

PROJECT TITLE: Medical Inventory Management System

College Name: KG College of Arts and Science


College Code: Bru4y

TEAM ID: NM2025TMID23987

TEAM MEMBERS:

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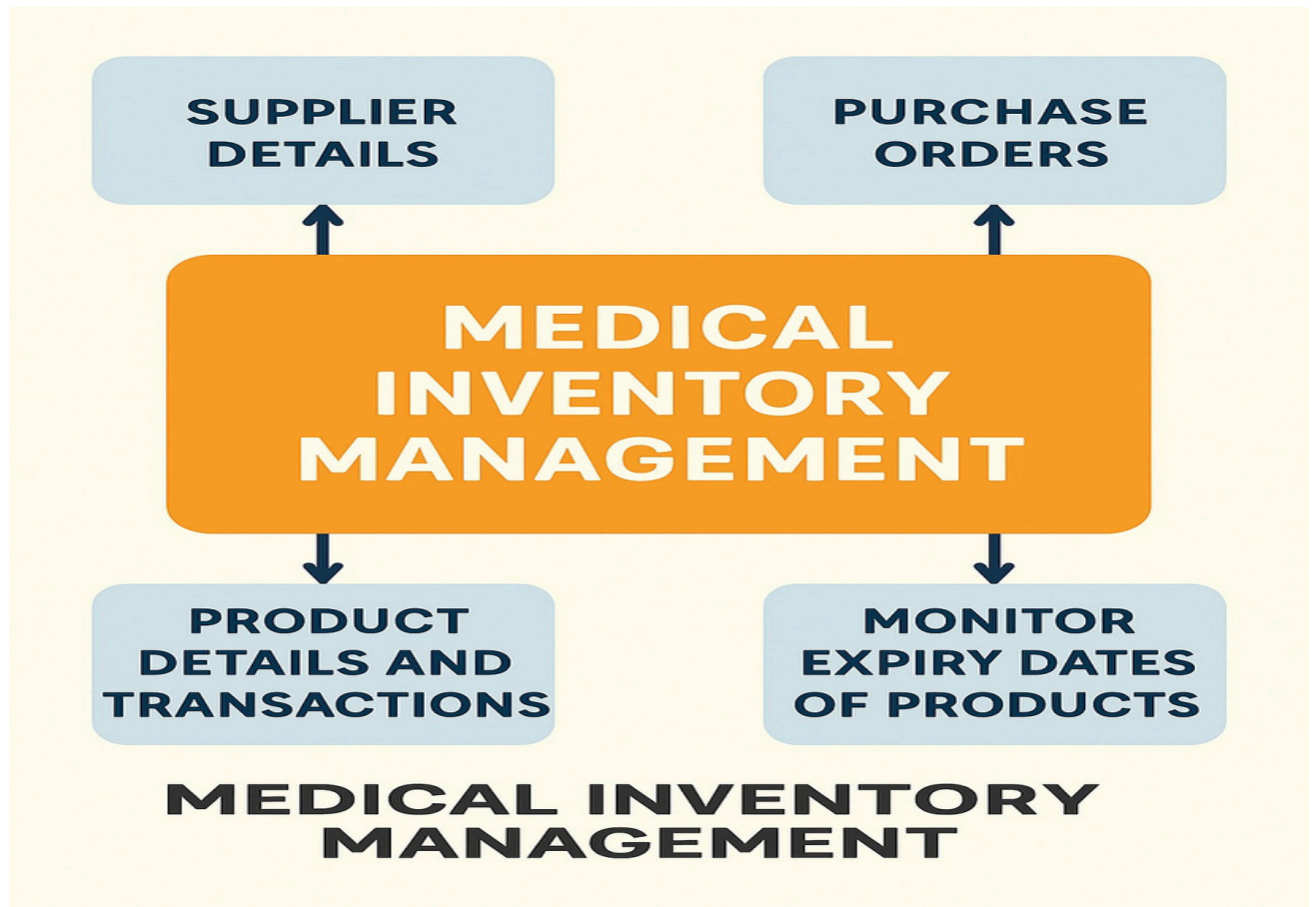
DEMO VIDEO LINK:

 [NM_Demo video\(Medical inventory management\).mp4](#)

INTRODUCTION

Project Overview

The Medical Inventory Management System is a comprehensive Salesforce application designed to streamline and manage various operational aspects of the medical inventory. It can efficiently maintain supplier details, manage purchase orders, track product details and transactions, and monitor expiry dates of products, thereby improving operational efficiency, data accuracy, and reporting capabilities.



Purpose


The system aims to efficiently maintain supplier details, manage purchase orders, track product details and transactions, and monitor the expiry dates of products. Maintain detailed records of suppliers, including contact information. Catalog product information, including descriptions, stock levels. Monitor and track product expiry dates to avoid using expired items. Comprehensive reports to track supplier performance, and purchase orders.

DEVELOPMENT PHASE

Creation of Developer Account

- A Salesforce Developer account was created using the signup link: <https://www.salesforce.com/form/developer-signup>


← → ↻ salesforce.com/form/developer-signup/ 🔍 🗖️ 🌐 ⚙️ 👤



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First name	Last name
Deepak	N


Job title	Work email
Developer	deepakdik01452@gmail.com

Company	Country/Region
TERF'S Academy Coll	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 60 days.

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Creating a Product Object

← → ↻ orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/011gK000002pi1/Details/view 🔍 🗖️ 🌐 ⚙️ 👤

Setup

Home Object Manager

SETUP > OBJECT MANAGER

Product

[Edit](#) [Delete](#)

Details

- Fields & Relationships
- Page Layouts
- Lightning Record Pages
- Buttons, Links, and Actions
- Compact Layouts
- Field Sets
- Object Limits
- Record Types
- Related Lookup Filters
- Search Layouts
- List View Button Layout
- Restriction Rules
- Scoping Rules

