USING MYSQL QUERY :ON THE CAPSTONE PROJECT

THE( 30) three RELATIONAL TABLEl ARE BELOW QUESTIONS AND SOLUTIONS

1️⃣ Orders Table

OrderID CustomerID ProductID OrderDate Region Quantity Price TotalAmount

1001 C001 P101 2023-01-12 North 2 150 300

1002 C002 P102 2023-01-15 South 1 450 450

1003 C003 P101 2023-02-01 North 3 150 450

1004 C004 P103 2023-02-20 East 1 1200 1200

1005 C001 P104 2023-03-11 West 5 80 400

2️⃣ Customers Table

CustomerID CustomerName Gender Age Location DateJoined

C001 Jane Doe Female 29 Kaduna 2022-08-10

C002 John Smith Male 34 Port Harcourt 2021-12-03

C003 Ada Uche Female 41 Abuja 2022-11-22

C004 Ibrahim Musa Male 30 Kano 2023-01-05

C005 Grace Obi Female 25 Lagos 2023-03-19

3️⃣ Products Table

ProductID ProductName Category UnitPrice StockLevel

P101 Bluetooth Speaker Electronics 150 30

P102 Blender Pro Max Appliances 450 20

P103 LED TV 42 inch Electronics 1200 10

P104 T-Shirt (Unisex) Clothing 80 100

P105 Power Bank 10000mAh Electronics 200 50

RELATIONSHIPS BETWEEN ORDERS

Orders.CustomerID → references Customers.CustomerID

Orders.ProductID → references Products.ProductID

That means each order belongs to a customer and involves a product.

QUESTIONS AND SOLUTIONS

a. List the top 5 products by total sales amount

SQL Query

SELECT

p.ProductID,

p.ProductName,

SUM(o.TotalAmount) AS TotalSales

FROM Orders o

JOIN Products p ON o.ProductID = p.ProductID

GROUP BY p.ProductID, p.ProductName

ORDER BY TotalSales DESC

LIMIT 5;

Calculation

ProductID ProductName TotalSales

P103 LED TV 42 inch 1200

P101 Bluetooth Speaker 300 + 450 = 750

P104 T-Shirt (Unisex) 400

P102 Blender Pro Max 450

P105 Power Bank 10000mAh 0 (no sales yet)

Rank Product Total Sales

1 LED TV 42 inch 1200

2 Bluetooth Speaker 750

3 Blender Pro Max 450

4 T-Shirt (Unisex) 400

5 Power Bank 10000mAh 0

b. Find the average purchase per customer by region

SQL Query

SELECT

Region,

AVG(TotalAmount) AS AvgPurchasePerCustomer

FROM Orders

GROUP BY Region;

SOLUTION

Region TotalAmount Orders Average

North 300 + 450 = 750 2 750 / 2 = 375

South 450 1 450

East 1200 1 1200

West 400 1 400

Region Avg Purchase per Customer

North 375

South 450

East 1200

West 400

c. Show customers who have never made a purchase

SQL Query

SELECT

c.CustomerID,

c.CustomerName

FROM Customers c

LEFT JOIN Orders o ON c.CustomerID = o.CustomerID

WHERE o.CustomerID IS NULL;

Customers who appear in Orders: C001, C002, C003, C004

Customer not in Orders: C005 (Grace Obi)

CustomerID CustomerName

C005 Grace Obi

d. Calculate monthly revenue from January 2023 to December 2023

SQL Query

SELECT

DATE\_FORMAT(OrderDate, '%Y-%m') AS Month,

SUM(TotalAmount) AS MonthlyRevenue

FROM Orders

WHERE YEAR(OrderDate) = 2023

GROUP BY DATE\_FORMAT(OrderDate, '%Y-%m')

ORDER BY Month;

Month Orders Total Revenue

2023-01 1001 (300) + 1002 (450) = 750

2023-02 1003 (450) + 1004 (1200) = 1650

2023-03 1005 (400) = 400

Month Monthly Revenue

2023-01 750

2023-02 1650

2023-03 400

e. Identify the 3 most profitable categories

SQL Query

SELECT

p.Category,

SUM(o.TotalAmount) AS TotalRevenue

FROM Orders o

JOIN Products p ON o.ProductID = p.ProductID

GROUP BY p.Category

ORDER BY TotalRevenue DESC

LIMIT 3;

Category Total Sales

Electronics (P101 → 750) + (P103 → 1200) = 1950

Appliances (P102 → 450)

Clothing (P104 → 400)

Rank Category Total Revenue

1 Electronics 1950

2 Appliances 450

3 Clothing 400

THE SUMMARY TABLE

Question Description Key SQL Concept Example Output

(a) Top 5 Products by Sales GROUP BY, SUM, ORDER BY LED TV (₦1200), Bluetooth Speaker (₦750), etc.

(b) Avg Purchase per Region AVG, GROUP BY East = ₦1200, North = ₦375

(c) Customers with No Orders LEFT JOIN, WHERE IS NULL Grace Obi

(d) Monthly Revenue DATE\_FORMAT, SUM, GROUP BY Jan ₦750, Feb ₦1650, Mar ₦400

(e) Top 3 Categories JOIN, GROUP BY, SUM, ORDER BY Electronics, Appliances, Clothing