Medical Inventory Management

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Project Overview

The **Medical Inventory Management System** is designed to automate and streamline the process of managing medical supplies, purchase orders, stock levels, and supplier details within a healthcare or pharmacy environment. The system ensures accurate tracking of product information, supplier interactions, inventory transactions, and purchase activities — all within a unified Salesforce platform.

This project leverages Salesforce's automation tools such as **Flows, Validation Rules, Triggers, and Apex Classes** to manage product details, monitor purchase activity, and maintain optimal stock levels. By digitizing manual processes, the system improves operational efficiency and minimizes human errors in inventory control.

2. Objective

The main goal of the Medical Inventory Management System is to provide a **centralized and automated platform** for managing medical product data, supplier relationships, and inventory movements.

Business Goals:

A. **Automate Inventory Processes:** Create a seamless workflow for tracking purchase orders, supplier details, and product stock updates.
B. **Optimize Stock Levels:** Prevent overstocking or shortages by maintaining real-time visibility of inventory quantities.
C. **Improve Supplier Management:** Establish accurate and transparent communication between the purchasing and supplier departments.
D. **Enhance Decision-Making:** Provide real-time data through reports and dashboards for better forecasting and analysis.
E. **Reduce Manual Effort:** Use automation, formulas, and triggers to eliminate repetitive tasks and maintain data consistency.

## 3. Salesforce Key Features and Concepts Utilized

The Medical Inventory Management System uses several Salesforce components and features to efficiently handle the end-to-end medical inventory workflow.

Custom Objects

1. **Product:** Stores detailed information about each medical item such as product name, description, stock level, and unit price.
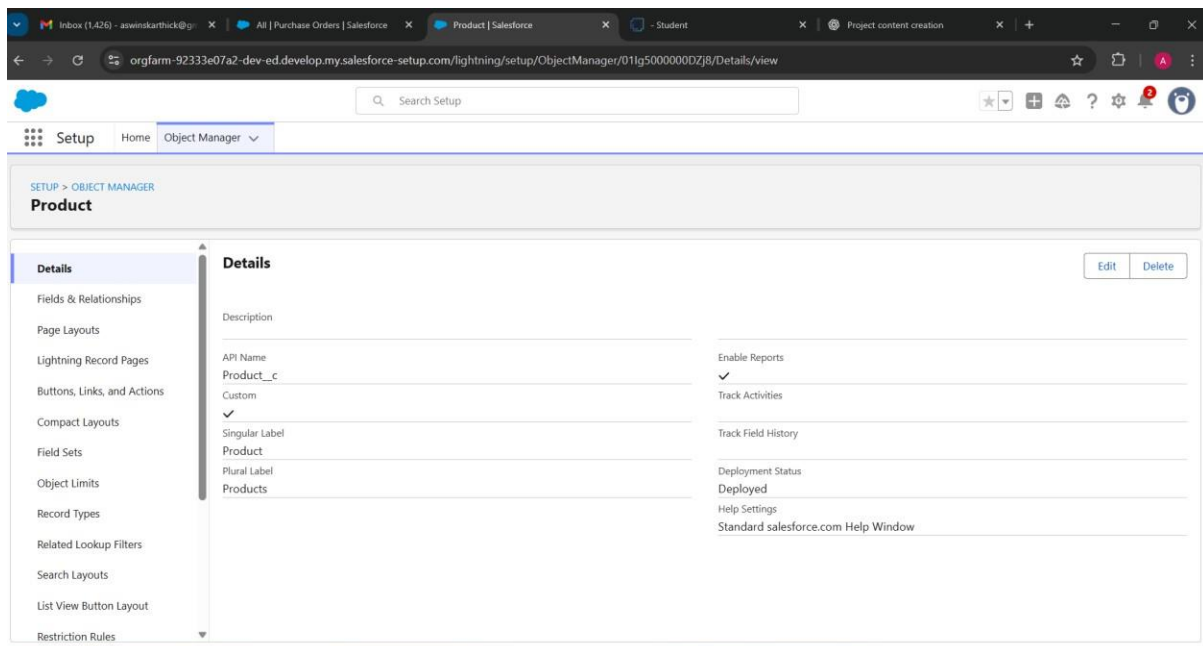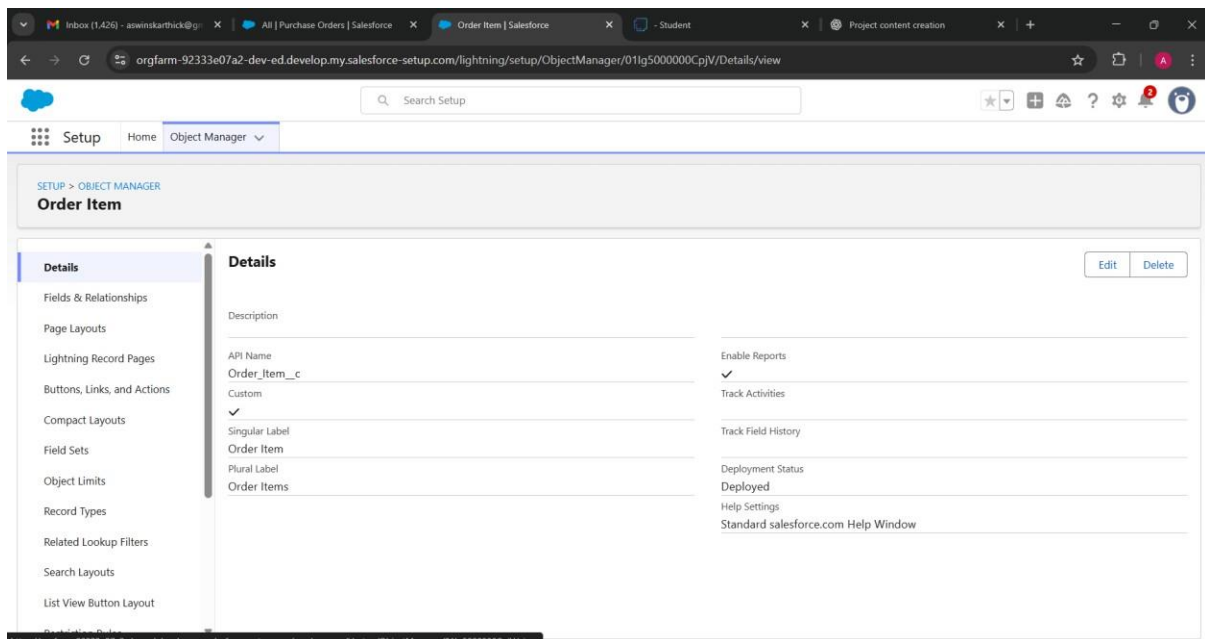