Details

Description

API Name
Product_c

Custom

✓ Singular Label
Product

Plural Label
Products

Enable Reports
✓

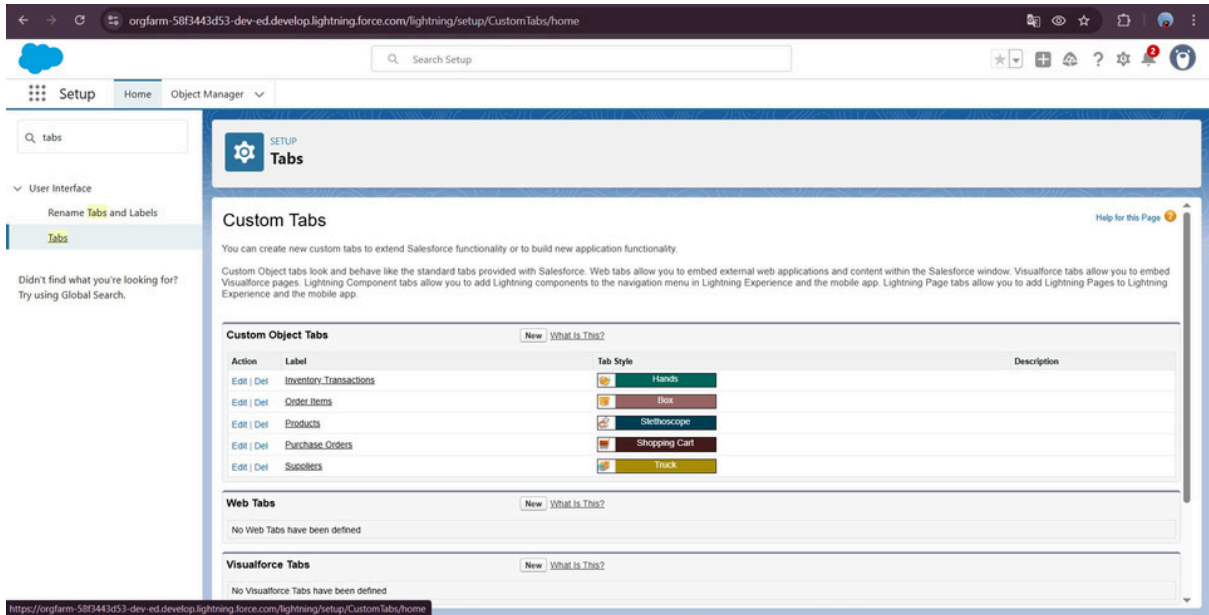
Track Activities

Track Field History

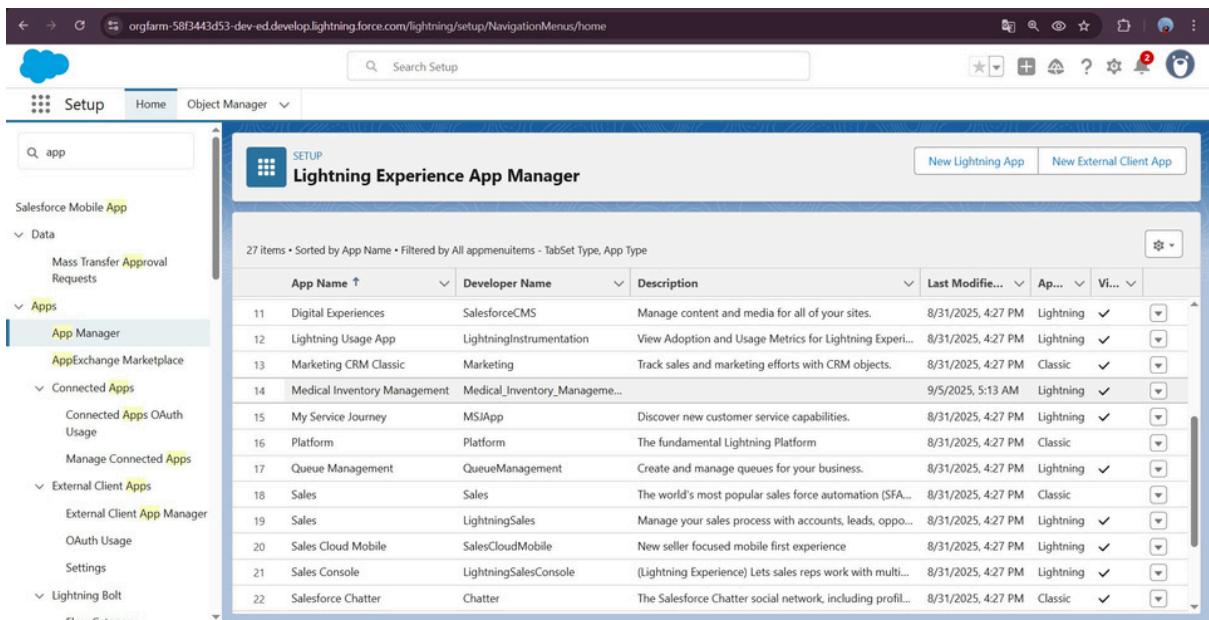
Deployment Status
Deployed

Help Settings
Standard salesforce.com Help Window

Creating a tab for Product Object and Remaining Tabs



Create a Lightning App for Medical Inventory Management



Creating a Text Field in Product Object

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022plf/FieldsAndRelationships/view

Setup Home Object Manager

SETUP > OBJECT MANAGER
Product

Details

Fields & Relationships
10 Items, Sorted by Field Label

Quick Find New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Current Stock Level	Current_Stock_Level__c	Number(18, 0)		
Expiry Date	Expiry_Date__c	Date		
Last Modified By	LastModifiedById	Lookup(User)		
Minimum Stock Level	Minimum_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)		

Creating Lookup Relationship in Purchase Order Object

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022plf/FieldsAndRelationships/view

Setup Home Object Manager

SETUP > OBJECT MANAGER
Purchase Order

Details

Fields & Relationships
10 Items, Sorted by Field Label

Quick Find New Deleted Fields Field Dependencies Set History Tracking

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(16, 2)		

Creating a Unit Price Formula Field in Order Item object

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022ptJ/FieldsAndRelationships/view

Setup Home Object Manager

SETUP > OBJECT MANAGER
Order Item

Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules

Fields & Relationships
10 Items, Sorted by Field Label

Quick Find New Deleted Fields Field Dependencies Set History Tracking

Amount	Amount__c	Formula (Currency)		
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Order Item ID	Name	Text(80)	✓	
Product ID	Product_ID__c	Lookup(Product)	✓	
Purchase Order ID	Purchase_Order_ID__c	Master-Detail(Purchase Order)	✓	
Quantity Ordered	Quantity_Ordered__c	Number(18, 0)		
Quantity Received	Quantity_Received__c	Number(18, 0)		
Total Order Cost	Total_Order_Cost__c	Formula (Currency)		
Unit Price	Unit_Price__c	Formula (Currency)		

Creating a Picklist Field in Inventory Transaction Object

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022q2z/FieldsAndRelationships/view

Setup Home Object Manager

SETUP > OBJECT MANAGER
Inventory Transaction

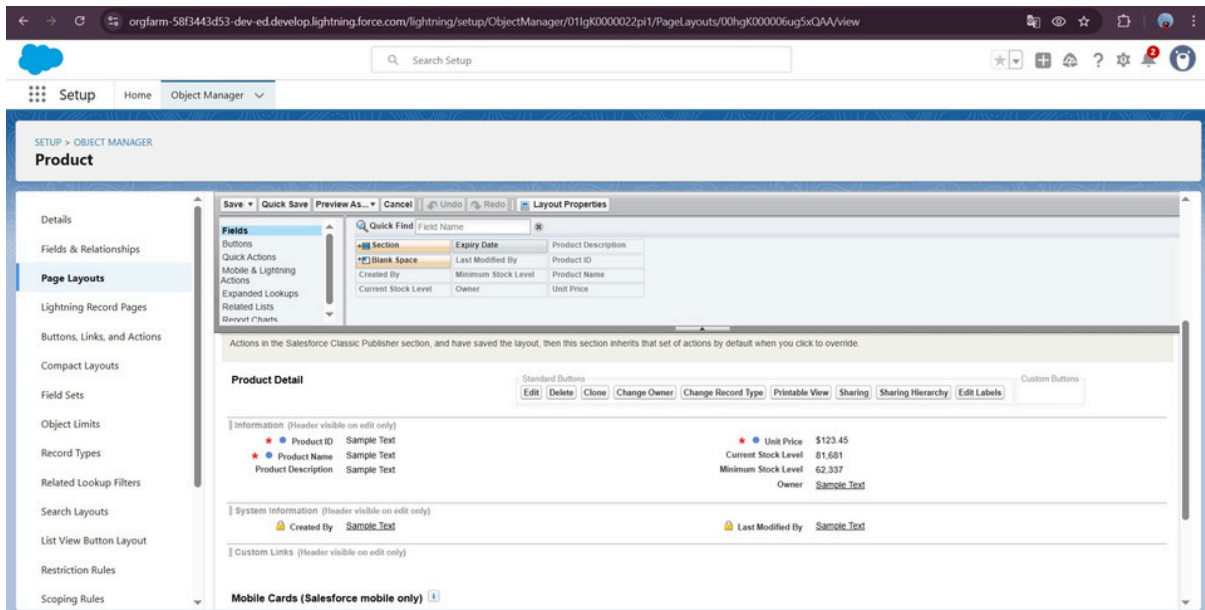
Details
Fields & Relationships
Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules

