NAAN MUDHALVAN PROJECT REPORT

SB8067- SALESFORCE DEVELOPER

"MEDICAL INVENTORY MANAGEMENT "

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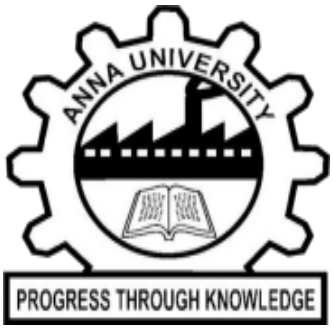
ARASAMPATTI – 622 507



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BONAFIDE CERTIFICATE

Certified that this Naan Mudhalvan report "**MEDICAL INVENTORY MANAGEMENT**" is the Bonafide work of " **ARUN MOZHI (912422104005), ABUL HARISH J (912422104001), BALAMURUGAN P (912422104006), BALAMURUGAN P (912422104007)**" who carried out the mini project work under my supervision

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Submitted for Viva-Voice Examination held on_____

INTERNAL EXAMINER **EXTERNAL EXAMINER**

ACKNOWLEDGEMENT

It is a matter of pride and privilege for me to have done a **NAAN MUDHALVAN PROJECT REPORT** in **"SHANMUGANATHAN ENGINEERING COLLEGE"** and I am sincerely thankful to them for providing this opportunity to me.

I Wish to convey my sincere thanks to the beloved chairperson **Mrs. PICHAPPA VALLIAMMAL**, correspondent **Dr. P. MANIKANDAN B.E**, Director (Academic) **Shri M. SHANMUGANATHAN**, Director (Administration) **Mr. PICHAPPA** and Secretary **Mr. M. VISWANATHAN** for their extensive support.

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1. INTRODUCTION:

The **Medical Inventory Management System** is a **Salesforce-based application** designed to streamline and manage all operations related to medical inventory, such as product tracking, supplier management, purchase orders, and expiry monitoring.

In the healthcare sector, managing inventory efficiently is crucial to ensuring that the right medicines and medical supplies are available at the right time. This project leverages the **Salesforce CRM platform** to provide a **centralized, automated, and intelligent solution** to handle these processes.

Salesforce's powerful cloud ecosystem offers a flexible and scalable environment for building such applications. This project demonstrates how declarative tools (like **Flows**, **Validation Rules**, **Reports**, and **Dashboards**) can be integrated with programmatic elements (like **Apex Triggers**) to deliver real-world business solutions.

2. PROBLEM STATEMENT:

In many hospitals and medical institutions, inventory management is often manual, relying heavily on spreadsheets or outdated local software. This leads to challenges such as:

- **Stock Mismatch:** Difficulty in maintaining accurate stock levels.
- **Expired Medicines:** Failure to track product expiry efficiently.
- **Supplier Mismanagement:** Lack of systematic supplier tracking.
- **Delayed Procurement:** Manual ordering processes cause delays.
- **Error-Prone Reports:** Inconsistent and inaccurate data recording.

Without automation, hospitals risk financial losses, operational inefficiency, and potential harm to patients due to expired or missing medicines.

There is therefore a strong need for a **cloud-based, automated solution** that ensures accuracy, accountability, and real-time tracking.

3. OBJECTIVE:

The primary goal of this project is to **develop an automated Salesforce application** that manages and monitors medical inventory effectively.

Specific Objectives:

1. To design a centralized database for managing **suppliers, products, and purchase orders**.
2. To automate inventory updates and expiry tracking using **Flows** and **Apex Triggers**.
3. To ensure **data accuracy** with validation rules and field dependencies.
4. To provide **user-friendly interfaces** via Lightning Apps and Page Layouts.
5. To deliver **real-time insights** through Reports and Dashboards.
6. To improve **decision-making** for management and procurement teams.

4. PROBLEM DESCRIPTION:

Managing medical inventory manually is labor-intensive, inefficient, and prone to human error.

Pharmacies and hospitals must handle thousands of items daily, and without automation, it becomes nearly impossible to track product availability, expiry, and reorder levels.

Common issues faced:

- Over-purchasing or understocking of items.
- Poor record-keeping due to human errors.
- No alert mechanism for near-expiry or low-stock items.
- Delayed supplier communications.
- Difficulty in generating analytical reports.

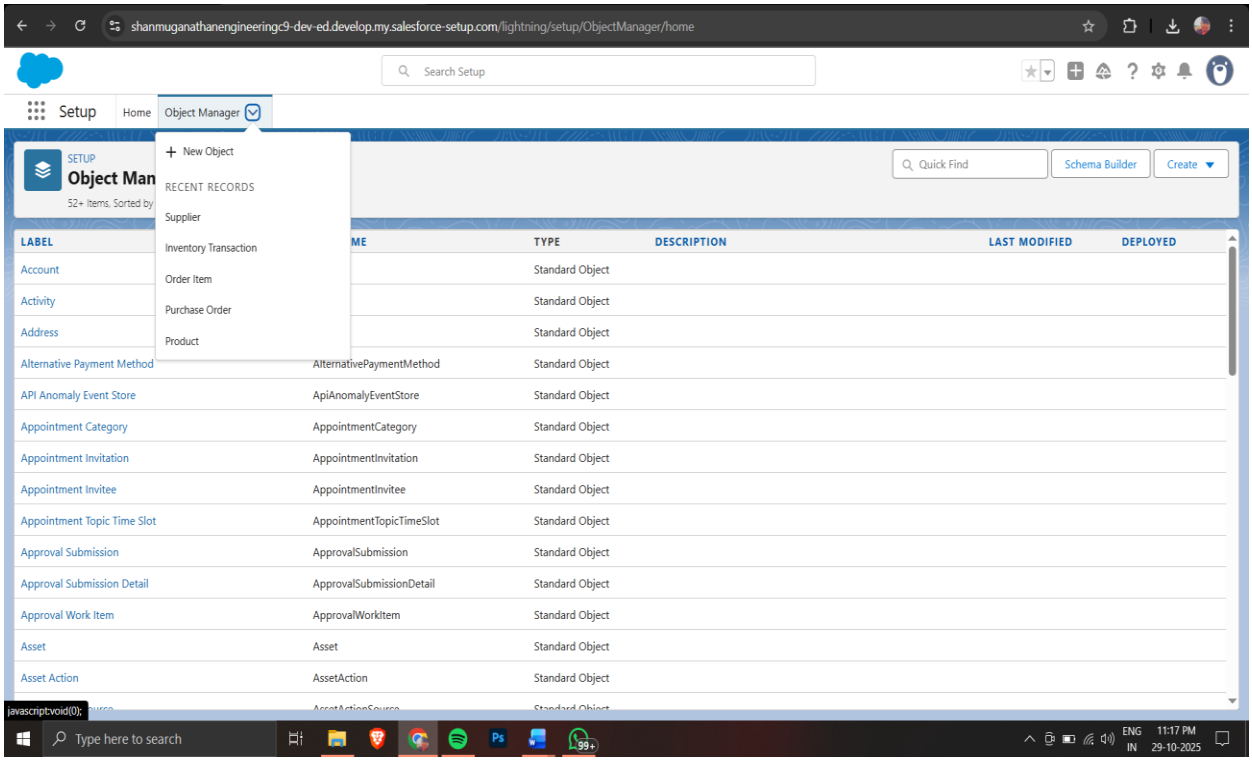
A digital solution integrated with **Salesforce CRM** offers a streamlined process to manage data effectively and improve resource utilization.

