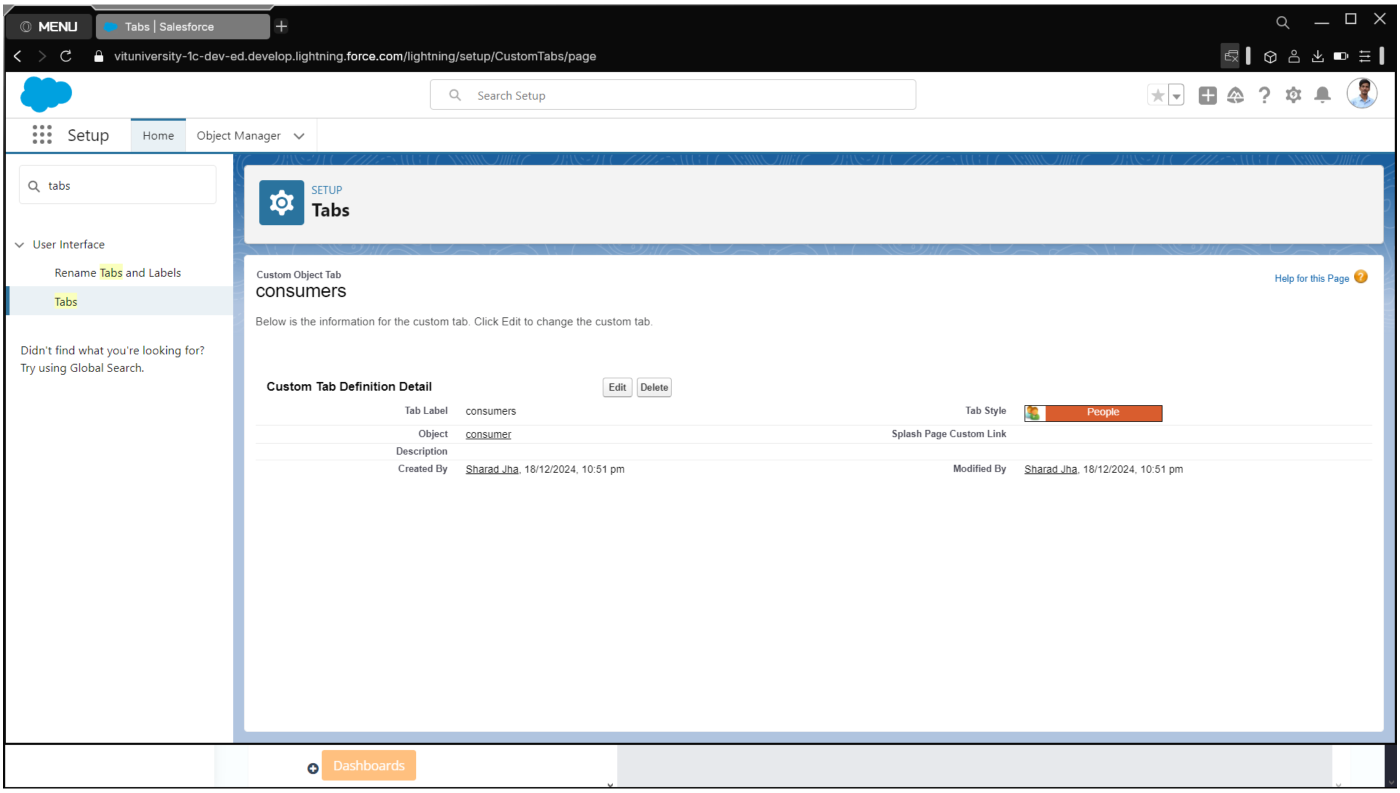

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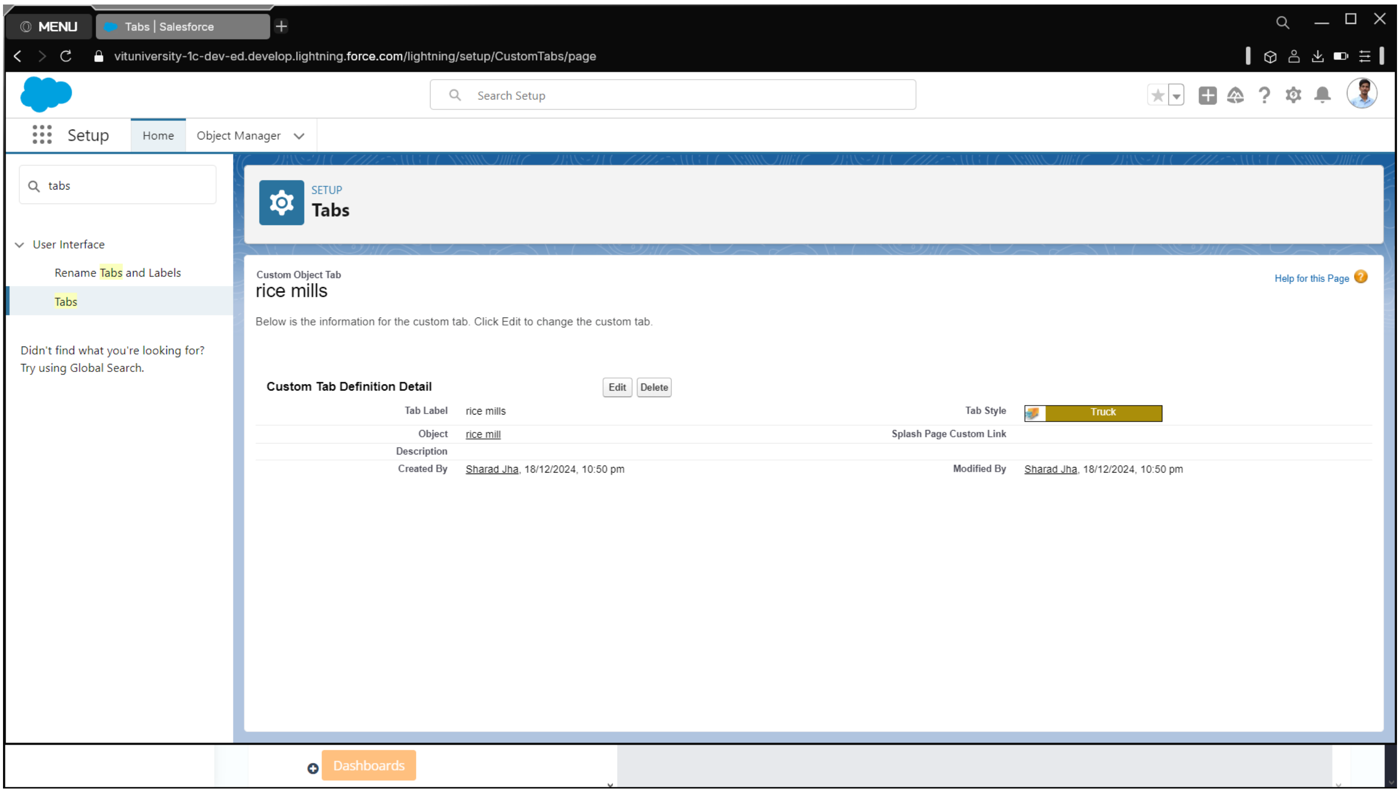
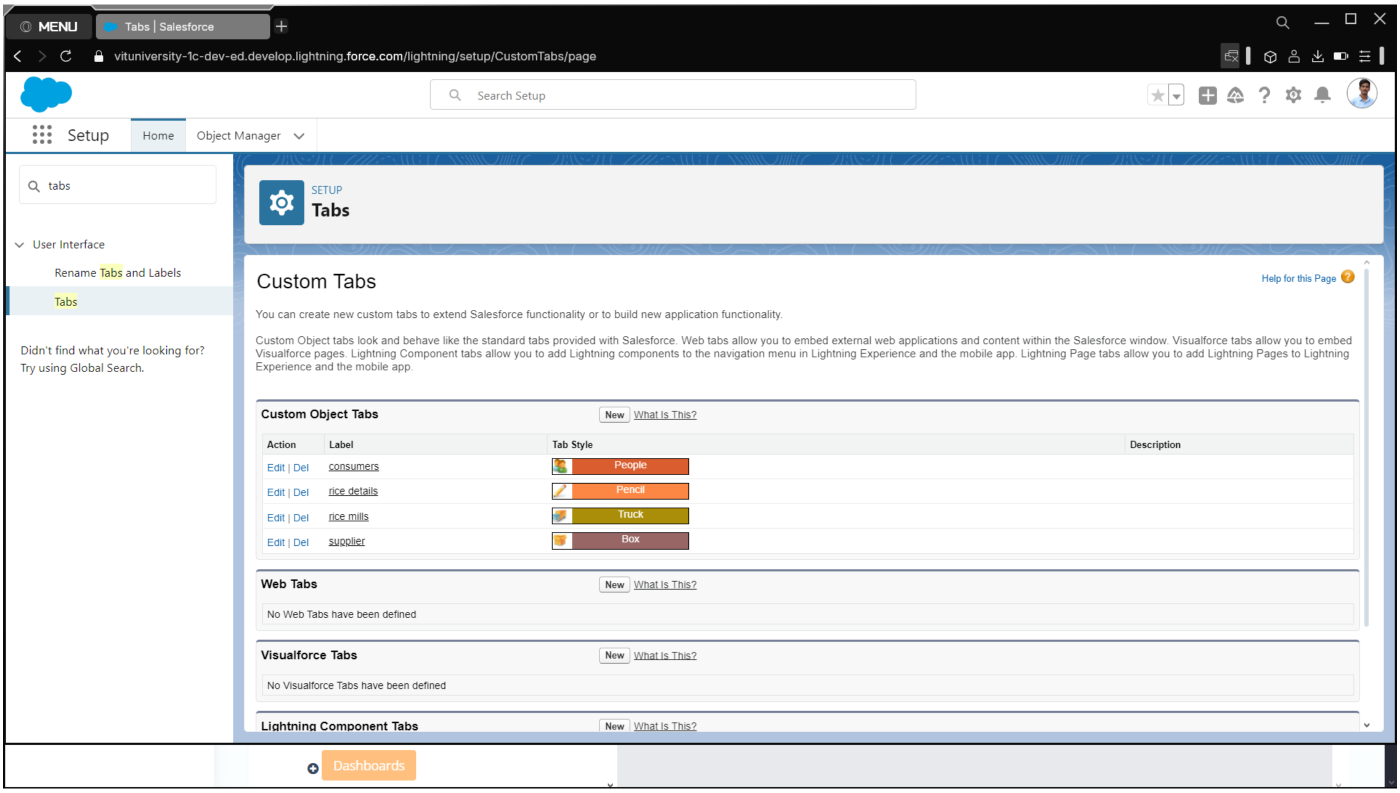
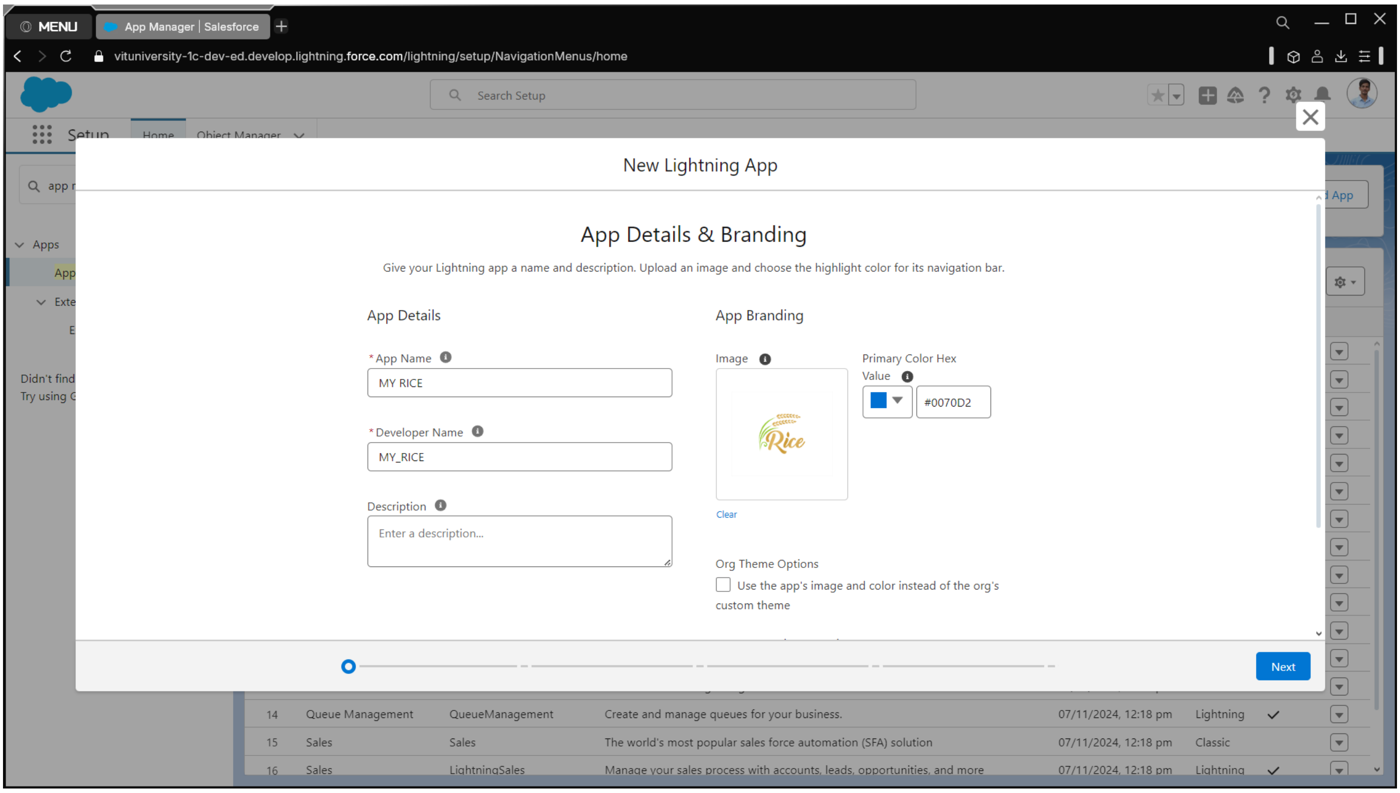


