Table :

-- Customers table

```sql
CREATE TABLE customers (
    customer_id INT PRIMARY KEY,
    customer_name VARCHAR(100),
    email VARCHAR(100),
    phone VARCHAR(20),
    signup_date DATE
);
```

-- Products table

```sql
CREATE TABLE products (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(100),
    category VARCHAR(50),
    price DECIMAL(10,2),
    launch_date DATE
);
```

-- Marketing Campaigns table

```sql
CREATE TABLE campaigns (
    campaign_id INT PRIMARY KEY,
    campaign_name VARCHAR(100),
    start_date DATE,
    end_date DATE,
```

```sql
    budget DECIMAL(10,2),

    channel VARCHAR(50)

);


-- Sales Orders table

CREATE TABLE orders (

    order_id INT PRIMARY KEY,

    customer_id INT,

    order_date DATE,

    total_amount DECIMAL(10,2),

    status VARCHAR(20),

    campaign_id INT,

    FOREIGN KEY (customer_id) REFERENCES customers(customer_id),

    FOREIGN KEY (campaign_id) REFERENCES campaigns(campaign_id)

);


-- Order Details table

CREATE TABLE order_details (

    order_detail_id INT PRIMARY KEY,

    order_id INT,

    product_id INT,

    quantity INT,

    unit_price DECIMAL(10,2),

    FOREIGN KEY (order_id) REFERENCES orders(order_id),

    FOREIGN KEY (product_id) REFERENCES products(product_id)
```

```sql
);


-- Marketing Leads table

CREATE TABLE leads (

    lead_id INT PRIMARY KEY,

    lead_name VARCHAR(100),

    email VARCHAR(100),

    phone VARCHAR(20),

    campaign_id INT,

    lead_date DATE,

    status VARCHAR(20),

    FOREIGN KEY (campaign_id) REFERENCES campaigns(campaign_id)

);


-- Sales Representatives table

CREATE TABLE sales_reps (

    rep_id INT PRIMARY KEY,

    rep_name VARCHAR(100),

    email VARCHAR(100),

    hire_date DATE,

    territory VARCHAR(50)

);


-- Customer Assignments table (which rep is assigned to which customer)

CREATE TABLE customer_assignments (
```

```sql
    assignment_id INT PRIMARY KEY,

    customer_id INT,

    rep_id INT,

    assign_date DATE,

    FOREIGN KEY (customer_id) REFERENCES customers(customer_id),

    FOREIGN KEY (rep_id) REFERENCES sales_reps(rep_id)

);
```

Data :

```sql
-- Insert sample data into customers

INSERT INTO customers VALUES

(1, 'Acme Corp', 'contact@acme.com', '555-1234', '2023-01-15'),

(2, 'Beta Industries', 'info@beta.com', '555-2345', '2023-02-20'),

(3, 'Gamma Solutions', 'hello@gamma.com', '555-3456', '2023-03-10'),

(4, 'Delta Services', 'support@delta.com', '555-4567', '2023-04-05'),

(5, 'Epsilon Tech', 'sales@epsilon.com', '555-5678', '2023-05-12');


-- Insert sample data into products

INSERT INTO products VALUES

(101, 'Premium CRM', 'Software', 1999.99, '2023-01-01'),

(102, 'Basic CRM', 'Software', 999.99, '2023-01-01'),

(103, 'Marketing Analytics Suite', 'Software', 1499.99, '2023-02-15'),

(104, 'Sales Training Package', 'Service', 2999.99, '2023-03-01'),

(105, 'Customer Support Module', 'Software', 799.99, '2023-04-10');


-- Insert sample data into campaigns
```

```sql
INSERT INTO campaigns VALUES

(201, 'Spring Promotion', '2023-03-01', '2023-05-31', 50000.00, 'Email'),

(202, 'Summer Sale', '2023-06-01', '2023-08-31', 75000.00, 'Social Media'),

(203, 'Product Launch', '2023-04-15', '2023-06-15', 100000.00, 'Multiple'),

(204, 'End of Year Special', '2023-11-01', '2023-12-31', 60000.00, 'Email'),

(205, 'Webinar Series', '2023-02-01', '2023-04-30', 25000.00, 'Webinar');


-- Insert sample data into orders

INSERT INTO orders VALUES

(301, 1, '2023-04-10', 5999.97, 'Completed', 201),

(302, 2, '2023-05-15', 1999.99, 'Completed', 201),

(303, 3, '2023-06-20', 4499.97, 'Processing', 202),

(304, 1, '2023-07-05', 2999.99, 'Completed', 202),

(305, 4, '2023-08-12', 1499.99, 'Completed', 203),

(306, 5, '2023-09-18', 3999.98, 'Processing', 203),

(307, 2, '2023-10-25', 999.99, 'Pending', 204);


-- Insert sample data into order_details

INSERT INTO order_details VALUES

(401, 301, 101, 3, 1999.99),

(402, 302, 101, 1, 1999.99),

(403, 303, 102, 3, 999.99),

(404, 303, 105, 1, 799.99),

(405, 304, 104, 1, 2999.99),

(406, 305, 103, 1, 1499.99),
```

