

SHIVANI ENGINEERING COLLEGE

Department of Computer Science and Engineering

Project Title: Medical Inventory Management System
Platform: Salesforce Developer

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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:

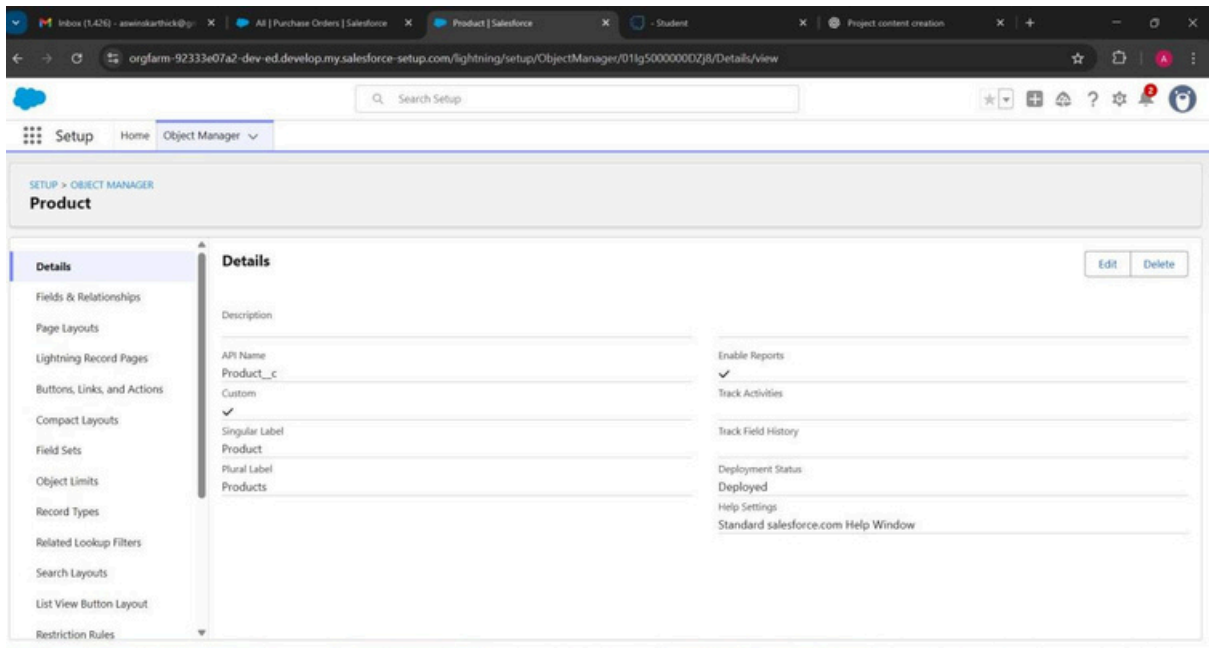
- A. **Automate Inventory Processes:** Create a seamless workflow for tracking purchase orders, supplier details, and product stock updates.
- B. **Optimize Stock Levels:** Prevent overstocking or shortages by maintaining real-time visibility of inventory quantities.
- C. **Improve Supplier Management:** 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

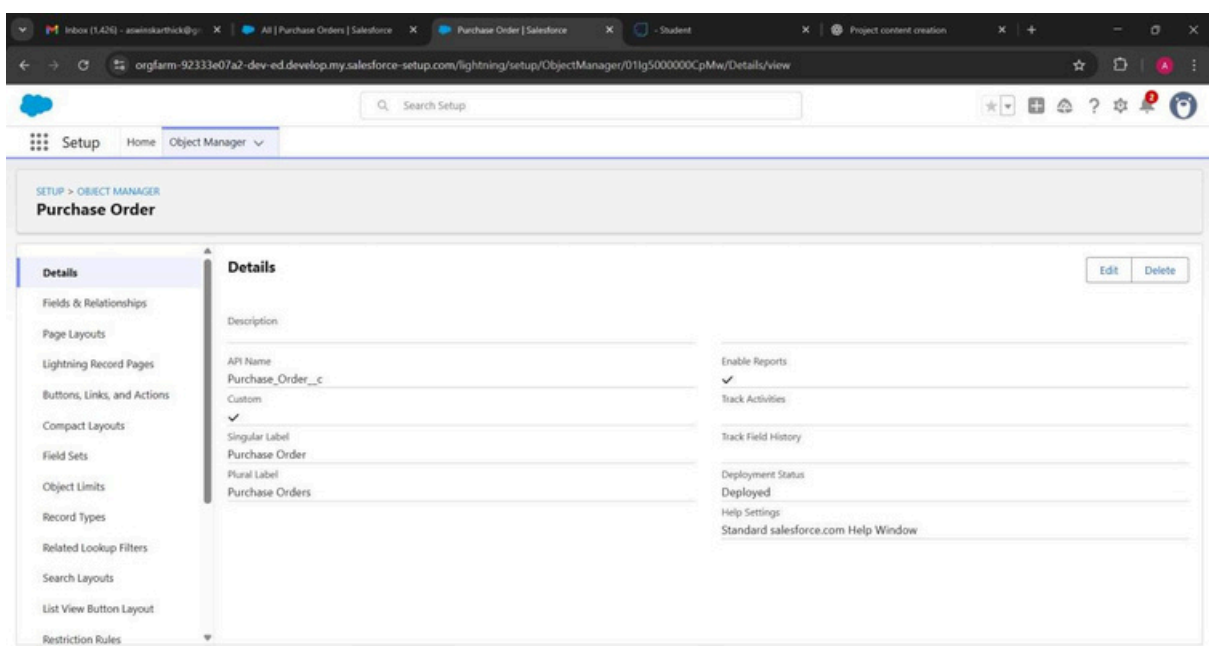
The Medical Inventory Management System uses several Salesforce components and features to efficiently handle the end-to-end medical inventory workflow.

Custom Objects

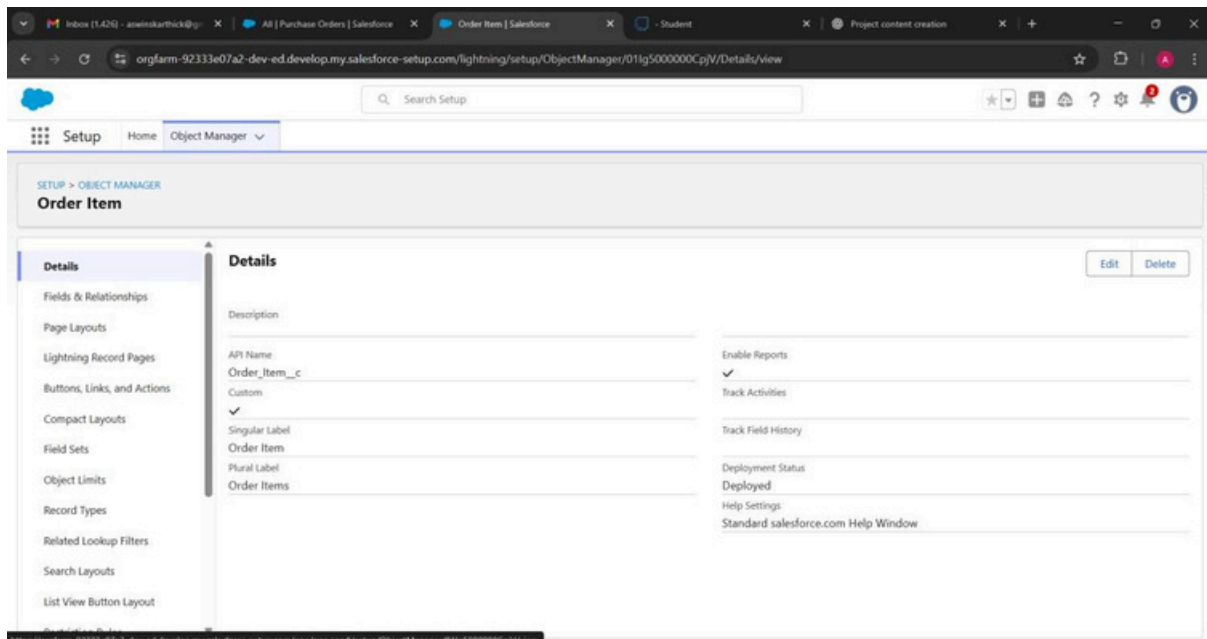
1. **Product:** Stores detailed information about each medical item such as product name, description, stock level, and unit price.