5. PROPOSED SOLUTION:

The proposed **Salesforce-based Medical Inventory Management System** solves these issues by automating the entire workflow using Salesforce's cloud tools.

The system is built with custom **Objects, Fields, Relationships**, and **Lightning Components**. It enables users to:

- Add suppliers and products.
- Create purchase orders.
- Track stock quantities and expiry dates.
- Generate automatic alerts.
- View analytical dashboards.



Technology Used:

- Salesforce Platform (Lightning Experience)
- Apex (for automation logic)
- Process Builder and Flow Builder
- Validation Rules
- Reports and Dashboards

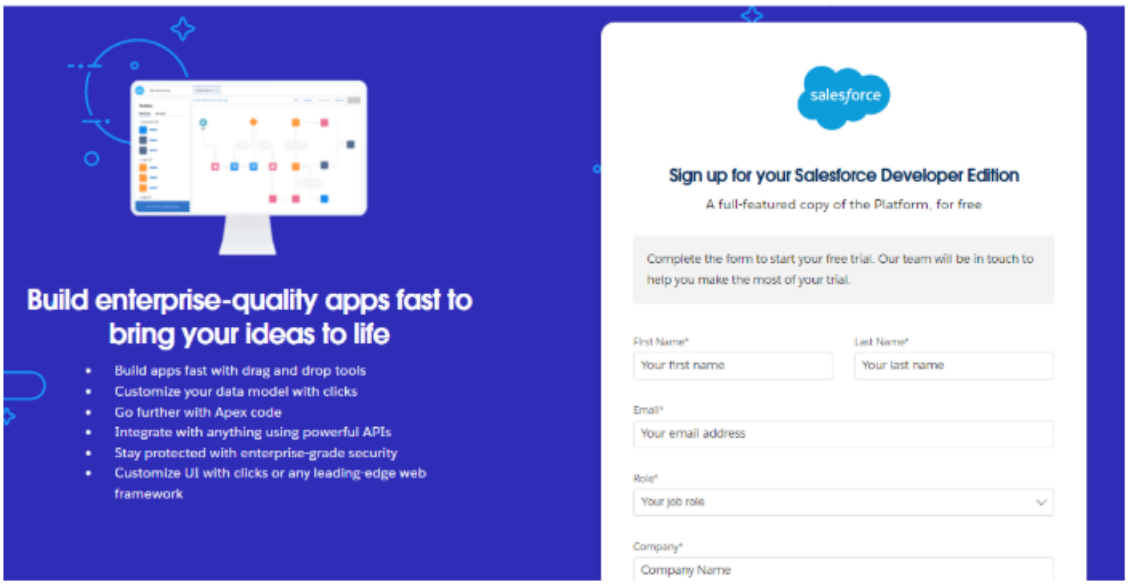
The Salesforce environment ensures **security**, **scalability**, and **accessibility**, making it ideal for healthcare organizations.

6. METHODOLOGY:

The project was implemented using a step-by-step approach within the Salesforce Developer environment.

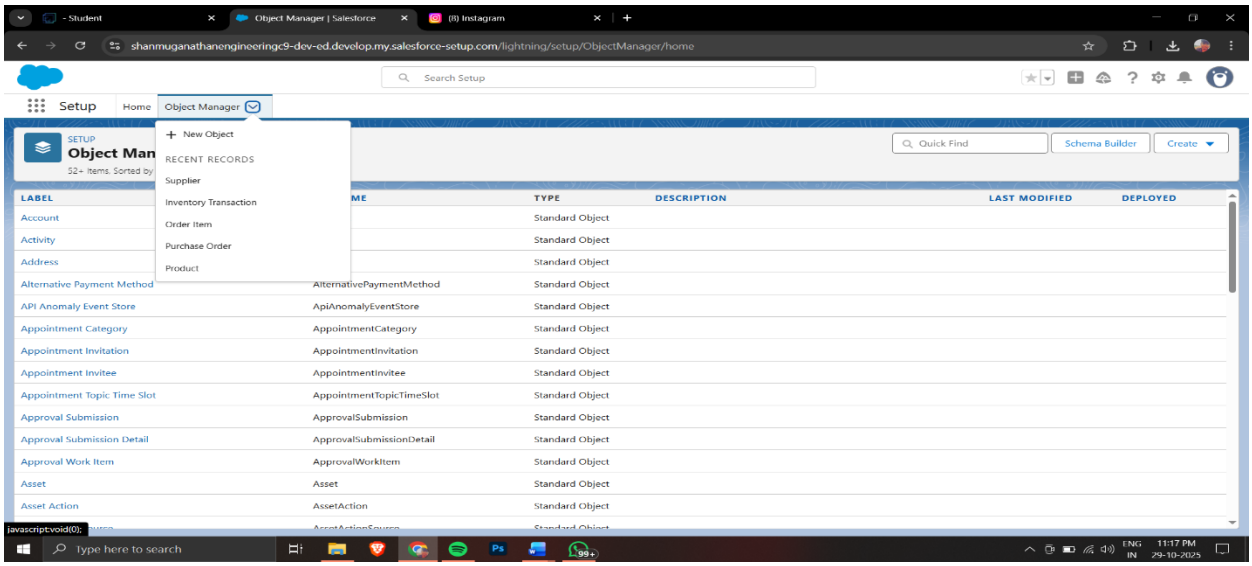
Phase 1 – Setup

- Creation of a Salesforce Developer Account.
- Enabling Lightning Experience.
- Configuring basic user profiles.



