

NAAN MUDHALVAN PROJECT REPORT

SB8067- SALESFORCE DEVELOPER

“MEDICAL INVENTORY MANAGEMENT “

Submitted by:

ARUN MOZHI C (REG.NO:912422104005)

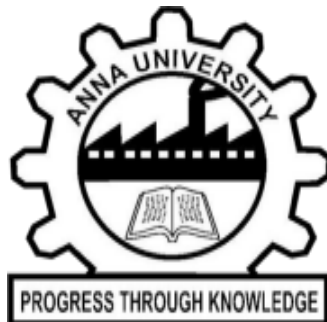
ABUL HARISH J (REG.NO:912422104005)

BALAMURUGAN P (REG.NO: 912422104006)

BALAMURUGAN P (REG.NO:912422104007)



**SHANMUGANATHAN ENGINEERING COLLEGE,
ARASAMPATTI – 622 507**



ANNA UNIVERSITY: CHENNAI - 600 025 NOV-DEC 2025

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

COURSE COORDINATOR,
Mrs.S.Vinotha,M.E.,
Assistant Professor,
Department of CSE,
Arasampatti.

HEAD OF THE DEPARTMENT ,
Mr.S.Saravanakumar,M.E.,
Assistant Professor,
Department of CSE,
Arasampatti.

STAFF IN- INCHARGE

HEAD OF THE DEPARTMENT

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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I am thankful to the Head of the Department of Computer Science and Engineering, of Shanmuganathan Engineering College, Arasampatti, **Prof. S. SARAVANAKUMAR M.E.,** Head of the Department CSE.

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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.

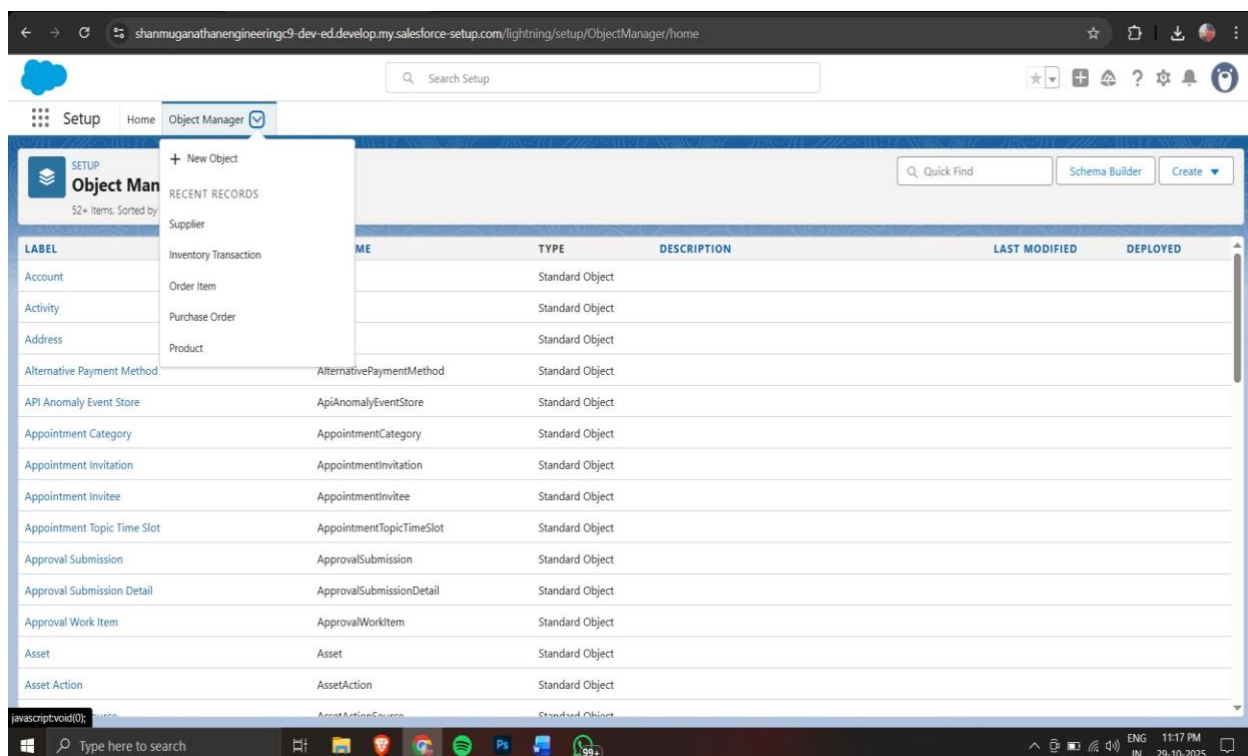
A digital solution integrated with **Salesforce CRM** offers a streamlined process to manage data effectively and improve resource utilization.

