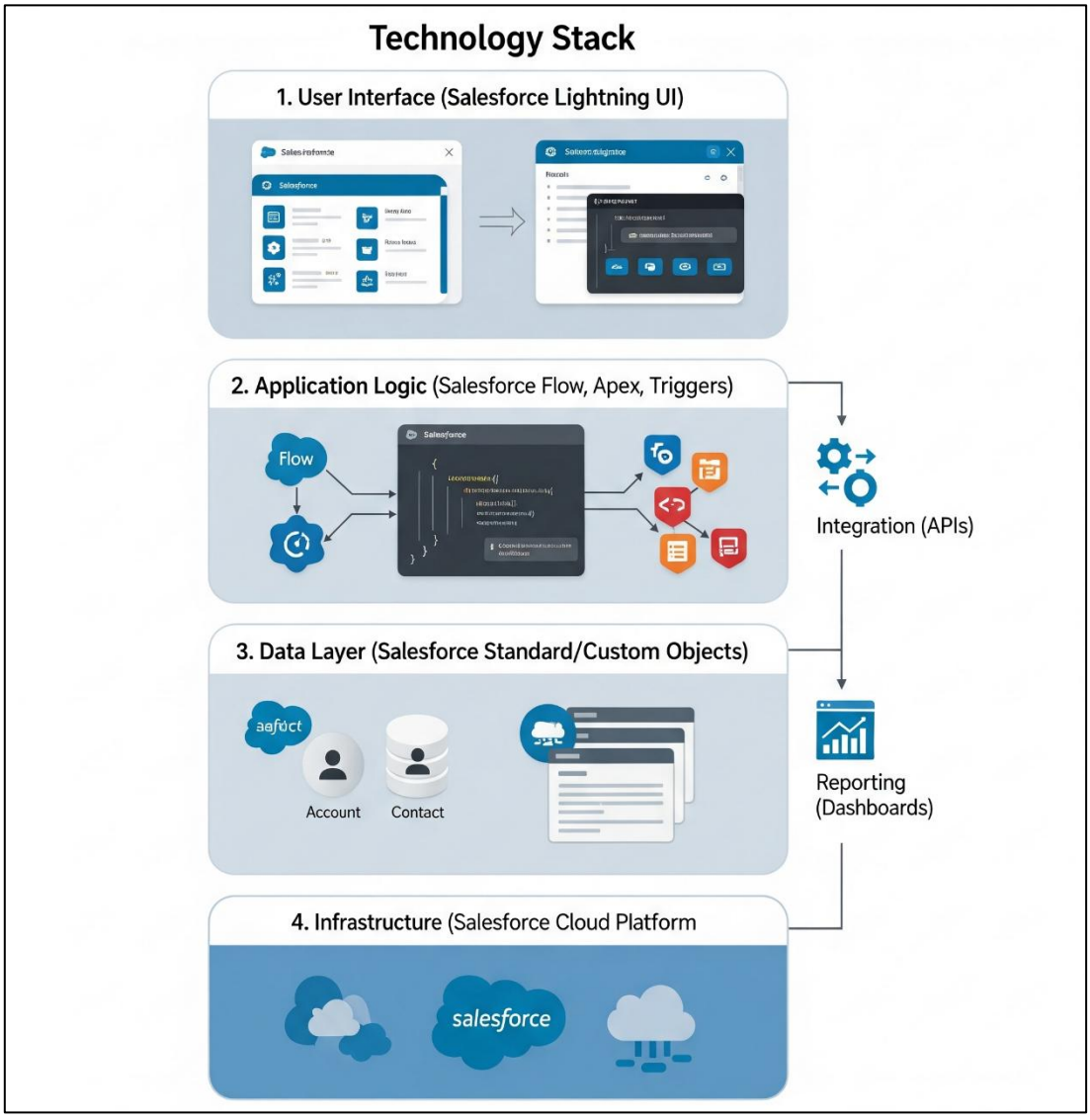
Requirement Analysis Phase

Technology Stack (Architecture & Stack)

Date	1 November 2025
Team Id	NM2025TMID04221
Project Name	Medical Inventory Management System
Maximum Marks	4 Marks

Technical Architecture :

The Medical Inventory Management System is built on the Salesforce Platform (Cloud-based SaaS), designed to automate and manage medical inventory processes including supplier management, purchase order tracking, product cataloging, and expiry date monitoring.



The architecture ensures:

- Secure and scalable cloud deployment via Salesforce Cloud Infrastructure
- Automation using Salesforce Flows, Apex triggers, and Validation Rules
- Centralized data storage through Salesforce Objects and Databases
- User access management via Profiles, Roles, and Permission Sets
- Real-time analytics and reports through Salesforce Dashboards

Table 1: Components & Technologies :

S.No	Component	Description	Technology
1	User Interface	Provides web-based dashboards for Admins, Inventory Managers, and Purchase Officers to manage suppliers, products, and orders.	Salesforce Lightning UI, Lightning App Builder
2	Application Logic – 1	Automates supplier and purchase order creation with validation and flow rules.	Salesforce Flow, Apex Triggers
3	Application Logic – 2	Tracks product expiry dates and generates system alerts for near-expiry items.	Apex Classes, Scheduled Flows
4	Application Logic – 3	Handles low stock notifications and reorder management.	Process Builder, Flow Builder
5	Database	Stores supplier, product, and transaction data in Salesforce custom objects.	Salesforce Object Database

6	Cloud Database	Managed automatically through Salesforce's multi-tenant cloud platform ensuring data security and redundancy.	Salesforce Cloud (Data Storage Layer)
7	File Storage	Used to store invoices, supplier documents, and purchase order attachments.	Salesforce Files, Attachments
8	External API – 1 (Optional)	Can integrate with third-party ERP or Supplier APIs for order synchronization.	Salesforce REST & SOAP APIs
9	External API – 2 (Optional)	Email and notification integration for alert messages.	Salesforce Email Services, Notification APIs
10	Machine Learning Model (Optional)	Could be used for demand forecasting and stock prediction in future versions.	Einstein Analytics / Salesforce AI
11	Infrastructure (Server / Cloud)	Entire solution is hosted and managed on Salesforce's secure, scalable SaaS cloud.	Salesforce Cloud Infrastructure (SaaS)

Table 2: Application Characteristics :

S.No	Characteristics	Description	Technology
1	Open-Source Frameworks	Not applicable (Salesforce uses proprietary cloud framework).	—
2	Security Implementations	Ensures role-based access, encrypted communication, and permission control.	Profiles, Roles, Permission Sets, Shield Encryption

3	Scalable Architecture	SaaS-based multi-tenant model with support for growing data and user volume.	Salesforce Cloud Architecture
4	Availability	High uptime guaranteed by Salesforce hosting with redundant data centers.	Load-Balanced Salesforce Instances
5	Performance	Optimized via asynchronous flows, indexed fields, and governor limits adherence.	Apex Scheduler, SOQL Optimization
6	Reliability	Automated backups and transactional integrity maintained by Salesforce.	Salesforce Backup & Restore
7	Maintainability	Easily configurable with declarative tools like Flow Builder and App Builder.	Low-Code Salesforce Platform
8	Integration Support	Supports API-based communication with other healthcare or ERP systems.	REST/SOAP API, External Services