Fields & Relationships
5 Items, Sorted by Field Label

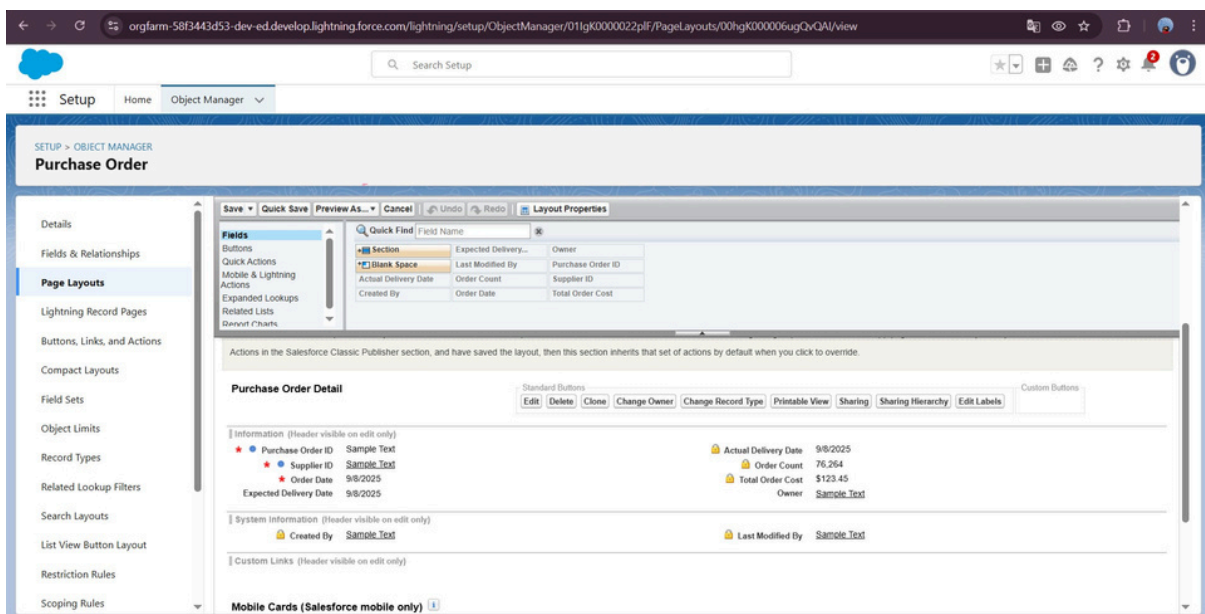
Quick Find New Deleted Fields Field Dependencies Set History Tracking

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)		
Owner	OwnerId	Lookup(User,Group)		✓
Transaction Type	Transaction_Type__c	Picklist		

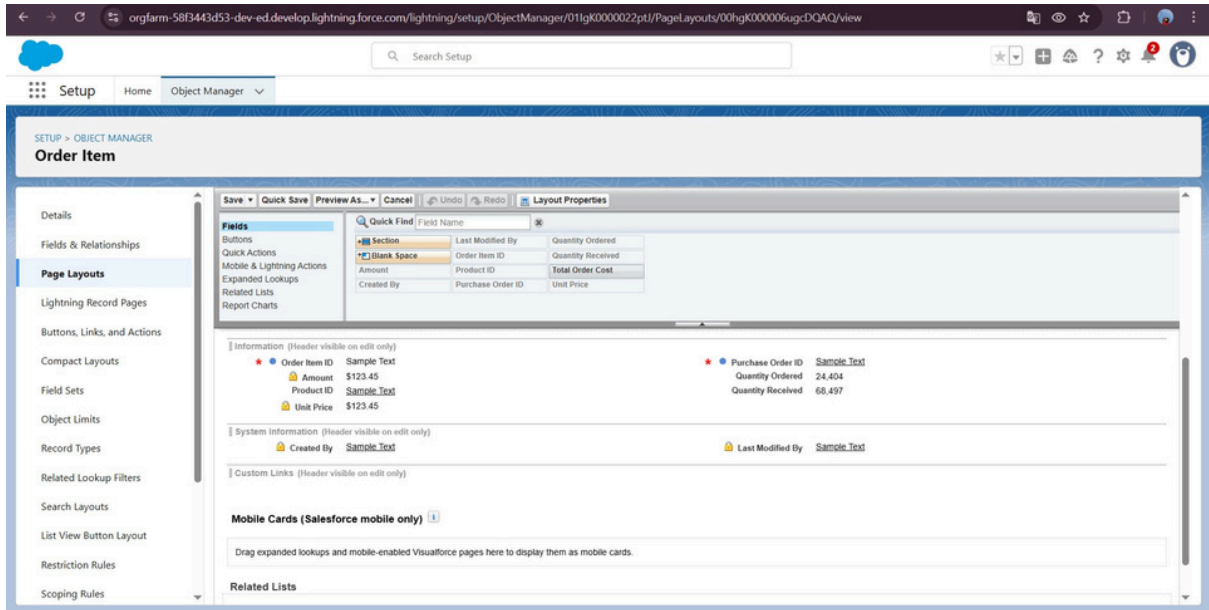
To edit a Page Layout in Product Object



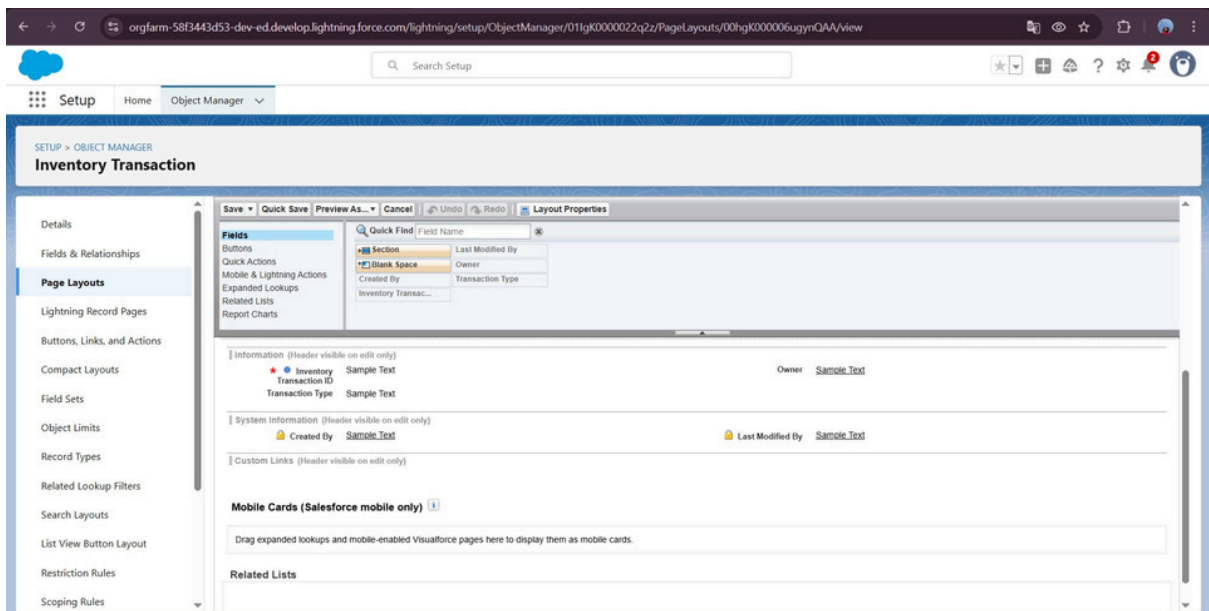
To edit a Page Layout in Purchase Order Object