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

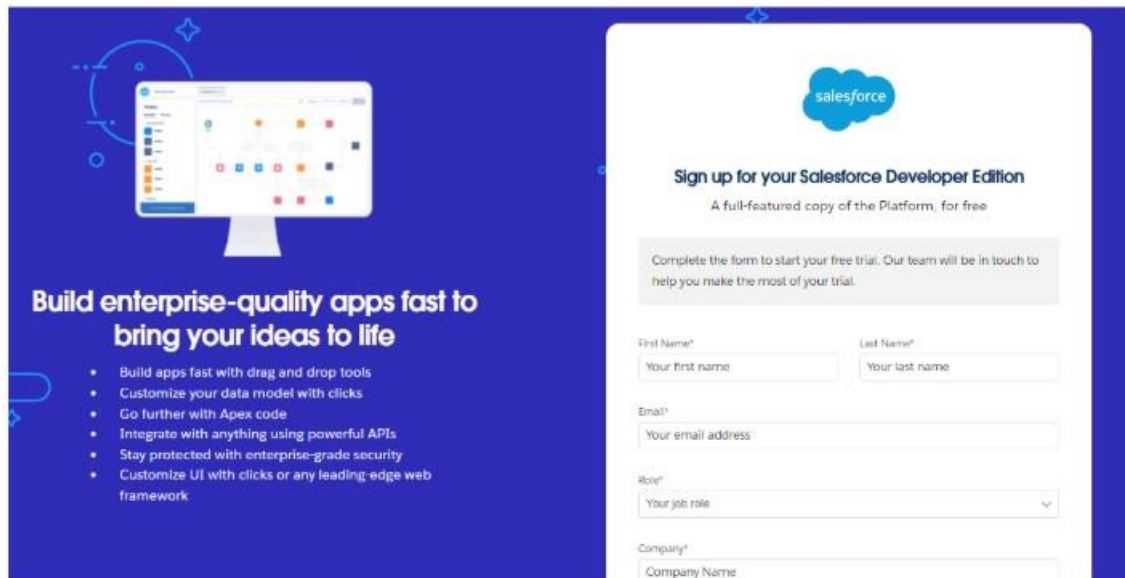
The Salesforce environment ensures **security**, **scalability**, and **accessibility**, making it ideal for healthcare organizations.