2. **Purchase Order:** Manages purchase-related information like supplier details, order date, and total order cost.
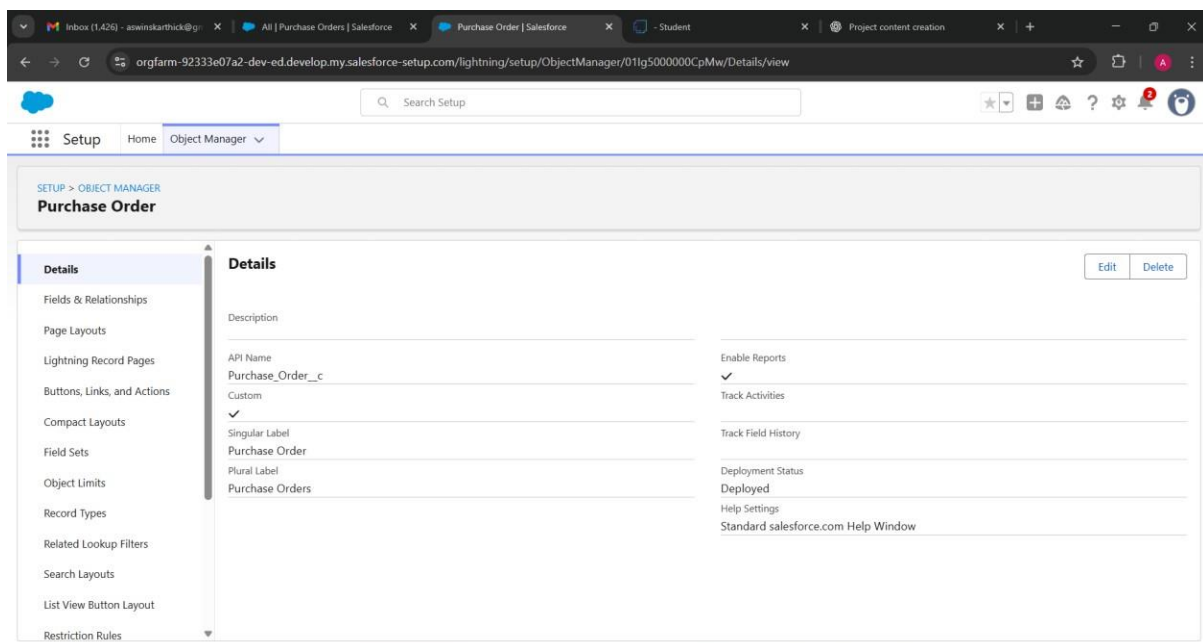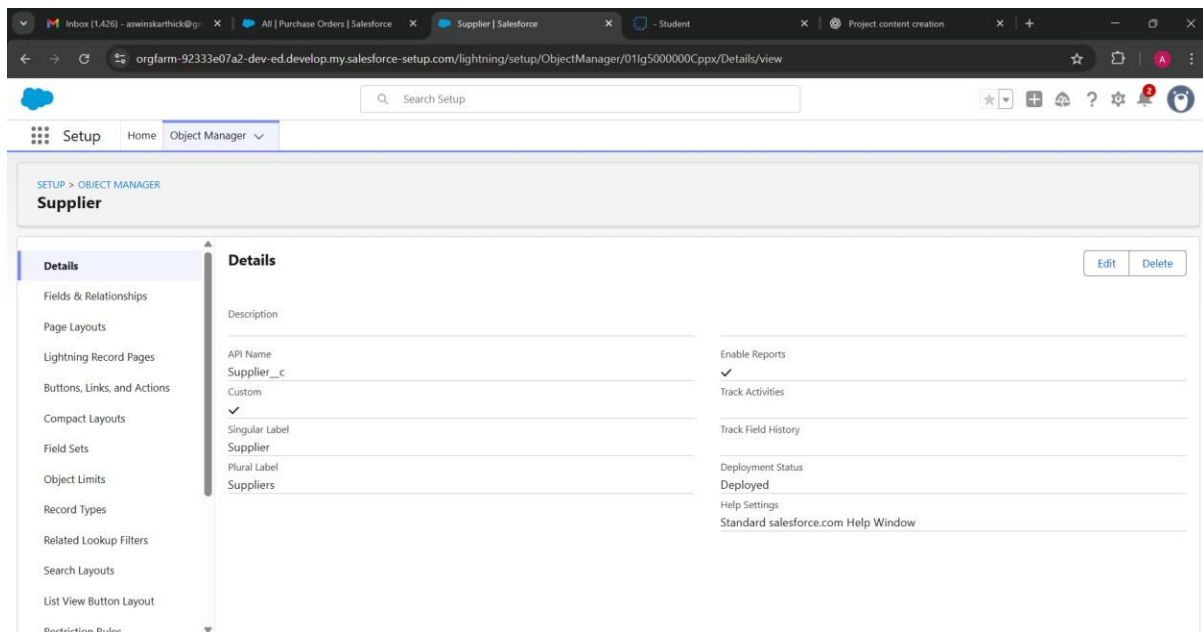

