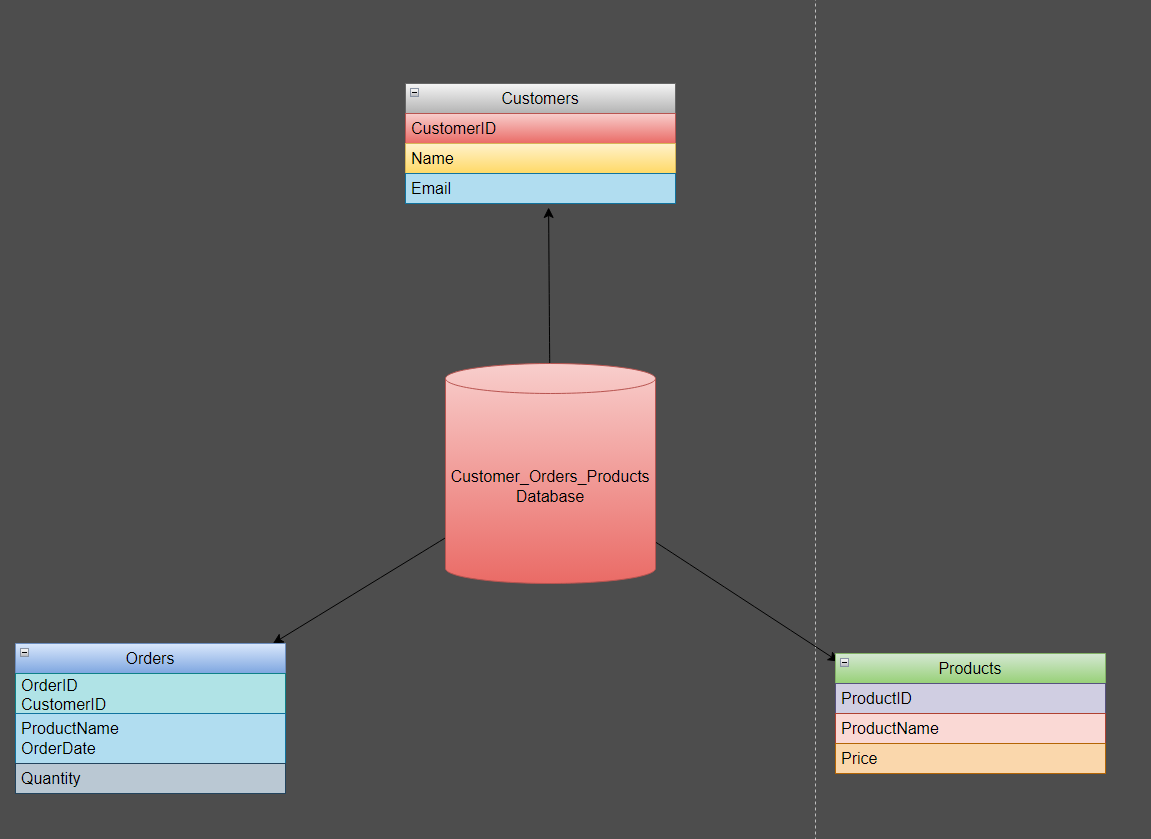


**Capstone Project** **(Customer\_Orders\_Products Database)**



Let’s Create One Database name as Customers\_Orders\_Products

Create three tables called as

Customers

Orders

Products

Insert atleast 10 Records in it

Records are

CREATE TABLE Customers (

CustomerID INT PRIMARY KEY,

Name VARCHAR(50),

Email VARCHAR(100)

);

INSERT INTO Customers (CustomerID, Name, Email)

VALUES

(1, 'John Doe', 'johndoe@example.com'),

(2, 'Jane Smith', 'janesmith@example.com'),

(3, 'Robert Johnson', 'robertjohnson@example.com'),

(4, 'Emily Brown', 'emilybrown@example.com'),

(5, 'Michael Davis', 'michaeldavis@example.com'),

(6, 'Sarah Wilson', 'sarahwilson@example.com'),

(7, 'David Thompson', 'davidthompson@example.com'),

(8, 'Jessica Lee', 'jessicalee@example.com'),

(9, 'William Turner', 'williamturner@example.com'),

(10, 'Olivia Martinez', 'oliviamartinez@example.com');

CREATE TABLE Orders (

OrderID INT PRIMARY KEY,

CustomerID INT,

ProductName VARCHAR(50),

OrderDate DATE,

Quantity INT

);