6. METHODOLOGY:

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

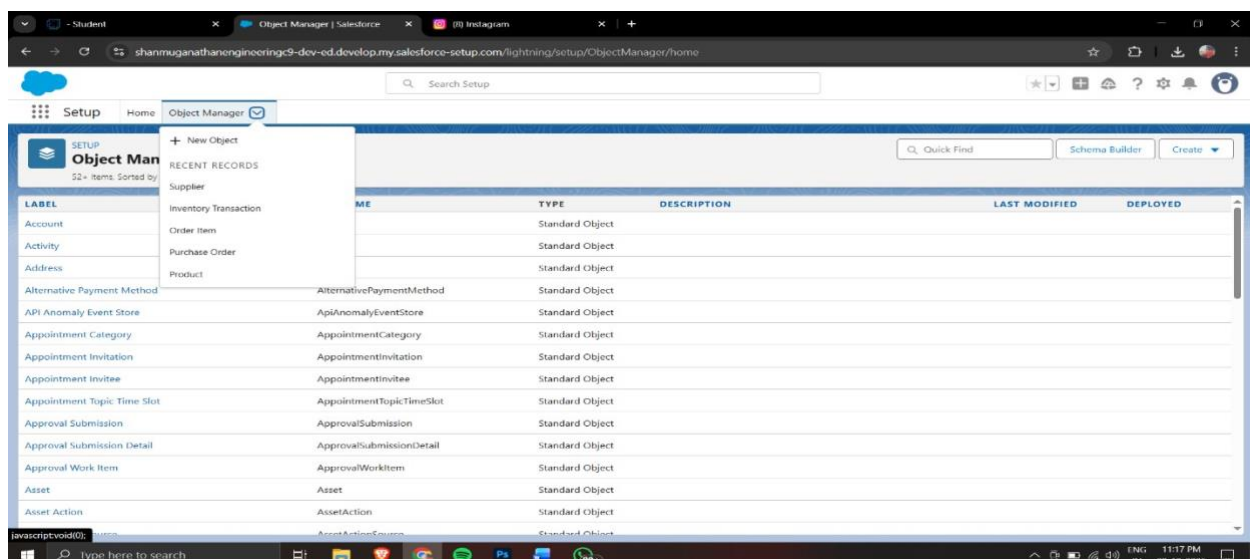
Phase 1 – Setup

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



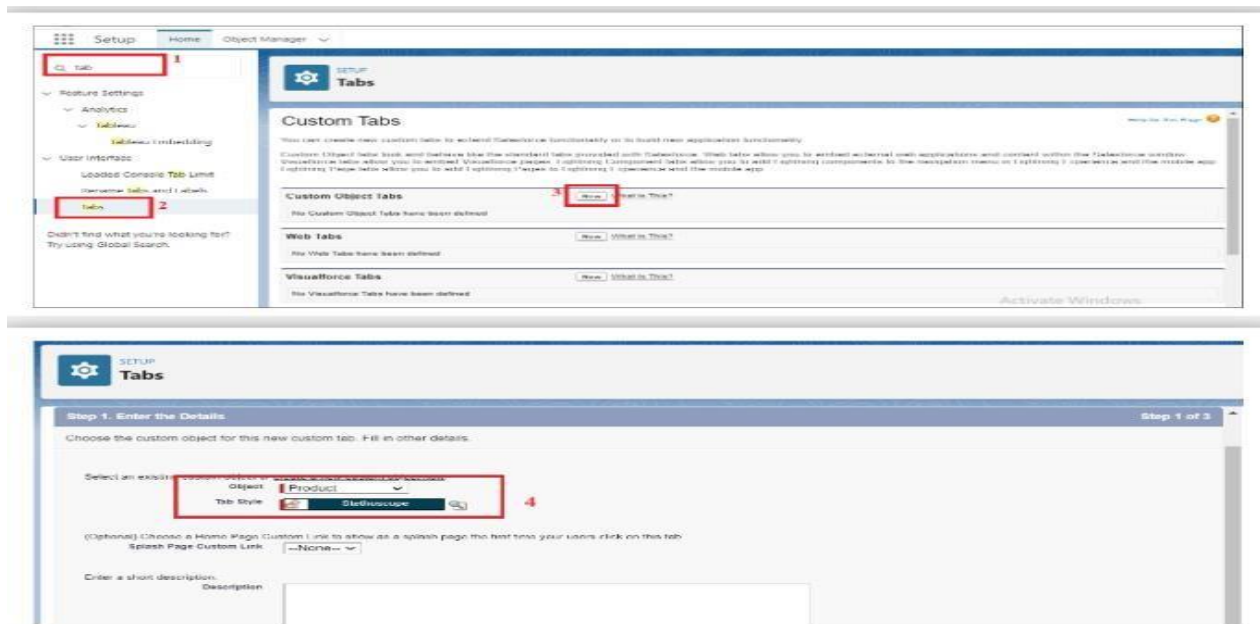
Phase 2 – Object Design

- 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)



