Retail Sales Analysis Using SQL
Data Analytics Project Report
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Executive Summary:-

This project analyzes retail sales data using SQL to extract insights that help improve profitability and customer satisfaction.The analysis focuses on product performance, revenue trends, customer behavior, and regional sales patterns. The findings support better inventory management, marketing strategies, and discount planning.

Problem Statement:-

A retail company wants to analyze its sales performance to improve profitability and customer satisfaction. The management is seeking insights into:

- Which products are the best sellers and which are underperforming.
- Revenue trends over time (monthly, quarterly, yearly).
- Customer purchasing behavior (top customers, average order value).
- Impact of discounts on sales and profitability.
- Regional sales performance.

Business Questions:-

1. Total revenue, total orders, and total customers
2. Top 10 best-selling products
3. Monthly revenue trend for the last 12 months
4. Average order value per customer
5. Top 5 customers by revenue
6. Sales contribution by region
7. Products with the highest discount usage
8. Category-wise sales and profit

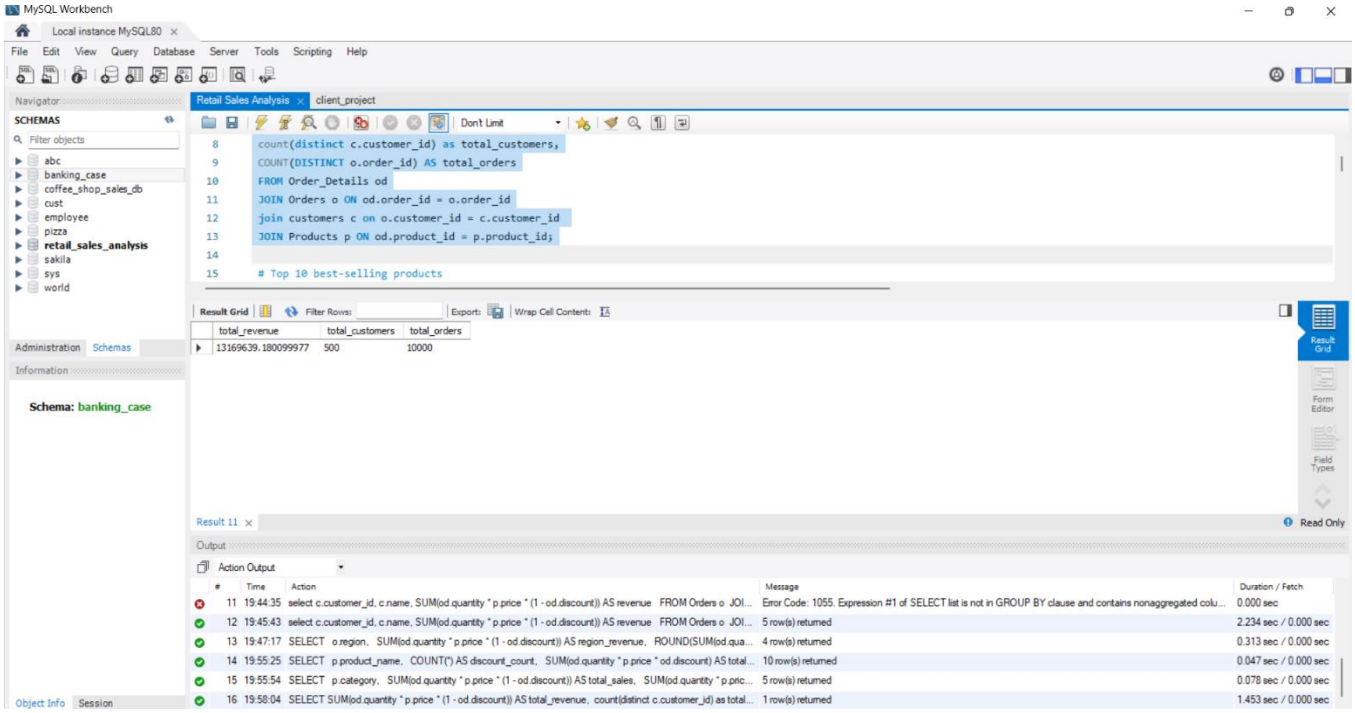
Dataset Description:-

The project uses four key tables from the retail company's database:

