MEDICAL INVENTORY MANAGEMENT

College Name: Government arts college,coimbatore

College Code: BRU0012

TEAM ID: NM2025TMID23369

TEAM MEMBERS: 5

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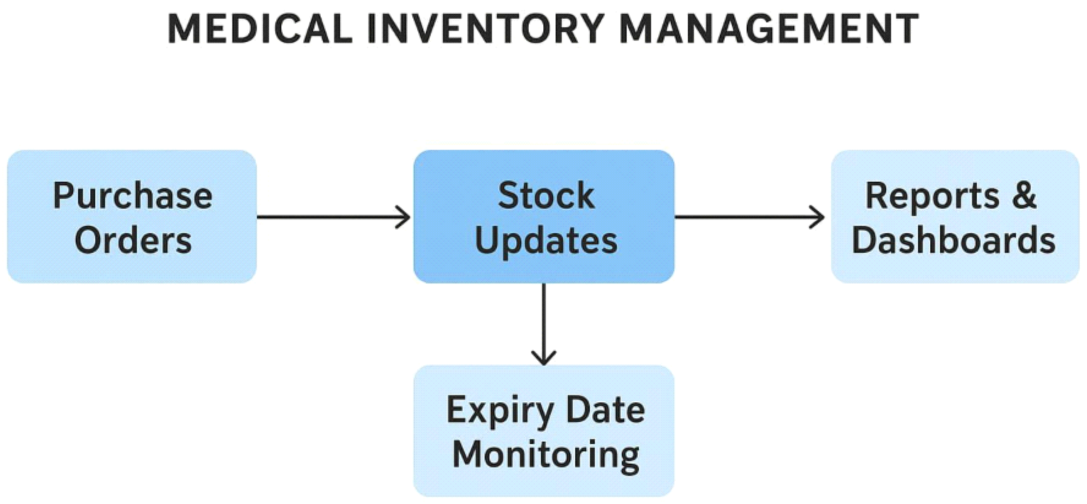
Team Member Name 5 : ABISHEIK A
Email: aabi85652@gmail.com

1.INTRODUCTION

1.1 Project Overview:

The Medical Inventory Management project in Salesforce is designed to help hospitals, clinics, and pharmacies efficiently manage their medical supplies such as medicines, syringes, gloves, and equipment. The system allows users to create purchase orders, record supplier details, and automatically update stock levels whenever items are received or used. It also tracks expiry dates to ensure safe usage of medicines and generates alerts for low stock to avoid shortages. With reports and dashboards, users can view purchase history, current stock levels, and overall inventory usage.



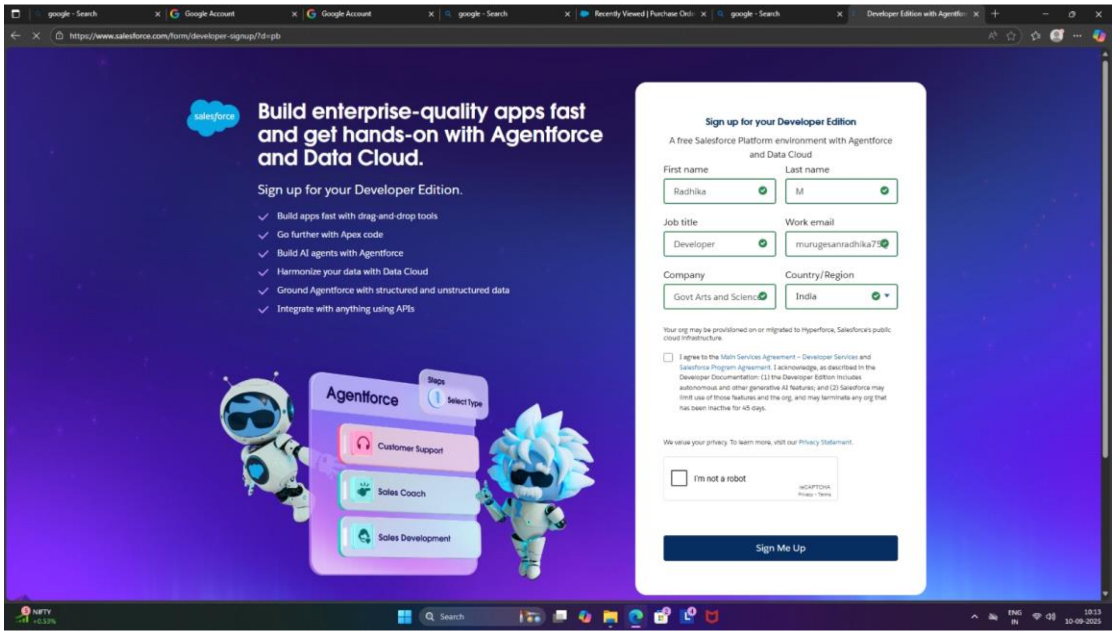
1.2 PURPOSE:

The purpose of this Medical Inventory Management project is to ensure accurate tracking and management of medical supplies in healthcare organizations. It helps prevent shortages and wastage by monitoring stock levels and expiry dates. Overall, it improves efficiency, reduces costs, and supports smooth hospital operations.

DEVELOPMENT PHASE

Creating Developer Account

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



https://www.salesforce.com/form/developer-signup/?d=pb

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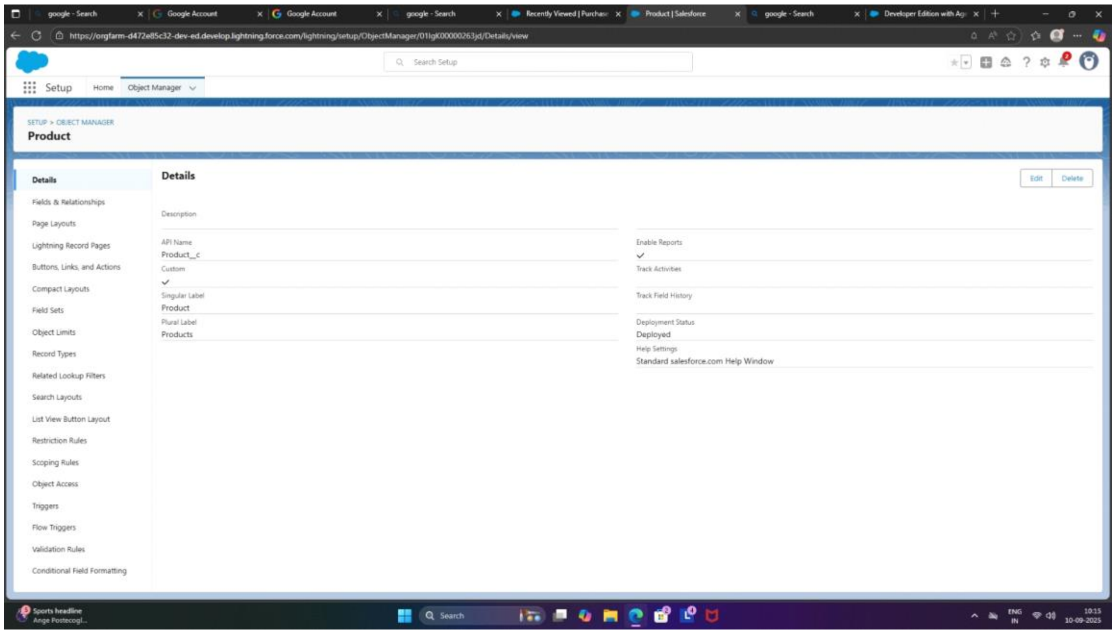
First name: Radhika	Last name: M
Job title: Developer	Work email: murugesanradhika75
Company: Govt Arts and Science	Country/Region: India

Your org may be provisioned on or migrated to Hyperforce, Salesforce's public cloud infrastructure.

☐ I agree to the Main Services Agreement – Developer Services and Salesforce Program Agreement. I acknowledge, as described in the Developer Documentation: (1) the Developer Edition includes autonomous and other generative AI features; and (2) Salesforce may limit use of those features and the org, and may terminate any org that has been inactive for 45 days.

We value your privacy. To learn more, visit our Privacy Statement.

- Created objects: Product,Purchase orders,Inventortransaction.Supplier,Order items.



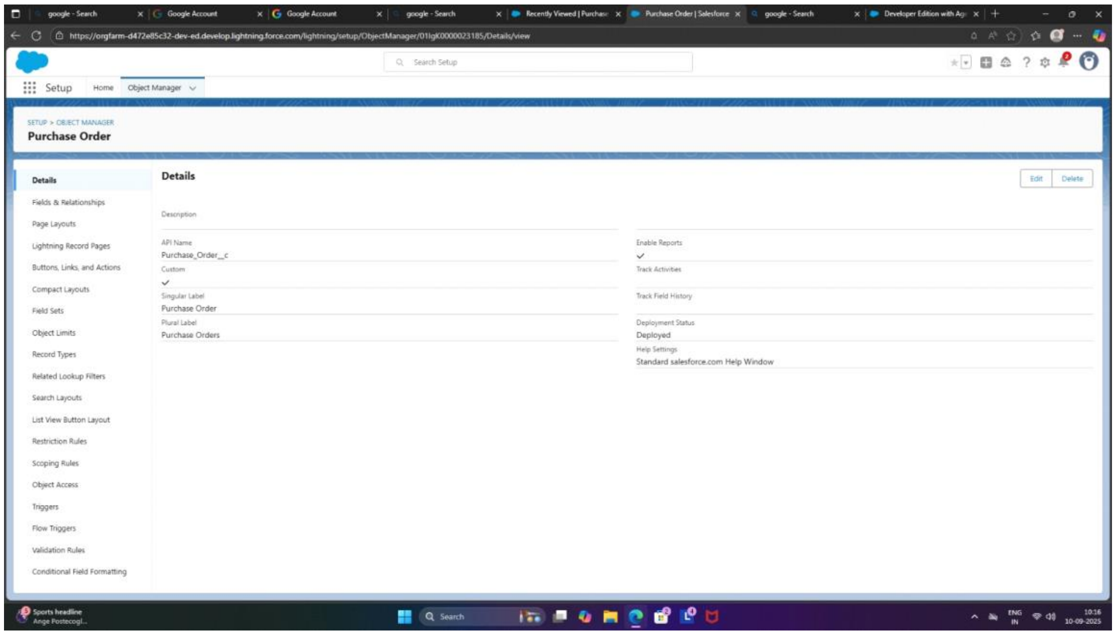
https://orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK00000263jd/Details/view

SETUP > OBJECT MANAGER

Product

Details

Description:	
API Name: Product__c	Enable Reports: ✓
Custom: ✓	Track Activities:
Singular Label: Product	Track Field History:
Plural Label: Products	Deployment Status: Deployed
	Help Settings: Standard salesforce.com Help Window



https://orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK0000023185/Details/view

SETUP > OBJECT MANAGER

Purchase Order

Details

Description

API Name
Purchase_Order__c

Custom
✓

Singular Label
Purchase Order

Plural Label
Purchase Orders

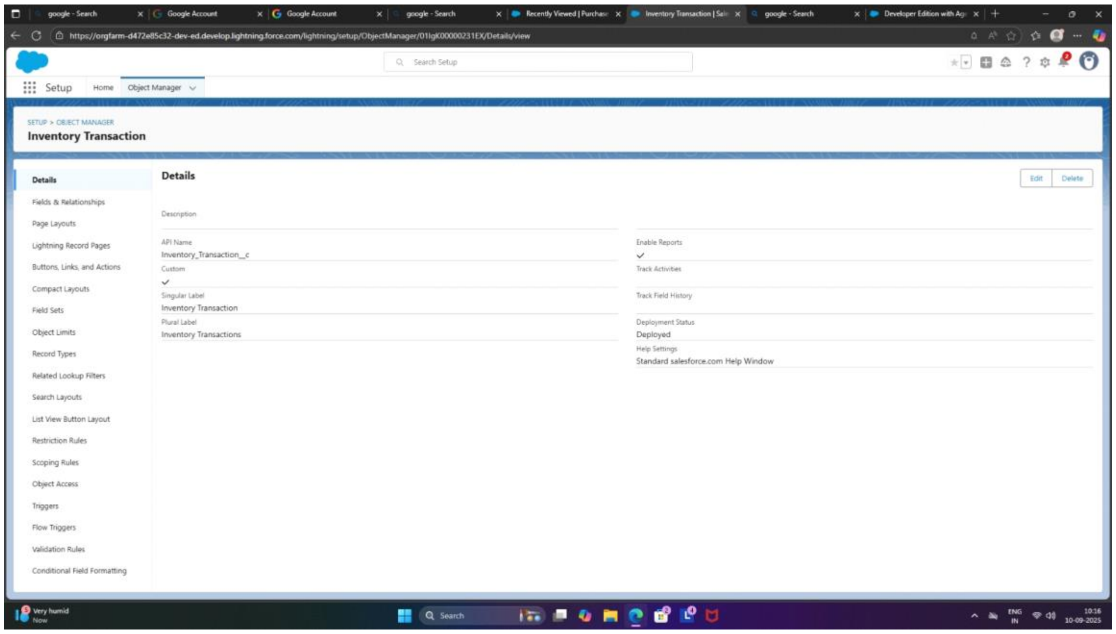
Enable Reports
✓

Track Activities

Track Field History

Deployment Status
Deployed

Help Settings
Standard salesforce.com Help Window



https://orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK00000231EX/Details/view