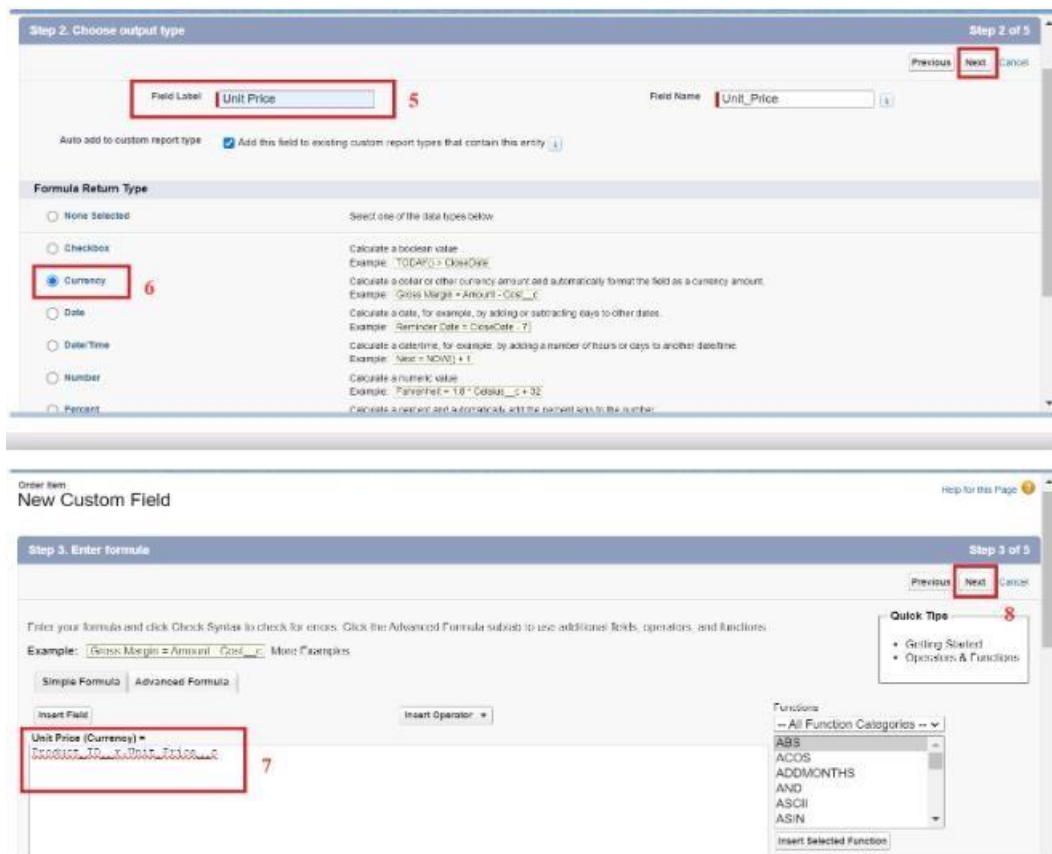
Phase 3 – Relationships

- 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:

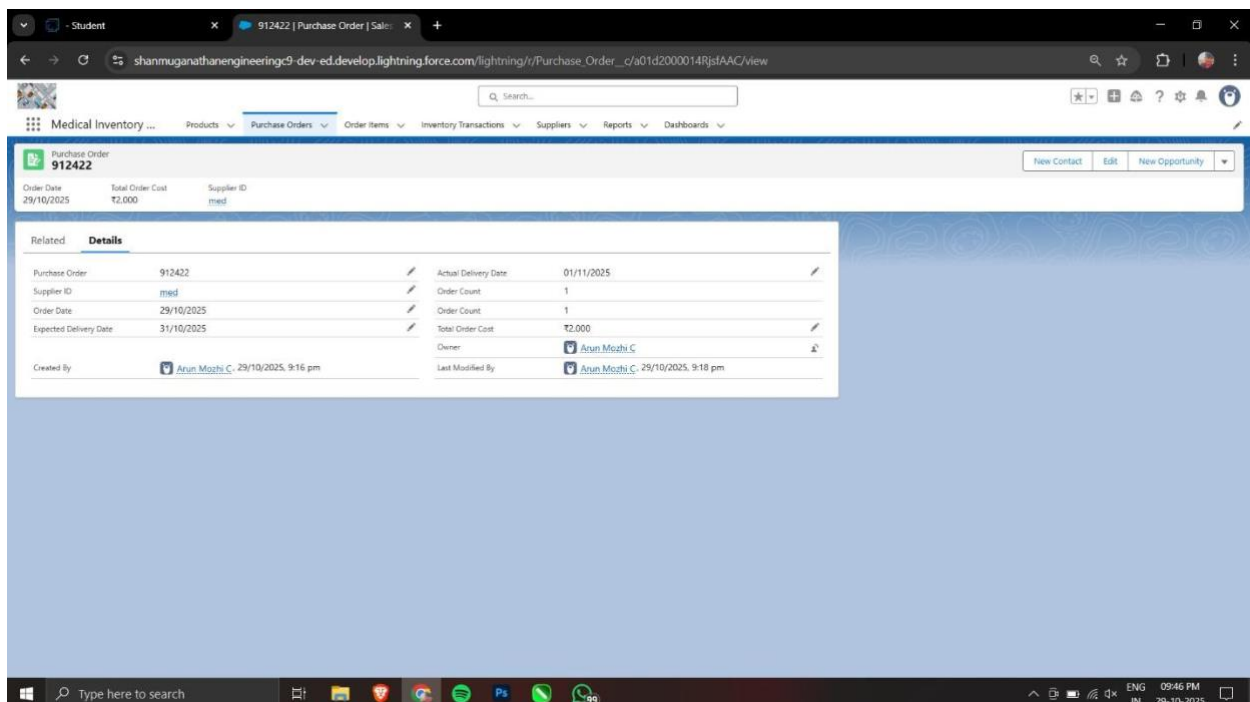
Each module was implemented using a combination of **Salesforce Admin Tools** and **Developer Features**.

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.