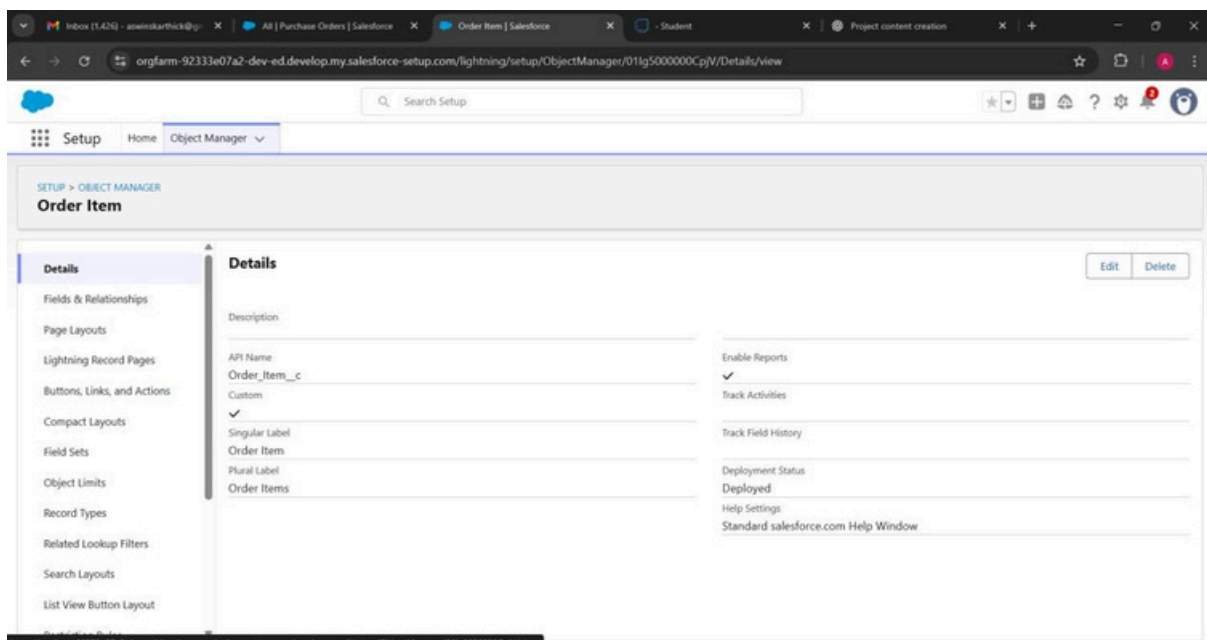
2. **Purchase Order:** Manages purchase-related information like supplier details, order date, and total order cost.



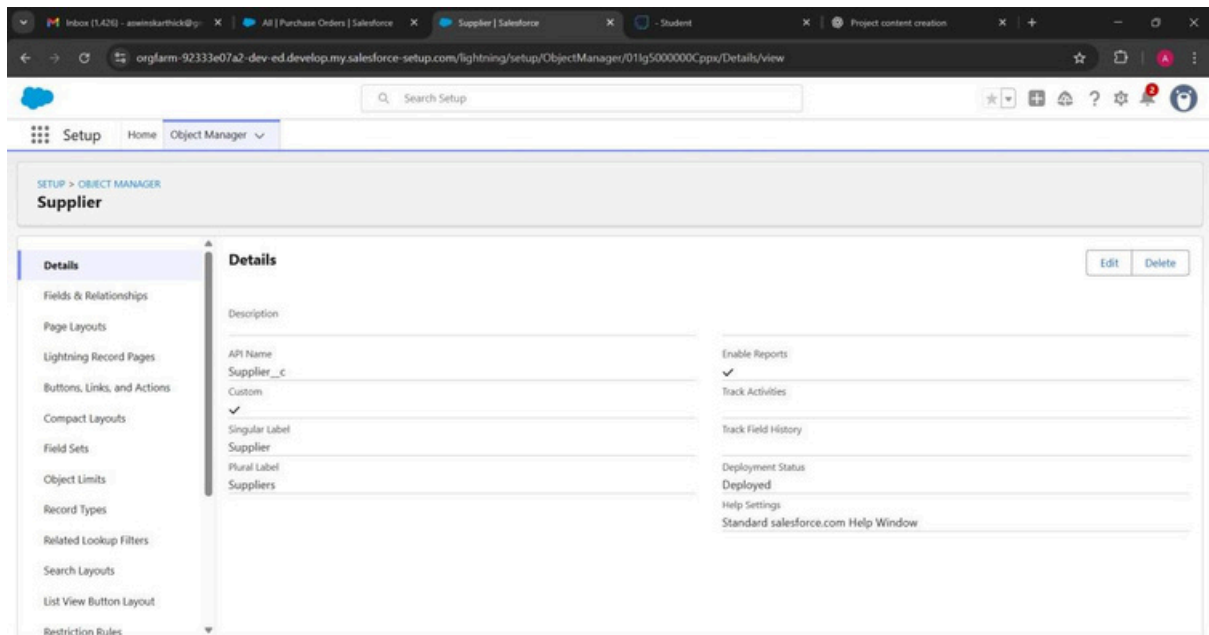
3. **Order Item:** Tracks individual items purchased within a specific purchase order, including quantity received and price.



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

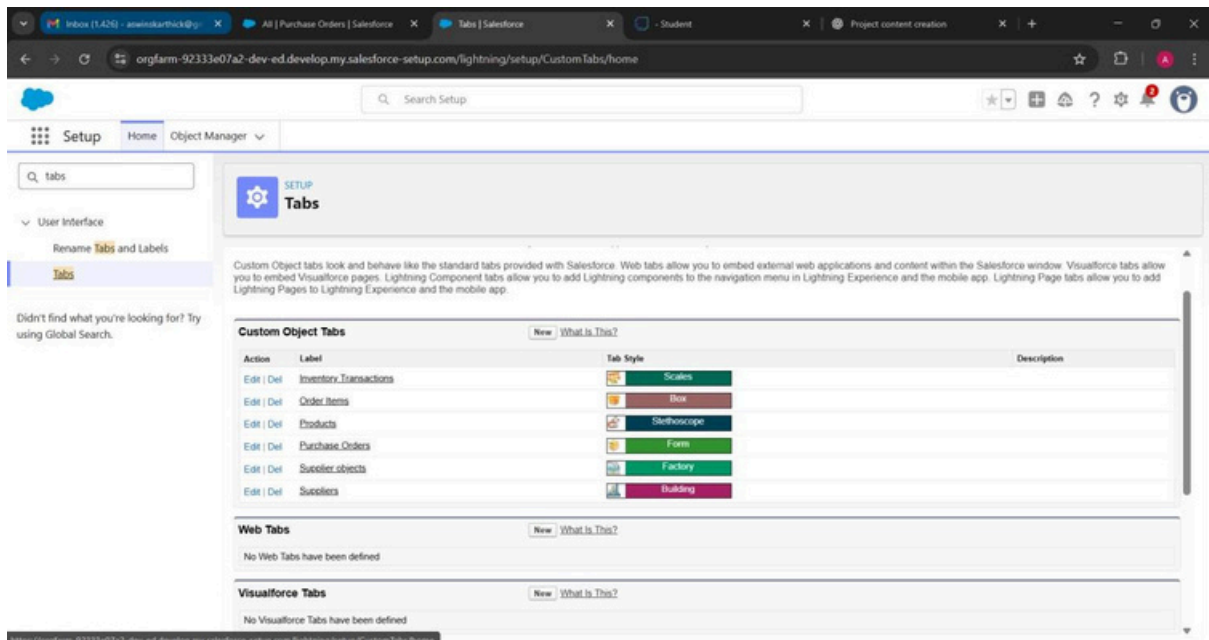
- **Purchase Order → Supplier (Lookup Relationship):**
Links each purchase order to a specific supplier for clear tracking.
- **Order Item → Purchase Order (Master-Detail Relationship):**
Ensures each order item belongs to one purchase order and supports roll-up summary calculations.
- **Inventory Transaction → 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.