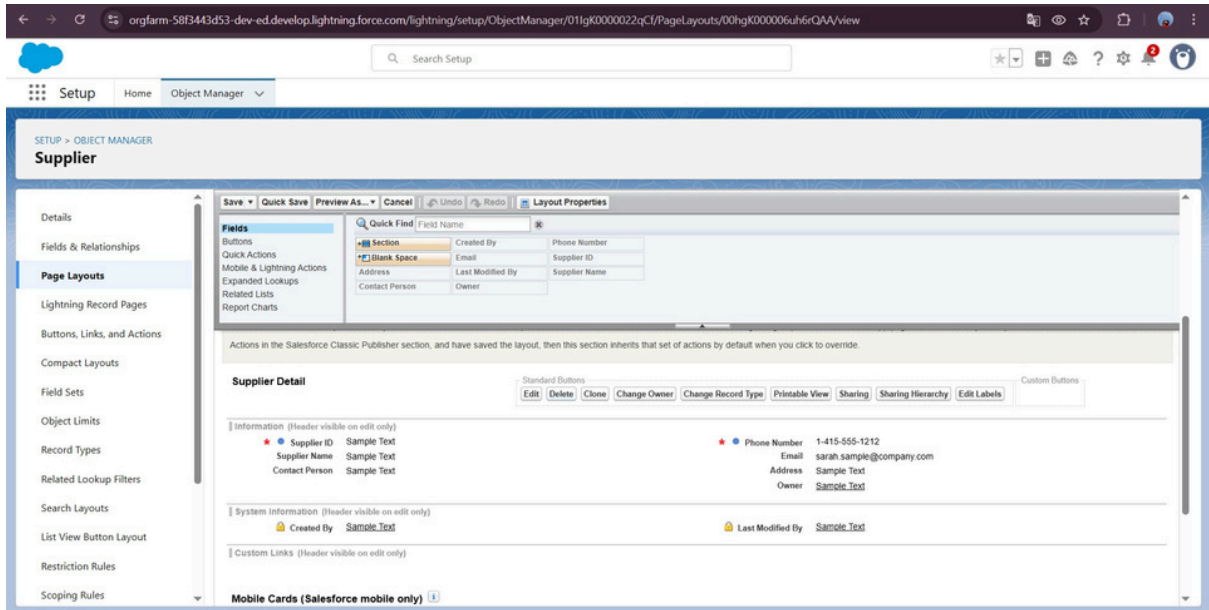
To edit a Page Layout in Order Item Object



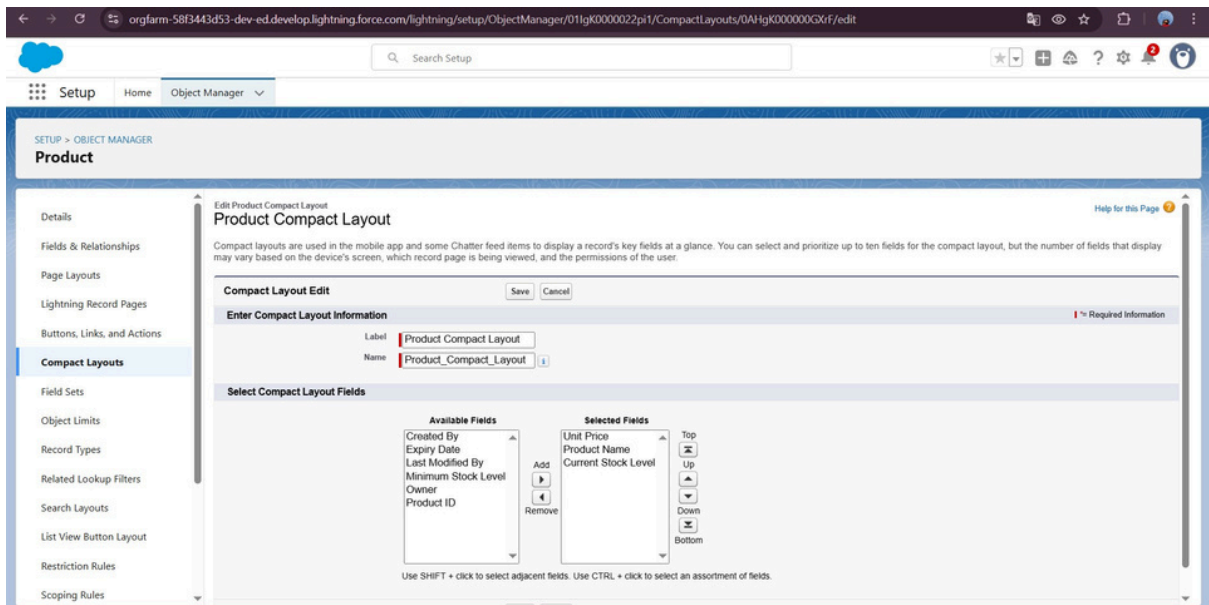
To edit a Page Layout in Inventory Transaction Object



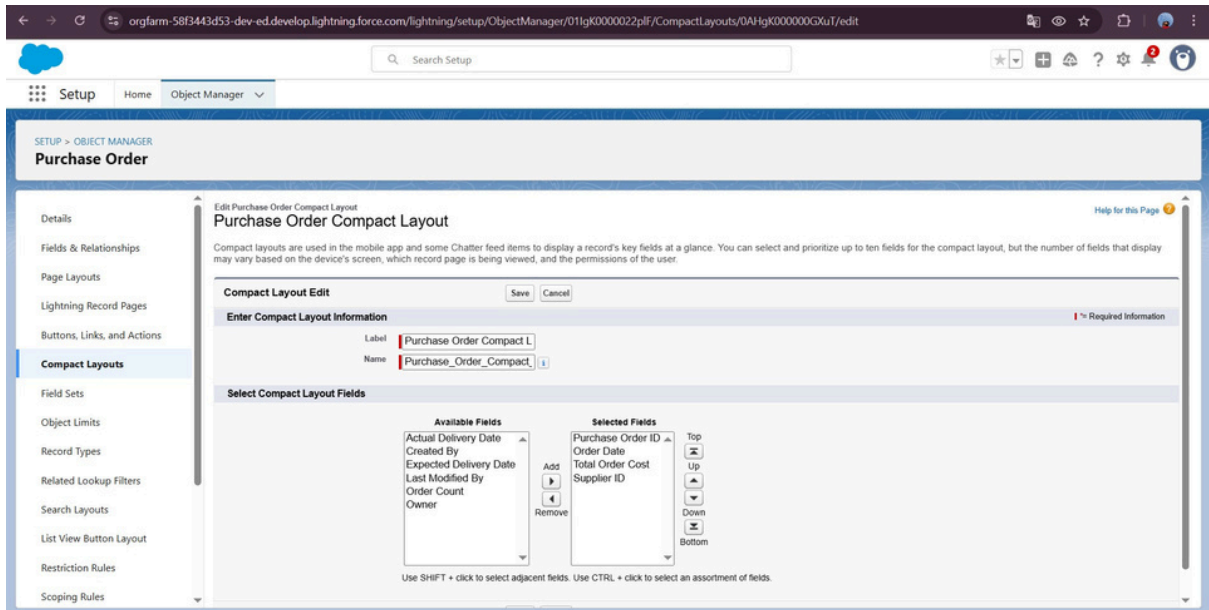
To edit a Page Layout in Supplier Object



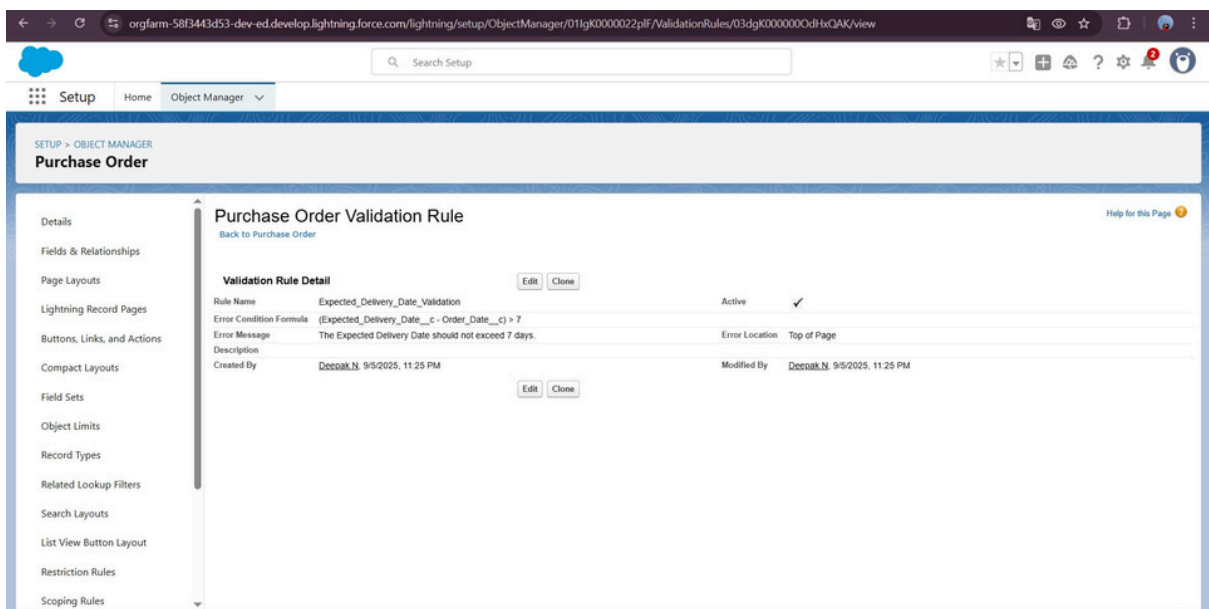
To create a Compact Layout to a Product Object