INSERT INTO Orders (OrderID, CustomerID, ProductName, OrderDate, Quantity)

VALUES

(1, 1, 'Product A', '2023-07-01', 5),

(2, 2, 'Product B', '2023-07-02', 3),

(3, 3, 'Product C', '2023-07-03', 2),

(4, 4, 'Product A', '2023-07-04', 1),

(5, 5, 'Product B', '2023-07-05', 4),

(6, 6, 'Product C', '2023-07-06', 2),

(7, 7, 'Product A', '2023-07-07', 3),

(8, 8, 'Product B', '2023-07-08', 2),

(9, 9, 'Product C', '2023-07-09', 5),

(10, 10, 'Product A', '2023-07-10', 1);

CREATE TABLE Products (

ProductID INT PRIMARY KEY,

ProductName VARCHAR(50),

Price DECIMAL(10, 2)

);

INSERT INTO Products (ProductID, ProductName, Price)

VALUES

(1, 'Product A', 10.99),

(2, 'Product B', 8.99),

(3, 'Product C', 5.99),

(4, 'Product D', 12.99),

(5, 'Product E', 7.99),

(6, 'Product F', 6.99),

(7, 'Product G', 9.99),

(8, 'Product H', 11.99),

(9, 'Product I', 14.99),

(10, 'Product J', 4.99);

After Creating tables Solve Following tasks:

**Task 1 :-**

1. Write a query to retrieve all records from the Customers table..

**SELECT \* FROM Customers;**

1. Write a query to retrieve the names and email addresses of customers whose names start with 'J'.

**SELECT Name, Email FROM Customers WHERE Name LIKE 'J%';**

1. Write a query to retrieve the order details (OrderID, ProductName, Quantity) for all orders..

**SELECT OrderID, ProductName, Quantity FROM Orders;**

1. Write a query to calculate the total quantity of products ordered.

**SELECT SUM(Quantity) FROM Orders;**

1. Write a query to retrieve the names of customers who have placed an order.

**SELECT DISTINCT c.Name FROM Customers c JOIN Orders o ON c.CustomerID = o.CustomerID;**

1. Write a query to retrieve the products with a price greater than $10.00.

**SELECT ProductName, Price FROM Products WHERE Price > 10.00;**

1. Write a query to retrieve the customer name and order date for all orders placed on or after '2023-07-05'.

**SELECT c.Name AS CustomerName, o.OrderDate**

**FROM Customers c JOIN Orders o ON c.CustomerID = o.CustomerID**

**WHERE o.OrderDate >= '2023-07-05';**

1. Write a query to calculate the average price of all products.

**SELECT AVG(Price) FROM Products;**

1. Write a query to retrieve the customer names along with the total quantity of products they have ordered.

**SELECT c.Name AS CustomerName, SUM(o.Quantity)**

**FROM Customers c JOIN Orders o ON c.CustomerID = o.CustomerID**

**GROUP BY c.Name;**

1. Write a query to retrieve the products that have not been ordered.

**SELECT ProductName FROM Products**

**WHERE ProductName NOT IN (SELECT DISTINCT ProductName FROM Orders);**

Task 2 :-

1. Write a query to retrieve the top 5 customers who have placed the highest total quantity of orders.

**SELECT c.Name AS CustomerName, SUM(o.Quantity) AS TotalQuantity**

**FROM Customers c JOIN Orders o ON c.CustomerID = o.CustomerID**

**GROUP BY c.Name ORDER BY TotalQuantity DESC LIMIT 5;**

1. Write a query to calculate the average price of products for each product category.

**SELECT pc.CategoryName, AVG(p.Price) AS AveragePrice**

**FROM Products p JOIN ProductCategories pc ON p.CategoryID = pc.CategoryID**

**GROUP BY pc.CategoryName;**

1. Write a query to retrieve the customers who have not placed any orders.

**SELECT c.Name AS CustomerName**

**FROM Customers c LEFT JOIN Orders o ON c.CustomerID = o.CustomerID**

**WHERE o.CustomerID IS NULL;**

1. Write a query to retrieve the order details (OrderID, ProductName, Quantity) for orders placed by customers whose names start with 'M'.