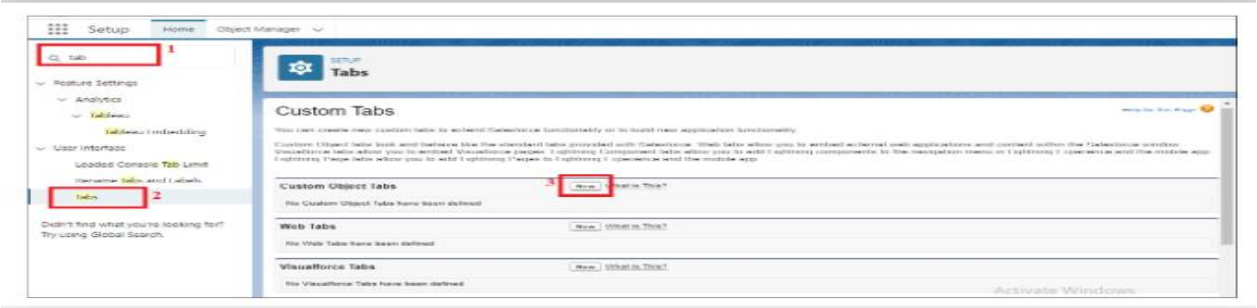
Phase 2 – Object Design

- Creation of four main custom objects:
    - **Supplier** (Supplier Name, Contact, Email, Address)
    - **Product** (Product Name, Batch Number, Expiry Date, Stock Quantity)
    - **Purchase Order** (Order ID, Date, Supplier, Status)
    - **Transaction** (Purchase Order ID, Product, Quantity, Delivery Date)



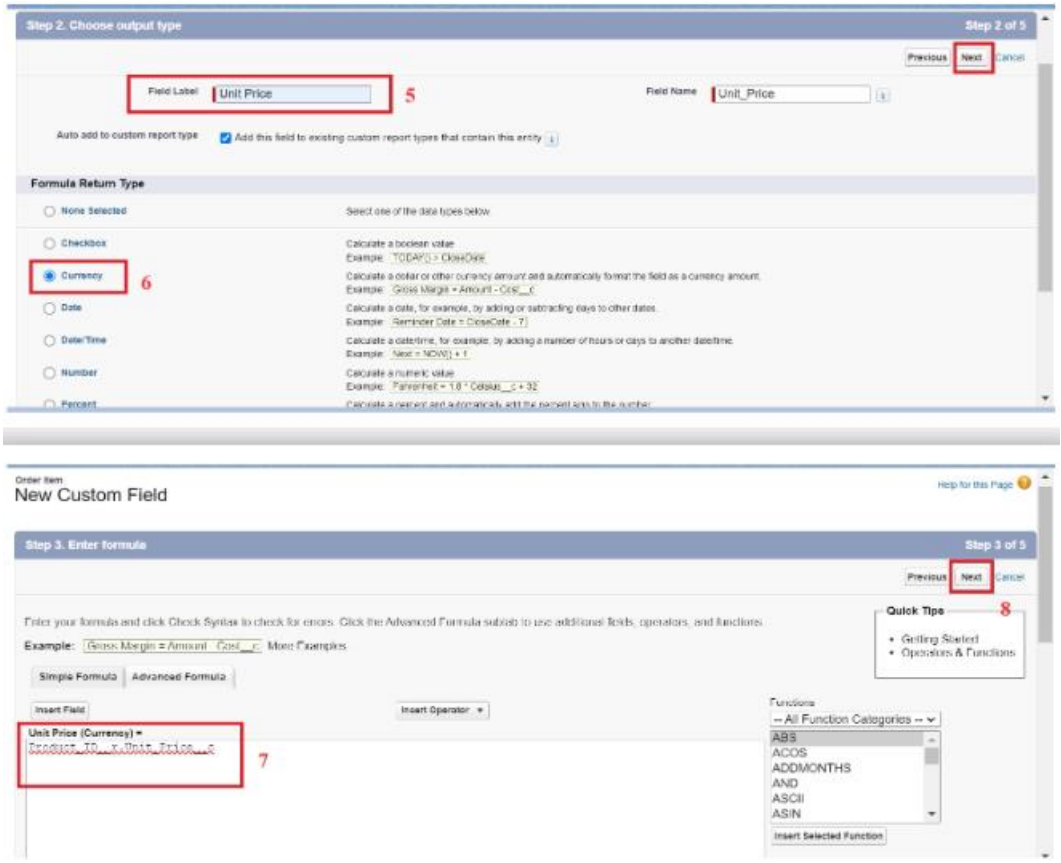
Phase 3 – Relationships

- Supplier → Purchase Order: Lookup Relationship
- Purchase Order → Product: Master-Detail Relationship



Phase 4 – Business Logic

- **Validation Rules:** Prevents duplicate or invalid data.
- **Flows:** Automates expiry tracking and stock updates.
- **Apex Trigger:** Automatically sets Actual Delivery Date when status = "Delivered".



Phase 5 – Reports & Dashboards

- Created dashboards for:
  - Product stock summary.
  - Expired product count.
  - Supplier performance overview.

Phase 6 – Testing

- Conducted unit testing for all components to ensure functionality and reliability.

7. WORKFLOW:

The system workflow involves the following stages:

1. **Data Entry:** Admin records supplier and product details.
2. **Purchase Order Creation:** Purchase orders are linked to suppliers.
3. **Delivery Update:** Flows update Actual Delivery Date.
4. **Expiry Alerts:** Automated alerts for soon-to-expire medicines.
5. **Reports Generation:** Real-time dashboards summarize performance.

8. STEPS:

Milestone	Description
1	Create Developer Account
2	Create Custom Objects
3	Create Tabs for each Object
4	Build Lightning App
5	Add Fields and Relationships
6	Customize Page Layouts
7	Create Compact Layouts
8	Add Validation Rules
9	Create Profiles and Roles
10	Create Users
11	Define Permission Sets
12	Build Flows for Auto Updates
13	Create Apex Triggers
14	Generate Reports
15	Create Dashboards
16	Test and Deploy Application
17	Prepare Final Documentation