SETUP > OBJECT MANAGER

Inventory Transaction

Details

Description

API Name
Inventory_Transaction__c

Custom
✓

Singular Label
Inventory Transaction

Plural Label
Inventory Transactions

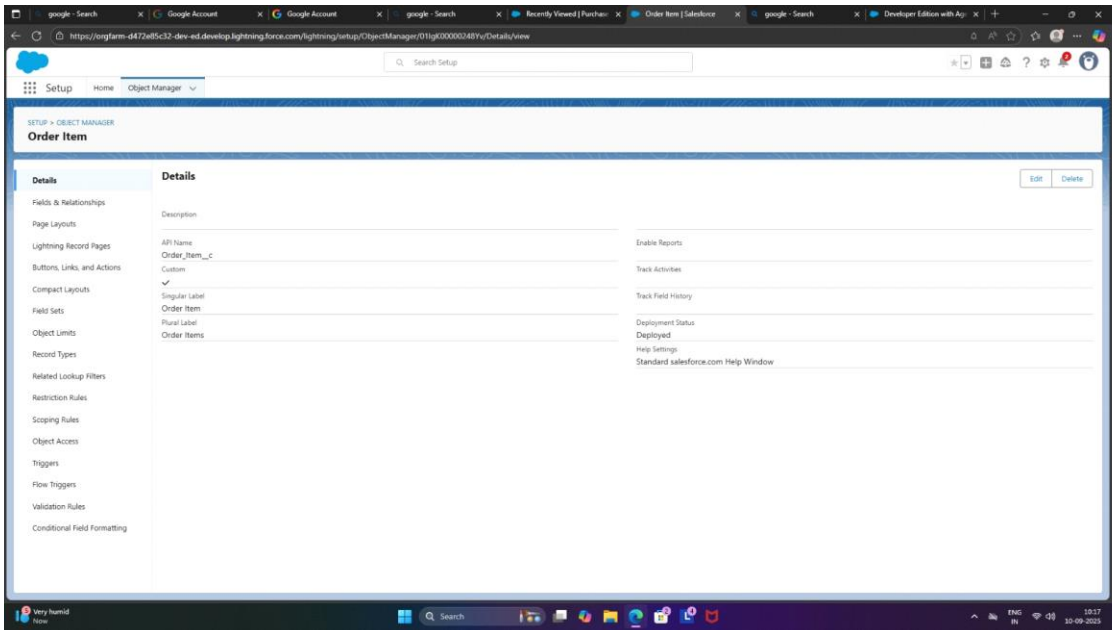
Enable Reports
✓

Track Activities

Track Field History

Deployment Status
Deployed

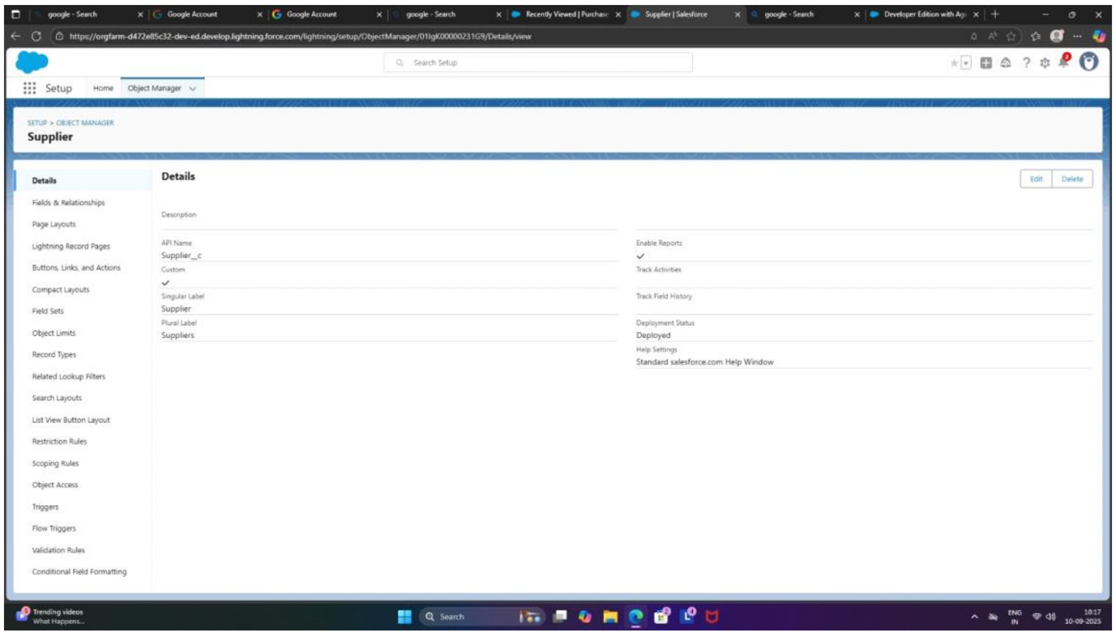
Help Settings
Standard salesforce.com Help Window


SETUP > OBJECT MANAGER

Order Item

Details

Description	
API Name: Order_Item__c	Enable Reports
Custom: ✓	Track Activities
Singular Label: Order Item	Track Field History
Plural Label: Order Items	Deployment Status: Deployed
	Help Settings: Standard salesforce.com Help Window

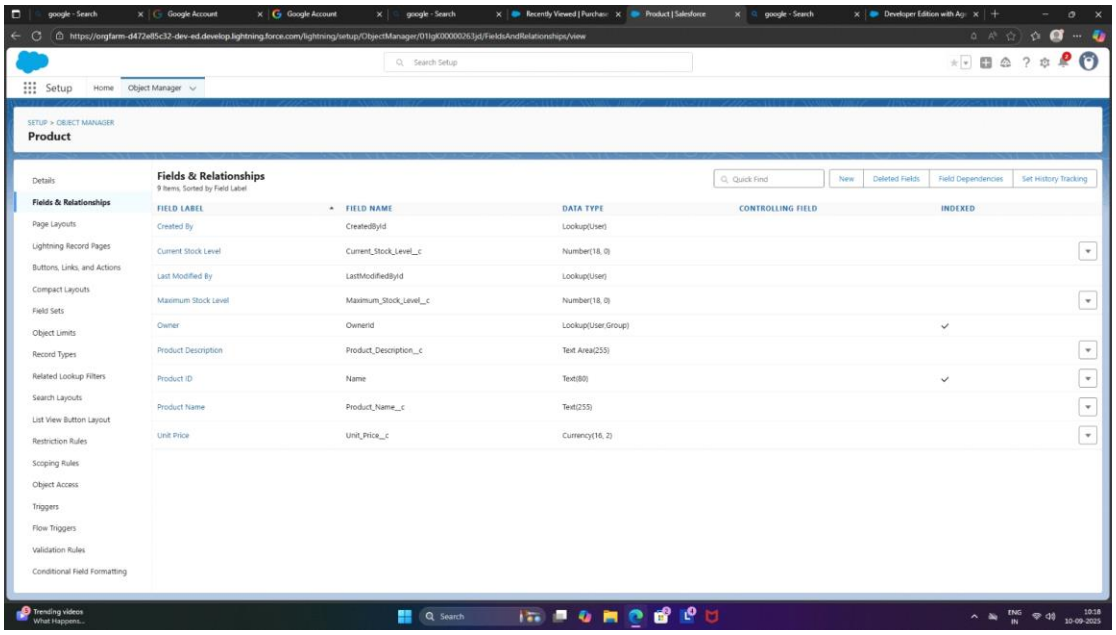

SETUP > OBJECT MANAGER

Supplier

Details

Description	
API Name: Supplier__c	Enable Reports: ✓
Custom: ✓	Track Activities
Singular Label: Supplier	Track Field History
Plural Label: Suppliers	Deployment Status: Deployed
	Help Settings: Standard salesforce.com Help Window

- Configured fields and relationships

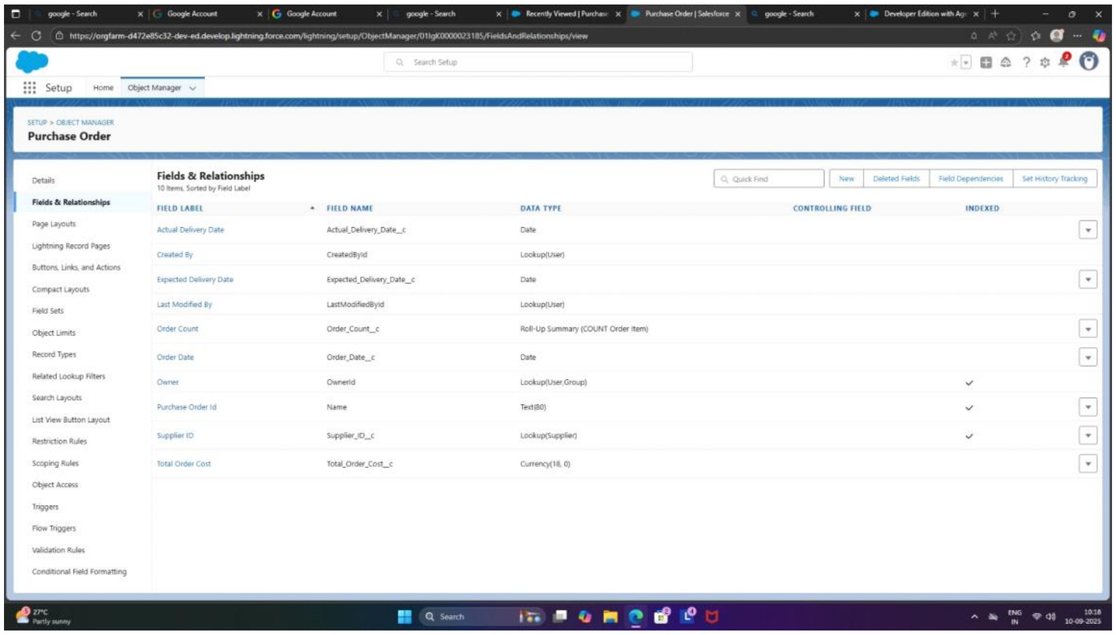


https://orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK00000263jd/FieldsAndRelationships/view

Product

Fields & Relationships
9 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Current Stock Level	Current_Stock_Level__c	Number(18, 0)		
Last Modified By	LastModifiedById	Lookup(User)		
Maximum Stock Level	Maximum_Stock_Level__c	Number(18, 0)		
Owner	OwnerId	Lookup(User,Group)		✓
Product Description	Product_Description__c	Text Area(255)		
Product ID	Name	Text(80)		✓
Product Name	Product_Name__c	Text(255)		
Unit Price	Unit_Price__c	Currency(16, 2)		