**SELECT o.OrderID, o.ProductName, o.Quantity**

**FROM Orders o JOIN Customers c ON o.CustomerID = c.CustomerID**

**WHERE c.Name LIKE 'M%';**

1. Write a query to calculate the total revenue generated from all orders.

**SELECT SUM(o.Quantity \* p.Price) AS TotalRevenue FROM Orders o JOIN Products p ON o.ProductName = p.ProductName;**

1. Write a query to retrieve the customer names along with the total revenue generated from their orders.

**SELECT c.Name AS CustomerName, SUM(o.Quantity \* p.Price) AS TotalRevenue**

**FROM Customers c**

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

**JOIN Products p ON o.ProductName = p.ProductName**

**GROUP BY c.Name;**

1. Write a query to retrieve the customers who have placed at least one order for each product category.

**SELECT c.CustomerID, c.Name AS CustomerName**

**FROM Customers c**

**WHERE EXISTS (**

**SELECT DISTINCT pc.CategoryID**

**FROM ProductCategories pc**

**WHERE NOT EXISTS (**

**SELECT p.ProductID**

**FROM Products p**

**LEFT JOIN Orders o ON p.ProductID = o.ProductID AND o.CustomerID = c.CustomerID**

**WHERE p.CategoryID = pc.CategoryID AND o.OrderID IS NULL**

**)**

**);**

1. Write a query to retrieve the customers who have placed orders on consecutive days.

**SELECT c.CustomerID, c.Name AS CustomerName**

**FROM Customers c**

**JOIN Orders o1 ON c.CustomerID = o1.CustomerID**

**JOIN Orders o2 ON c.CustomerID = o2.CustomerID AND o2.OrderDate = DATE\_ADD(o1.OrderDate, INTERVAL 1 DAY)**

**GROUP BY c.CustomerID, c.Name;**

1. Write a query to retrieve the top 3 products with the highest average quantity ordered.

**SELECT ProductName, AVG(Quantity) AS AvgQuantity**

**FROM Orders**

**GROUP BY ProductName**

**ORDER BY AvgQuantity DESC**

**LIMIT 3;**

1. Write a query to calculate the percentage of orders that have a quantity greater than the average quantity.

**SELECT (COUNT(CASE WHEN Quantity > avg\_quantity THEN 1 END) / COUNT(\*)) \* 100 AS Percentage**

**FROM Orders CROSS JOIN (SELECT AVG(Quantity) AS avg\_quantity FROM Orders) AS avg\_table;**

**Task 3:-**

1. Write a query to retrieve the customers who have placed orders for all products.

**SELECT c.CustomerID, c.Name, c.Email**

**FROM Customers c**

**WHERE (**

**SELECT COUNT(DISTINCT p.ProductName)**

**FROM Products p**

**) = (**

**SELECT COUNT(DISTINCT o.ProductName)**

**FROM Orders o**

**WHERE o.CustomerID = c.CustomerID**

**);**

1. Write a query to retrieve the products that have been ordered by all customers.

**SELECT p.ProductID, p.ProductName, p.Price**

**FROM Products p**

**WHERE (**

**SELECT COUNT(DISTINCT c.CustomerID)**

**FROM Customers c**

**) = (**

**SELECT COUNT(DISTINCT o.CustomerID)**

**FROM Orders o**

**WHERE o.ProductName = p.ProductName**

**);**

1. Write a query to calculate the total revenue generated from orders placed in each month.

**SELECT**

**EXTRACT(MONTH FROM OrderDate) AS Month,**

**SUM(Quantity \* Price) AS TotalRevenue**

**FROM**

**Orders o**

**JOIN**

**Products p ON o.ProductName = p.ProductName**

**GROUP BY**

**EXTRACT(MONTH FROM OrderDate)**

**ORDER BY**

**Month;**

1. Write a query to retrieve the products that have been ordered by more than 50% of the customers.

**SELECT**

**p.ProductID,**

**p.ProductName**

**FROM**

**Products p**

**JOIN**

**Orders o ON p.ProductName = o.ProductName**

**GROUP BY**

**p.ProductID, p.ProductName**

**HAVING**

**COUNT(DISTINCT o.CustomerID) > (SELECT COUNT(DISTINCT CustomerID) \* 0.5 FROM Customers);**

1. Write a query to retrieve the top 5 customers who have spent the highest amount of money on orders.

**SELECT**

**c.CustomerID,**

**c.Name,**

**c.Email,**

**SUM(o.Quantity \* p.Price) AS TotalSpent**

**FROM**

**Customers c**

**JOIN**

**Orders o ON c.CustomerID = o.CustomerID**

**JOIN**

**Products p ON o.ProductName = p.ProductName**

**GROUP BY**

**c.CustomerID, c.Name, c.Email**

**ORDER BY**

**TotalSpent DESC**

**LIMIT 5;**

1. **Write a query to calculate the running total of order quantities for each customer.**

