

StockBridge: Real-Time Inventory and Supplier Integration

User Story

The Smart Inventory Management System enhances inventory oversight and sales order tracking by integrating key functionalities. When an inventory item's stock level falls below a predefined threshold, the system automatically triggers reorder notifications to suppliers, ensuring timely restocking of products. As sales orders are created, updated, or canceled, the system adjusts stock quantities accordingly to maintain accurate inventory records. Additionally, customers receive email notifications regarding the status of their sales orders, keeping them informed about changes such as order completions or cancellations. This seamless integration of features not only enables efficient inventory management and reduces the risk of stockouts but also strengthens communication with suppliers and keeps customers updated, ultimately improving overall operational efficiency and satisfaction.

Objective:-

In the Smart Inventory Management project, I developed three essential objects: Inventory, Sales Order, and Supplier. Each object features crucial fields that capture vital information; the Inventory object includes product name, stock quantity, and reorder thresholds, ensuring effective monitoring of product availability. The Sales Order object is designed to record customer orders, detailing quantity ordered, associated products, and the current order status. The Supplier object manages communication with suppliers for timely stock replenishments. By establishing connections between these objects, I facilitate efficient interactions among inventory tracking, order processing, and supplier notifications. To enhance operational efficiency, I employed Salesforce Apex Triggers to automate reorder notifications to suppliers and used flows to send real-time order status updates to customers, ensuring seamless communication and streamlined inventory management processes.

Project Flow

Milestone 1 : Creation of developer account

Milestone 2 : Object Creation

Milestone 3 : Tabs

Milestone 4 : The Lightning App

Milestone 5 : Fields & Relationships

Milestone 6 : Apex Triggers

Milestone 7 : Email Alert

Milestone 8 : Flow

Milestone 9 : Conclusion

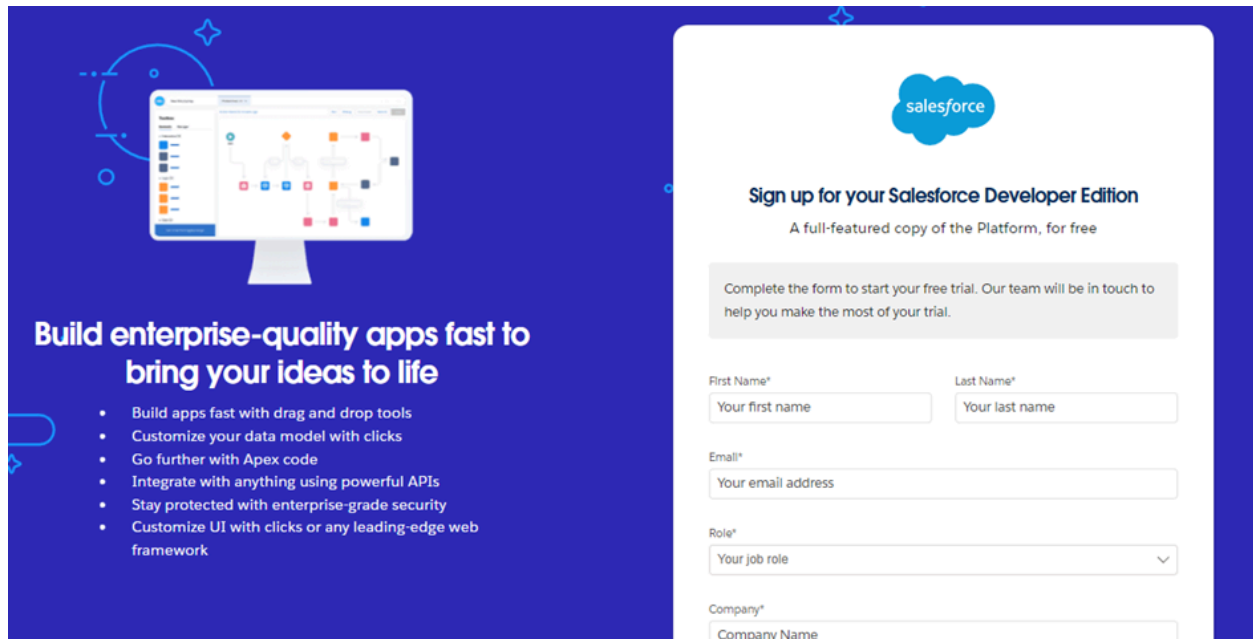
Implementation

Milestone 1 - Salesforce developer account creation :

Activity 1: Creating Developer Account:

Creating a developer org in salesforce.

1. Go to <https://developer.salesforce.com/signup>
2. On the sign up form, enter the following details :



Build enterprise-quality apps fast to bring your ideas to life

- Build apps fast with drag and drop tools
- Customize your data model with clicks
- Go further with Apex code
- Integrate with anything using powerful APIs
- Stay protected with enterprise-grade security
- Customize UI with clicks or any leading-edge web framework

Sign up for your Salesforce Developer Edition
A full-featured copy of the Platform, for free

Complete the form to start your free trial. Our team will be in touch to help you make the most of your trial.

First Name*
Your first name

Last Name*
Your last name

Email*
Your email address

Role*
Your job role

Company*
Company Name

First name & Last name

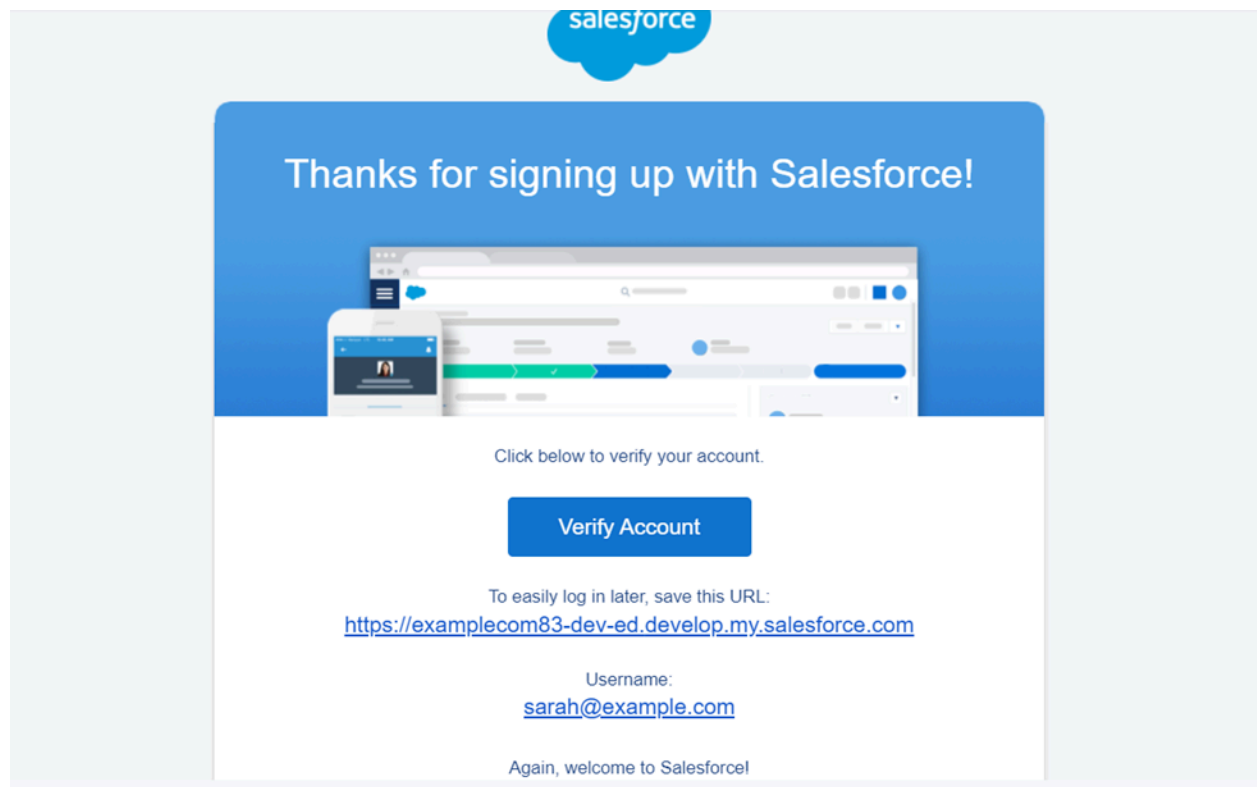
- 1) Email
- 2) Role : Developer
- 3) Company : College or Company Name
- 4) County : India
- 5) Postal Code : pin code
- 6) Username : should be a combination of your name and company