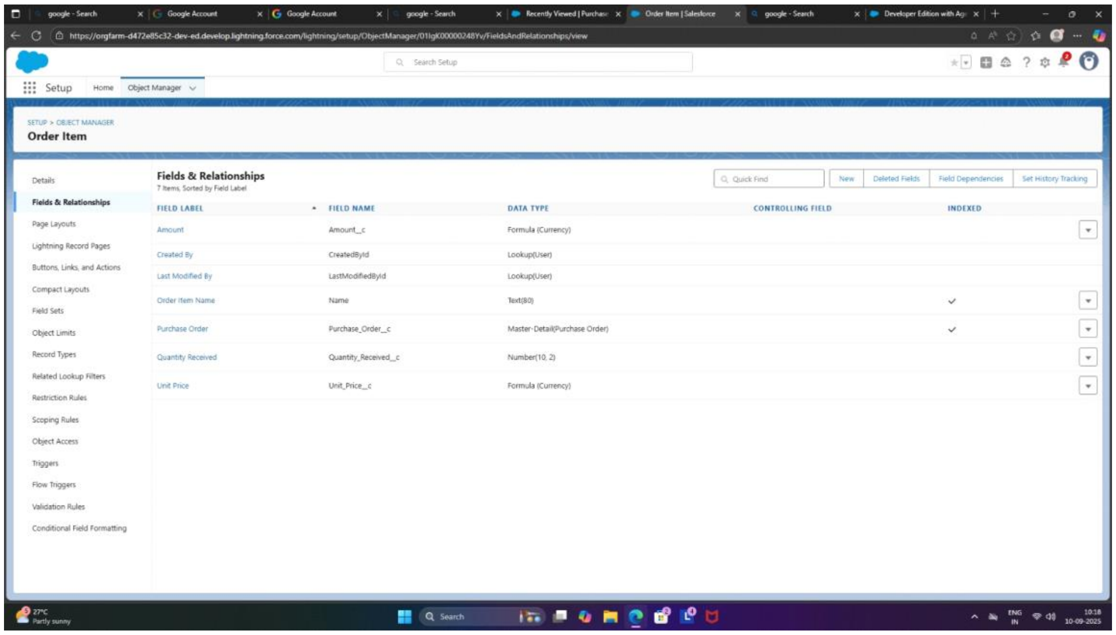


https://orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK00000023185/FieldsAndRelationships/view

Purchase Order

Fields & Relationships
10 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Actual Delivery Date	Actual_Delivery_Date__c	Date		
Created By	CreatedById	Lookup(User)		
Expected Delivery Date	Expected_Delivery_Date__c	Date		
Last Modified By	LastModifiedById	Lookup(User)		
Order Count	Order_Count__c	Roll-Up Summary (COUNT Order Item)		
Order Date	Order_Date__c	Date		
Owner	OwnerId	Lookup(User,Group)		✓
Purchase Order Id	Name	Text(80)		✓
Supplier ID	Supplier_ID__c	Lookup(Supplier)		✓
Total Order Cost	Total_Order_Cost__c	Currency(18, 0)		



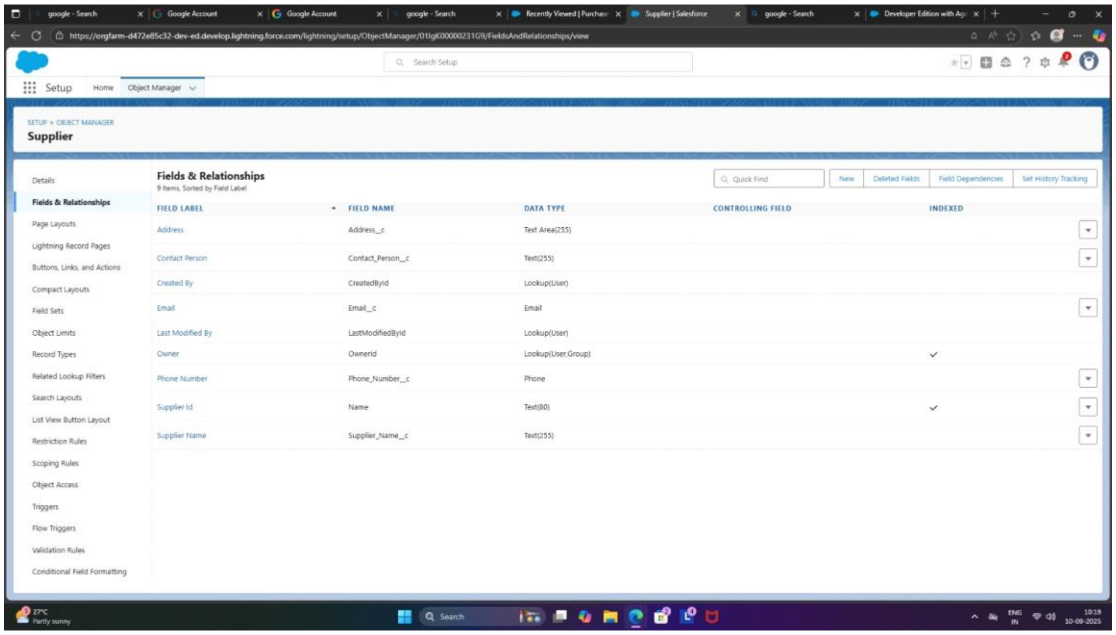
SETUP > OBJECT MANAGER

Order Item

Fields & Relationships

7 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Amount	Amount__c	Formula (Currency)		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Order Item Name	Name	Text(80)		✓
Purchase Order	Purchase_Order__c	Master-Detail(Purchase Order)		✓
Quantity Received	Quantity_Received__c	Number(10, 2)		
Unit Price	Unit_Price__c	Formula (Currency)		



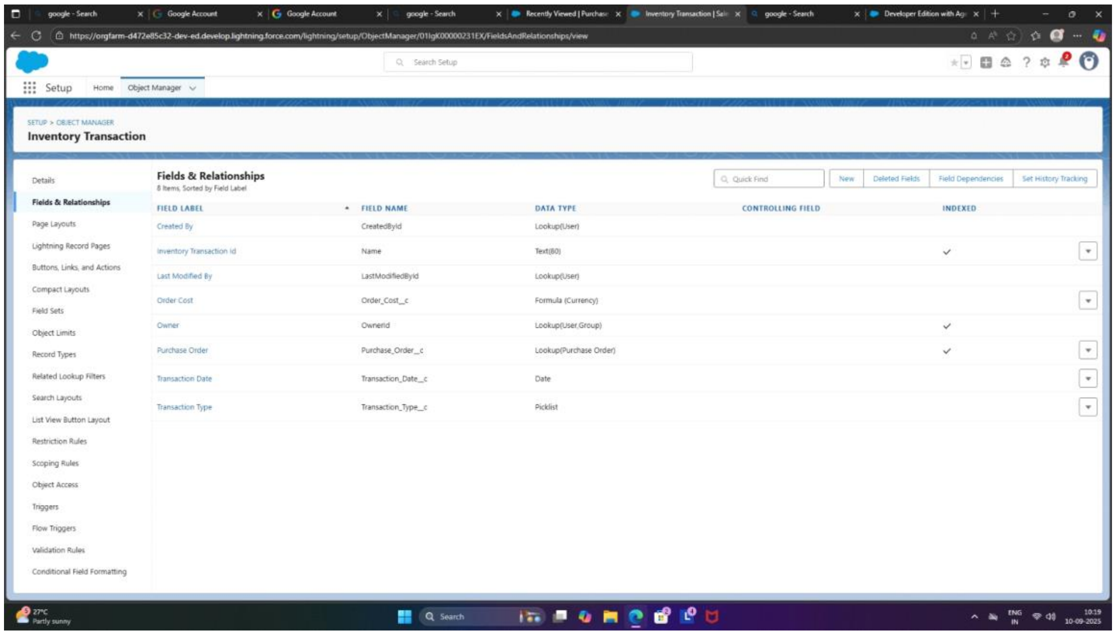
SETUP > OBJECT MANAGER

Supplier

Fields & Relationships

9 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Address	Address__c	Text Area(255)		
Contact Person	Contact_Person__c	Text(255)		
Created By	CreatedById	Lookup(User)		
Email	Email__c	Email		
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Phone Number	Phone_Number__c	Phone		
Supplier Id	Name	Text(80)		✓
Supplier Name	Supplier_Name__c	Text(255)		



SETUP > OBJECT MANAGER

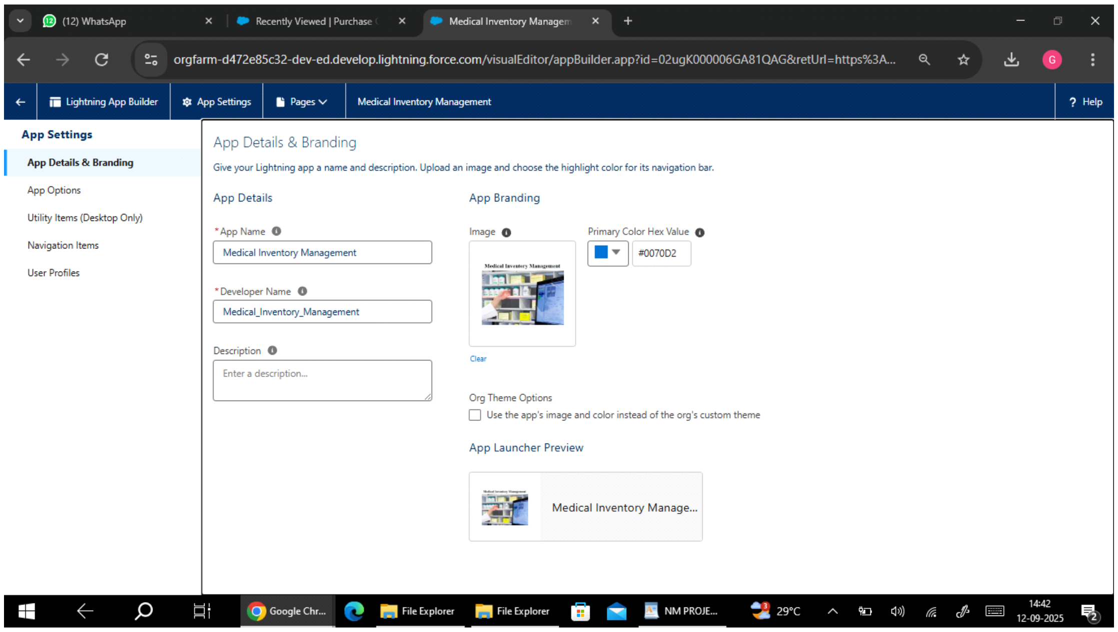
Inventory Transaction

Fields & Relationships

8 Items, Sorted by Field Label

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Inventory Transaction Id	Name	Text(80)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Order Cost	Order_Cost__c	Formula (Currency)		
Owner	OwnerId	Lookup(User,Group)		✓
Purchase Order	Purchase_Order__c	Lookup(Purchase Order)		✓
Transaction Date	Transaction_Date__c	Date		
Transaction Type	Transaction_Type__c	Picklist		

- Developed Lightning app with relevant tabs



App Details & Branding

Give your Lightning app a name and description. Upload an image and choose the highlight color for its navigation bar.

App Details

*App Name: Medical Inventory Management

*Developer Name: Medical_Inventory_Management

Description: Enter a description...

App Branding

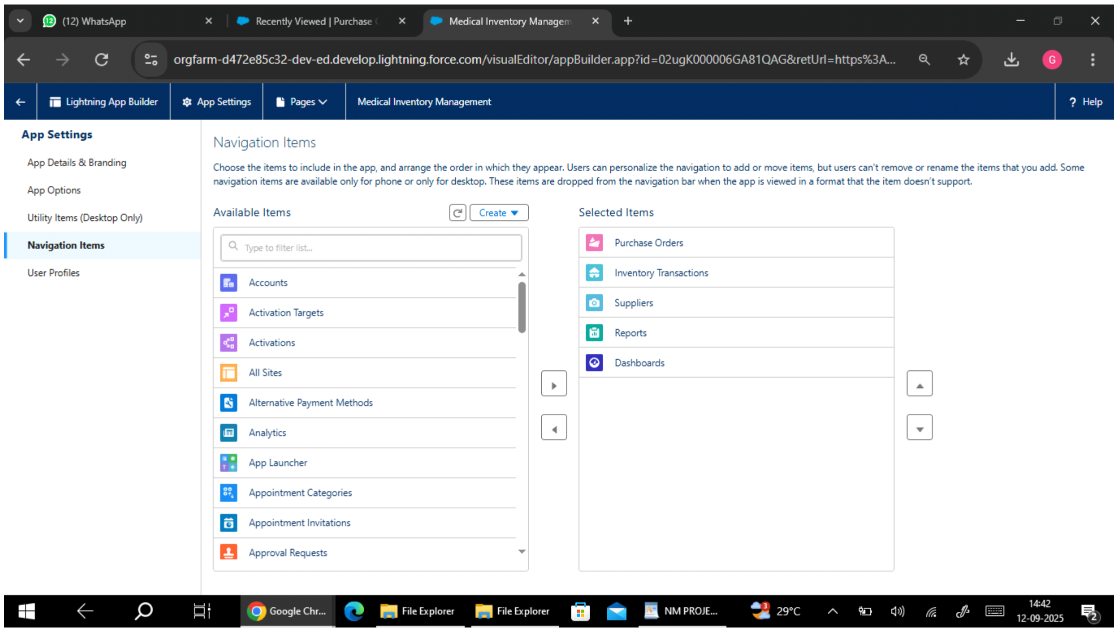
Primary Color Hex Value: #0070D2

Org Theme Options

Use the app's image and color instead of the org's custom theme

App Launcher Preview

Medical Inventory Manage...