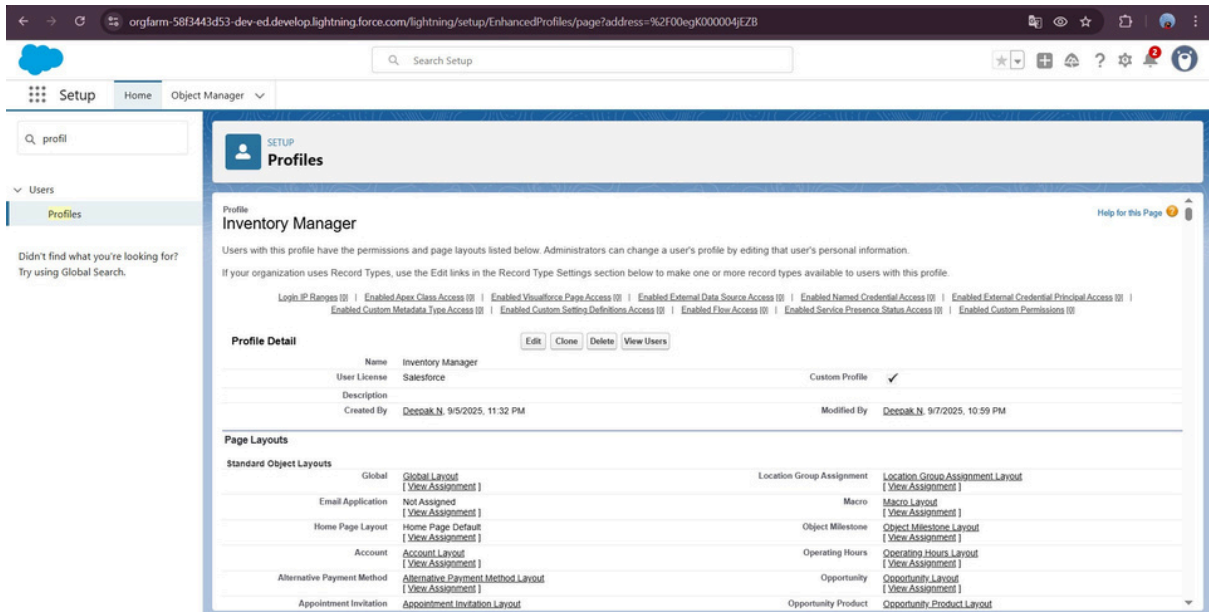
To create a Compact Layout to a Purchase Order Object



To create an Expected Delivery Date Validation rule to a Employee Object



To create an Inventory Manager Profile



The screenshot shows the Salesforce Setup interface for the 'Inventory Manager' profile. The left sidebar includes 'Setup', 'Home', and 'Object Manager'. The main content area is titled 'Profiles' and shows the 'Inventory Manager' profile details. The profile is a custom profile with the name 'Inventory Manager' and user license 'Salesforce'. It was created by 'Deepak N.' on 9/5/2025 at 11:32 PM and modified by 'Deepak N.' on 9/7/2025 at 10:59 PM. The 'Page Layouts' section lists various standard object layouts assigned to the profile, including Global Layout, Location Group Assignment Layout, Macro Layout, Object Milestone Layout, Operating Hours Layout, Opportunity Layout, and Opportunity Product Layout. A search bar at the top left of the main content area contains the text 'profil'.

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/EnhancedProfiles/page?address=%2F00egK000004fEZB

Search Setup

Setup Home Object Manager

profil

Users

Profiles

Didn't find what you're looking for? Try using Global Search.

Profile: **Inventory Manager**

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges [0] | Enabled Apex Class Access [0] | Enabled Visualforce Page Access [0] | Enabled External Data Source Access [0] | Enabled Named Credential Access [0] | Enabled External Credential Principal Access [0] | Enabled Custom Metadata Type Access [0] | Enabled Custom Setting Definition Access [0] | Enabled Flow Access [0] | Enabled Service Presence Status Access [0] | Enabled Custom Permissions [0]

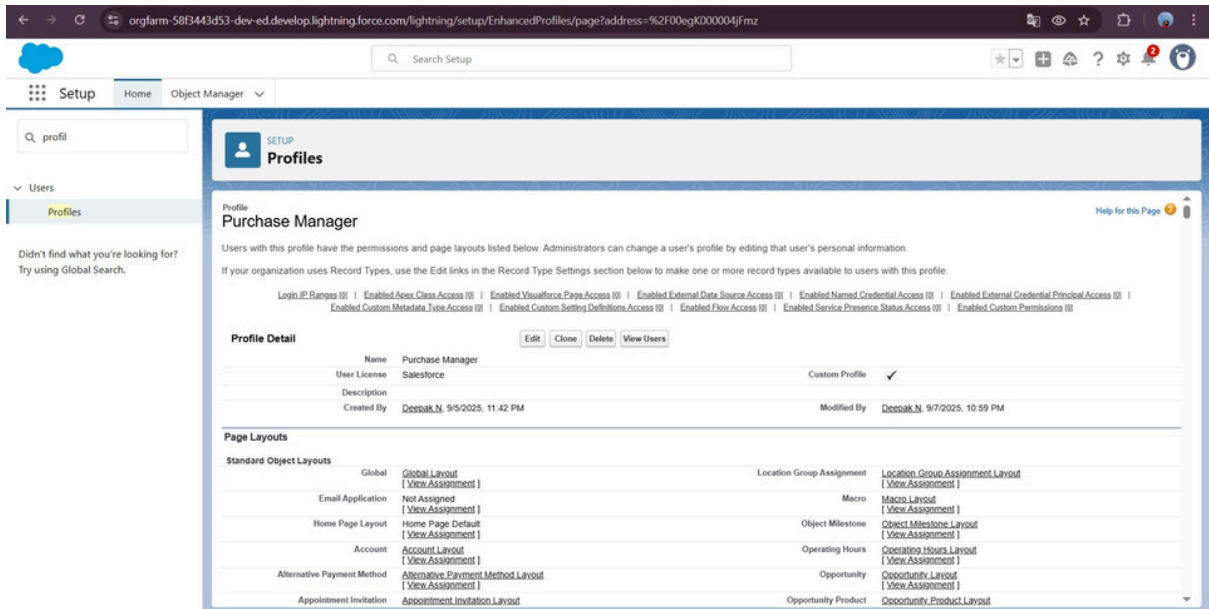
Profile Detail Edit Clone Delete View Users

Name	Inventory Manager
User License	Salesforce
Description	
Created By	Deepak N. 9/5/2025, 11:32 PM
Modified By	Deepak N. 9/7/2025, 10:59 PM

Page Layouts

Standard Object Layouts	Global	Global Layout [View Assignment]	Location Group Assignment	Location Group Assignment Layout [View Assignment]
Email Application	Not Assigned	[View Assignment]	Macro	Macro Layout [View Assignment]
Home Page Layout	Home Page Default	[View Assignment]	Object Milestone	Object Milestone Layout [View Assignment]
Account	Account Layout	[View Assignment]	Operating Hours	Operating Hours Layout [View Assignment]
Alternative Payment Method	Alternative Payment Method Layout	[View Assignment]	Opportunity	Opportunity Layout [View Assignment]
Appointment Invitation	Appointment Invitation Layout		Opportunity Product	Opportunity Product Layout

To create an Purchase Manager Profile



The screenshot shows the Salesforce Setup interface for the 'Purchase Manager' profile. The left sidebar includes 'Setup', 'Home', and 'Object Manager'. The main content area is titled 'Profiles' and shows the 'Purchase Manager' profile details. The profile is a custom profile with the name 'Purchase Manager' and user license 'Salesforce'. It was created by 'Deepak N.' on 9/5/2025 at 11:42 PM and modified by 'Deepak N.' on 9/7/2025 at 10:59 PM. The 'Page Layouts' section lists various standard object layouts assigned to the profile, including Global Layout, Location Group Assignment Layout, Macro Layout, Object Milestone Layout, Operating Hours Layout, Opportunity Layout, and Opportunity Product Layout. A search bar at the top left of the main content area contains the text 'profil'.

