

# **PROJECT TITLE: Medical Inventory Management System**

**College Name:** KG College of Arts and Science

**TEAM ID:** NM2025TMID23842

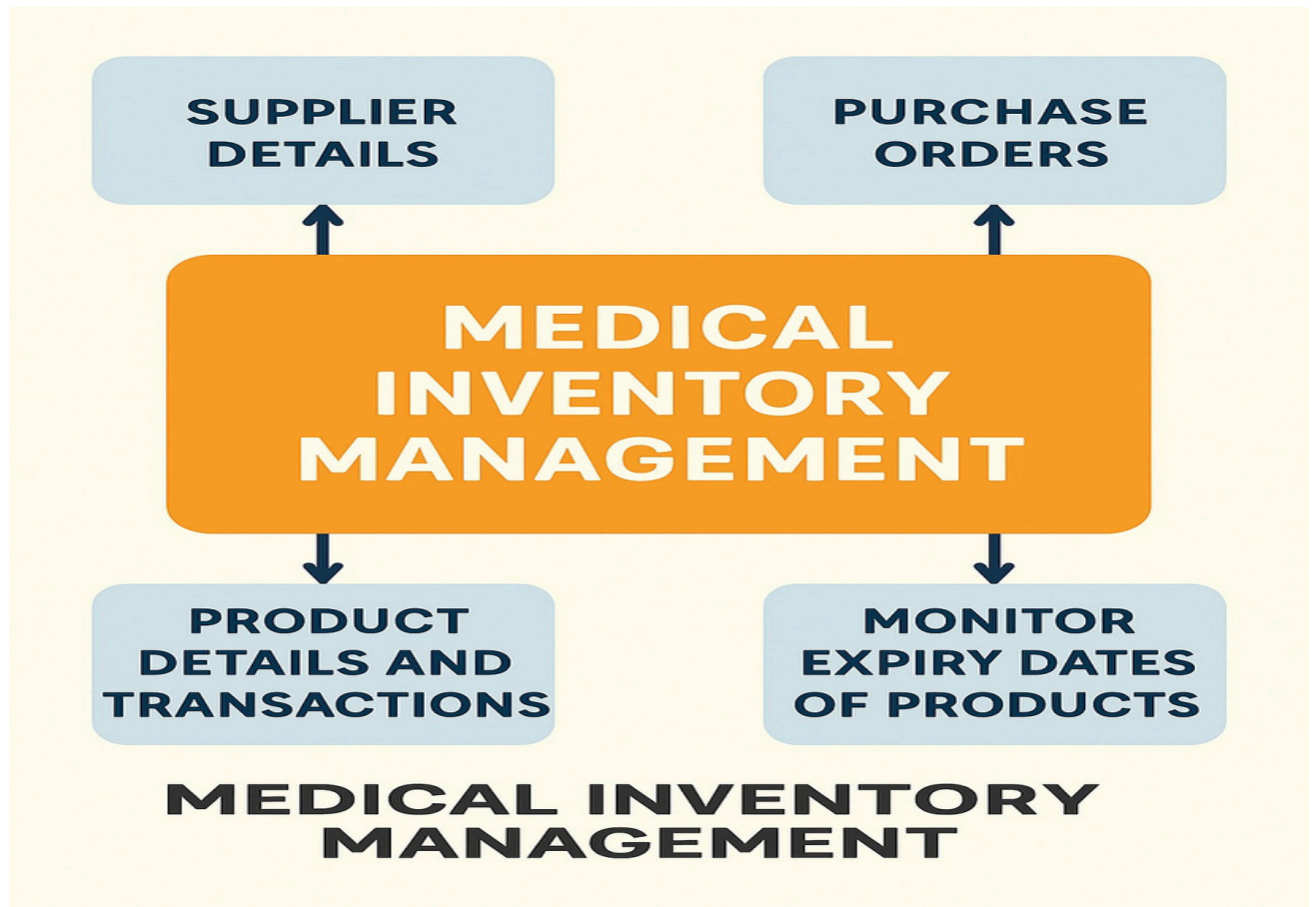
## **TEAM MEMBERS:**

- **Team Leader Name:** RASIGAA L – 2326jb34@kgcas.com
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- **Team Member 2** SABAREESH S – 2326jb36@kgcas.com
- **Team Member 3:** RITHICK SMK – 2326jb35@kgcas.com

## **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/](https://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](https://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  
✓

