

Project Design Phase

Solution Architecture

Date	30 october 2025
Team ID	F6ECDDC2BAA51CF97204E983A5BEFB35
Project Name	Medical Inventory Management
Maximum Marks	4 Marks

Solution Architecture

Goals of the Architecture

- Prevent deletion of medical items that are currently in use or linked to patient cases
- Maintain data integrity across inventory–patient/procedure relationships
- Automate validation to eliminate manual tracking or accidental deletions

Key Components

- Medical Inventory table (where all medical items/equipment are stored)
- Patient/Procedure/Prescription tables (linked items in use)
- Business Rule (Before Delete) on inventory item table
- Script logic to verify active usage before allowing deletion

Development Phases

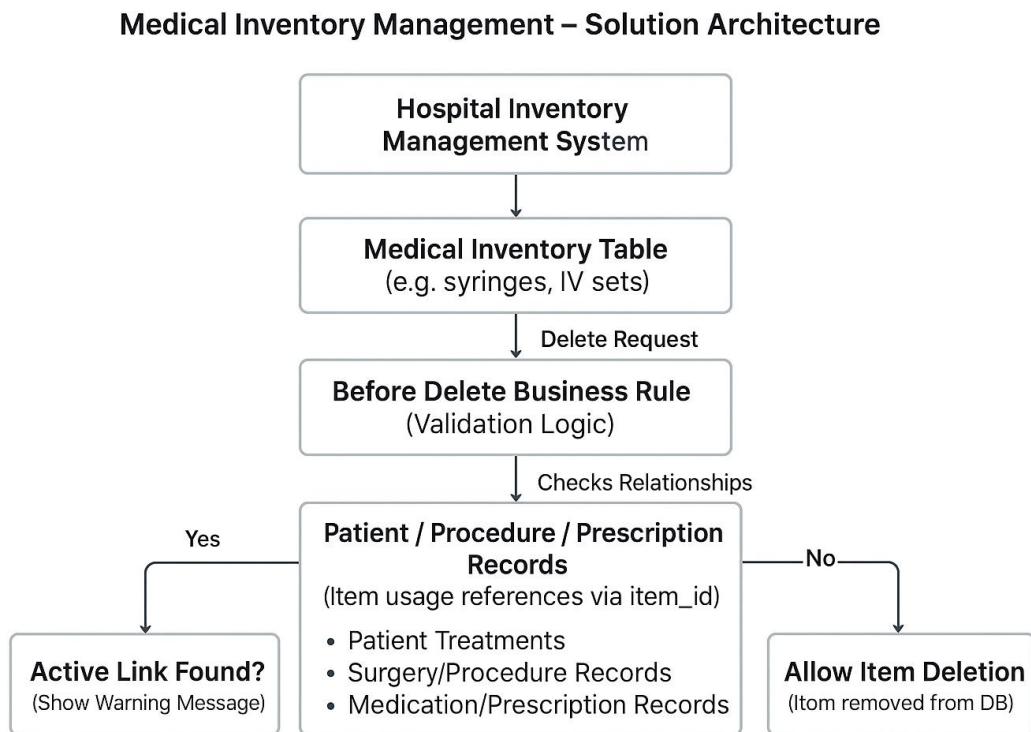
1. Create sample medical items in inventory (e.g., Syringe, ECG Machine, IV Set)
2. Assign items to patient records, prescriptions, or medical procedures
3. Implement the "Before Delete" Business Rule
4. Test deletion behavior for items in use vs not in use

⌚ Solution Architecture Description

This solution architecture is developed to protect medical inventory integrity within a hospital management system by implementing a rule that prevents deletion of medical items currently in use. The architecture ensures accuracy and reliability across the inventory and patient-related records by enforcing a before delete validation on the medical inventory table. The rule checks if an item is associated with any active patient treatment, prescription, or procedure. If the item is in use, the system automatically blocks deletion to avoid disruptions in patient care workflows.

The development lifecycle includes creating sample medical items, linking them to patient cases, configuring the rule, and validating deletion behavior. This architecture reduces manual oversight, strengthens patient safety, ensures compliance with healthcare management standards, and enhances operational accountability in medical inventory systems.

Example - Solution Architecture Diagram:



Reference: [hospital inventory management with inaccurate usage](#)