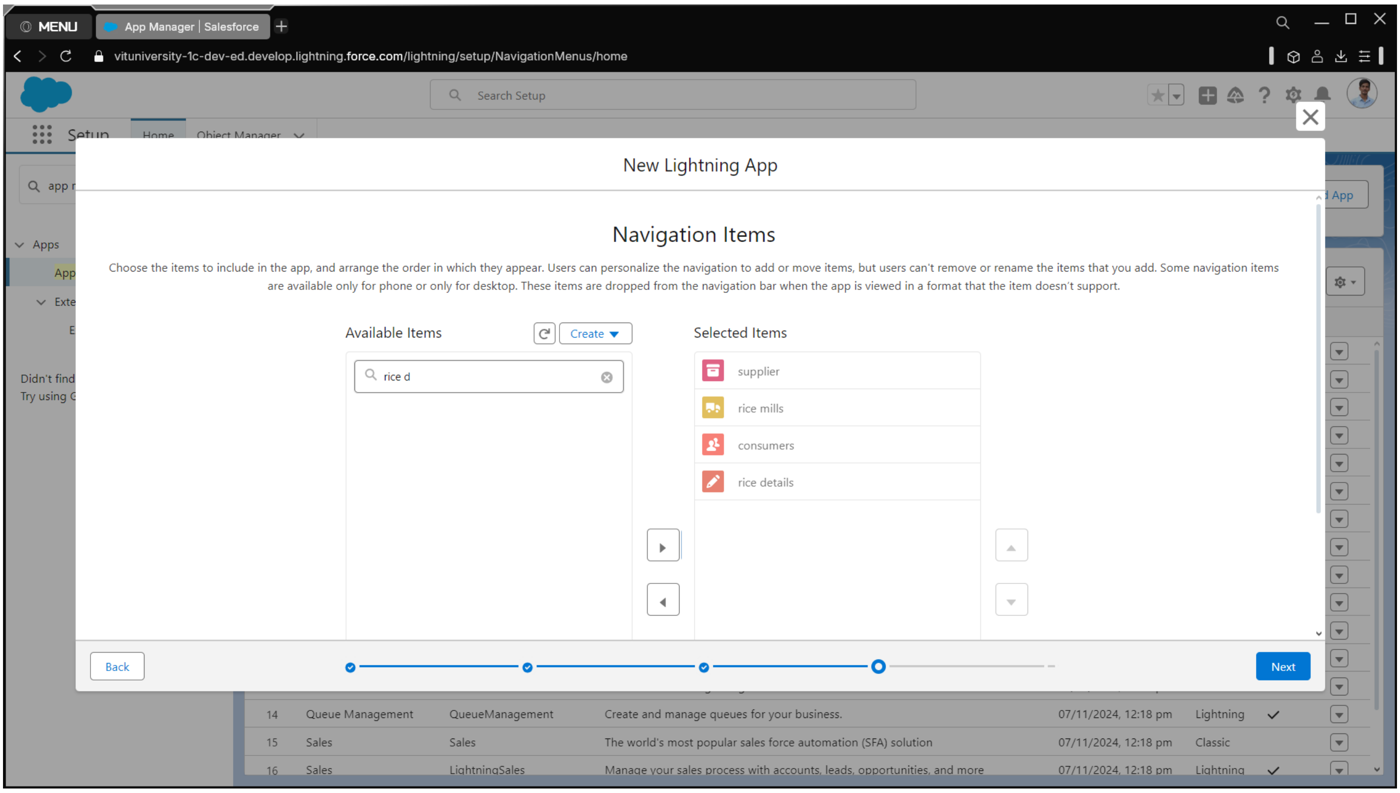


Activity 4: The Lightning App

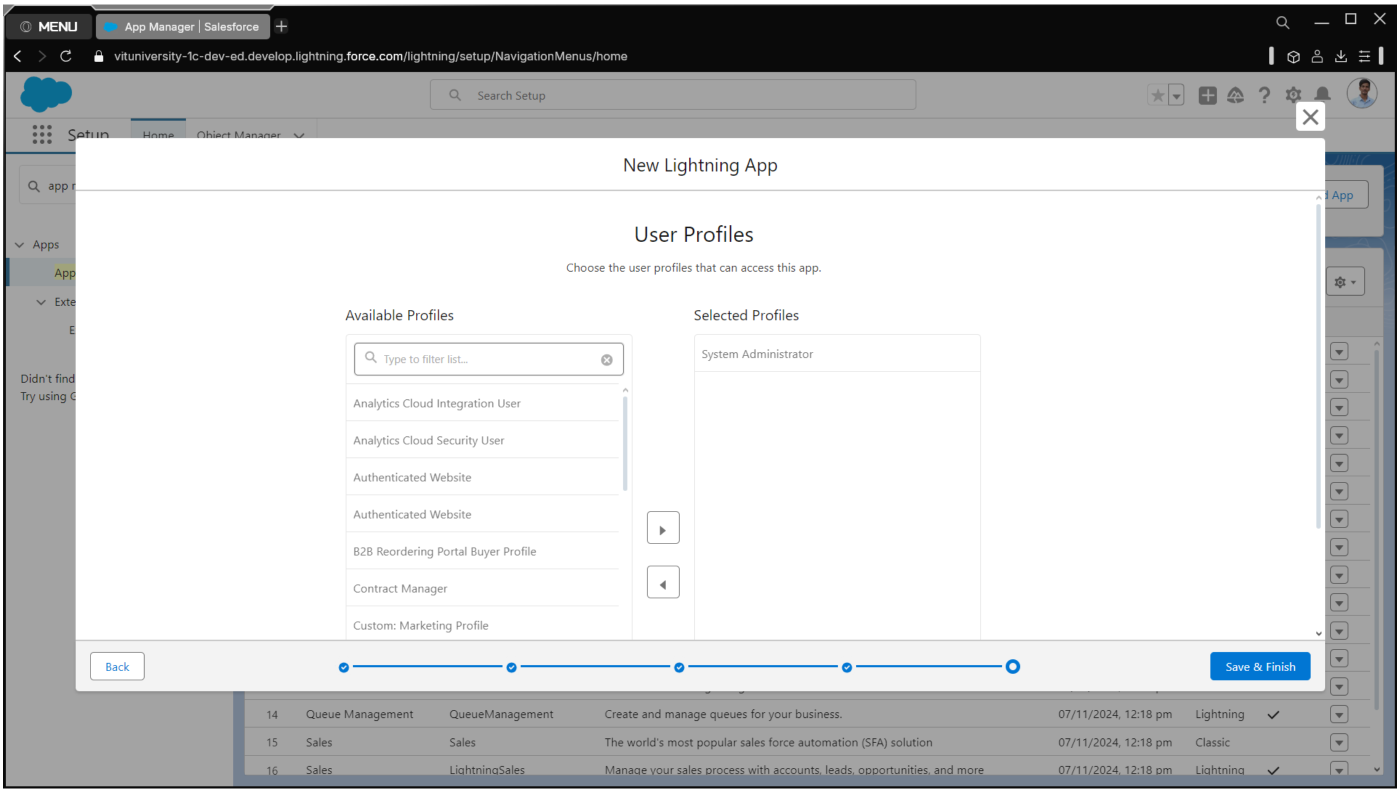
To create a lightning app page:

1. Go to setup page >> search “app manager” in quick find >> select “app manager” >> click on New lightning App.
2. Fill the app name in app details as MY RICE >> Next >> (App option page) keep it as default >> Next >> (Utility Items) keep it as default >> Next.
3. Upload a photo that is related to your app.
4. To add Navigation Item:
    - Select the items (supplier, rice mill, consumer, Rice details) from the search bar and move it using the arrow button >> Next.
5. To Add User Profiles:
    - Search profiles (System administrator) in the search bar >> click on the arrow button >> save & finish.





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
rice d
Selected Items
supplier
rice mills
consumers
rice details
Back
Next



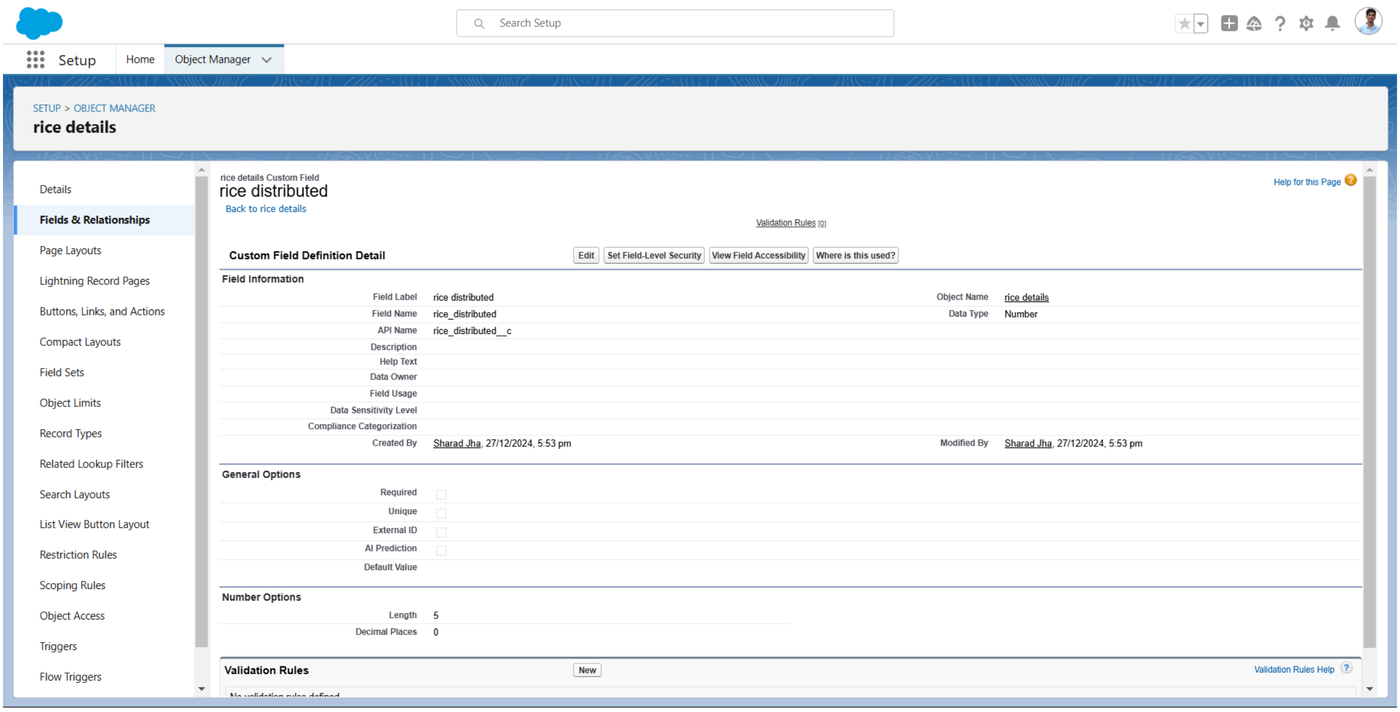
New Lightning App
User Profiles
Choose the user profiles that can access this app.
Available Profiles
Type to filter list...
Analytics Cloud Integration User
Analytics Cloud Security User
Authenticated Website
Authenticated Website
B2B Reordering Portal Buyer Profile
Contract Manager
Custom: Marketing Profile
Selected Profiles
System Administrator
Back
Save & Finish

Activity 5: Fields

5.1. Creating The Number Field In Rice Details Object

Creating the number field in rice details object

1. Go to the setup page >> click on object manager >> From drop down click edit for rice details object
2. Click on fields & relationship >> click on New.
3. Select Data type as "Number" and click Next.
4. Given the Field Label as " rice distributed " and length as " 5 ".
5. Field Name will be auto populated, and click on Next- Next >> Save.



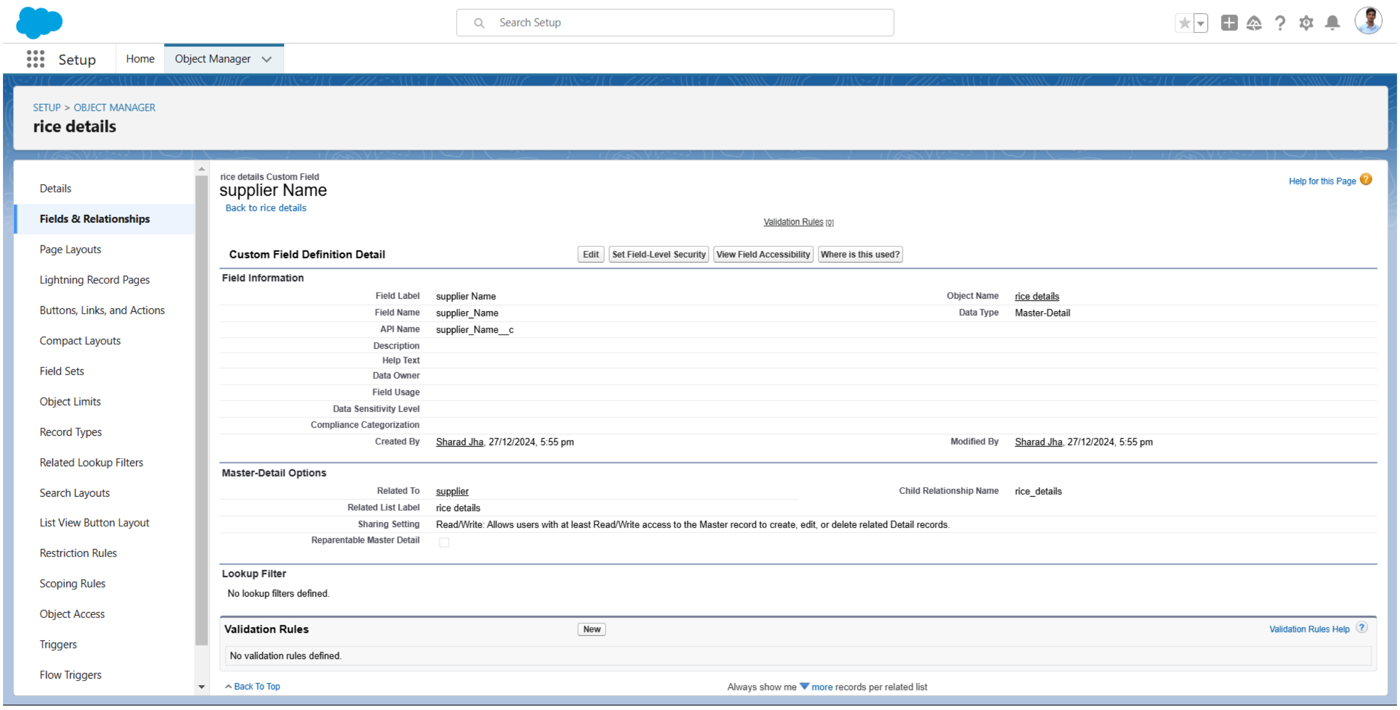
5.2. Creating Junction Object

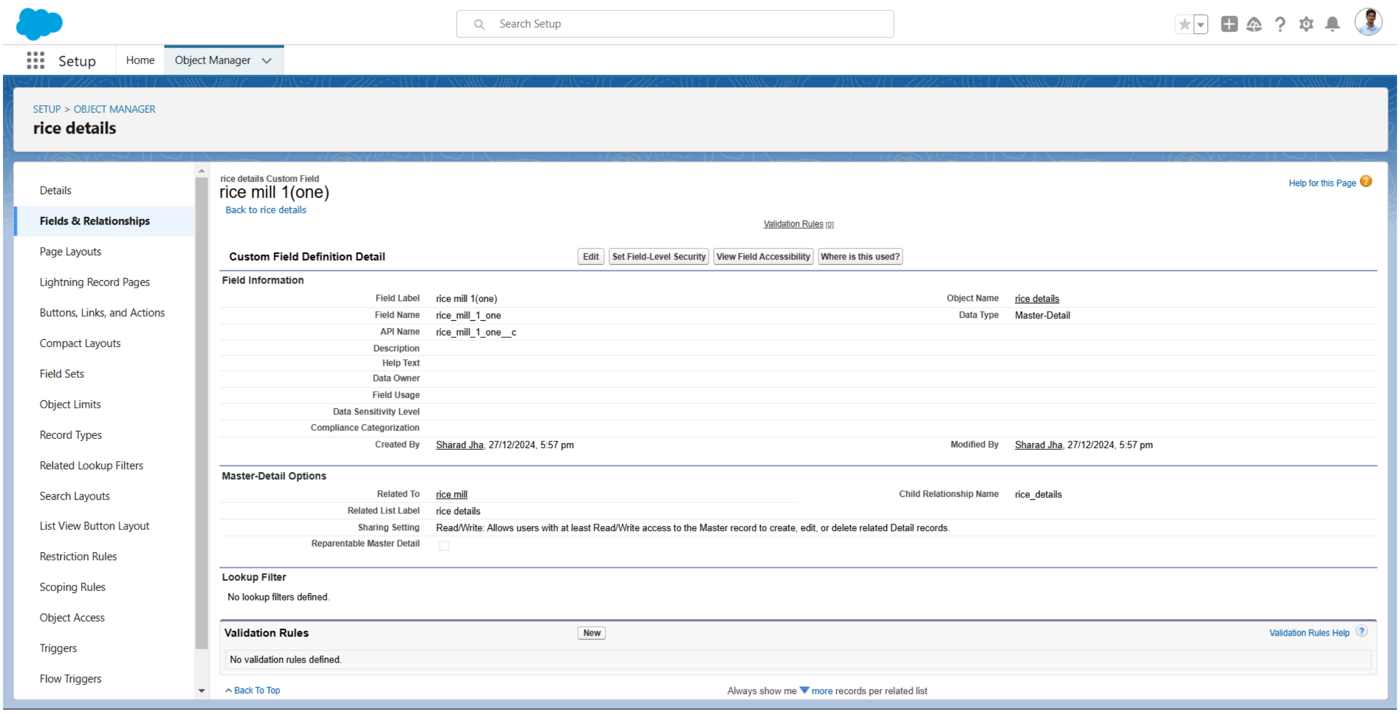
A Junction object is a custom object that serves as a bridge between two related objects in a many-to-many relationship. It allows you to create a relationship between records of two different objects by creating a many-to-many relationship model.

Creating junction object as rice details with supplier & rice mill
To create junction object

1. Go to the setup page >> click on object manager >> From drop down click edit for rice details object
2. Click on fields & relationship - click on New.
3. Select "Master-Detail relationship" as data type and click Next.

4. Select the related object “ supplier ” and click next.
5. Give Field Label as “supplier Name” and click Next.
6. Next >> Next >> Save & New.
7. Follow the same steps from 1 to 3.
8. Select the related object “ rice mill ” and click Next.
9. Give Field Label as “rice mill 1(one)” and click Next.
10. Next >> Next >> Save.



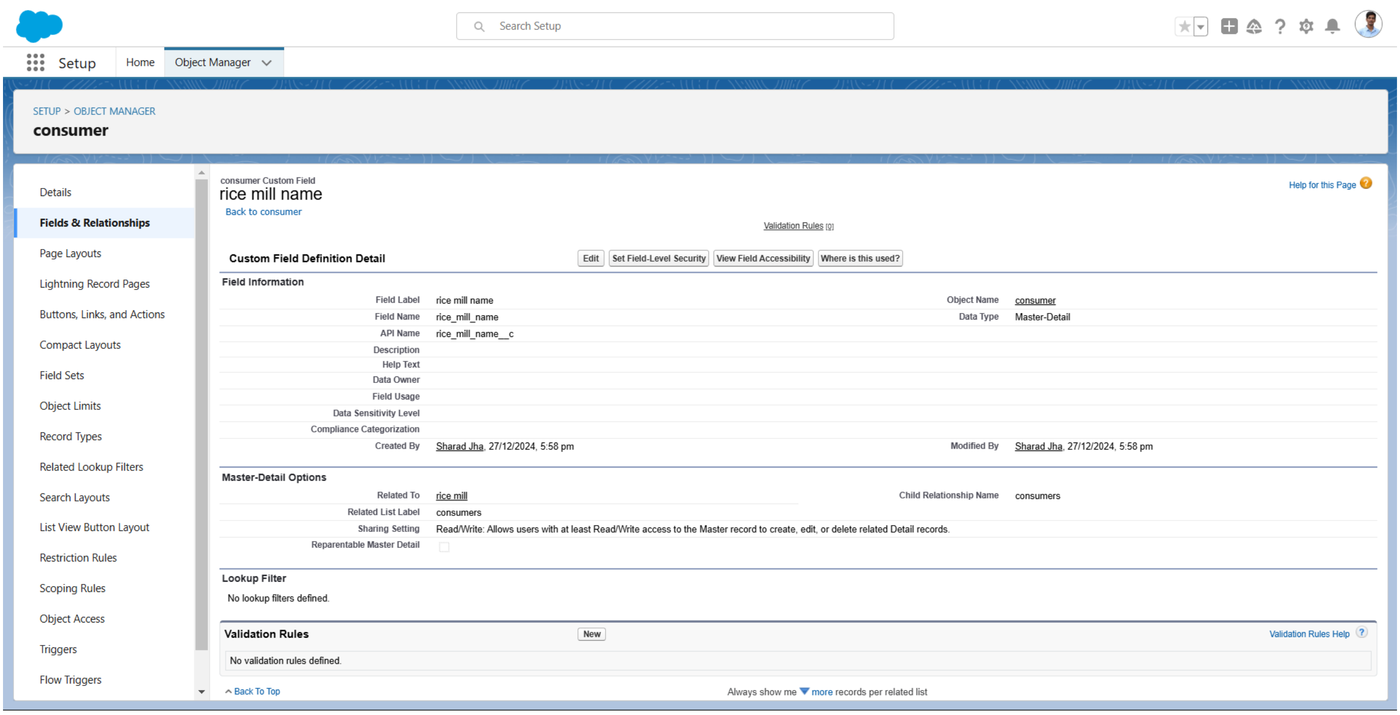


5.3. Creating a Master-Detail Relationship

Master-detail relationship is a type of relationship between two objects where the master object controls certain behaviors and settings of the detail object. Here are a few use cases that demonstrate the use of master-detail relationships

Creating Master-Detail Relationship between consumer & rice mill Object
To Create a Master-Detail relationship

1. Go to the setup page >> click on object manager >> From drop down click edit for consumer object.
2. Click on fields & relationship >> click on New.
3. Select "Master-Detail relationship" as data type and click Next.
4. Select the related object " rice mill".
5. Give Field Label as "rice mill name" and click Next.
6. Next >> Next >> Save.