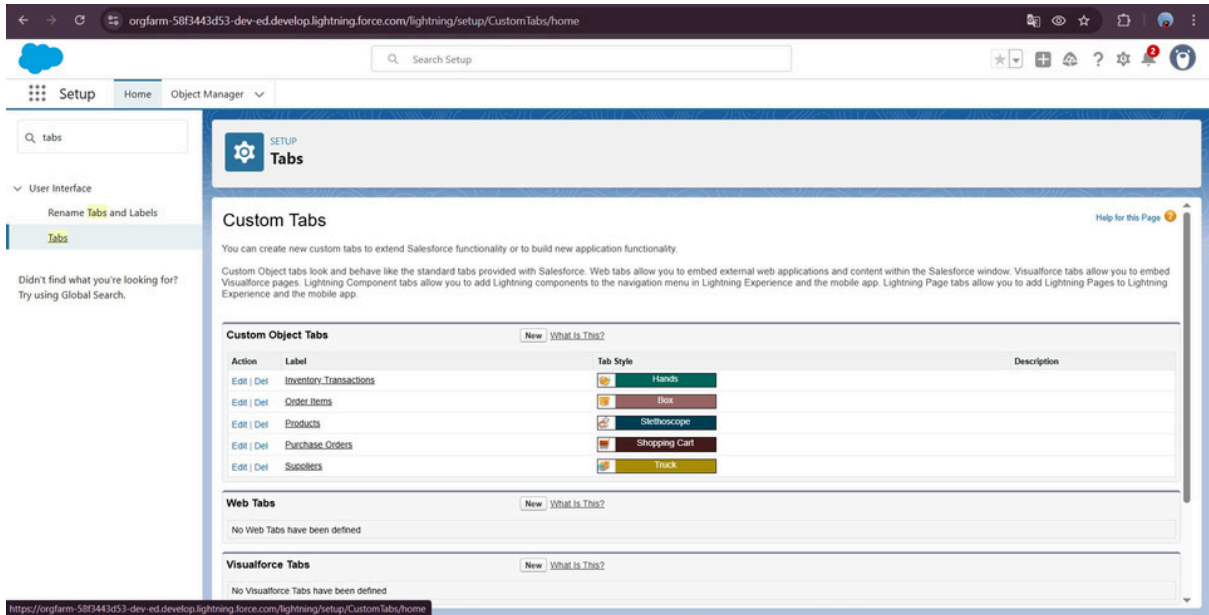
Track Activities

Track Field History

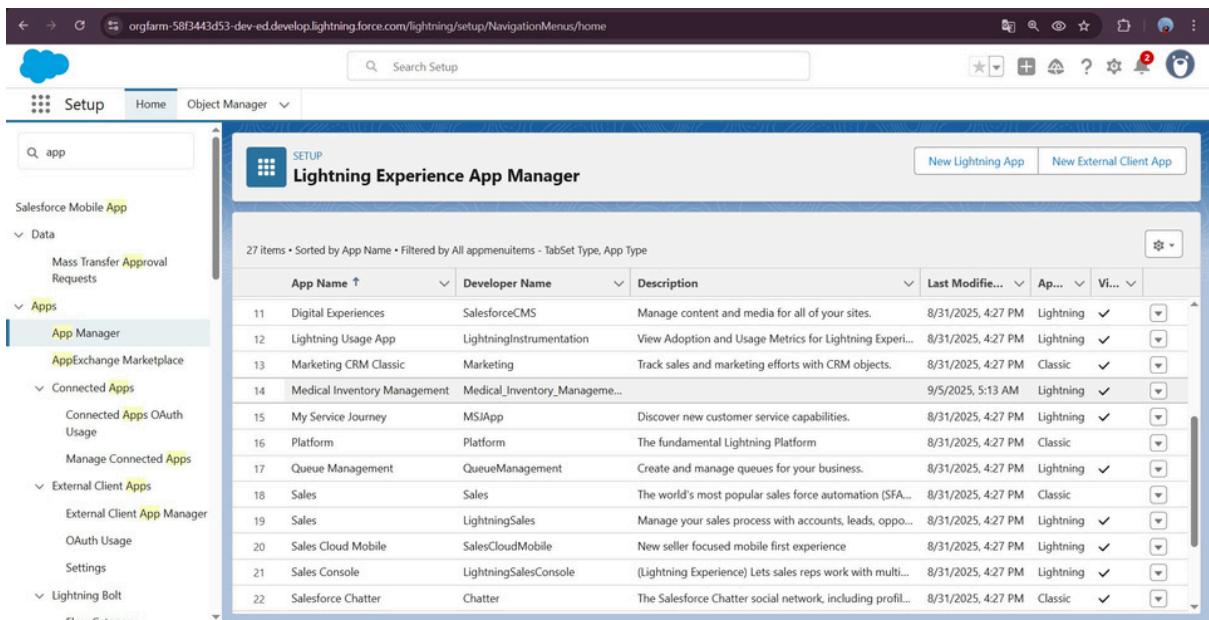
Deployment Status  
Deployed

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

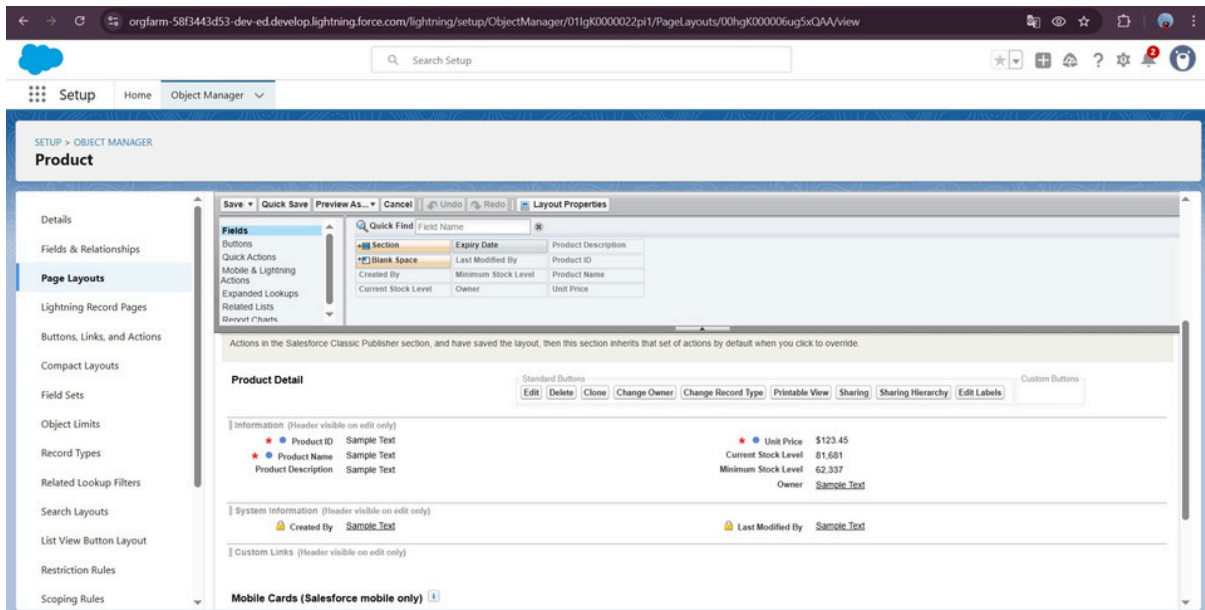
Fields & Relationships  
5 Items, Sorted by Field Label

