**Table Schema: Product Inventory Table**

Let's create a new table called **ProductInventory** to practice various SQL operations.

**ProductInventory Table Structure:**

| **ProductID (PK)** | **ProductName** | **Category** | **Quantity** | **UnitPrice** | **Supplier** | **LastRestocked** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | Laptop | Electronics | 20 | 70000 | TechMart | 2025-04-20 |
| 2 | Office Chair | Furniture | 50 | 5000 | HomeComfort | 2025-04-18 |
| 3 | Smartwatch | Electronics | 30 | 15000 | GadgetHub | 2025-04-22 |
| 4 | Desk Lamp | Lighting | 80 | 1200 | BrightLife | 2025-04-25 |
| 5 | Wireless Mouse | Electronics | 100 | 1500 | GadgetHub | 2025-04-30 |

**Tasks:**

**1. CRUD Operations:**

1. **Add a new product:**
   * Insert a product named **"Gaming Keyboard"**, Category **Electronics**, Quantity **40**, UnitPrice **3500**, Supplier **TechMart**, LastRestocked **2025-05-01**.
2. **Update stock quantity:**
   * Increase the **Quantity** of **Desk Lamp** by **20**.
3. **Delete a discontinued product:**
   * Remove the product with **ProductID = 2** (Office Chair).
4. **Read all products:**
   * Display all products sorted by **ProductName** in **ascending order**.

**2. Sorting and Filtering:**

1. **Sort by Quantity:**
   * List products sorted by **Quantity** in **descending order**.
2. **Filter by Category:**
   * Display all **Electronics** products.
3. **Filter with AND condition:**
   * List all **Electronics** products with **Quantity > 20**.
4. **Filter with OR condition:**
   * Retrieve all products that belong to **Electronics** or have a **UnitPrice below 2000**.

**3. Aggregation and Grouping:**

1. **Total stock value calculation:**
   * Calculate the **total value** of all products (Quantity \* UnitPrice).
2. **Average price by category:**
   * Find the **average price** of products grouped by **Category**.
3. **Count products by supplier:**
   * Display the **number of products** supplied by **GadgetHub**.

**4. Conditional and Pattern Matching:**

1. **Find products by name prefix:**

* List all products whose **ProductName** starts with **'W'**.

1. **Filter by supplier and price:**

* Display all products supplied by **GadgetHub** with a **UnitPrice above 10000**.

1. **Filter using BETWEEN operator:**

* List all products with **UnitPrice between 1000 and 20000**.

**5. Advanced Queries:**

1. **Top 3 most expensive products:**
   * Display the **top 3 products** with the **highest UnitPrice**.
2. **Products restocked recently:**
   * Find all products restocked **in the last 10 days**.
3. **Group by Supplier:**
   * Calculate the **total quantity** of products from each **Supplier**.
4. **Check for low stock:**
   * List all products with **Quantity less than 30**.

**6. Join and Subqueries (if related tables are present):**

1. **Supplier with most products:**
   * Find the **supplier** who provides the **maximum number of products**.
2. **Product with highest stock value:**
   * Find the **product** with the **highest total stock value** (Quantity \* UnitPrice).