# NAAN MUDHALVAN PROJECT REPORT

## SB8067- SALESFORCE DEVELOPER

## "MEDICAL INVENTORY MANAGEMENT "



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# BONAFIDE CERTIFICATE

Certified that this Naan Mudhalvan report "**MEDICAL INVENTORY MANAGEMENT**" is the Bonafide work of "DIVYA V(REG.NO:912022243005)KHUSHI.M(REG.NO:912022243009)KEERTHANA.R(REG.NO:912022243008)SHALINI.K(REG.NO:912022243013)JAISRIRAM.S(REG.NO:912022243007)" who carried out the mini project work under supervision.

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# 1. <u>INTRODUCTION:</u>

The **Medical Inventory Management System** is a Salesforce-based cloud application developed to streamline all aspects of medical stock control—product cataloging, supplier coordination, purchase-order tracking, and expiry surveillance.

Effective inventory administration is essential in healthcare to guarantee the timely availability of medicines and consumables. This system integrates Salesforce's declarative capabilities (Flows, Validation Rules, Reports, Dashboards) with programmatic tools such as Apex Triggers to deliver an intelligent, automated, and centralized framework.

Through this implementation, the project demonstrates the capacity of Salesforce Lightning to enhance reliability, reduce manual workload, and improve decision-making across hospital supply operations.

# 2. <u>PROBLEM STATEMENT:</u>

Many healthcare institutions still depend on manual record-keeping or outdated on-premise systems for inventory control.
Such methods create persistent issues including:

- Inaccurate stock counts and inconsistencies between physical and digital records.

- Poor visibility of expiry dates, leading to wastage of medicines.

- Lack of structured supplier data and accountability.

- Procurement delays caused by human intervention in repetitive ordering tasks.

- Incomplete or unreliable analytical reports.

These deficiencies result in higher operational costs, inefficiency, and risk to patient safety. An automated, cloud-driven solution is therefore essential to ensure precision, accountability, and real-time monitoring.

# 3. <u>OBJECTIVE:</u>

The primary objective is to design and deploy an automated Salesforce application that monitors medical inventory and optimizes resource flow.

Specific aims:

1. Build a centralized data model for suppliers, products, and purchase orders.
2. Automate inventory updates and expiry tracking using Flows and Apex Triggers.
3. Maintain data integrity through validation rules and controlled relationships.
4. Provide an intuitive interface through Lightning Apps and Page Layouts.
5. Offer real-time analytical insights via Reports and Dashboards.
6. Strengthen managerial decision-making and procurement efficiency.

# 4. <u>PROBLEM DESCRIPTION:</u>

Manual inventory systems are time-consuming, error-prone, and unscalable for hospitals managing thousands of SKUs.
Without automation, staff face challenges such as:

- Overstocking or shortage of critical items.
- Human errors in data entry and stock reconciliation.
- Absence of proactive alerts for near-expiry products.
- Communication lags with suppliers.
- Difficulty generating accurate performance metrics.

Adopting Salesforce CRM as a digital backbone allows real-time synchronization of records, automated validation, and structured workflow management—thereby minimizing human error and optimizing resource allocation

# 5. <u>PROPOSED SOLUTION:</u>

The proposed Salesforce-based Medical Inventory Management System addresses these limitations through end-to-end automation.

It utilizes custom objects, tailored relationships, and Lightning Components to manage all data entities. The application enables users to:

- Register suppliers and add product details.
- Create and process purchase orders.
- Track quantities and expiry timelines automatically.
- Receive alerts for low stock or impending expirations.
- Visualize operational metrics through dashboards and analytical reports.
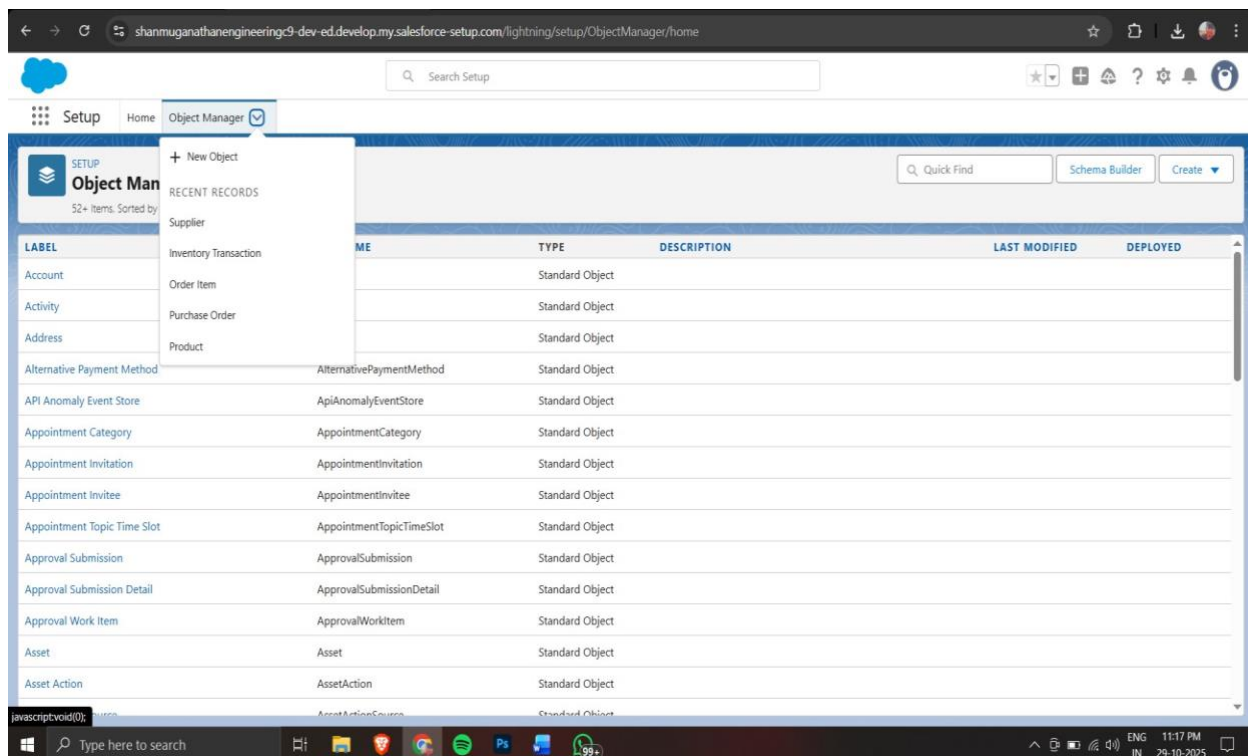