Quick Find New Deleted Fields Field Dependencies Set History Tracking

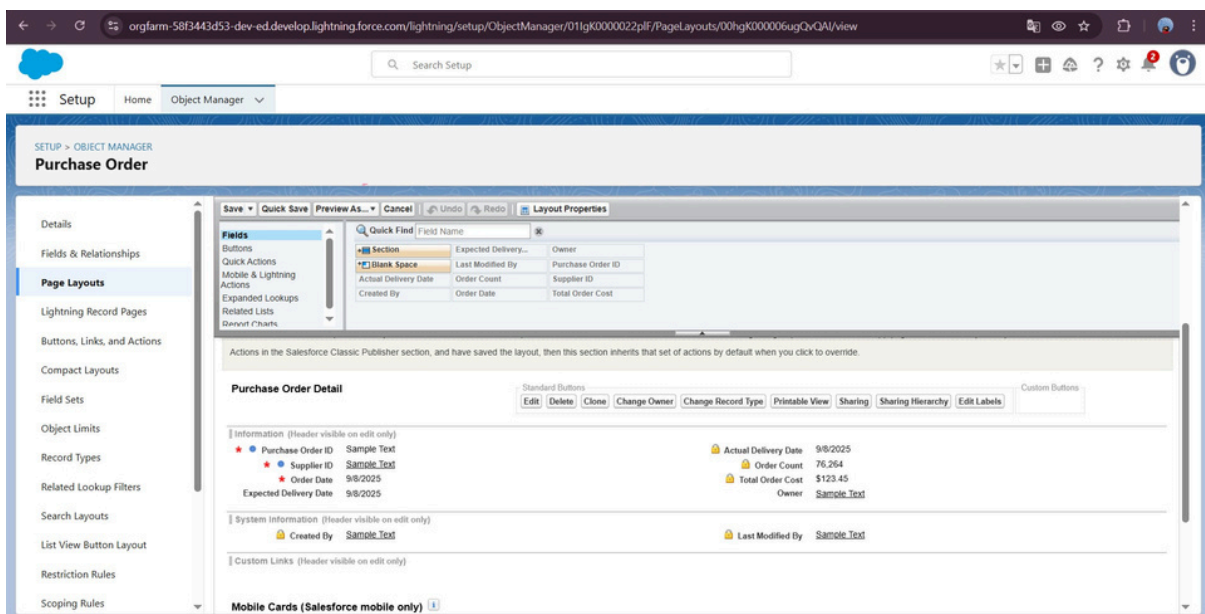
FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Inventory Transaction ID	Name	Text(80)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Owner	OwnerId	Lookup(User,Group)		✓
Transaction Type	Transaction_Type__c	Picklist		

