SQL Querry Documentation

Database: clothing-ecommerce

Tables

1. **Users**
   - **Description**: Stores user information.
   - **Columns**:
     - UserID (PK): Unique identifier for the user.
     - Name: Full name of the user.
     - Email: Email address of the user (unique).
     - Password: Encrypted password of the user.
2. **Products**
   - **Description**: Stores product information.
   - **Columns**:
     - ProductID (PK): Unique identifier for the product.
     - Name: Name of the product.
     - Price: Price of the product.
     - ImageURL: URL of the product image.
     - Description: Description of the product.
     - Sizes: Available sizes for the product.
3. **Cart**
   - **Description**: Stores user shopping carts.
   - **Columns**:
     - CartID (PK): Unique identifier for the cart.
     - UserID (FK): Reference to the user who owns the cart.
4. **CartItems**

- **Description**: Stores items in a user's cart.
- **Columns**:
  - CartItemID (PK): Unique identifier for the cart item.
  - CartID (FK): Reference to the cart.
  - ProductID (FK): Reference to the product.
  - Quantity: Quantity of the product in the cart.
  - Size: Size of the product.

5. **Orders**
   - **Description**: Stores order information.
   - **Columns**:
     - OrderID (PK): Unique identifier for the order.
     - UserID (FK): Reference to the user who placed the order.
     - TotalAmount: Total amount of the order.
     - ShippingAddress: Shipping address for the order.
     - PaymentMethod: Payment method used (e.g., Visa, COD).
     - Status: Status of the order (e.g., Pending, Shipped, Delivered).
     - CreatedAt: Timestamp when the order was created.
     - UpdatedAt: Timestamp when the order was last updated.
     - TrackingNumber: Tracking number for the order.
6. **OrderItems**
   - **Description**: Stores items in an order.
   - **Columns**:
     - OrderItemID (PK): Unique identifier for the order item.
     - OrderID (FK): Reference to the order.
     - ProductID (FK): Reference to the product.
     - Quantity: Quantity of the product in the order.
     - Price: Price of the product at the time of the order.
     - Discount: Discount applied to the product.
     - Size: Size of the product.

7. **Wishlist**
    - **Description**: Stores user wishlists.
    - **Columns**:
        - WishlistID (PK): Unique identifier for the wishlist.
        - UserID (FK): Reference to the user who owns the wishlist.
        - ProductID (FK): Reference to the product in the wishlist.

Queries

Insert Queries

1. **QUR_001: Insert a new user into the Users table**

sql

Copy

```
INSERT INTO Users (Name, Email, Password)

VALUES ('John Doe', 'john.doe@example.com', 'encryptedpassword123');
```

2. **QUR_002: Insert a new product into the Products table**

sql

Copy

```
INSERT INTO Products (Name, Price, ImageURL, Description, Sizes)

VALUES ('T-Shirt', 19.99, 'http://example.com/tshirt.jpg', 'Cotton T-shirt, white color', 'S,M,L');
```

3. **QUR_003: Insert a new order into the Orders table**

sql

Copy

```
INSERT INTO Orders (UserID, TotalAmount, ShippingAddress, PaymentMethod, Status)

VALUES (1, 59.97, '123 Main St, City, Country', 'Visa', 'Pending');
```

Update Queries

1. **QUR_004: Update a product price**

sql

Copy

```
UPDATE Products
```

```
SET Price = 17.99

WHERE ProductID = 1;
```

2. **QUR_005: Update order status to Shipped**

sql

Copy

```
UPDATE Orders

SET Status = 'Shipped'

WHERE OrderID = 1;
```

Delete Queries

1. **QUR_006: Delete a user by email**

sql

Copy

```
DELETE FROM Users

WHERE Email = 'john.doe@example.com';
```

2. **QUR_007: Delete all discontinued products**

sql

Copy

```
DELETE FROM Products

WHERE ActiveStatus = 'Discontinued';
```

Select Queries

1. **QUR_008: Retrieve all orders for a specific user using JOIN**

sql

Copy

```
SELECT O.OrderID, O.OrderDate, O.TotalAmount, P.Name AS ProductName, OI.Quantity

FROM Orders O

JOIN OrderItems OI ON O.OrderID = OI.OrderID

JOIN Products P ON OI.ProductID = P.ProductID

WHERE O.UserID = 1;
```

2. **QUR_009: Retrieve the top 3 most expensive products**

sql

Copy

```
SELECT Name, Price

FROM Products

ORDER BY Price DESC

LIMIT 3;
```

3. **QUR_010: Count the total number of orders by status**

sql

Copy

```
SELECT Status, COUNT(*) AS TotalOrders

FROM Orders

GROUP BY Status;
```

4. **QUR_011: Subquery to find all products that belong to categories with "Clothing" in the name**

sql

Copy

```
SELECT P.Name

FROM Products P

WHERE P.CategoryID IN (

  SELECT CategoryID

  FROM Categories

  WHERE CategoryName LIKE '%Clothing%'

);
```

5. **QUR_012: Aggregate query to calculate the total revenue**

sql

Copy

```
SELECT SUM(TotalAmount) AS TotalRevenue

FROM Orders;
```

Requirement-Query Matrix

Requirement	Query ID(s)
Insert Data	QUR_001, QUR_002, QUR_003
Update Data	QUR_004, QUR_005
Delete Data	QUR_006, QUR_007
Select Queries	QUR_008, QUR_009, QUR_010, QUR_011, QUR_012

Constraints

1. **Foreign Key Constraints**:
   - Cart.UserID references Users.UserID.
   - CartItems.CartID references Cart.CartID.
   - CartItems.ProductID references Products.ProductID.
   - OrderItems.OrderID references Orders.OrderID.
   - OrderItems.ProductID references Products.ProductID.
   - Orders.UserID references Users.UserID.
   - Wishlist.UserID references Users.UserID.
   - Wishlist.ProductID references Products.ProductID.
2. **Check Constraints**:
   - Orders.PaymentMethod must be either Visa or COD.
   - Orders.Status must be either Pending, Shipped, or Delivered.

Default Values

1. **CartItems.Quantity**: Defaults to 1.
2. **OrderItems.Discount**: Defaults to 0.00.
3. **Orders.CreatedAt**: Defaults to the current timestamp.
4. **Orders.UpdatedAt**: Defaults to the current timestamp.

Indexes

1. **Primary Keys**:
    - Users.UserID
    - Products.ProductID
    - Cart.CartID
    - CartItems.CartItemID
    - Orders.OrderID
    - OrderItems.OrderItemID
    - Wishlist.WishlistID
2. **Unique Index**:
    - Users.Email (ensures email addresses are unique).