3. **Order Item:** Tracks individual items purchased within a specific purchase order, including quantity received and price.
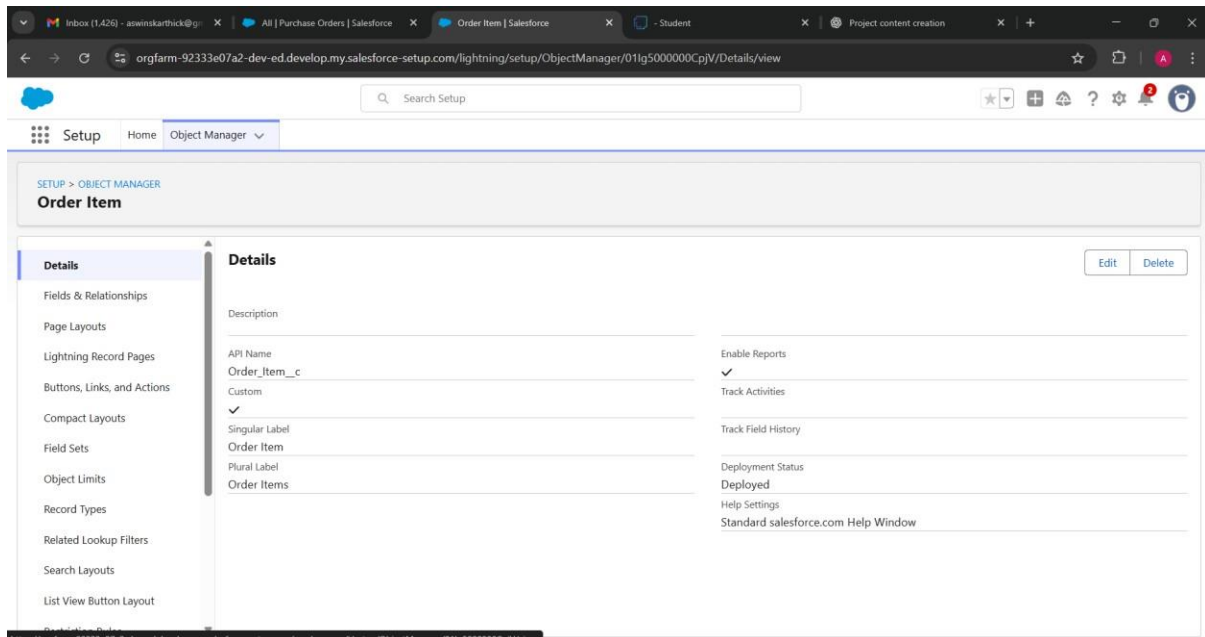
4. **Inventory Transaction:** Records movements of medical products, including receipts, issues, and adjustments.

5. **Supplier:** Contains supplier information such as name, contact number, and email.

Relationships

- **Purchase Order → Supplier (Lookup Relationship):**
  Links each purchase order to a specific supplier for clear tracking.

- **Order Item → Purchase Order (Master-Detail Relationship):**
  Ensures each order item belongs to one purchase order and supports roll-up summary calculations.

- **Inventory Transaction → Product (Lookup Relationship):**
  Connects inventory transactions to products for stock tracking.

These relationships ensure accurate data connections and dependency between records.

Tabs:

Tabs are created in Salesforce to easily access and manage custom object records.
In the Medical Inventory Management project, tabs were created for Products, Purchase Orders, Order Items, Inventory Transactions, and Suppliers.
This allows users to quickly view, create, and organize records for each module directly from the Salesforce navigation bar.
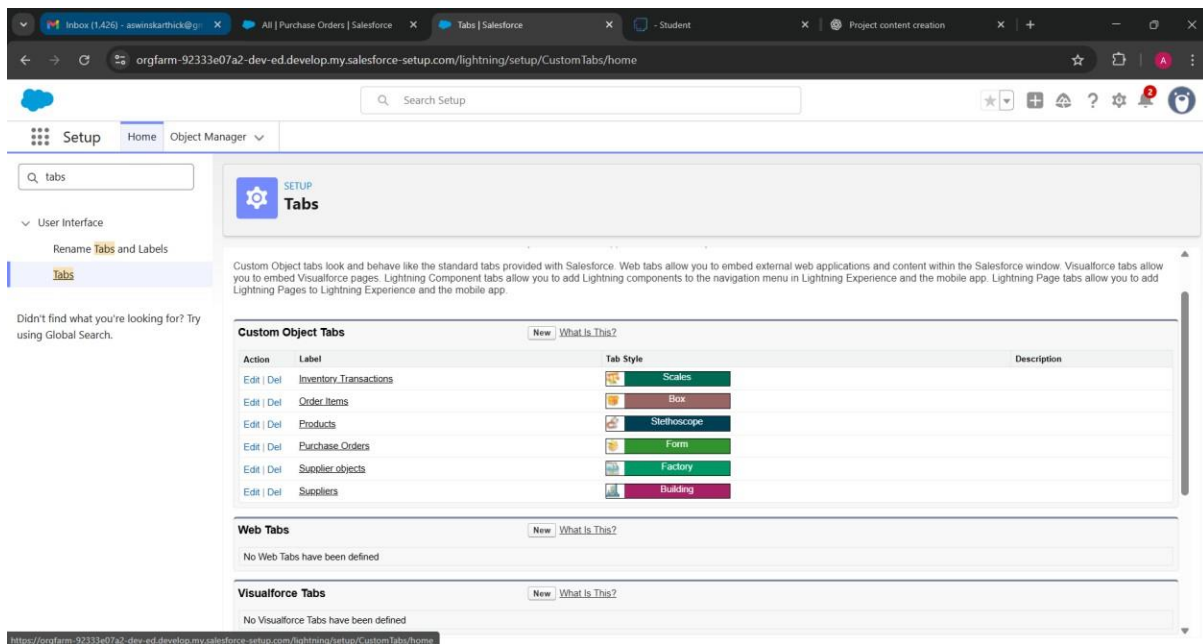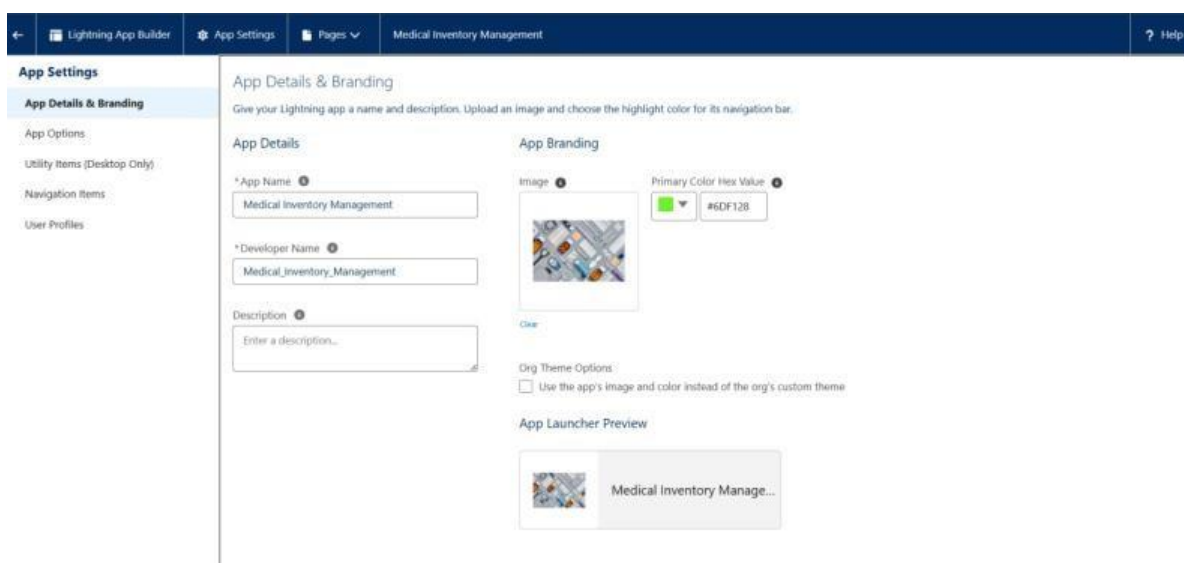
Lightning App Development

A **Lightning App** named *Medical Inventory Management* was created through **App Manager** to organize all the custom objects.