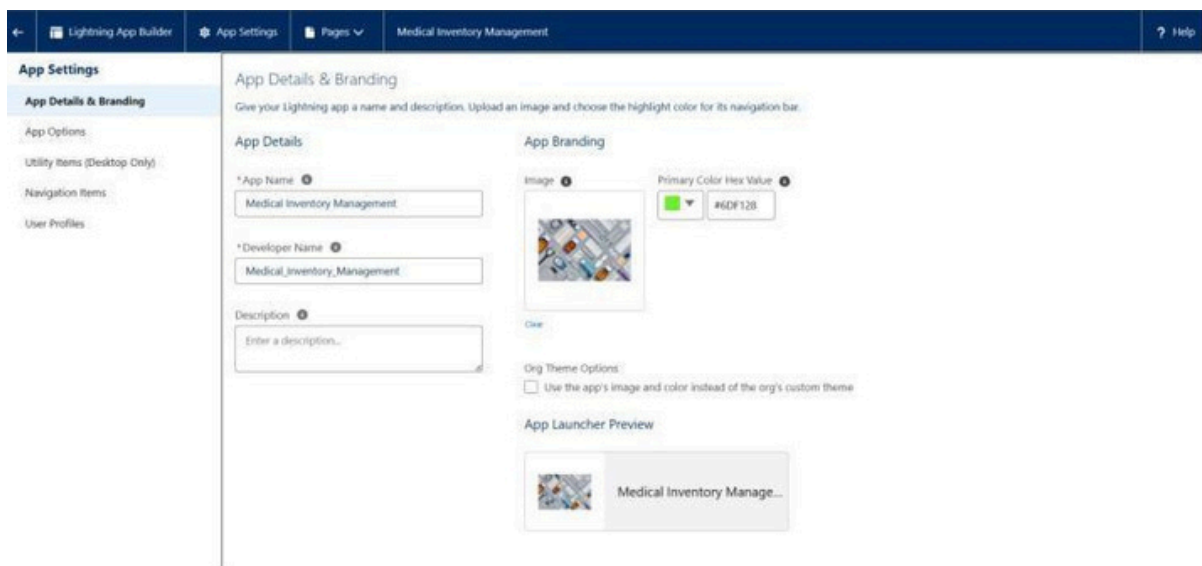
Lightning App Development

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.

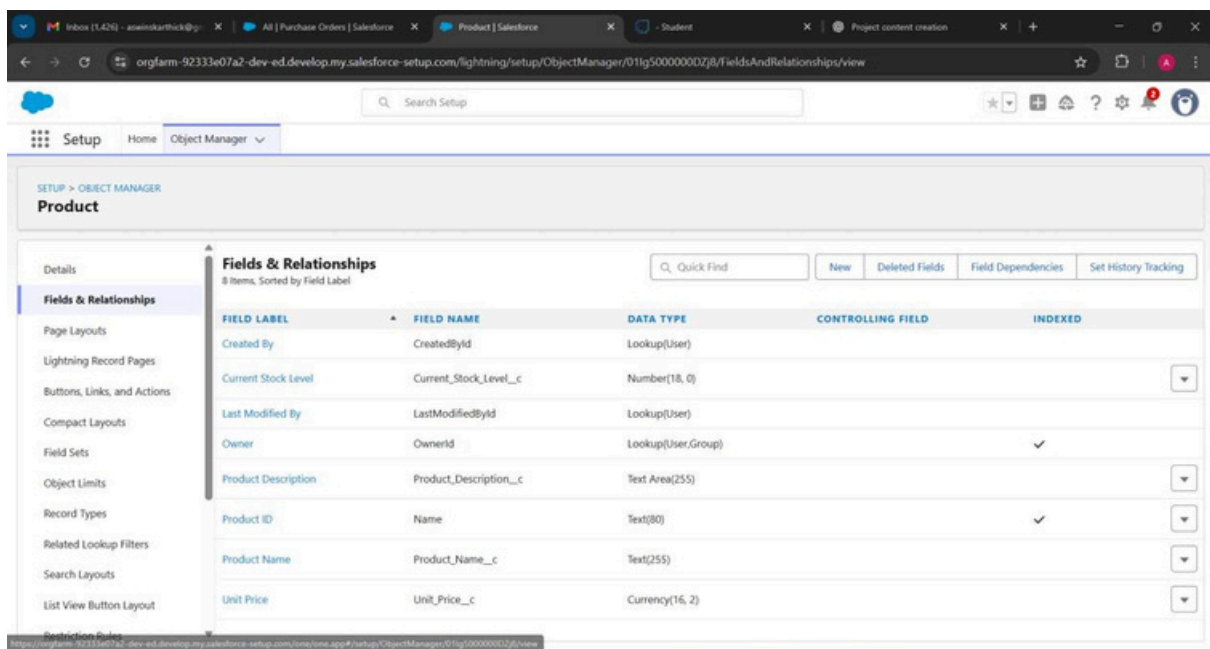


. Field Configurations and Validation Rules

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.

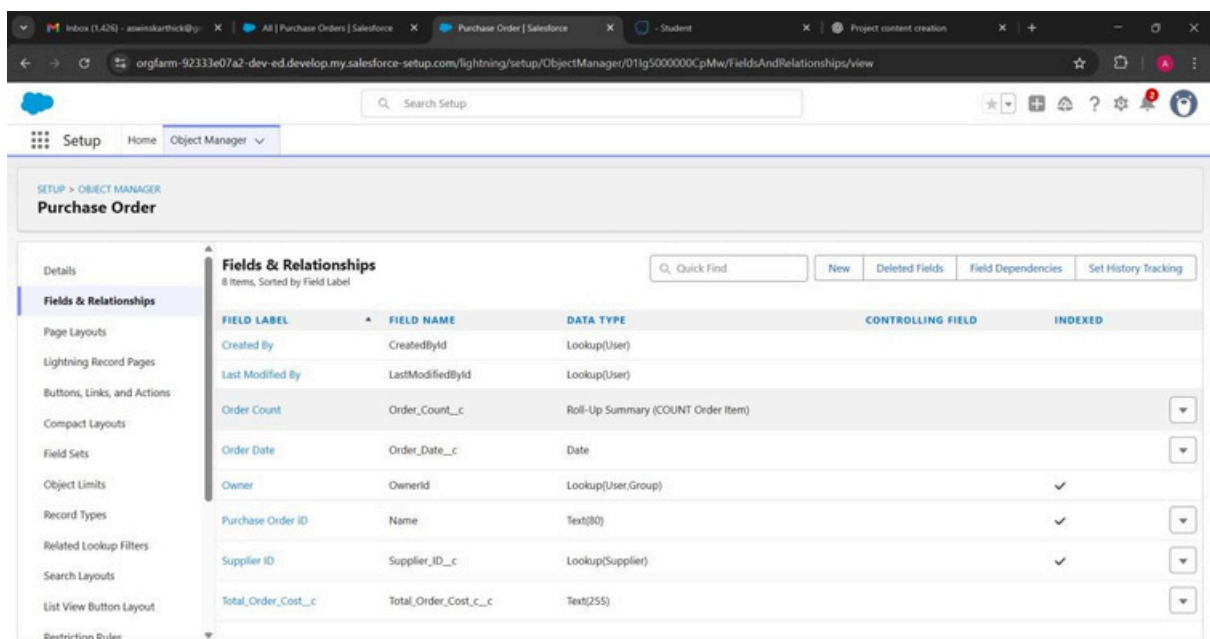


The screenshot shows the Salesforce Setup interface for the Product object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships (selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, and List View Button Layout. The main content area is titled 'Fields & Relationships' and shows a table of fields for the Product object. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are: Created By (Lookup(User)), Current Stock Level (Number(18, 0)), Last Modified By (Lookup(User)), Owner (Lookup(User, Group)), Product Description (Text Area(255)), Product ID (Text(80)), Product Name (Text(255)), and Unit Price (Currency(16, 2)).