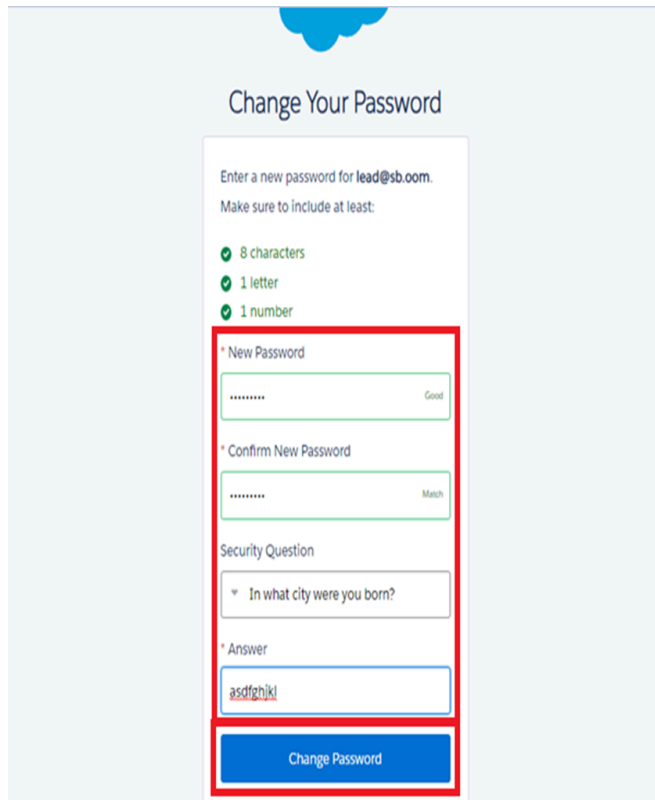
This need not be an actual email id, you can give anything in that format :
username@organization.com

Click on sign me up after filling these.

Activity 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.





Change Your Password

Enter a new password for lead@sb.oom.
Make sure to include at least:

- 8 characters
- 1 letter
- 1 number

* New Password
***** Good

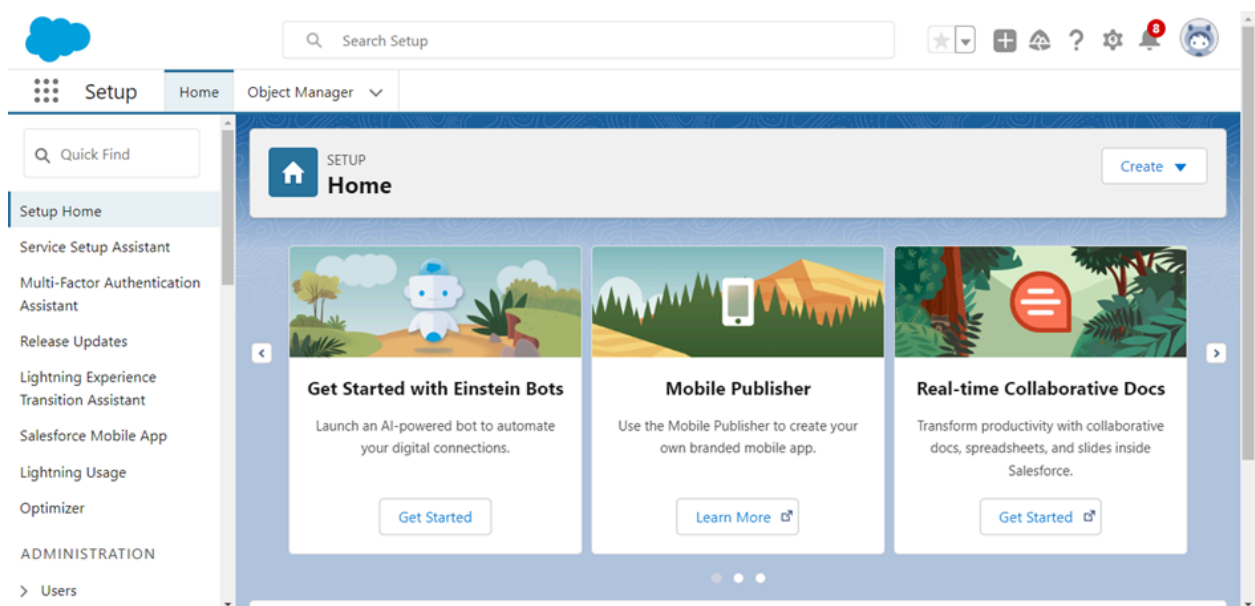
* Confirm New Password
***** Match

Security Question
▼ In what city were you born?

* Answer
asdfghjkl

Change Password

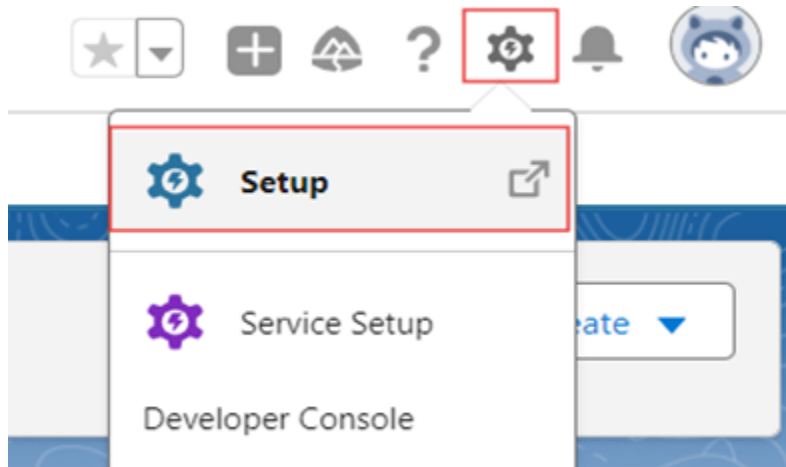
4. Then you will redirect to your salesforce setup page.



