

Requirement Analysis Phase

Technology Stack (Architecture & Stack)

Date	1 November 2025
Team Id	NM2025TMID03427
Project Name	Medical Inventory Management System
Maximum Marks	4 Marks

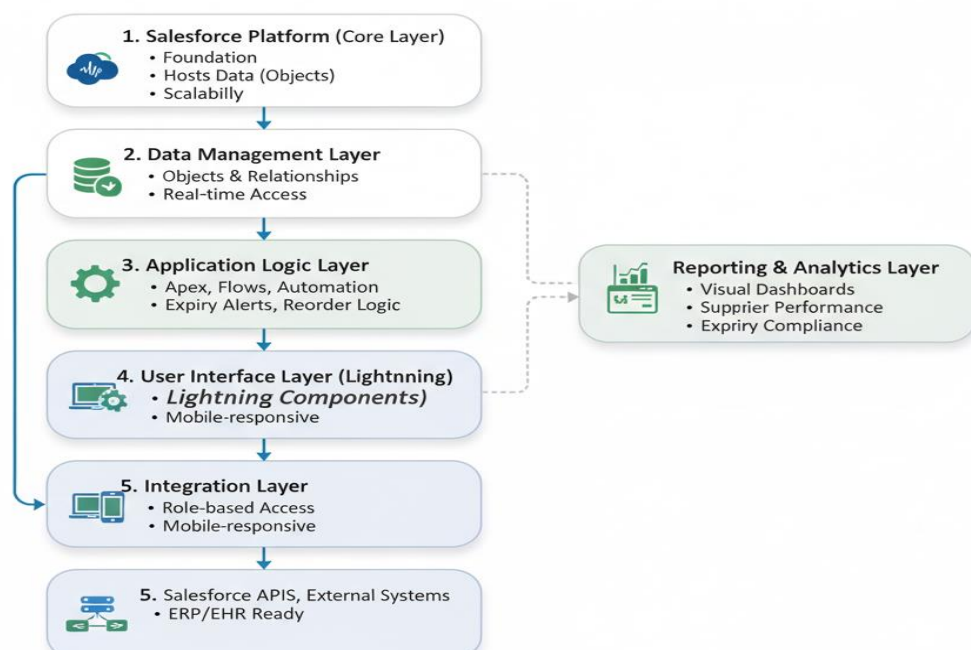
Technical Architecture

The **Medical Inventory Management System** is developed on the **Salesforce Platform**, a secure and scalable **cloud-based SaaS (Software as a Service)** solution. The system leverages Salesforce's core capabilities — including custom objects, automation tools, Apex triggers, and Lightning components — to automate and streamline end-to-end medical inventory management processes.

The architecture is modular, integrating multiple components to handle different operational areas such as supplier management, purchase order tracking, product cataloging, and expiry date monitoring.



Key Architectural Components: Medical Inventory System



The **Medical Inventory Management System** is architected on the **Salesforce Cloud Platform**, ensuring secure, scalable, and automated management of all medical inventory operations.

The architecture integrates multiple Salesforce technologies such as **Lightning UI, Apex Triggers, Flows, and Dashboards** to deliver a unified, intelligent, and user-friendly experience.

Architecture Ensures

- **Secure and Scalable Cloud Deployment** through Salesforce’s multi-tenant cloud infrastructure.
- **Automation and Workflow Management** using Salesforce Flows, Apex Triggers, and Validation Rules.
- **Centralized Data Storage** with Salesforce Custom Objects and Databases.
- **User Access Management** implemented via Profiles, Roles, and Permission Sets.
- **Real-Time Analytics and Reporting** through dynamic Salesforce Dashboards and Reports.

Table 1: Components & Technologies

S.No	Component	Description	Technology
1	User Interface	Provides an intuitive, web-based dashboard for Administrators, Inventory Managers, and Purchase Officers to manage suppliers, products, and purchase orders.	Salesforce Lightning UI, Lightning App Builder
2	Application Logic – 1	Automates supplier and purchase order creation using predefined business logic, validation rules, and automation flows.	Salesforce Flow, Apex Triggers
3	Application Logic – 2	Tracks product expiry dates and automatically generates alerts for items nearing expiration.	Apex Classes, Scheduled Flows
4	Application Logic – 3	Manages low-stock alerts and automated reorder workflows to maintain optimal inventory levels.	Process Builder, Flow Builder
5	Database	Stores supplier, product, purchase order, and transaction data securely in Salesforce Custom Objects.	Salesforce Object Database

S.No	Component	Description	Technology
6	Cloud Database	Provides secure, scalable data storage managed within Salesforce's multi-tenant cloud infrastructure, ensuring redundancy and reliability.	Salesforce Cloud (Data Storage Layer)
7	File Storage	Stores supporting documents such as invoices, supplier agreements, and purchase order attachments.	Salesforce Files, Attachments
8	External API – 1 (Optional)	Enables integration with third-party ERP systems or supplier APIs for automated order synchronization.	Salesforce REST & SOAP APIs
9	External API – 2 (Optional)	Integrates with email and notification systems to send real-time alerts and updates.	Salesforce Email Services, Notification APIs
10	Machine Learning Model (Optional)	Future-ready AI component for predicting stock demand, consumption trends, and supplier efficiency.	Einstein Analytics / Salesforce AI
11	Infrastructure (Server / Cloud)	The complete system is hosted and managed on Salesforce's highly secure and scalable SaaS cloud infrastructure.	Salesforce Cloud Infrastructure (SaaS)

Table 2: Application Characteristics

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Not applicable, as Salesforce operates on a proprietary cloud framework rather than open-source infrastructure.	—
2	Security Implementations	Implements multi-level security including role-based access control, encrypted data transmission, and restricted user permissions.	Profiles, Roles, Permission Sets, Shield Encryption
3	Scalable Architecture	Designed on Salesforce's SaaS-based multi-tenant cloud architecture,	Salesforce Cloud Architecture

S.No	Characteristics	Description	Technology
		supporting scalability for increased users, data, and modules.	
4	Availability	Ensures high uptime and continuous service delivery through Salesforce's globally distributed, redundant data centers.	Load-Balanced Salesforce Instances
5	Performance	System performance is enhanced through optimized Apex code, asynchronous automation, indexed data fields, and adherence to Salesforce governor limits.	Apex Scheduler, SOQL Optimization
6	Reliability	Guarantees data reliability through automatic backups, disaster recovery, and transactional data integrity.	Salesforce Backup & Restore
7	Maintainability	Highly maintainable via Salesforce's low-code environment, enabling configuration through declarative tools without extensive coding.	Flow Builder, App Builder (Low-Code Salesforce Platform)
8	Integration Support	Provides seamless integration with external healthcare systems, ERP applications, and APIs for unified operations.	REST / SOAP APIs, External Services