- **Customers**: customer_id, name, region, signup_date
- **Products**: product_id, product_name, category, price
- **Orders**: order_id, customer_id, order_date, region
- **Order_Details**: order_detail_id, order_id, product_id, quantity, discount

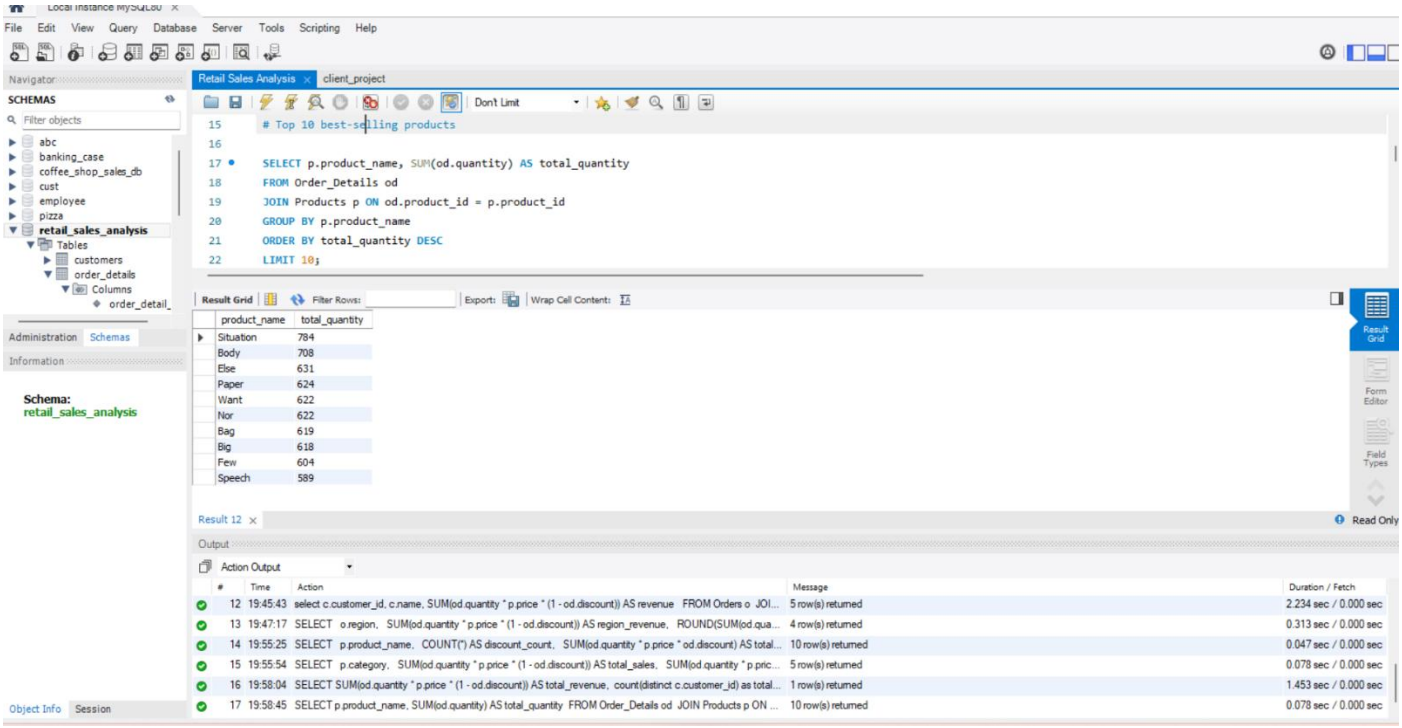
1. Total revenue, total orders, and total customers

```
SELECT SUM(od.quantity * p.price * (1 - od.discount)) AS total_revenue,
 count(distinct c.customer_id) as total_customers,
 COUNT(DISTINCT o.order_id) AS total_orders
 FROM Order_Details od
 JOIN Orders o ON od.order_id = o.order_id
 join customers c on o.customer_id = c.customer_id
 JOIN Products p ON od.product_id = p.product_id;
```