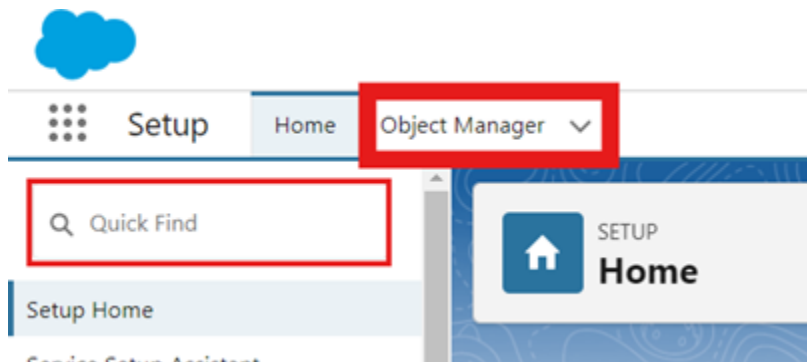
Milestone 2 - Object Creation

Activity 1 :Customer contact details

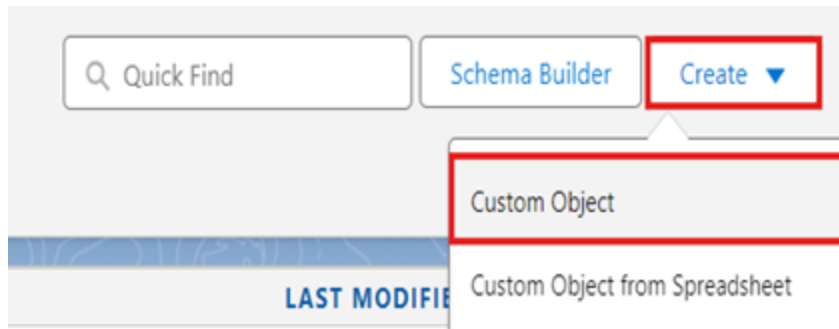
1.In your Salesforce org, click gear icon on the top left and select Setup to open Setup.



2.Click the Object Manager tab. If you don't see it, enter Object Manager in the Quick Find box.



3.On the Object Manager page, click Create | Custom Object.



Activity 1 : Sales Order

1. From the setup page → Click on Object Manager → Click on Create → Click on Custom Object.

- **Label** : Sales Order
- **Plural Label** : Sales Orders
- Enter Record Name Label and Format
- Record Name : Sales Order
- Data Type : Text
- In Optional features : check the boxes for Allow Reports | Allow Activities | Track Field History.
- Search Status : check the box for Allow Search.
- Save

 A screenshot of the 'New Custom Object' setup page in Salesforce. The page title is 'New Custom Object' under the 'Setup' tab. The main section is 'Custom Object Definition Edit'. Under 'Custom Object Information', there are fields for 'Label' (Sales Order, Example: Account), 'Plural Label' (Sales Orders, Example: Accounts), and 'Object Name' (Sales_Order, Example: Account). These three fields are highlighted with red rectangles. Below these is a 'Description' text area. Further down, there are 'Context Sensitive Help Setting' options and a 'Content Name' dropdown. At the bottom, the 'Enter Record Name Label and Format' section has a 'Record Name' field (Sales Order, Example: Account Name) and a 'Data Type' dropdown (Text). This section is also highlighted with a red rectangle. A warning message is visible next to the Data Type: 'Warning: If you plan to insert a high volume of records in this object, via the API for example, use the Text data type.'

Optional Features

- ☒ Allow Reports
- ☒ Allow Activities
- ☒ Track Field History
- ☐ Allow in Chatter Groups
- ☐ Enable Licensing [i](#)

Object Classification

When these settings are enabled, this object is classified as an Enterprise Application object. When these settings are disabled, this object is classified as a Light Application object. [Learn more](#)

- ☒ Allow Sharing
- ☒ Allow Bulk API Access
- ☒ Allow Streaming API Access

Deployment Status [What is this?](#)

☐ In Development

☒ Deployed

Search Status

When this setting is enabled, your users can find records of this object type when they search. [Learn more](#)

- ☒ Allow Search

Object Creation Options (Available only when custom object is first created)

- ☐ Add Notes and Attachments related list to default page layout
- ☐ Launch New Custom Tab Wizard after saving this custom object

[Save](#) [Save & New](#) [Cancel](#)

Activity 2 : Inventory

2. From the setup page → Click on Object Manager → Click on Create → Click on Custom Object.

- Label : Inventory
- Plural Label : Inventories
- Enter Record Name Label and Format
- Record Name : Inventory Name
- Data Type : Text
- In Optional features : check the boxes for Allow Reports | Allow Activities | Track Field History.
- Search Status : check the box for Allow Search.
- Save.

Activity 3 : Suppliers

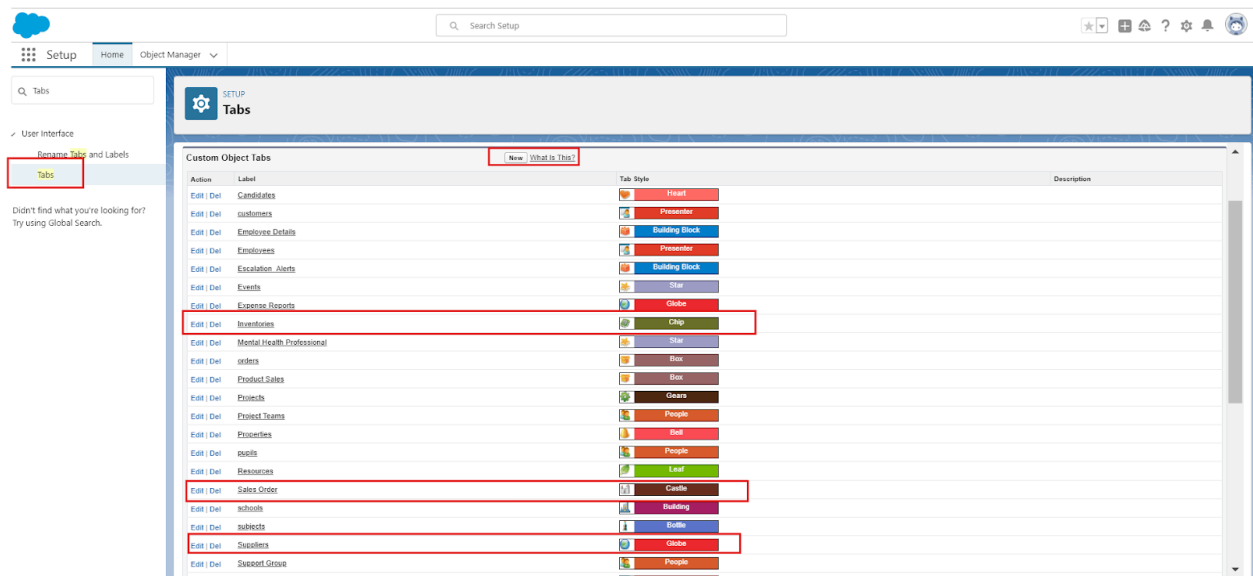
3. From the setup page → Click on Object Manager → Click on Create → Click on Custom Object.