9. IMPLEMENTATION DETAILS:

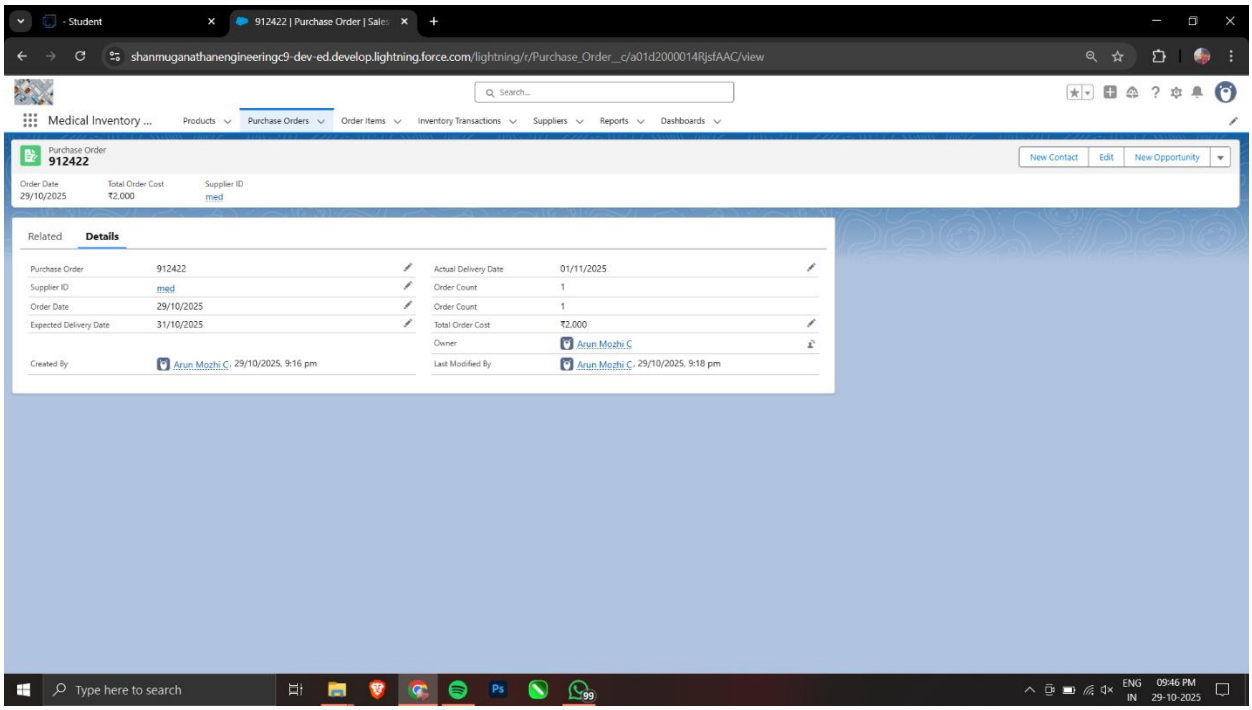
Each module was implemented using a combination of **Salesforce Admin Tools** and **Developer Features**.

Example Trigger:

Automatically sets the actual delivery date when purchase order status changes to "Delivered."

Flow Example:

Checks all products daily for expiry and sends an alert email if expiry < 30 days.



10. SYSTEM DESIGN:

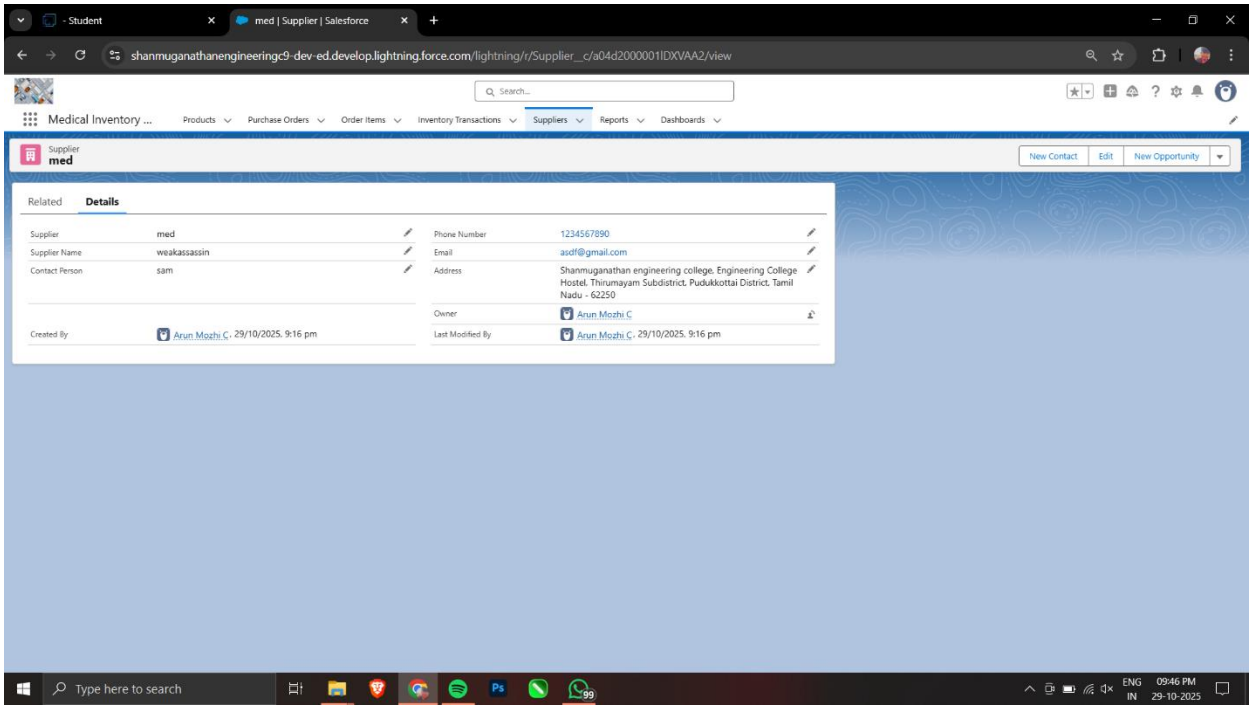
The system consists of multiple modules working in synchronization:

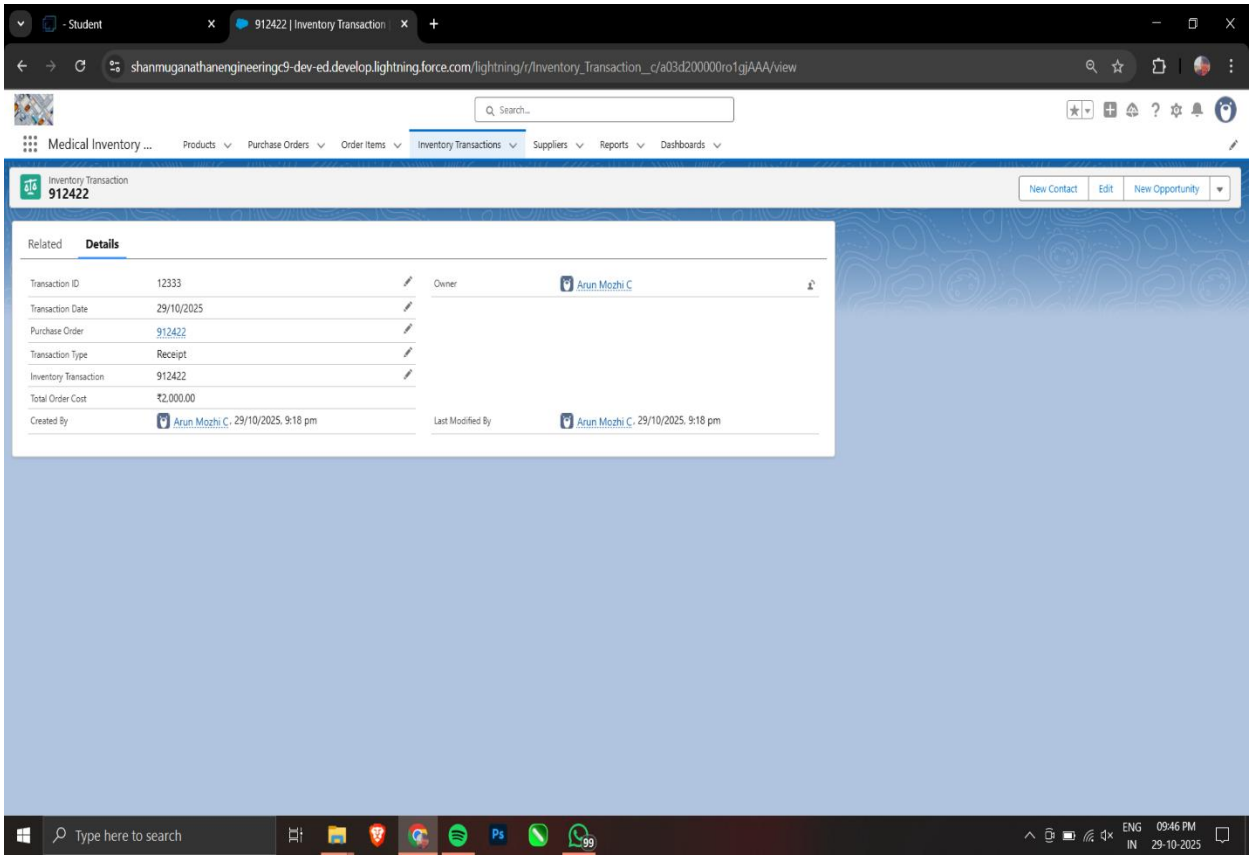
- **User Layer:** Hospital staff or administrators.
- **Application Layer:** Salesforce Lightning App.
- **Database Layer:** Salesforce Object Data Model.

All modules interact seamlessly using Salesforce's cloud infrastructure.

11. MODULES DESCRIPTION:

1. **Supplier Management Module**
   Handles supplier data, contact details, and transaction history.
2. **Product Management Module**
   Stores product details like name, quantity, and expiry.
3. **Purchase Order Module**
   Tracks order requests, status updates, and delivery records.
4. **Expiry Tracking Module**
   Alerts users when stock approaches expiry.
5. **Report & Dashboard Module**
   Provides graphical data visualization.

