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Team ID	NM2025TMID04465
Project	Medical Inventory Management System

1. Introduction

The *Medical Inventory Management System* is designed using Salesforce to streamline the management of medicines, suppliers, purchase orders, and stock transactions. The system ensures accurate tracking of medical stock levels, expiry dates, and supplier details. It automates processes such as stock updates, reorder alerts, and expiry notifications to enhance the efficiency of pharmacy operations. The objective is to provide a cloud-based, secure, and scalable platform for managing medical inventory efficiently.

2. Data Model

- **Object: Medicine**

Field Name	Data Type	Description
Medicine ID	Auto Number	Unique identifier for each medicine
Name	Text(80)	Name of the medicine (e.g., Paracetamol 500mg)

Field Name	Data Type	Description
SKU	Text(30)	Unique Stock Keeping Unit code
Batch Number	Text(20)	Batch number for production tracking
Expiry Date	Date	Expiration date of the medicine
Quantity On Hand	Number(8,0)	Total available stock quantity
Reorder Level	Number(8,0)	Minimum quantity before reorder
Unit Price	Currency(8,2)	Price per unit of medicine
Supplier	Lookup (Supplier)	Links to the supplier providing the medicine

- **Object: Supplier**

Field Name	Data Type	Description
Supplier ID	Auto Number	Unique supplier record ID
Supplier Name	Text(80)	Name of the supplier company

Field Name	Data Type	Description
Contact Person	Text(50)	Name of the supplier's contact person
Contact Number	Phone	Supplier's phone number
Email Address	Email	Supplier's email ID
Address	Text Area	Supplier's business address
Lead Time (Days)	Number(3,0)	Number of days to deliver orders

- **Object: Purchase Order**

Field Name	Data Type	Description
PO Number	Auto Number	Unique number for each purchase order
Supplier	Master-Detail (Supplier)	Supplier linked to this order
Order Date	Date	Date when the order was created
Status	Picklist	Pending, Received, or Cancelled
Total Amount	Currency(10,2)	Total order amount
Remarks	Text Area	Any special notes about the order

4.ObjectRelationships

1. Supplier (Master) → Purchase Order (Detail)

Meaning:

Each Stock Transaction for incoming goods can be linked to a Purchase Order to show that the stock received came from that specific order.

Purpose:

To ensure that every received item can be traced back to its original purchase order for the as of supplier auditing and verification. It provides full traceability from supplier → purchase order → stock → medicine.

2. Medicine → Stock Transaction (Lookup Relationship)

Meaning:

Each Stock Transaction record refers to one specific Medicine record, but the Medicine record can exist independently.

If a Medicine is deleted, the related Stock Transactions remain (though the reference becomes blank).

Purpose:

To update medicine stock automatically when a stock transaction occurs (like stock in or out).

This relationship is essential for inventory tracking and flow automation in Salesforce.

3. Purchase Order → Stock Transaction (Lookup for Received Goods)

Meaning:

Each Stock Transaction for incoming goods can be linked to a Purchase Order to show that the stock received came from that specific order.

Purpose:

To ensure that every received item can be traced back to its original purchase order for auditing and verification.

It provides full traceability from supplier → purchase order → stock → medicine.

4. Page Layout and User Interface (UI)

1. Medicine Object Page Layout

Designed using Lightning App Builder with key fields like *Name*, *Expiry Date*, *Quantity*, and *Reorder Level*.

Shows related lists for Stock Transactions and Recent Purchase Orders.

Helps pharmacists quickly view stock details and recent purchase history in one place.

2. Purchase Order Page Layout

Displays Supplier Name, Order Date, and Status along with related Stock Transactions.

Helps users verify which medicines were received under each purchase order.

Simplifies order tracking and links stock updates directly to goods received.

3. Supplier Page Layout

Shows supplier details such as Name, Contact, and Lead Time.

Includes a related list of all Purchase Orders linked to each supplier.

Enables admins to evaluate supplier performance **and monitor** pending deliveries easily.

4. Stock Transaction Page Layout

Includes fields for Transaction Type, Quantity, Date, Medicine, and Reference PO.