Student | med | Supplier | Salesforce

shannuganathanengineeringc9-dev-ed.develop.lightning.force.com/lightning/r/Supplier__c/a04d2000001IDXVAA2/view

Medical Inventory ... Products Purchase Orders Order Items Inventory Transactions Suppliers Reports Dashboards

Supplier med New Contact Edit New Opportunity

Related Details

Supplier	med	Phone Number	1234567890
Supplier Name	weakassassin	Email	asdf@gmail.com
Contact Person	sam	Address	Shannuganathan engineering college, Engineering College Hostel, Thirumayam Subdistrict, Pudukkottai District, Tamil Nadu - 62250
Created By	Arun Mothi C, 29/10/2025, 9:16 pm	Owner	Arun Mothi C
		Last Modified By	Arun Mothi C, 29/10/2025, 9:16 pm

Type here to search

ENG 09:46 PM 29-10-2025

Student | 912422 | Inventory Transaction

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Medical Inventory ... Products Purchase Orders Order Items Inventory Transactions Suppliers Reports Dashboards

Inventory Transaction 912422 New Contact Edit New Opportunity

Related Details

Transaction ID	12333	Owner	Arun Mothi C
Transaction Date	29/10/2025		
Purchase Order	912422		
Transaction Type	Receipt		
Inventory Transaction	912422		
Total Order Cost	₹2,000.00		
Created By	Arun Mothi C, 29/10/2025, 9:18 pm	Last Modified By	Arun Mothi C, 29/10/2025, 9:18 pm

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Student | med | Order Item | Salesforce

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Medical Inventory ... Products Purchase Orders Order Items Inventory Transactions Suppliers Reports Dashboards

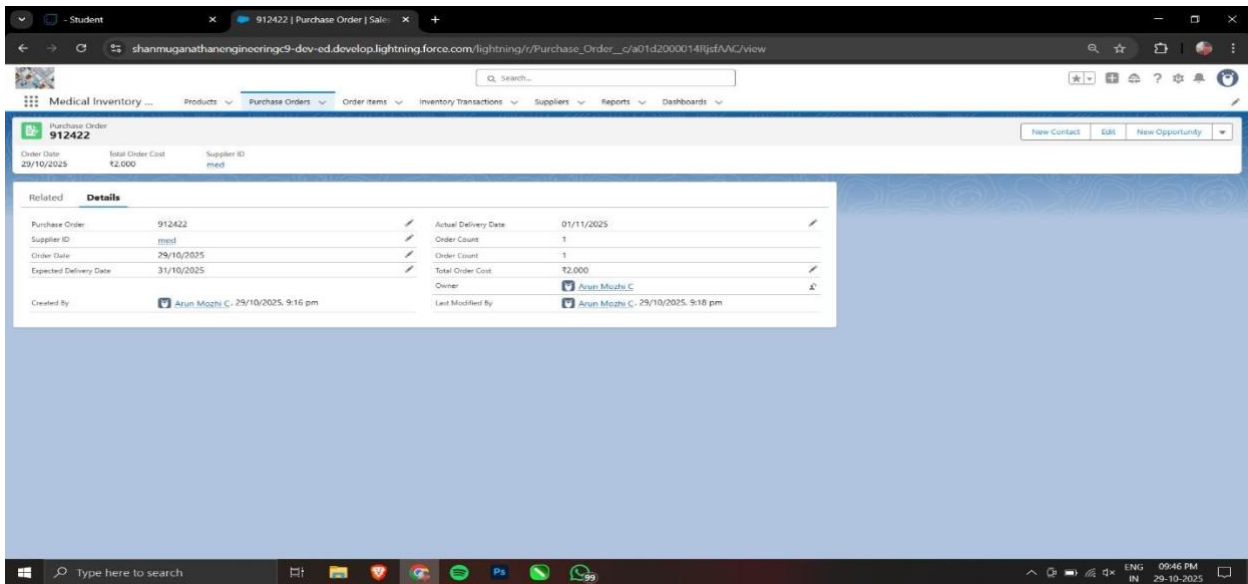
Order Item med New Contact Edit New Opportunity

Related Details

Order Item	med
Purchase Order	912422
Product	912422
Unit Price	₹2,000.00
Quantity Received	10
Label Amount	₹20,000.00
Quantity Ordered	20
Created By	Arun Mothi C, 29/10/2025, 9:18 pm
Last Modified By	Arun Mothi C, 29/10/2025, 9:18 pm