- Label : Supplier
- Plural Label : Suppliers
- Enter Record Name Label and Format
- Record Name : Supplier Name
- Data Type : Text
- In Optional features : check the boxes for Allow Reports | Allow Activities | Track Field History.
- Search Status : check the box for Allow Search.
- Save.

Milestone 3 - Tabs

Activity 1 : Custom tabs creation

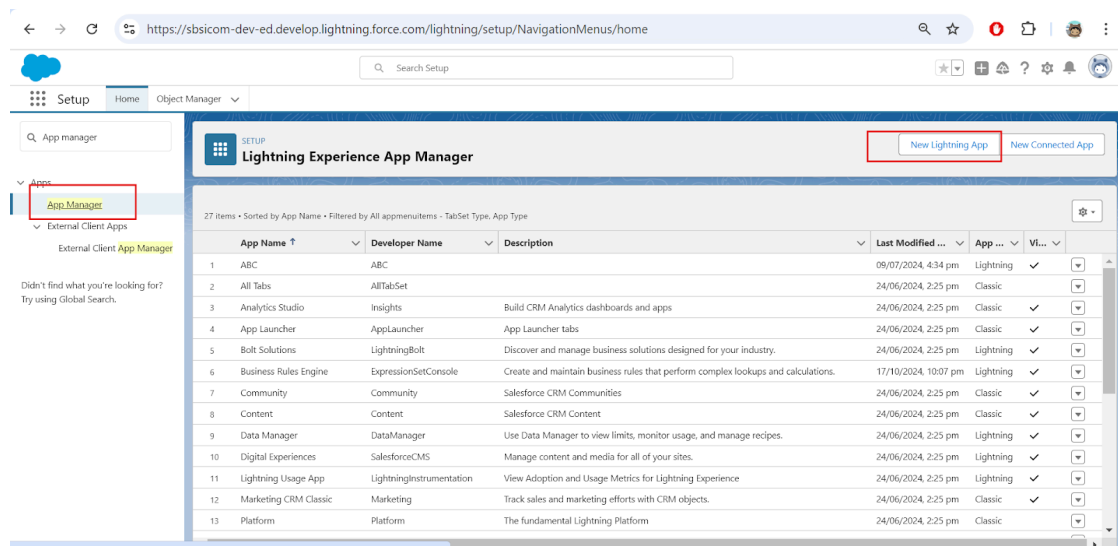
- 1.Go to setup page → type Tabs in Quick Find bar → click on tabs → New (under custom object tab)
- 2.Select Object(Sales order) → Select the tab style → Next (Add to profiles page) keep it as default → Next (Add to Custom App) uncheck the include tab .
- 3.Make sure that the Append tab to users' existing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



Milestone 4 - The Lightning App

Activity 1 : Create a lightning app

- 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 and branding as follow

App Name :Smart Inventory Management

Developer Name : Smart_Inventory_Management

Add image optional (if you want to give any image you can otherwise not mandatory) - Add Primary color Hex or leave it to default.

Then click Next.

3. In App options

Navigation style : Standard navigation

Setup experience : setup

Supporters form factors : Desktop and phone

Then click Next

4. In Utility items

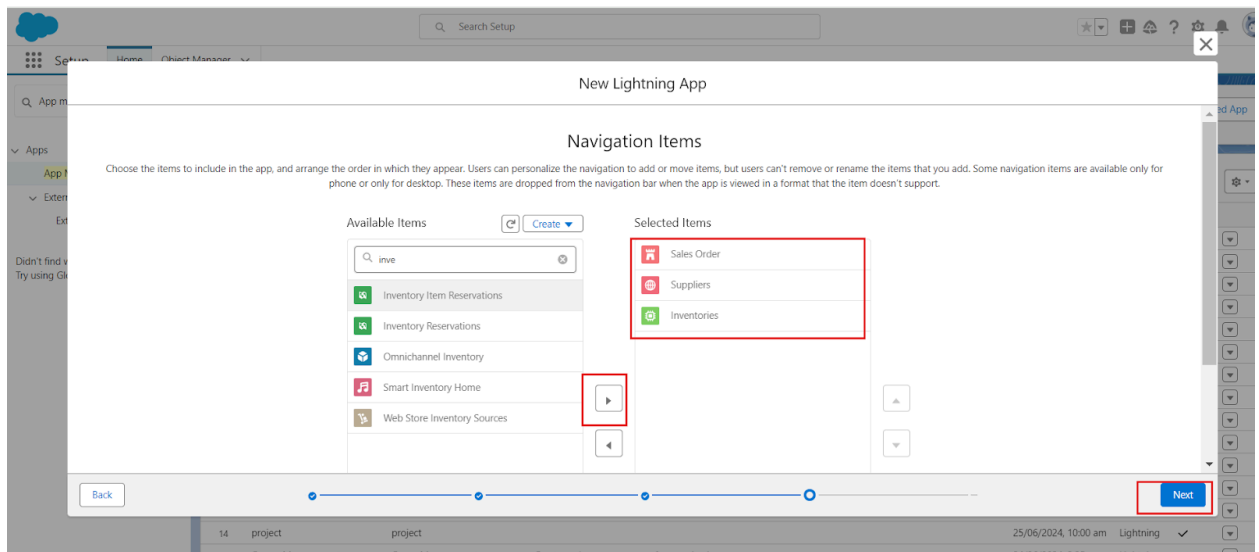
Utility Bar alignment : Default

Then click Next.