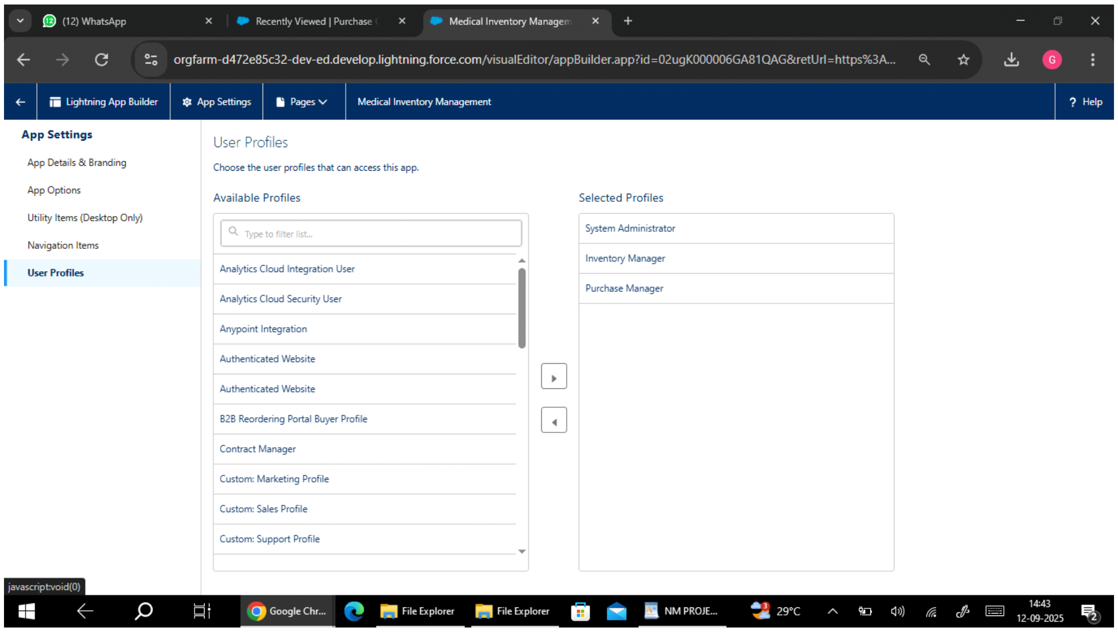


Navigation Items

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: Accounts, Activation Targets, Activations, All Sites, Alternative Payment Methods, Analytics, App Launcher, Appointment Categories, Appointment Invitations, Approval Requests

Selected Items: Purchase Orders, Inventory Transactions, Suppliers, Reports, Dashboards



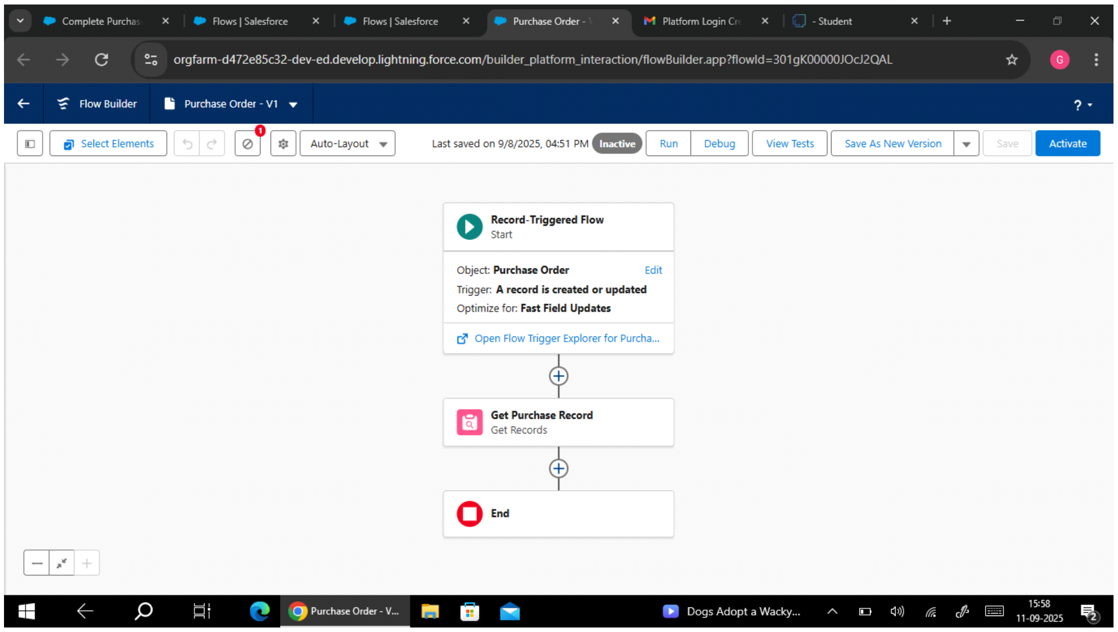
User Profiles

Choose the user profiles that can access this app.

Available Profiles: Analytics Cloud Integration User, Analytics Cloud Security User, Anypoint Integration, Authenticated Website, Authenticated Website, B2B Reordering Portal Buyer Profile, Contract Manager, Custom: Marketing Profile, Custom: Sales Profile, Custom: Support Profile

Selected Profiles: System Administrator, Inventory Manager, Purchase Manager

- Implemented Flows for purchase orders and transactions


orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/builder_platform_interaction/flowBuilder.app?flowId=301gK00000JOcJ2QAL

Flow Builder | Purchase Order - V1

Last saved on 9/8/2025, 04:51 PM Inactive

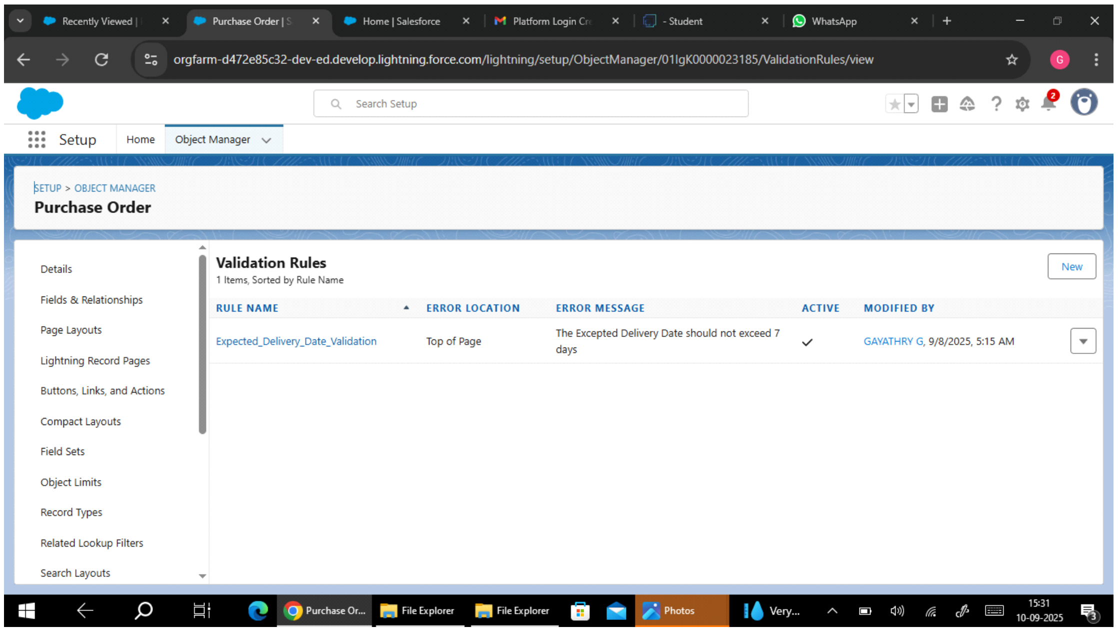
Record-Triggered Flow
Start

Object: Purchase Order
Trigger: A record is created or updated
Optimize for: Fast Field Updates

Get Purchase Record
Get Records

End

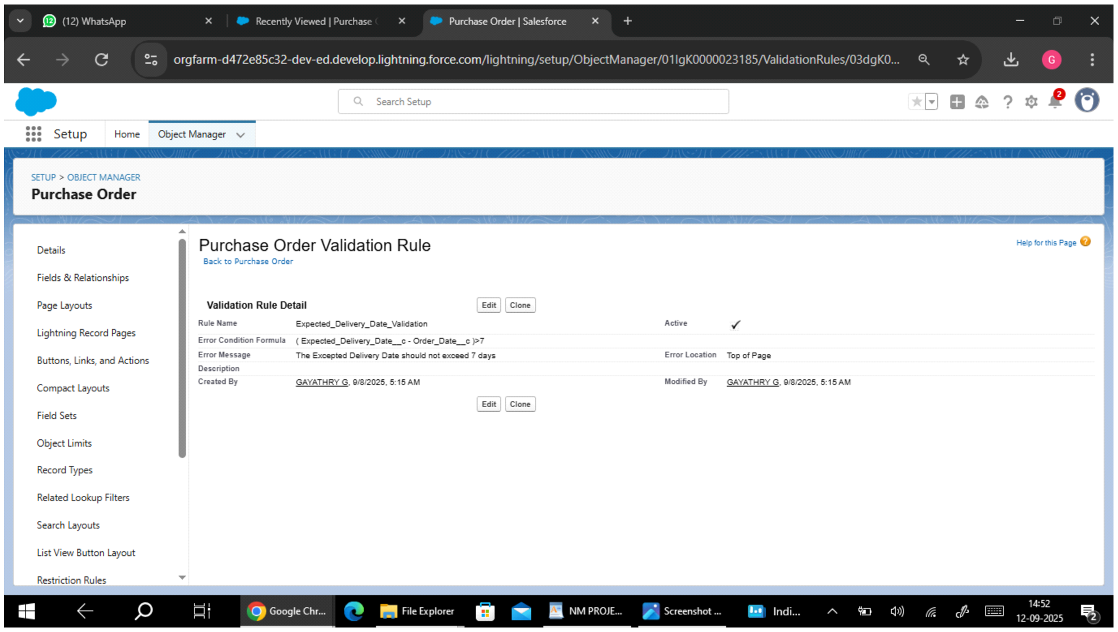
- To create validation rules for inventory object


orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK0000023185/ValidationRules/view

SETUP > OBJECT MANAGER
Purchase Order

Validation Rules
1 Items, Sorted by Rule Name

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
Expected_Delivery_Date_Validation	Top of Page	The Excepted Delivery Date should not exceed 7 days	✓	GAYATHRY G, 9/8/2025, 5:15 AM



orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK0000023185/ValidationRules/03dgK0...