Tabs Added:
Products, Purchase Orders, Order Items, Inventory Transactions, Suppliers, Reports, Dashboards.

This app provides a single interface for administrators to monitor inventory and purchases efficiently.
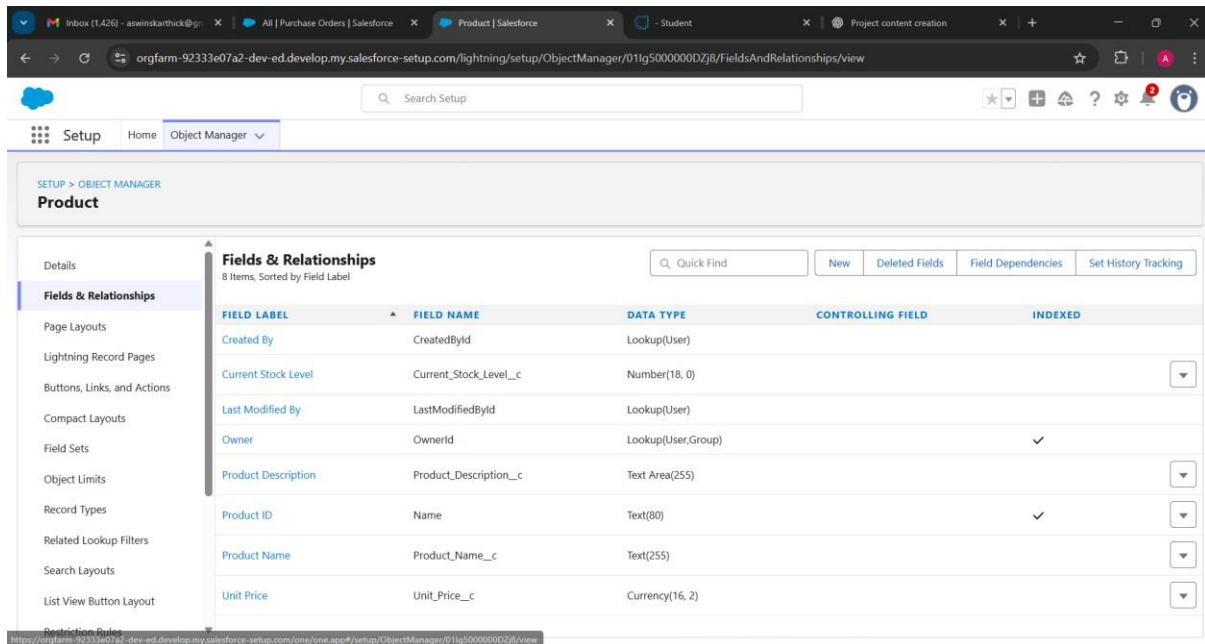
. Field Configurations and Validation Rules

Key fields and formulas were configured in each object to store relevant information accurately.

Product Object

These fields allow administrators to monitor inventory availability, calculate product value, and identify which items need to be reordered. They are directly used in inventory transaction and purchase order calculations.

Purchase Order Object

This object acts as the main control center for the purchasing process, helping managers track supplier relationships, delivery timelines, and total purchase costs.

Order Item Object

Each order item contributes to the total purchase cost. The data from these fields is aggregated in the **Purchase Order** object to compute total expenditure.