5. Navigation items

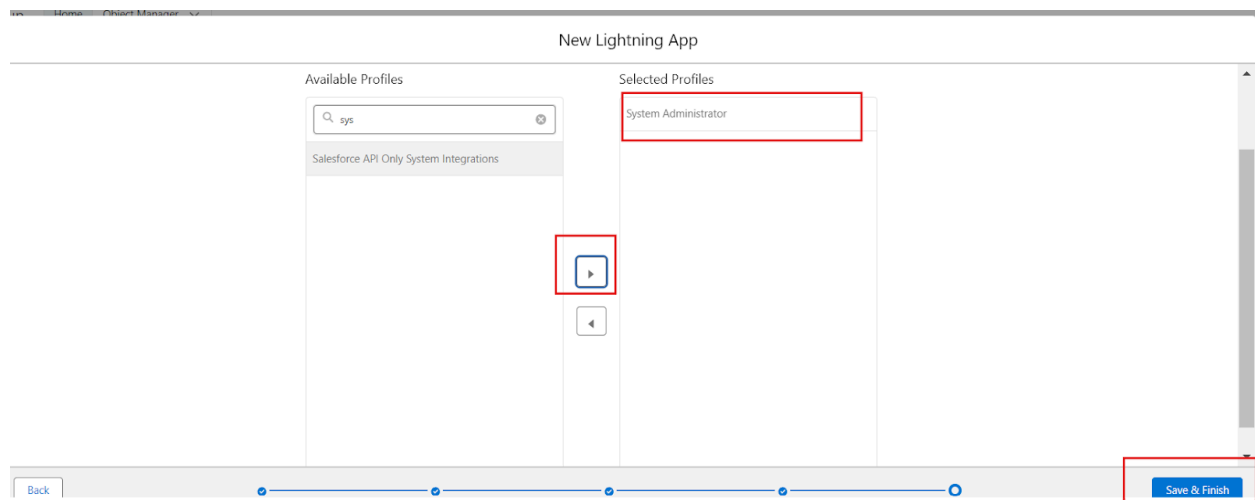
Select the created Custom Objects and required standard objects

- Sales Order
- Inventories
- Supplier



- Click Save

6. To Add User Profiles : System Administrator



7. Click Save & Finish.

Milestone 5 : Sales Order

Activity 1 : Create Custom fields for Sales Order object

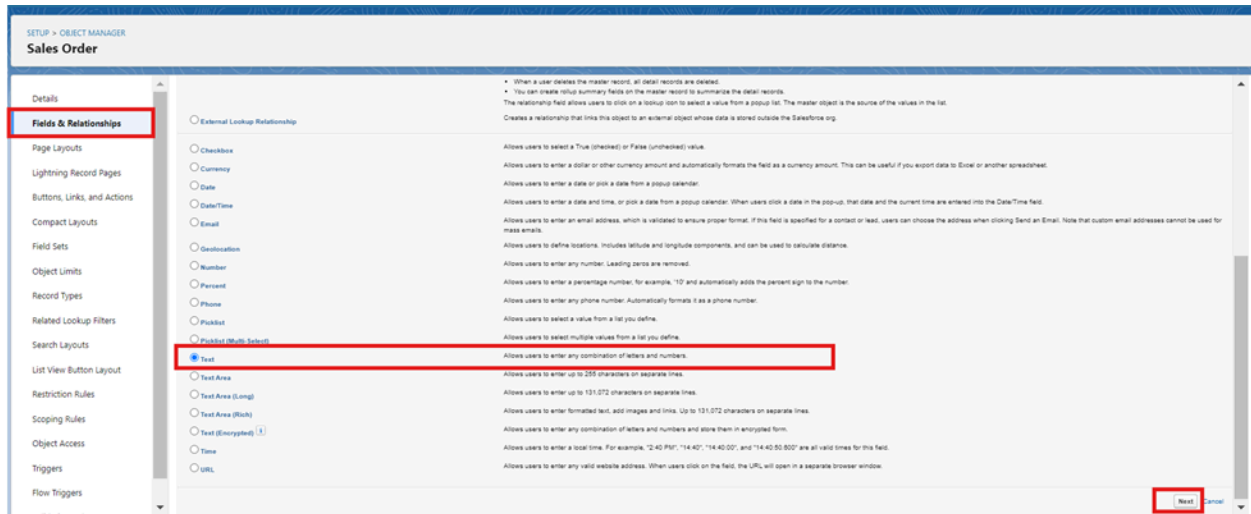
1. In your Salesforce org, click gear icon on the top left and select Setup to open Setup.
2. Click the Object Manager tab. If you don't see it, enter Object Manager in the Quick Find box.

3.From the object manager page, In the Quick Find box, Search for the custom object you just created : Sales Order

4.From the sidebar, click Fields & Relationships. Notice that there are already some fields there. Those are the standard fields.

5.Click New to create a custom field. Tip: Before creating a new field, do a quick search to make sure a similar one doesn't already exist.

6.Next, choose a data type as Text. Choosing a data type helps you format the field input.



7. Click on next.

8. Data Type : Text

Field Label: Customer Name

Field Name : Name

Length : 50

Click on Next → Next → Save and new.

1. Repeat the Same steps for remaining fields

2. Data Type : Phone

Field Label: Customer Mobile

Field Name : Customer_Mobile__c

Length : 20

Click on Next → Next → Save and new.

3. Data Type : E-mail

Field Label : Customer Email

Field Name : Customer_Email__c

Click on Next → Next → Save and new.

4. Data Type : Auto Number
Field Label : Order Number
Field Name : Order_Name_c
5. Data Type : Number
Field Label : Quantity Ordered
Field Name : Quantity_Ordered__c
Click on Next → Next → Save and new.
6. Data Type : Date
Field Label : Order Date
Field Name : Order_Date__c
Click on Next → Next → Save and new.
7. Data Type : Picklist
Field Label : Status
Field Name : Status_c
Values : Confirmed ,Shipped ,Completed , Canceled
Click on Next → Next → Save and new.
8. Data Type : Lookup
Related To : Inventory
Field Label : Product
Field Name : Product__c
Click on Next → Next → Save and new.

Activity 2 : Create Custom fields for Inventory object

1.Data Type : Look-up Relationship
Related To :Supplier
Field Label: Supplier
Field Name : Supplier_c
Length : 80
Click on Next → Next → Save and new.

2.Data Type : Text
Field Label: Inventory Name
Field Name : Name
Click on Next → Next → Save and new.

3.Data Type : Number

Field Label: Reorder Level

Field Name : Reorder_Level_c

Click on Next → Next → Save and new.

4.Data Type : Number

Field Label: Stock Quantity

Field Name : Stock_Qunatity_c

Click on Next → Next → Save and new.

Activity 3 : Create Custom fields for Supplier Object

1.Data Type : Text

Field Label: Supplier Name

Field Name : Name

Length : 50

Click on Next → Next → Save and new.

2.Data Type : Email

Field Label: Contact Info

Field Name : Contact_Info__c

Length : 80

Click on Next → Next → Save and new.


Milestone 6 :Triggers

Activity 1 : Create a Trigger for sending reorder notifications to suppliers when stock falls below the reorder level.

Step 1: Login to Salesforce

- **Log in** to your Salesforce account with administrative privileges.

Step 2: Navigate to Developer Console

- i) **Navigate to Setup:** Click on the gear icon  (Setup) at the top-right corner of the screen.
- ii) **Open Developer Console:** Select the "Developer Console" option from the Setup menu. The Developer Console will open in a new browser tab or window.