SETUP > OBJECT MANAGER

Purchase Order

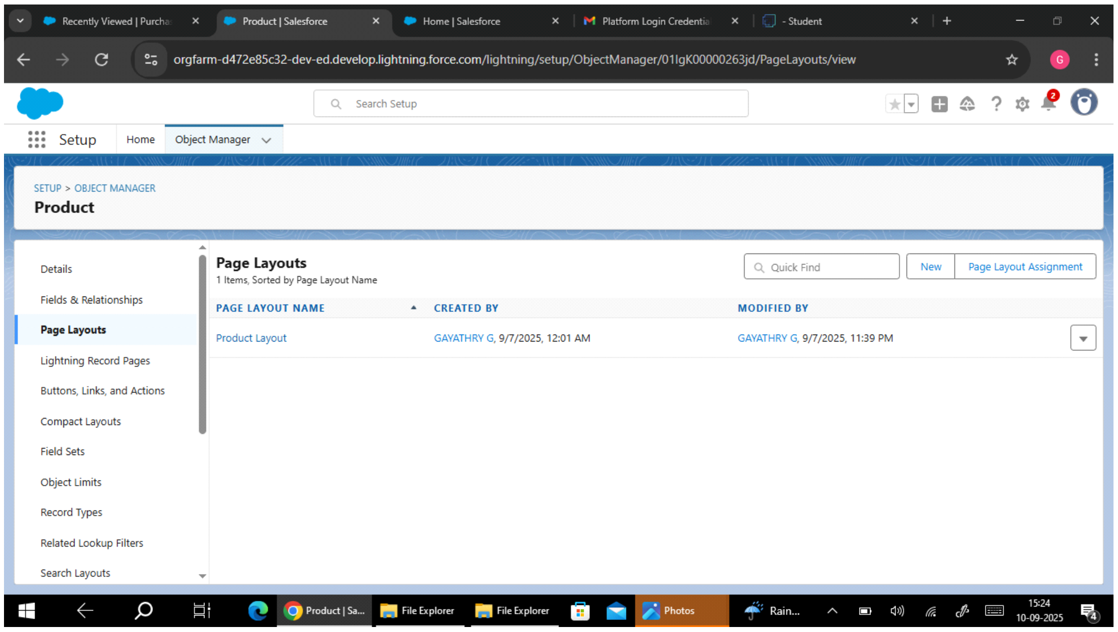
Purchase Order Validation Rule

Back to Purchase Order

Validation Rule Detail

Rule Name	Expected_Delivery_Date_Validation	Active	✓
Error Condition Formula	(Expected_Delivery_Date__c - Order_Date__c)>7		
Error Message	The Excepted Delivery Date should not exceed 7 days	Error Location	Top of Page
Description			
Created By	GAYATHRY G, 9/8/2025, 5:15 AM	Modified By	GAYATHRY G, 9/8/2025, 5:15 AM

- Implemented page layouts



orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01IgK00000263jd/PageLayouts/view

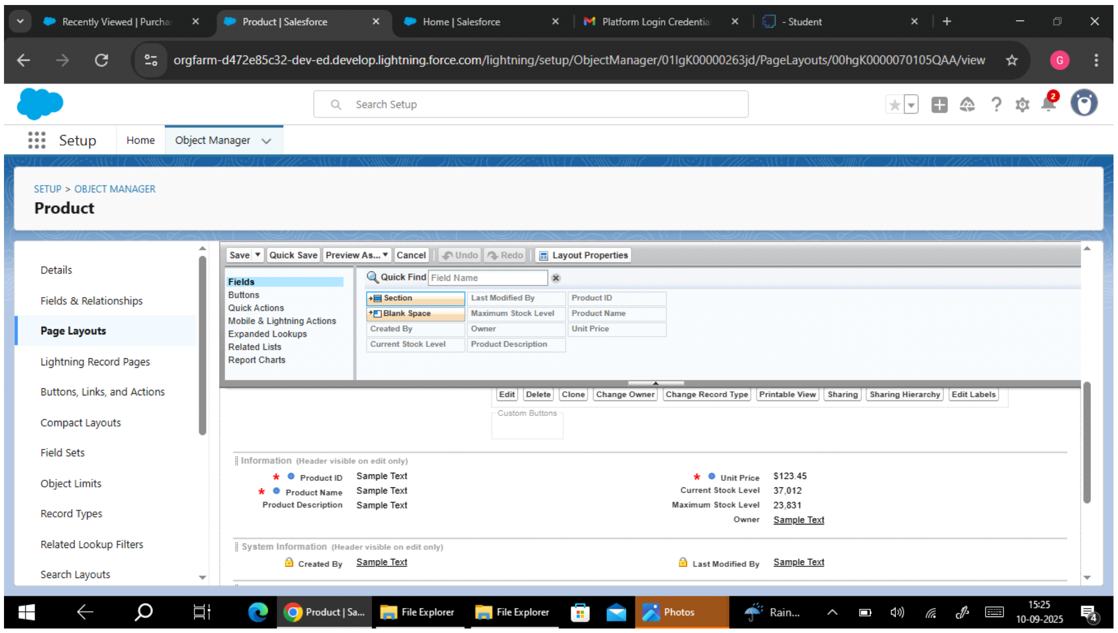
SETUP > OBJECT MANAGER

Product

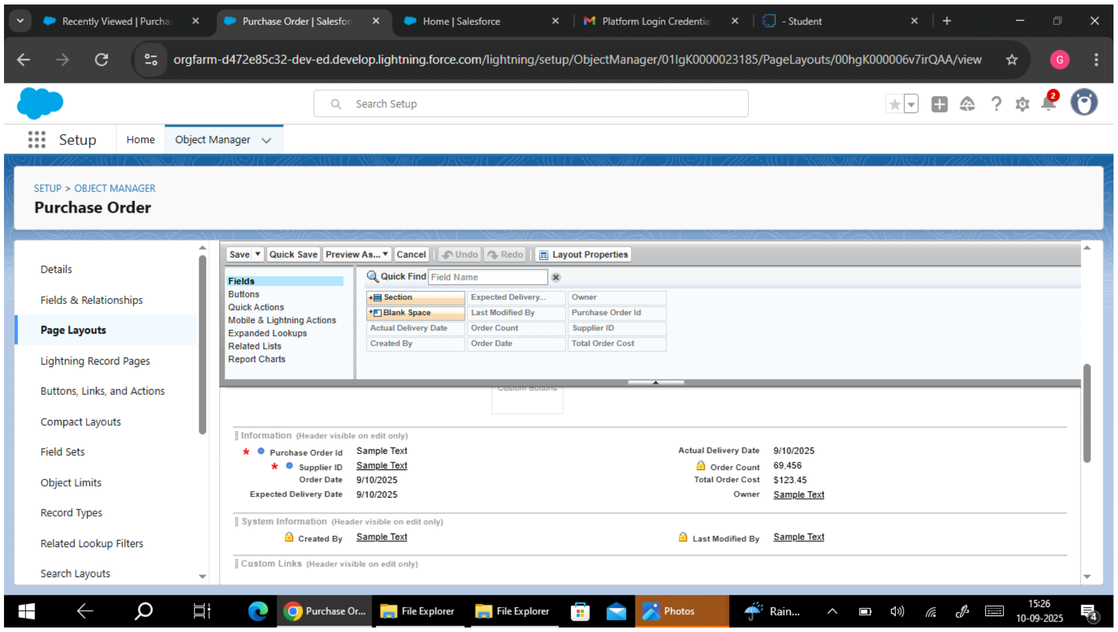
Page Layouts

1 Items, Sorted by Page Layout Name

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Product Layout	GAYATHRY G, 9/7/2025, 12:01 AM	GAYATHRY G, 9/7/2025, 11:39 PM

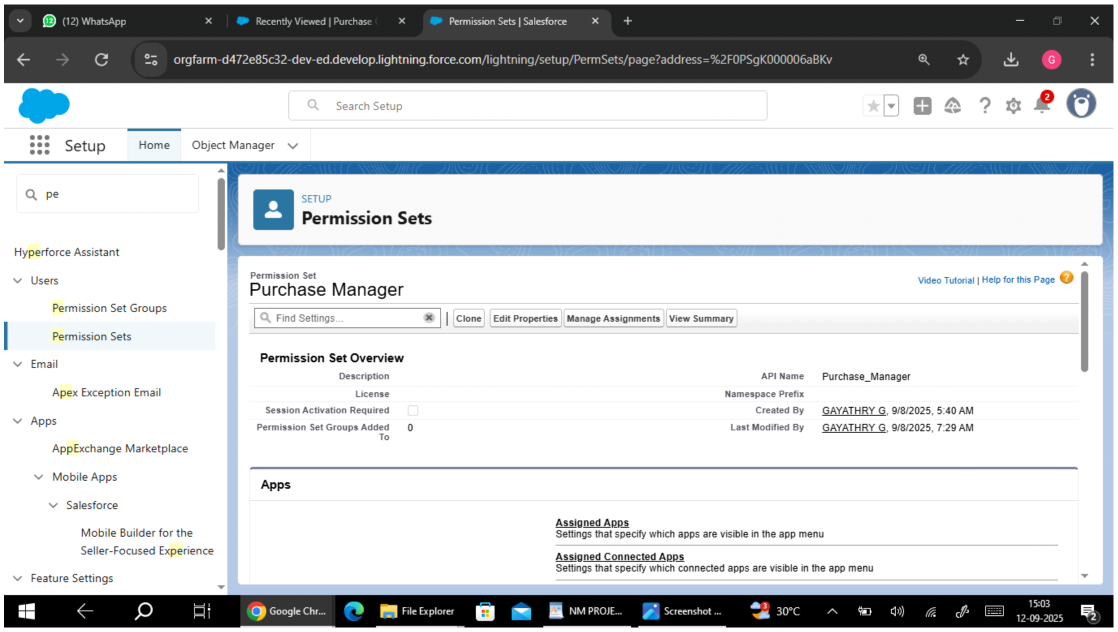


Product ID	Sample Text	Unit Price	$123.45
Product Name	Sample Text	Current Stock Level	37,012
Product Description	Sample Text	Maximum Stock Level	23,831
		Owner	Sample Text
Created By	Sample Text	Last Modified By	Sample Text



Purchase Order Id	Sample Text	Actual Delivery Date	9/10/2025
Supplier ID	Sample Text	Order Count	69,456
Order Date	9/10/2025	Total Order Cost	$123.45
Expected Delivery Date	9/10/2025	Owner	Sample Text
Created By	Sample Text	Last Modified By	Sample Text

- Set Permissions


SETUP
Permission Sets

Permission Set
Purchase Manager

Permission Set Overview

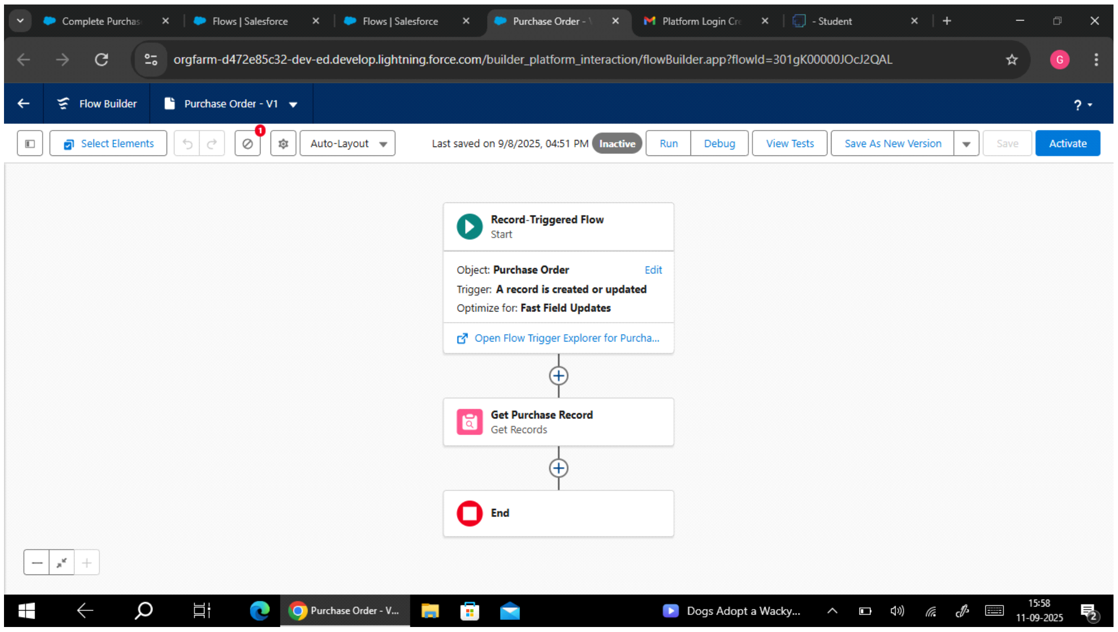
Description		API Name	Purchase_Manager
License		Namespace Prefix	
Session Activation Required		Created By	GAYATHRY G, 9/8/2025, 5:40 AM
Permission Set Groups Added To	0	Last Modified By	GAYATHRY G, 9/8/2025, 7:29 AM

Apps

Assigned Apps
Settings that specify which apps are visible in the app menu

Assigned Connected Apps
Settings that specify which connected apps are visible in the app menu