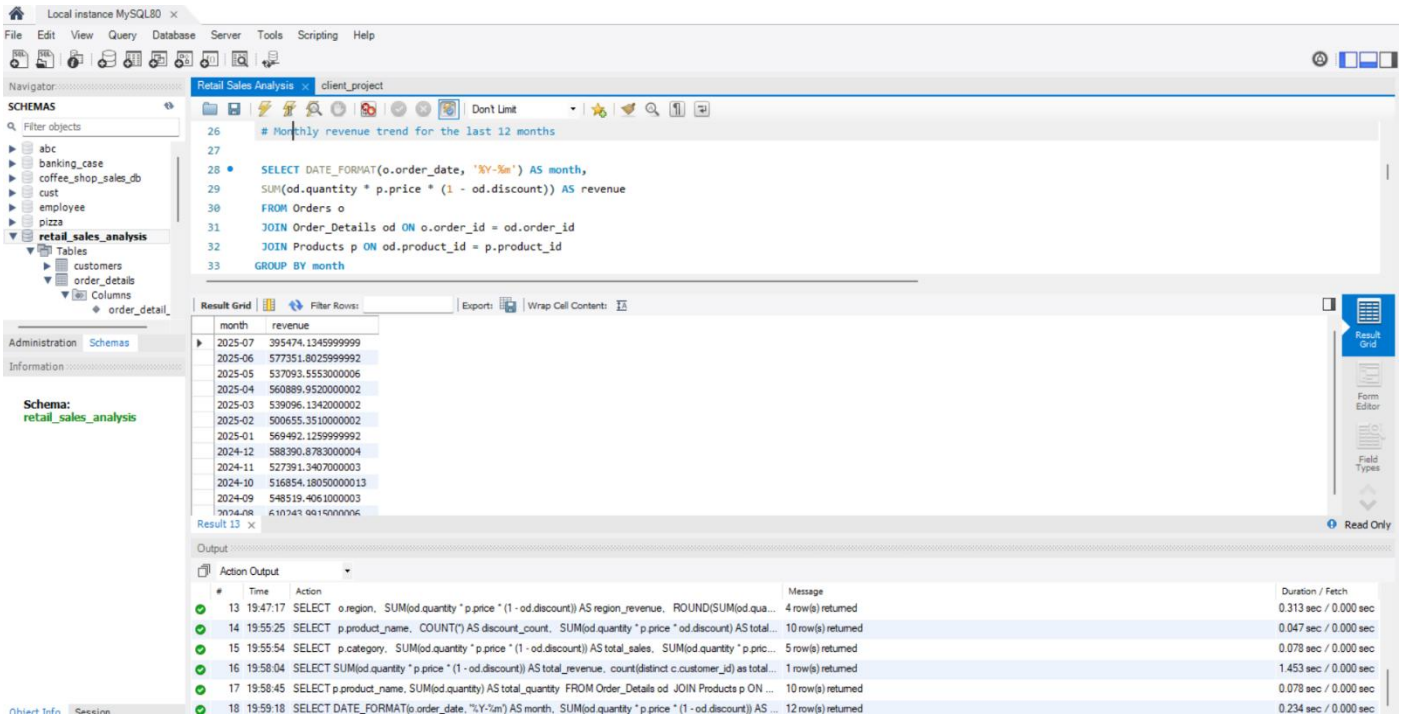
2. Top 10 best-selling products

```
SELECT p.product_name, SUM(od.quantity) AS total_quantity
FROM Order_Details od
JOIN Products p ON od.product_id = p.product_id
GROUP BY p.product_name
ORDER BY total_quantity DESC
LIMIT 10;
```