**Technology Used:**

- 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. <u>METHODOLOGY:</u>

The project was executed through a structured and iterative approach within the Salesforce Developer environment to ensure accuracy and maintainability.

## Phase 1 – Environment Setup

- Creation of a Salesforce Developer Account.
- Enabling the Lightning Experience for enhanced UI.
- Configuring profiles and permission sets for user access.
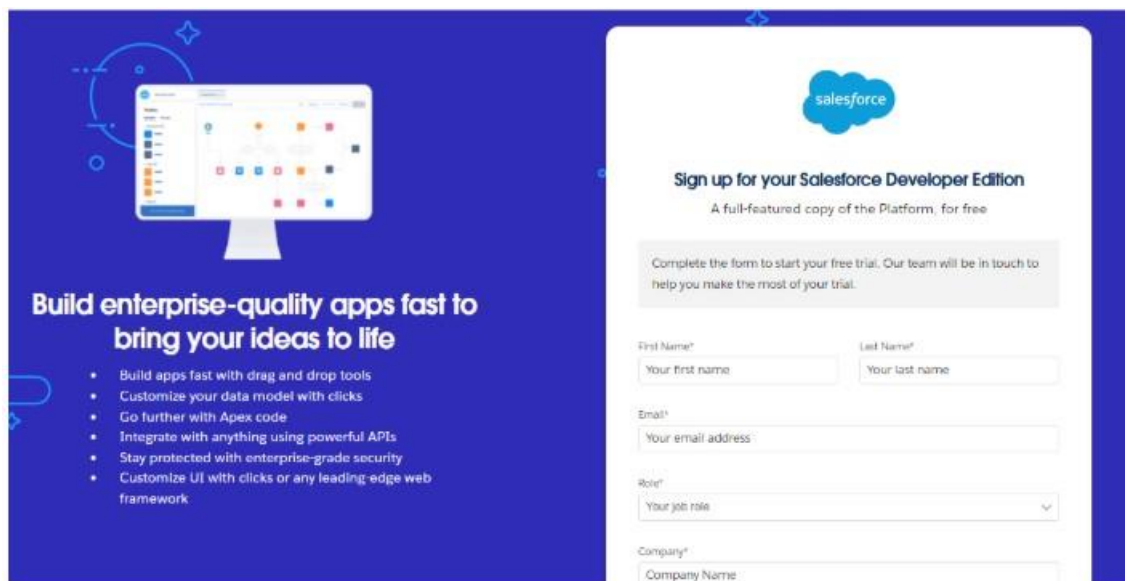


## Phase 2 – Object Design
- Creation of four main custom objects:

  o **Supplier** (Supplier Name, Contact, Email, Address)

  o **Product** (Product Name, Batch Number, Expiry Date, Stock Quantity) o **Purchase Order** (Order ID, Date, Supplier, Status) o