- Flows

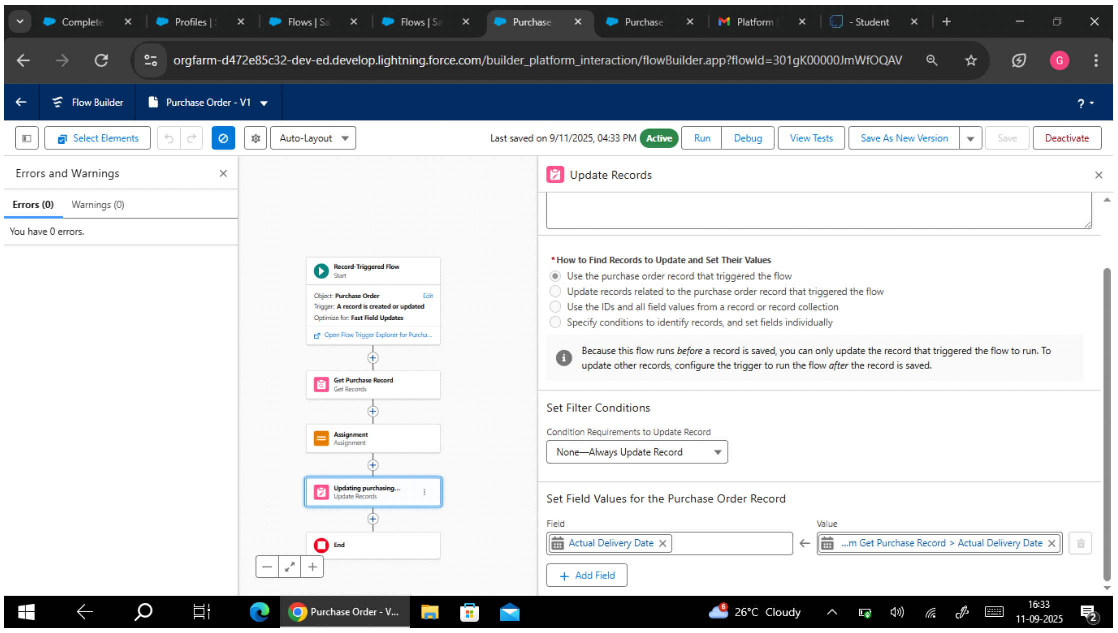

Record-Triggered Flow
Start

Object: Purchase Order
Trigger: A record is created or updated
Optimize for: Fast Field Updates

Get Purchase Record
Get Records

End

orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/builder_platform_interaction/flowBuilder.app?flowId=301gK00000JOcJ2QAL
Flow Builder
Purchase Order - V1
Select Elements
Auto-Layout
Last saved on 9/8/2025, 04:51 PM
Inactive
Run
Debug
View Tests
Save As New Version
Save
Activate
Edit
Open Flow Trigger Explorer for Purcha...
15:58
11-09-2025



*How to Find Records to Update and Set Their Values

- [✓ Use the purchase order record that triggered the flow]
- Update records related to the purchase order record that triggered the flow
- Use the IDs and all field values from a record or record collection
- Specify conditions to identify records, and set fields individually

Because this flow runs *before* a record is saved, you can only update the record that triggered the flow to run. To update other records, configure the trigger to run the flow *after* the record is saved.

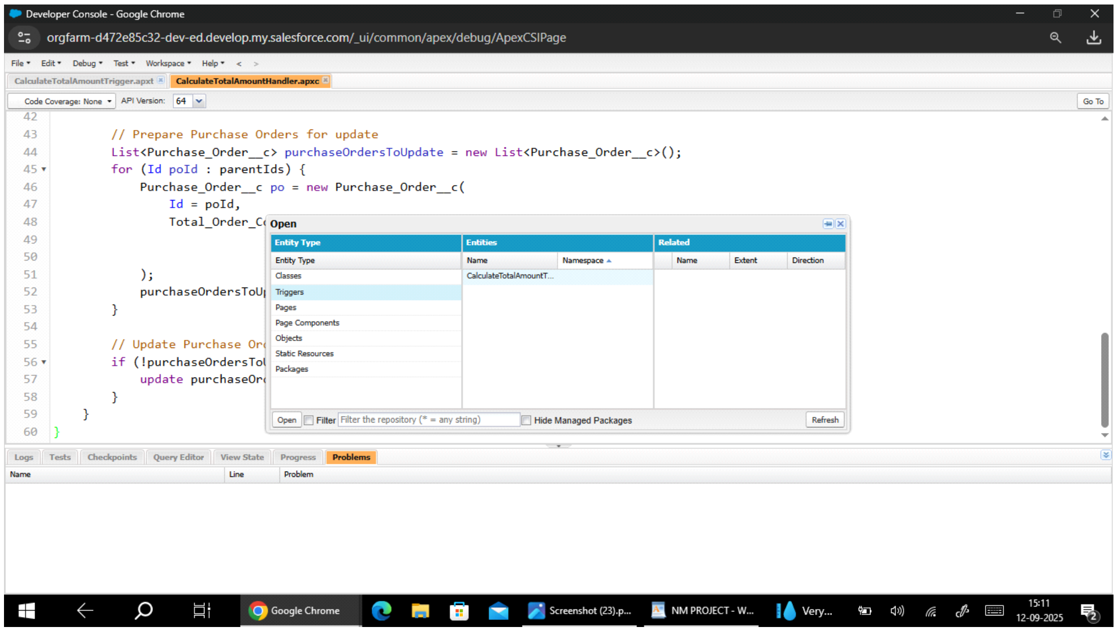
Set Filter Conditions

Condition Requirements to Update Record: None—Always Update Record

Set Field Values for the Purchase Order Record

Field		Value
Actual Delivery Date	←	...m Get Purchase Record > Actual Delivery Date

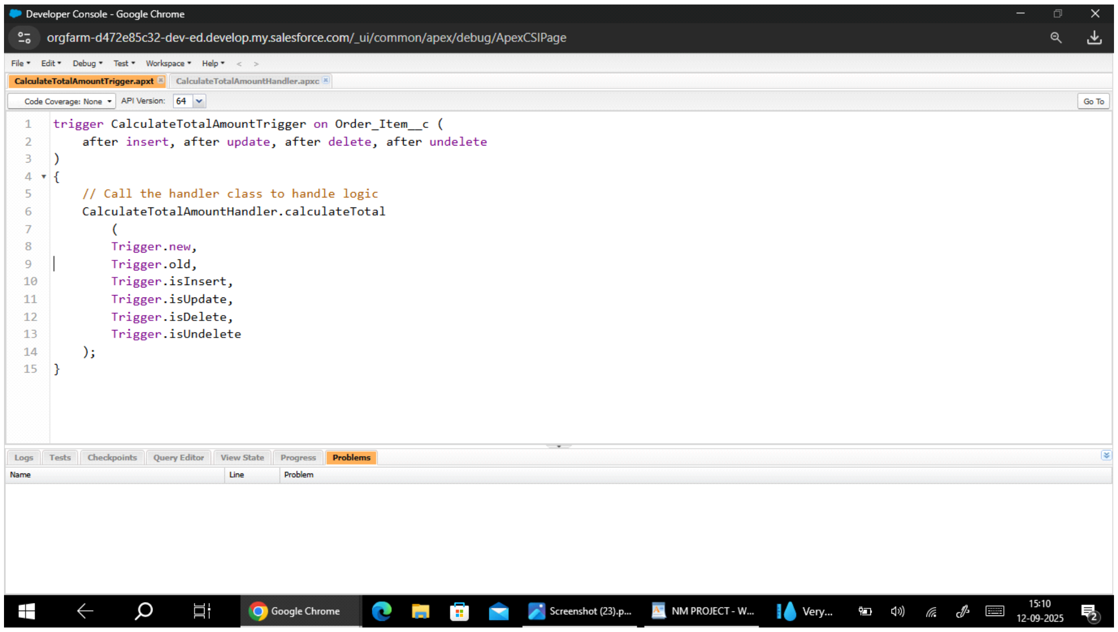
- Apex Triggers


Developer Console - Google Chrome
orgfarm-d472e85c32-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage
File
Edit
Debug
Test
Workspace
Help
CalculateTotalAmountTrigger.apxt
CalculateTotalAmountHandler.apxc
Code Coverage: None
API Version: 64
Go To

```

        // Prepare Purchase Orders for update
        List<Purchase_Order__c> purchaseOrdersToUpdate = new List<Purchase_Order__c>();
        for (Id poId : parentIds) {
            Purchase_Order__c po = new Purchase_Order__c(
                Id = poId,
                Total_Order_C


            );
            purchaseOrdersToU
        }

        // Update Purchase Or
        if (!purchaseOrdersTo
            update purchaseOr
        }
    }
}
```

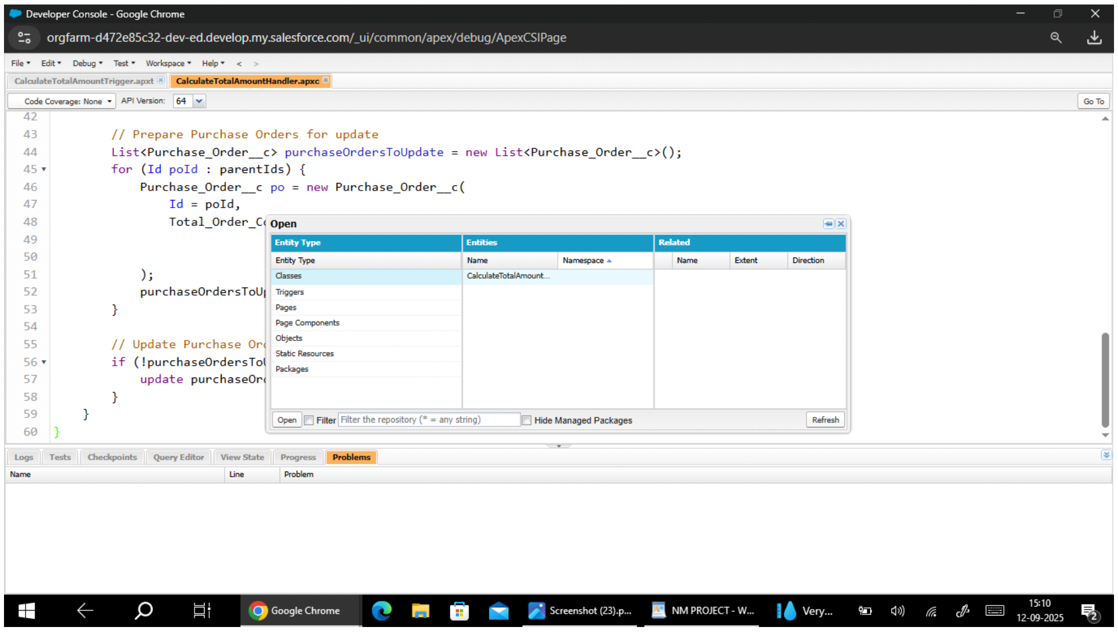
Open

Entity Type	Name	Namespace	Name	Extent	Direction
Classes	CalculateTotalAmountT...				
Triggers					
Pages					
Page Components					
Objects					
Static Resources					
Packages					

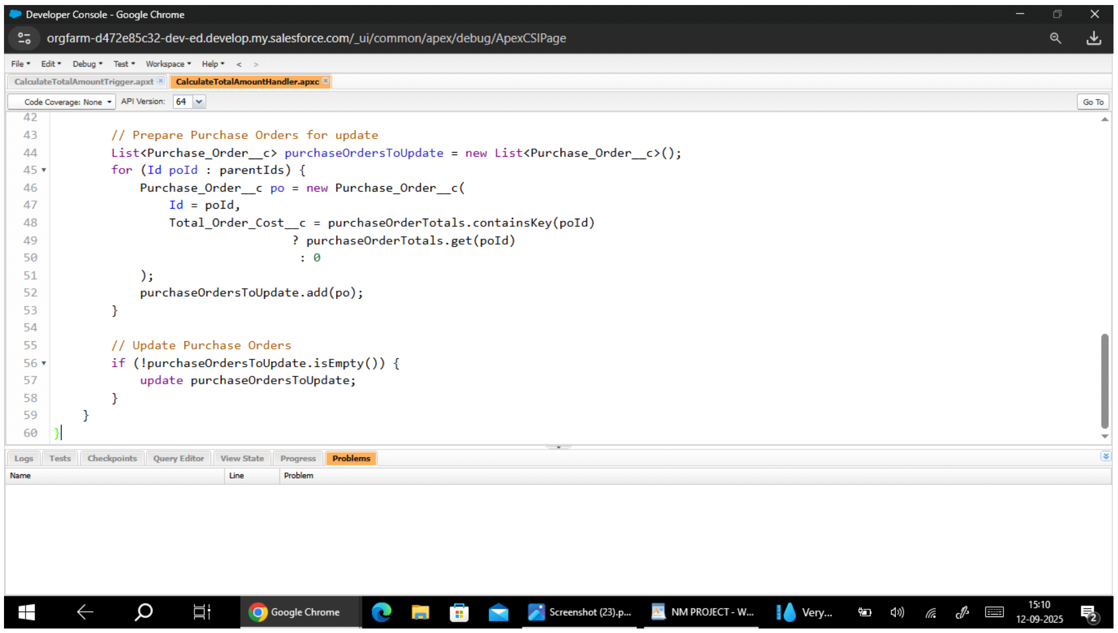

Developer Console - Google Chrome
orgfarm-d472e85c32-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage
CalculateTotalAmountTrigger.apxt
CalculateTotalAmountHandler.apxc
Code Coverage: None
API Version: 64
Logs
Tests
Checkpoints
Query Editor
View State
Progress
Problems
Name
Line
Problem

```
trigger CalculateTotalAmountTrigger on Order_Item__c (
    after insert, after update, after delete, after undelete
)
{
    // Call the handler class to handle logic
    CalculateTotalAmountHandler.calculateTotal
        (
        Trigger.new,
        Trigger.old,
        Trigger.isInsert,
        Trigger.isUpdate,
        Trigger.isDelete,
        Trigger.isUndelete
    );
}
```