## To edit a Page Layout in Product Object

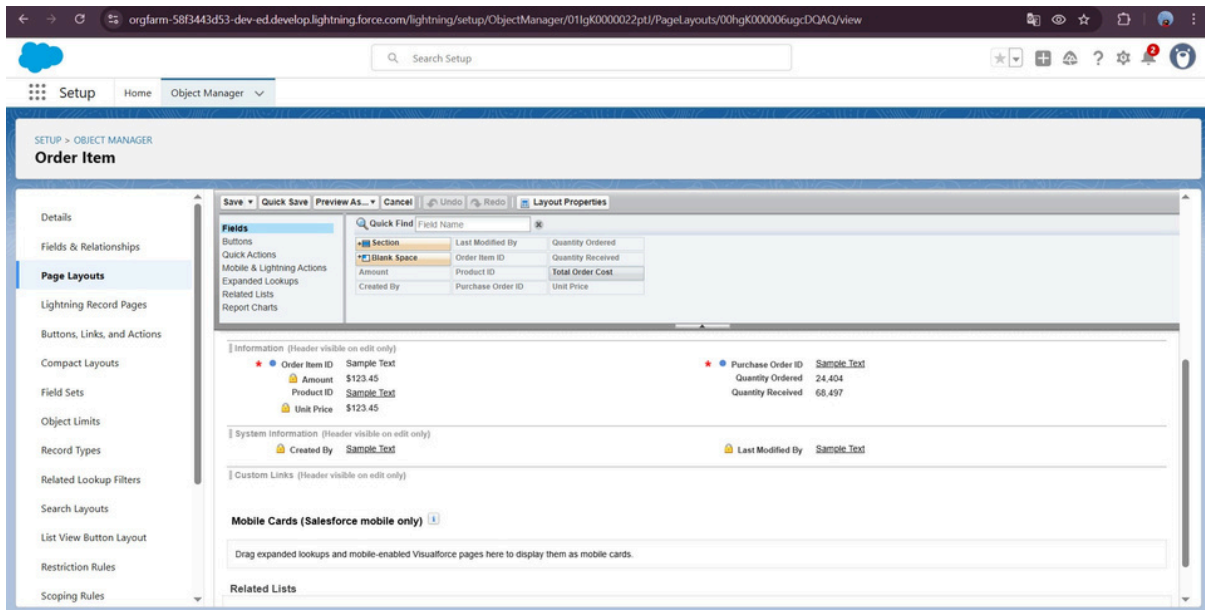




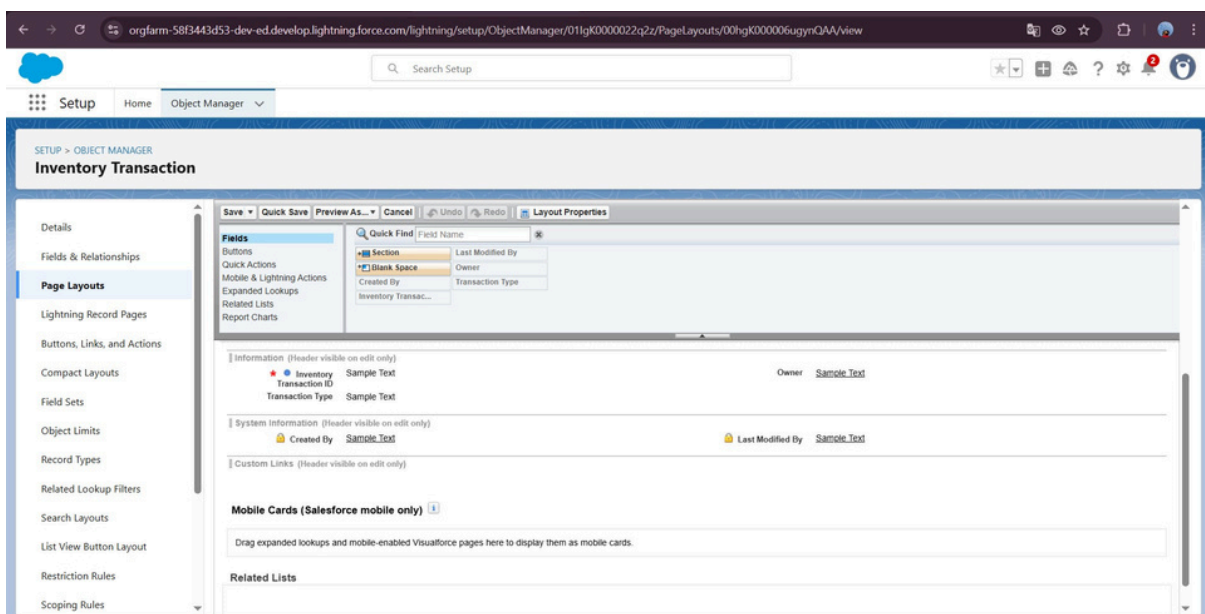
## To edit a Page Layout in Purchase Order Object