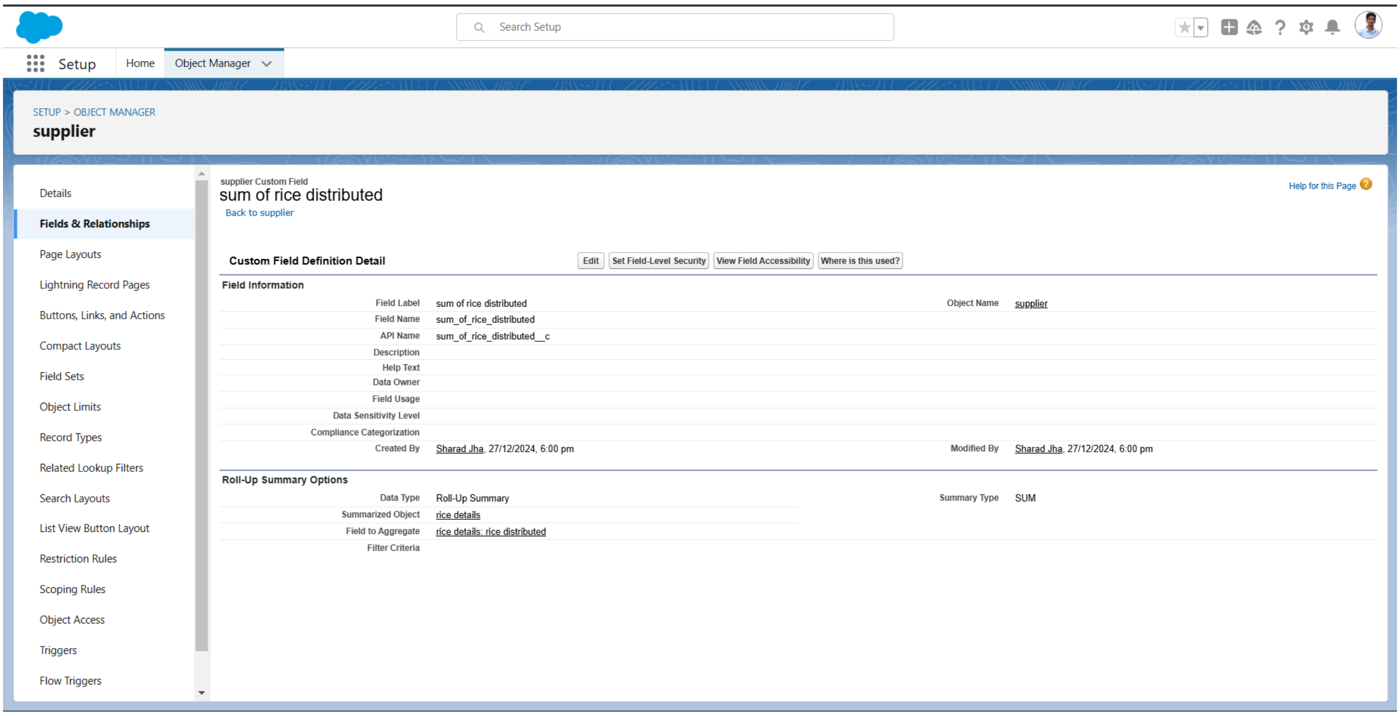


5.4. Creating the Roll-Up Summary

A rollup summary field is a field that summarizes data from a child object to a parent object that shares a master-detail relationship. Rollup summary fields can use the COUNT, SUM, MIN, and MAX functions. For example, you could use a rollup summary field to display the total value (amount of rice supplied) from rice details on a related supplier.

Creating the Roll-up summary field on supplier & rice mill Objects.

1. Go to setup >> click on Object Manager >> type object name(supplier) in search bar >> click on the object.
2. Now click on “Fields & Relationships” >> New
3. Select the data type as “Rollup summary ”,and click Next.
4. Give the Field label as “ sum of rice distributed ”,Field Name will be Auto generated, and click Next.
5. Select the summarized object as “ rice details ”.
6. Select the Rollup type as “sum”.
7. Select the field to aggregate as “ rice distributed ”, and click Next >>Next >>Save.



8. Follow the same steps for the rice mill Object from 1 to 3
9. Give the Field label as “ rice distributed to shops ”,Field Name will be Auto generated, and click Next.
10. Select the summarized object as “ rice details ”.
11. Select the Rollup type as “sum”.
12. Select the field to aggregate as “ rice distributed ”, and click Next >> Next >> Save.

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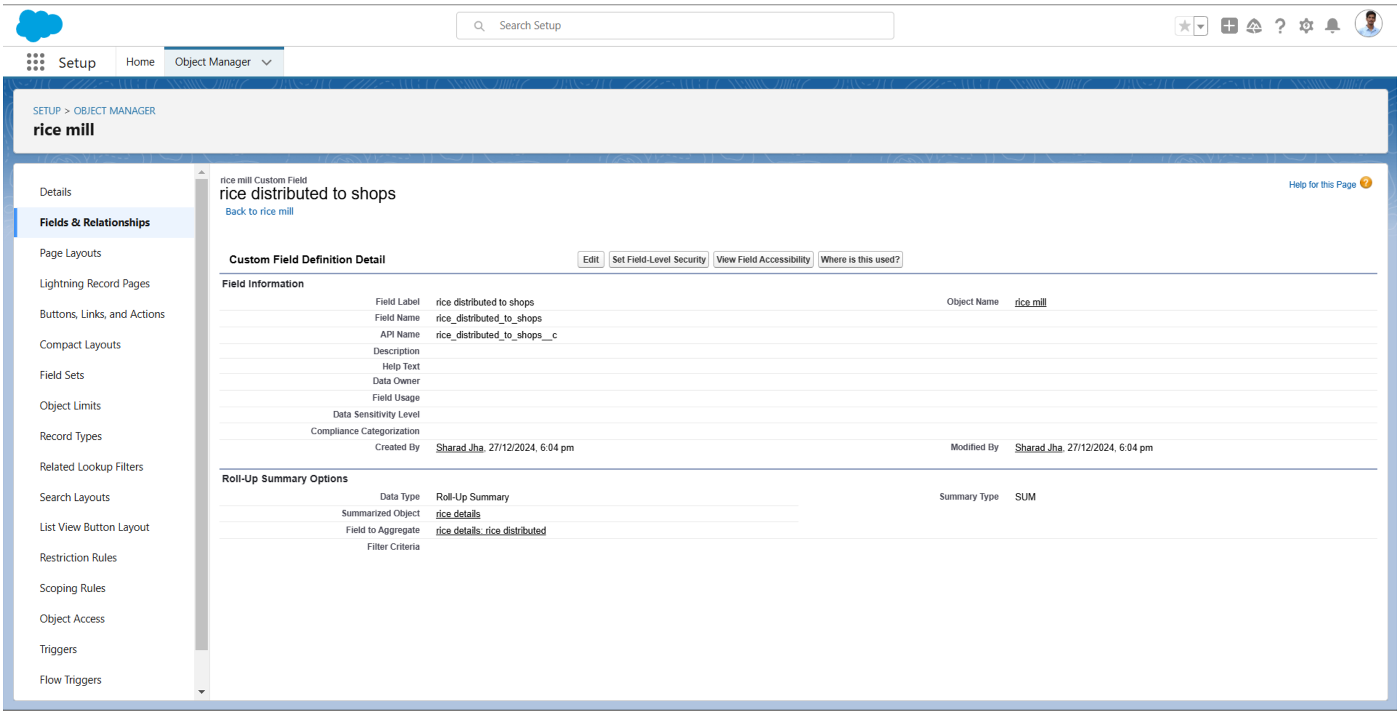
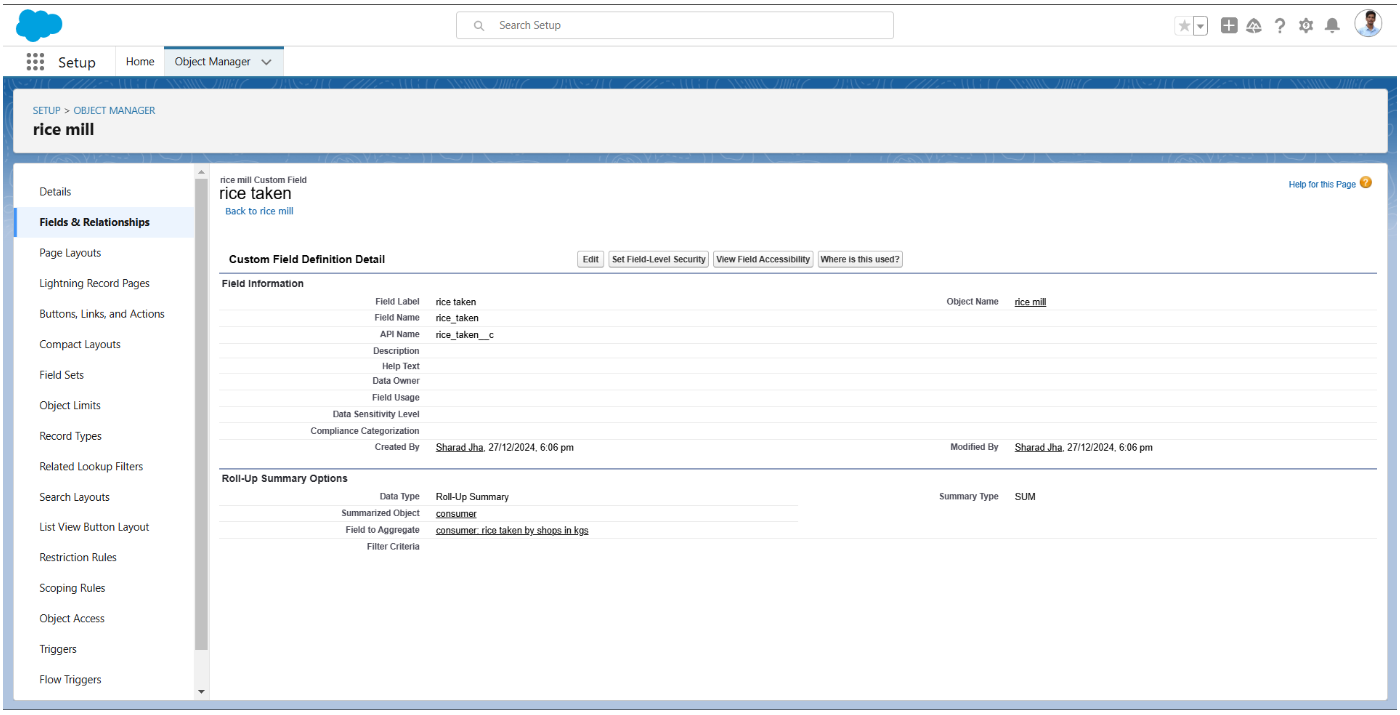
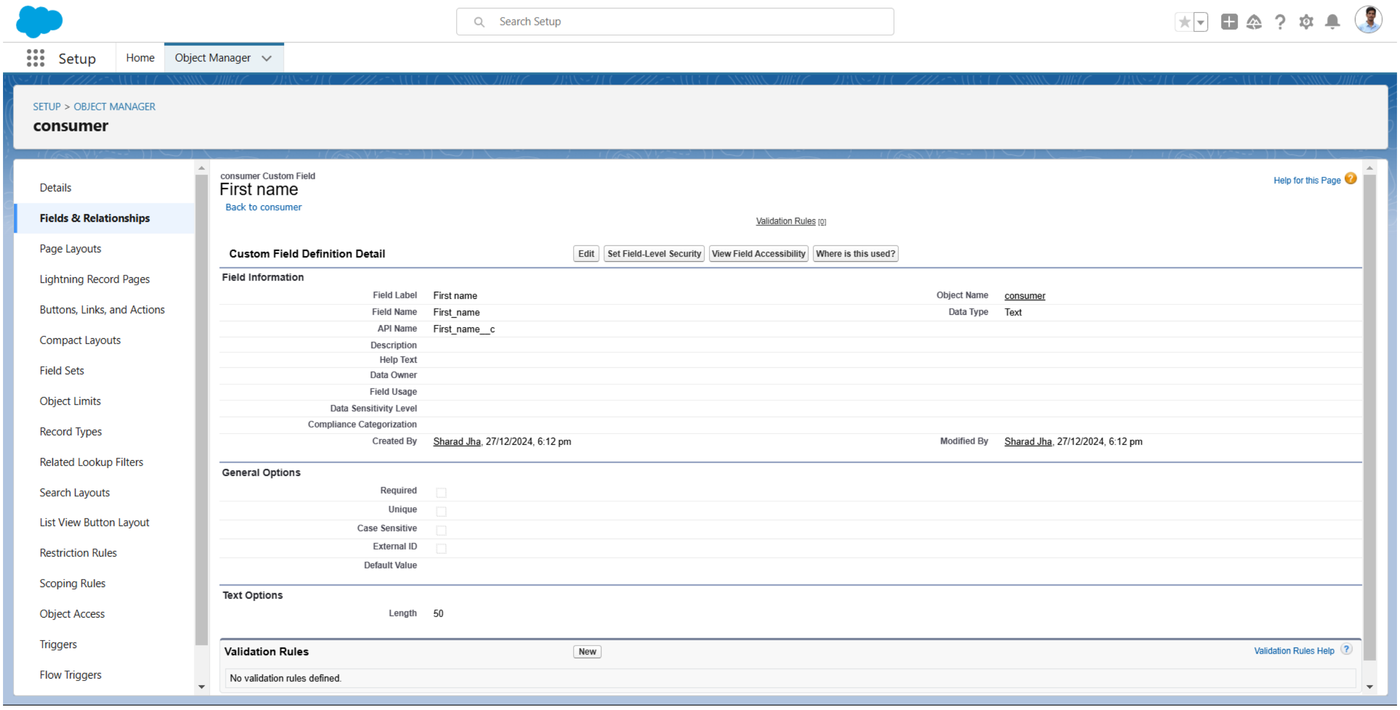


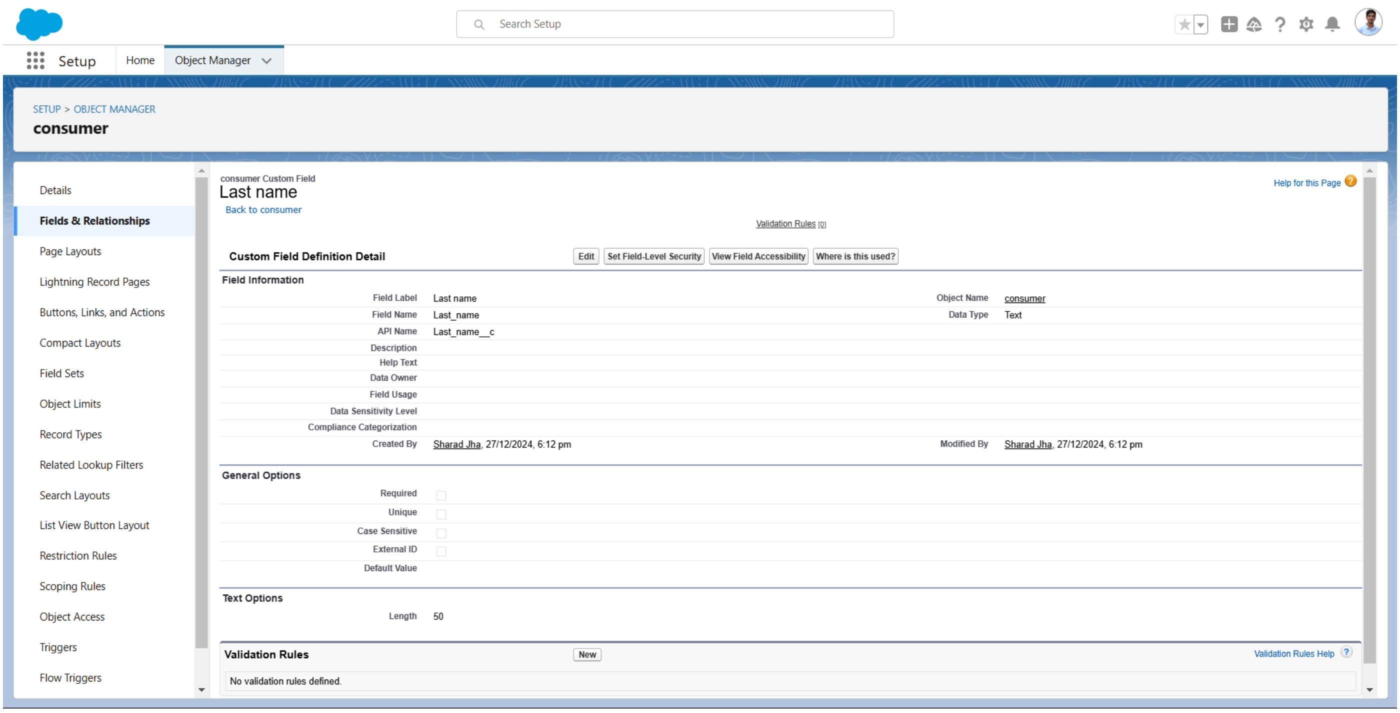
13. Follow the same steps for the rice mill Object from 1 to 3
14. Give the Field label as “ rice taken ”,Field Name will be Auto generated, and click Next.
15. Select the summarized object as “ consumer”.
16. Select the Rollup type as “sum”.
17. Select the field to aggregate as “ rice taken in shops ”, and click Next >> Next >> Save.