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)		
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)		

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.

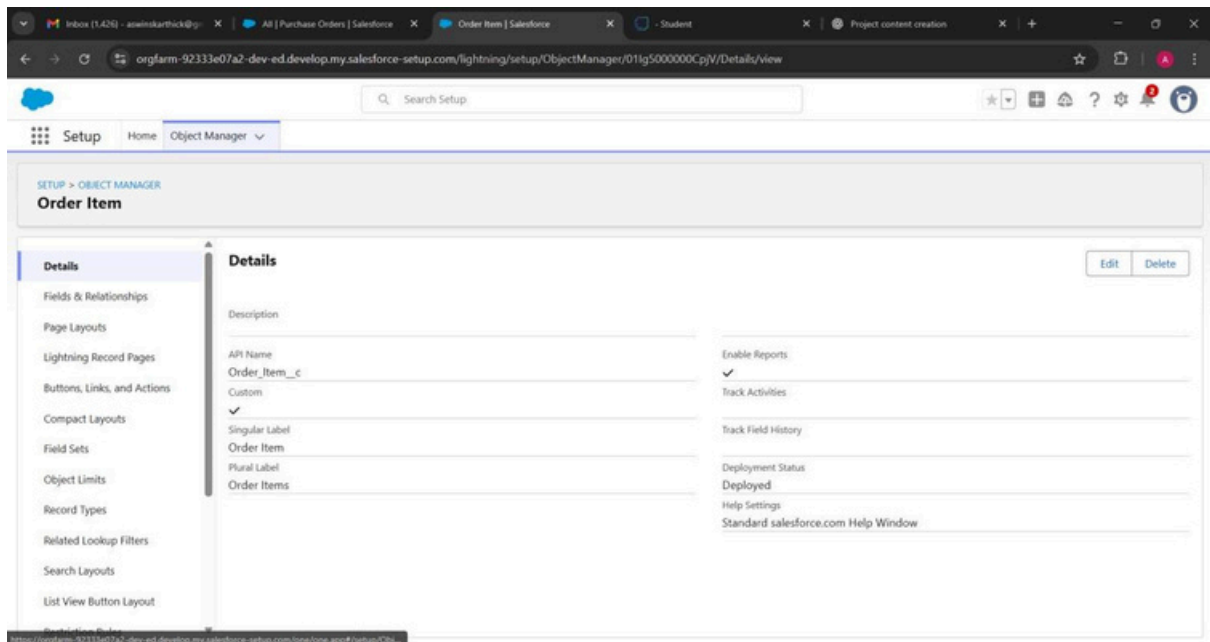


The screenshot shows the Salesforce Setup interface for the Purchase Order object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships (selected), Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, and List View Button Layout. The main content area is titled 'Fields & Relationships' and shows a table of fields for the Purchase Order object. The table has columns for FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are: Created By (Lookup(User)), Last Modified By (Lookup(User)), Order Count (Roll-Up Summary (COUNT Order Item)), Order Date (Date), Owner (Lookup(User, Group)), Purchase Order ID (Text(80)), Supplier ID (Lookup(Supplier)), and Total Order Cost (Text(255)).

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
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	Text(255)		

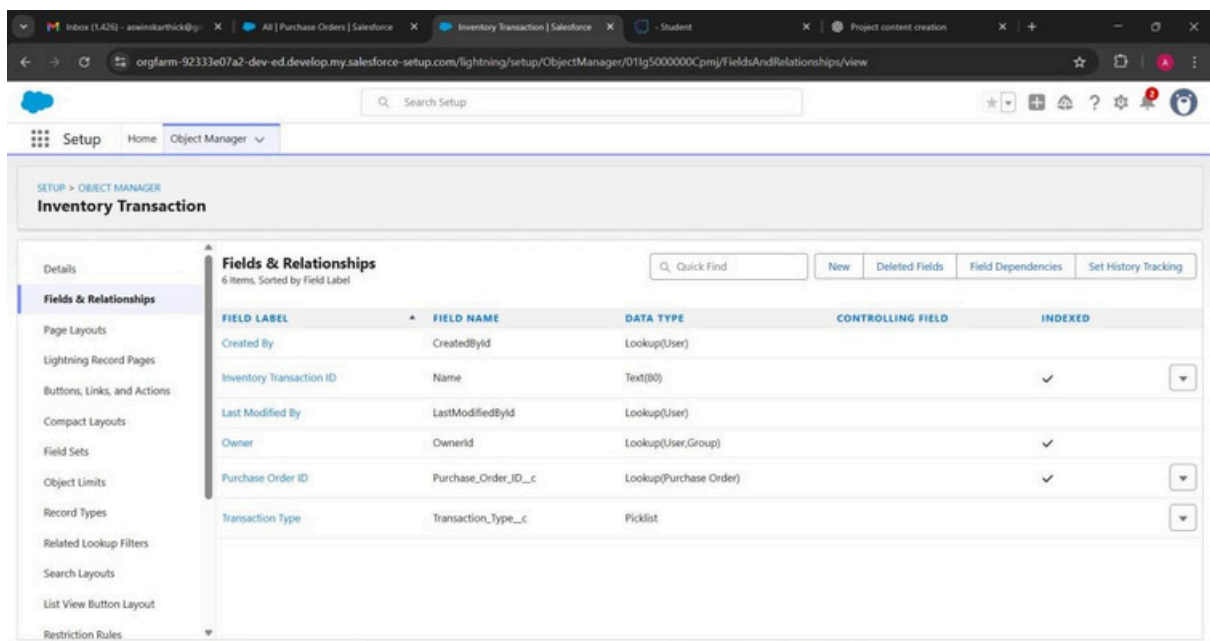
Order Item Object

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.



