**Database Design with Multiple Schemas for Therapeutic Areas**

**1. Therapeutic Areas Schema (therapeutic)**

This schema will focus on organizing tables related to **Therapeutic Areas** and their associated data.

**Therapeutic Areas Table (therapeutic.therapeutic\_areas)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| therapeutic\_area\_id | INT | Primary Key, Unique identifier for therapeutic area |
| area\_name | VARCHAR | Name of the therapeutic area (e.g., Cardiology, Oncology, Diabetes Care) |
| description | TEXT | Description or details about the therapeutic area |

**Products Table (therapeutic.products)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| product\_id | INT | Primary Key, Unique identifier for each product |
| product\_name | VARCHAR | Name of the product (e.g., drug, medical device) |
| therapeutic\_area\_id | INT | Foreign Key, links to therapeutic.therapeutic\_areas |
| product\_type | VARCHAR | Type of product (drug, device, etc.) |
| manufacturer | VARCHAR | Manufacturer of the product |
| price | DECIMAL | Price per unit |
| launch\_date | DATE | Date when the product was launched |

**Product Sales Table (therapeutic.product\_sales)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| sale\_id | INT | Primary Key, Unique sale identifier |
| product\_id | INT | Foreign Key, links to therapeutic.products |
| sale\_date | DATE | Date of the sale |
| quantity\_sold | INT | Quantity of the product sold |
| total\_revenue | DECIMAL | Total revenue from the sale |

**2. Sales Channels Schema (channels)**

This schema will focus on organizing the data related to **Sales Channels**, specifying how products are sold.

**Sales Channels Table (channels.sale\_channels)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| sale\_channel\_id | INT | Primary Key, Unique identifier for the sales channel |
| channel\_name | VARCHAR | Name of the sales channel (e.g., Direct, Distributor, E-commerce) |
| description | TEXT | Description of the sales channel |

**3. Customer Schema (customers)**

This schema will store customer data that is essential for tracking sales and performance.

**Customers Table (customers.customers)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| customer\_id | INT | Primary Key, Unique identifier for customers (e.g., hospital, pharmacy) |
| customer\_name | VARCHAR | Name of the customer |
| customer\_type | VARCHAR | Type of customer (e.g., hospital, retail pharmacy, clinic) |
| contact\_info | VARCHAR | Contact information for the customer |

**4. Time Period Schema (time\_period)**

Organizes the time-based data for effective tracking and reporting.

**Time Period Table (time\_period.time\_periods)**

|  |  |  |
| --- | --- | --- |
| **Column Name** | **Data Type** | **Description** |
| time\_period\_id | INT | Primary Key, Unique identifier for time period |
| year | INT | Year of the period |
| quarter | INT | Quarter of the year (1-4) |
| month | INT | Month of the year (1-12) |
| week | INT | Week number of the year (1-52) |

**5. Reporting Schema (reporting)**

Contains aggregated views used for reporting purposes, especially related to **Therapeutic Areas**.

**Therapeutic Area Sales Summary View (reporting.therapeutic\_area\_sales\_summary)**

* **Purpose**: A view that summarizes total sales by therapeutic area.
* **Key Metrics**: Total sales, total quantity sold for each therapeutic area.

**Monthly Sales for Therapeutic Area View (reporting.monthly\_sales\_by\_therapeutic\_area)**

* **Purpose**: A view that aggregates monthly sales by therapeutic area.
* **Key Metrics**: Sales revenue, quantity sold by month, grouped by therapeutic area.

**Schema Relationships**

1. **Products (therapeutic.products) → Therapeutic Areas (therapeutic.therapeutic\_areas)**
   * Each product is assigned to a specific therapeutic area.
2. **Product Sales (therapeutic.product\_sales) → Products (therapeutic.products)**
   * Sales data is tied to specific products.
3. **Product Sales (therapeutic.product\_sales) → Sales Channels (channels.sale\_channels)**
   * Each sale is associated with a specific sales channel.
4. **Product Sales (therapeutic.product\_sales) → Customers (customers.customers)**
   * Each sale is linked to a customer.
5. **Product Sales (therapeutic.product\_sales) → Time Period (time\_period.time\_periods)**
   * Each sale is recorded with a specific time period.

**High-Level Overview of the Database Structure**

* **Schemas:**
  + **therapeutic**: Contains the core tables for therapeutic areas, products, and product sales.
  + **channels**: Stores information about sales channels.
  + **customers**: Stores customer information for each sale.
  + **time\_period**: Organizes time-based information for sales reporting.
  + **reporting**: Contains views for reporting sales performance by therapeutic area.