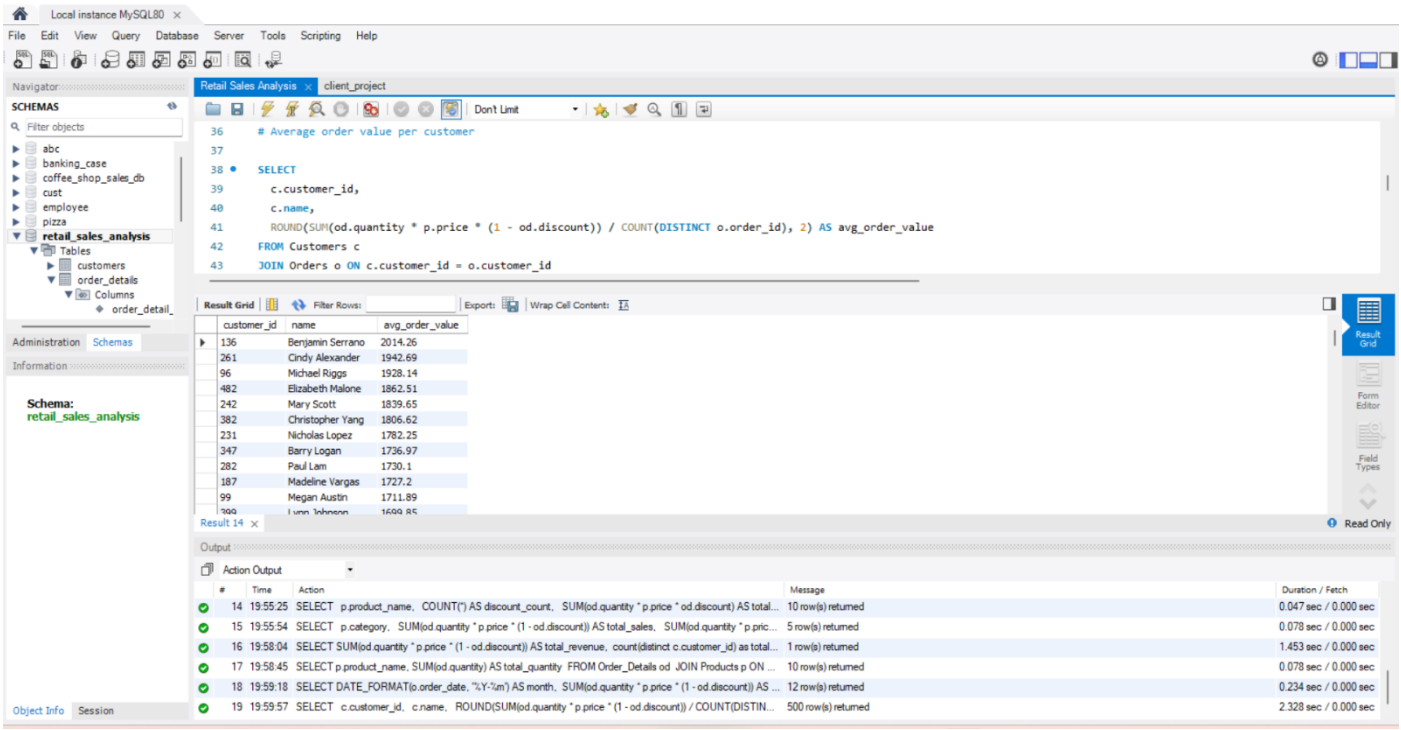
3. Monthly revenue trend for the last 12 months

```
SELECT DATE_FORMAT(o.order_date, '%Y-%m') AS month,
SUM(od.quantity * p.price * (1 - od.discount)) AS revenue
FROM Orders o
JOIN Order_Details od ON o.order_id = od.order_id
JOIN Products p ON od.product_id = p.product_id
GROUP BY month
ORDER BY month desc limit 12;
```