5.5. Creating Fields in Consumer Objects



<u>Field Name: First Name</u>



<u>Field Name: Last Name</u>

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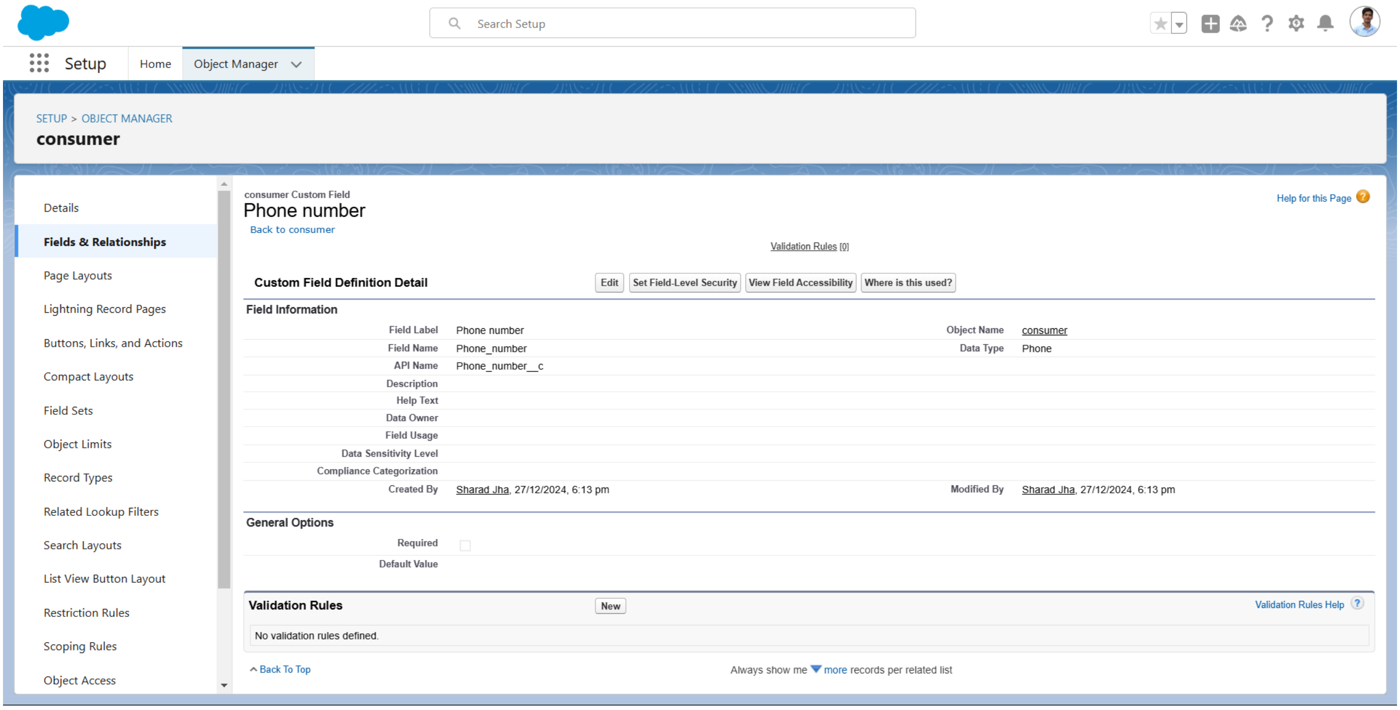
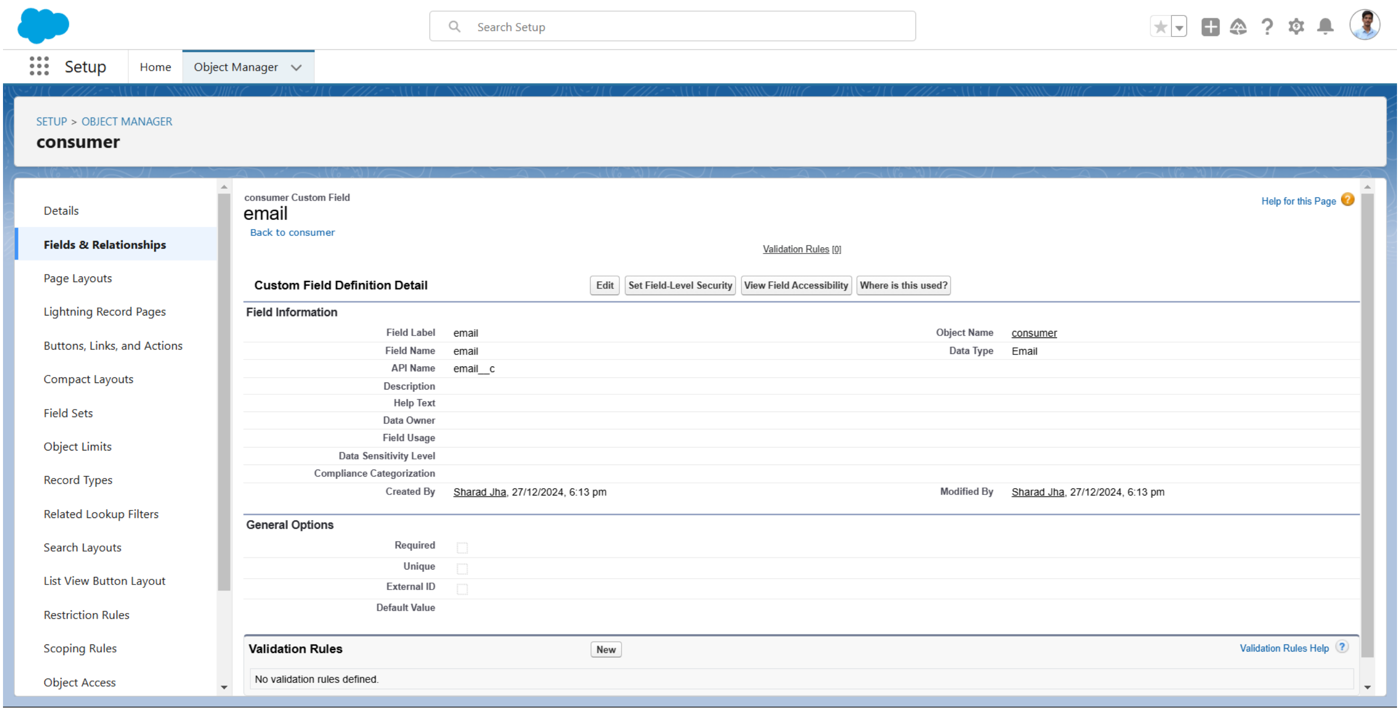


Field Name: Phone Number



Field Name: Email

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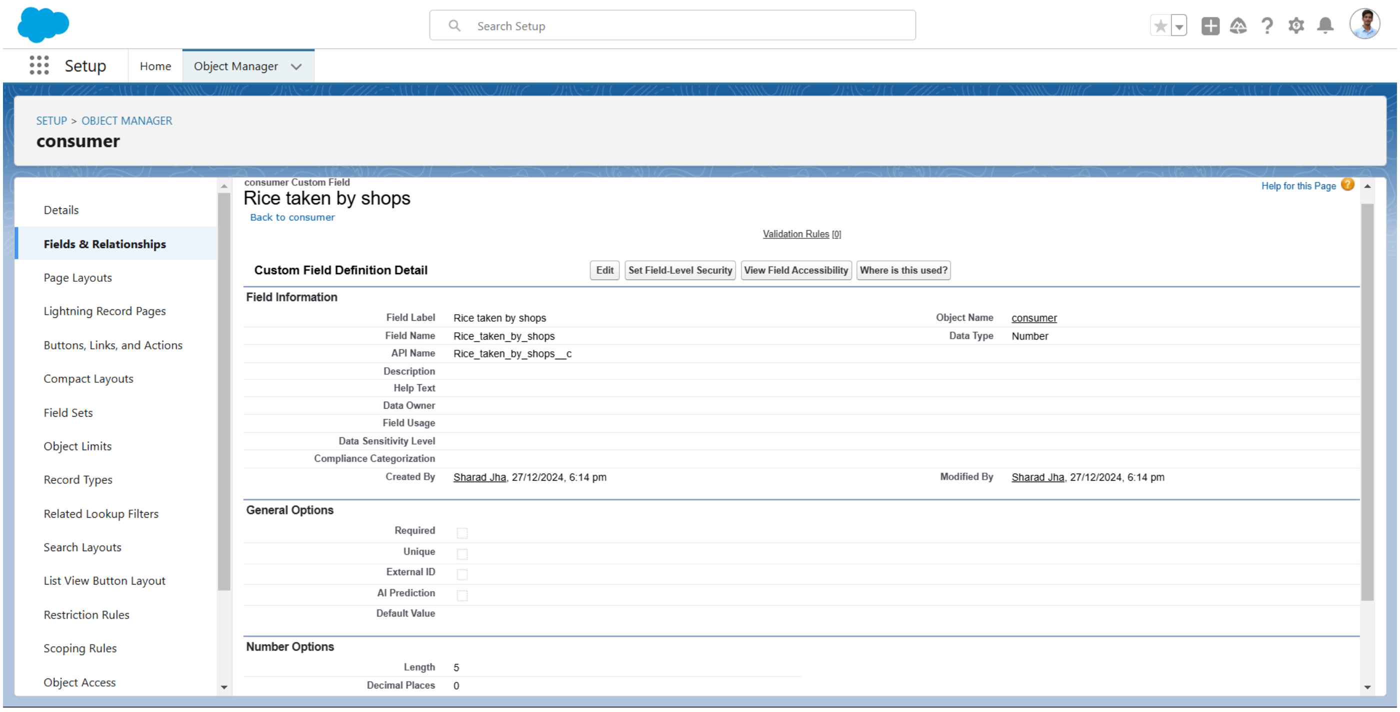
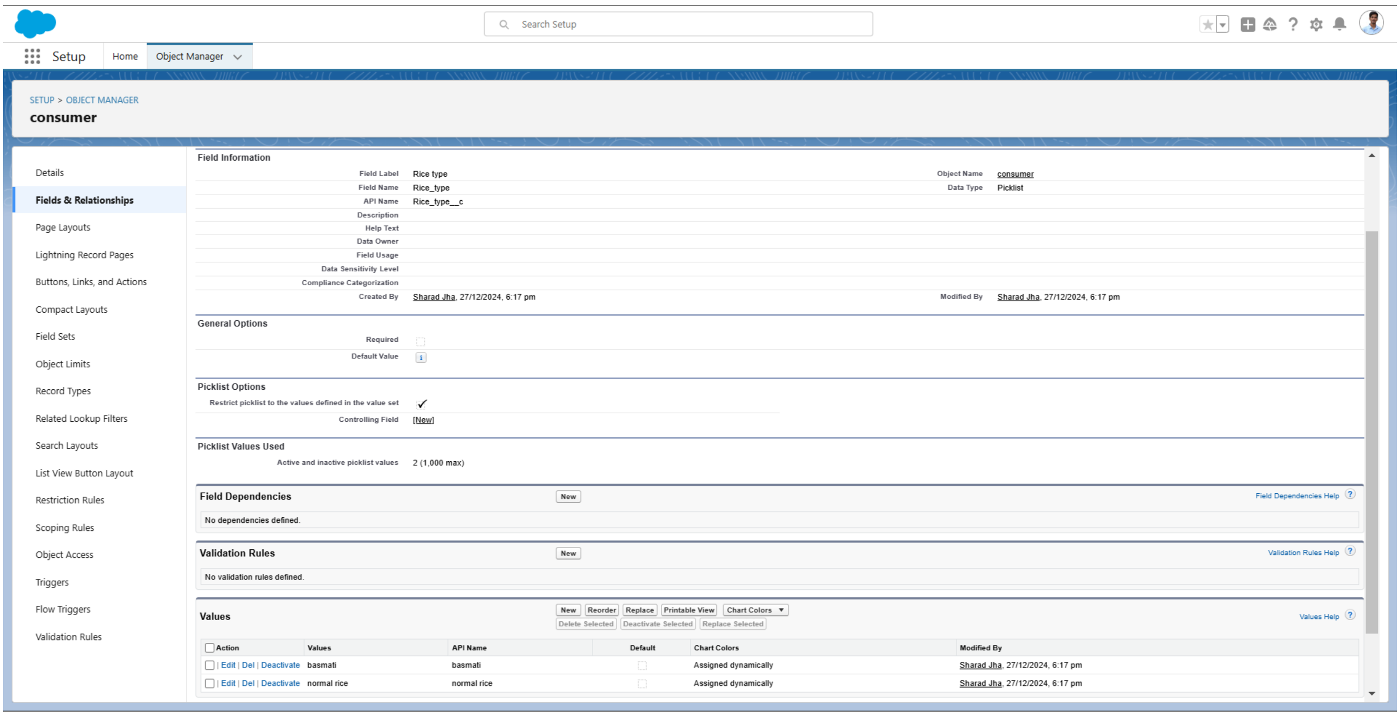


<u>*Field Name: Rice Taken By Shops*</u>



<u>*Field Name: Rice Type*</u>

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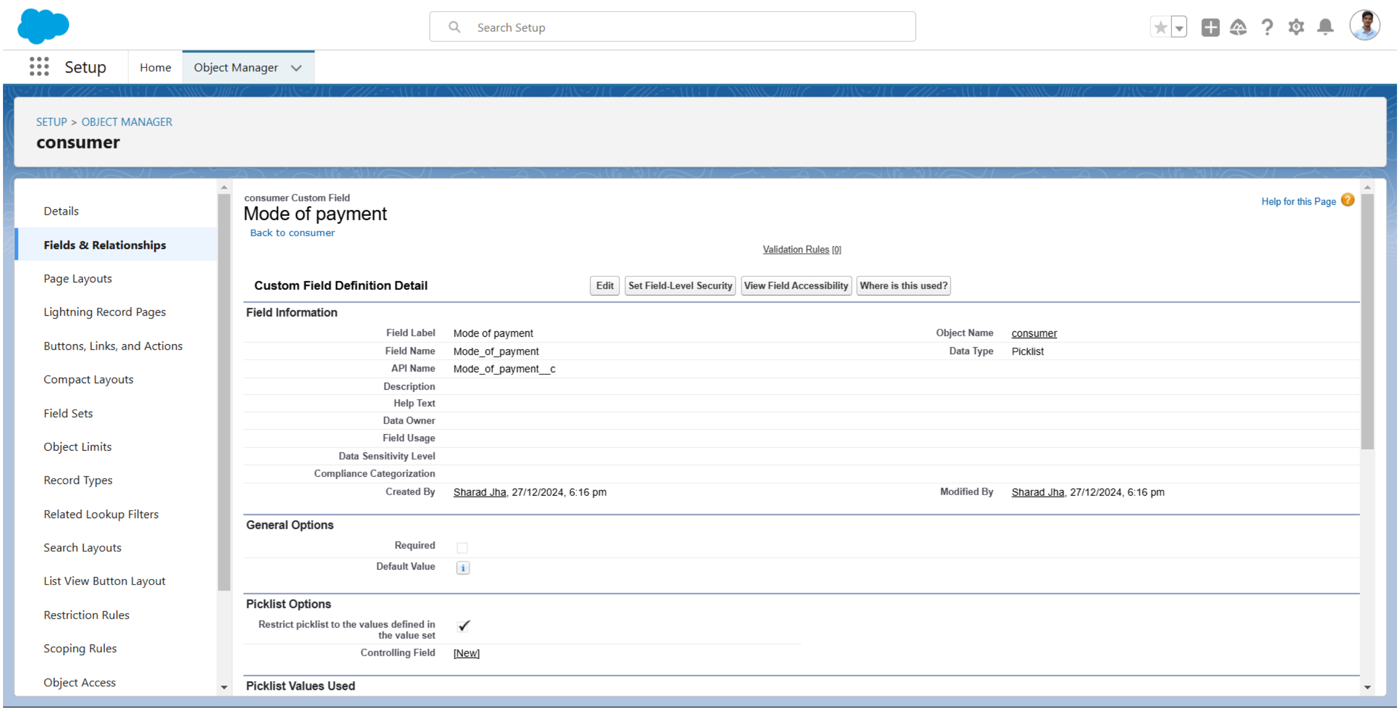

