

Project Design Phase-II

Solution Requirements (Functional & Non-functional)

Field	Details
Date	04 November 2025
Team ID	NM2025TMID03885
Project Name	Medical Inventory Management System
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Developer Account Setup	Create Salesforce developer account at developer.salesforce.com Complete email verification and activation Configure username and organization details
FR-2	Custom Object Creation	Create Product object with Name, Description, Stock, Price, Expiry fields Create Purchase Order object with Supplier lookup Create Supplier object with contact fields Create Inventory Transaction object with Product and User lookups Create Employee object for user management
FR-3	Field Definition	Create text, number, currency fields in Product object Create lookup, date, picklist fields in Purchase Order Create roll-up summary field for PO total calculation Create formula fields for automatic calculations Create phone and email fields in Supplier object
FR-4	Tab Configuration	Create custom tab for Product object Create custom tabs for Purchase Order, Supplier, Inventory Transaction Configure tab visibility and appearance
FR-5	Lightning App Setup	Admin can create Medical Inventory Management Lightning App Group all tabs together in unified interface Configure navigation and branding

FR-6	Page Layout Customization	Customize page layout for Product object with organized sections Customize layouts for Purchase Order, Supplier, Inventory Transaction Add related lists and arrange fields logically
FR-7	Compact Layout Creation	Create compact layout for Product showing key fields (Name, Stock, Expiry) Create compact layout for Purchase Order showing (Supplier, Date, Status) Enable quick view in list views
FR-8	Validation Rules	System validates Expected Delivery Date is after Order Date System prevents negative stock quantities System ensures required fields are populated
FR-9	Profile Configuration	Admin creates Inventory Manager profile with CRUD on Product, Inventory Transaction Admin creates Purchase Manager profile with CRUD on PO, Supplier Assign appropriate object and field permissions
FR-10	Role Hierarchy Setup	Admin creates Purchasing Manager role hierarchy Define record-level access control Configure sharing rules based on roles
FR-11	User Management	Admin creates users with email and license assignment Admin assigns profiles (Inventory Manager, Purchase Manager) Admin assigns roles for record access
FR-12	Permission Sets	Admin creates permission sets for specialized access Assign permission sets to specific users Grant additional permissions beyond base profile
FR-13	Expiry Alert Flow	System checks product expiry dates daily System sends email alert 30 days before expiry System sends escalating alerts at 15 and 7 days Alert includes Product Name, Current Stock, Expiry Date
FR-14	Stock Alert Flow	System monitors Current Stock vs Minimum Stock Level If Current Stock < Minimum → System sends alert to Inventory Manager Alert includes reorder quantity recommendation
FR-15	Delivery Date Flow	When Purchase Order Status changes to "Delivered" System auto-updates Actual Delivery Date to today System calculates delivery time variance
FR-16	Order Total Trigger	When Order Items are added/updated/deleted System automatically recalculates Purchase Order total Total = Sum of (Quantity × Unit Price) for all items System handles bulk operations efficiently
FR-17	Inventory Transaction Recording	User records Stock In transaction when delivery received User records Stock Out transaction when medicine dispensed System captures Product, Type, Quantity, Date, Performed By System

		updates Product Current Stock automatically
FR-18	Supplier Performance Report	Purchase Manager views report grouped by Supplier Report shows Total Orders, Total Amount, On-Time Delivery % Report is sortable and filterable Report can be exported to Excel
FR-19	Purchase Details Report	Auditor views detailed report with all line items Report includes PO Number, Supplier, Dates, Products, Quantities, Amounts Report supports compliance and audit requirements
FR-20	Supplier Performance Dashboard	Manager views dashboard with supplier metrics Dashboard shows on-time delivery percentage (gauge) Dashboard shows total spending by supplier (bar chart) Dashboard shows monthly purchase trends (line chart)
FR-21	Inventory Status Dashboard	Manager views real-time inventory status Dashboard shows current stock levels (table) Dashboard shows products expiring within 30 days (list) Dashboard shows low stock warnings (color-coded alerts)
FR-22	Product Search	Pharmacist searches for product by name System returns results within 2 seconds Search displays Current Stock, Expiry Date, Location
FR-23	Purchase Order Creation	Purchase Manager creates new Purchase Order Manager selects Supplier via lookup Manager enters Order Date and Expected Delivery Date Manager selects Status from picklist (Pending, Approved, Delivered)
FR-24	Order Item Management	Purchase Manager adds products to Purchase Order Manager specifies Product, Quantity, Unit Price for each item System calculates Line Total = Quantity × Unit Price System updates PO Total automatically via trigger

