

Project Design Phase

Solution Architecture

Date:	03.11.2025
Project Name:	Medical Inventory Management
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System Overview :

The Medical Inventory Management System (MIMS) is a Salesforce-based cloud solution built to streamline hospital and pharmacy inventory operations. It enables real-time tracking of medicines, surgical tools, and consumables while automating supplier management, purchase order processing, and expiry tracking — all under one unified digital platform.

Architectural Design :

Architecture Type: Three-tier Salesforce Architecture

1. Presentation Layer – Lightning App interface for user interaction (Inventory Managers, Purchase Managers, Admins).
2. Application Layer – Business rules and automation using Validation Rules, Flows, and Apex Triggers.
3. Data Layer – Stores all data in Salesforce Objects (Product, Supplier, Purchase Order, Order Item, Inventory Transaction).

INVENTORY MANAGEMENT IN HOSPITAL



Key System Components:

Component	Function
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Salesforce Objects	Core database entities that store and link data across modules.
Lightning App	The main user interface integrating products, suppliers, orders, and dashboards.
Validation Rules	Enforce correct data entry (e.g., preventing invalid delivery dates).
Profiles and Roles	Define user permissions and hierarchy (Inventory Manager, Purchase Manager).
Permission Sets	Extend privileges for specific users beyond their profile access.
Flows	Automate workflows like updating delivery dates automatically.
Apex Triggers	Perform calculations and maintain data consistency (e.g., auto-calculating total order cost).
Reports and Dashboards	Provide real-time insights into supplier performance, stock levels, and order trends.

Data Flow Diagram (Conceptual Flow):

Step 1: User logs in → Salesforce validates role and permissions.

Step 2: User creates or updates product/purchase order → Trigger automates related updates.

Step 3: Inventory transactions are recorded in real-time.

Step 4: Validation rules ensure data accuracy.

Step 5: Reports and Dashboards summarize operations visually.

Security Architecture:

- Authentication: Salesforce login and role-based access.
- Authorization: Profiles and roles restrict data visibility per user.
- Data Integrity: Validation rules and lookup relationships ensure consistency.
- Audit & Compliance: Tracks user actions via reports and logs.

Integration Points:

- Hospital Management Systems (HMS) – for patient-linked inventory tracking.
- Supplier APIs – for auto-ordering based on low stock.
- Email/SMS Services – for expiry and restock alerts.

HOSPITAL INVENTORY MANAGEMENT BEST PRACTICES



Reporting & Analytics Layer:

- Reports: Purchase Orders by Supplier, Complete Purchase Details.
- Dashboards: Visual metrics of supplier efficiency and total cost overview.

Scalability & Maintenance:

The system leverages Salesforce's cloud infrastructure, providing scalability for multiple hospital branches, minimal maintenance, and easy module addition without downtime.

Conclusion:

The Solution Architecture integrates declarative and programmatic Salesforce tools to deliver a robust and scalable Medical Inventory Management System. It ensures automation, data security, and analytics for smarter healthcare operations.

“From manual chaos to cloud clarity — MIMS builds a healthier workflow for healthcare.”