Inventory Transaction Object

These fields enable full traceability of stock movements, allowing the admin to track whether items were added, issued, or adjusted, ensuring stock integrity.
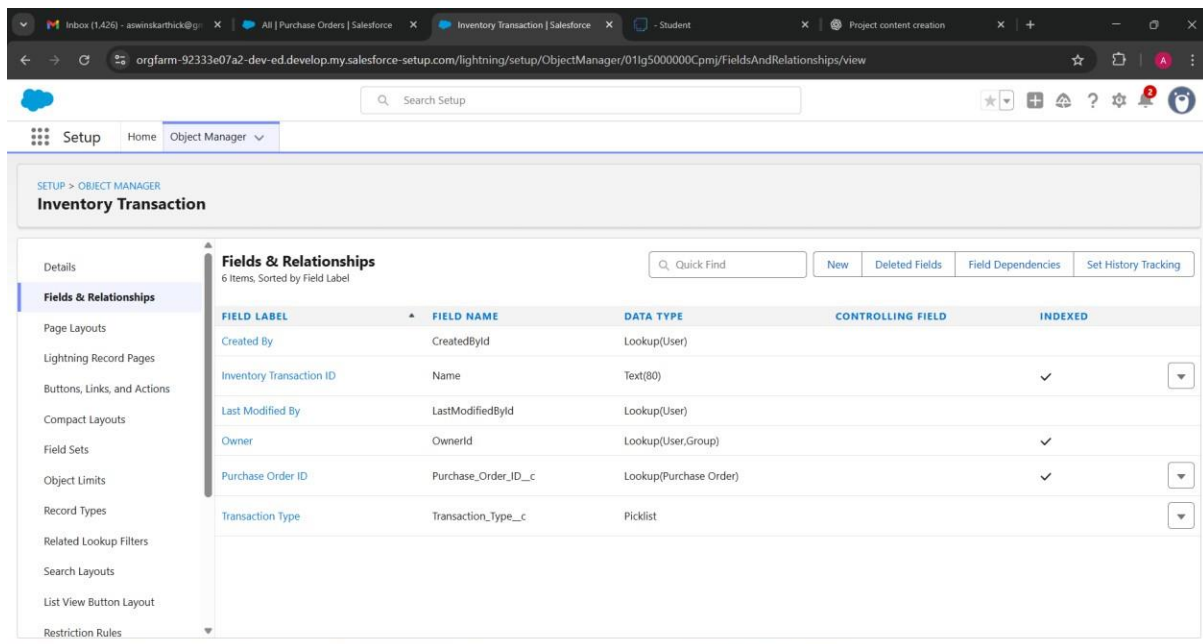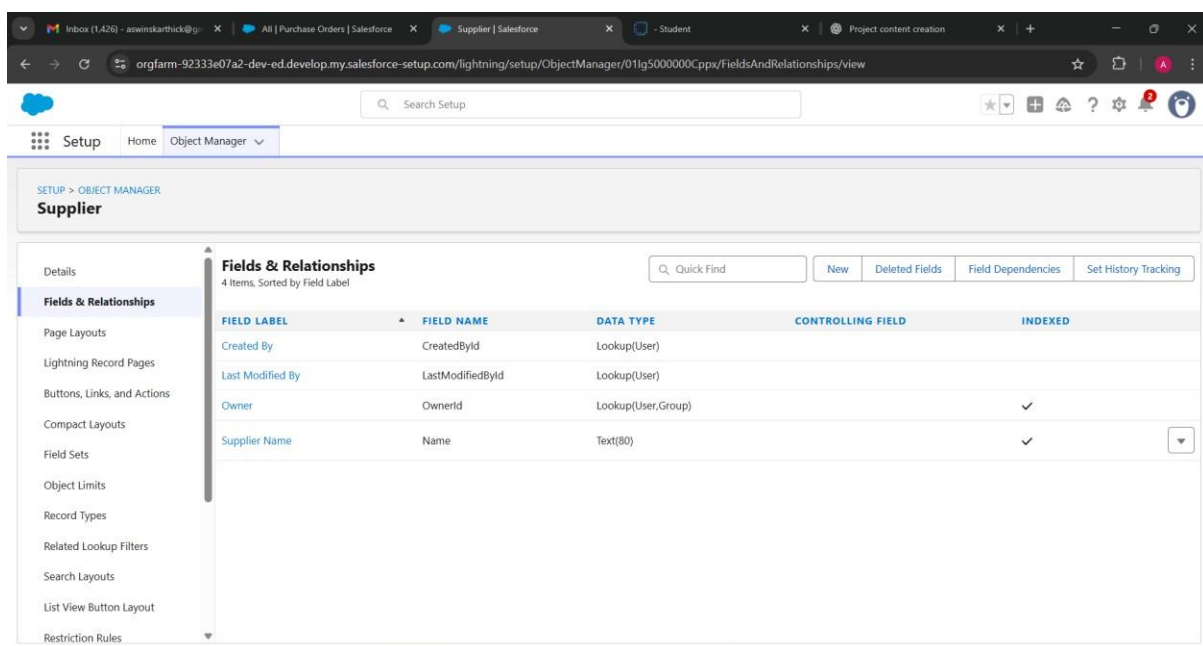
Supplier Object

Maintains an up-to-date supplier directory that supports lookup relationships with purchase orders. These fields enable automatic communication and accurate supplier-based reporting.

Page Layouts:

Editing **Page Layouts** in Salesforce helps organize how fields, sections, and related lists appear on record pages for better clarity and data entry.
In the **Medical Inventory Management** project, page layouts were customized for

Product, Purchase Order, Order Item, Inventory Transaction, and Supplier objects. Fields such as **Order Date, Total Order Cost, Supplier ID, Product Name, and Unit Price** were properly arranged for a clean and structured view.

Some important fields like **Order Date** were marked as *Required*, while calculated fields such as **Total Order Cost** were set as *Read-Only* to maintain data accuracy and prevent manual modification.

These layout edits make data management easier and improve user experience across all modules.

⋮⋮⋮ Setup　Home　Object Manager ⌄

SETUP > OBJECT MANAGER
Order Item

Details	Save ▾ Quick Save Preview As… ▾ Cancel ⏎ Undo ↻ Redo 🗐 Layout Properties
Fields & Relationships	**Fields** ... Quick Find Field Name ✱
Page Layouts	Buttons ... Section ... Order Item ID
Lightning Record Pages	Quick Actions ... Blank Space ... Owner
Buttons, Links, and Actions	Mobile & Lightning Actions ... Created By
Compact Layouts	Expanded Lookups ... Last Modified By
Field Sets	Related Lists
Object Limits	Report Charts
Record Types	
Related Lookup Filters	
Search Layouts	
List View Button Layout	
Restriction Rules	

Actions in this section are predefined by Salesforce. You can override the predefined actions to set a customized list of actions on Lightning Experience and mobile app pages that use this layout. If you customize the actions in the Quick Actions in the Salesforce Classic Publisher section, and have saved the layout, then this section inherits that set of actions by default when you click to override.

Order Item Detail　Standard Buttons　Custom Buttons
Edit　Delete　Close　Change Owner　Change Record Type　Printable View　Sharing　Sharing Hierarchy　Edit Labels

Information (Header visible on edit only)	
★ ● Order Item ID　Sample Text	Owner　Sample Text

System Information (Header visible on edit only)	
🔒 Created By　Sample Text	🔒 Last Modified By　Sample Text

Custom Links (Header visible on edit only)

⋮⋮⋮ Setup　Home　Object Manager ⌄

SETUP > OBJECT MANAGER
Purchase Order

Details	Save ▾ Quick Save Preview As… ▾ Cancel ⏎ Undo ↻ Redo 🗐 Layout Properties
Fields & Relationships	**Fields** ... Quick Find Field Name ✱
Page Layouts	Buttons ... Section ... Last Modified By ... Product ... Supplier ... Unit_Price__c
Lightning Record Pages	Quick Actions ... Blank Space ... Order_Date__c ... Purchase Order ID ... Supplier ID
Buttons, Links, and Actions	Mobile & Lightning Actions ... Created By ... Order Date ... Quantity ... Total Amount
Compact Layouts	Expanded Lookups ... Expected Delivery… ... Owner ... Quantity Received ... Total Amount1
Field Sets	Related Lists
Object Limits	Report Charts
Record Types	
Related Lookup Filters	
Search Layouts	
List View Button Layout	
Restriction Rules	

Information (Header visible on edit only)	
★ ● Supplier ID　Sample Text	Owner　Sample Text
★ ● Purchase Order ID　Sample Text	
Order Date　10/30/2025	
🔒 Total Amount　$123.45	
Quantity Received　43	
Unit_Price__c　$123.45	
🔒 Total Amount1　$123.45	
Expected Delivery Date　10/30/2025	
Order_Date__c　10/30/2025	