Displays related Medicines and Purchase Orders for full traceability.

Ensures each stock movement is accurately tracked to its source or issue.

5. Lightning App for Pharmacist

A dedicated Pharmacy Management App provides easy navigation for pharmacists.

Tabs include Medicine, Supplier, Purchase Orders, Stock Transactions, and Reports.

Quick Actions: *Log Stock In*, *Log Stock Out*, and *Create Purchase Order* for fast access.

5.Automation Design

- **Stock Update Flow:**

This flow automatically updates the *Quantity on Hand* field in the Medicine object whenever a Stock Transaction record is created or modified.

It ensures that inventory levels remain accurate in real-time.

This reduces manual errors and keeps stock data consistent across the system.

- **Low Stock Alert Flow:**

A scheduled flow runs at regular intervals to check if any medicines have quantities below their reorder level.

When found, it automatically creates a Task or Notification for the pharmacist.

This helps maintain stock availability and prevents medicine shortages.

The process ensures proactive inventory management.

- **Expiry Alert Flow:**

This flow identifies medicines nearing their expiry dates based on a set threshold (e.g., 30 days before expiry).

It sends alert notifications or creates tasks for pharmacists to take necessary action.

This prevents the use of expired medicines and ensures safety compliance.

The system thus maintains effective quality control of medical inventory.

6.Security and Access

Profiles and Permission Sets:

-Different user profiles are created to control access within the system.

-The Pharmacist profile has permission to view and edit medicine and stock data.

- Admin profile has full access to all records and settings for system management.

-The Supplier profile (if using a community portal) has limited access to view purchase orders only.

Field-Level Security:

-Sensitive fields such as cost, supplier details, and reorder levels are protected using field-level security.

-Only authorized users like Admins can view or modify these fields.

- This ensures data privacy, prevents accidental edits, and maintains data integrity.
- It also supports compliance with internal access control policies

7.Integration and Data Import

The system uses Salesforce Data Loader to import the initial medicine master data efficiently into the platform.

It helps upload bulk records such as medicines, suppliers, and stock details without manual entry.

For future scalability, APIs can be integrated to connect Salesforce with external ERP or procurement systems.

This ensures real-time synchronization of inventory data across platforms for seamless operations.

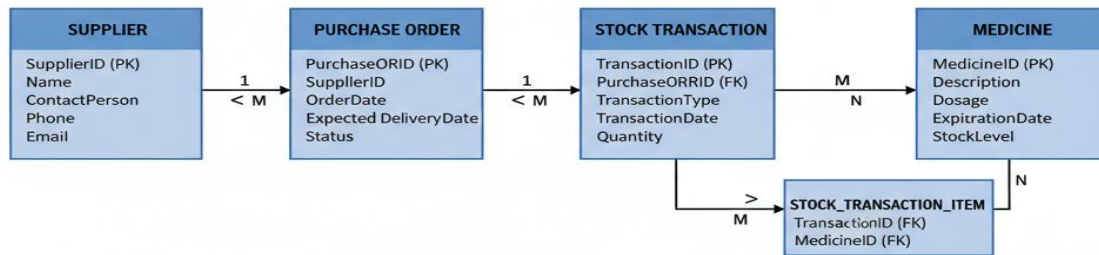
Trigger Implementation (StockTransactionTrigger)

A custom Apex Trigger named StockTransactionTrigger is created on the Stock_Transaction__c object. It automatically updates the Medicine stock quantity whenever a stock transaction record is inserted, updated, or deleted. The trigger calculates whether the transaction is “In” or “Out” and adjusts the stock accordingly. This automation ensures accurate and real-time inventory updates without manual intervention.

8.Diagrams

ER Diagram:

The ER diagram shows the relationship between
Supplier → Purchase Order → Stock Transaction → Medicine.



9.Outcome

The system design focuses on clarity, simplicity, and maintainability for easy user adoption.

It reduces manual work through automation and ensures accurate stock tracking.

Scalable architecture allows expansion across multiple pharmacy branches or sites.

Overall, it delivers an efficient, reliable, and user-friendly medical inventory management solution.