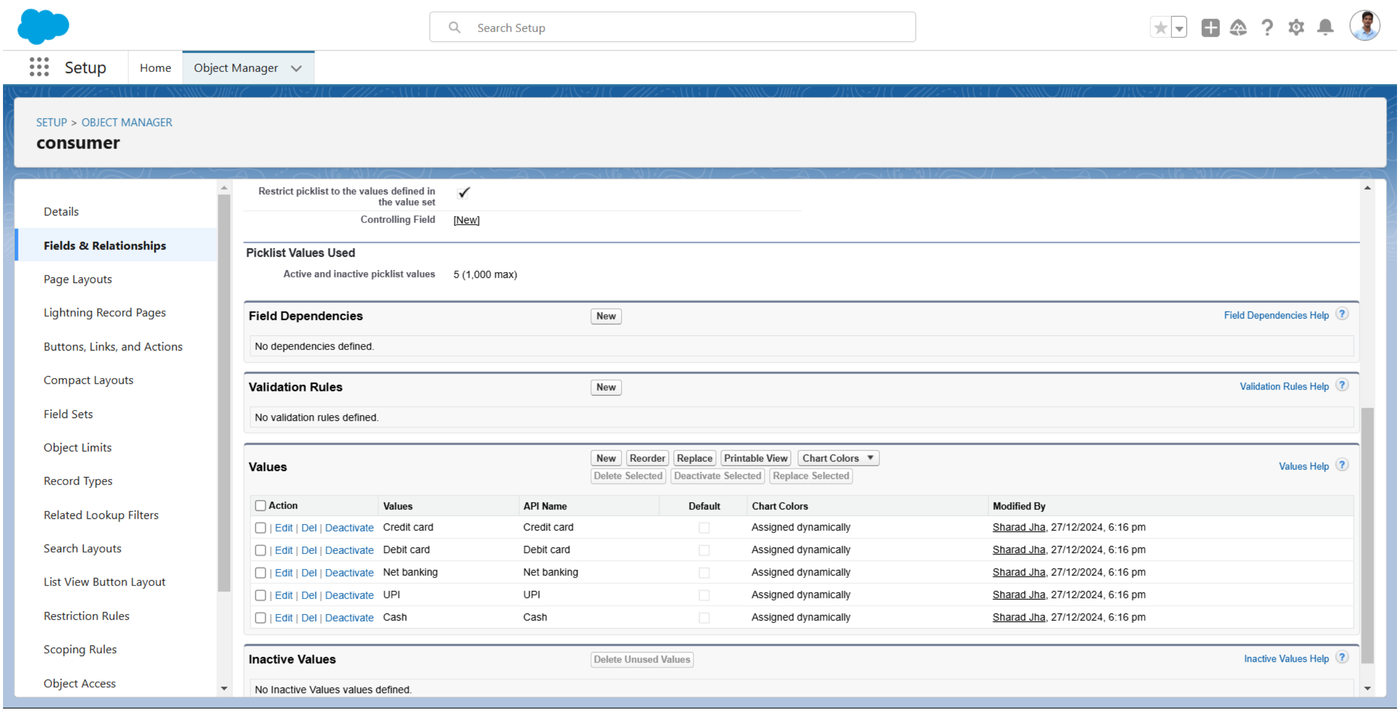

Field Name: Mode Of Payment

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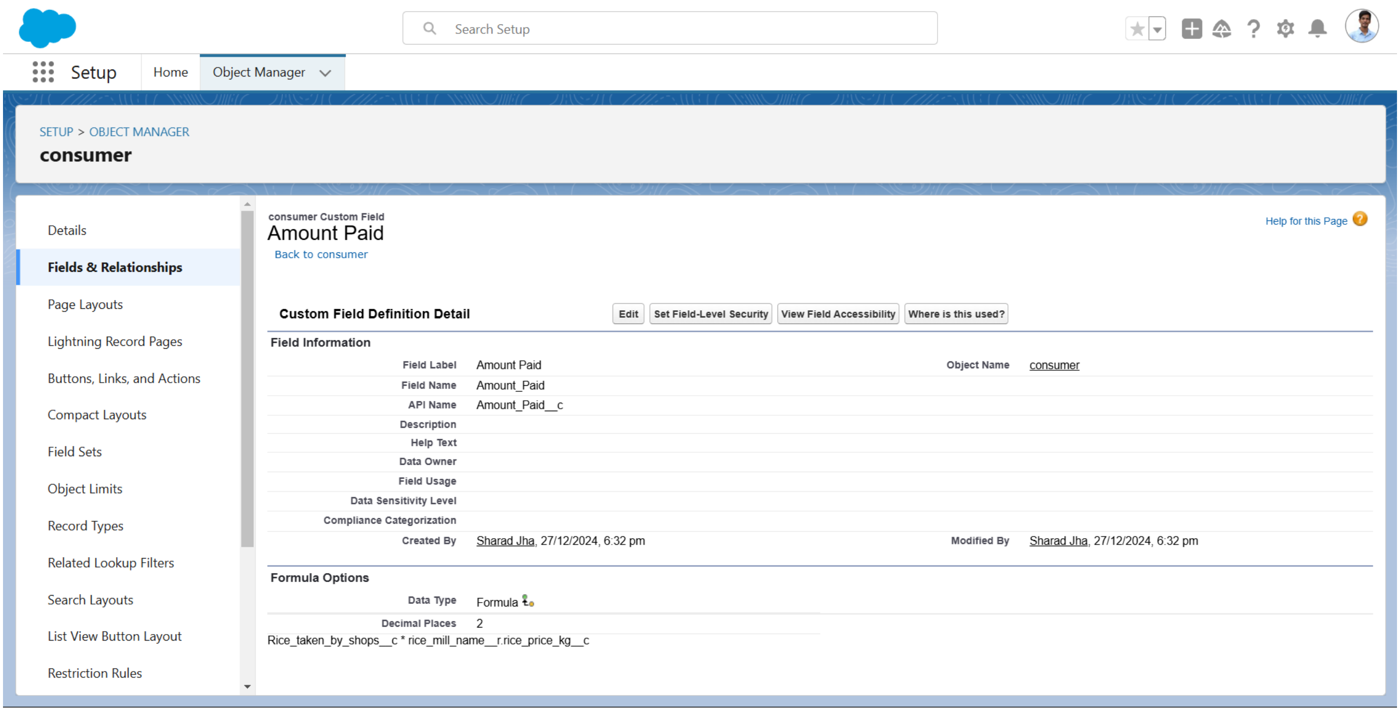
5.6. Creating Cross Object Formula Field in Consumer Object

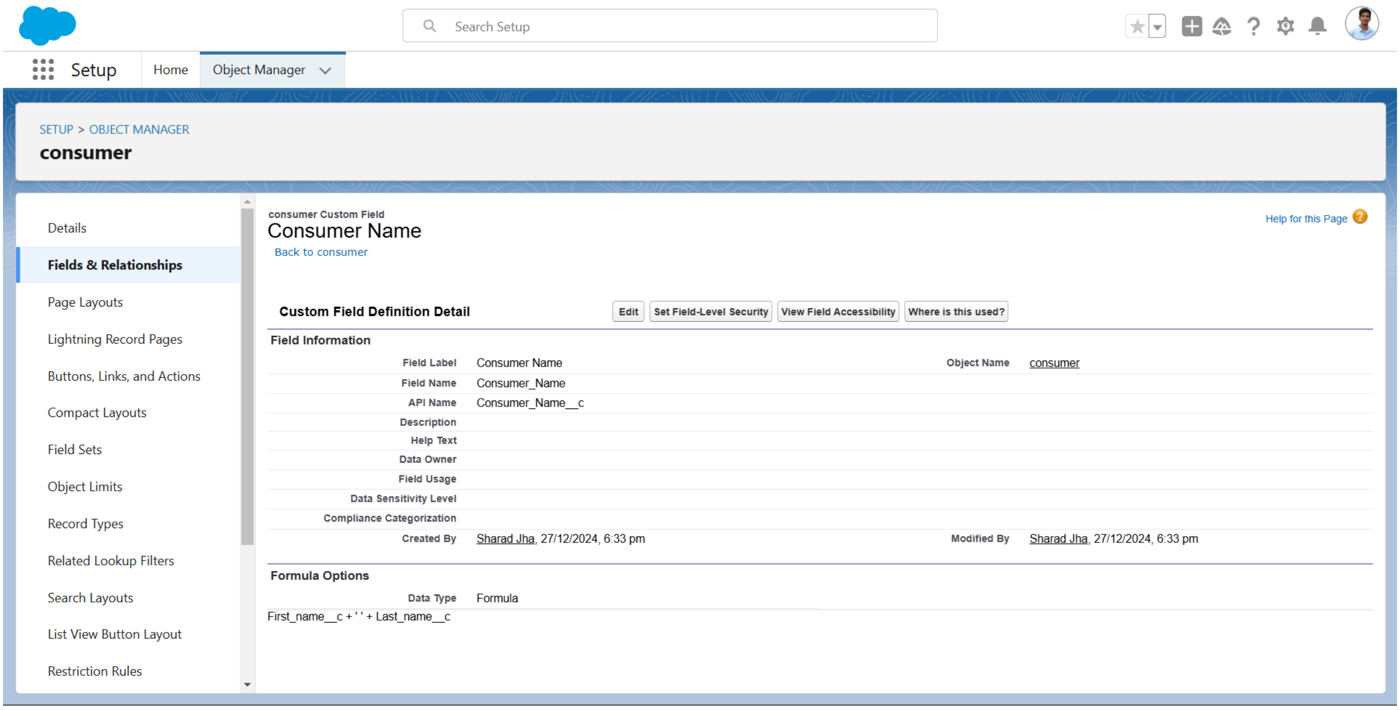
1. Go to setup >> click on Object Manager >> type object name(consumer) in search bar >> click on the object.
2. Click on fields & relationship >> click on New.
3. Select Data type as “Formula” and click Next.
4. Give Field Label and Field Name as “Amount Paid ” and select formula return type as “Number” and click next.
5. Insert fields formula should be :
   rice_taken_by_shops__c * rice_mill_name__r.rice_price_kg__c
6. Under Advanced Formula write down the formula and click “Check Syntax” and Save.

Creating the Formula field in consumer Object

1. Go to setup >> click on Object Manager >> type object name(consumer) in search bar >> click on the object.
2. Click on fields & relationship >> click on New.
3. Select Data type as “Formula” and click Next.
4. Give Field Label and Field Name as “Consumer Name” and select formula return type as “TEXT” and click next.
5. Insert field formula should be : First_Name__c + ' ' + Last_Name__c
6. click “Check Syntax” and Save.



Field Name: Amount Paid



Field Name: Consumer Name

5.7. Creating the Validation Rule

Improve the quality of your data using validation rules. Validation rules verify that the data a user enters in a record meets the standards you specify before the user can save the record. A validation rule can contain a formula or expression that evaluates the data in one or more fields and returns a value of “True” or “False”. Validation rules also include an error message to display to the user when the rule returns a value of “True” due to an invalid value.

Creating the validation rule for phone number field in consumer object

1. Go to the setup page >> click on object manager >> From drop down click edit for consumer object.
2. Click on the validation rule >> click New.
3. Enter the Rule name as “Phonenumberoremailblankrule ”.
4. Enter the description as “phone number and email number should not be blank”.
5. Enter the formula as “OR(ISBLANK(phone_number__c) , ISBLANK(email__c))” and check the syntax.
6. Under the error message write as ”please fill in your phone number.”
7. Select error location “top of page”.
8. Save the validation rule.

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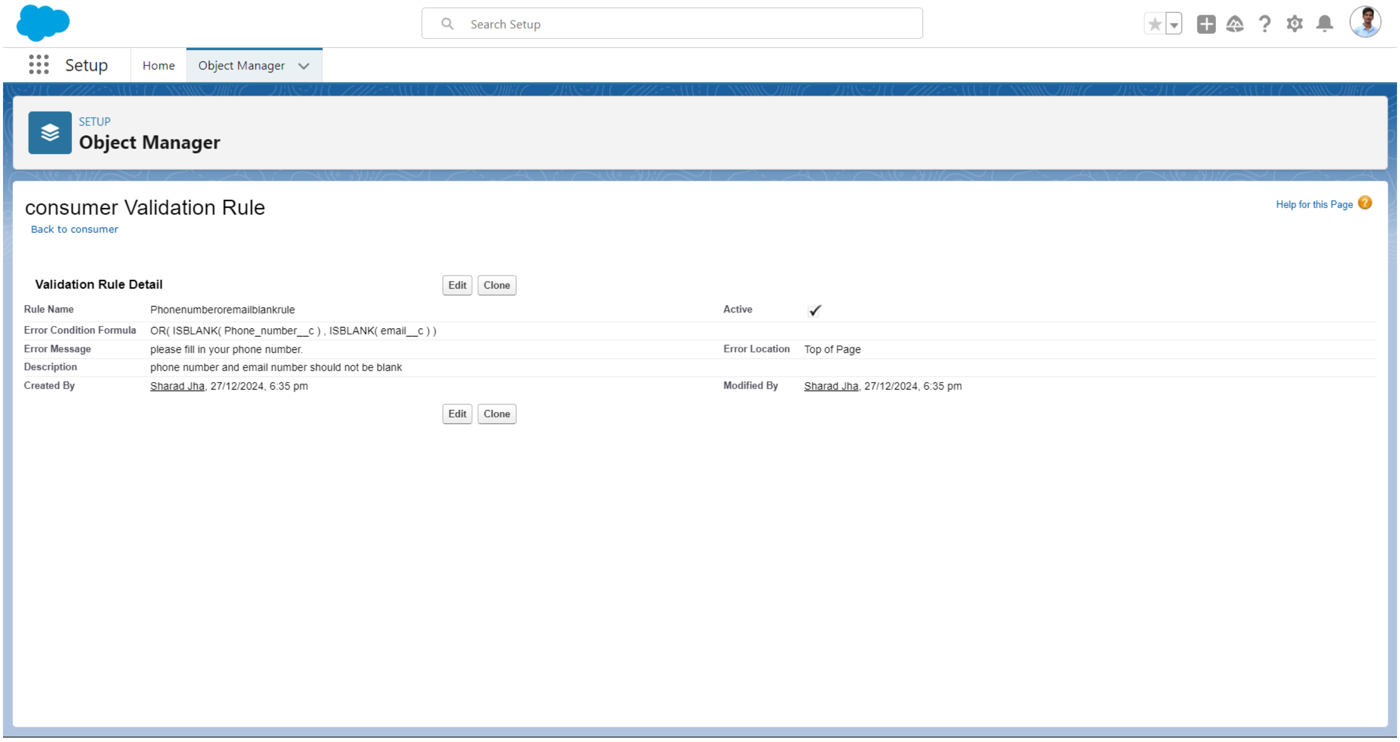
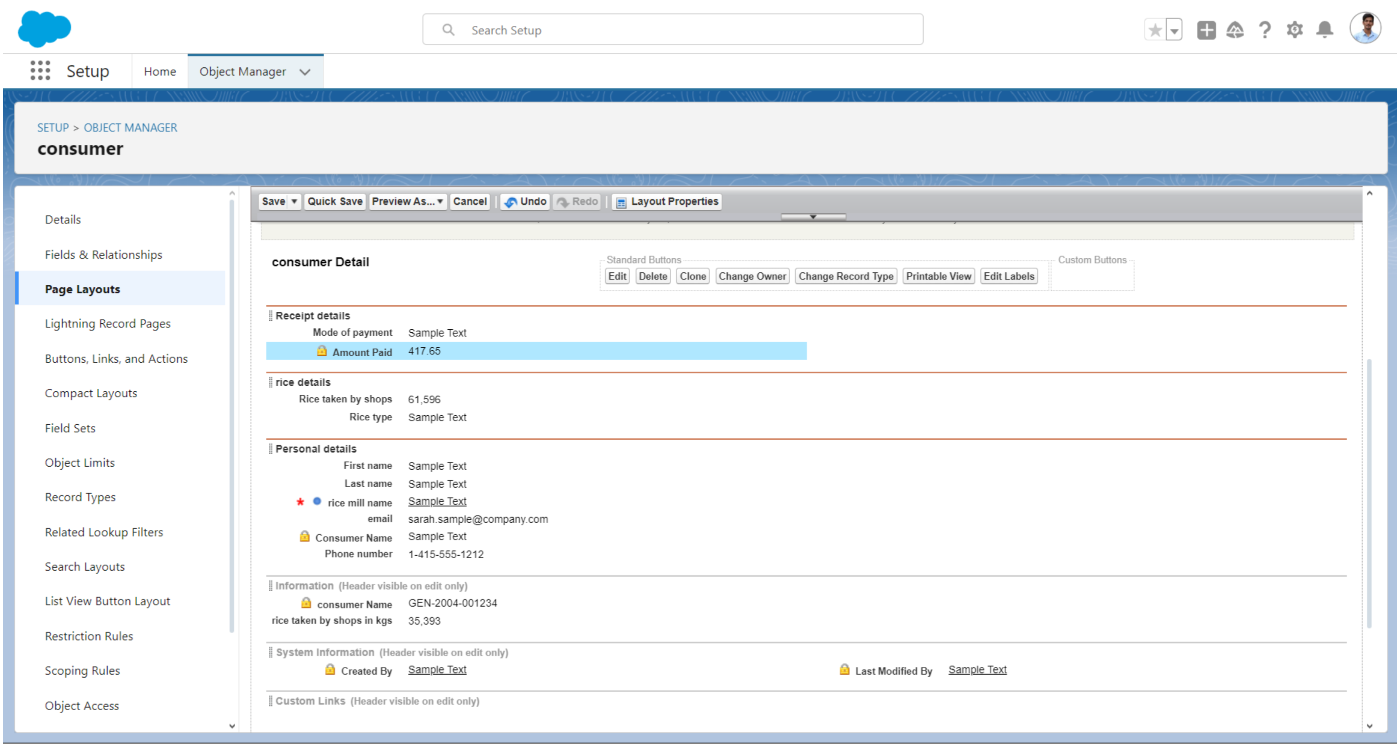


Activity 6: Page Layouts

6.1. Creating the Page Layout

To Create a Page layout:

1. Go to Setup >> Click on Object Manager >>Search for the object (consumer) >> From drop down select the object and click on it.
2. Click on Page layout >> Click on New.
3. Select the existing page layout, and give the page layout name as “consumer layout”, and click save.
4. Drag and drop the section field to consumer details and create the section.
5. Enter the section name as “Personal details”, - click Ok.
6. Now drag the fields to this section that mentioned , they are
    - First name , last name , consumer name , phone number, email, rice mill name.
7. Follow the same process for another two sections as shown above , they are
8. One section is “ rice details ” , drag the fields that are
    - Rice taken by shop, rice type.
9. Another section is “Receipt details ”, and drag the fields that are
    - Mode of payment , Amount paid.
10. Then , Click save.