Step 3: Create the Apex Trigger

1. In the Developer Console window, click on "File" in the top menu.
2. **Select New:** From the dropdown menu under "File," select "New."
3. **Choose Apex Trigger:** In the submenu, select "Apex Trigger." This opens a new editor tab for writing your trigger.

Step 4: Define Your Trigger

- **Give Trigger Name:** ReorderNotification
- **Select Object:** Inventory__c

```
trigger ReorderNotification on Inventory__c (after update) {
    for (Inventory__c inv : Trigger.new) {
        // Ensure Stock Quantity is less than Reorder Level
        if (inv.Stock_Quantity__c < inv.Reorder_Level__c) {
            // Check if the Supplier relationship is populated
            if (inv.Supplier__c != null) {
                Supplier__c supplier = [SELECT Id, Contact_Info__c FROM Supplier__c WHERE Id
= :inv.Supplier__c LIMIT 1];

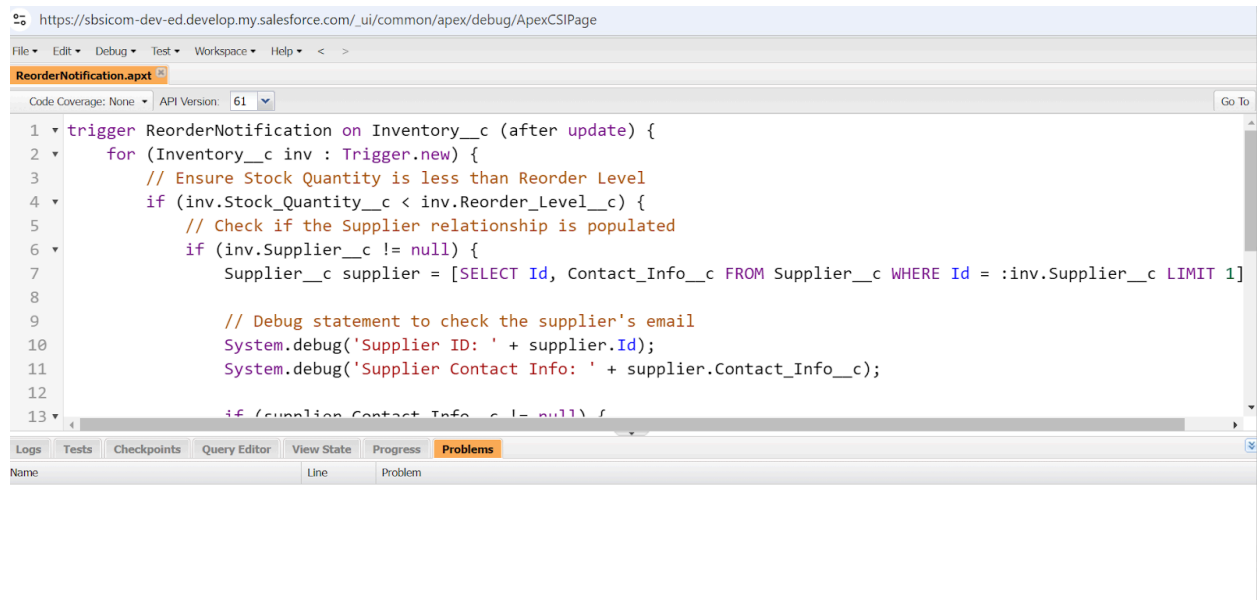
                // Debug statement to check the supplier's email
                System.debug('Supplier ID: ' + supplier.Id);
                System.debug('Supplier Contact Info: ' + supplier.Contact_Info__c);

                if (supplier.Contact_Info__c != null) {
                    Messaging.SingleEmailMessage mail = new Messaging.SingleEmailMessage();
                    mail.setToAddresses(new String[] { supplier.Contact_Info__c });
                    mail.setSubject('Reorder Notification');
                    mail.setPlainTextBody('Please reorder product: ' + inv.Name +
'. Current stock is: ' + inv.Stock_Quantity__c);
                    Messaging.sendEmail(new Messaging.SingleEmailMessage[] { mail });
                } else {
                    System.debug('No valid email found for supplier: ' + inv.Supplier__c);
                }
            } else {
                System.debug('Supplier relationship is null for Inventory: ' + inv.Id);
            }
        }
    }
}
```

```

    }
}
}
}
}

```



Activity 2: Create a Trigger to manage inventory stock levels based on sales orders.

Step 1: Create the Apex Trigger

1. In the Developer Console window, click on "File" in the top menu.
2. **Select New:** From the dropdown menu under "File," select "New."
3. **Choose Apex Trigger:** In the submenu, select "Apex Trigger." This opens a new editor tab for writing your trigger.

Step 2: Define Your Trigger

Give Trigger Name: UpdateStockQuantity

Select Object: Sales_Order__c

trigger UpdateStockQuantity on Sales_Order__c (after insert, after update) {

 // Collect product IDs (related Inventory records) from Sales Orders

 Set<Id> productIds = new Set<Id>();

 for (Sales_Order__c so : Trigger.new) {

```

        if (so.Product__c != null) {

            productIds.add(so.Product__c);

        }

    }

}

// Query Inventory records related to the products in Sales Orders

    List<Inventory__c> inventoryList = [SELECT Id, Stock_Quantity__c FROM
Inventory__c WHERE Id IN :productIds];

// Create a Map to easily reference inventory records by their Ids

Map<Id, Inventory__c> inventoryMap = new Map<Id, Inventory__c>(inventoryList);

// Loop through each Sales Order to update the respective inventory

for (Sales_Order__c so : Trigger.new) {

    if (so.Product__c != null && inventoryMap.containsKey(so.Product__c)) {

        Inventory__c inventory = inventoryMap.get(so.Product__c);

        // Log inventory and order details for debugging

        System.debug('Inventory Before Update: ' + inventory.Stock_Quantity__c);

        System.debug('Sales Order Quantity Ordered: ' + so.Quantity_Ordered__c);

        // Check if this is an update operation

        if (Trigger.isUpdate && Trigger.oldMap.containsKey(so.Id)) {

            Decimal previousQuantity = Trigger.oldMap.get(so.Id).Quantity_Ordered__c;

```



```

        // Restore the previous stock quantity (add back the previous quantity)

        if (previousQuantity != null) {

            inventory.Stock_Quantity__c += previousQuantity;

            System.debug('Restored Stock Quantity: ' + inventory.Stock_Quantity__c);

        }

    }

    // Reduce the stock by the new quantity (for both insert and update)

    Decimal newQuantity = so.Quantity_Ordered__c;

    if (newQuantity != null) {

        inventory.Stock_Quantity__c -= newQuantity;

        System.debug('Updated Stock Quantity: ' + inventory.Stock_Quantity__c);

    }

} else {

    System.debug('Product not found in Inventory Map for Sales Order Product__c: '
+ so.Product__c);

}

}

// Update inventory records in bulk

if (!inventoryList.isEmpty()) {

    try {

        update inventoryList;

    }

}