  **Transaction** (Purchase Order ID, Product, Quantity, Delivery Date)
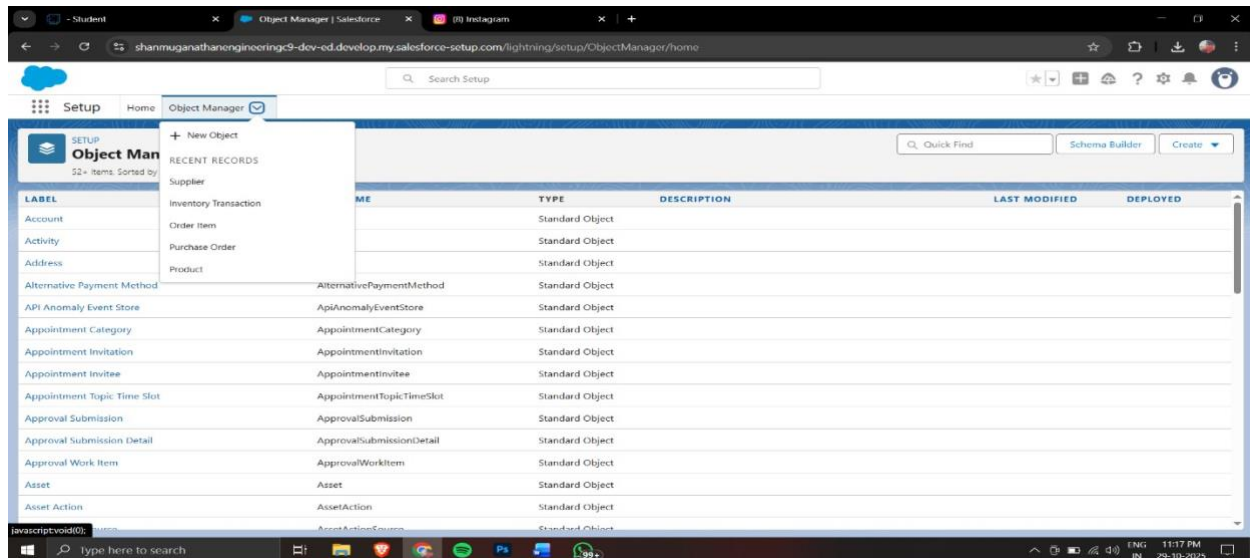
## Phase 3 – Relationships Mapping

- Supplier → Purchase Order: Lookup Relationship

- Purchase Order → Product: Master-Detail Relationship
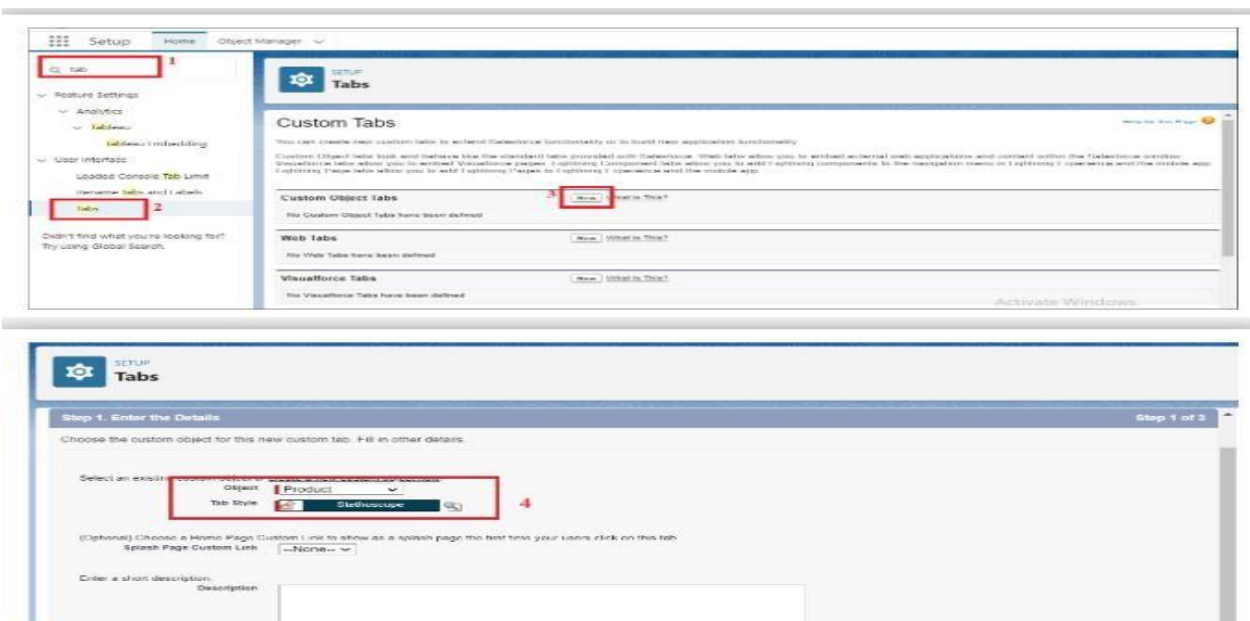




## Phase 4 – Business Logic Implementation

- Validation Rules: Ensure data accuracy and prevent duplication.
- Flows: Automate the stock update and expiry tracking process.
- Apex Triggers: Automatically populate "Actual Delivery Date" once order status changes to "Delivered."

## Phase 5 – Reports and Dashboards

Constructed dashboards to visualize product stock summary, expiry count, and supplier performance.

## Phase 6 – Testing and Deployment

Performed unit testing for all components to verify functionality, reliability, and integration performance.