- Apex class



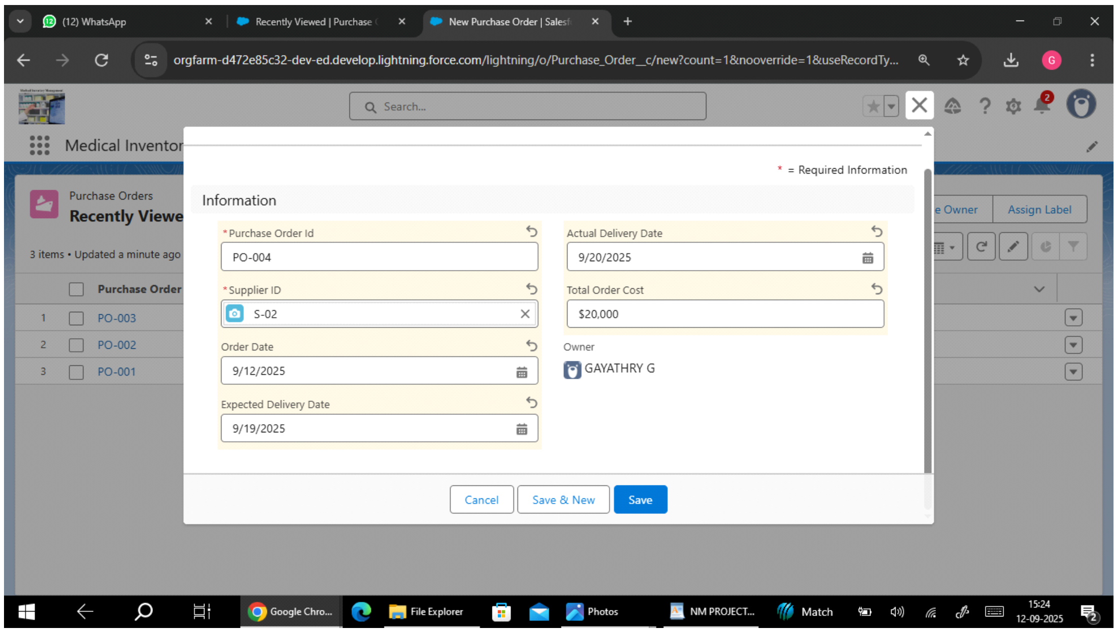
```

        // Prepare Purchase Orders for update
        List<Purchase_Order__c> purchaseOrdersToUpdate = new List<Purchase_Order__c>();
        for (Id poId : parentIds) {
            Purchase_Order__c po = new Purchase_Order__c(
                Id = poId,
                Total_Order_C


            );
            purchaseOrdersToU
        }

        // Update Purchase Or
        if (!purchaseOrdersTo
            update purchaseOr
        }
    }
}
```


Developer Console - Google Chrome
orgfarm-d472e85c32-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage
File Edit Debug Test Workspace Help
CalculateTotalAmountTrigger.apxt
CalculateTotalAmountHandler.apxc
Code Coverage: None
API Version: 64
Go To
Logs Tests Checkpoints Query Editor View State Progress Problems
Name Line Problem

```
        // Prepare Purchase Orders for update
        List<Purchase_Order__c> purchaseOrdersToUpdate = new List<Purchase_Order__c>();
        for (Id poId : parentIds) {
            Purchase_Order__c po = new Purchase_Order__c(
                Id = poId,
                Total_Order_Cost__c = purchaseOrderTotals.containsKey(poId)
                                 ? purchaseOrderTotals.get(poId)
                                 : 0
            );
            purchaseOrdersToUpdate.add(po);
        }

        // Update Purchase Orders
        if (!purchaseOrdersToUpdate.isEmpty()) {
            update purchaseOrdersToUpdate;
        }
    }
}
```

FUNCTIONAL AND PERFORMANCE TESTING

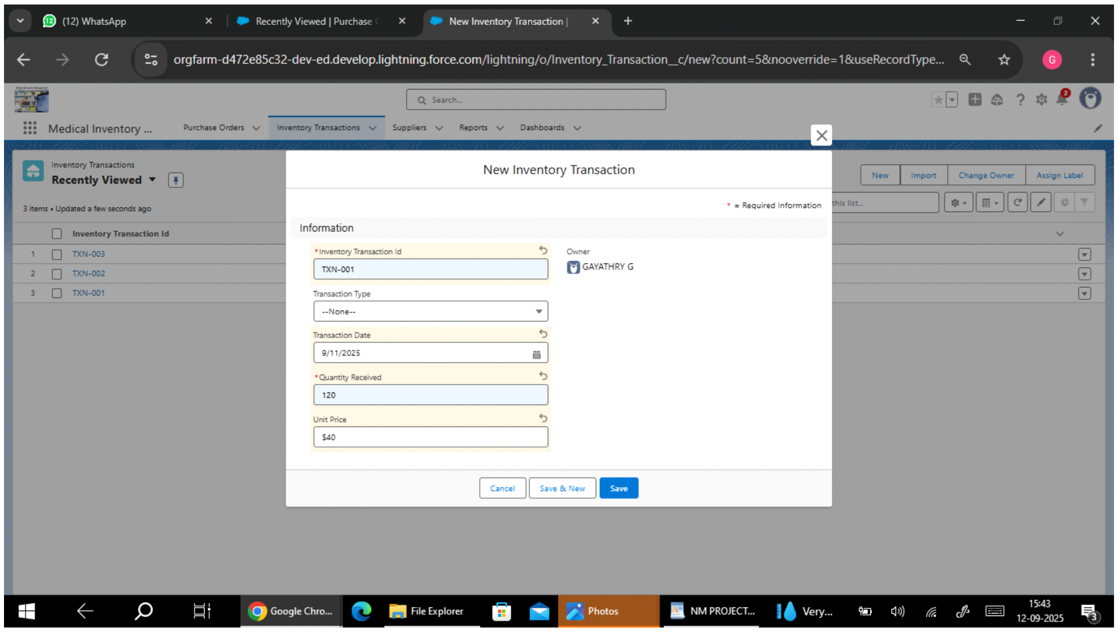
Performance testing:


(12) WhatsApp
Recently Viewed | Purchase
New Purchase Order | Sales
orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/o/Purchase_Order__c/new?count=1&nooverride=1&useRecordTy...
Search...
Medical Inventor
Purchase Orders
Recently Viewe
3 items • Updated a minute ago
Purchase Order
PO-003
PO-002
PO-001
e Owner
Assign Label
Cancel
Save & New
Save

* = Required Information

Information

*Purchase Order Id	PO-004
*Supplier ID	S-02
Order Date	9/12/2025
Expected Delivery Date	9/19/2025
Actual Delivery Date	9/20/2025
Total Order Cost	$20,000
Owner	GAYATHRY G



New Inventory Transaction

* = Required Information

Information

*Inventory Transaction Id: TXN-001

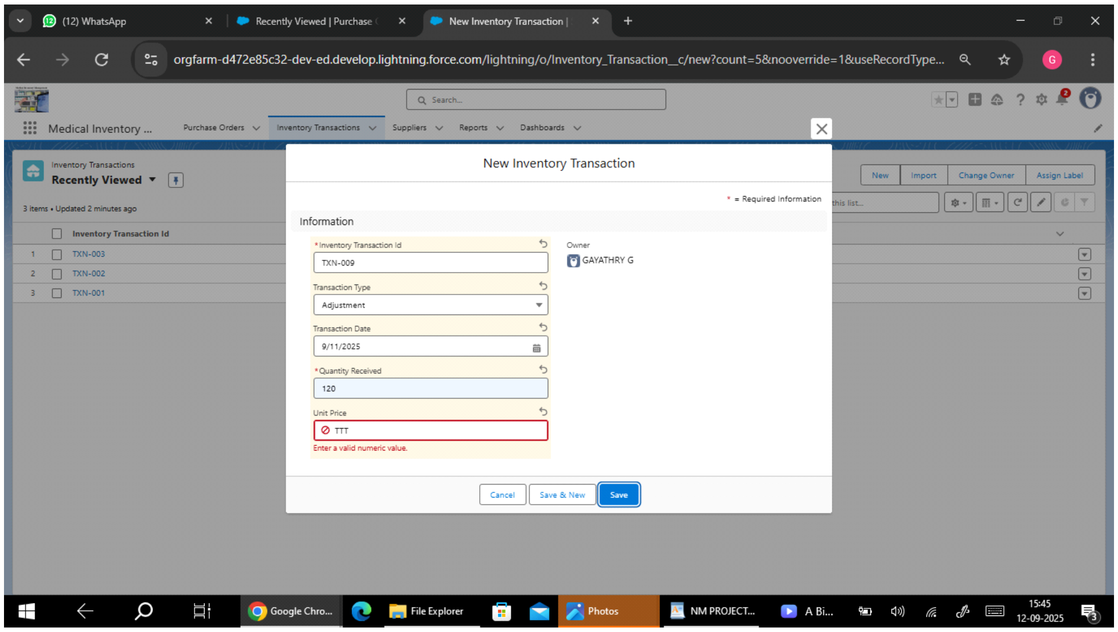
Owner: GAYATHRY G

Transaction Type: --None--

Transaction Date: 9/11/2025

*Quantity Received: 120

Unit Price: $40



New Inventory Transaction

* = Required Information

Information

*Inventory Transaction Id: TXN-009

Owner: GAYATHRY G

Transaction Type: Adjustment

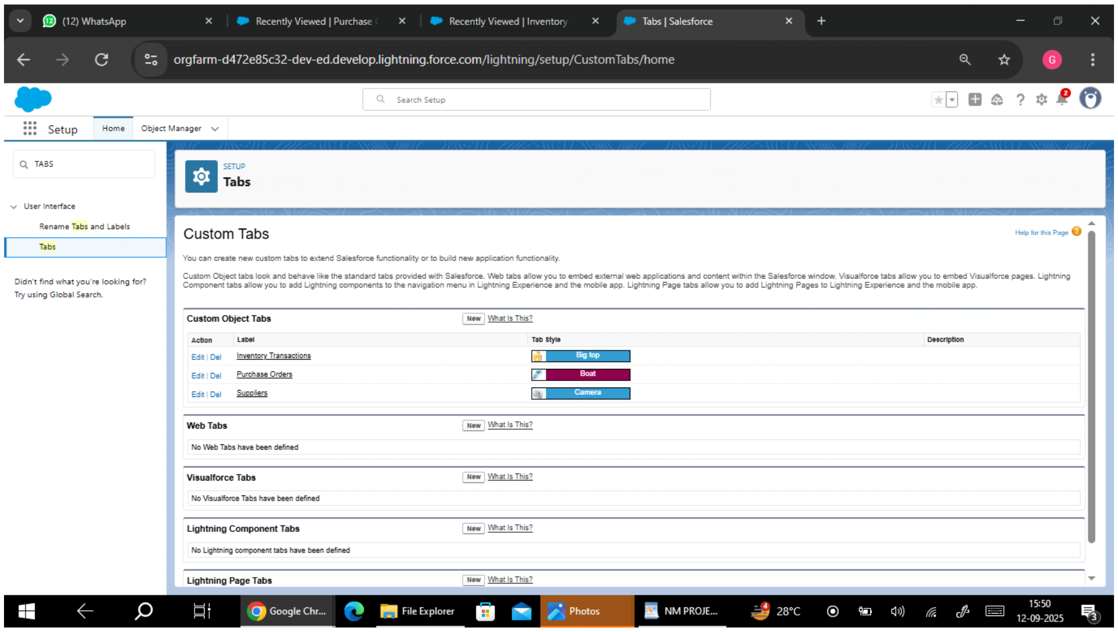
Transaction Date: 9/11/2025

*Quantity Received: 120

Unit Price: TTT

Enter a valid numeric value.