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/EnhancedProfiles/page?address=%2F00egK000004fFmz

Search Setup

Setup Home Object Manager

profil

Users

Profiles

Didn't find what you're looking for? Try using Global Search.

Profile: **Purchase Manager**

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges [0] | Enabled Apex Class Access [0] | Enabled Visualforce Page Access [0] | Enabled External Data Source Access [0] | Enabled Named Credential Access [0] | Enabled External Credential Principal Access [0] | Enabled Custom Metadata Type Access [0] | Enabled Custom Setting Definition Access [0] | Enabled Flow Access [0] | Enabled Service Presence Status Access [0] | Enabled Custom Permissions [0]

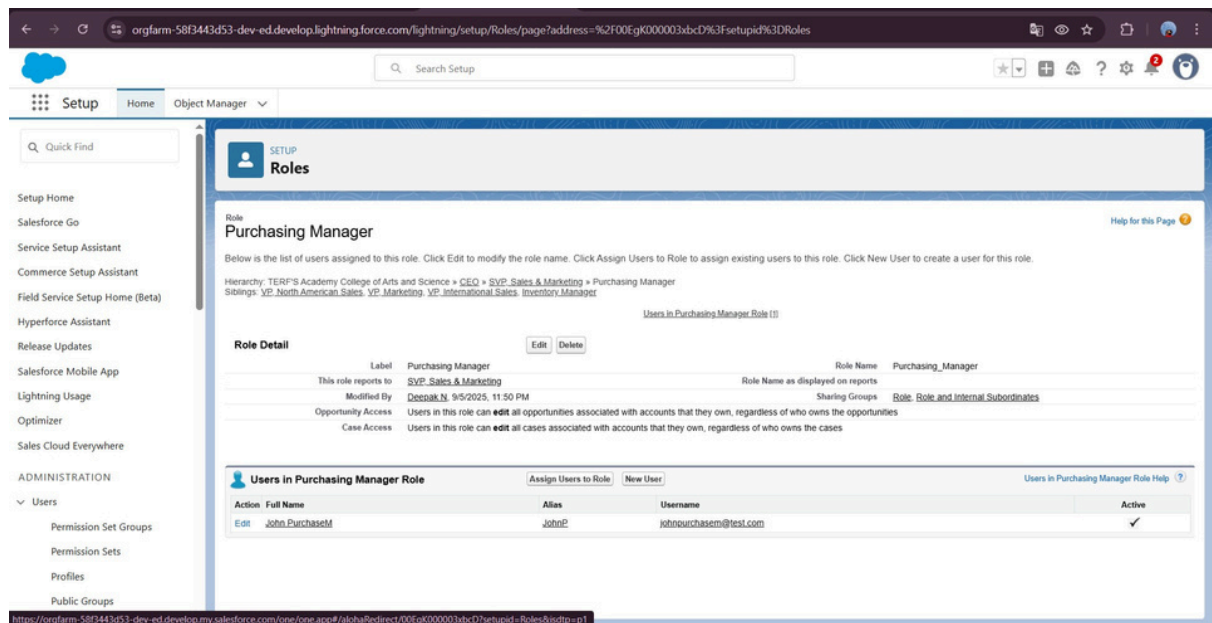
Profile Detail Edit Clone Delete View Users

Name	Purchase Manager
User License	Salesforce
Description	
Created By	Deepak N. 9/5/2025, 11:42 PM
Modified By	Deepak N. 9/7/2025, 10:59 PM

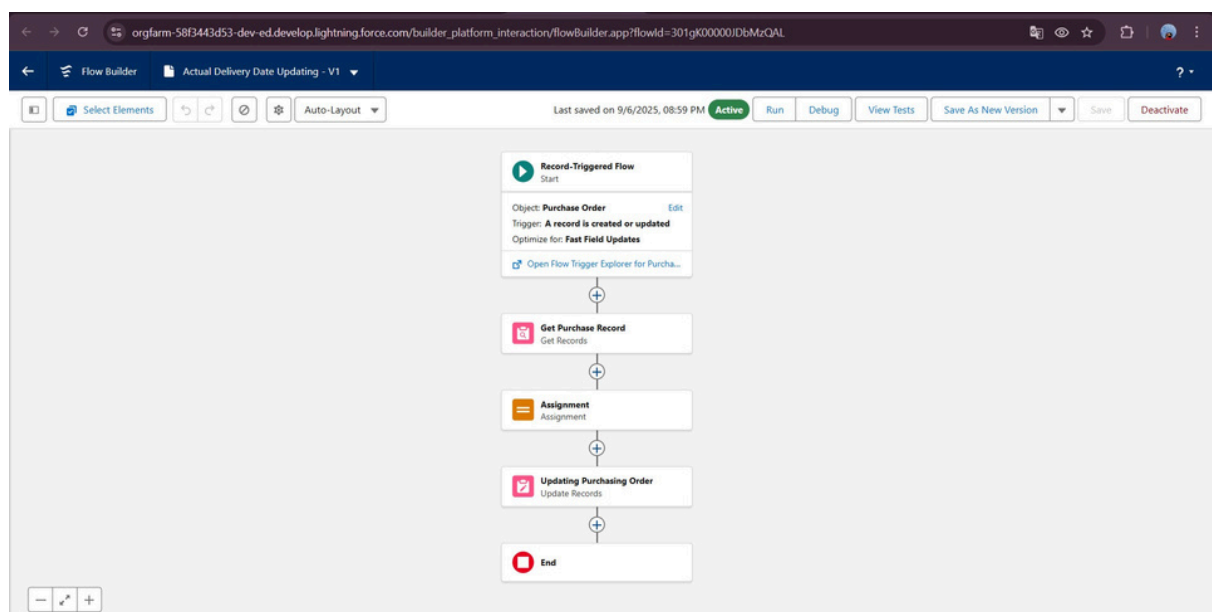
Page Layouts

Standard Object Layouts	Global	Global Layout [View Assignment]	Location Group Assignment	Location Group Assignment Layout [View Assignment]
Email Application	Not Assigned	[View Assignment]	Macro	Macro Layout [View Assignment]
Home Page Layout	Home Page Default	[View Assignment]	Object Milestone	Object Milestone Layout [View Assignment]
Account	Account Layout	[View Assignment]	Operating Hours	Operating Hours Layout [View Assignment]
Alternative Payment Method	Alternative Payment Method Layout	[View Assignment]	Opportunity	Opportunity Layout [View Assignment]
Appointment Invitation	Appointment Invitation Layout		Opportunity Product	Opportunity Product Layout

