Project Design Phase
Solution Architecture

Date	NOVEMBER 06, 2025
Team ID	NM2025TMID05285
Project Name	Medical Inventory Management
Maximum Marks	4 Marks

Solution Architecture:

Goals of the Architecture:

- Ensure system safeguards to prevent unauthorized or accidental inventory deletions

- Maintain data integrity across medicine–inventory–user relationships

- Reduce manual tracking and improve automated validation of medical stock activities

Key Components:

- • **Medical Inventory Table** (stores medicine details and quantities)
- • **Purchase/Usage Transaction Table** (records all incoming and outgoing stock)
- • **Business Rule (Before Delete)** on the **Inventory Table**
- • **Script logic** that validates dependencies before deletion (e.g., existing stock usage or pending transactions)

- **Development Phases**:
- • Create sample medicine records (e.g., Paracetamol, Amoxicillin)
- • Record transactions linking these medicines to purchase or usage logs
- • Implement the "Before Delete" Business Rule
- • Test deletion attempts for both linked (active transactions) and unlinked (inactive) medicines

Solution Architecture Description:

The solution architecture for the **Medical Inventory Management System** is designed to protect data consistency and ensure safe record handling by implementing a **Business Rule** that prevents the deletion of medicines currently associated with active transactions. The architecture enforces validation between the **inventory** and **transaction** tables, utilizing a *"before delete"* rule to automatically check whether a medicine item is still in use or referenced in any active purchase or usage record. If dependencies are found, deletion is blocked to maintain accuracy and audit compliance. This approach enhances **data integrity**, reduces **manual oversight**, and ensures **reliable, traceable operations** within the healthcare inventory process — promoting accountability and smooth functioning in hospital or pharmacy   environments
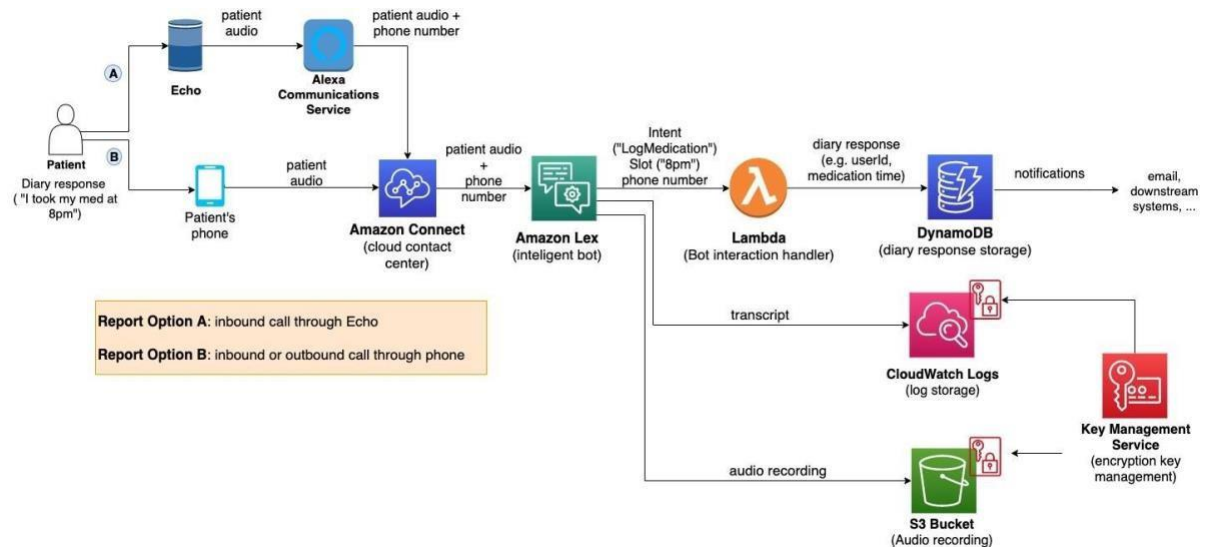
Example - Solution Architecture Diagram:

Figure 1: Architecture and data flow of the voice patient diary sample application

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