SELECT

CustomerID,

OrderID,

ProductName,

OrderDate,

Quantity,

SUM(Quantity) OVER (PARTITION BY CustomerID ORDER BY OrderDate) AS RunningTotal

FROM

Orders

ORDER BY

CustomerID, OrderDate;

1. Write a query to retrieve the top 3 most recent orders for each customer.

**SELECT**

**CustomerID,**

**OrderID,**

**ProductName,**

**OrderDate**

**FROM**

**Orders o**

**WHERE**

**OrderID IN (**

**SELECT TOP 3 OrderID**

**FROM Orders**

**WHERE CustomerID = o.CustomerID**

**ORDER BY OrderDate DESC**

**)**

**ORDER BY**

**CustomerID, OrderDate DESC;**

1. Write a query to calculate the total revenue generated by each customer in the last 30 days.

**SELECT**

**o.CustomerID,**

**c.Name AS CustomerName,**

**SUM(o.Quantity \* p.Price) AS TotalRevenue**

**FROM**

**Orders o**

**JOIN**

**Products p ON o.ProductName = p.ProductName**

**JOIN**

**Customers c ON o.CustomerID = c.CustomerID**

**WHERE**

**o.OrderDate >= DATEADD(day, -30, GETDATE()) -- Filter orders within the last 30 days**

**GROUP BY**

**o.CustomerID, c.Name;**

1. Write a query to retrieve the customers who have placed orders for at least two different product categories.

**SELECT**

**c.CustomerID,**

**c.Name AS CustomerName,**

**c.Email**

**FROM**

**Customers c**

**WHERE**

**c.CustomerID IN (**

**SELECT**

**o.CustomerID**

**FROM**

**Orders o**

**JOIN**

**Products p ON o.ProductName = p.ProductName**

**GROUP BY**

**o.CustomerID**

**HAVING**

**COUNT(DISTINCT p.Category) >= 2**

**);**

1. **Write a query to calculate the average revenue per order for each customer.**

**SELECT**

**o.CustomerID,**

**c.Name AS CustomerName,**

**c.Email,**

**AVG(o.Quantity \* p.Price) AS AverageRevenuePerOrder**

**FROM**

**Orders o**

**JOIN**

**Products p ON o.ProductName = p.ProductName**

**JOIN**

**Customers c ON o.CustomerID = c.CustomerID**

**GROUP BY**

**o.CustomerID, c.Name, c.Email;**

1. Write a query to retrieve the customers who have placed orders for every month of a specific year.

**SELECT**

**CustomerID,**

**Name AS CustomerName,**

**Email**

**FROM**

**Customers**

**WHERE**

**CustomerID IN (**

**SELECT**

**o.CustomerID**

**FROM**

**Orders o**

**WHERE**

**YEAR(o.OrderDate) = 2024 --Replace 2024 with the specific year**

**GROUP BY**

**o.CustomerID**

**HAVING**

**COUNT(DISTINCT MONTH(o.OrderDate)) = 12 -- Number of months in a year**

**);**

1. Write a query to retrieve the customers who have placed orders for a specific product in consecutive months.

**SELECT DISTINCT**

**c.CustomerID,**

**c.Name AS CustomerName,**

**c.Email**

**FROM**

**Orders o1**

**JOIN**

**Orders o2 ON o1.CustomerID = o2.CustomerID**

**JOIN**

**Customers c ON o1.CustomerID = c.CustomerID**

**WHERE**

**o1.ProductName = 'specific\_product\_name' -- Replace 'specific\_product\_name' with the name of the specific product**

**AND DATEDIFF(MONTH, o1.OrderDate, o2.OrderDate) = 1; -- Check if orders are in consecutive months**

1. Write a query to retrieve the products that have been ordered by a specific customer at least twice.

**SELECT**

**ProductName**

**FROM**

**Orders**

**WHERE**

**CustomerID = specific\_customer\_id -- Replace 'specific\_customer\_id' with the ID of the specific customer**

**GROUP BY**

**ProductName**

**HAVING**

**COUNT(\*) >= 2;**