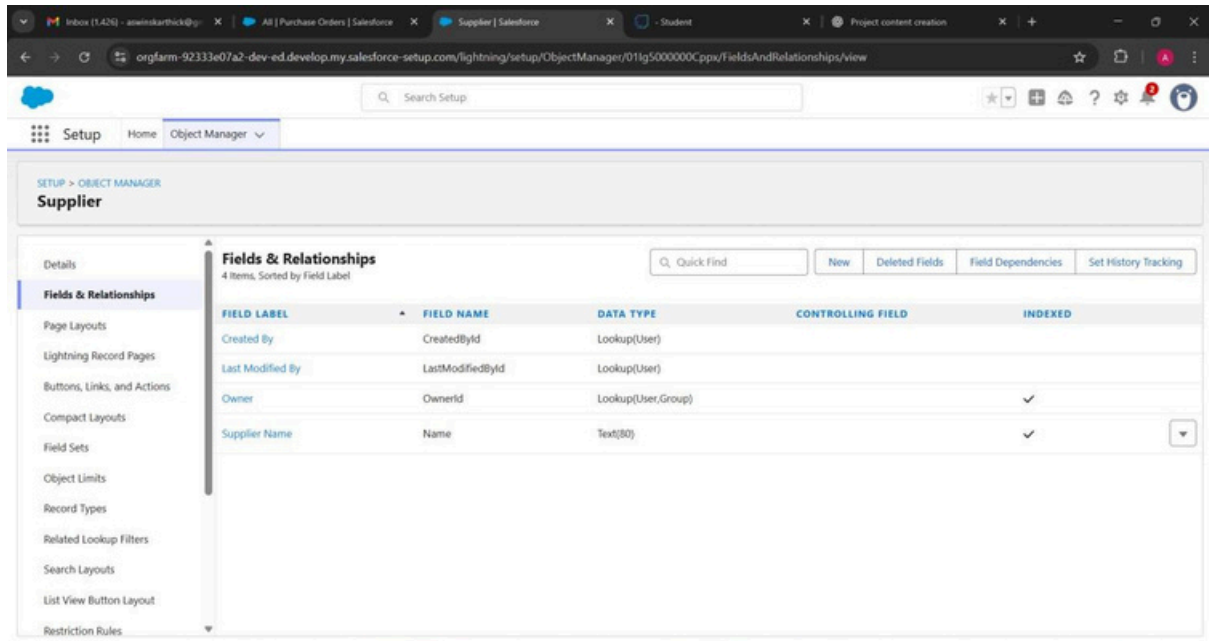
Inventory Transaction Object

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 supplierbased reporting.



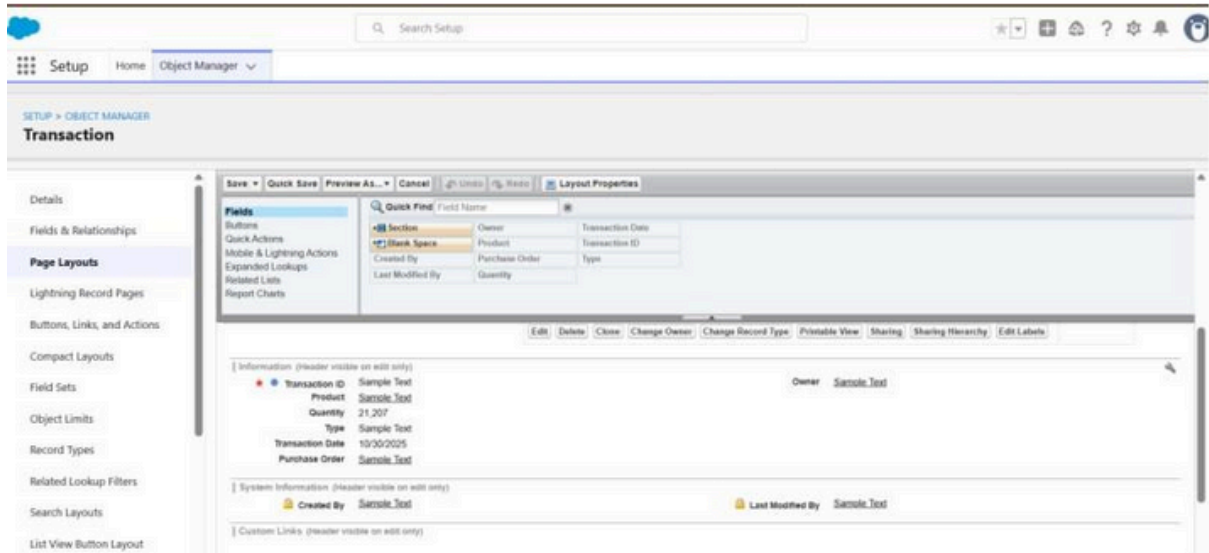
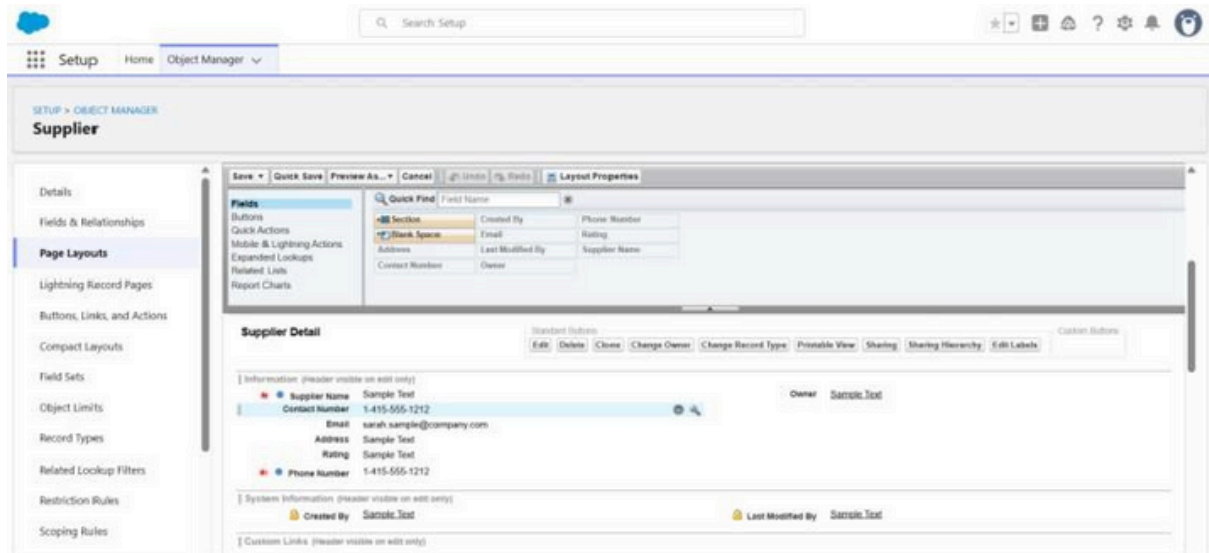
Page Layouts:

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.



Profiles and Permission Sets

- Profiles Created

Setup

Home

Object Manager

Search Setup

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

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields

Buttons

Quick Actions

Mobile & Lightning Actions

Expanded Lookups

Related Lists

Report Charts

Quick Find

Field Name

Section

Order Item ID

Blank Space

Owner

Created By

Last Modified By

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

Edit Delete Close Change Owner Change Record Type Printable View Sharing Sharing Hierarchy Edit Labels Custom Buttons

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

Search Setup

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

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields

Buttons

Quick Actions

Mobile & Lightning Actions

Expanded Lookups

Related Lists

Report Charts

Quick Find

Field Name

Section

Last Modified By

Product

Supplier

Unit Price

Blank Space

Order Date

Purchase Order ID

Supplier ID

Created By

Order Date

Quantity

Total Amount

Expected Delivery...

