NAAN MUDHALVAN PROJECT REPORT

SB8067-SALESFORCE DEVELOPER

"GARAGE MANAGEMENT SYSTEM"

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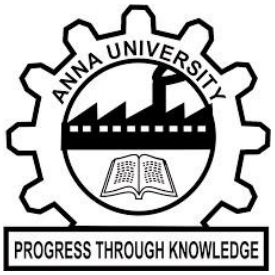

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BONAFIDE CERTIFACATE

Certified that this Naan Mudhalvan report **"MEDICAL INVENTORY MANAGEMANT"** is the Bonafide work of **" M.SUDHARSAN (912422104043) ,R.SUDHARSAN (912422104045), P.SIBIKUMAR (912422104039), PL.SURYA (912422104047)"** who belong to IV Year Computer Science and Engineering during Seventh Semester of Academic Year 2025-2026.

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1. ABSTRACT

The Medical Inventory Management System for Salesforce is a cloud-based solution designed to efficiently manage and track medical supplies, pharmaceuticals, and equipment within healthcare organizations. The project leverages the Salesforce CRM platform to provide a centralized, automated, and scalable system that simplifies inventory operations, enhances data visibility, and improves decision-making.

The proposed system enables hospitals, clinics, and pharmacies to monitor stock levels in real time, track product batches, manage suppliers, and forecast future requirements based on historical usage trends. It integrates key Salesforce features such as Objects, Apex Triggers, Workflows, Reports, and Dashboards to automate tasks such as stock replenishment alerts, expiry notifications, and purchase order generation. Through Salesforce Lightning components, users can view interactive dashboards showing item availability, pending orders, and consumption rates.

The application also supports role-based access, ensuring data security and compliance with healthcare standards. Administrators can add or update product details, suppliers, and purchase records, while staff can manage day-to-day transactions such as issue, return, and reorder requests. Integration with Salesforce Service Cloud and Health Cloud further enhances coordination between departments, suppliers, and patients, leading to efficient medical resource allocation.

2.INTRODUCTION

The Medical Inventory Management System for Salesforce is an innovative cloud-based application developed to streamline and automate the management of medical supplies, drugs, and equipment within healthcare organizations. In hospitals, clinics, and pharmacies, maintaining an accurate and up-to-date record of medical inventory is critical to ensuring uninterrupted patient care. However, traditional inventory management methods—often manual or spreadsheetbased—are prone to errors, inefficiency, and lack of real-time visibility. This project aims to address these challenges by utilizing the Salesforce platform, which offers powerful CRM, automation, and analytics capabilities.

The system is designed to handle all aspects of medical inventory operations, including **stock tracking, supplier management, purchase and sales management, product expiry monitoring, and demand forecasting**. Built on Salesforce, it benefits from a **cloud-based infrastructure** that ensures accessibility from any location, scalability as the organization grows, and strong data security. The solution makes use of Salesforce's **custom objects, fields, workflows, Apex classes, and Lightning components** to provide a comprehensive and user-friendly interface for managing medical stock.

Users such as administrators, pharmacists, and inventory managers can easily monitor the availability of items, view stock movement histories, and generate analytical reports through Salesforce **dashboards and reports**. Automated alerts notify users when an item is running low or approaching its expiry date, enabling timely reordering and minimizing waste. Integration with **Salesforce Health Cloud** and **Service Cloud** further enhances coordination across departments, suppliers, and healthcare professionals.

In essence, the **Medical Inventory Management System for Salesforce** serves as a powerful digital tool that transforms how medical institutions handle their inventory processes. It bridges the gap between technology and healthcare logistics, improving efficiency, accuracy, and service quality—key factors in delivering timely and effective patient care.

3.OBJECTIVES

The main objective of the Medical Inventory Management System for Salesforce is to design and develop a cloud-based, automated inventory management solution that enhances the efficiency, accuracy, and transparency of medical supply operations in healthcare institutions. The specific objectives of this project are as follows:

1. **To automate inventory management processes**
   Develop an automated system on the Salesforce platform to handle the complete lifecycle of medical inventory — including procurement, storage, issue, return, and disposal — thereby reducing manual effort and human error.
2. **To enable real-time tracking of medical supplies**
   Implement a centralized database that allows users to monitor stock levels, product movement, and batch information in real time across multiple departments or locations.
3. **To ensure accurate and timely stock replenishment**
   Create intelligent alerts and workflows in Salesforce that notify users when stock levels fall below predefined thresholds or when products near expiration, ensuring timely reordering and preventing shortages.
4. **To improve visibility and decision-making through analytics** Utilize Salesforce **Reports and Dashboards** to generate insightful analytics on inventory usage, purchase trends, and supplier performance, aiding management in data-driven decision-making.
5. **To manage supplier and vendor relationships effectively**
   Maintain a record of all suppliers, their products, purchase histories, and contact details to streamline procurement and strengthen vendor management.
6. **To enhance data security and access control**
   Use Salesforce's **role-based access** and data sharing features to protect sensitive inventory and healthcare data, ensuring only authorized users can view or modify specific records.
7. **To integrate with other healthcare systems**
   Facilitate integration with Salesforce **Health Cloud** or other hospital .

8. **To provide a user-friendly and scalable interface** Design an intuitive Salesforce **Lightning App** that simplifies the user experience for administrators, pharmacists, and healthcare staff while remaining adaptable for future expansion.

4.SYSTEMREQUIREMENTS

4.1.HARDWAREREQUIREMENTS:

Component	Minimum Requirement	Recommended Requirement
Processor	Dual-Core 2.0 GHz	Intel Core i5 or higher
RAM	4 GB	8 GB or higher
Storage	250 GB HDD	512 GB SSD
Display	1366 × 768 resolution	1920 × 1080 Full HD
Internet Connection	Minimum 2 Mbps	10 Mbps broadband or higher
Input Devices	Keyboard, Mouse	Keyboard, Mouse, Scanner (optional for barcode integration)

4.2.SOFTWAREREQUIREMENTS:

Category	Details
Platform	Salesforce CRM (Cloud-based)
Edition	Salesforce Developer Edition / Enterprise Edition
Development Environment	Salesforce Lightning Platform (Lightning App Builder, Apex, Visualforce, and Flow Builder)

Category	Details
Programming Languages	Apex (Backend Logic), SOQL (Database Query), JavaScript (Client-side Interaction)
User Interface Tools	Salesforce Lightning Components / Lightning Web Components
Database	Salesforce Object Database (Custom and Standard Objects)
Integration Tools	Salesforce API, REST API, or Health Cloud (optional)
Operating System (for client use)	Windows 10 or later / macOS / Linux (Any modern OS supported by browsers)
Browser Compatibility	Google Chrome, Microsoft Edge, Mozilla Firefox, Safari (latest versions)
Additional Tools	Salesforce Data Loader, Workbench, VS Code with Salesforce Extensions (for developers)

5.MODULESOFTHE SYSTEM:

1. User Management Module

This module manages all user-related operations and access controls within the system.

Functions:

- Creation and management of user accounts (Admin, Pharmacist, Staff).
- Assigning user roles and permissions using Salesforce's **Role Hierarchy** and **Profiles**.
- Authentication through Salesforce's **Login and Security Settings**.

- Monitoring user activities and maintaining an audit trail.

Purpose:
Ensures that only authorized personnel can access or modify sensitive medical inventory data.

2. Product / Inventory Management Module

This is the **core module** of the system, responsible for managing all medical items, their stock levels, and details.

Functions:

- Add, update, and delete product records (name, category, batch, expiry, quantity, etc.).
- Track stock levels and item movement in real time.
- Maintain product categories such as medicines, consumables, and equipment.
- Record batch numbers, manufacturing dates, and expiry dates.
- Generate alerts for **low-stock** or **expired items**.

Purpose:
To provide real-time visibility and control over all medical items stored in the inventory.

