Solution Architecture

Date: 2 November 2025
Team ID: 6D24F58C3BFCDC0B2754A4CE3927F280
Project Name: Medical Inventory Management System (Salesforce)
Maximum Marks: 4 Marks

Goals of the Architecture

- Ensure **data accuracy and product traceability** across suppliers, stock, and purchase orders.
- Maintain **real-time visibility** of inventory levels, expiry dates, and supplier performance.
- Reduce manual errors by implementing **automated workflows and validation checks**.
- Enable **scalable, secure, and role-based access** to inventory modules within Salesforce.
- Provide actionable insights through **analytics dashboards** and scheduled reports.

Key Components

- **Supplier Object** – Stores supplier information including contact details, rating, and supply history.
- **Product Object** – Contains details such as batch number, expiry date, and stock quantity.
- **Purchase Order (PO) Object** – Tracks procurement lifecycle from request to receipt.
- **Inventory Transaction Object** – Logs every stock movement (inbound, outbound, adjustment).
- **Expiry Alert Rule** – Automatically checks and triggers notifications before expiry.
- **Salesforce Flow Automation** – Handles reorder triggers, status updates, and approval processes.

- **Reports and Dashboards** – Provide real-time analytics on inventory health and supplier KPIs.

Development Phases

1. **Create Core Objects:** Define Salesforce custom objects for Supplier, Product, and Purchase Order.

2. **Establish Relationships:** Link objects using lookup and master-detail relationships (e.g., Products linked to Suppliers and Purchase Orders).

3. **Implement Business Logic:** Configure Salesforce Flows and Validation Rules for expiry monitoring, reorder thresholds, and stock adjustment validation.

4. **Automation Testing:** Simulate product receipt, expiry detection, and purchase order processing.

5. **Deploy Dashboards:** Create visual dashboards for stock status, expiry alerts, and supplier performance.

6. **User Access Configuration:** Set up profiles and role hierarchies to manage access for pharmacists, admins, and procurement teams.

🧩 Solution Architecture Description

The **Medical Inventory Management System** solution architecture is designed to streamline the entire inventory lifecycle using Salesforce's low-code capabilities. It provides a centralized, secure, and automated system that connects suppliers, purchase orders, products, and expiry tracking.

At its core, the architecture uses **custom Salesforce objects** interconnected through defined relationships. Automation is handled through **Flow Builder** and **Process Builder** to execute real-time actions such as reorder alerts, expiry notifications, and supplier updates.

Data integrity is maintained by validation rules and lookup constraints, ensuring that no expired or duplicate product entries are processed. The inclusion of dashboards allows continuous monitoring of stock levels, supplier efficiency, and order timelines.

This architecture not only eliminates the need for manual tracking but also ensures compliance with healthcare standards, making it both scalable and reliable for future integration with ERP or analytics systems.

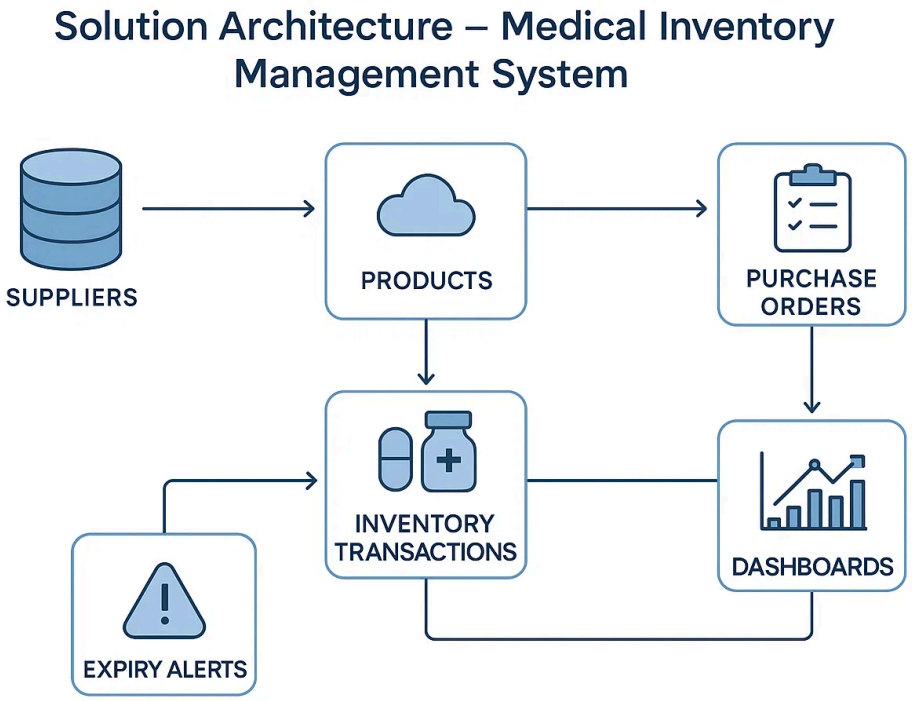
Example – Solution Architecture Diagram

Figure 1: Architecture and Data Flow for the Medical Inventory Management System

Entities:

- Supplier → Product → Purchase Order → Inventory Transaction → Expiry Alert → Dashboard

Data Flow:
Supplier feeds product details → Products linked to Purchase Orders → Received stock updates Inventory Transactions → Expiry Alerts trigger via automation → Reports and Dashboards display analytics



Reference:
Architecture approach inspired by enterprise-grade Salesforce design models for healthcare inventory systems.