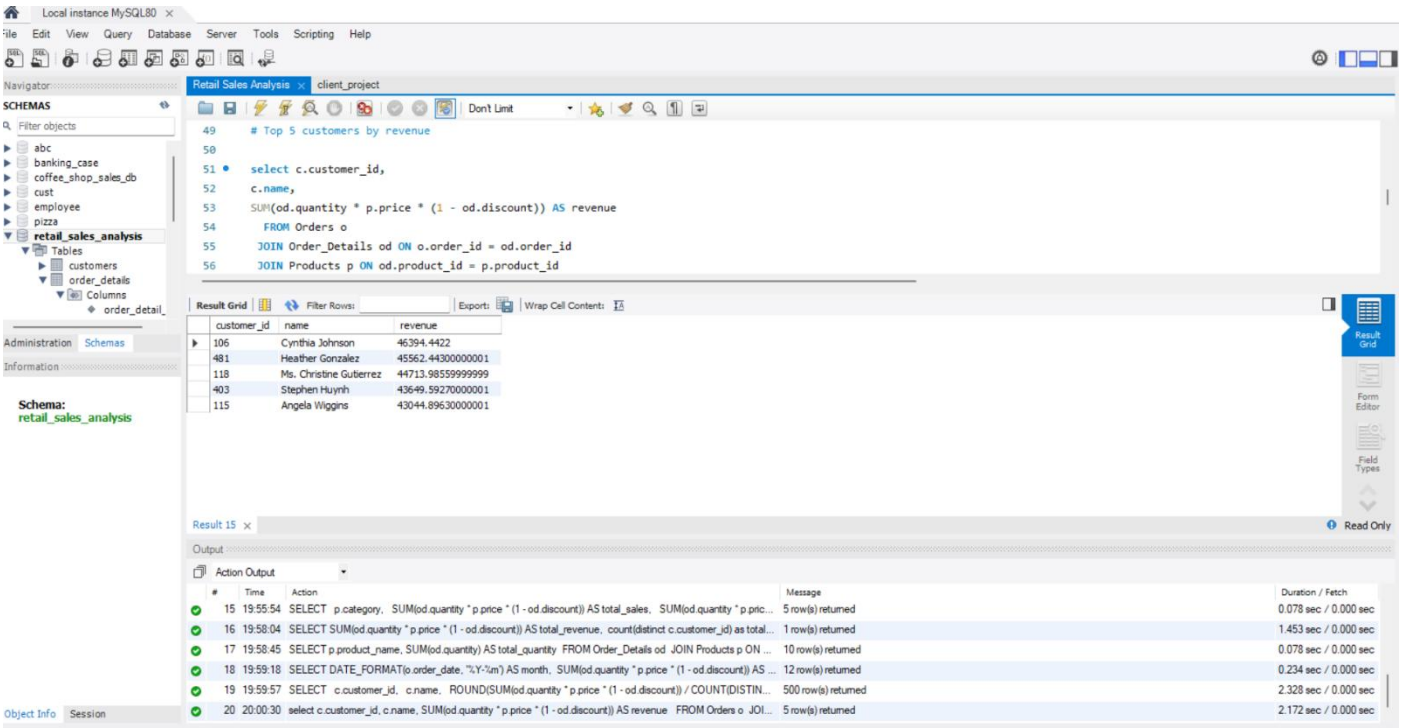
4. Average order value per customer

```
SELECT
  c.customer_id,
  c.name,
  ROUND(SUM(od.quantity * p.price * (1 - od.discount)) / COUNT(DISTINCT o.order_id), 2) AS avg_order_value
FROM Customers c
JOIN Orders o ON c.customer_id = o.customer_id
JOIN Order_Details od ON o.order_id = od.order_id
JOIN Products p ON od.product_id = p.product_id
GROUP BY c.customer_id, c.name
ORDER BY avg_order_value DESC;
```