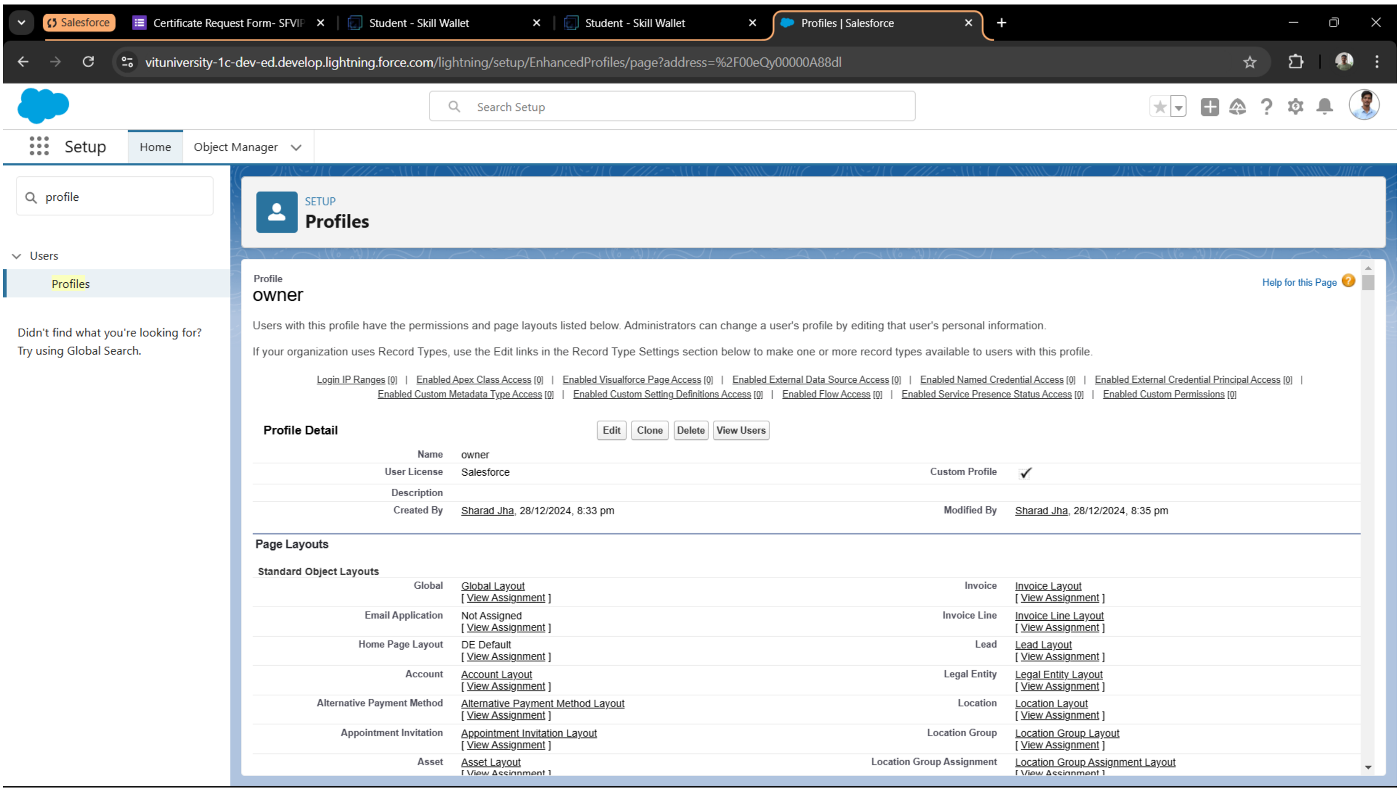


Activity 7: Profiles

7.1. Owner Profile

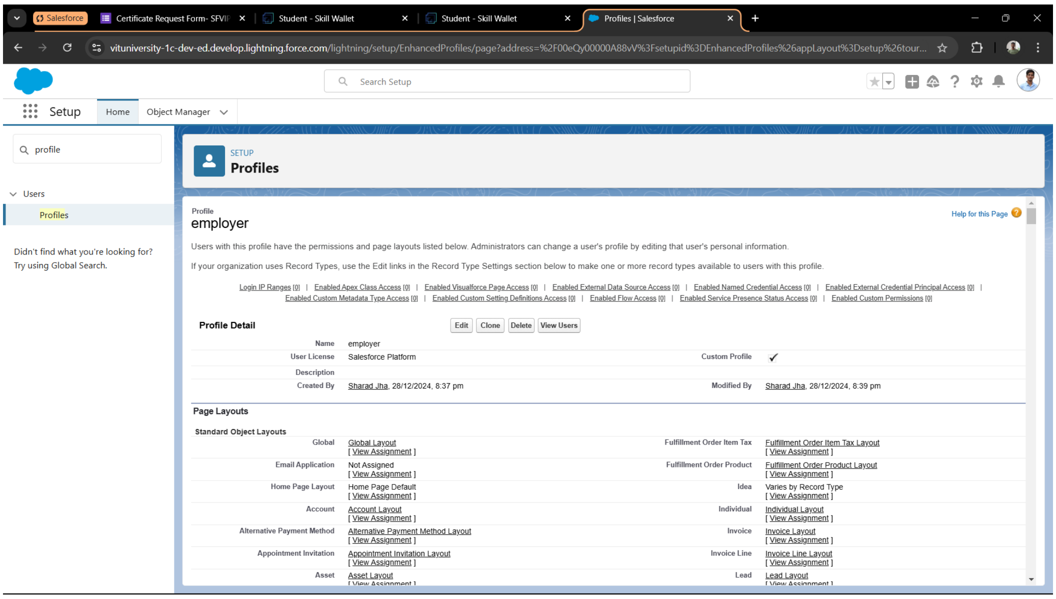
To create a new profile:

1. Go to setup >> type profiles in quick find box >> click on profiles >> clone the desired profile (Standard User) >> enter profile name (owner) >> Save.
2. Scroll down to Custom Object Permissions and Give access permissions for consumers, rice details , rice mill and suppliers objects as mentioned in the below diagram.
3. Give access and save it.



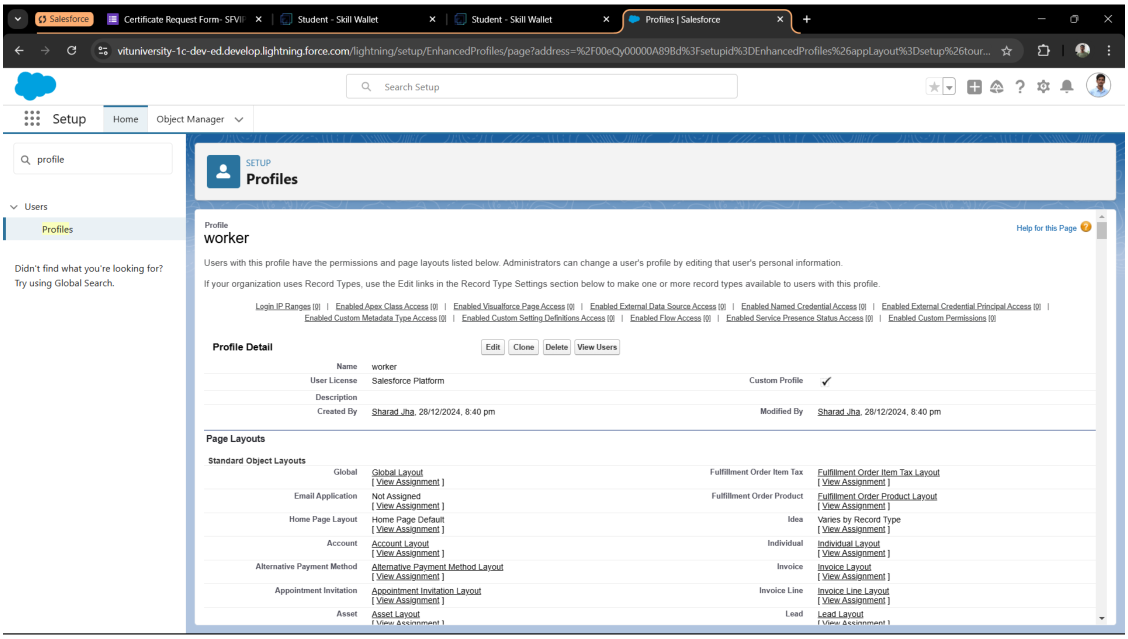
7.2. Employer Profile

1. Go to setup >> type profiles in quick find box >>click on profiles >> clone the desired profile (Standard Platform User) >> enter profile name (employer) >> Save.
2. While still on the profile page, then click Edit.
3. Select the Custom App settings as default for the rice mill.
4. Scroll down to Custom Object Permissions and Give access permissions for consumer, rice details , rice mill and suppliers objects as mentioned in the below diagram.
5. And click save.



7.3. Worker Profile

1. Go to setup >> type profiles in quick find box >> click on profiles >> clone the desired profile (Standard Platform User) >> enter profile name (worker) >> Save.
2. While still on the profile page, then click Edit.
3. Select the Custom App settings as default for the rice mill.
4. Scroll down to Custom Object Permissions and Give access permissions for consumer, rice details , rice mill and suppliers objects as mentioned in the below diagram.
5. And click save.

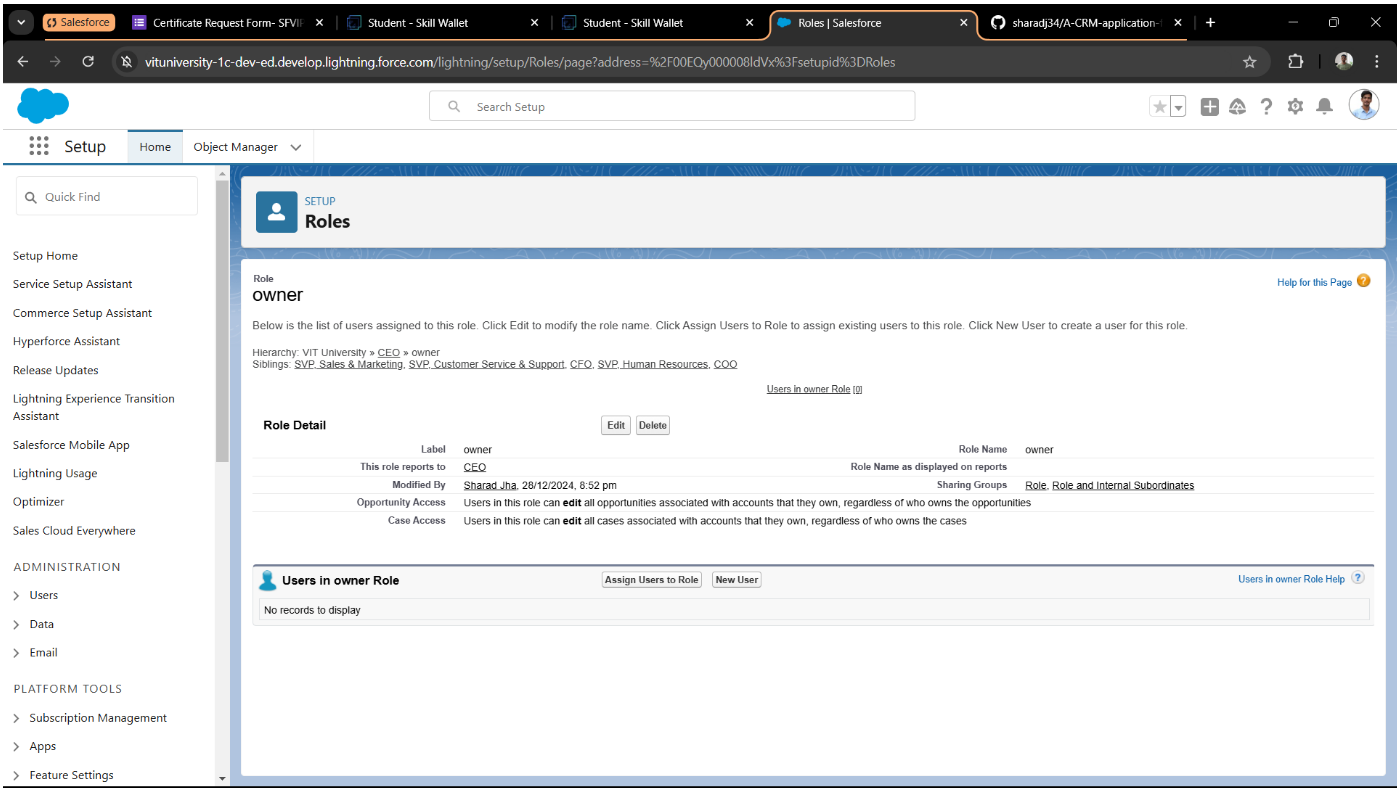


Activity 8: Role & Role Hierarchy

8.1. Creating Owner Role

Creating owner Role:

1. Go to quick find >> Search for Roles >> click on set up roles.
2. Go to quick find >> Search for Roles >> click on set up roles.
3. Click on Expand All and click on add role under whom this role works.
4. Give Label as “owner” and Role name gets auto populated. Then click on Save.
5. Click and save it.



Owner Role

8.2. Creating Employer Roles

Creating another two roles under manager

1. Go to quick find >> Search for Roles >> click on set up roles.
2. Click plus on CEO role, and click add role under owner.
3. Give Label as “employer” and Role name gets auto populated. Then click on Save.
4. Repeat the same steps, for another role.
5. Click plus on CEO role, and click plus on owner, and click add role under employer.
6. Give Label as “worker” and Role name gets auto populated. Then click on Save.