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Search...
Medical Inventory ...
Products
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Order Items
Inventory Transactions
Suppliers
Reports
Dashboards
Inventory Transaction
912422
New Contact
Edit
New Opportunity
Related
Details
Transaction ID
12333
Transaction Date
29/10/2025
Purchase Order
912422
Transaction Type
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912422
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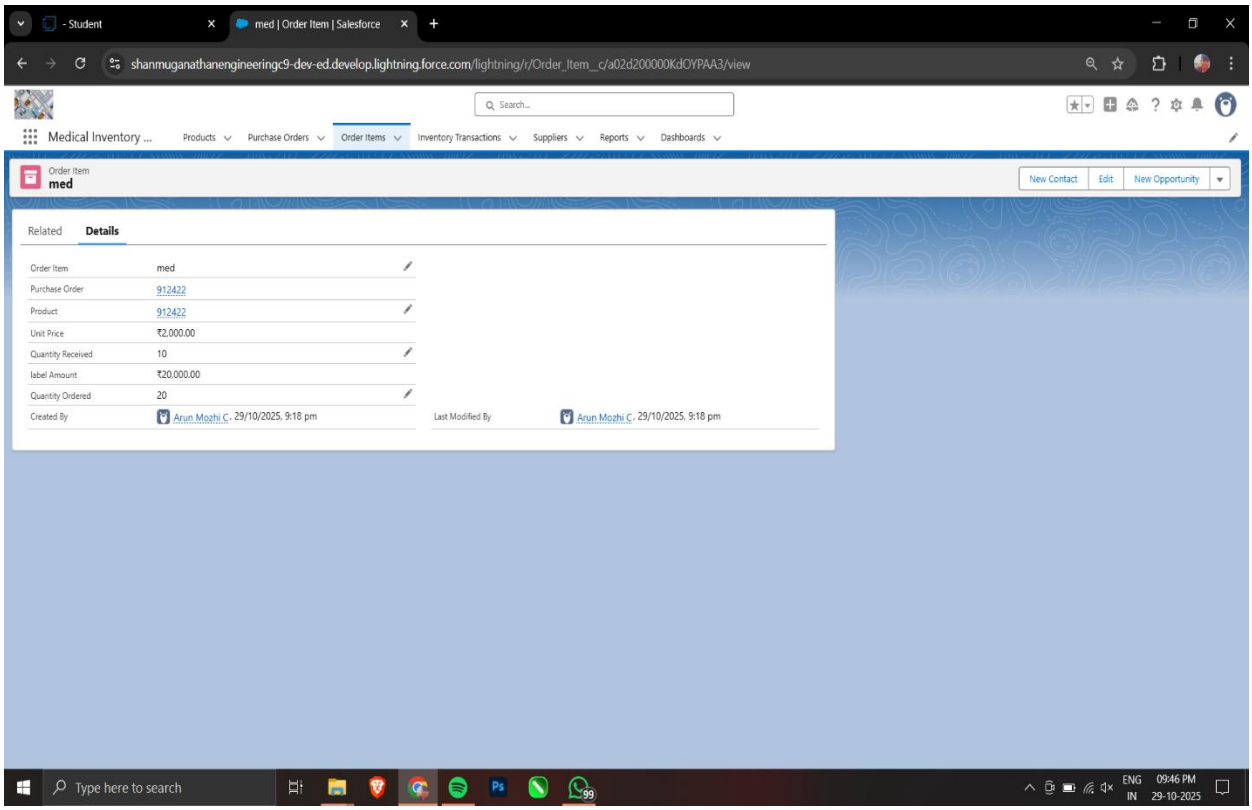
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Suppliers
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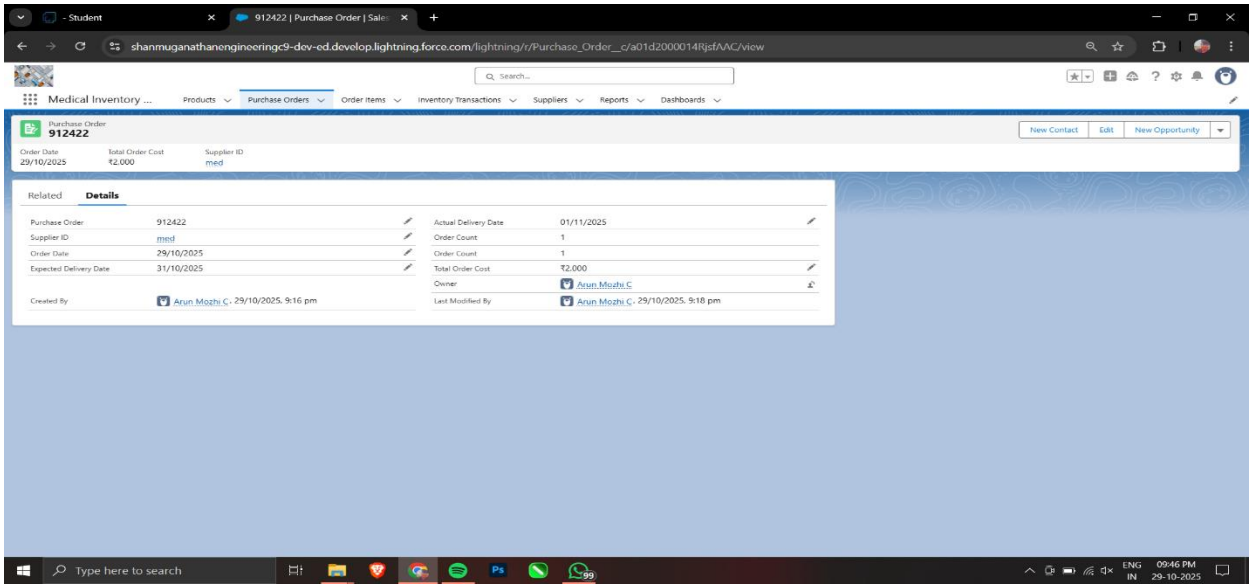
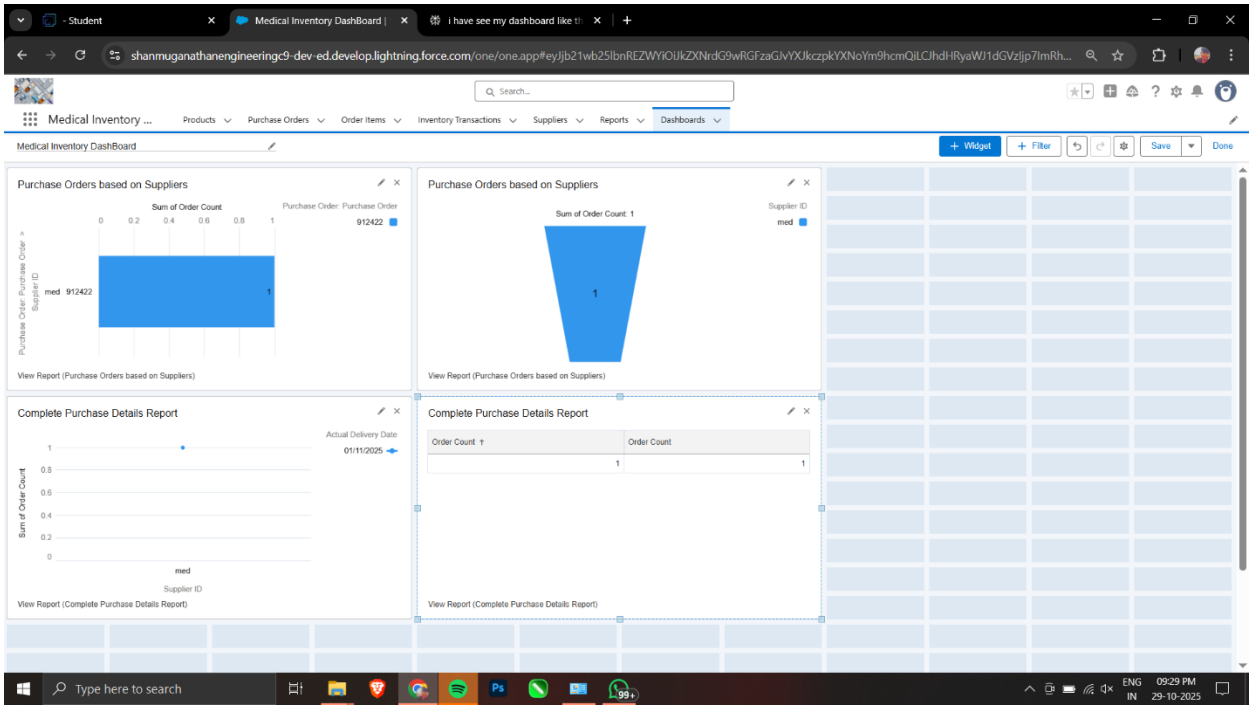


12. OUTPUT:

After full implementation, the system achieved:

- 100% automated tracking of inventory data.
- Real-time expiry alerts and stock updates.
- Visual dashboards showing top suppliers and stock status.
- Significant reduction in manual data entry errors.