## 8. <u>STEPS:</u>

| Milestone | Description |
|---|---|
| 1 | **Create Developer Account** |
| 2 | **Add Custom Objects** |
| 3 | **Add Object Tabs** |
| 4 | **Build Lightning App** |
| 5 | **Add Fields & Relations** |
| 6 | **Customize Layouts** |
| 7 | **Create Compact Layouts** |
| 8 | **Add Validation Rules** |
| 9 | **Set Profiles and Roles** |
| 10 | **Create Users** |
| 11 | **Define Permission sets** |
| 12 | **Build Flows For Updates** |
| 13 | **Add Apex Triggers** |
| 14 | **Generate Reports** |
| 15 | **Create Dashboards** |
| 16 | **Test and Deployyment** |
| 17 | **Finalize Documentation** |

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## 9. <u>IMPLEMENTATION DETAILS:</u>

Each module within the system was configured through a combination of Salesforce administrative tools and developer customization.

Example – Apex Trigger:
Automatically updates the "Actual Delivery Date" field whenever the status of a purchase order changes to Delivered.

Example – Flow Automation:

A scheduled Flow checks all active products daily; if a product's expiry date is within 30 days, an alert email is automatically sent to the admin and concerned staff.

These automations ensure minimal manual oversight while maintaining high data accuracy.
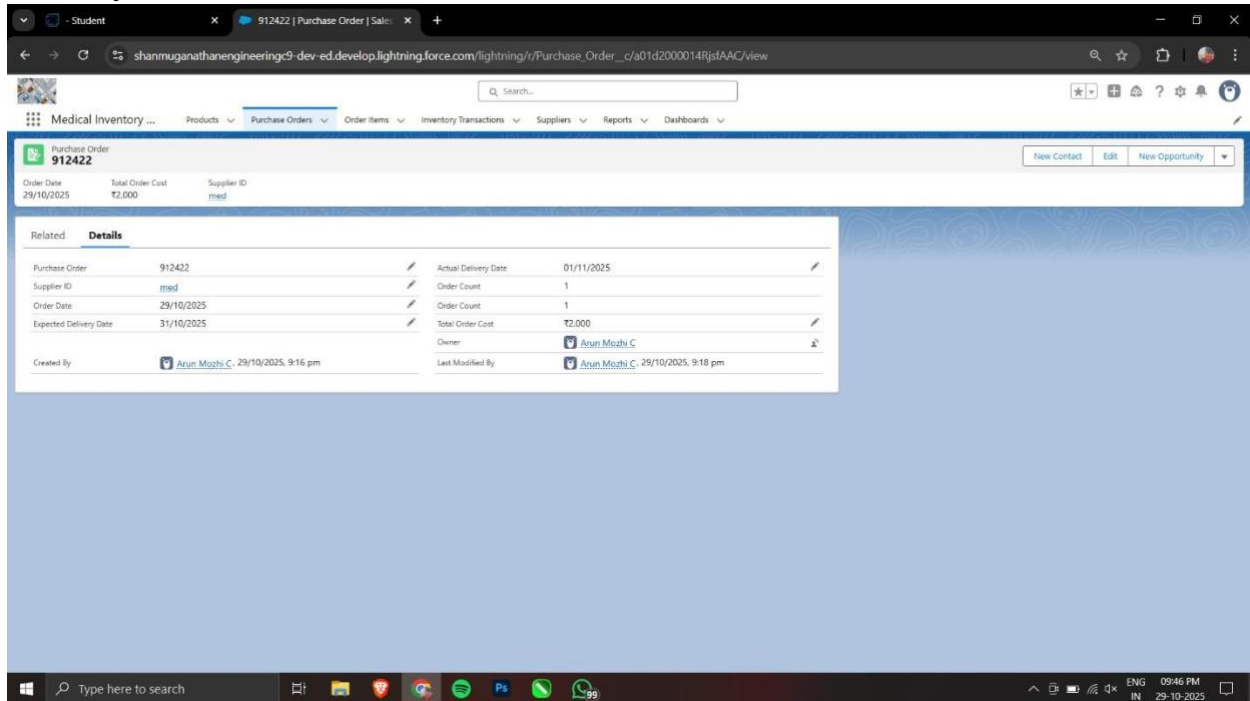


# 10. SYSTEM DESIGN:

The Medical Inventory Management System is structured in multiple operational layers to ensure logical separation of tasks and maintain data integrity:

- User Layer: Involves hospital personnel, administrators, and pharmacists interacting with the Lightning app.

- Application Layer: Comprises the Salesforce Lightning Components, Process Builders, and Flow Automations responsible for business logic.

- Data Layer: Maintains structured records through custom Salesforce objects, relationships, and field dependencies.

- The architecture guarantees seamless communication between layers, ensuring real-time synchronization and secure data handling across the platform.