3. Supplier Management Module

This module handles all supplier-related information and purchasing activities.

Functions:

- Store supplier contact and business details.
- Track purchase orders and supply transactions.
- Manage supplier performance and delivery records.

- Automate supplier notifications for reordering stock.

Purpose:
To streamline supplier communication and ensure timely procurement of medical items.

4. Purchase and Order Management Module

This module focuses on managing purchase requests, orders, and goods received.

Functions:

- Create and track **purchase orders (POs)** within Salesforce.
- Record received goods and update stock automatically.
- Manage purchase history and supplier invoices.
- Generate purchase reports and analyze spending trends.

Purpose:
To automate the procurement process and maintain accurate stock and financial records.

5. Stock Monitoring & Alerts Module

This module ensures continuous tracking of stock levels and automates system notifications.

Functions:

- Real-time stock monitoring using **Salesforce Flow** or **Apex triggers**.
- Low-stock, reorder, and expiry alerts via **email or in-app notifications**.
- Visual stock representation using **Salesforce Dashboards**.

Purpose:
To prevent stockouts and wastage by ensuring timely actions through automatic alerts.

6. Reporting and Analytics Module

This module provides insights into inventory performance, stock usage, and supplier activity.

Functions:

- Generate custom and scheduled reports on stock levels, sales, purchases, and expiries.
- Create interactive **Salesforce Dashboards** for data visualization.
- Analyze trends to forecast future demand.

Purpose:
To support management in making informed, data-driven decisions.

7. Security and Audit Module

This module ensures data protection, compliance, and accountability within the system.

Functions:

- Implement **Salesforce security controls**, including data encryption and access restrictions.
- Maintain audit logs for all inventory transactions.
- Provide version control for critical updates and configurations.

Purpose:
To maintain the confidentiality, integrity, and accountability of medical data.

8. Integration Module (Optional)

This module connects the system with other healthcare or ERP systems if needed.

Functions:

- Integrate with **Salesforce Health Cloud** or hospital management systems.
- Enable data exchange via **REST APIs**.
- Synchronize supplier and order data with external applications.

Purpose:
To enable seamless communication between multiple healthcare systems and enhance interoperability.

6.TECHNOLOGIESUSED

• Salesforce Platform:
Cloud-based CRM platform used to build custom applications with standard and custom objects, tabs, fields, and Lightning pages. It provides tools for automation, analytics, and secure data management. In this project, it is used to manage medical stock, suppliers, and transactions through custom objects and relationships.

• Custom Objects and Fields:
Used to create data models for core modules like *Medical Product*, *Supplier*, *Purchase Order*, *Inventory Record*, and *Issue/Return*. Each object stores specific details such as product name, batch number, expiry date, and quantity.

• Apex Triggers and Classes:

Custom Apex logic handles automatic updates and validations. For example, triggers can reduce stock quantity after a sale or issue, and Apex classes manage business logic like calculating total stock value or checking expiry status.

• **Flows (Record-Triggered and Screen Flows):**
Used for automation without code. Record-triggered flows update stock status automatically, send email alerts for low or expired stock, and create reorder requests. Screen flows guide users through adding or updating inventory data interactively.

• **Validation Rules and Matching Rules:**
Ensure data integrity by preventing incorrect or duplicate entries. For example, validation rules prevent negative stock values or invalid expiry dates, and matching rules detect duplicate product or supplier records.

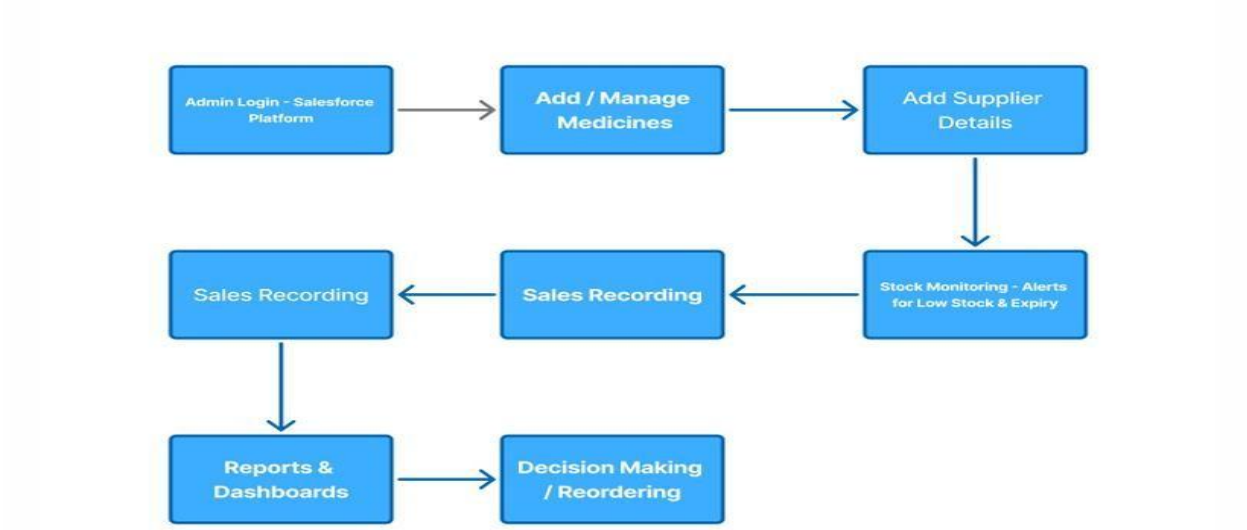
• **Reports and Dashboards:**
Provide real-time visualization of inventory data. Dashboards display key metrics like available stock, expiring items, and supplier performance, while reports summarize product movement, usage trends, and purchase history.

• **Lightning App Builder:**
Used to design and organize user interfaces for the Medical Inventory app. Custom tabs, components, and record pages make navigation simple and intuitive for pharmacists and administrators.

• **Security Model (Profiles, Roles, and Sharing Rules):**

Implements data access control. Different profiles like *Admin*, *Pharmacist*, and *Inventory Staff* have role-based permissions to ensure secure and compliant operations.

7.SYSTEM DESIGN



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8. WORKFLOW DESCRIPTION

- **User Login and Role Assignment**
- Users log in based on roles: Admin, Pharmacist, Doctor, and Supplier. Role-based permissions control access to inventory functions.
- **Product Registration**
- Admin/Pharmacist adds new medical items in the custom object *Medical_Product__c*.

- Requests are sent to the respective supplier for replenishment. ▯ Supplier updates order status (Pending, Shipped, Delivered).

- **Stock Update After Delivery**

- On delivery confirmation, stock levels are automatically updated. ▯ Admin verifies delivery and closes the restock request record.

- **Expiry Tracking and Alerts**

- Scheduled flows check expiry dates of products regularly.
- Notifications are sent for items nearing expiry (e.g., 30 days before). ▯ Pharmacist takes action such as return or disposal of expired stock.

- **Medicine Request and Issue**

- Doctors raise requests for medicines or medical supplies.
- Pharmacist reviews and issues requested items from stock. ▯ Inventory quantity automatically decreases after issuance.

- **Reporting and Dashboard**

- Salesforce Reports and Dashboards display stock levels, expiry alerts, and consumption trends.
- Automatic reports can be generated weekly or monthly for review.

- **Automation and Integration**

- Process Builder and Flow automate repetitive tasks (alerts, restocks, status updates).
- Integration with supplier systems enables real-time order tracking.