Owner

Quantity Received

Total Amount

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 \$123.45

Total Amount \$123.45

Expected Delivery Date 10/30/2025

Order Date 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

Search Setup

Setup > OBJECT MANAGER

Product

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

Save Quick Save Preview As... Cancel Undo Redo Layout Properties

Fields

Buttons

Quick Actions

Mobile & Lightning Actions

Expanded Lookups

Related Lists

Report Charts

Quick Find

Field Name

Section

Current Stock Level

Owner

Purchase Description

Blank Space

Expiry Date

Product Description

Stock Quantity

Category

Last Modified By

Product Name

Supplier ID

Created By

Order Date

Products ID

Unit Price

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

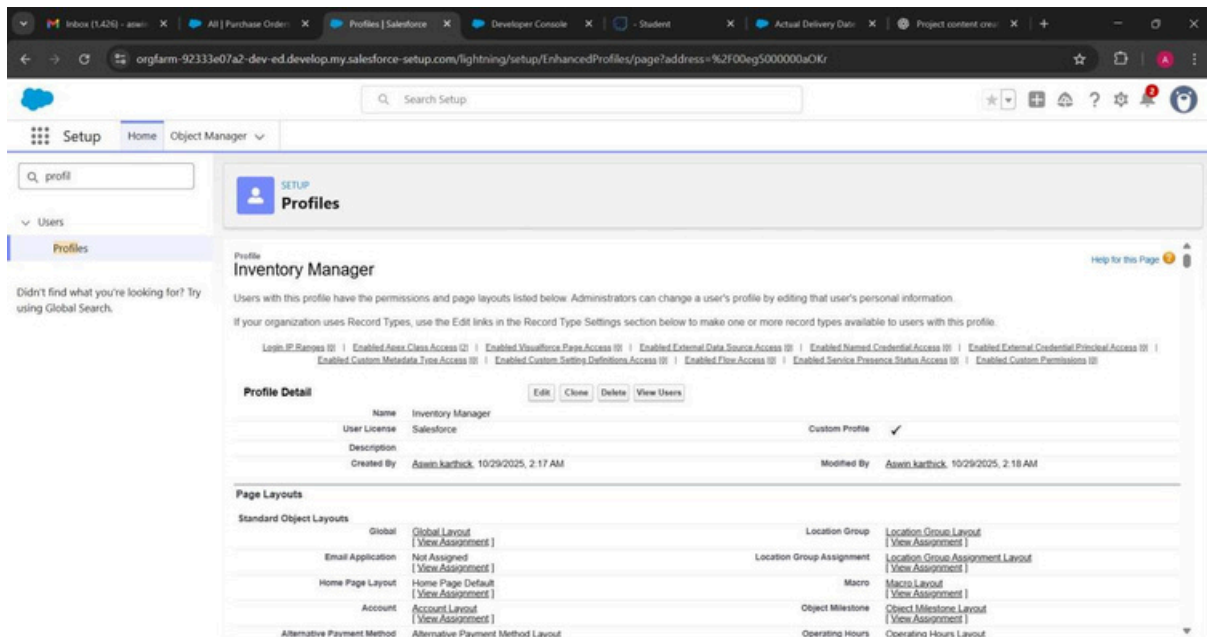
Current Stock Level 37.747

Product Description Sample Text

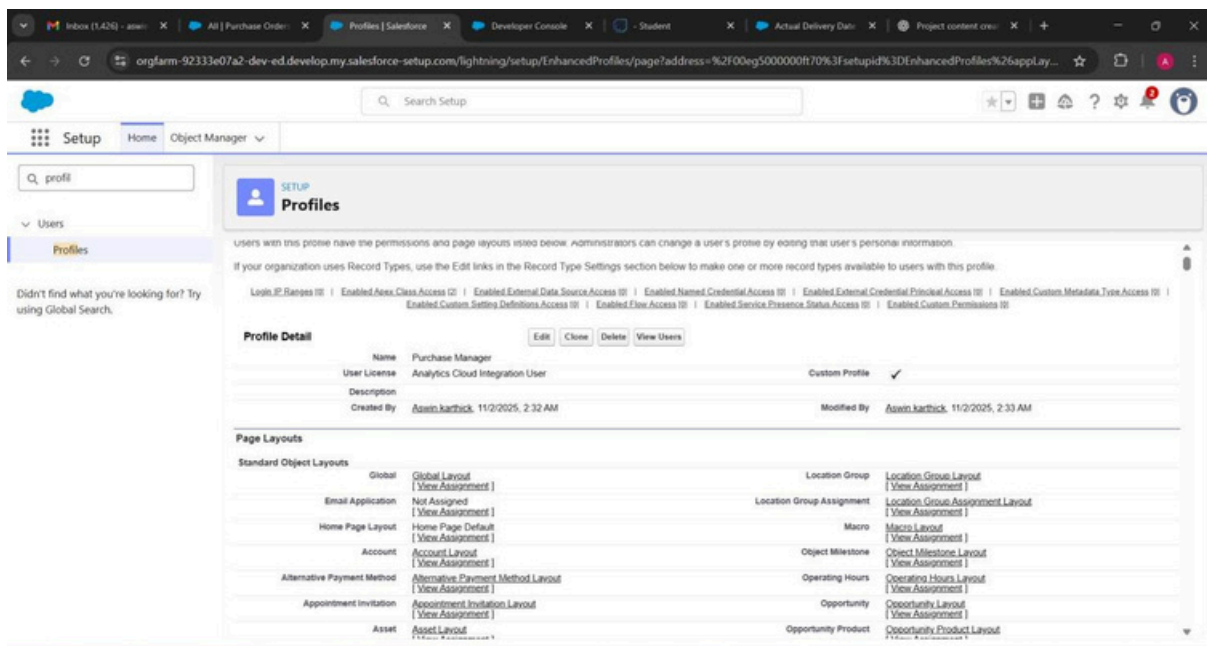
System Information (header visible on edit only)

Created By Sample Text Last Modified By Sample Text

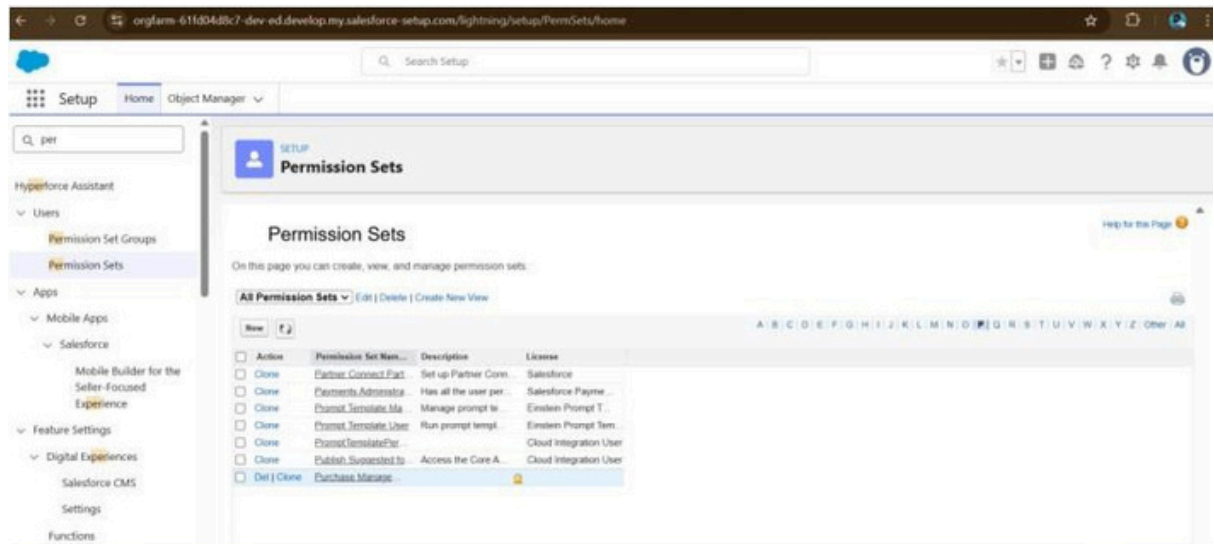
Custom Links (header visible on edit only)



- o **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.