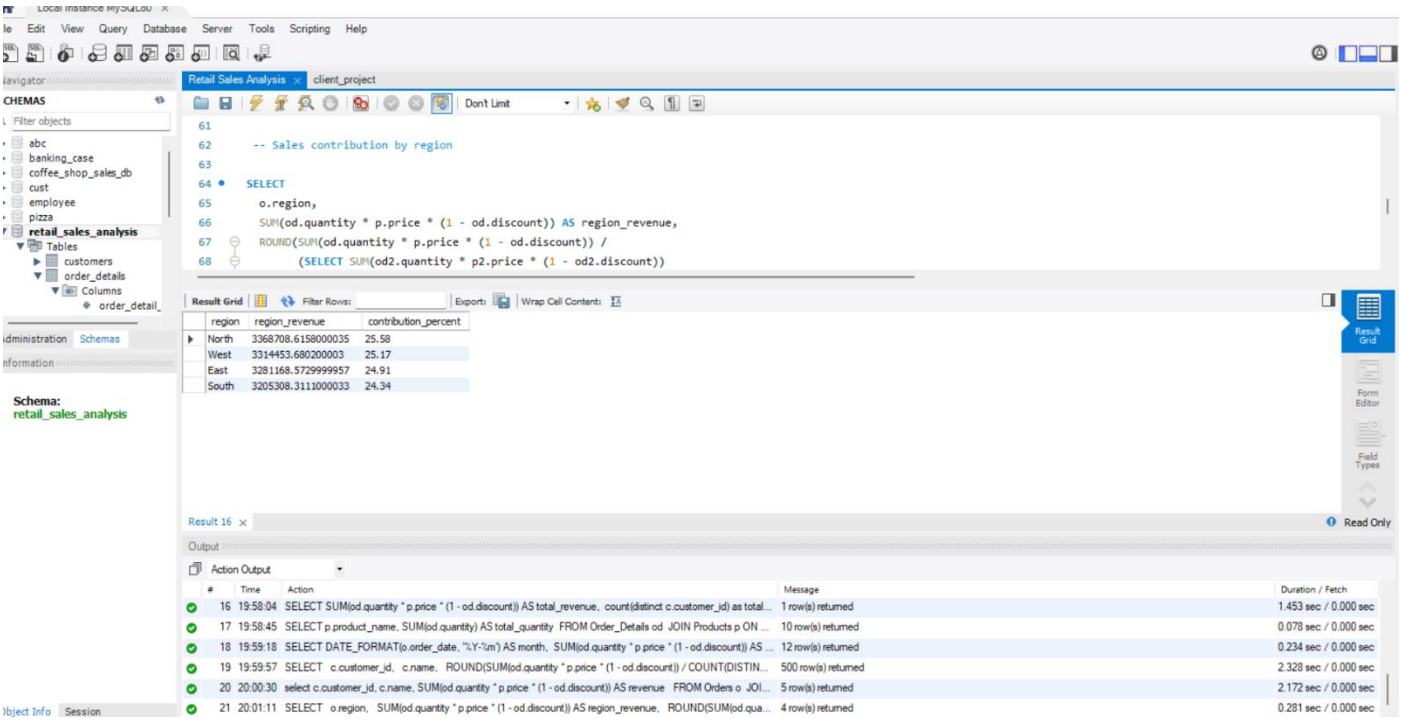
5. Top 5 customers by revenue

```
select c.customer_id,
c.name,
SUM(od.quantity * p.price * (1 - od.discount)) AS revenue
  FROM Orders o
 JOIN Order_Details od ON o.order_id = od.order_id
 JOIN Products p ON od.product_id = p.product_id
 join customers c on o.customer_id = c.customer_id
GROUP BY c.customer_id, c.name
order by revenue desc
 limit 5;
```