System Information (Header visible on edit only)	
🔒 Created By　Sample Text	🔒 Last Modified By　Sample Text

Custom Links (Header visible on edit only)

⋮⋮⋮ Setup　Home　Object Manager ⌄

SETUP > OBJECT MANAGER
Product

Details	Save ▾ Quick Save Preview As… ▾ Cancel ⏎ Undo ↻ Redo 🗐 Layout Properties
Fields & Relationships	**Fields** ... Quick Find Field Name ✱
Page Layouts	Buttons ... Section ... Current Stock Level ... Owner ... Purchase Descrip…
Lightning Record Pages	Quick Actions ... Blank Space ... Expiry Date ... Product Description ... Stock Quantity
Buttons, Links, and Actions	Mobile & Lightning Actions ... Category ... Last Modified By ... Product Name ... Supplier ID
	Expanded Lookups ... Created By ... Order Date ... Products ID ... Unit Price
Compact Layouts	Related Lists
Field Sets	Report Charts
Object Limits	
Record Types	
Related Lookup Filters	
Search Layouts	
List View Button Layout	
Restriction Rules	

Information (Header visible on edit only)	
★ ● Products ID　Sample Text	
★ ● Product Name　Sample Text	
Purchase Description　Sample Text	
★ ● Supplier ID　Sample Text	
★ ● Unit Price　$123.45	
Expiry Date　10/30/2025	
Order Date　10/30/2025	
Current Stock Level　37,747	
Product Description　Sample Text	

System Information (Header visible on edit only)	
🔒 Created By　Sample Text	🔒 Last Modified By　Sample Text

Custom Links (Header visible on edit only)

Profiles and Permission Sets

- **Profiles Created:**

  - *Inventory Manager* — Access to product and inventory objects.

  - *Purchase Manager* — Access to purchase order and supplier objects.

- **Permission Set:**
  Purchase Manager Create Access — Allows creation of Order Items and visibility of related records.
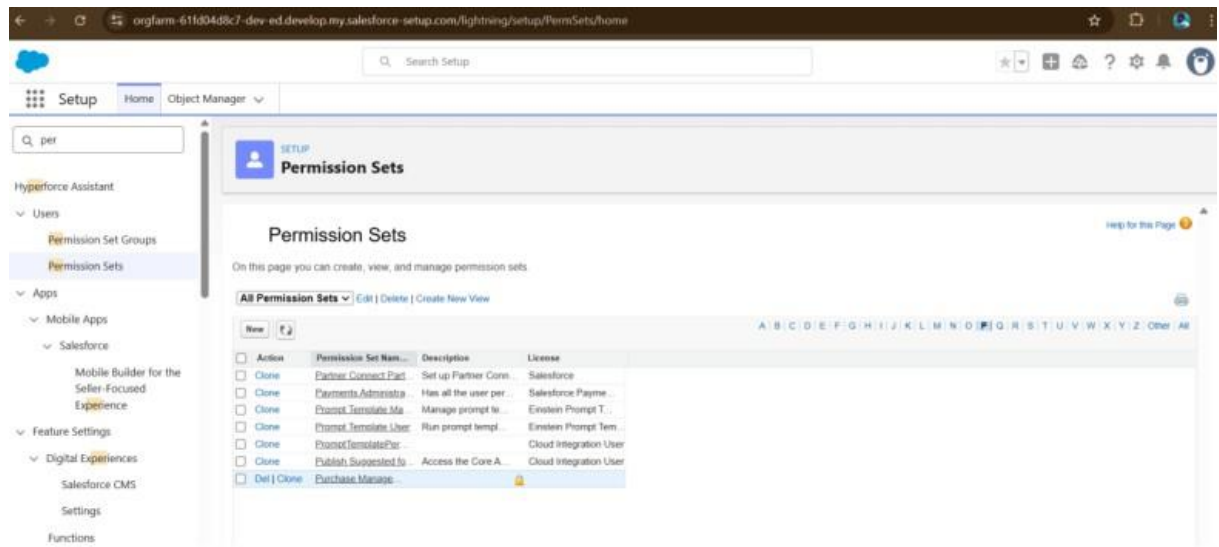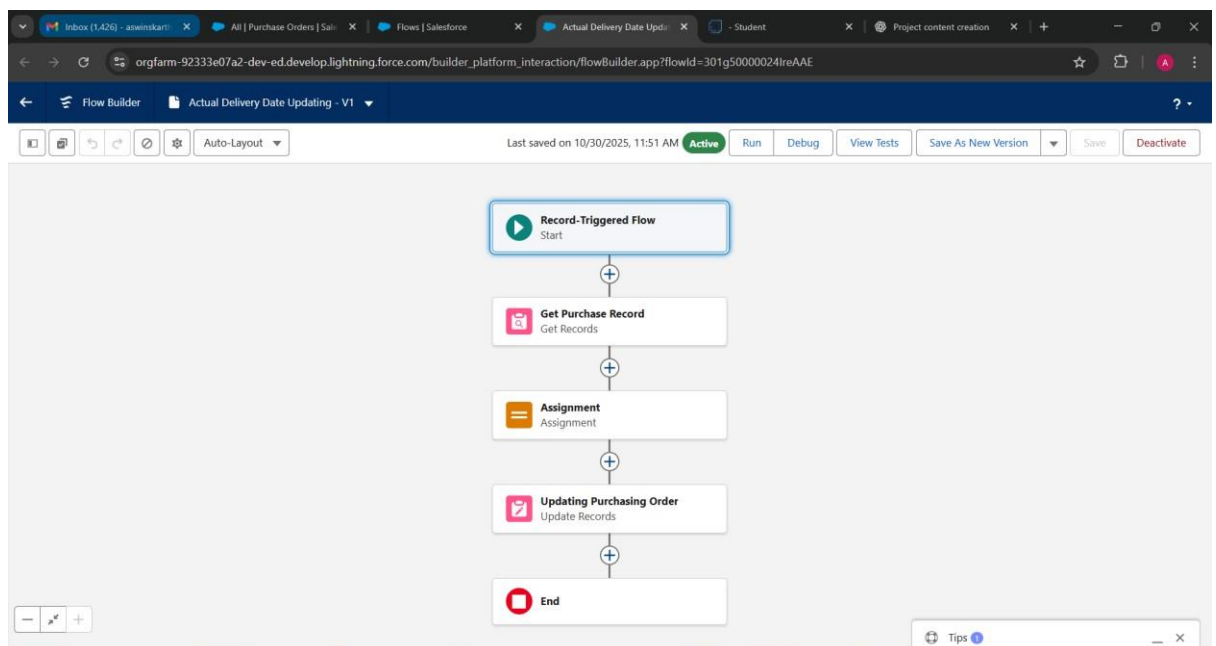
. Automations and Flows