- **Outcome**

- Accurate stock management
- Timely restocking and expiry control
- Reduced manual effort through automation
- Efficient, transparent, and reliable medical inventory operations

10. IMPLEMENTED STEPS

1.Creating Developer Account:

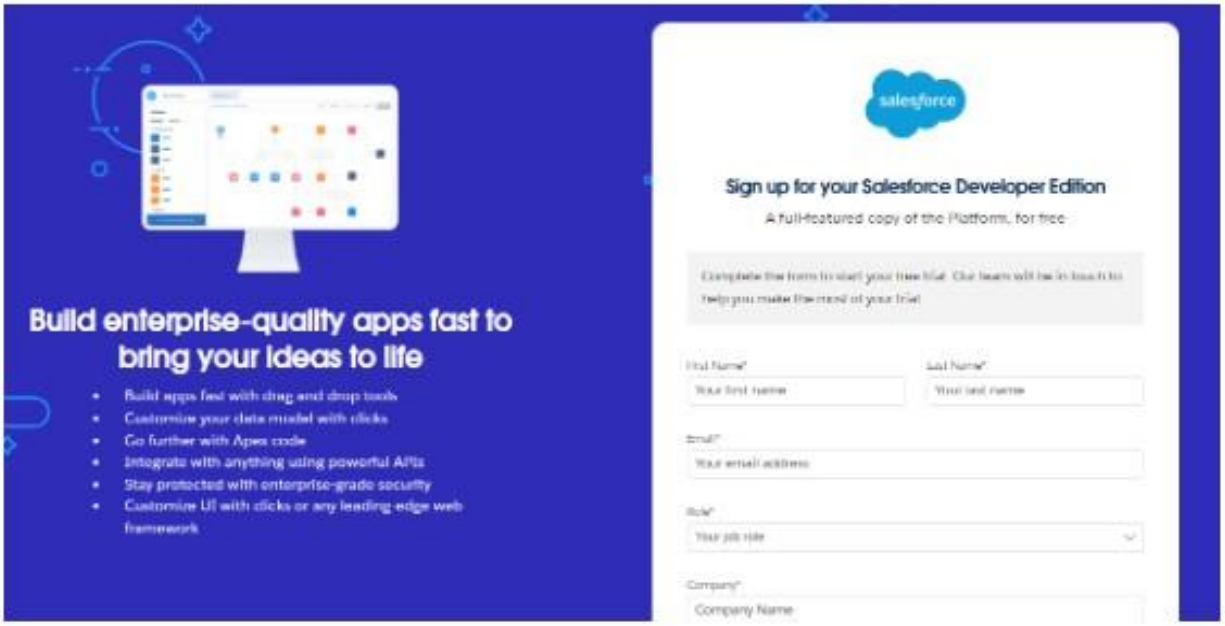
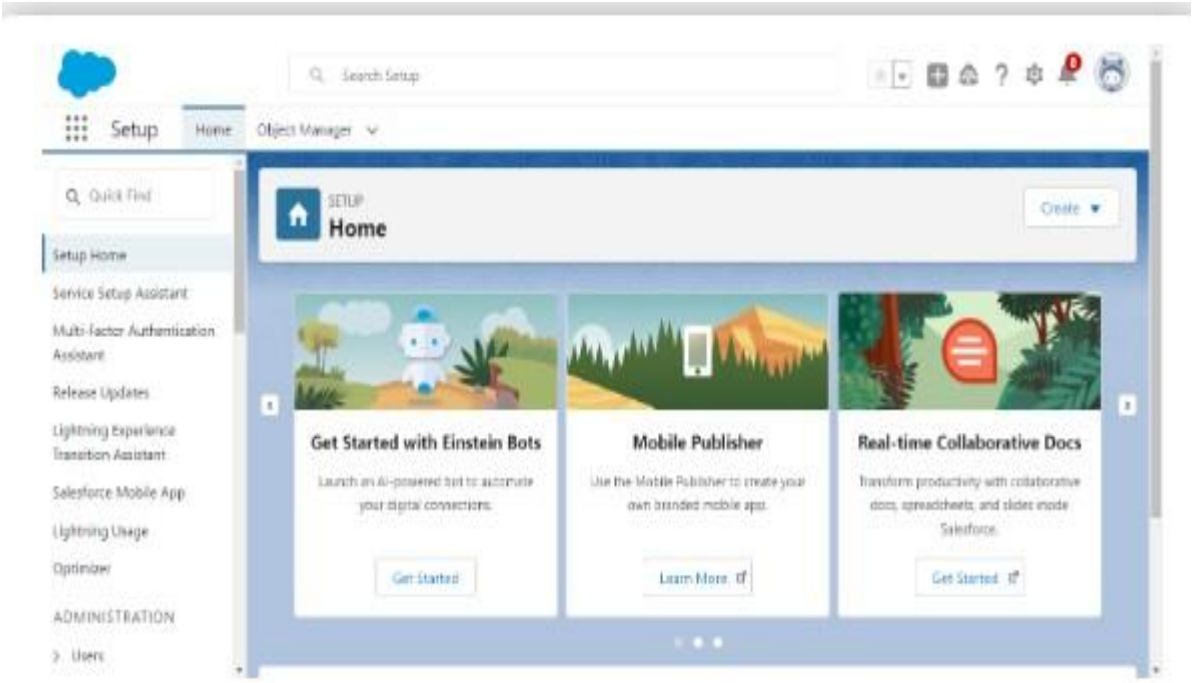


Fig:1.1 Developer Account <u>Account Activation:</u>



3.Object Creation:

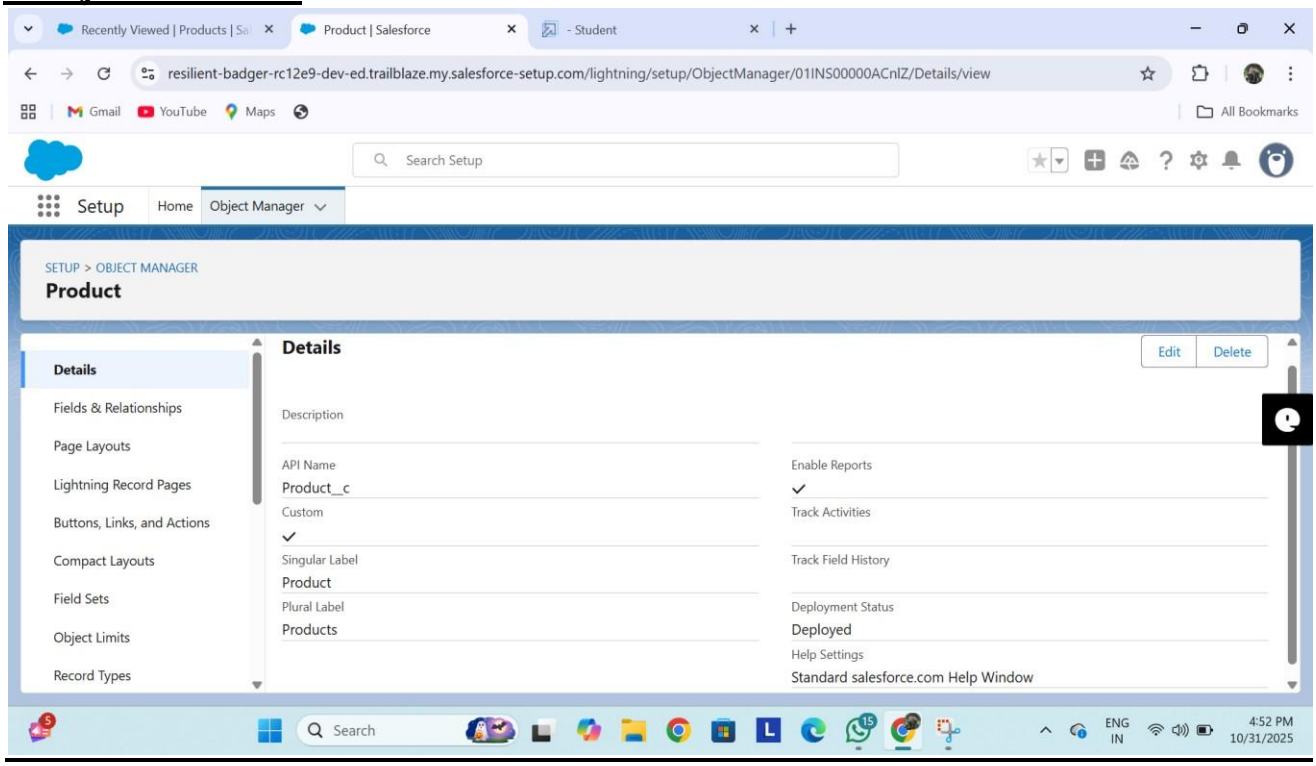


Fig: 3 Creation of product detail object

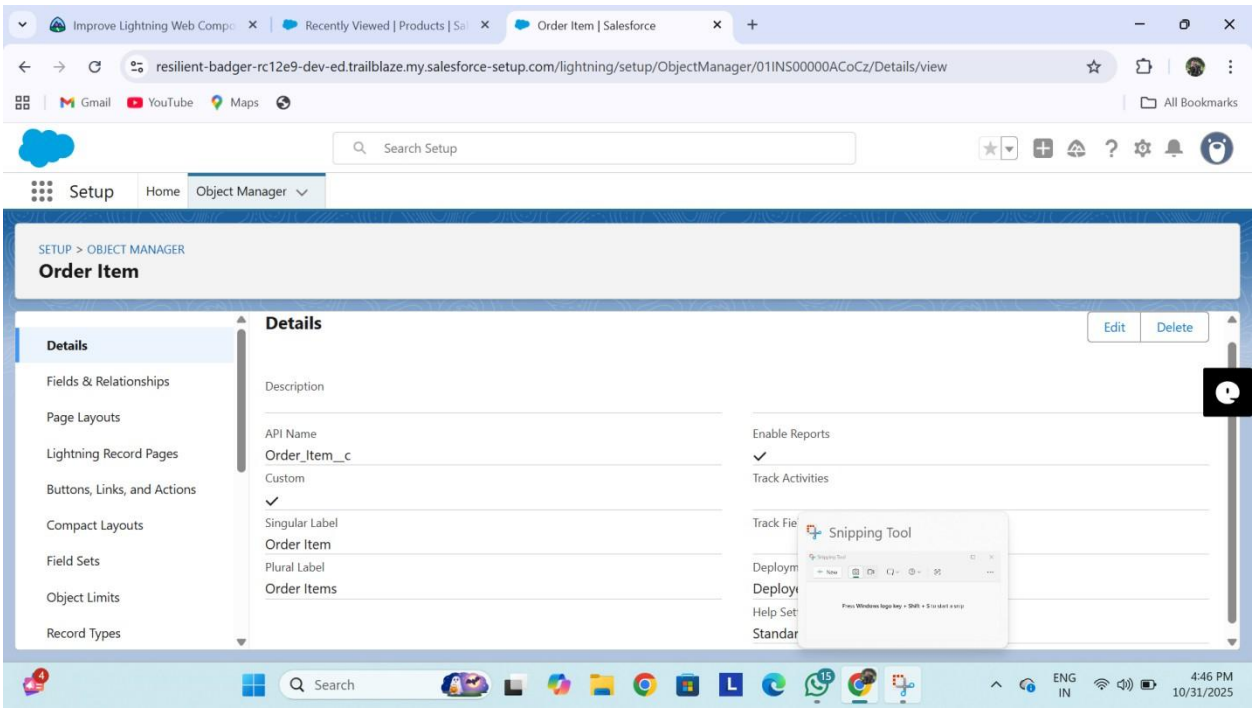


Fig : 3.1 Fig: 3 Creation of order detail object

4.Inventory Transaction:

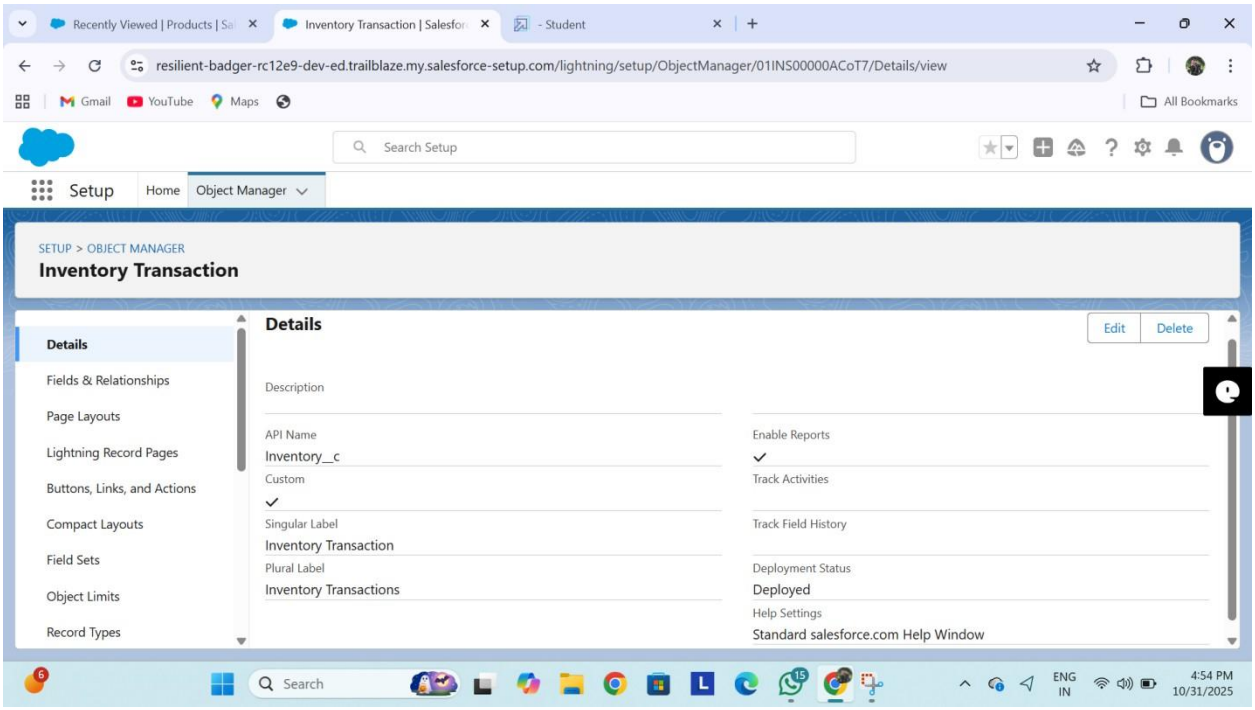


Fig:4 Creation to inventory transaction object

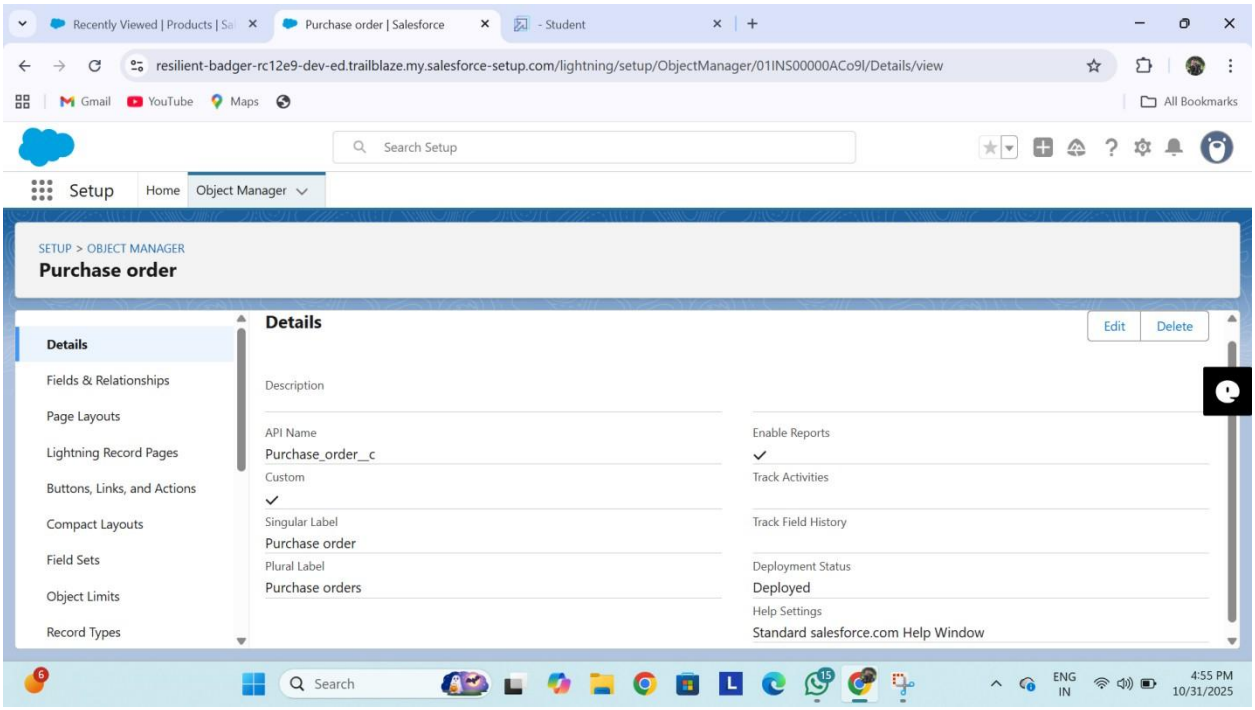


Fig: 4.1 creation to Purchase order object

5.Recently Viewed

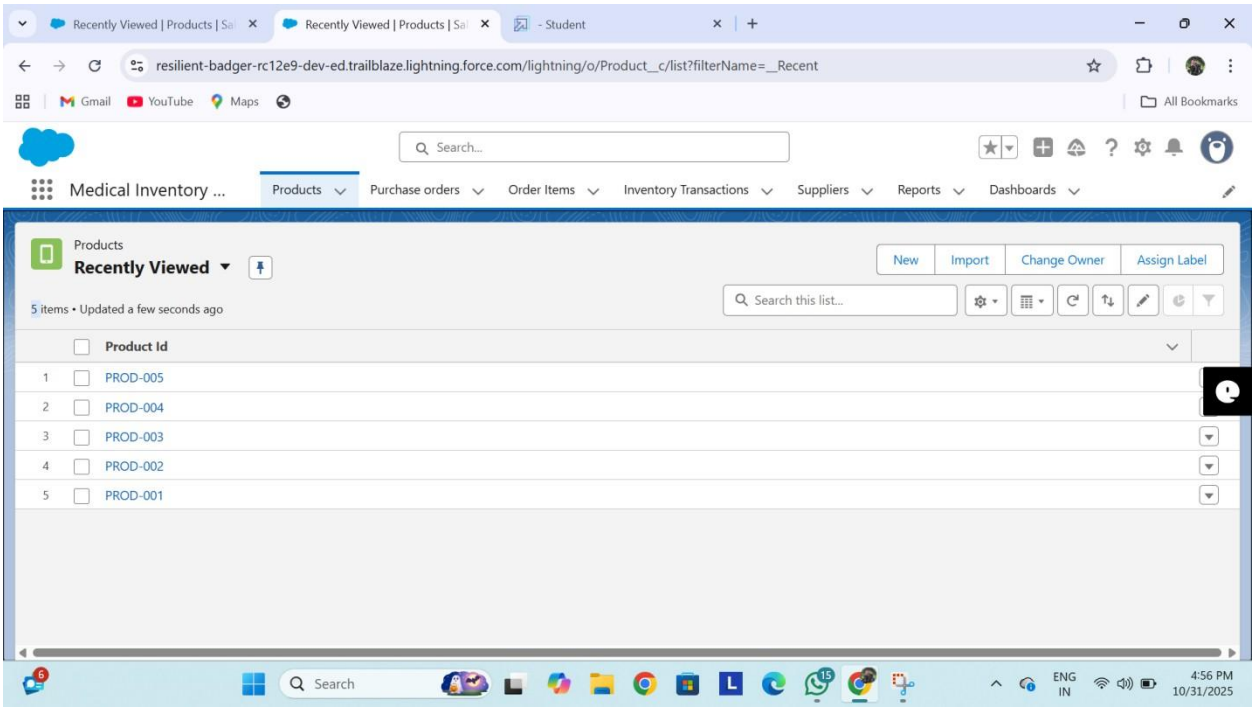


Fig:5 creation to recently viewed

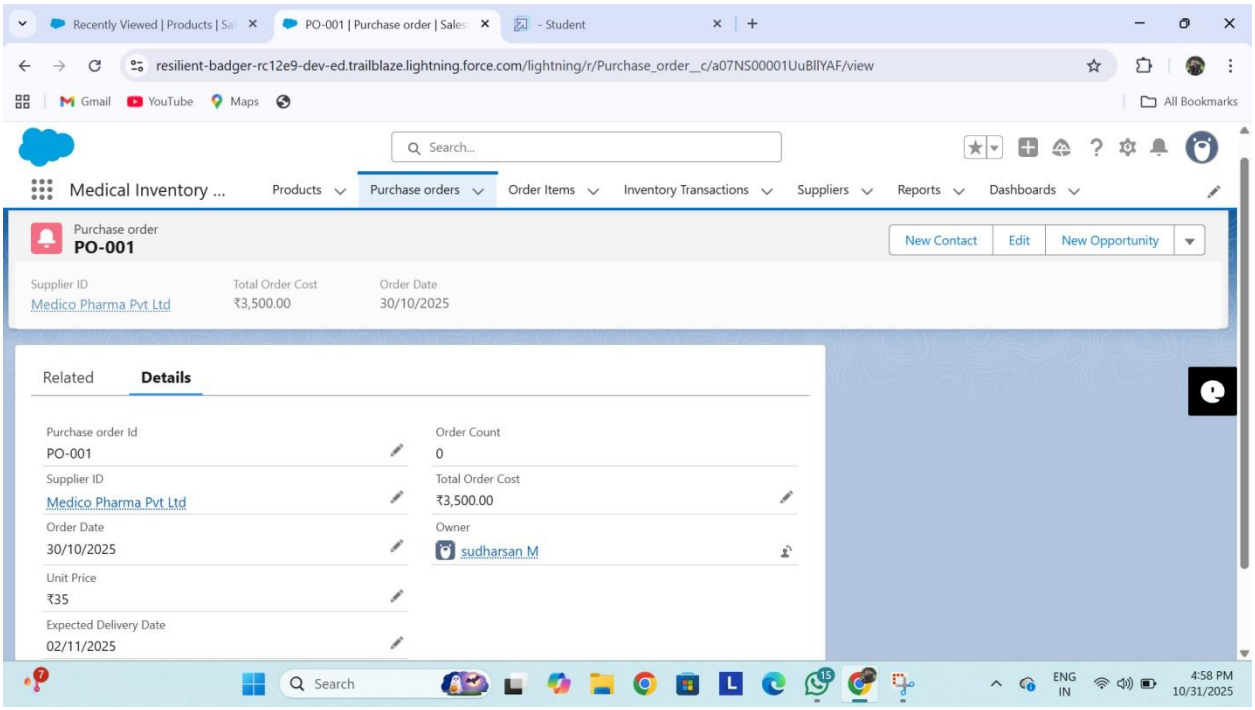


Fig:5.1 PO-001 detail for purchase order

6.Insulin Stock Update

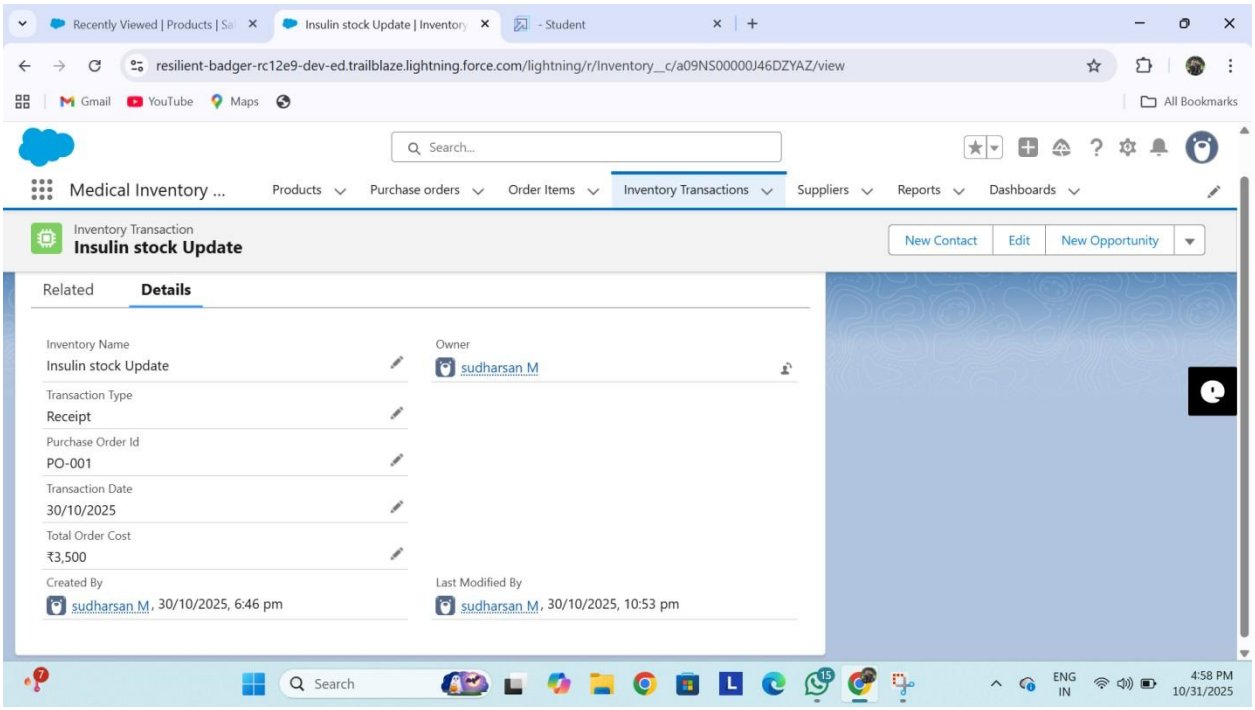


Fig:6.1 inventory transaction detail for insulin stock update

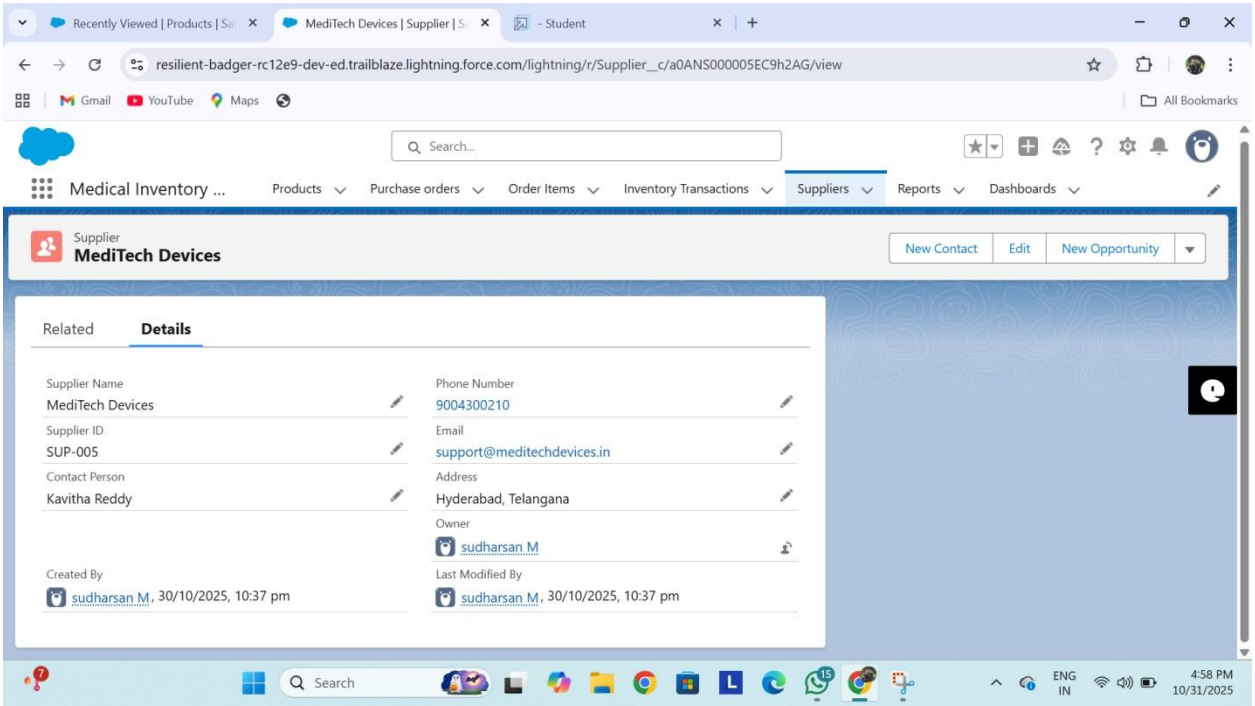


Fig:6.2 supplier detail for meditech devices

7.Report Purchase Order

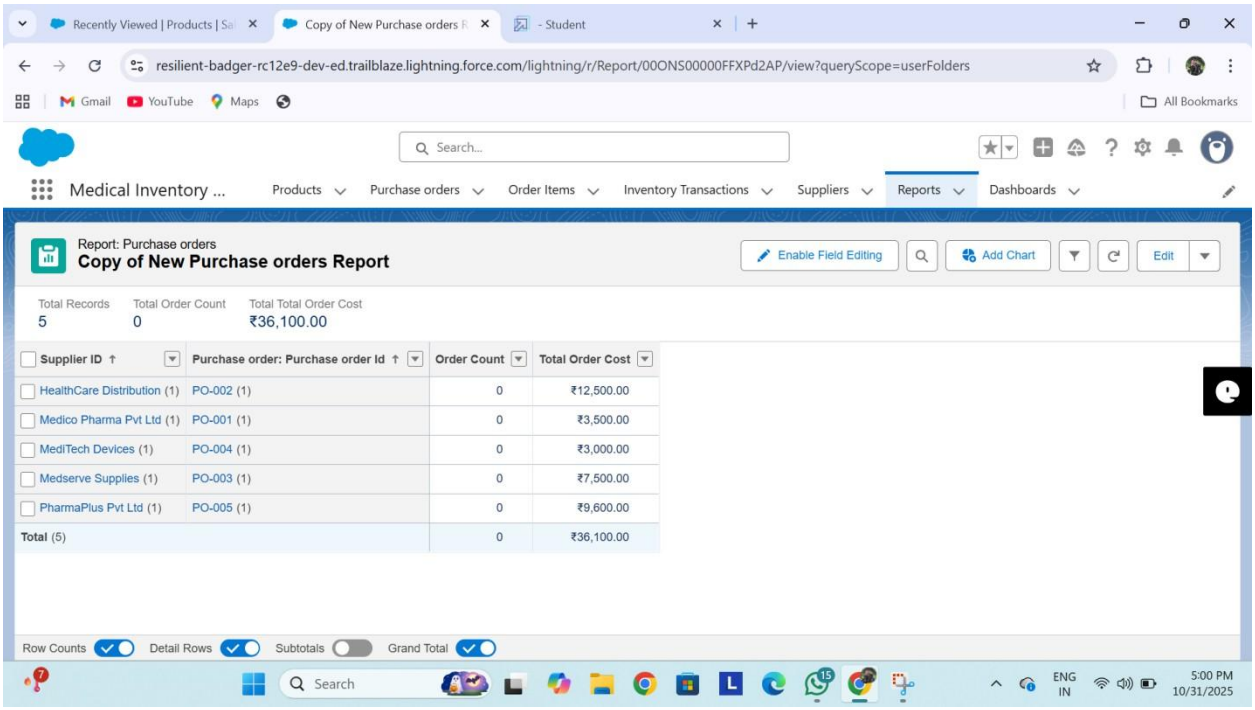


Fig :7.1 copy of new purchase order report in RPO

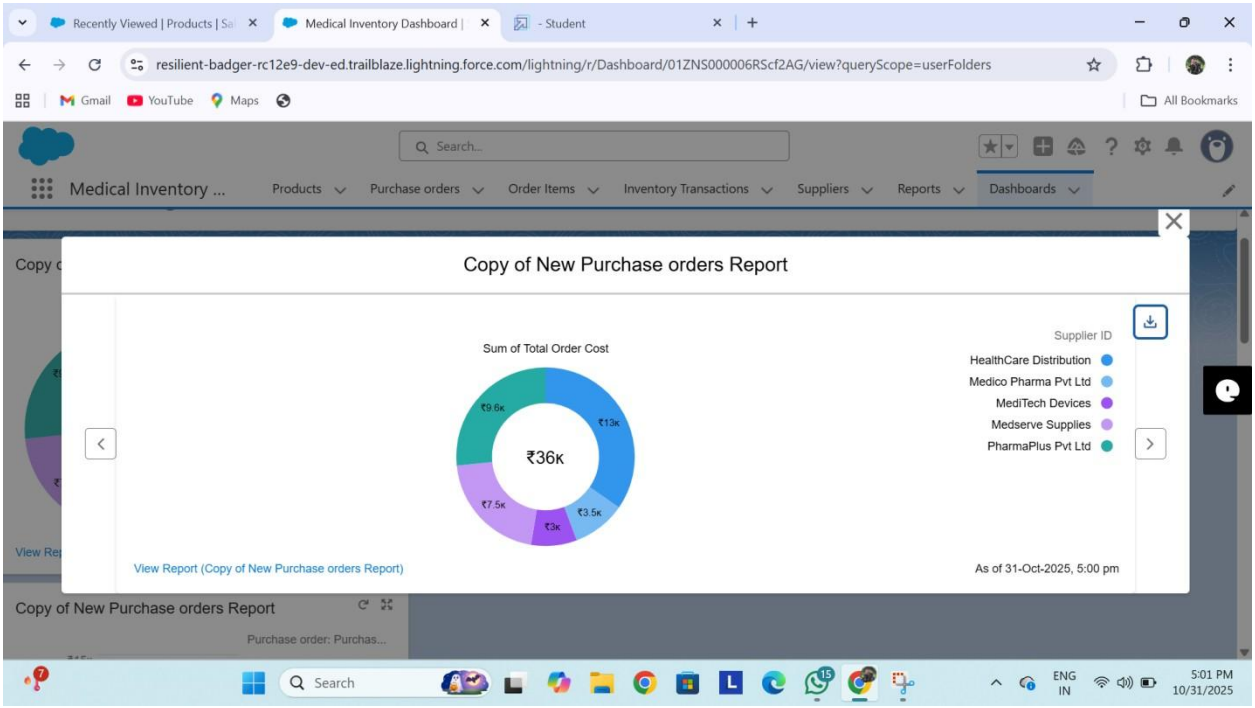


Fig : 7.2 Report Purchase Order chart1

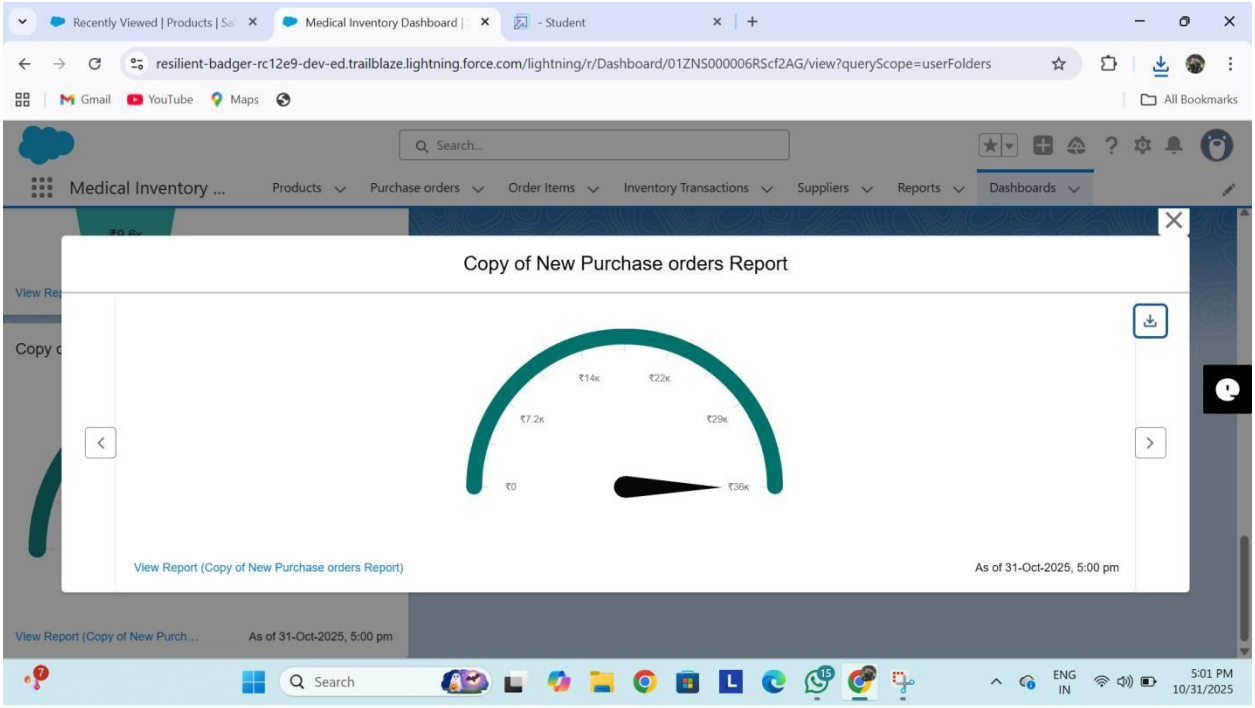


Fig :7.3 Report Purchase Order in chart2

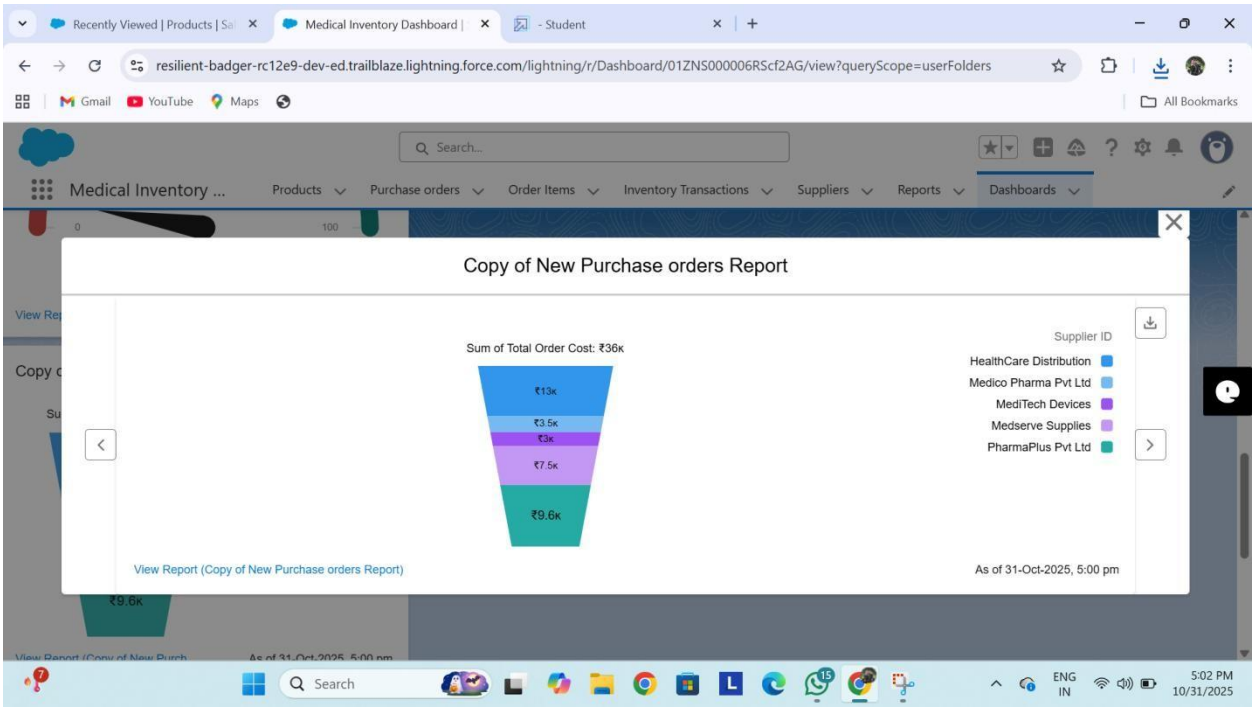


Fig : 7.4 Report Purchase Order in chart3

8.Flow

Fig : 8 flow diagram for MIM

8. EXPECTED OUTCOMES

1. **Streamlined Inventory Tracking:**
   Real-time visibility into available medical supplies, equipment, and medicines within hospitals or clinics using Salesforce dashboards.
2. **Automated Stock Updates:**
   Automatic updates of inventory levels after every purchase order, issue, or return — reducing manual errors and improving accuracy.
3. **Efficient Purchase Order Management:**
   Simplified creation, approval, and tracking of purchase orders directly within Salesforce for faster procurement.
4. **Reduced Stock-Outs and Overstocking:**
   Intelligent alerts and workflows to notify users when inventory levels cross threshold limits, ensuring optimal stock availability.
5. **Enhanced Reporting and Analytics:**
   Custom Salesforce reports and dashboards that provide insights on usage trends, supplier performance, and cost analysis for better decision-making.

6. **Improved Traceability:**