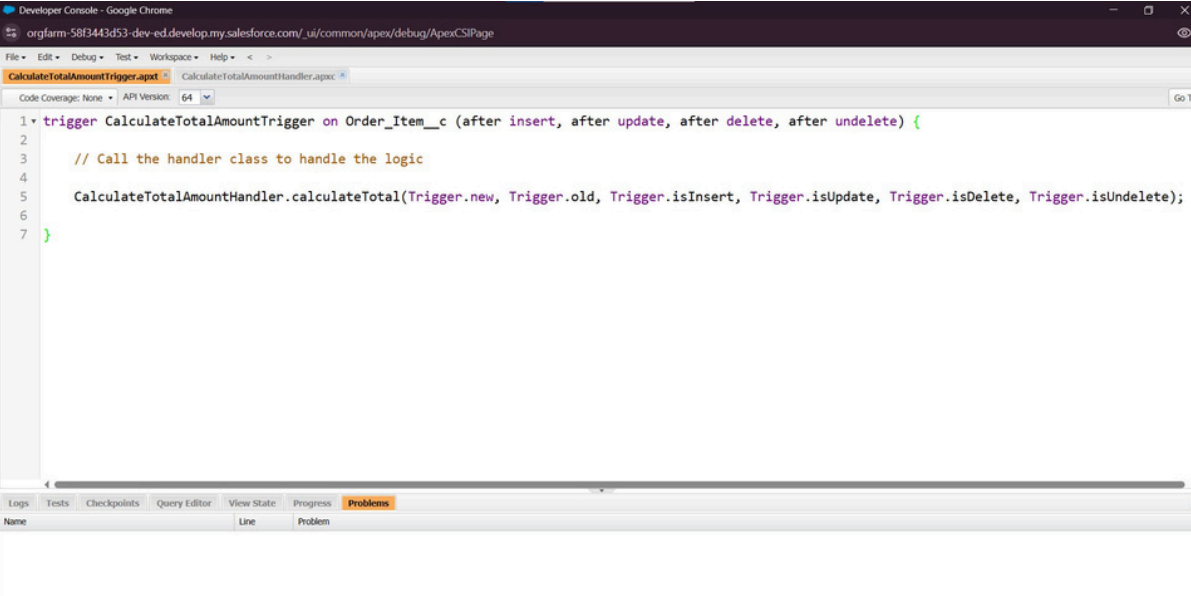
Create a Purchasing Manager Role.



Create Flow to update the Actual Delivery Date.



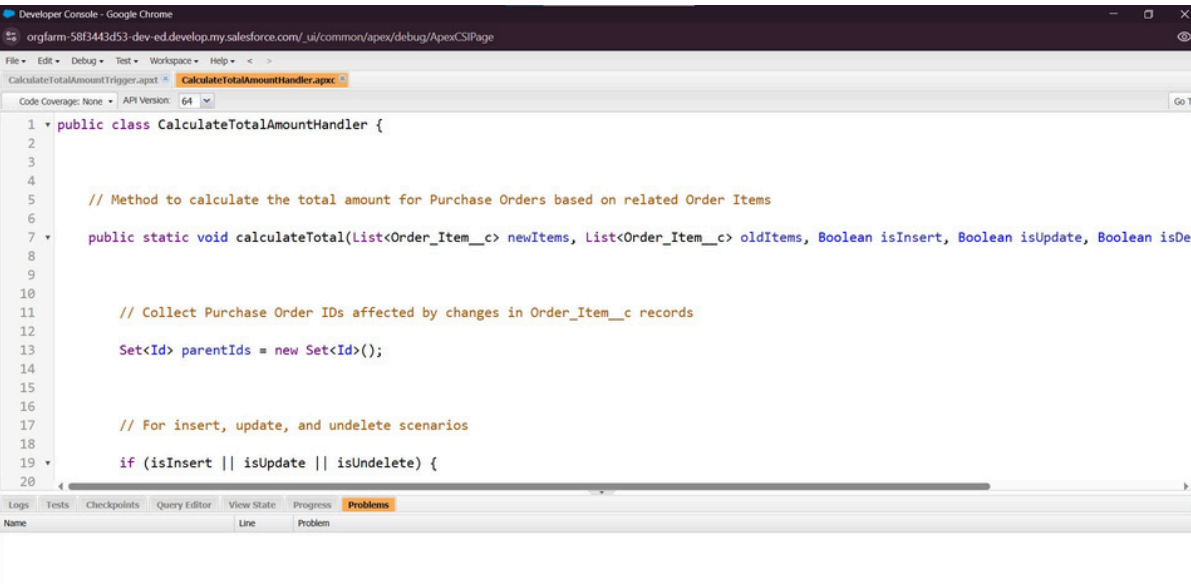
Create a Trigger to Calculate total amount on Order Item.



The screenshot shows the Salesforce Developer Console with the trigger code for `CalculateTotalAmountTrigger`. The trigger is named `CalculateTotalAmountTrigger` and is triggered on the `Order_Item__c` object for `after insert`, `after update`, `after delete`, and `after undelete` events. The trigger calls the `calculateTotal` method of the `CalculateTotalAmountHandler` class, passing `Trigger.new`, `Trigger.old`, `Trigger.isInsert`, `Trigger.isUpdate`, `Trigger.isDelete`, and `Trigger.isUndelete` as arguments.

```
1 trigger CalculateTotalAmountTrigger on Order_Item__c (after insert, after update, after delete, after undelete) {  
2  
3     // Call the handler class to handle the logic  
4  
5     CalculateTotalAmountHandler.calculateTotal(Trigger.new, Trigger.old, Trigger.isInsert, Trigger.isUpdate, Trigger.isDelete, Trigger.isUndelete);  
6  
7 }
```

