

Database Schema: E-commerce System

1. Customers Table

Stores details of customers.

- CustomerID (Primary Key)
- CustomerName (Customer's full name)
- Email (Customer's email address)
- Country (Customer's country of residence)
- SignupDate (Date when the customer signed up)

2. Products Table

Stores details of available products.

- ProductID (Primary Key)
- ProductName (Name of the product)
- Category (Category of the product, e.g., Electronics, Clothing)
- Price (Price per unit)
- StockQuantity (Current stock available)

3. Orders Table

Stores information about customer orders.

- OrderID (Primary Key)
- CustomerID (Foreign Key referencing Customers)
- OrderDate (Date the order was placed)
- TotalAmount (Total value of the order)
- Status (Order status: Pending, Shipped, Delivered, Cancelled)

4. OrderDetails Table

Stores the details of products in each order.

- OrderDetailID (Primary Key)
- OrderID (Foreign Key referencing Orders)
- ProductID (Foreign Key referencing Products)
- Quantity (Number of units ordered)
- Price (Price per unit at the time of order)

5. Payments Table

Stores details of payments made for orders.

- PaymentID (Primary Key)
- OrderID (Foreign Key referencing Orders)
- PaymentDate (Date when payment was made)
- PaymentMethod (Credit Card, PayPal, etc.)
- Amount (Amount paid)

Assignments:

1. Query: Total Sales Per Product Category

Find the total revenue generated for each product category.

2. Query: Top 5 Customers by Total Spending

Identify the top 5 customers who have spent the most on delivered orders.

3. Query: Monthly Sales Growth Rate

Compute the month-over-month sales growth percentage.

4. Query: Average Order Value (AOV) Per Customer

Find the average amount spent per order by each customer.

5. Query: Products with Low Stock

Identify products where the stock quantity is below a given threshold.

6. Query: Most Frequently Purchased Products

Find the top 10 most frequently ordered products.

7. Query: Customer Retention Analysis

Calculate the percentage of customers who placed another order within 90 days of their first order.

8. Query: Revenue Contribution of Each Payment Method

Determine the percentage of total revenue generated by each payment method.

9. Query: Order Processing Time Analysis

Find the average time taken for an order to move from 'Pending' to 'Delivered' status.

10. Query: Repeat Customer Rate

Calculate the percentage of customers who have made more than one purchase.