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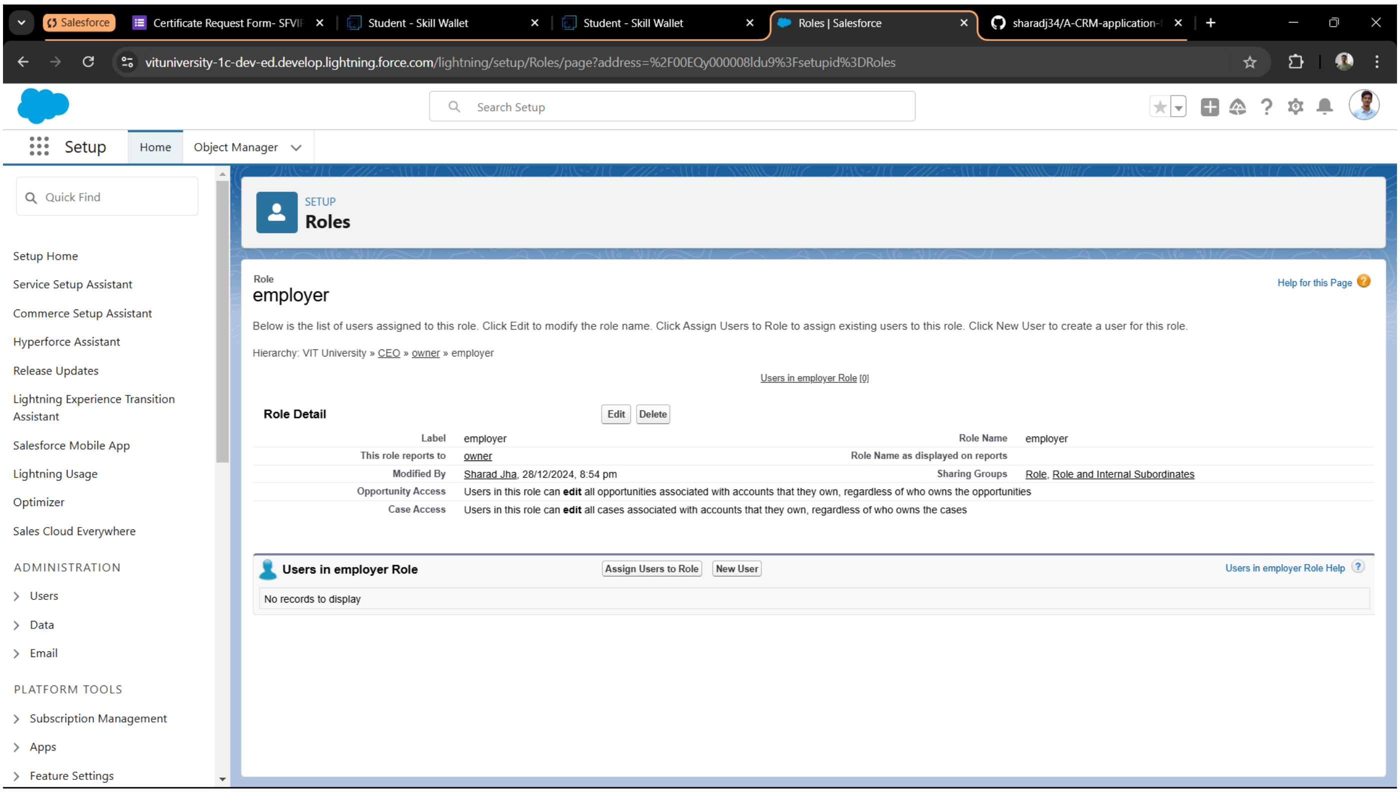
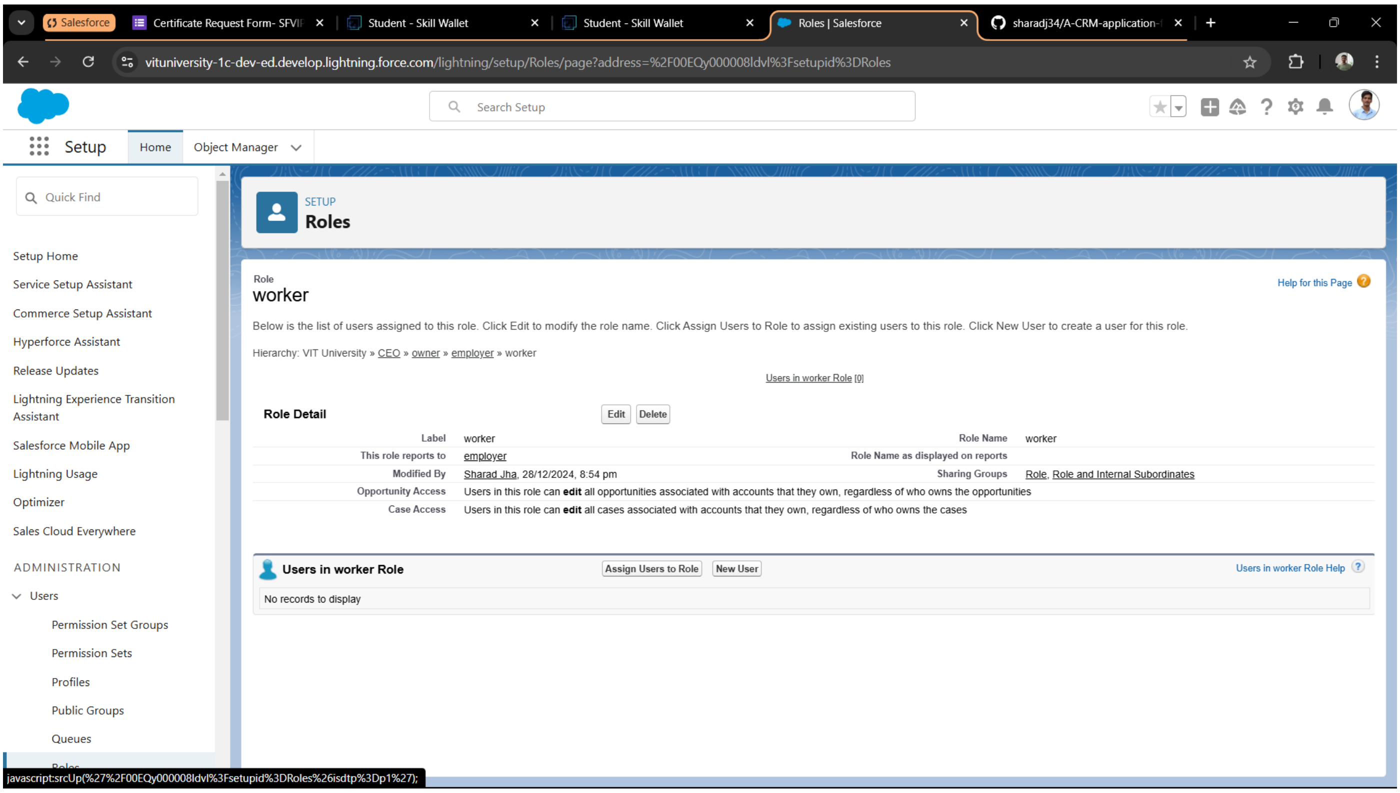


Employer Role

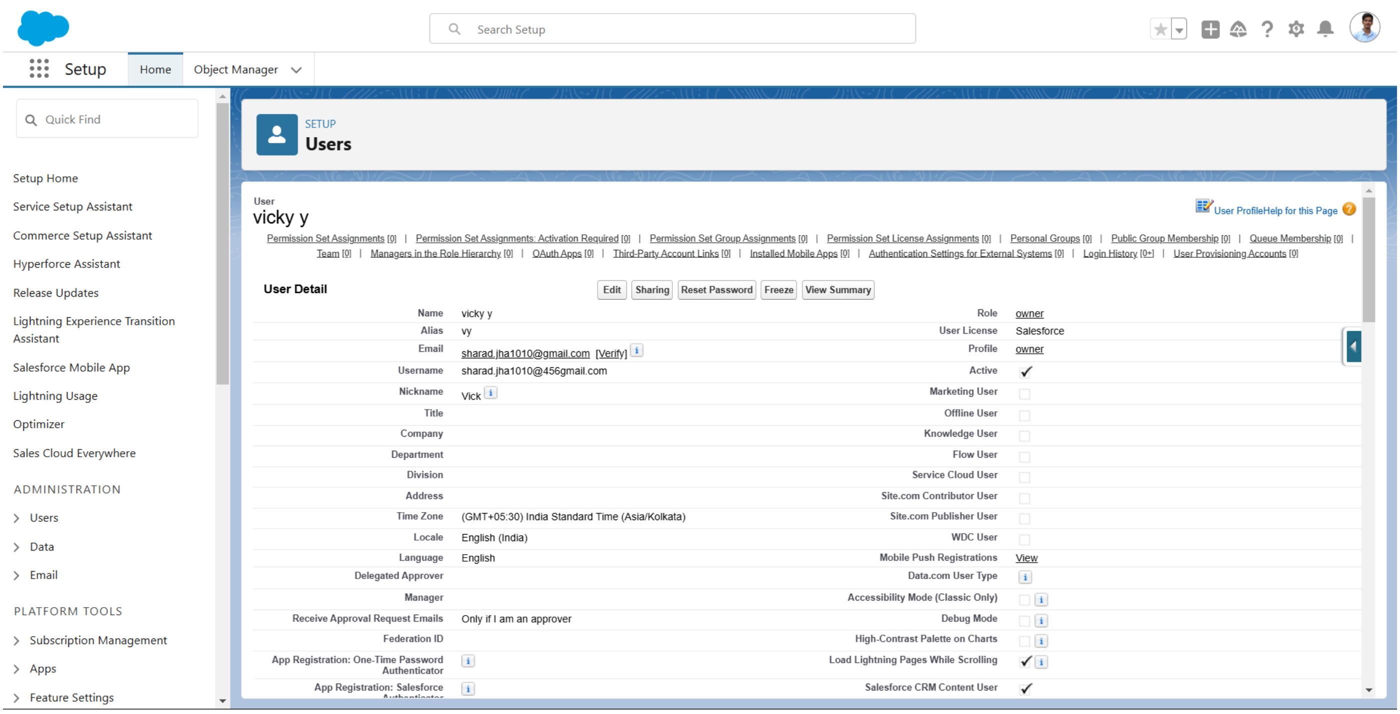


Worker Role

Activity 9: Users

9.1. Create User

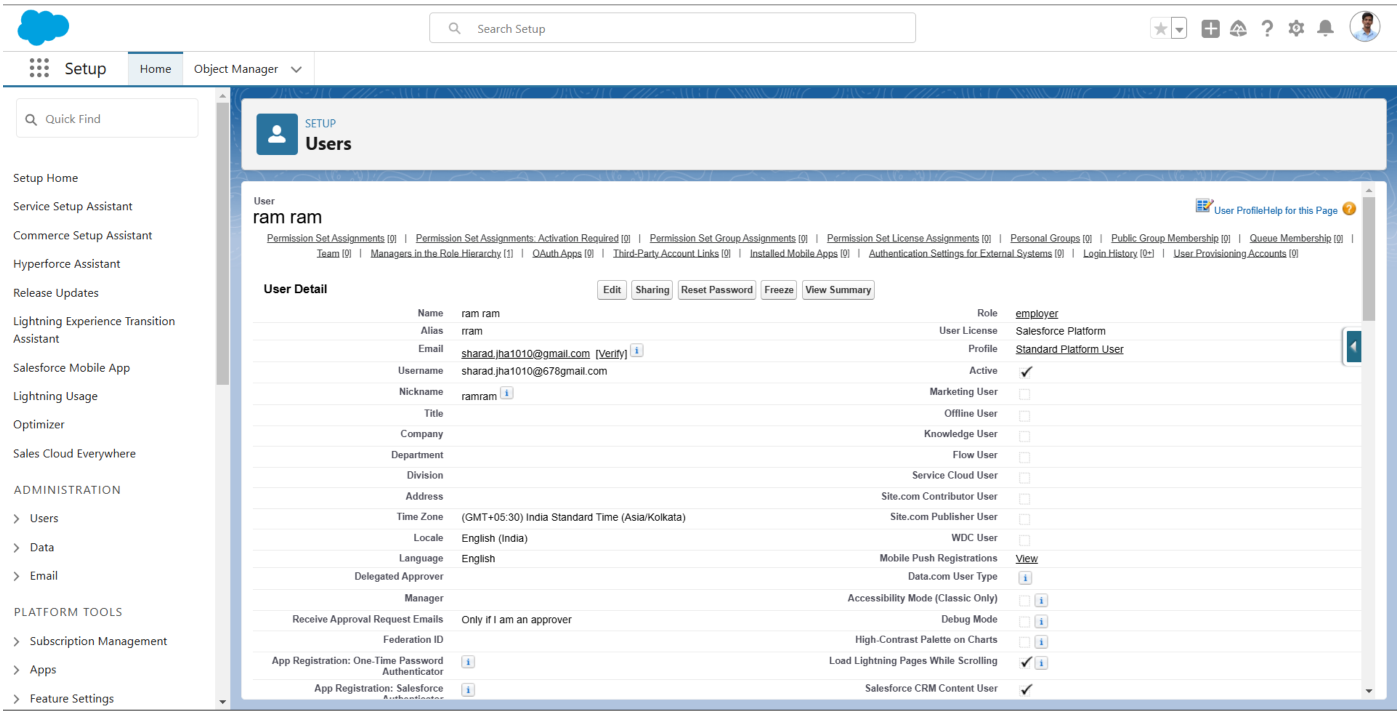
1. Go to setup >> type users in quick find box >> select users >> click New user.
2. Fill in the fields
3. First Name : vicky
4. Last Name : y
5. Alias : Give a Alias Name
6. Email id : Give your Personal Email id
7. Username : Username should be in this form: text@text.text
8. Nick Name : Give a Nickname
9. Role : owner
10. User license : Salesforce
11. Profiles : owner.
12. Save it.



9.2. Create Another User

1. Go to setup >> type users in quick find box >> select users >> click New user.
2. Fill in the fields
3. First Name : ram
4. Last Name : ram

5. Alias : Give a Alias Name
6. Email id : Give your Personal Email id
7. Username : Username should be in this form: text@text.text
8. Nick Name : Give a Nickname
9. Role : employer
10. User license : Salesforce platform
11. Profiles : standard platform user.



9.3. Create Another User

1. Go to setup >> type users in quick find box >> select users >> click New user.
2. Fill in the fields -
3. First Name: ragu
4. Last Name: raj
5. Alias: Give a Alias Name
6. Email id: Give your Personal Email id
7. Username: Username should be in this form: text@text.text
8. Nick Name: Give a Nickname
9. Role: worker
10. User license: Salesforce platform
11. Profiles: standard platform user.

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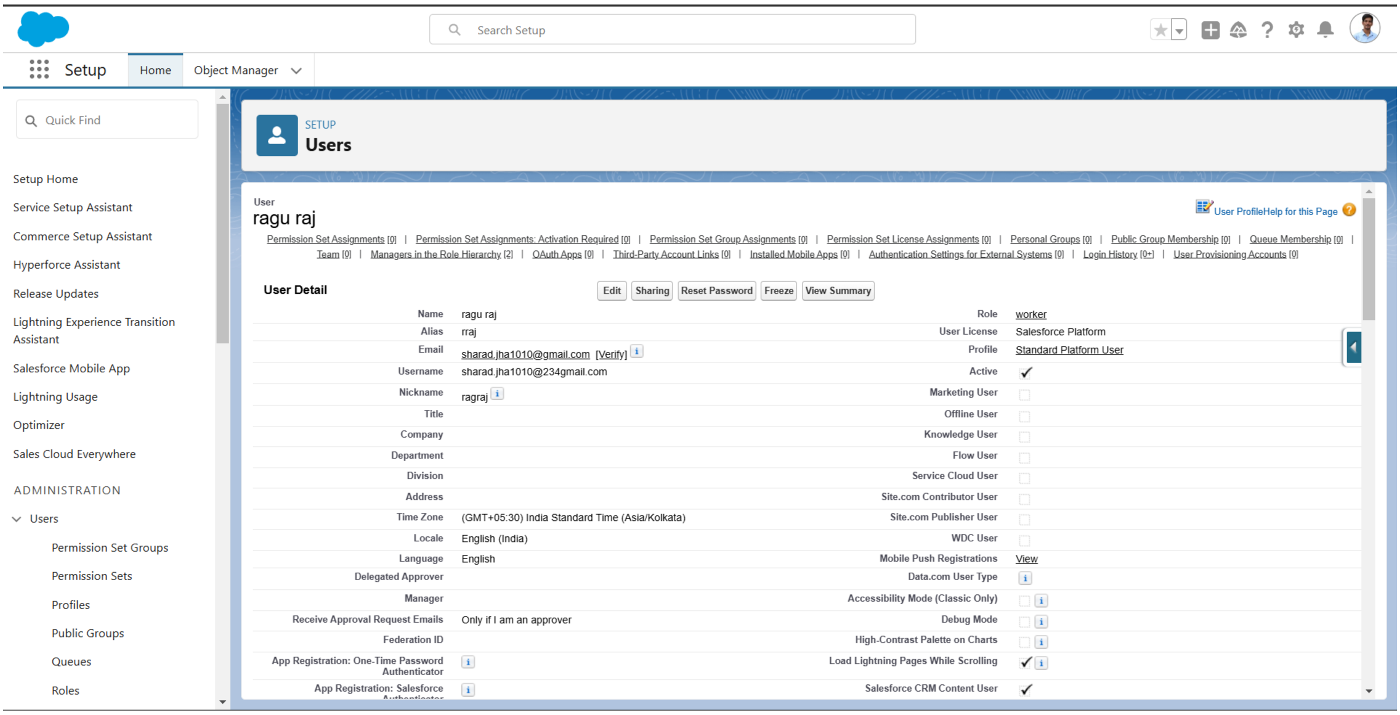

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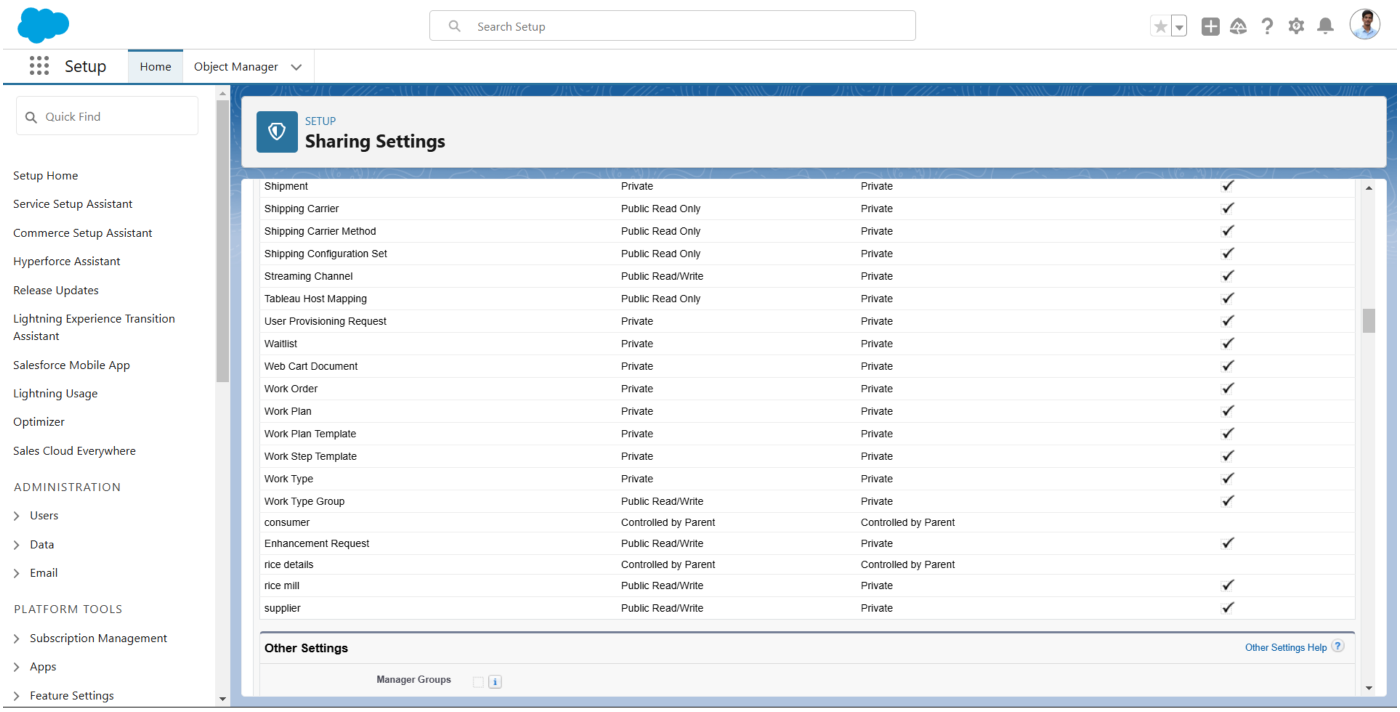
Activity 10: Permission Sets