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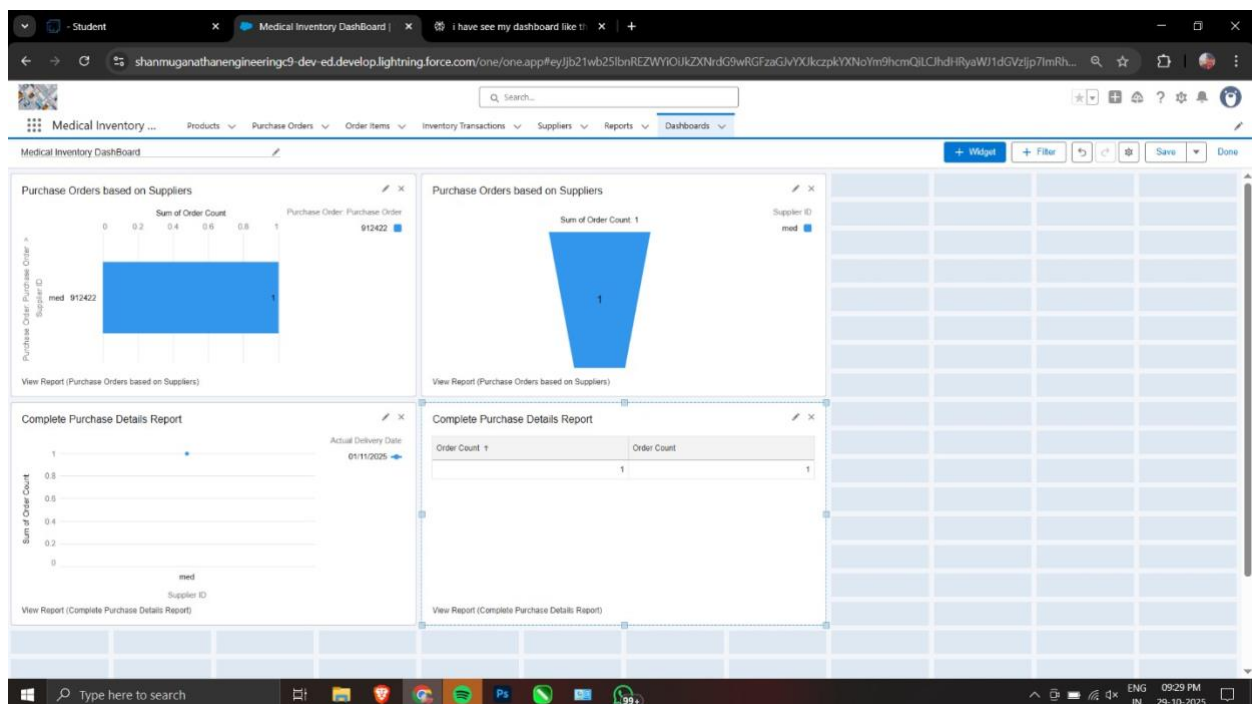
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12. OUTPUT:

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.

