**PROCESS DOCUMENTATION:**

You have been tasked with designing and implementing a database system for an e-commerce platform. The platform allows users to browse products, make purchases, and manage their orders. The database should store information about customers, products, orders, and order details.

**INITIAL CLEAN UP:**

* **TRIM** function was used in **excel** to get rid of whitespaces.

**Tables:**

**1. Customers:**

* customer\_id (Primary Key)
* first\_name
* last\_name
* email
* phone\_number

**2. Products:**

* product\_id (Primary Key)
* product\_name
* price
* description

**3. Orders:**

* order\_id (Primary Key)
* customer\_id (Foreign Key referencing Customers table)
* order\_date
* total\_amount

**4. Order\_Details:**

* order\_detail\_id (Primary Key)
* order\_id (Foreign Key referencing Orders table)
* product\_id (Foreign Key referencing Products table)
* quantity

**Tasks:**

1. Create the necessary tables with appropriate data types and constraints.
2. Insert at least 10 sample records into each table.
3. Write SQL queries to perform the following operations:
4. Get all customers who have placed orders.
5. Get the total number of products in the database.
6. Calculate the total revenue generated by a specific product.
7. Get the order details for a specific order.
8. Calculate the total revenue generated by a specific customer.
9. Get the customer who made the highest total purchase.
10. Find the total revenue generated by each customer
11. Calculate the average price of products in each category – add category column
12. Retrieve the number of orders placed in each month
13. Find the maximum and minimum prices of products in each category
14. Calculate the total quantity of each product sold
15. Retrieve all orders with customer details:
16. Calculate the total revenue generated by each product
17. Retrieve the top 5 customers based on their total purchase amount
18. Calculate the cumulative total revenue generated by each product over time
19. Retrieve the product with the highest revenue in each order
20. Rank the customers based on their total purchase amount
21. Find the top-selling products and their quantities using a window function

These entities would be connected through the following relationships:

* One customer can place multiple orders, so there would be a one-to-many relationship between Customers and Orders.
* Each order can have multiple order details, indicating the products and quantities, so there would be a one-to-many relationship between Orders and Order\_Details.
* Each order detail is associated with a single product, so there would be a one-to-one relationship between Order\_Details and Products.

**ENTITY RELATIONSHIP DIAGRAM**

**Order\_Details**

order\_detail\_id (PK)

order\_id (FK)

product\_id (FK)

quantity

**Orders**

order\_ id (PK)

customer\_id (FK)

order\_date

total\_amount

**Products**

product\_id (PK)

product\_name

price

description

**Customers**

customer\_id (PK)

first\_name

last\_name

email

phone\_number