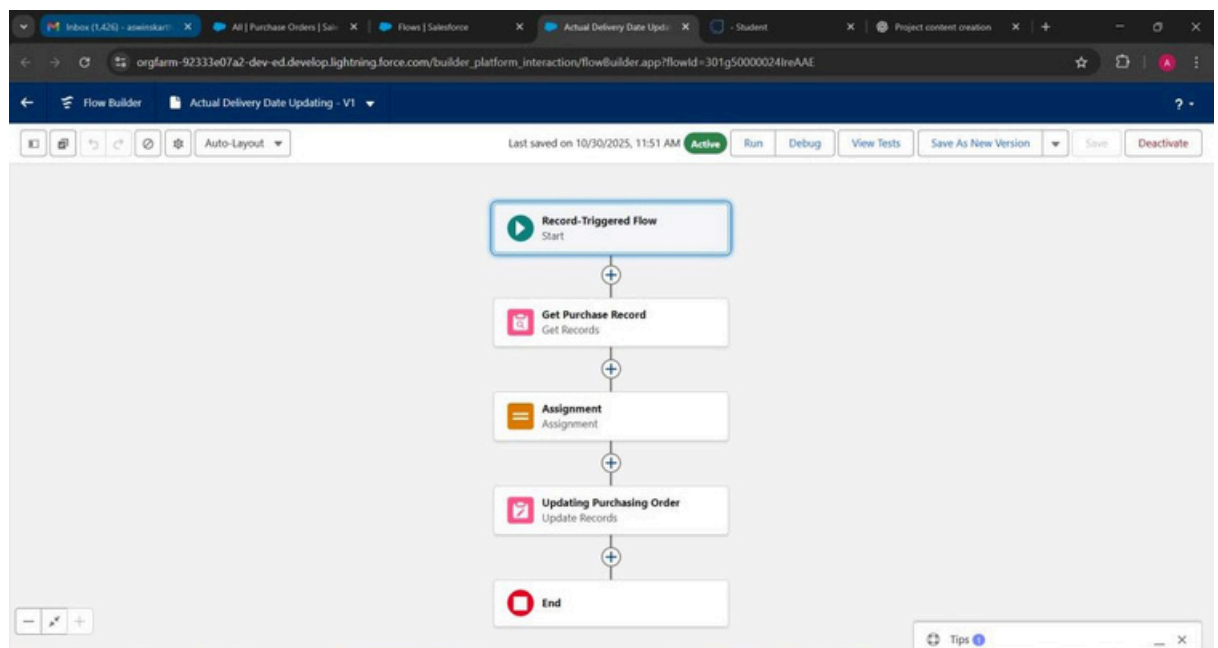


. Automations and Flows

- **Flow – Actual Delivery Date Automation:**

A Record-Triggered Flow automatically updates the *Actual Delivery Date* field to be 3 days after the *Order Date*.

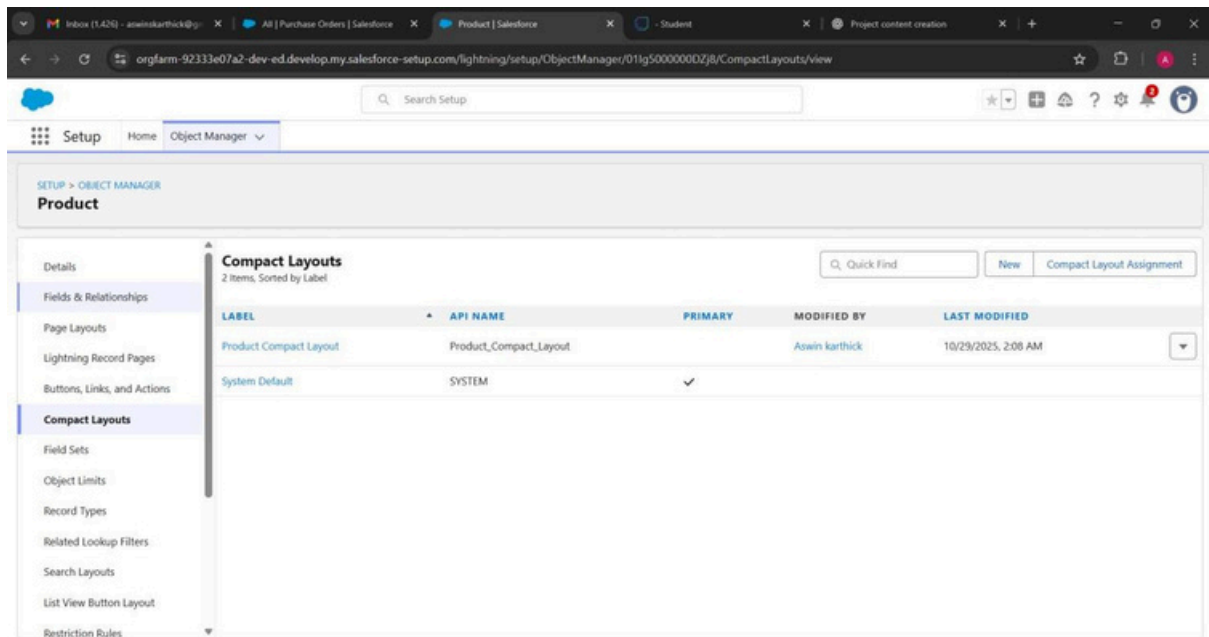
This ensures delivery tracking happens without manual updates.



- **Formula Fields:**

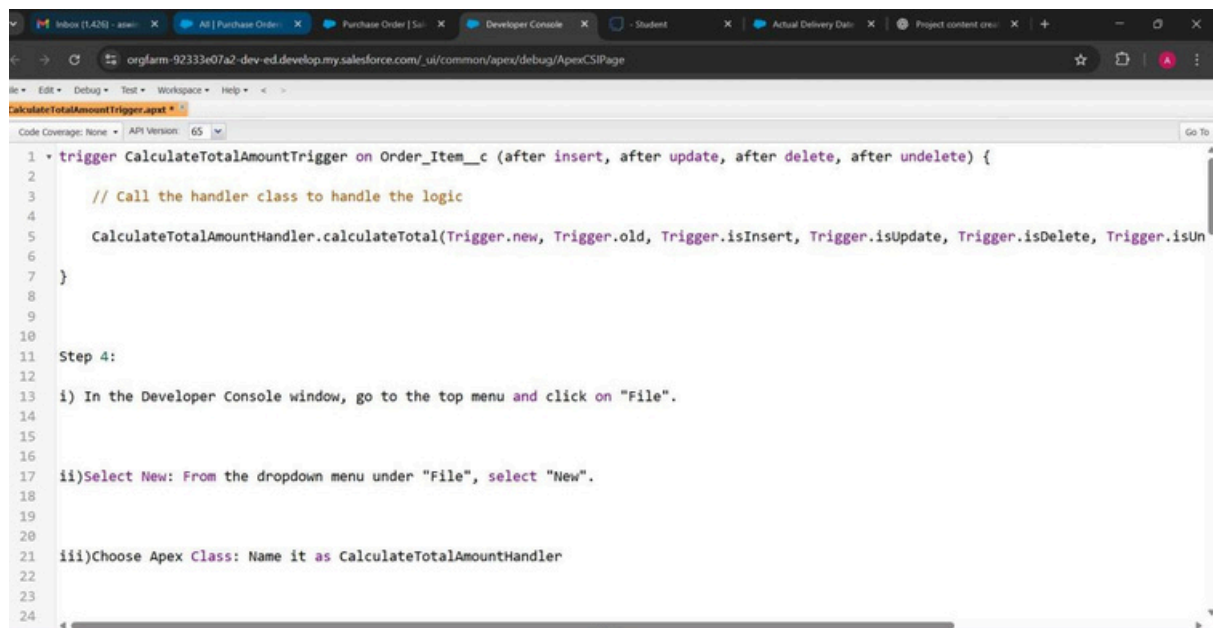
In the **Order Item** object, an *Amount* formula field calculates:

$\text{Quantity_Received_c} * \text{Unit_Price_c}$



Apex Trigger and Handler

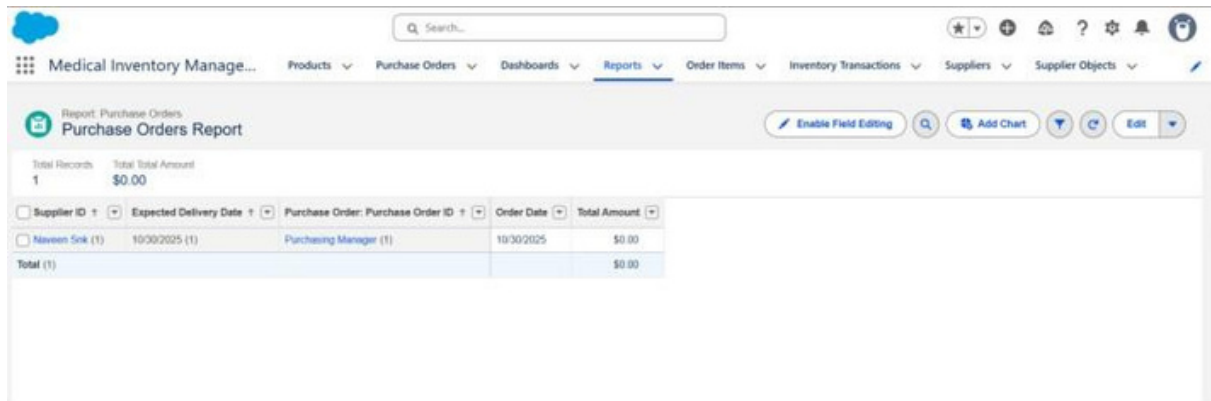
An **Apex Trigger and Handler Class** were created to automatically calculate the *Total Order Cost* whenever Order Items are inserted, updated, or deleted.



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.

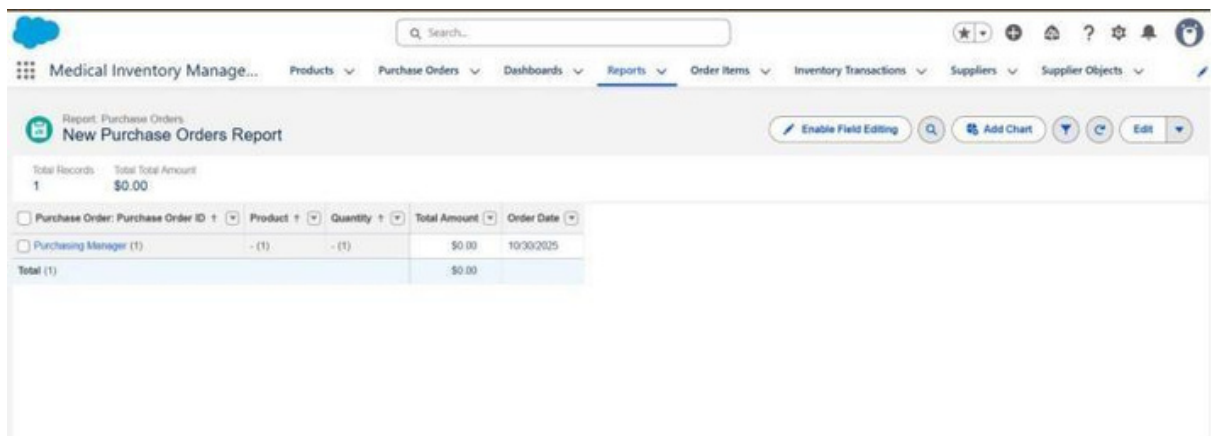


The screenshot shows the 'Medical Inventory Management' system interface. The top navigation bar includes a search bar and various menu items: Products, Purchase Orders, Dashboards, Reports (selected), Order Items, Inventory Transactions, Suppliers, and Supplier Objects. The main content area displays the 'Purchase Orders Report' with a sub-header 'Report: Purchase Orders'. Below this, there are summary statistics: 'Total Records: 1' and 'Total Total Amount: \$0.00'. A table follows with columns: Supplier ID, Expected Delivery Date, Purchase Order: Purchase Order ID, Order Date, and Total Amount. The table contains one record for 'Naheen Sank (1)' with an expected delivery date of '10/30/2025 (1)', a purchase order of 'Purchasing Manager (1)', an order date of '10/30/2025', and a total amount of '\$0.00'. A 'Total (1)' row is also present.

Supplier ID	Expected Delivery Date	Purchase Order: Purchase Order ID	Order Date	Total Amount
Naheen Sank (1)	10/30/2025 (1)	Purchasing Manager (1)	10/30/2025	\$0.00
Total (1)				\$0.00

2. Complete Purchase Details Report

A detailed report combining Purchase Orders, Order Items, and Products with grouped columns for Supplier, Product, Quantity, and Amount.

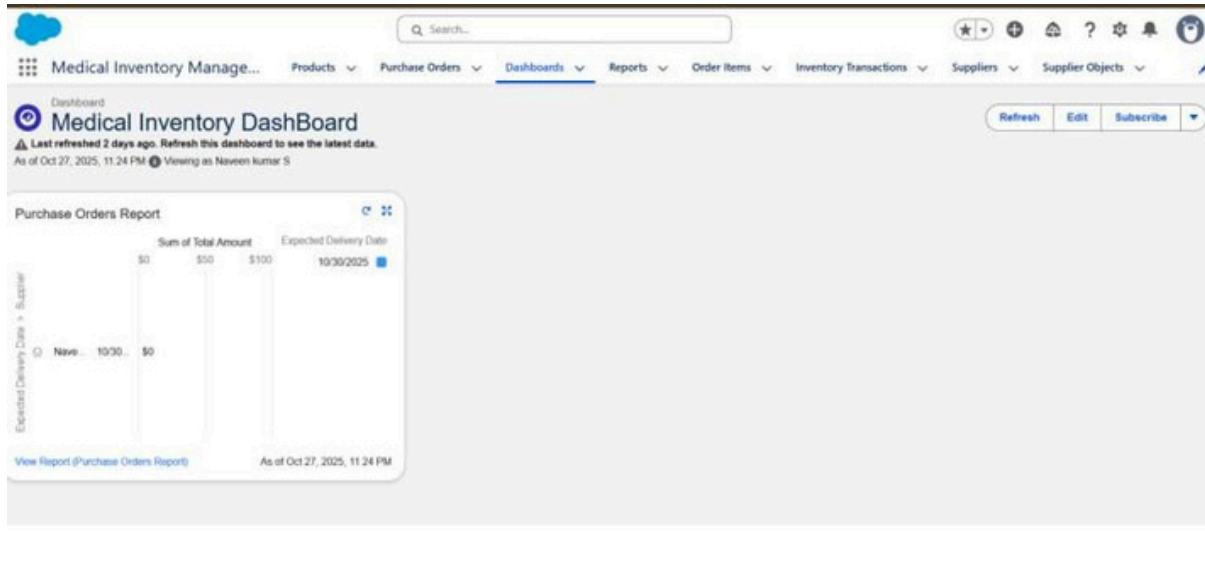


The screenshot shows the 'Medical Inventory Management' system interface. The top navigation bar includes a search bar and various menu items: Products, Purchase Orders, Dashboards, Reports (selected), Order Items, Inventory Transactions, Suppliers, and Supplier Objects. The main content area displays the 'New Purchase Orders Report' with a sub-header 'Report: Purchase Orders'. Below this, there are summary statistics: 'Total Records: 1' and 'Total Total Amount: \$0.00'. A table follows with columns: Purchase Order: Purchase Order ID, Product, Quantity, Total Amount, and Order Date. The table contains one record for 'Purchasing Manager (1)' with a quantity of '- (1)', a total amount of '\$0.00', and an order date of '10/30/2025'. A 'Total (1)' row is also present.

Purchase Order: Purchase Order ID	Product	Quantity	Total Amount	Order Date
Purchasing Manager (1)	- (1)	- (1)	\$0.00	10/30/2025
Total (1)			\$0.00	

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.

