Medical Inventory Database Management System
Group 9

1. Introduction

This document outlines the database design for a Medical Inventory Management System, which is intended to offer efficient data management solutions for healthcare operations. The system includes functionalities such as tracking medical supplies, managing patients, controlling inventory levels, monitoring usage, and handling supplier information. It is designed to optimize the acquisition, storage, and distribution of medical items, ensuring that healthcare providers have the necessary resources to deliver effective and timely patient care.

2. Business Problems Addressed

The database is designed to solve critical operational challenges:

• **Quick and Informed Decision-making:** Need for real-time insights into inventory levels, supply usage, and equipment availability to support timely and accurate decisions.

• **Stock Shortages and Supply Chain Disruptions:** Difficulties in maintaining optimal inventory levels, leading to potential shortages or overstock, affecting the availability of critical medical supplies.

• **Operational Efficiency in Healthcare Services:** Challenges in ensuring smooth operations with real-time monitoring of medical supplies, equipment status, and restocking processes, enabling efficient resource allocation and service delivery.

3. Entities Description

3.1 Patient
• Attributes:
Patient_ID, Patient_Name,Patient_DOB, Patient_Contact
• Relationships:
 Has Prescription, Places Orders
3.2 Prescription: Prescription

3.2. Prescription

- **Attributes**:
    - Prescription ID
    - Patient ID

- Name
- Quantity
- Date
- **Relationships**:
  - Determines the usage

3. Order

Attributes:

- Order ID
- Medication ID
- Medication Name

Relationships:

- "Places" orders for medication

4. Order Detail

Attributes:

- Order ID
- Medication Name
- Price
- Quantity

Relationships:

- "Consists of" medication details

5. Medication

Attributes:

- Medication ID
- Name
- Description
- Dosage
- Type

Relationships:

- "Included in" orders

6. Pharmacist

Attributes:

- Pharmacist ID
- Name
- Contact
- Location

Relationships:

- "Handles" inventory

7. Inventory

Attributes:

- Inventory ID
- Stock Level
- Reorder Level

Relationships:

- "Managed by" pharmacists

8. Supplier

Attributes:

- Supplier ID
- Name
- Contact
- Address

Relationships:

- Provides medication for orders

9. Expiry

Attributes:

- Batch ID
- Medication ID
- Expiry Date

- Manufacture Date
- Quantity

Relationships:

- Tracks the expiry of medications

10. Usage

Attributes:

- Usage Quantity
- Medication Quantity
- Medication ID
- Medication Name

Relationships:

- "Determines" medication needs
- "Looks for" stock levels
- "Calculates" medication usage

4. Entity Relationships

1. Patient

- **Prescription**: One-to-Many (A patient can have multiple prescriptions).
- **Order:** One-to-Many (A patient can place multiple orders)

2. Prescription

- **Patient**: Many-to-One (Multiple prescriptions can belong to a single patient).
- **Order**: One-to-Many (A prescription can place multiple orders).

3. Order

- **Order_Detail**: One-to-One (Each order consists of specific details like price and quantity)
- **Pharmacist**: Many-to-One (Multiple orders can be fulfilled by one pharmacist).

4. Order Detail

- **Order**: One-to-One (Each order consists of specific details like price and quantity).

● Medication: One-to-Many ()

5. Medication

● **Order_Detail**: Many-to-One (Multiple medications can be part of a single order).

6. Pharmacist

● **Inventory**: One-to-Many (A pharmacist can manage multiple inventories).
● **Orders:** One-to-Many (Each pharmacist can handle multiple orders)

7. Inventory

● **Medication**: Many-to-One (Multiple medications can be tracked in a single inventory).
● **Pharmacist**: Many-to-One (Inventories are managed by pharmacists).
● **Supplier:** Many-to-One (Many inventories can be managed by one supplier)

8. Supplier

● **Inventory**: One-To-Many (One supplier can manage multiple inventories).

9. Expiry

● **Pharmacist**: Many-to-One (Each medication has expiry details like batch, expiry date, manufacturing date, and quantity).

10. Usage

● **Prescription**: One-to-Many (Many prescriptions can have similar usage)
● **Inventory:** Many-To-One(Many usages can have one inventory).