# 11. MODULES DESCRIPTION:

The system is divided into several modules that work together to maintain smooth medical inventory operations. The Supplier Management module stores supplier details and communication records. The Product Management module maintains product information such as name, batch number, expiry, and quantity. The Purchase Order module tracks each order, its supplier, and delivery status. The Expiry Tracking module automatically monitors expiry dates and alerts users when products near expiration. Finally, the Reporting Module compiles all data into dashboards for quick and clear performance insights.
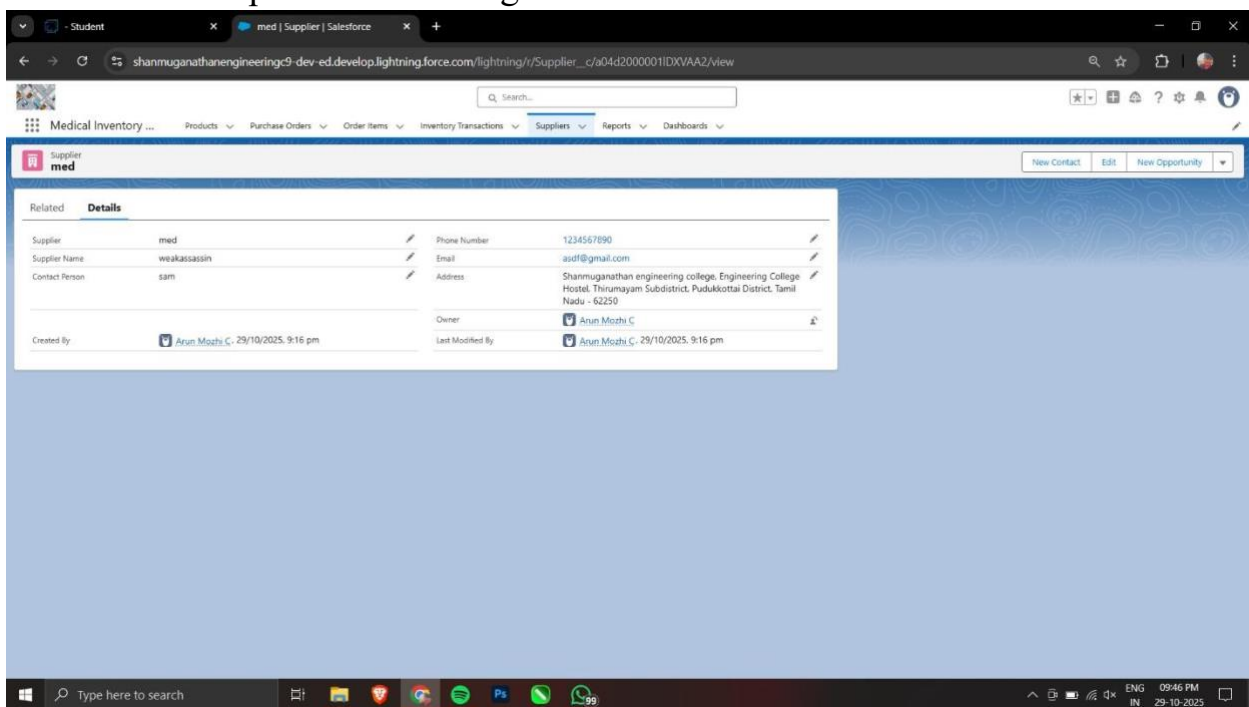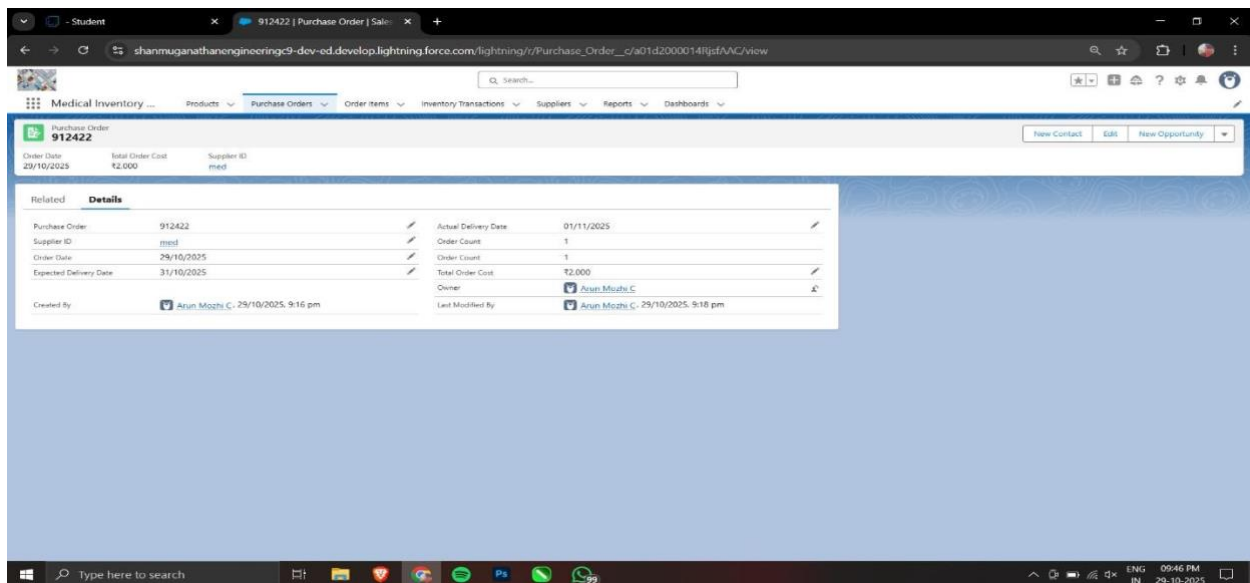
# 12. OUTPUT:

Once implemented, the system achieved complete automation of inventory monitoring. Stock quantities and expiry data updated automatically, and dashboards provided real-time overviews of supplier activity and product status. This automation reduced manual work, improved accuracy, and simplified the management of medical resources across departments.
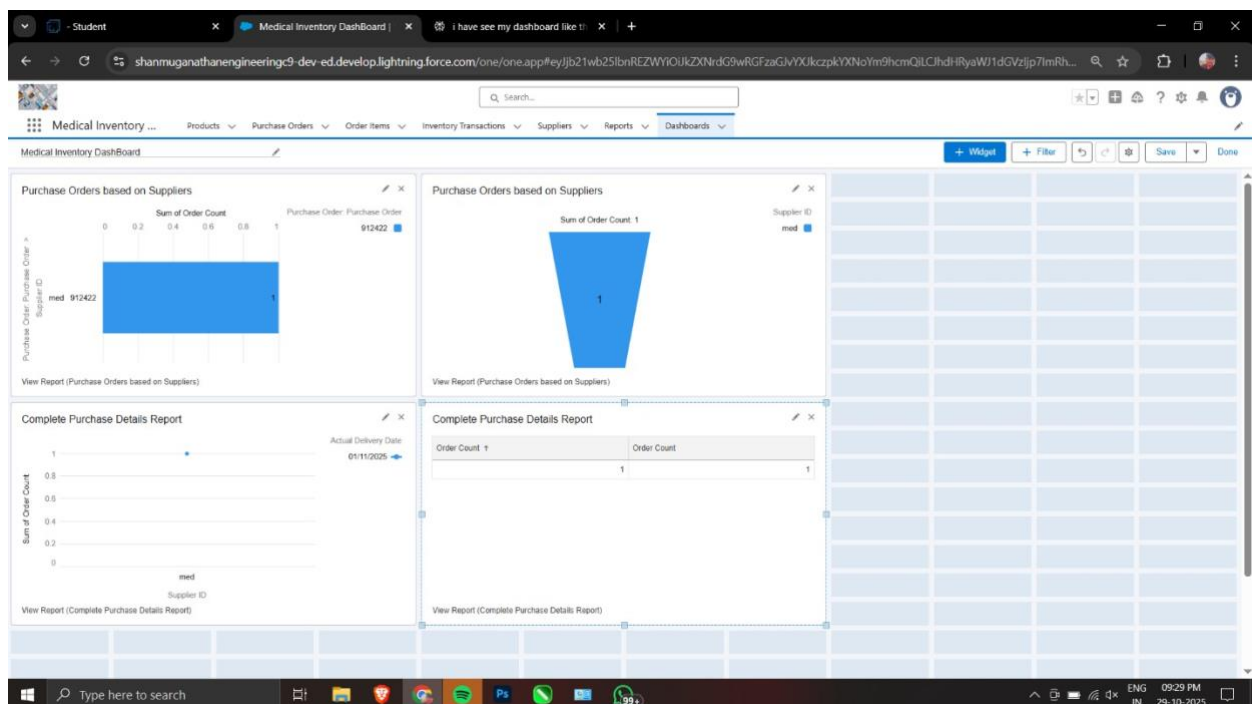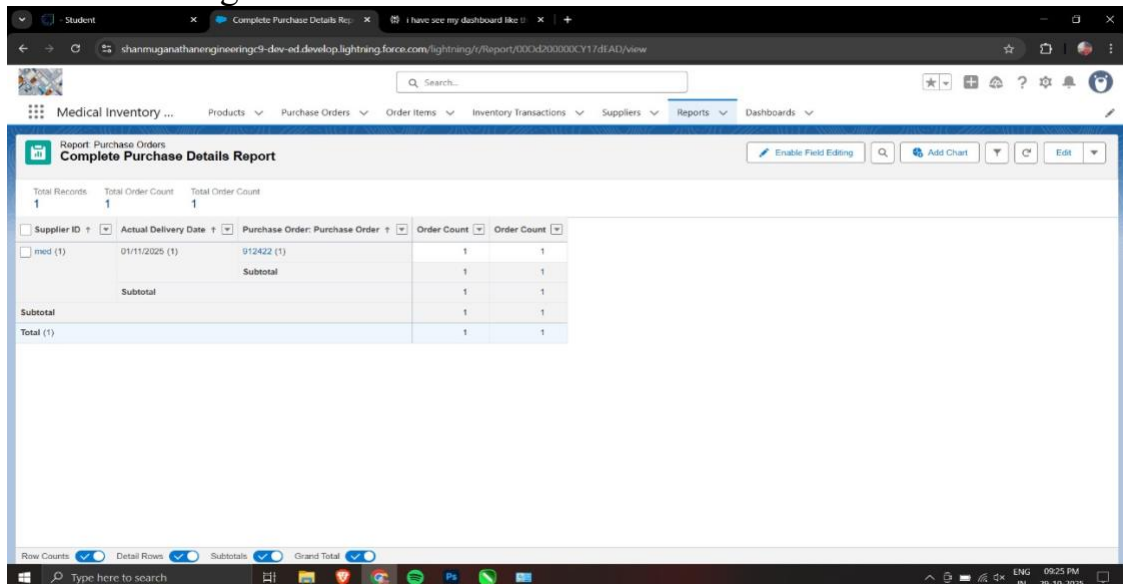
# 13. ADVANTAGES:

The application ensures real-time visibility of stock levels and expiry timelines, minimizing wastage and delays. It centralizes all records in a secure cloud environment accessible through authorized accounts. Automated alerts and validation rules enhance data reliability, while analytical dashboards support faster and more informed decision-making
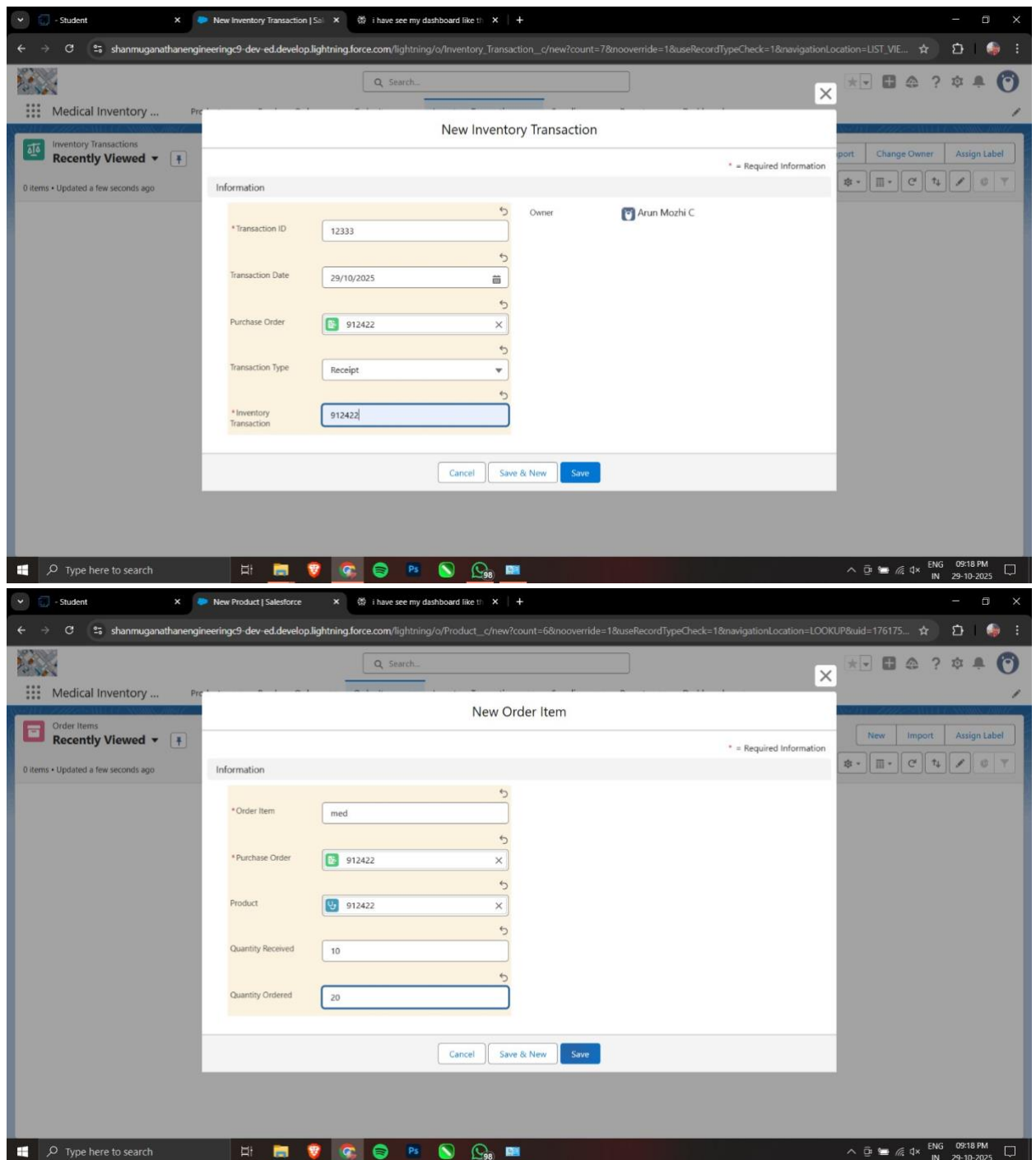
# 14. FEATURES:

- Custom Salesforce Objects

- Lightning Record Pages

- Automation through Flows and Triggers

- Data Validation Rules

- Reports and Dashboards

- Expiry Notifications

- User Management and Permissions

# 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.
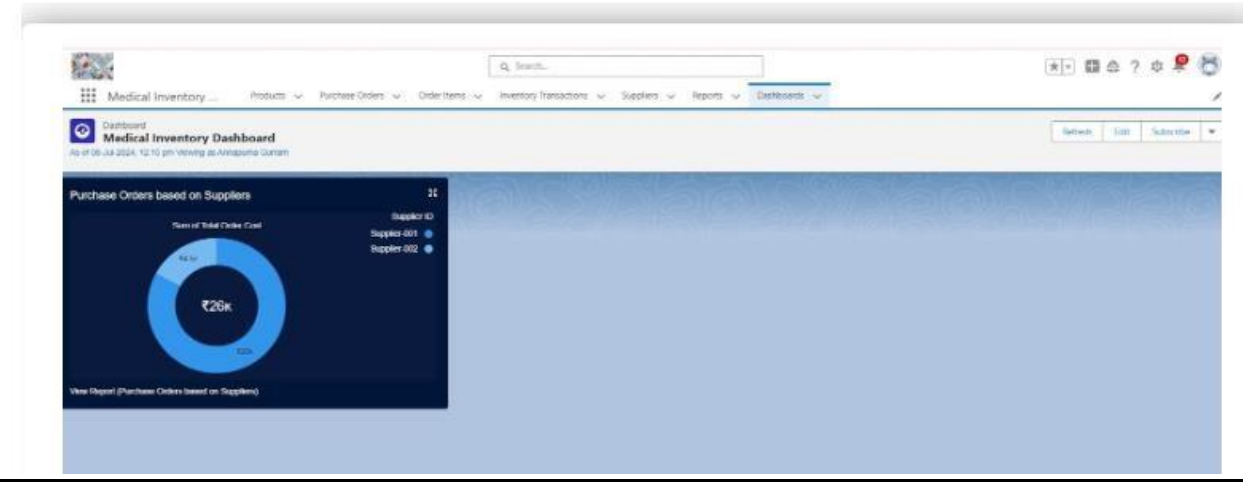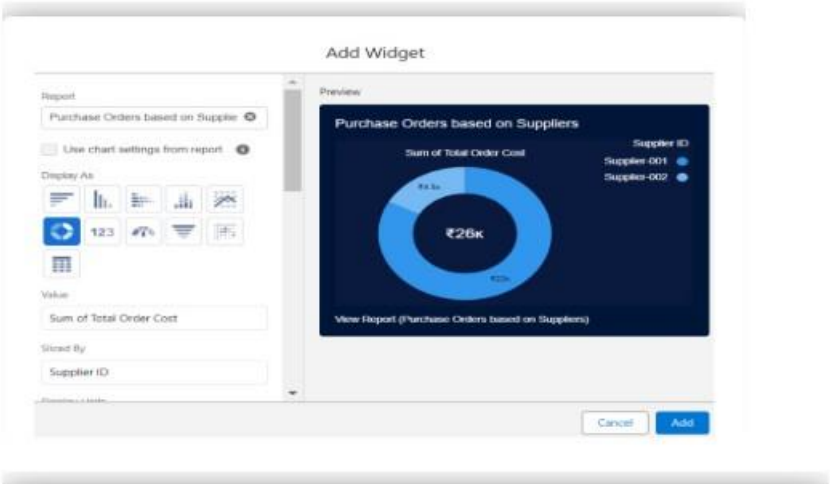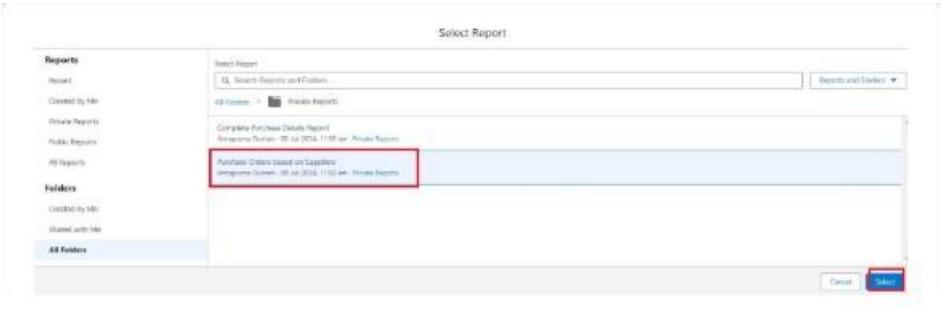
# 16. CHALLENGES FACED:

The main challenges during development were resolving conflicts between automation flows and triggers, maintaining consistent data during bulk updates, and designing relationships between multiple custom objects without breaking dependencies. Each issue was addressed through testing and iteration

# 17. FUTURE ENHANCEMENTS:

Future improvements may include barcode scanning for faster product entry, AI-based demand forecasting, automatic reordering through supplier APIs, and a dedicated mobile interface to enable on-site inventory tracking.

# 18. LEARNING OUTCOMES:

Through this project, the team gained practical experience in Salesforce administration, data modeling, automation with Flows and Apex, and report generation. It also strengthened understanding of applying CRM-based solutions to real-world healthcare management scenarios.

# 19. CONCLUSION:

**The Medical Inventory Management System** demonstrates how Salesforce can automate healthcare stock control effectively. By integrating validation, automation, and analytics, it enhances accuracy, reduces manual errors, and supports efficient decision-making. The project establishes a strong framework for scalable digital management in medical environments.

# 20. REFERENCES

- Salesforce Developer Documentation

- Trailhead Modules on Flows, Apex, and Reports

- Naan Mudhalvan Salesforce Developer Program Resources

- Healthcare Inventory Management Case Studies