Choose Apex Class: Name it as CalculateTotalAmountHandler



The screenshot shows the Salesforce Developer Console with the Apex class code for `CalculateTotalAmountHandler`. The class is named `CalculateTotalAmountHandler` and contains a `calculateTotal` method. The method takes two lists of `Order_Item__c` objects (`newItems` and `oldItems`) and three boolean parameters (`isInsert`, `isUpdate`, and `isDelete`). The method logic includes collecting parent IDs affected by changes in `Order_Item__c` records and handling insert, update, and delete scenarios.

```
1 public class CalculateTotalAmountHandler {  
2  
3  
4  
5     // Method to calculate the total amount for Purchase Orders based on related Order Items  
6  
7     public static void calculateTotal(List<Order_Item__c> newItems, List<Order_Item__c> oldItems, Boolean isInsert, Boolean isUpdate, Boolean isDelete) {  
8  
9  
10  
11         // Collect Purchase Order IDs affected by changes in Order_Item__c records  
12  
13         Set<Id> parentIds = new Set<Id>();  
14  
15  
16  
17         // For insert, update, and undelete scenarios  
18  
19         if (isInsert || isUpdate || isDelete) {  
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Create a Purchase Orders based on Suppliers(Summary) Report

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Medical Inventory ... Products Purchase Orders Order Items Inventory Transactions Suppliers Reports Dashboards

Report: Purchase Orders
Purchase Orders based on Suppliers

Enable Field Editing Add Chart Edit

Total Records: 5
Total Order Count: 14
Total Total Order Cost: \$26,325.00

Supplier ID	Purchase Order: Purchase Order ID	Order Count	Total Order Cost
Supplier-001 (4)	Purchase-0001 (1)	3	\$2,075.00
	Purchase-0002 (1)	2	\$3,250.00
	Purchase-0003 (1)	3	\$7,000.00
	Purchase-0004 (1)	4	\$9,500.00
Supplier-002 (1)	Purchase-0005 (1)	2	\$4,500.00
Total (5)		14	\$26,325.00

Row Counts: ☒ Detail Rows: ☒ Subtotals: ☐ Grand Total: ☒

Create a Complete Purchase Details Report

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Medical Inventory ... Products Purchase Orders Order Items Inventory Transactions Suppliers Reports Dashboards

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

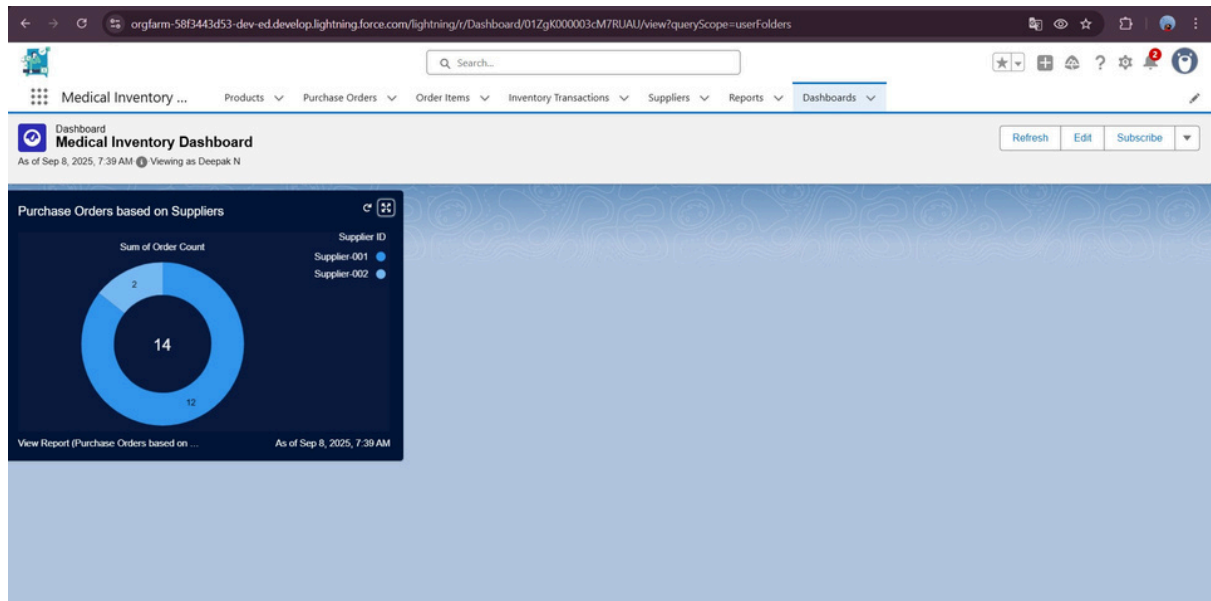
Enable Field Editing Add Chart Edit

Total Records: 14
Total Order Count: 14
Total Quantity Received: 276
Total Amount: \$26,325.00

Supplier ID	Actual Delivery Date	Purchase Order: Purchase Order ID	Product ID: Product ID	Order Count	Product ID: Product Name	Quantity Received	Amount
Supplier-001 (12)	9/10/2025 (4)	Purchase-0004 (4)	Antibiotic Tablets	4	Antibiotic Tablets	40	\$6,000.00
			Paracetamol	4	Paracetamol 500mg	20	\$500.00
			Vitamin C Tablets	4	Vitamin C Tablets	10	\$500.00
			Antacid	4	Antacid	25	\$2,500.00
	Subtotal			4		95	\$9,500.00
				4		95	\$9,500.00
	9/11/2025 (8)	Purchase-0001 (3)	Antibiotic Tablets	3	Antibiotic Tablets	10	\$1,500.00
			Paracetamol	3	Paracetamol 500mg	7	\$175.00
			Antacid	3	Antacid	4	\$400.00
				3		21	\$2,075.00
	Subtotal			3		25	\$3,250.00
				2		25	\$3,250.00
	Purchase-0002 (2)		Antibiotic Tablets	2	Antibiotic Tablets	15	\$2,250.00
			Antacid	2	Antacid	10	\$1,000.00
				2		25	\$3,250.00
				2		25	\$3,250.00
	Subtotal			2		25	\$3,250.00
				2		25	\$3,250.00
	Purchase-0003 (3)		Antibiotic Tablets	3	Antibiotic Tablets	24	\$3,600.00
			Paracetamol	3	Paracetamol 500mg	56	\$1,400.00
				3		56	\$1,400.00
				3		56	\$1,400.00

Row Counts: ☒ Detail Rows: ☒ Subtotals: ☒ Grand Total: ☒

View Dashboard



RESULTS

- Tabs for Product, Supplier, Purchase Order, Inventory.
- Reports for Expired Products and Supplier Performance.
- Dashboard showing Stock Levels and Purchase Order Summary.
- Trigger execution results (auto-calculated total order amount).
- Validation Rule error messages (when wrong data is entered).

ADVANTAGES & DISADVANTAGES

Advantages

- Accurate tracking of products and expiry dates.
- Easy management of supplier and purchase orders.
- Reduced manual work with automation (flows and triggers).
- Visual dashboards for quick decision-making.

Disadvantages

- Requires Salesforce knowledge for customization.
- Limited offline functionality.
- Integration with external systems (e.g., hospital management software) not implemented yet.

APPENDIX

Create an Apex Trigger:

```
trigger CalculateTotalAmountTrigger on Order_Item__c (after insert, after update, after delete, after undelete) {
```

```
    // Call the handler class to handle the logic
```

```
    CalculateTotalAmountHandler.calculateTotal(trigger.new, trigger.old, trigger.isInsert, trigger.isUpdate, trigger.isDelete, trigger.isUndelete);
}
```

Create Apex Class:

```
public class CalculateTotalAmountHandler {
```

```
    // Method to calculate the total amount for Purchase Orders based on related Order Items
```

```
    public static void calculateTotal(List<Order_Item__c> newItems, List<Order_Item__c> oldItems, Boolean isInsert, Boolean isUpdate, Boolean isDelete, Boolean isUndelete) {
```

```
        // Collect Purchase Order IDs affected by changes in Order_Item__c records
        Set<Id> parentIds = new Set<Id>();
```

```
        // For insert, update, and undelete scenarios
```

```
        if (isInsert || isUpdate || isUndelete) {
            for (Order_Item__c ordItem : newItems) {
                parentIds.add(ordItem.Purchase_Order_Id__c);
            }
        }
```

```
        // For update and delete scenarios
```

```
        if (isUpdate || isDelete) {
            for (Order_Item__c ordItem : oldItems) {
                parentIds.add(ordItem.Purchase_Order_Id__c);
            }
        }
    }
```

```

//Calculate the total amounts for affected Purchase Orders
Map<Id, Decimal> purchaseToUpdateMap = new Map<Id, Decimal>();

if(!parentIds.isEmpty()) {
    //Perform an aggregate query to sum the Amount__c for each Purchase Order
    List<AggregateResult> aggrList = [
        SELECT Purchase_Order_Id__c, SUM(Amount__c) totalAmount
        FROM Order_Item__c
        WHERE Purchase_Order_Id__c IN :parentIds
        GROUP BY Purchase_Order_Id__c
    ];

    //Map the result to Purchase Order IDs
    for(AggregateResult aggr : aggrList) {
        Id purchaseOrderId = (Id)aggr.get('Purchase_Order_Id__c');
        Decimal totalAmount = (Decimal)aggr.get('totalAmount');
        purchaseToUpdateMap.put(purchaseOrderId, totalAmount);
    }

    //Prepare Purchase Order records for update
    List<Purchase_Order__c> purchaseToUpdate = new
    List<Purchase_Order__c>();
    for(Id purchaseOrderId : purchaseToUpdateMap.keySet()) {
        Purchase_Order__c purchaseOrder = new Purchase_Order__c(Id =
        purchaseOrderId, Total_Order_cost__c = purchaseToUpdateMap.get(purchaseOrderId));
        purchaseToUpdate.add(purchaseOrder);
    }

    //Update Purchase Orders if there are any changes
    if(!purchaseToUpdate.isEmpty()) {
        update purchaseToUpdate;
    }
}
}
}

```

Future Enhancements

- Add **barcode scanning** for products to make stock entry faster.
- Implement **email orSMSalerts** for products nearing expiry.
- Create **mobile-friendly pages** for quick access by staff.
- Add **AI predictions** for stock demand and reordering.
- Integrate with **external hospital systems** for real-time updates.

CONCLUSION

The Medical Inventory Management System successfully streamlines the operations of managing medical supplies using Salesforce. It ensures better accuracy, reduces errors, and improves efficiency in handling suppliers, purchase orders, and products. With features like validation rules, flows, triggers, reports, and dashboards, the project demonstrates the practical use of Salesforce in real-time business scenarios.