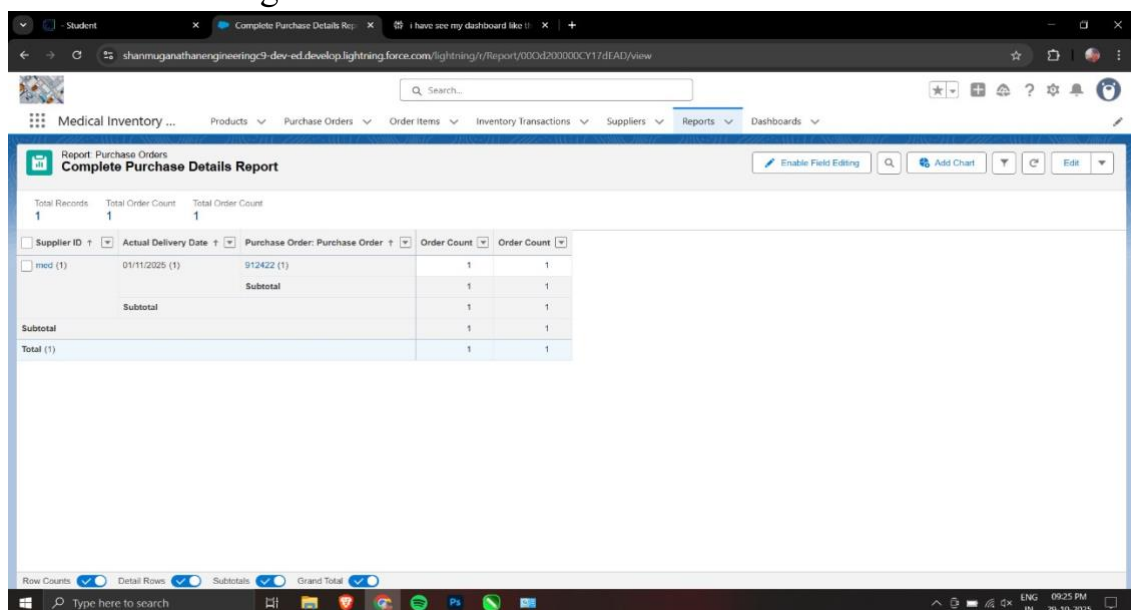


13. ADVANTAGES:

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

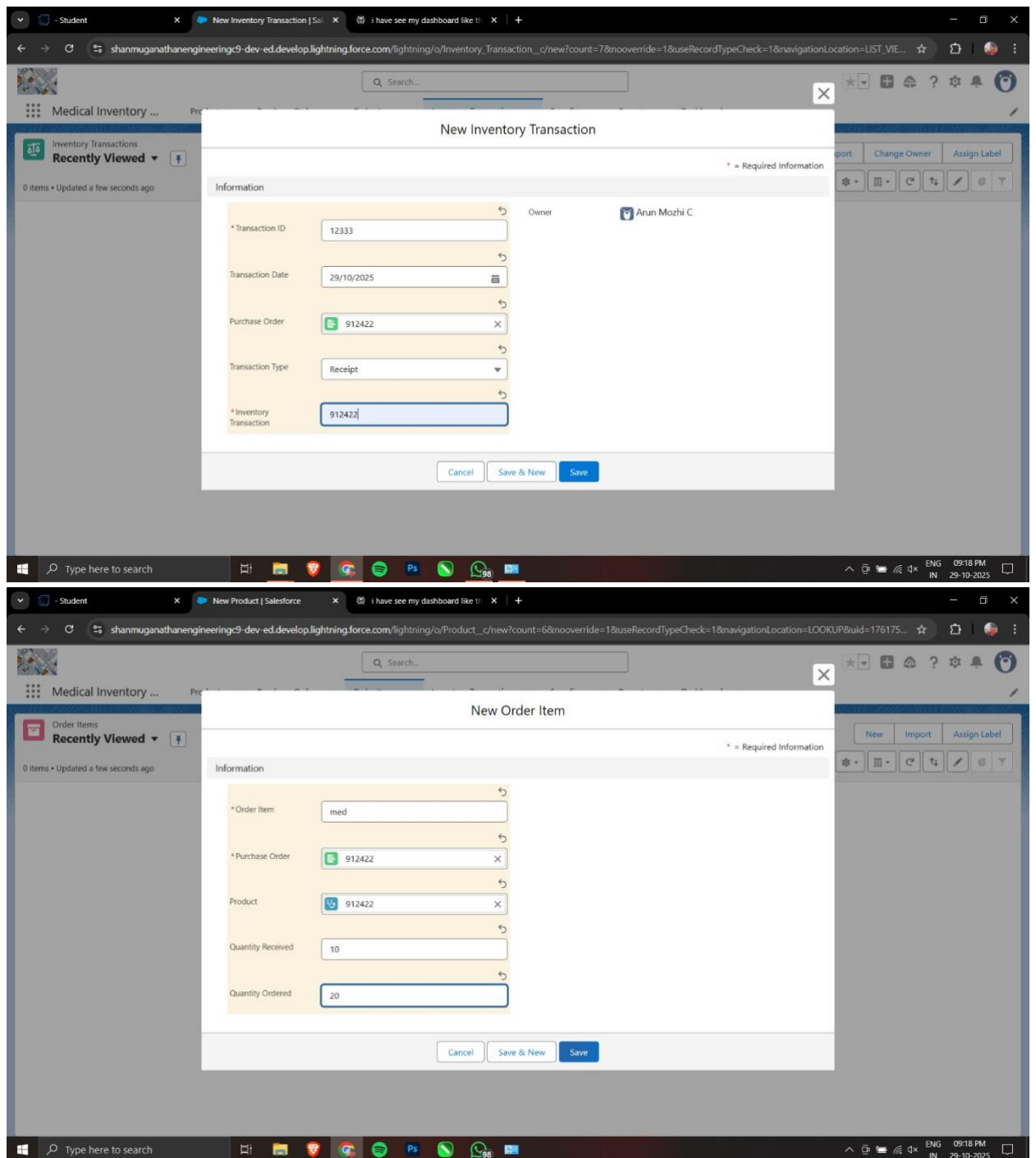
14. FEATURES:

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



The screenshot shows a Salesforce Lightning interface with a report titled "Complete Purchase Details Report". The report is displayed in a table format with the following columns: Supplier ID, Actual Delivery Date, Purchase Order: Purchase Order, Order Count, and Order Count. The data shows a single record for Supplier ID 'med (1)' with an Actual Delivery Date of '01/11/2025 (1)' and a Purchase Order of '912422 (1)'. The Order Count is 1. The report also includes a Subtotal and a Total (1) row. The interface includes a search bar, a navigation menu, and a status bar at the bottom.