## To edit a Page Layout in Order Item Object

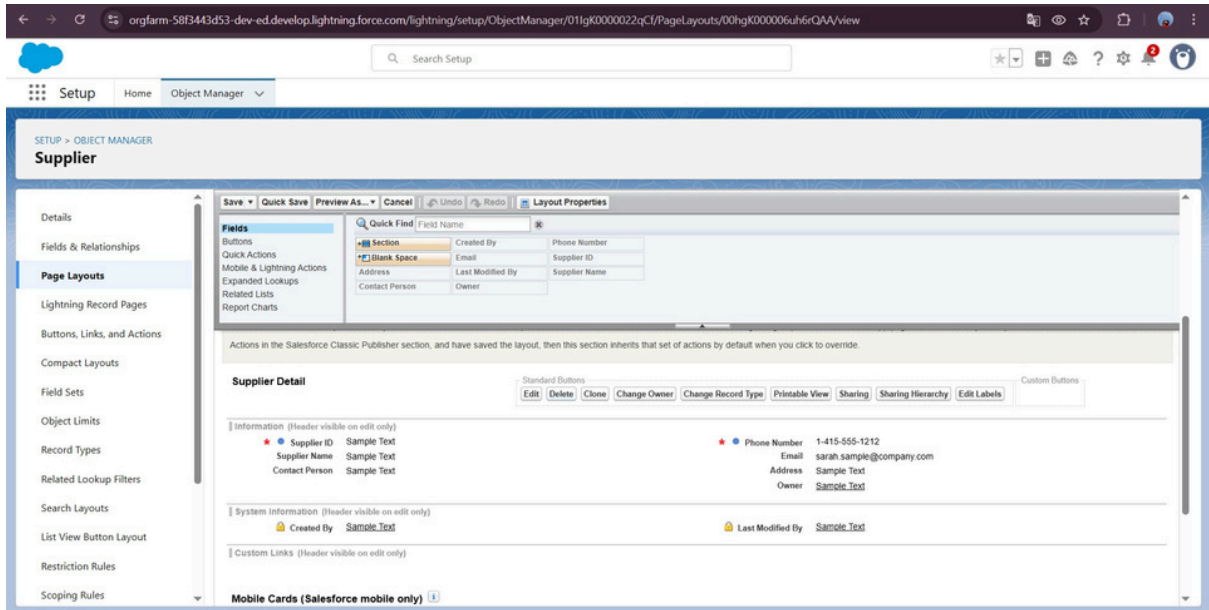


## To edit a Page Layout in Inventory Transaction Object

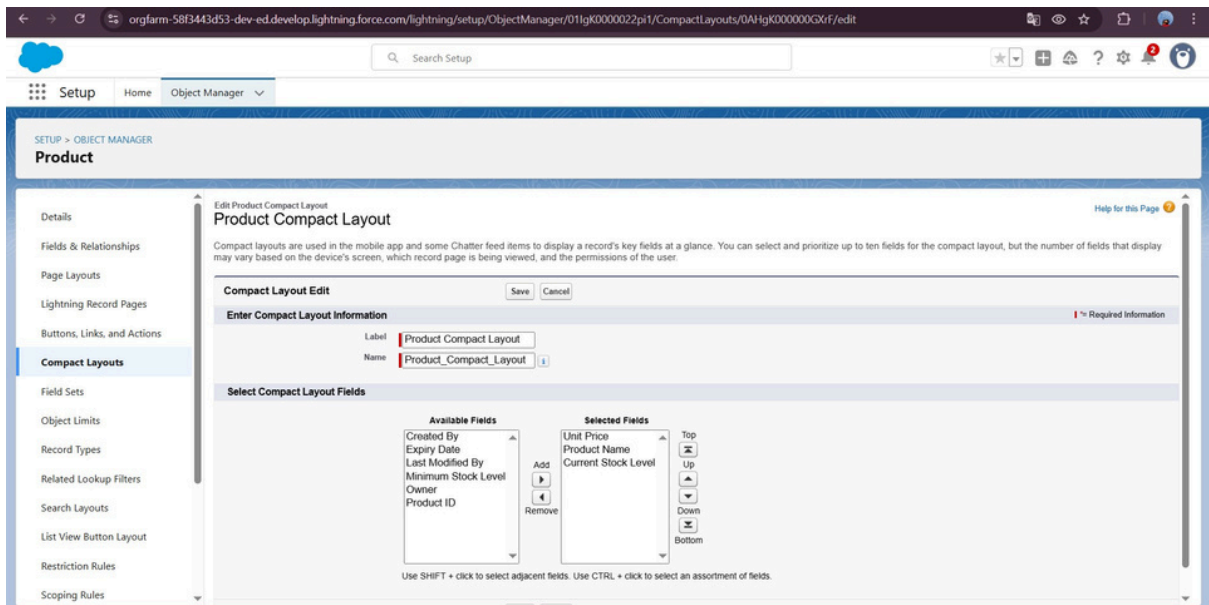


## To edit a Page Layout in Supplier Object





To create a Compact Layout to a Product Object



To create a Compact Layout to a Purchase Order Object

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022plf/CompactLayouts/0AHgK000000GXuT/edit

Setup Home Object Manager

SETUP > OBJECT MANAGER

### Purchase Order

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

#### Edit Purchase Order Compact Layout

Purchase Order Compact Layout

Compact layouts are used in the mobile app and some Chatter feed items to display a record's key fields at a glance. You can select and prioritize up to ten fields for the compact layout, but the number of fields that display may vary based on the device's screen, which record page is being viewed, and the permissions of the user.

Compact Layout Edit

Save Cancel

Enter Compact Layout Information

Label Purchase Order Compact L

Name Purchase\_Order\_Compact

Select Compact Layout Fields

Available Fields

- Actual Delivery Date
- Created By
- Expected Delivery Date
- Last Modified By
- Order Count
- Owner

Add Remove

Selected Fields

- Purchase Order ID
- Order Date
- Total Order Cost
- Supplier ID

Top Up Down Bottom

Use SHIFT + click to select adjacent fields. Use CTRL + click to select an assortment of fields.