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The Lightning App interface should be intuitive for pharmacists, inventory managers, and purchase managers to use without extensive training. Page layouts should organize fields logically

		with clear labels. Dashboards should use color-coded alerts (Red: Critical, Yellow: Warning, Green: OK) for quick visual recognition. Mobile-responsive interface for warehouse staff accessing via tablets/phones.
NFR-2	Security	Only authorized users with assigned profiles (Inventory Manager, Purchase Manager) can access respective objects. Role-based access control ensures users see only permitted records. Sensitive fields (Unit Price, Total Amount) are protected with field-level security. Complete audit trail tracks all user actions with timestamps. Password policies enforced for all users.
NFR-3	Reliability	Flows must always check expiry dates accurately before sending alerts. Triggers must always calculate Purchase Order totals correctly even for bulk operations (100+ items). Validation rules must prevent invalid data entry 100% of the time. System maintains data integrity across related objects (Product, PO, Supplier, Transaction). Zero tolerance for expired medicine reaching patients.
NFR-4	Performance	Expiry alert Flow executes daily within 5 minutes for 10,000+ products. Stock alert Flow triggers within 1 second of stock falling below minimum. Trigger calculates PO total within 3 seconds for 50+ order items. Product search returns results within 2 seconds. Dashboard loads within 5 seconds with 1 year of data. Reports generate within 10 seconds for 5,000+ records.
NFR-5	Availability	Salesforce platform provides 99.9% uptime guarantee. System accessible 24/7 for emergency medicine dispensing. Cloud-based architecture ensures no local server dependencies. Automatic backups prevent data loss. Disaster recovery capabilities with data replication.
NFR-6	Scalability	System handles growth from 1,000 to 100,000 products without performance degradation. Supports multiple hospital facilities (5 to 50+) with same codebase. Handles increasing transaction volume (100 to 10,000 daily) efficiently. Bulk API supports mass data imports/updates. Lightning platform auto-scales resources as needed.
NFR-7	Maintainability	Flows documented with descriptions, version history, and comments. Apex triggers include inline code comments explaining logic. Naming conventions followed: Object__c, Field__c for custom components. Modular design allows easy updates without affecting other modules. Test coverage $\geq 75\%$ for all Apex code.

NFR-8	Compliance	System maintains complete audit trail for regulatory compliance (FDA, healthcare regulations). Data retention policies implemented (7 years for purchase records). Role-based access supports HIPAA requirements for patient safety data. Validation rules enforce business logic and prevent non-compliant data entry. Reports support audit and compliance verification.
NFR-9	Interoperability	Salesforce APIs available for integration with hospital ERP systems. Data can be exported to Excel/CSV for external analysis. Standard REST/SOAP APIs for third-party integrations. Email integration for automated alerts and notifications. Compatible with mobile devices (iOS, Android) via Salesforce Mobile App.
NFR-10	Data Accuracy	Validation rules ensure 100% data integrity (dates, numbers, lookups). Roll-up summary fields auto-aggregate data accurately. Formula fields perform calculations without manual errors. Triggers handle all edge cases (null values, bulk operations, deletes). Automated processes eliminate manual data entry errors by 90%.
NFR-11	Response Time	Page load time < 3 seconds for standard pages. Dashboard refresh time < 5 seconds. Form submission (save record) < 2 seconds. Search results < 2 seconds. Alert email delivery within 5 minutes of trigger event.
NFR-12	Recoverability	Salesforce automatic daily backups. Recycle Bin retains deleted records for 15 days. Field History Tracking enabled for critical fields. Version control for Flows and code in source control (Git). Ability to restore data from backups within 4 hours.