- **Flow – Actual Delivery Date Automation:**
  A Record-Triggered Flow automatically updates the *Actual Delivery Date* field to
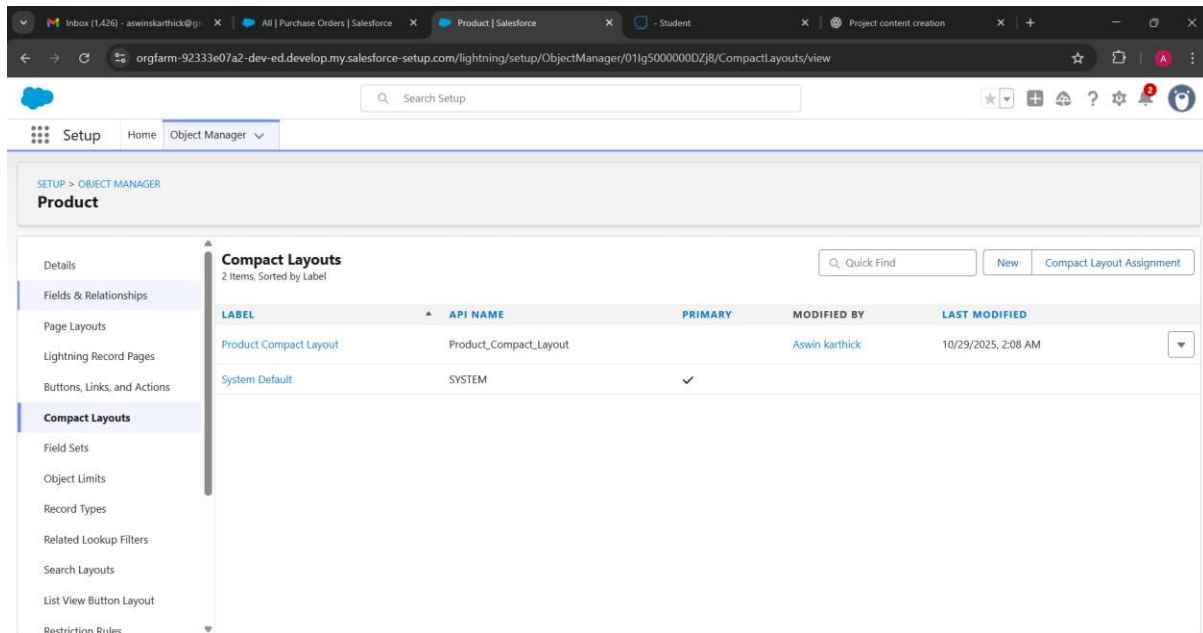 be 3 days after the *Order Date*.
  This ensures delivery tracking happens without manual updates.
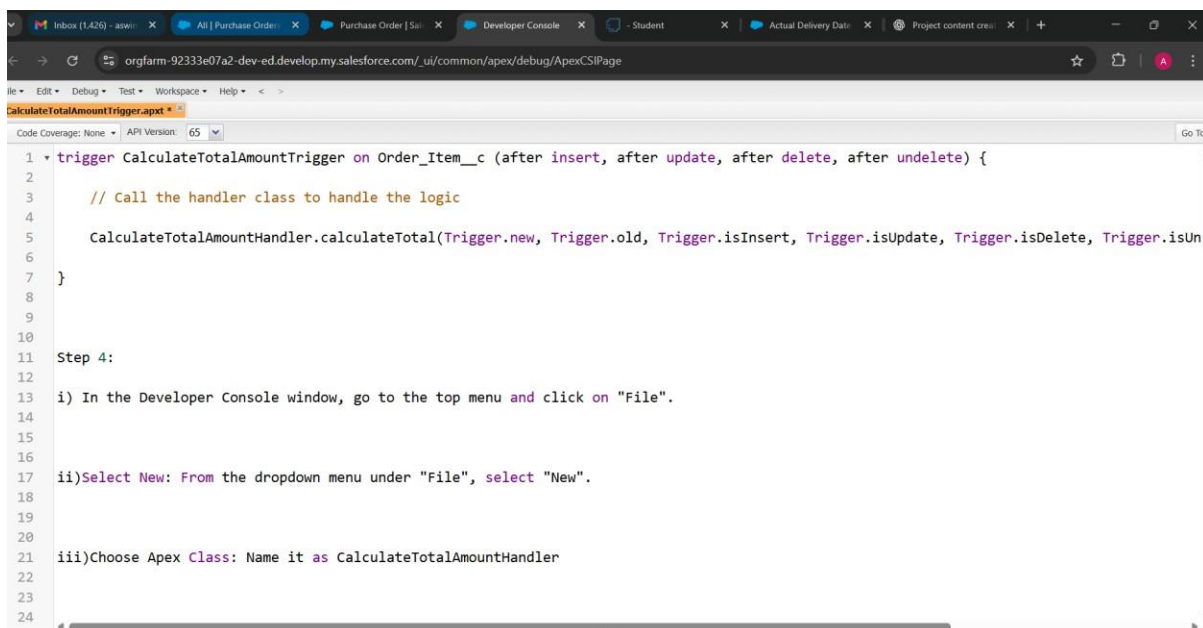

- **Formula Fields:**
  In the **Order Item** object, an *Amount* formula field calculates:

  Quantity_Received__c * Unit_Price__c
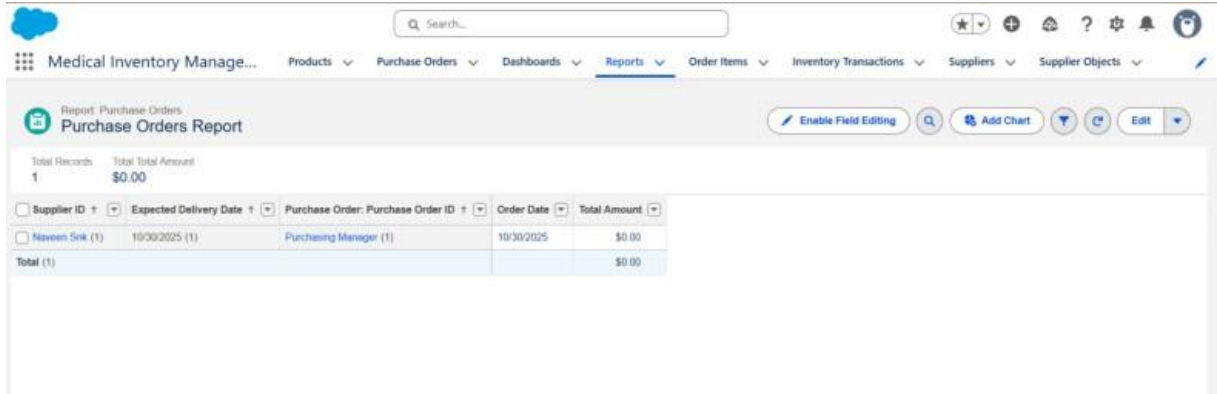
Apex Trigger and Handler

An **Apex Trigger and Handler Class** were created to automatically calculate the *Total Order Cost* whenever Order Items are inserted, updated, or deleted.


```
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.isUn
6
7   }
8
9
10
11   Step 4:
12
13   i) In the Developer Console window, go to the top menu and click on "File".
14
15
16
17   ii)Select New: From the dropdown menu under "File", select "New".
18
19
20
21   iii)Choose Apex Class: Name it as CalculateTotalAmountHandler
22
23
24
```

Reports:

1. **Purchase Orders based on Suppliers**
   A summary report grouping records by Supplier ID and Purchase Order ID, displaying Order Count and Total Order Cost.
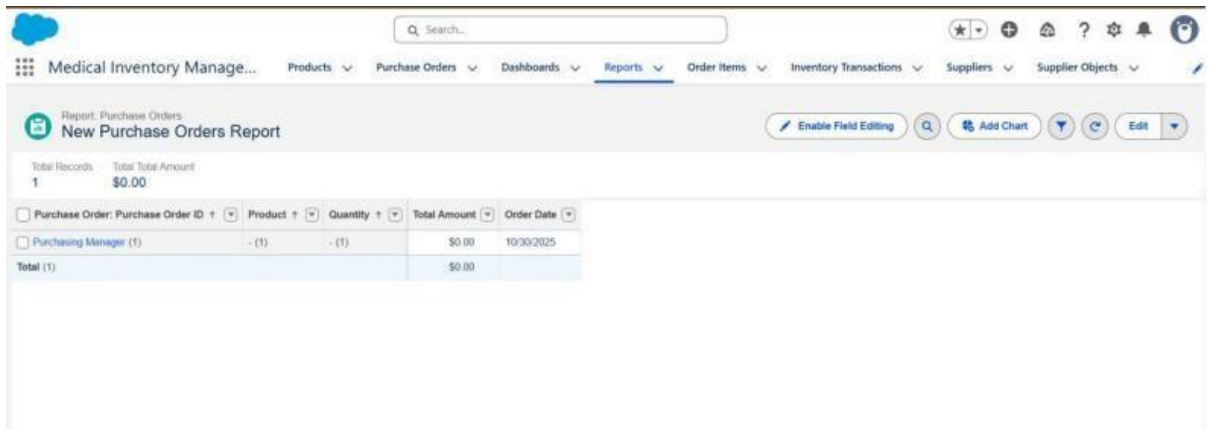

2. **Complete Purchase Details Report**
   A detailed report combining Purchase Orders, Order Items, and Products with grouped columns for Supplier, Product, Quantity, and Amount.
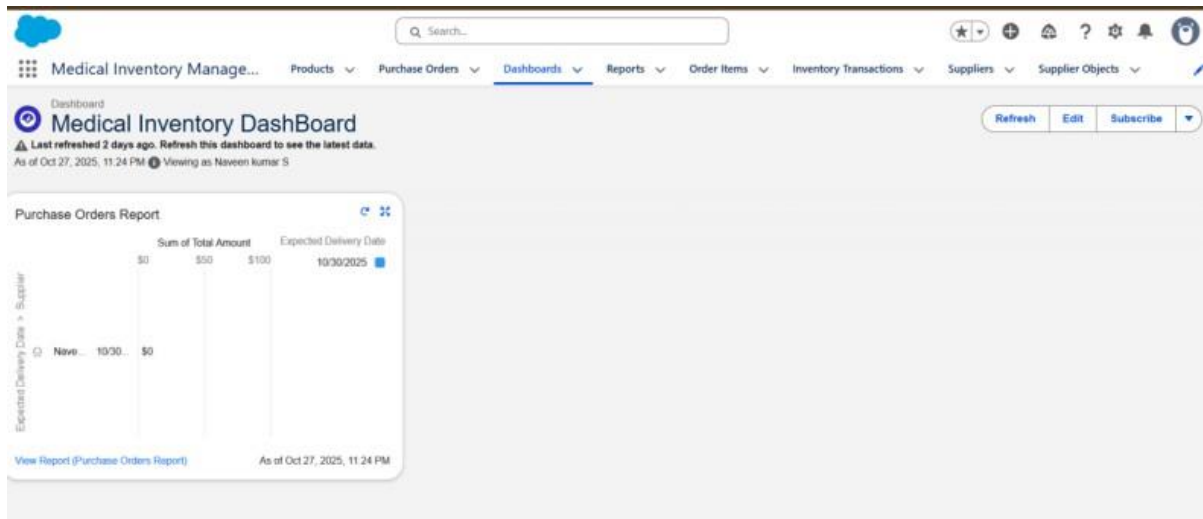
Dashboard:

A dashboard named *Medical Inventory Dashboard* visualizes purchase data, supplier performance, and total order cost using charts and tables derived from reports.

11. Key Scenarios Addressed by Salesforce

1. **Inventory Accuracy:**
   Automates tracking of stock levels and transactions to prevent shortages.

2. **Supplier Management:**
   Centralizes supplier data with email and phone contact integration.

3. **Purchase Monitoring:**
   Enables managers to view real-time order progress through reports and dashboards.

4. **Automated Calculations:**
   Formula fields and triggers keep cost data updated automatically.

5. **Role-Based Access:**
   Profiles and permission sets control which users can create or edit records.

6. **Data Validation:**
   Validation rules prevent incorrect delivery date entries and ensure reliable data.

12. Conclusion

The **Medical Inventory Management System** successfully automates the core functions of a medical procurement and inventory process using Salesforce.