```

```

        System.debug('Inventory records updated successfully.');
```

```

    } catch (Exception e) {

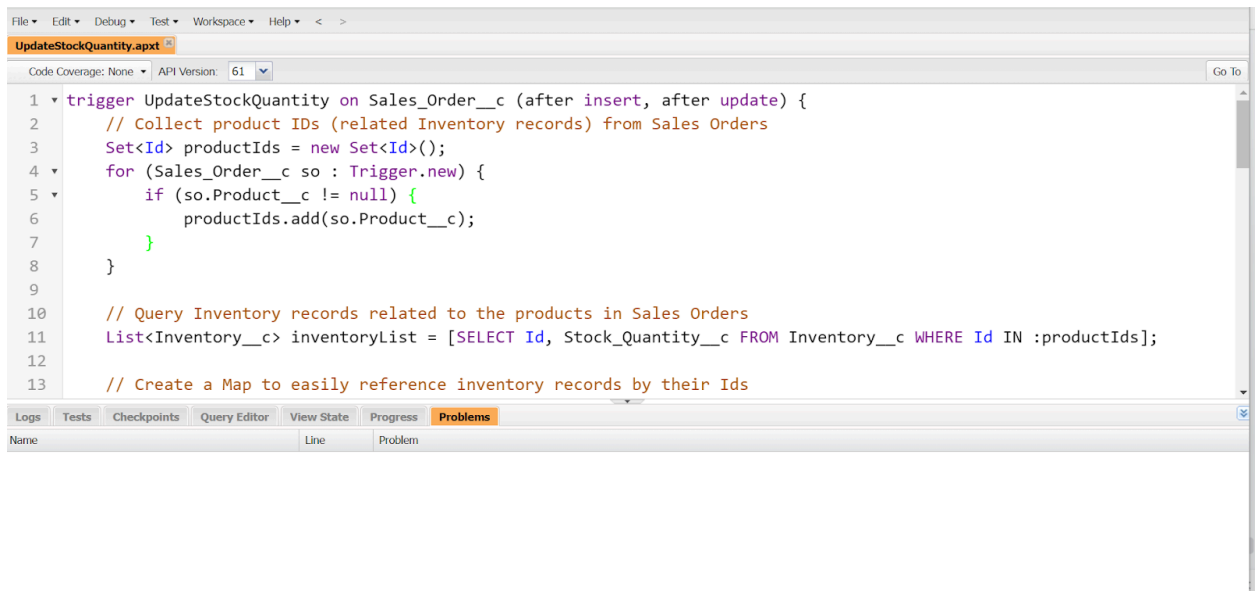
        System.debug('Error updating inventory: ' + e.getMessage());

    }

}

}

```



Milestone 7 : Email Alert

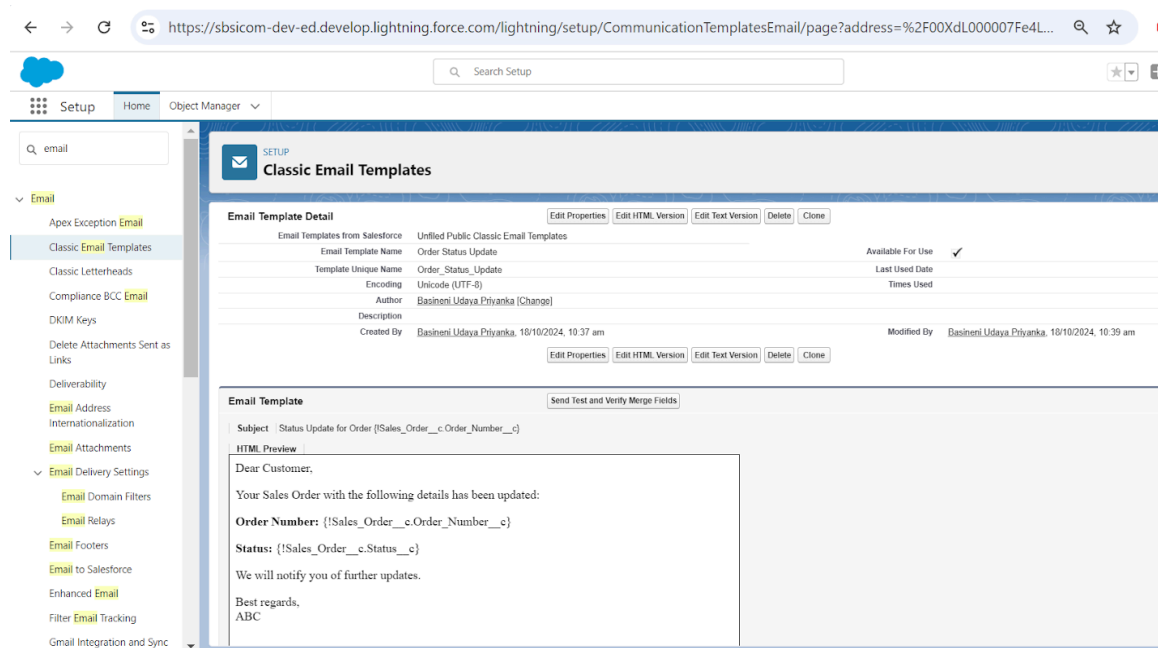
Activity 1 : Creating an Email Template

This step involves designing a custom email template that is used to send notifications to customers regarding the status of their orders. It ensures consistent, professional communication.

Step 1: Create Email Template

1. **Login to Salesforce:** Use administrative credentials to log in.
2. **Navigate to Email Templates:**
 - Go to **Setup**.
 - In the Quick Find box, type **Classic Email Templates**.
 - Click **Classic Email Templates**.
3. **Create New Email Template:**

- Click **New Template**.
- Choose the type of template (e.g., **Custom HTML**, **Text**, or **Visualforce**).
- Enter details like:
 - **Email Template Name:** Order_Status_Notification.
 - **Subject:** Order Status Update for Your Order
{!Sales_Order_c.Name}.
 - **Email Body:** Include placeholders for fields such as
{!Sales_Order_c.Order_Status_c},
{!Sales_Order_c.Quantity_Ordered_c},
{!Sales_Order_c.Product_c}.



4. Save the Template.

Activity 2 : Configuring an Email Alert

Setting up an email alert links the template to the Sales Order object, automating the sending of order status notifications based on specific triggers or conditions

Step 1 : Create Email Alert

1. **Navigate to Email Alerts:**
 - In **Setup**, search for **Email Alerts**.

- Click **New Email Alert**.
- 2. **Configure the Email Alert:**
 - **Description:** Order Status Notification Alert.
 - **Email Template:** Select the email template you created (Order_Status_Notification).
 - **Object:** Choose Sales_Order__c.
 - **Recipients:** Choose **Related Contact** and select the field that holds the customer's email, such as Customer_Email__c from Sales Order.
 - Click **Save**.