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

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/setup/ObjectManager/01lgK0000022plf/ValidationRules/03dgK000000OdfhCQAK/view

Setup Home Object Manager

SETUP > OBJECT MANAGER

### Purchase Order

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

#### Purchase Order Validation Rule

Back to Purchase Order

Validation Rule Detail

Rule Name Expected\_Delivery\_Date\_Validation

Active ☒

Error Condition Formula  $(\text{Expected\_Delivery\_Date\_c} - \text{Order\_Date\_c}) > 7$

Error Message The Expected Delivery Date should not exceed 7 days.

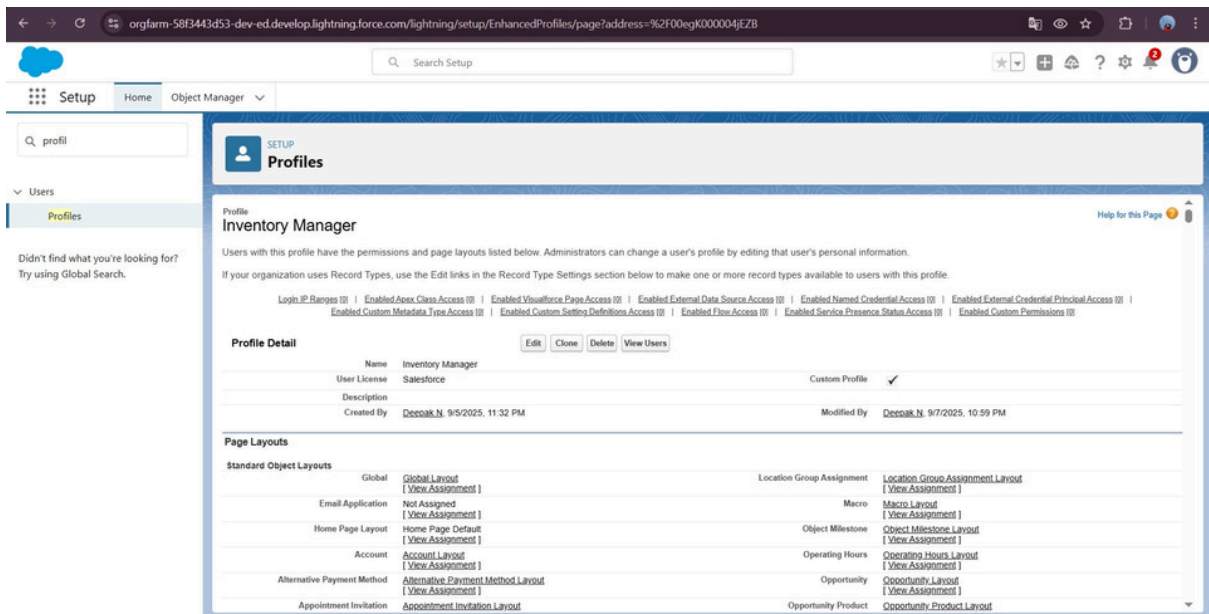
Error Location Top of Page

Description

Created By Deepak N. 9/5/2025, 11:25 PM

Modified By Deepak N. 9/5/2025, 11:25 PM

## To create an Inventory Manager Profile



The screenshot shows the Salesforce Setup interface for the 'Inventory Manager' profile. The left sidebar contains 'Setup', 'Home', and 'Object Manager'. The main content area is titled 'Profiles' and shows the 'Inventory Manager' profile details. The profile is created by 'Deepak N.' on 9/5/2025 at 11:32 PM. The 'Page Layouts' section lists various 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.