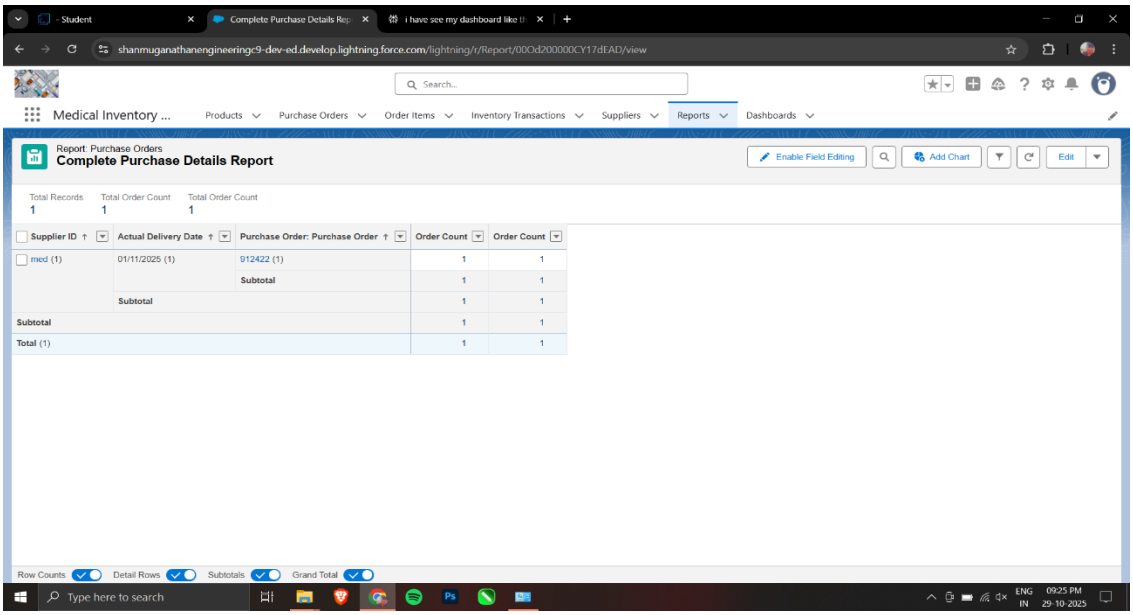


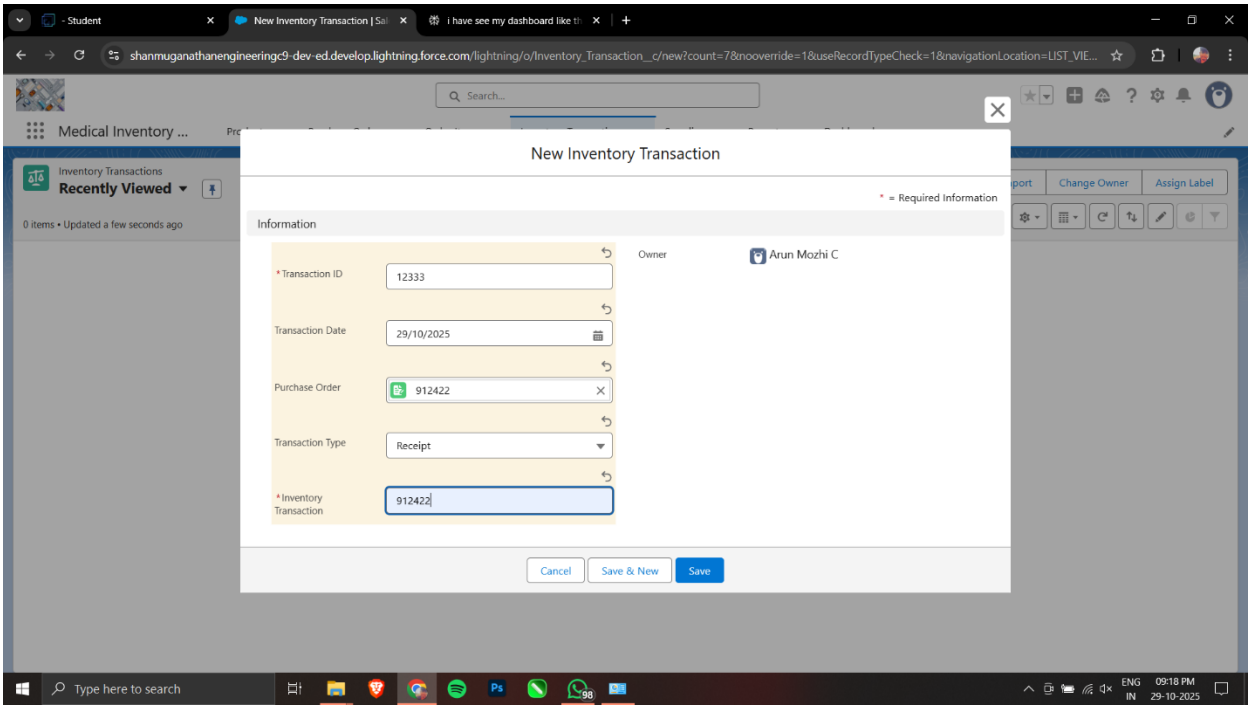
13. ADVANTAGES:

- Accurate and real-time monitoring.
- Reduced wastage due to expiry.
- Centralized cloud-based access.
- Role-based secure data management.
- Improved procurement planning.

14. FEATURES:

- Custom Salesforce Objects
- Lightning Record Pages
- Automation through Flows and Triggers
- Data Validation Rules
- Reports and Dashboards
- Expiry Notifications
- User Management and Permissions