Full tracking of medical items from supplier to end-user department, ensuring compliance with healthcare standards and regulations.

7. **User Role Management:**

Secure access control where only authorized personnel can add, update, or remove inventory records.

8. **Seamless Integration with Sales and Service Modules:**

Connection between inventory, sales orders, and service requests in Salesforce, ensuring unified business operations.

9. **Reduction in Operational Costs:**

By automating manual inventory processes, the system reduces human errors and administrative workload, saving time and money.

10. **Better Patient Care Support:**

Availability of the right medical equipment and medicines at the right time ensures uninterrupted healthcare delivery.

ADVANTAGES :

1. **Centralized Data Management** ○ All inventory records (medicines, equipment, suppliers, and stock levels) are stored in one unified Salesforce platform for easy access and management.
2. **Real-Time Inventory Tracking** ○ Enables real-time tracking of stock levels, expirations, and usage, reducing the risk of stockouts or overstocking.
3. **Automation of Workflows** ○ Automates key processes such as restocking alerts, purchase orders, and approvals, saving time and minimizing manual errors.
4. **Enhanced Accuracy** ○ Reduces human error through automated data entry, barcode scanning, and intelligent analytics.
5. **Integration with Other Systems** ○ Easily integrates with ERP, hospital management systems, and accounting tools for smooth data flow and synchronization.

6. **Improved Compliance and Reporting**
    - Generates accurate compliance reports and audit trails required for healthcare regulations and standards.
7. **Predictive Analytics and Forecasting** ○ Salesforce AI tools can forecast demand trends, helping plan future inventory purchases efficiently.