Supplier ID	Actual Delivery Date	Purchase Order: Purchase Order	Order Count	Order Count
med (1)	01/11/2025 (1)	912422 (1)	1	1
Subtotal			1	1
Subtotal			1	1
Total (1)			1	1



15. USE CASES:

1. Pharmacy Inventory Control

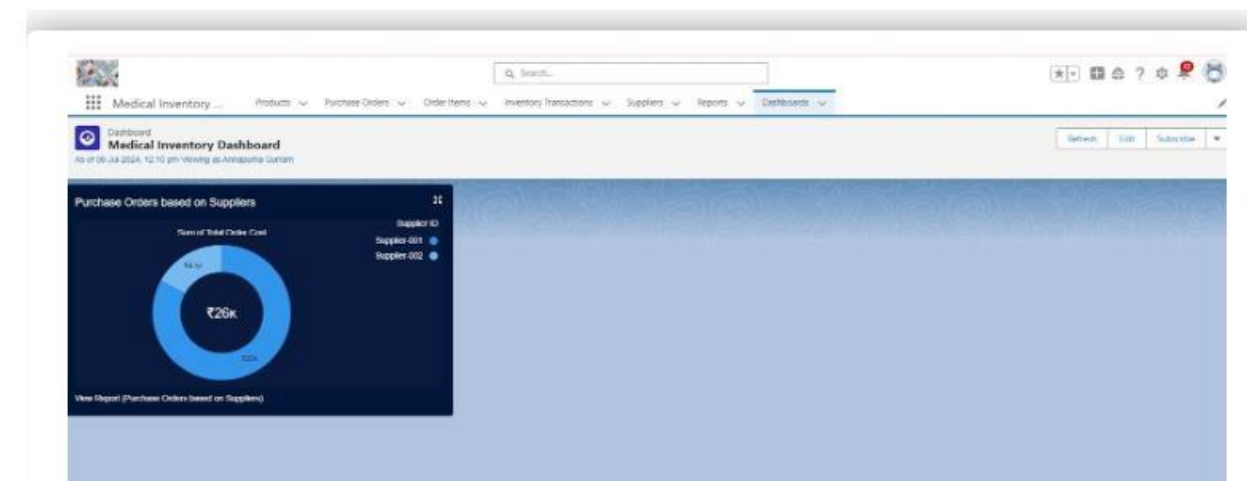
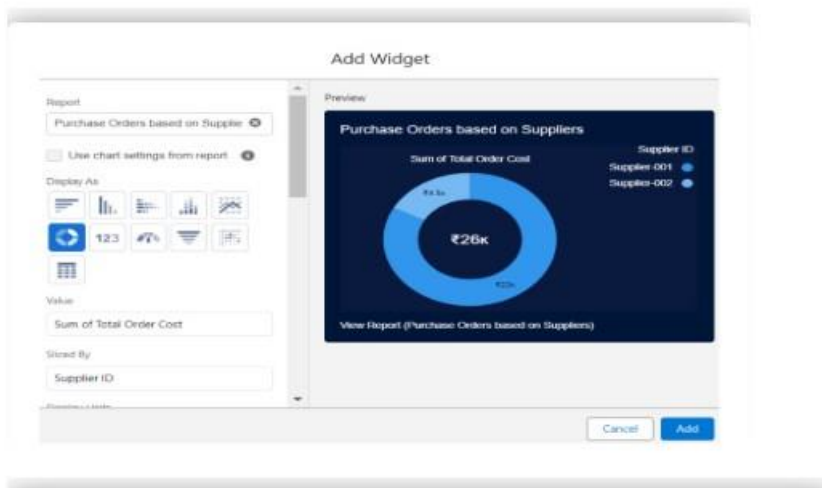
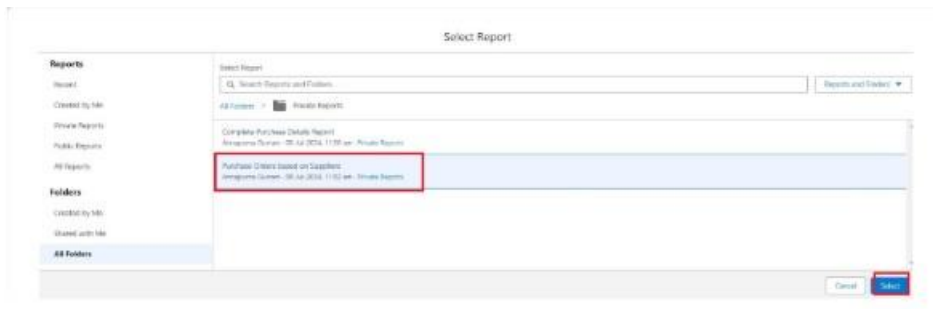
Tracks medicine availability and expiry.

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