

Project Design Phase

Solution Architecture

Date: 08 November 2025

Team ID: NM2025TMID05637

Project Name: Medical Inventory Management System

Maximum Marks: 4 Marks

Goals of the Architecture:

- Ensure accurate and automated management of medical inventory data.
- Provide alerts for low stock and expiring medicines.
- Reduce manual errors and administrative effort.
- Support scalability for integration with billing and hospital systems.

Key Components:

- Medicine Database (stores details such as name, batch number, expiry date, and quantity).
- Stock Management Module (handles additions, deletions, and updates).
- Alert System (notifies admin about low or expired stock).
- Report Generation Module (creates inventory and purchase reports).
- User Interface (allows administrators and pharmacists to manage data easily).

Development Phases:

1. Design database tables for medicines, suppliers, and transactions.
2. Implement modules for adding and updating medicine details.
3. Develop alert system for expiry and low stock notifications.
4. Integrate reporting and dashboard view for analysis.
5. Test the system for performance and validation of functionalities.

Solution Architecture Description:

The solution architecture of the Medical Inventory Management System is designed to automate stock management and improve operational efficiency. It connects core modules such as the medicine database, alert system, and reporting module through an integrated workflow. Data flows from user input to storage, triggering alerts and reports based on

conditions like stock levels and expiry dates. This architecture ensures reliability, reduces manual supervision, and enhances decision-making in healthcare inventory operations.

Problem – Solution Fit Template:

Problem – Solution Fit simply means that you have a problem and that the solution you have realized for it actually solves the customer problem. It helps entrepreneurs,

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase solution adoption by tapping into existing mediums and channels of behavior.
- Sharpen your communication and marketing strategy with the right triggers and messaging.
- Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- Understand the existing situation to improve it for your target group.

The project Medical Inventory Management System addresses challenges on track management and medical supplies in healthcare settings. It ensures up-to-date stock levels and timely reorder alerts solve inefficiencies in stock outs and overstock and affecting patient care and operational costs. The solution automates inventory tracking, expiry alerts and reporting

Reference: <https://aws.amazon.com/blogs/industries/voice-applications-in-clinical-research-powered-by-ai-on-aws-part-1-architecture-and-design-considerations/>