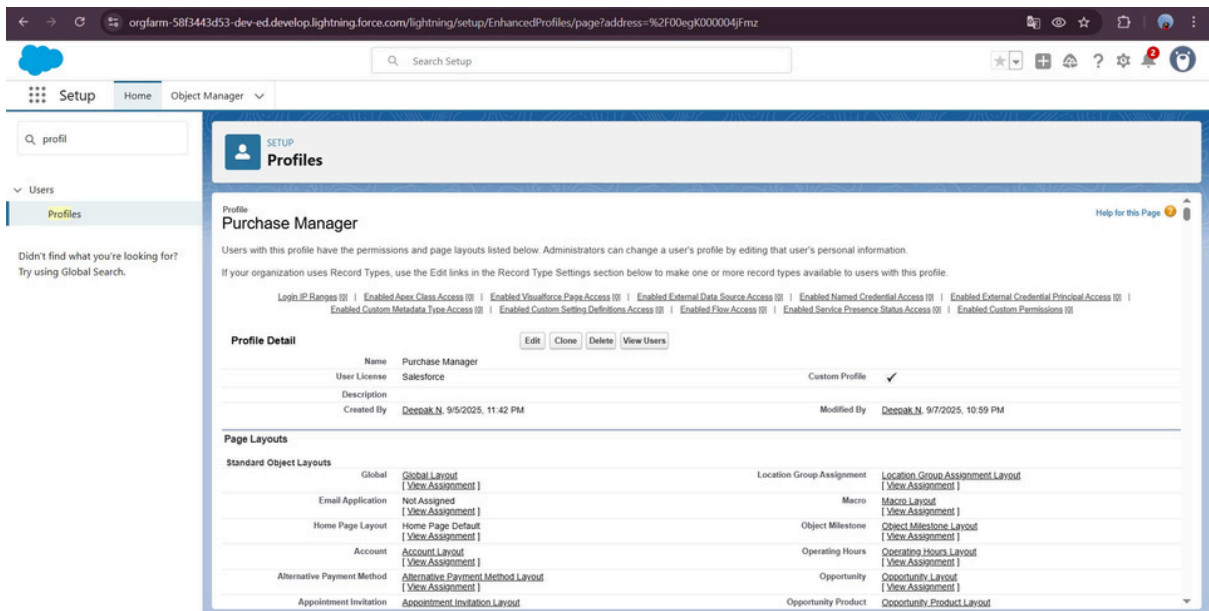
**Profile Detail**

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 contains 'Setup', 'Home', and 'Object Manager'. The main content area is titled 'Profiles' and shows the 'Purchase Manager' profile details. The profile is created by 'Deepak N.' on 9/5/2025 at 11:42 PM. The 'Page Layouts' section lists various 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.

**Profile Detail**

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.

The screenshot shows the Salesforce Setup interface for the 'Roles' section. The 'Purchasing Manager' role is selected. The page displays the role's details, including its label, hierarchy, and sharing groups. Below the details, there is a table listing the users assigned to this role.

**Role Detail**

Field	Value
Label	Purchasing Manager
This role reports to	SVP_Sales & Marketing
Modified By	Deepak N. 9/5/2025, 11:50 PM
Opportunity Access	Users in this role can <b>edit</b> all opportunities associated with accounts that they own, regardless of who owns the opportunities
Case Access	Users in this role can <b>edit</b> all cases associated with accounts that they own, regardless of who owns the cases

**Users in Purchasing Manager Role**

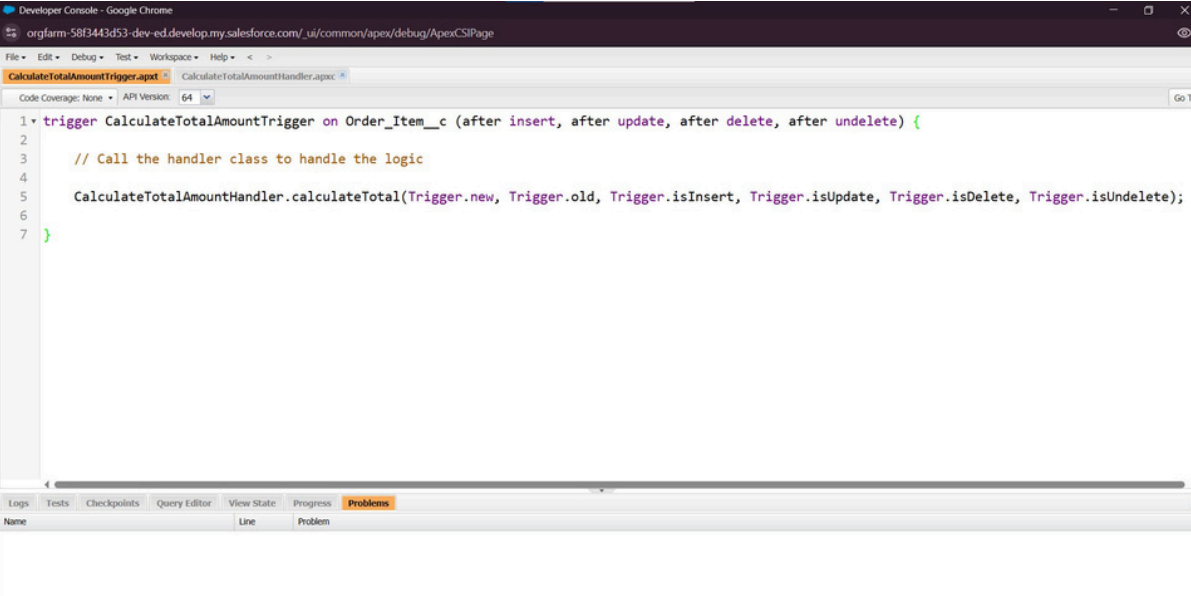
Action	Full Name	Alias	Username	Active
Edit	John PurchaseM	JohnP	johnnpurchaseM@test.com	✓

## Create Flow to update the Actual Delivery Date.

The screenshot shows the Salesforce Flow Builder interface for a 'Record-Triggered Flow'. The flow is triggered by a 'Purchase Order' record being created or updated. The flow steps are as follows:

- Record-Triggered Flow** (Start)
- Get Purchase Record** (Get Records)
- Assignment** (Assignment)
- Updating Purchasing Order** (Update Records)
- End**