10.1. Creating OWD Setting

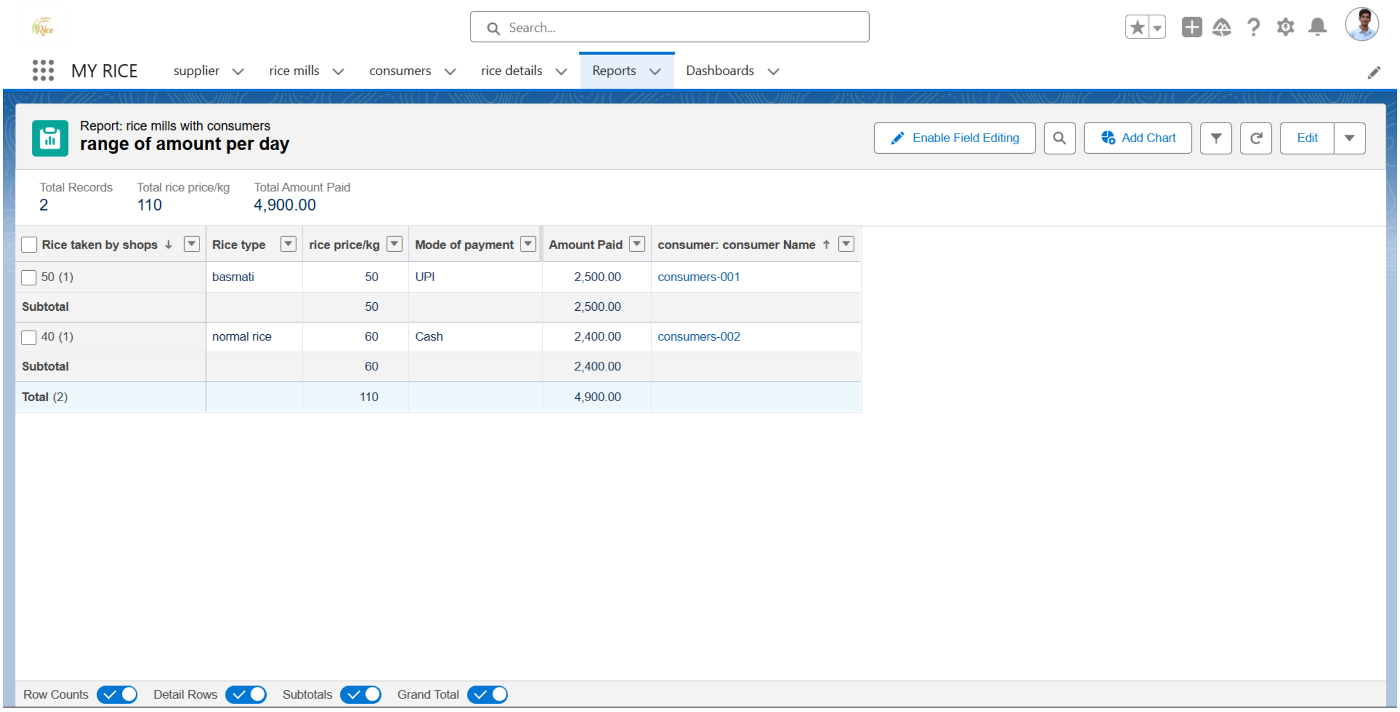
1. Go to setup >> type “sharing settings ” in quick search >> Click edit.
2. Scroll down, change the default internal access to “ public read-only” for rice mill and supplier object.
3. Click save.
4. Extra information, By these every profile has their own access, according to their profile.
5. But in our case we created roles and given the roles in such a way that the owner can see employer and worker records , and the employer can see the worker records.



Activity 11: Report

11.1. Create Report

1. Go to the app >>click on the reports tab
2. Click New Report.
3. Select for report type, search for "rice mill with consumers" click on it. And click on start report.
4. Their outline pane is opened already, select the fields that are mentioned below in the column section.
    a. consumer name
    b. rice type
    c. rice price/kg
    d. mode of payments
    e. amount paid
5. Remove the unnecessary fields.
6. Select the fields that are mentioned below in the GROUP ROWS section.
    a. Rice taken by shops
7. Click save and run and save the report as "range of amount per day".and save it.

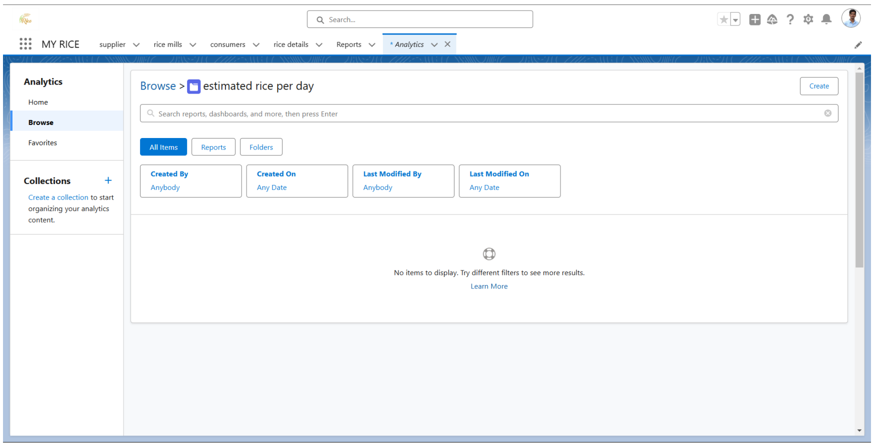


11.2. Sharing Report to Owner

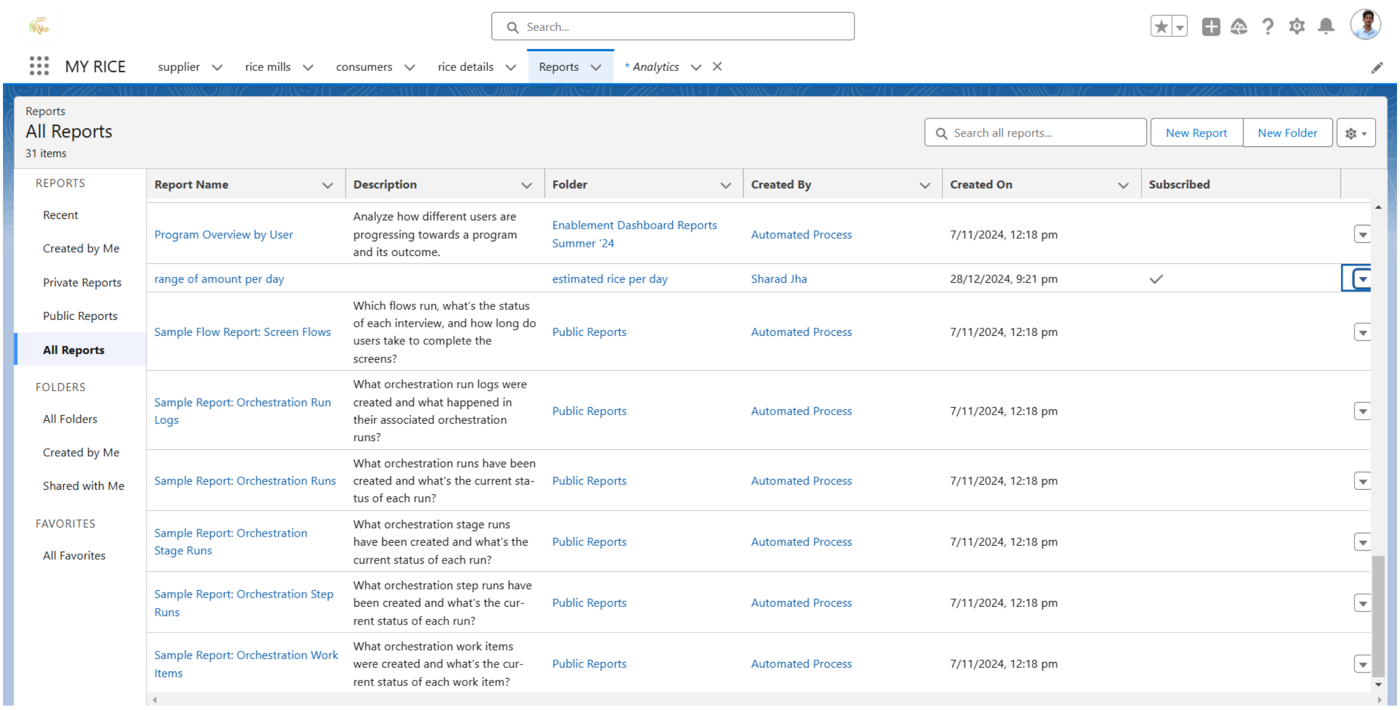
1. Click edit drop down and select subscribe option
2. After selecting the run report as a "another person" select your personal account or whom you want to send that mail to. Click save.

11.3. Create A Report Folder

1. Click on the app launcher and search for reports.
2. Double click on the report, “reports tab” will be auto populated in the navigation bar.
3. Click on the report tab, click on the new folder.
4. Give the Folder label as “estimated rice per day”, Folder unique name will be auto populated.
5. Click save.



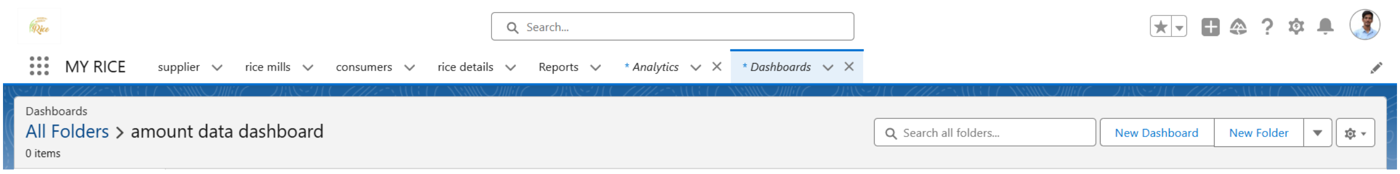
1. Navigate to app launcher and click reports on that.
2. Click all reports.
3. Select the range of amount per day drop down in that click move.
4. Select estimated rice per day folder and select folder.



Activity 12: Dashboards

12.1. Create Dashboard Folder

1. Click on the app launcher and search for the dashboard.
2. Click on the dashboard tab.
3. Click the new folder, give the folder label as “amount data dashboard”.
4. Folder unique names will be auto populated.
5. Click save.



12.2. Create Dashboard

1. Go to the app >> click on the Dashboards tabs.
2. Give a Name and select the folder that was created, and click on create.
3. Select add component.
4. Select a Report and click on select.
    - Display as >> vertical bar chart
    - X-axis >> rice taken by shops
    - Y-axis >> sum of amount
    - Y-axis range >> automatic
    - Sort by >> rice taken by shops
    - Component theme >> dark.
5. Add the component
6. Again select add component with above same steps
    - display as >> donut chart
    - sort by >> sum of amount
    - title >> range of amount per day
    - component theme >> dark

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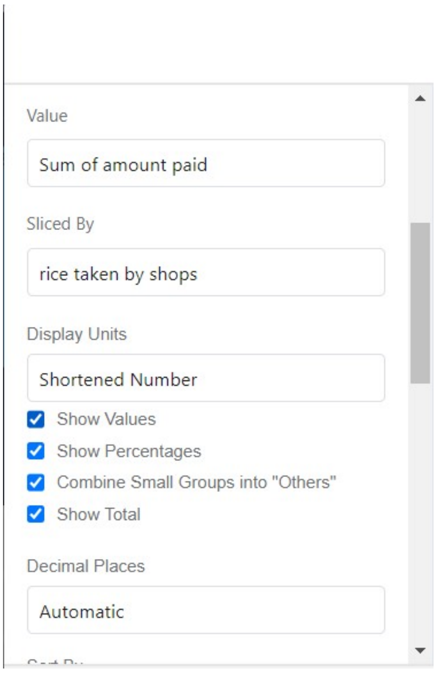
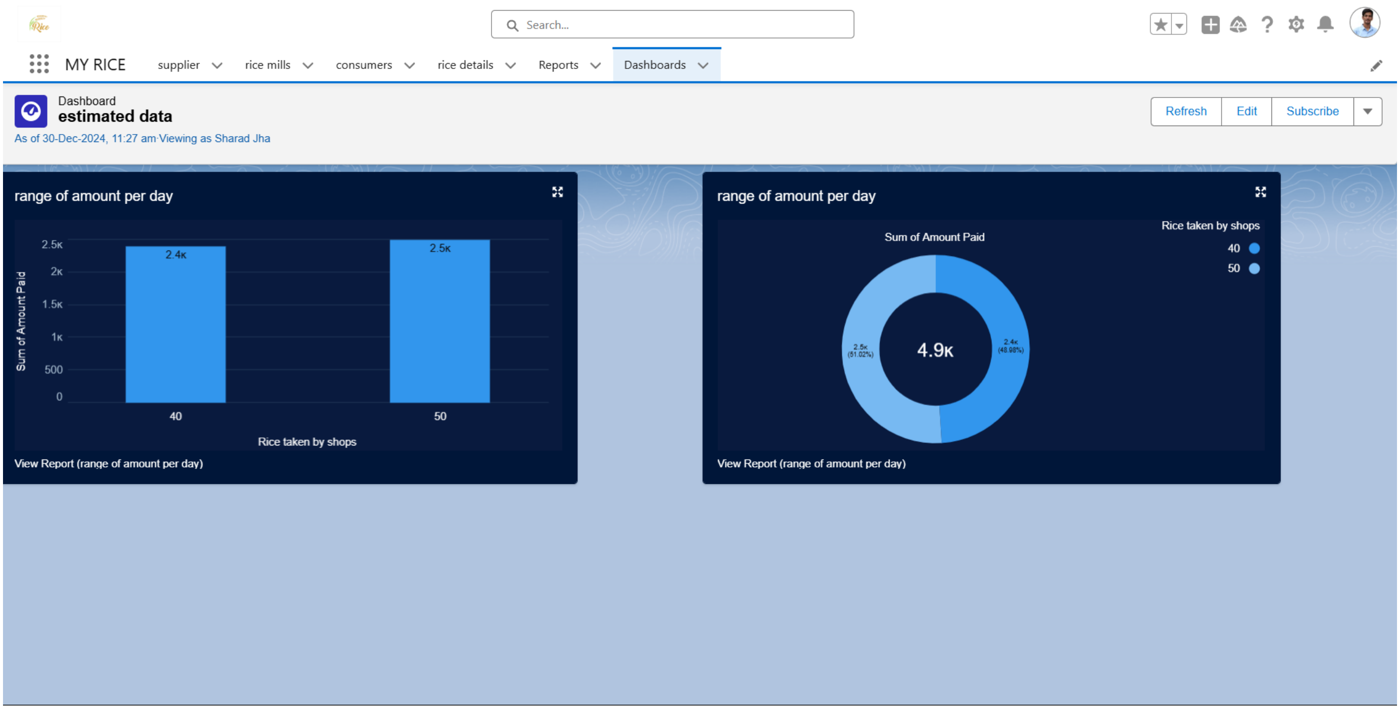


7. Click add.
8. Click save and done.



Activity 13: APEX

13.1. Creating an Apex Class (ConsumerRecord)

1. Login to the Salesforce account and navigate to the gear account in the top right corner.
2. Then we can see the Developer console. Click on the developer console and you will navigate to a new console window.
3. Then you can see many tools in the Toolbar of the new console window. Click on File, New and Apex Class.
4. Enter the name of the class(ConsumerRecord) to create a new class file.

Code Snippet:

```
public class ConsumerRecord {
   public static void sendEmailNotification (List<consumer__c> con){
      for(consumer__c c:con)
      {
         Messaging.SingleEmailMessage email = new Messaging.SingleEmailMessage();
            email.setToAddresses( new List<String>{c.email__c});
            email.setSubject('Welcome to our company');
                  email.setPlainTextBody('Dear '  + ' '+ ',\n\nWelcome to MY RICE!'+'You have been seen as a valuable customer to us. PLease continue your journey with us, while we try to provide you with good quality resources.'+'\n'+
                                    'We are proud to associate with valuable customers like you and we look forward to collaborating with you by providing more and more exciting discounts or even product offers too.' + '\n'
                                    +'So why taking a step back, take a leap of faith and shop with us more, while we provide with the valuable products and offers'+'\n'+'\n'+'\n'+
                                    'Thankyou for buying '+ '' +'Here are some of the products that are brought by the customers who similarly bought products like this'+'\n\n');
            Messaging.sendEmail(new List<Messaging.SingleEmailMessage>{email});

      }
   }
}
```

13.2. Creating An APEX Trigger

While still in the trailhead account, navigate to the gear icon in the top right corner.
Click on developer console and you will be navigated to a new console window.
Click on the File menu in the toolbar, and click on new? Trigger.
Enter the trigger name and the object to be triggered.

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Trigger Code:

```
trigger consumerTrigger on consumer__c (After insert) {
   if(trigger.isAfter && trigger.isInsert) {
      ConsumerRecord.sendEmailNotification(trigger.new);
   }
}
```