Milestone 8 : Building a Flow

The flow automates the process of sending an email alert whenever a Sales Order's status is updated. It helps streamline communication and ensures customers are informed promptly about their order status.

Step 1: Build the Flow

1. **Navigate to Flows:**
 - In **Setup**, search for **Flows**.
 - Click **Flows** and then **New Flow**.
2. **Select Flow Type:**
 - Choose **Record-Triggered Flow**.
 - Set **Object:** Select Sales_Order__c.
 - Set the flow to trigger **after the record is Created and Updated**.
3. **Define Entry Conditions:**
 - Set the condition: **Status__c** is changed True
Choose **All Conditions are Met (AND)** if you want the flow to run only when all conditions are met.

Flow Builder: Order Status Notification - V1

Last saved on 18/10/2024, 11:12 am

Active Run Debug View Tests Save As New Version Save Deactivate

Configure Start

* Object
Sales Order

Configure Trigger

* Trigger the Flow When:

- ☐ A record is created
- ☐ A record is updated
- ☒ A record is created or updated
- ☐ A record is deleted

Set Entry Conditions

Specify entry conditions to reduce the number of records that trigger the flow and the number of times the flow is executed. Minimizing unnecessary flow executions helps to conserve your org's resources.

If you create a flow that's triggered when a record is updated, we recommend first defining entry conditions. Then select the **Only when a record is updated to meet the condition requirements** option for When to Run the Flow for Updated Records.

Condition Requirements

All Conditions Are Met (AND)

Field: Status_c Operator: Is Changed Value: True X

+ Add Condition

4. Add Action for Sending Email:

- Click the + icon and select **Action**.
- In the Action type, search for **Send Email Alert**.
- Choose the **Email Alert** you created earlier (e.g., Order Status Notification Alert).

Flow Builder: Order Status Notification - V1

Last saved on 18/10/2024, 11:12 am

Active Run Debug View Tests Save As New Version Save Deactivate

Order Status Email Notification

* Label
Order Status

* API Name
Order_Status

Description

Order Status Email Notification

emailAlert-Sales_Order_cOrder_Status_Email_Notification

Use values from earlier in the flow to set the inputs for the "Order Status Email Notification" email alert. To use its outputs later in the flow, store them in variables.

Set Input Values for the Selected Action

* Record ID

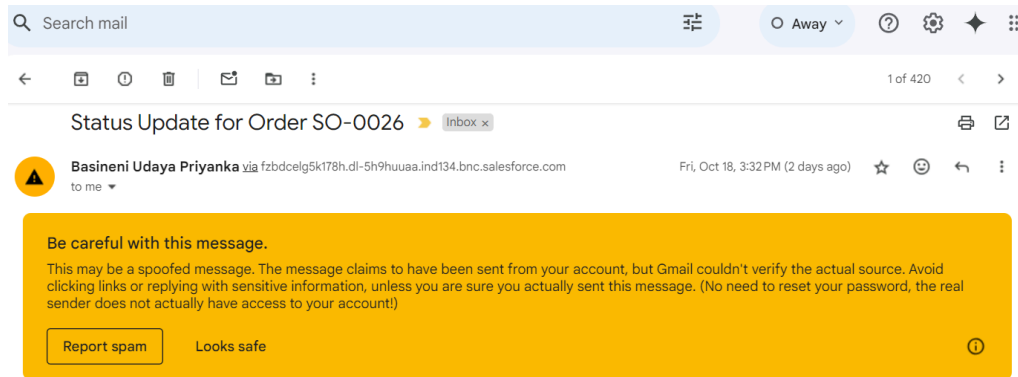
Triggering Sales_Order_c > Record ID X

5. Save and Activate the Flow:

- Click **Save**, give your flow a meaningful name like Order Status Notification Flow.
- Click **Activate** to start the flow.

Milestone 9 : Result

Notifications for status update and reorder :



Dear Customer,

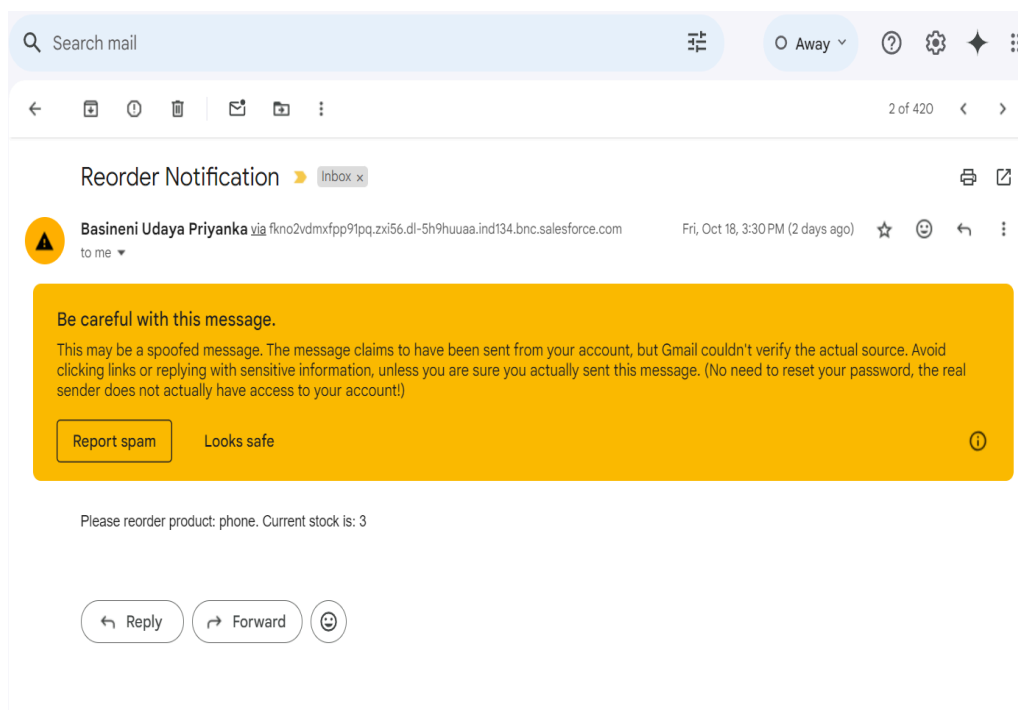
Your Sales Order with the following details has been updated:

Order Number: SO-0026

Status: Canceled

We will notify you of further updates.

Best regards,
ABC



Milestone 10 : Conclusion

The Smart Inventory Management project utilizing Salesforce with Apex triggers and flows effectively streamlines inventory processes and enhances supplier communication. By automating reorder notifications and stock updates, the system ensures optimal inventory levels are maintained while minimizing the risk of stockouts. The project also facilitates timely order status notifications to customers, improving overall customer satisfaction. This solution exemplifies how Salesforce's robust automation features can transform inventory management, offering a scalable and efficient approach to managing stock, suppliers, and customer interactions in a dynamic retail environment.