(407, 306, 101, 1, 1999.99),

(408, 306, 102, 2, 999.99),

(409, 307, 102, 1, 999.99);

-- Insert sample data into leads

INSERT INTO leads VALUES

(501, 'Zeta Corp', 'info@zeta.com', '555-6789', 201, '2023-03-15', 'Qualified'),

(502, 'Eta Enterprises', 'contact@eta.com', '555-7890', 201, '2023-04-02', 'Contacted'),

(503, 'Theta Systems', 'info@theta.com', '555-8901', 202, '2023-06-10', 'Qualified'),

(504, 'Iota Solutions', 'sales@iota.com', '555-9012', 203, '2023-05-05', 'Converted'),

(505, 'Kappa Tech', 'info@kappa.com', '555-0123', 204, '2023-11-15', 'New'),

(506, 'Lambda Services', 'hello@lambda.com', '555-1234', 205, '2023-02-20', 'Contacted'),

(507, 'Omega Industries', 'info@omega.com', '555-2345', NULL, '2023-10-10', 'New');

-- Insert sample data into sales_reps

INSERT INTO sales_reps VALUES

(601, 'John Smith', 'john@company.com', '2022-01-15', 'North'),

(602, 'Jane Doe', 'jane@company.com', '2022-03-20', 'South'),

(603, 'Robert Johnson', 'robert@company.com', '2022-05-10', 'East'),

(604, 'Lisa Brown', 'lisa@company.com', '2022-07-05', 'West'),

(605, 'Michael Davis', 'michael@company.com', '2022-09-12', 'Central');

-- Insert sample data into customer_assignments

INSERT INTO customer_assignments VALUES

(701, 1, 601, '2023-01-20'),

(702, 2, 602, '2023-02-25'),

(703, 3, 603, '2023-03-15'),

(704, 4, 604, '2023-04-10'),

(705, 5, 605, '2023-05-18');

Basic Questions (Easy)

1. List all customers and their email addresses.
2. Retrieve all products with a price above $1000.
3. Find all completed orders.
4. List all marketing campaigns that used the 'Email' channel.
5. Find all orders placed in April 2023.
6. List all sales representatives and their territories.
7. Find the total number of orders for each customer.
8. List all products in the 'Software' category.
9. Find the total amount spent by customer 'Acme Corp'.
10. List all leads generated by the 'Spring Promotion' campaign.

Intermediate Questions (Medium)

11. Find all customers who have placed more than one order.
12. List all products that have never been ordered.
13. Find all customers along with their assigned sales representative.
14. Calculate the total revenue generated by each marketing campaign.
15. Find all leads that came from campaigns that have ended.
16. List customers who have placed orders worth more than $3000 in total.
17. Find all orders that included the 'Premium CRM' product.
18. Calculate the average order value for each customer.
19. List all customers who signed up in Q1 2023 (January to March).
20. Find campaigns that generated both leads and orders.

Advanced Questions (Hard)

21. Calculate the conversion rate (leads to orders) for each campaign.
22. Find the top 3 products by total revenue generated.
23. For each sales rep, list their customers and the total revenue those customers have generated.
24. Find customers who have purchased every product in the 'Software' category.
25. Calculate the percentage of total sales contributed by each product.
26. Identify customers who have placed orders through multiple campaigns.

27. Find the average time between a customer signing up and placing their first order.
28. Calculate the running total of order amounts for each customer, ordered by order date.
29. Find products that are frequently purchased together (appear in the same order).
30. For each month of 2023, calculate the total sales, number of orders, and average order value.
31. Identify sales representatives who have customers in more than one territory.
32. Find the most successful marketing channel based on average order value.
33. Identify customers who have increased their spending over time (each order larger than the previous).
34. Calculate the customer lifetime value (total spending) and rank customers by this value.
35. Find leads that converted to customers within 30 days of being generated.

Expert Questions (Very Hard)

36. Calculate the month-over-month growth rate in sales for the entire year of 2023.
37. Identify the most profitable customer-product combinations, accounting for campaign costs.
38. Find the optimal price point for each product category based on order quantity and total revenue.
39. Create a cohort analysis showing customer retention rates by signup month.
40. For each sales rep, calculate their efficiency ratio (revenue generated divided by number of assigned customers).
41. Calculate the ROI for each marketing campaign, considering the budget spent and revenue generated.
42. Find seasonal purchasing patterns for each product category.
43. Create a customer segmentation model based on recency, frequency, and monetary value.
44. Identify cross-selling opportunities by finding products frequently purchased by similar customer segments.
45. Calculate the average customer acquisition cost by campaign, considering both successful and unsuccessful leads.

Super Hard Questions (Challenge Level)

46. Design a query that predicts the next likely purchase for each customer based on their purchase history and similar customer patterns.
47. Create a market basket analysis query that identifies statistically significant product associations beyond random chance.
48. Develop a query that calculates the projected lifetime value of each customer using a time-decay model that weights recent purchases more heavily.
49. Design a query that implements a custom lead scoring algorithm based on lead characteristics, campaign response, and conversion patterns.
50. Create a comprehensive dashboard query that combines sales performance, marketing effectiveness, and customer behavior into a single result set with key performance indicators for executive review.