8. **Improved Patient Safety** ○ Ensures expired or defective products are automatically flagged, minimizing the risk of using unsafe medical items.
9. **Mobile and Cloud Accessibility** ○ Staff can monitor inventory and approve orders anytime, anywhere using Salesforce's mobile and cloud features.
10. **Enhanced Communication and Collaboration**
    - Salesforce's CRM tools improve communication among suppliers, pharmacists, and healthcare staff through shared dashboards.
11. **Cost Efficiency** ○ Reduces wastage, avoids overstocking, and optimizes purchasing cycles — leading to significant cost savings.
12. **Scalability and Customization** ○ Can be customized for hospitals, pharmacies, or clinics of any size, adapting to changing business needs.

9. FUTURE ENHANCEMENTS

1. **AI-Based Demand Forecasting:**

   Integrate Artificial Intelligence and Machine Learning models to predict medicine demand based on usage trends, seasons, and patient data.

2. **IoT Integration:**

   Use IoT-enabled sensors to monitor real-time storage conditions like temperature and humidity for sensitive medicines and vaccines.

3. **Barcode and RFID Tracking:**

   Implement barcode or RFID scanning for faster stock verification, expiry tracking, and automated item updates in Salesforce.

4. **Mobile Application Support:**
   Develop a mobile app integrated with Salesforce for on-the-go inventory access, order placement, and stock management.
5. **Automated Reorder System:**
   Enable automatic reordering when stock levels fall below predefined thresholds, ensuring continuous medicine availability.
6. **Advanced Analytics Dashboard:**
   Build interactive dashboards using Salesforce Einstein Analytics to provide insights on sales trends, wastage, and supplier performance.

Conclusion:

The **Medical Inventory Management System in Salesforce** marks a significant step toward digital transformation in the healthcare supply chain. By integrating inventory operations with the powerful features of the Salesforce platform, this system ensures seamless management of medical supplies, equipment, and medicines within hospitals, pharmacies, and healthcare organizations.

The solution effectively addresses major challenges in medical inventory management, such as manual data entry errors, stock mismanagement, delayed procurement, and expired items. Salesforce's cloud-based architecture allows for **real-time tracking**, **automated updates**, and **centralized data access**, enabling healthcare administrators to make informed and timely decisions. This leads to greater operational transparency and accountability across all levels of the organization.

Additionally, the system's **workflow automation** features—such as automatic reorder alerts, approval processes, and notifications—reduce human intervention and streamline critical supply operations. The inclusion of **reports and dashboards** provides valuable insights into consumption patterns, supplier performance, and cost management, supporting data-driven decision-making.

From a broader perspective, the integration of Salesforce CRM functionalities fosters improved **collaboration between departments**, **enhanced vendor communication**, and **better service delivery**. It also supports compliance with healthcare standards by maintaining accurate records of batch numbers, expiry dates, and stock movements.

In conclusion, the implementation of a Medical Inventory Management System in Salesforce not only simplifies and strengthens inventory control but also contributes to the overall improvement of healthcare efficiency and patient care quality. It ensures that essential medical resources are always available at the right time and place—creating a more reliable, transparent, and sustainable healthcare ecosystem.

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