RESULTS


orgfarm-d472e85c32-dev-ed.develop.lightning.force.com/lightning/setup/CustomTabs/home

SETUP
Tabs

Custom Tabs

You can create new custom tabs to extend Salesforce functionality or to build new application functionality.

Custom Object tabs look and behave like the standard tabs provided with Salesforce. Web tabs allow you to embed external web applications and content within the Salesforce window. Visualforce tabs allow you to embed Visualforce pages. Lightning Component tabs allow you to add Lightning components to the navigation menu in Lightning Experience and the mobile app. Lightning Page tabs allow you to add Lightning Pages to Lightning Experience and the mobile app.

Custom Object Tabs

Action	Label	Tab Style	Description
Edit | Del	Inventory Transactions	Big top	
Edit | Del	Purchase Orders	Boat	
Edit | Del	Suppliers	Camera	

Web Tabs

No Web Tabs have been defined

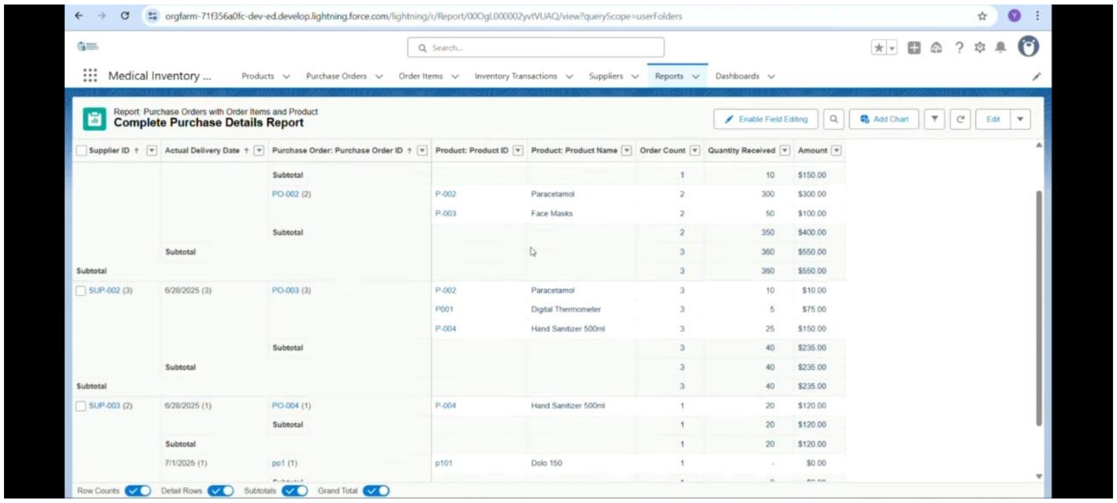
Visualforce Tabs

No Visualforce Tabs have been defined

Lightning Component Tabs

No Lightning component tabs have been defined

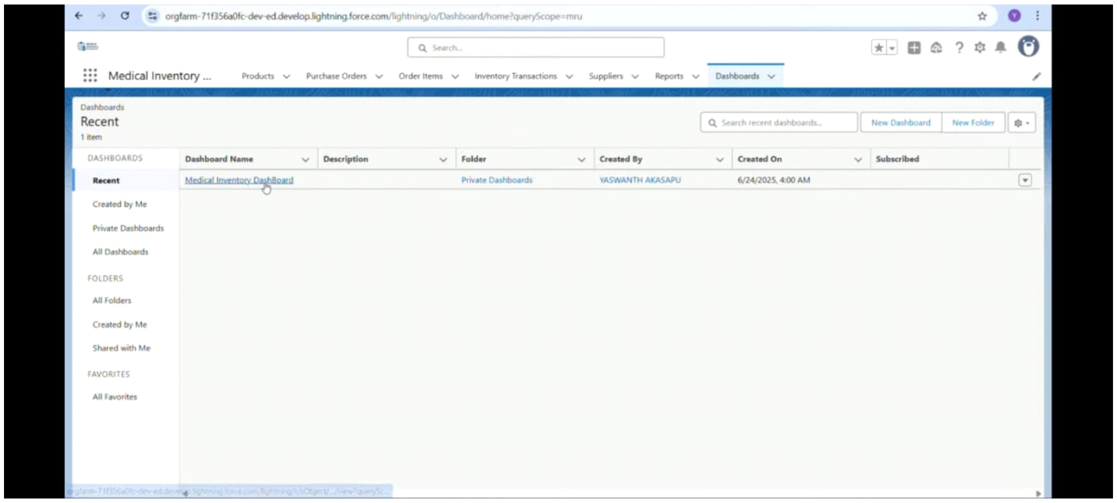
Lightning Page Tabs


orgfarm-71f356a0fc-dev-ed.develop.lightning.force.com/lightning/r/Report/00OgL000002yvtVUAQ/view?queryScope=userFolders

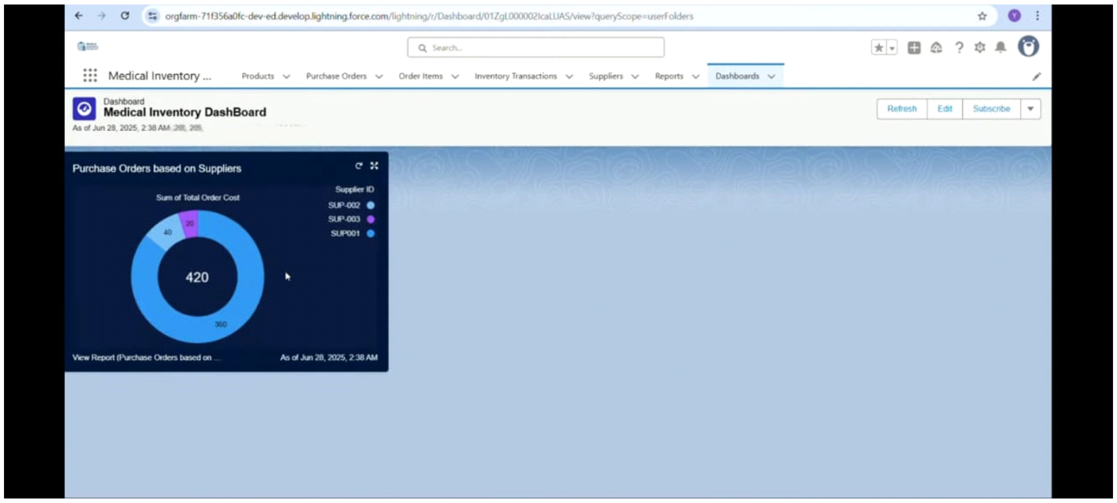
Report: Purchase Orders with Order Items and Product
Complete Purchase Details Report

Supplier ID	Actual Delivery Date	Purchase Order: Purchase Order ID	Product: Product ID	Product: Product Name	Order Count	Quantity Received	Amount
		Subtotal			1	10	$150.00
		PO-002 (2)	P-002	Paracetamol	2	300	$300.00
			P-003	Face Masks	2	50	$100.00
		Subtotal			2	350	$400.00
	Subtotal				3	360	$550.00
Subtotal					3	360	$550.00
SUP-002 (3)	6/28/2025 (3)	PO-003 (3)	P-002	Paracetamol	3	10	$10.00
			P001	Digital Thermometer	3	5	$75.00
			P-004	Hand Sanitizer 500ml	3	25	$150.00
		Subtotal			3	40	$235.00
	Subtotal				3	40	$235.00
Subtotal					3	40	$235.00
SUP-003 (2)	6/28/2025 (1)	PO-004 (1)	P-004	Hand Sanitizer 500ml	1	20	$120.00
		Subtotal			1	20	$120.00
	Subtotal				1	20	$120.00
	7/1/2025 (1)	po1 (1)	p101	Dolo 150	1	-	$0.00

Reports



Dashboard Name	Description	Folder	Created By	Created On	Subscribed
Medical Inventory DashBoard		Private Dashboards	YASWANTH AKASAPU	6/24/2025, 4:00 AM	



CONCLUSION

The Medical Inventory Management System on Salesforce improves efficiency by automating stock tracking, purchase orders, and reporting. It reduces errors, saves time, and provides real-time visibility of medical supplies, ensuring better management and support for healthcare services.

APPENDIX

Source code:

CalculateTotalAmountTrigger:

```
trigger CalculateTotalAmountTrigger on Order_Item__c (
    after insert, after update, after delete, after undelete
) {
  // Call the handler class to handle logic
  CalculateTotalAmountHandler.calculateTotal(
    Trigger.new,
    Trigger.old,
    Trigger.isInsert,
    Trigger.isUpdate,
    Trigger.isDelete,
    Trigger.isUndelete
  );
}
```

CalculateTotalAmountHandler:

```
public class CalculateTotalAmountHandler {
  public static void calculateTotal(
    List<Order_Item__c> newList,
    List<Order_Item__c> oldList,
    Boolean isInsert,
    Boolean isUpdate,
    Boolean isDelete,
    Boolean isUndelete
  ) {
    // Collect parent Purchase Order Ids
    Set<Id> parentIds = new Set<Id>();
    if (newList != null) {
      for (Order_Item__c oi : newList) {
        if (oi.Purchase_Order__c != null) {
          parentIds.add(oi.Purchase_Order__c);
        }
      }
    }
    if (oldList != null) {
      for (Order_Item__c oi : oldList) {
        if (oi.Purchase_Order__c != null) {
          parentIds.add(oi.Purchase_Order__c);
        }
      }
    }

    if (parentIds.isEmpty()) return;

    // Aggregate the totals
    Map<Id, Decimal> purchaseOrderTotals = new Map<Id, Decimal>();
    for (AggregateResult aggr : [
      SELECT Purchase_Order_c purchaseOrderId, SUM(Amount_c) totalAmount
      FROM Order_Item__c
      WHERE Purchase_Order__c IN :parentIds
      GROUP BY Purchase_Order__c
    ]) {
      purchaseOrderTotals.put(
        (Id) aggr.get('purchaseOrderId'),
        (Decimal) aggr.get('totalAmount')
      );
    }

    // Prepare Purchase Orders for update
    List<Purchase_Order_c> purchaseOrdersToUpdate = new List<Purchase_Order_c>();
    for (Id poId : parentIds) {
      Purchase_Order_c po = new Purchase_Order_c(
        Id = poId,
        Total_Order_Cost__c = purchaseOrderTotals.containsKey(poId)
                  ? purchaseOrderTotals.get(poId)
                  : 0
      );
      purchaseOrdersToUpdate.add(po);
    }

    // Update Purchase Orders
    if (!purchaseOrdersToUpdate.isEmpty()) {
      update purchaseOrdersToUpdate;
    }
  }
}public class CalculateTotalAmountHandler {
  public static void calculateTotal(
    List<Order_Item__c> newList,
    List<Order_Item__c> oldList,
    Boolean isInsert,
    Boolean isUpdate,
    Boolean isDelete,
    Boolean isUndelete
  ) {
    // Collect parent Purchase Order Ids
    Set<Id> parentIds = new Set<Id>();
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        if (oi.Purchase_Order__c != null) {
          parentIds.add(oi.Purchase_Order__c);
        }
      }
    }
    if (oldList != null) {
      for (Order_Item__c oi : oldList) {
        if (oi.Purchase_Order__c != null) {
          parentIds.add(oi.Purchase_Order__c);
        }
      }
    }

    if (parentIds.isEmpty()) return;

    // Aggregate the totals
    Map<Id, Decimal> purchaseOrderTotals = new Map<Id, Decimal>();
    for (AggregateResult aggr : [
      SELECT Purchase_Order_c purchaseOrderId, SUM(Amount_c) totalAmount
      FROM Order_Item__c
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      GROUP BY Purchase_Order__c
    ]) {
      purchaseOrderTotals.put(
        (Id) aggr.get('purchaseOrderId'),
        (Decimal) aggr.get('totalAmount')
      );
    }

    // Prepare Purchase Orders for update
    List<Purchase_Order_c> purchaseOrdersToUpdate = new List<Purchase_Order_c>();
    for (Id poId : parentIds) {
      Purchase_Order_c po = new Purchase_Order_c(
        Id = poId,
        Total_Order_Cost__c = purchaseOrderTotals.containsKey(poId)
                ? purchaseOrderTotals.get(poId)
                 : 0
      );
      purchaseOrdersToUpdate.add(po);
    }

    // Update Purchase Orders
    if (!purchaseOrdersToUpdate.isEmpty()) {
      update purchaseOrdersToUpdate;
    }
  }
}
```