Project Design Phase

Solution Architecture

Date	28 October 2025
Team ID	NM2025TMID04224
Project Name	Medical Inventory Management System
Maximum Marks	2 Marks

Solution Architecture:

Goals of the Architecture:

- Automate medical inventory tracking and stock updates.
- Maintain real-time data integrity between medicines, suppliers, and stock records.
- Reduce manual errors in restocking, expiry management, and purchase tracking.

Key Components:

- **Medicine Table:** Stores details such as medicine ID, name, batch number, expiry date, and quantity.
- **Supplier Table:** Maintains supplier details for procurement and delivery tracking.
- **Purchase and Sales Tables:** Handle transaction history and stock adjustments.
- **Alert Module:** Sends notifications for low stock or upcoming expiry dates.
- **Dashboard & Reports:** Provide insights into usage patterns, stock levels, and overall performance.

Development Phases:

1. **Database Design:** Create tables for medicines, suppliers, purchases, and alerts.
2. **UI Development:** Build web-based interface for stock management and reporting.
3. **Automation Logic:** Implement expiry and low-stock alert triggers.
4. **Testing & Validation:** Simulate purchase, stock update, and expiry scenarios.
5. **Deployment:** Host system on a local server or cloud platform for multi-user access.

Solution Architecture Description:

The Medical Inventory Management System architecture is designed to ensure efficient and error-free handling of medical supplies within hospitals and pharmacies. It integrates modules for stock control, supplier management, purchase tracking, and alert generation**.**

The central Medicine Database connects with supplier and transaction modules to maintain consistent data flow. Automated alerts ensure that no medicine is left unmonitored near expiry or low in stock.

Through a combination of frontend UI, backend database, and logic-based triggers, the architecture enhances efficiency, reduces wastage, and ensures continuous availability of critical medical items.

This architecture promotes data reliability, operational efficiency, and scalability for healthcare institutions of varying sizes.

Example - Solution Architecture Diagram:

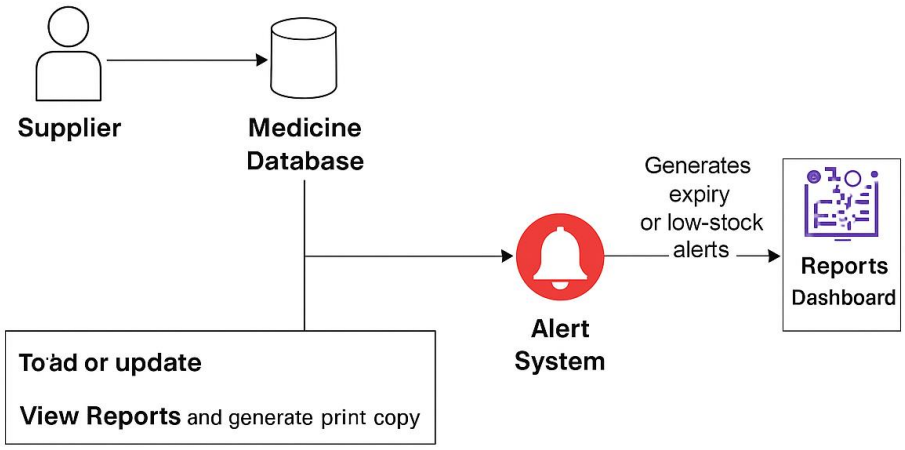

Figure 1: Solution architecture for a Medical Inventory Management System

Reference:

https://www.geeksforgeeks.org/hospital-management-system-project/