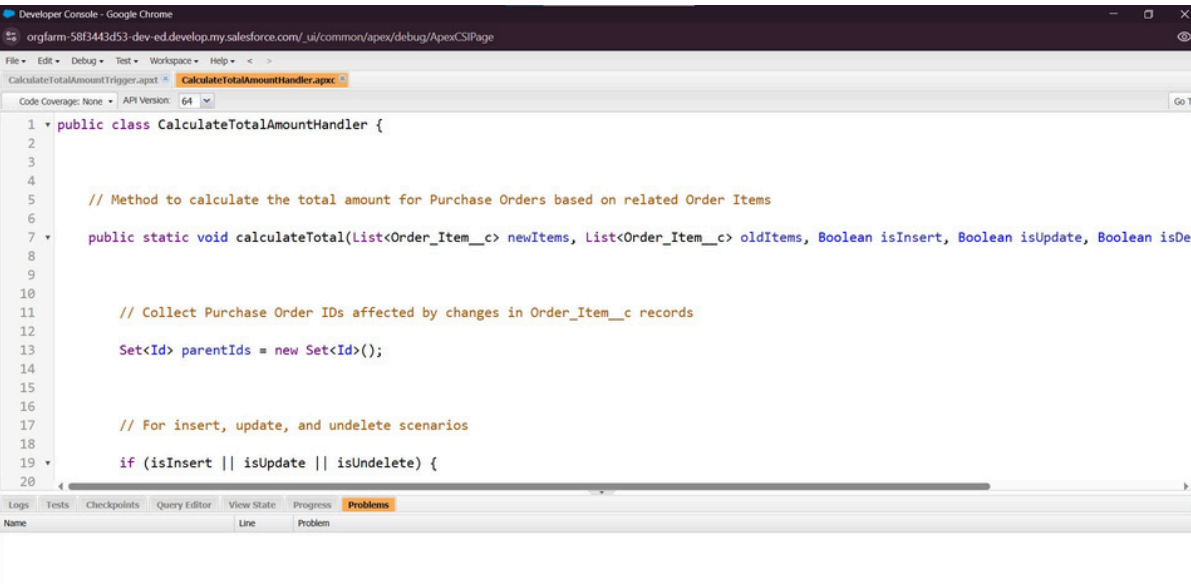
## Create a Trigger to Calculate total amount on Order Item.



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) {  
20  
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## Create a Purchase Orders based on Suppliers(Summary) Report

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/r/Report/000GK000004qqrhUAA/view?queryScope=userFolders

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

orgfarm-58f3443d53-dev-ed.develop.lightning.force.com/lightning/r/Report/000GK000004qgIBUAQ/view?queryScope=userFolders

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

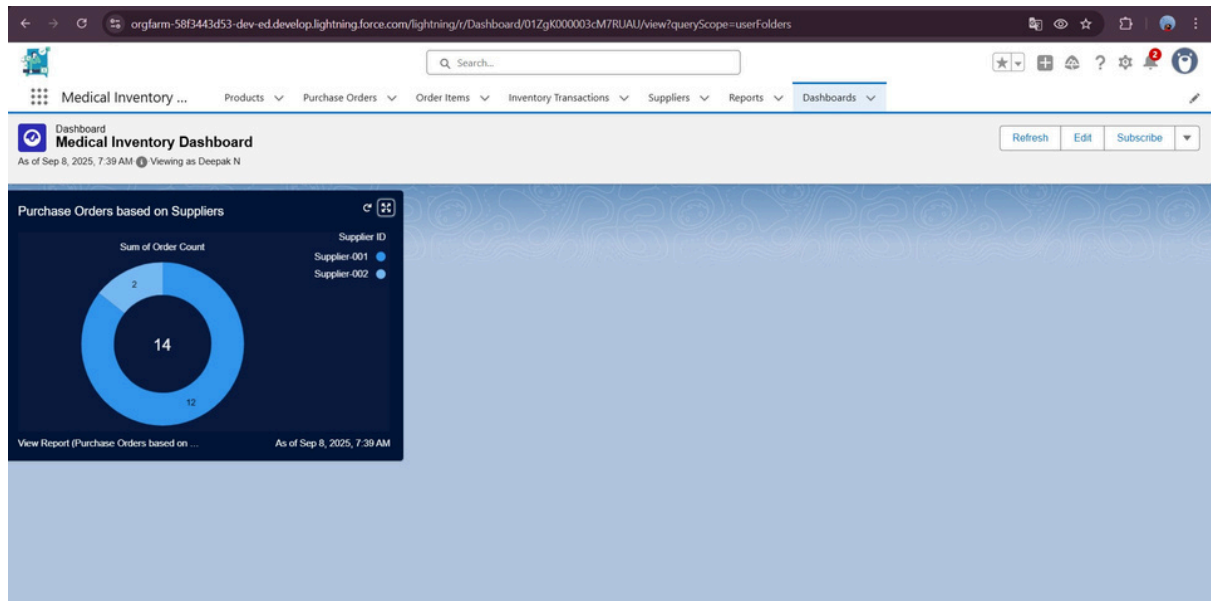
Total Records: 14  
Total Order Count: 14  
Total Quantity Received: 276  
Total Amount: \$26,325.00

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
			Subtotal	3		21	\$2,075.00
		Purchase-0002 (2)	Antibiotic Tablets	2	Antibiotic Tablets	15	\$2,250.00
			Antacid	2	Antacid	10	\$1,000.00
			Subtotal	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

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.