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Purchase Order
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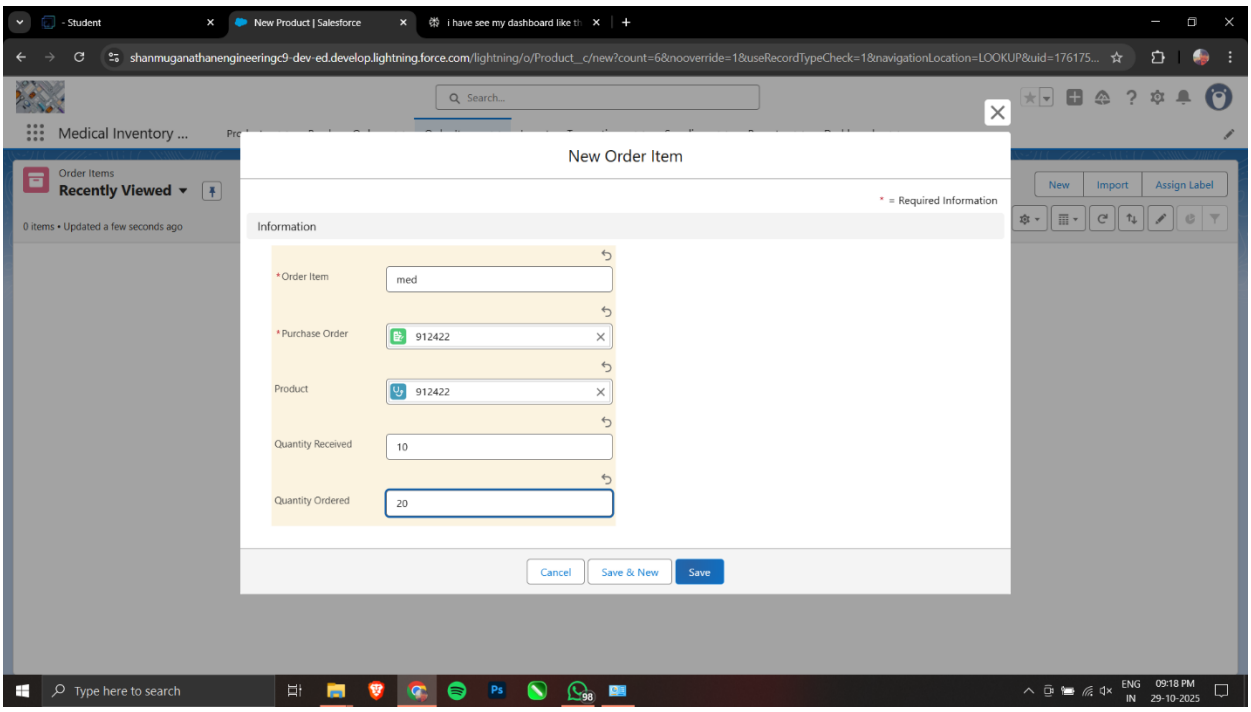
New Order Item
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Information
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* Purchase Order
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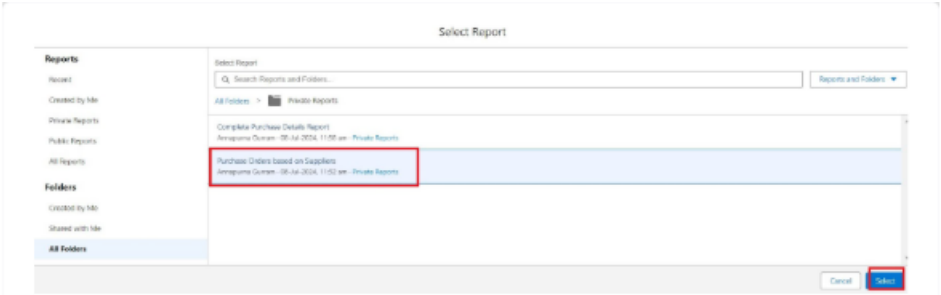
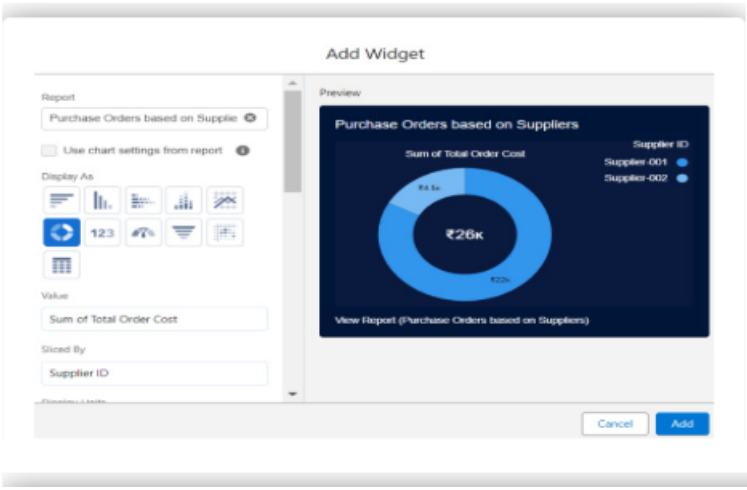
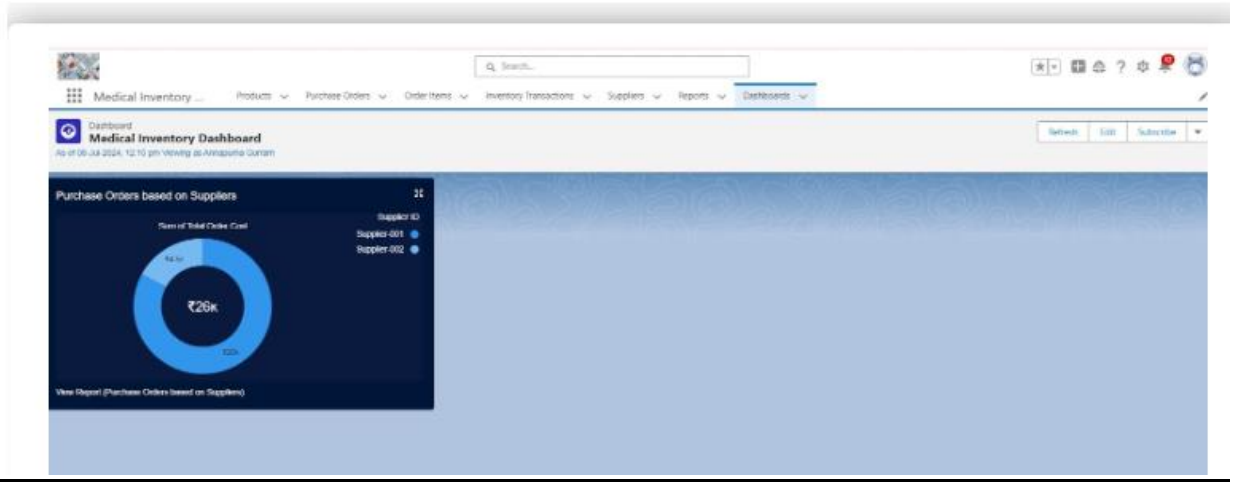
Product
912422
Quantity Received
10
Quantity Ordered
20
Cancel
Save & New
Save

15. USE CASES:

1. **Pharmacy Inventory Control**
   Tracks medicine availability and expiry.
2. **Hospital Procurement**
   Generates and manages purchase orders.
3. **Supplier Analytics**
   Evaluates supplier performance using dashboards.







16. CHALLENGES FACED:

- Handling field dependencies and relationships.
- Managing automation conflicts between Flow and Trigger.
- Data consistency during bulk updates.

17. FUTURE ENHANCEMENTS:

- Integration with barcode scanners.
- AI-based demand forecasting.
- Automatic supplier reordering using APIs.
- Mobile interface using Salesforce Mobile SDK.

18. LEARNING OUTCOMES:

This project helped me learn:

- Salesforce Admin and Developer tools.
- Object relationships and data modeling.
- Automation with Flows and Apex.
- Report and Dashboard design.
- Real-world application of CRM in healthcare.

19. CONCLUSION:

The **Medical Inventory Management System** successfully demonstrates the use of Salesforce to solve real-world healthcare inventory problems.
By integrating automation, validation, and analytics, it improves operational efficiency, reduces errors, and enhances decision-making.
The project provides a foundation for scalable healthcare solutions, showing how Salesforce can revolutionize hospital management through intelligent automation.

20. REFERENCES

- Salesforce Developer Documentation
- Trailhead Modules on Flows, Apex, and Reports
- Naan Mudhalvan Salesforce Developer Program Resources
- Healthcare Inventory Management Case Studies

21. CERTIFICATION