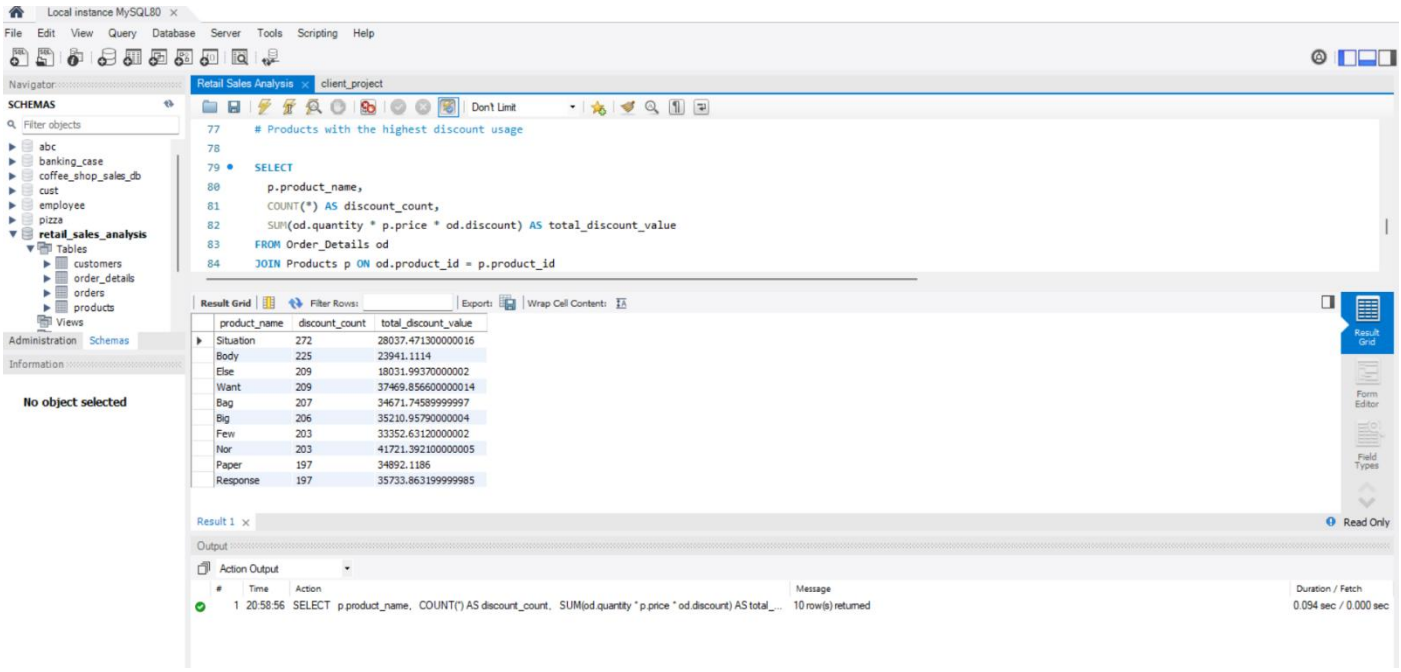
6. Sales contribution by region

```
SELECT
  o.region,
  SUM(od.quantity * p.price * (1 - od.discount)) AS region_revenue,
  ROUND(SUM(od.quantity * p.price * (1 - od.discount)) /
        (SELECT SUM(od2.quantity * p2.price * (1 - od2.discount))
         FROM Order_Details od2
         JOIN Products p2 ON od2.product_id = p2.product_id) * 100, 2) AS contribution_percent
FROM Orders o
JOIN Order_Details od ON o.order_id = od.order_id
JOIN Products p ON od.product_id = p.product_id
GROUP BY o.region
ORDER BY region_revenue DESC;
```



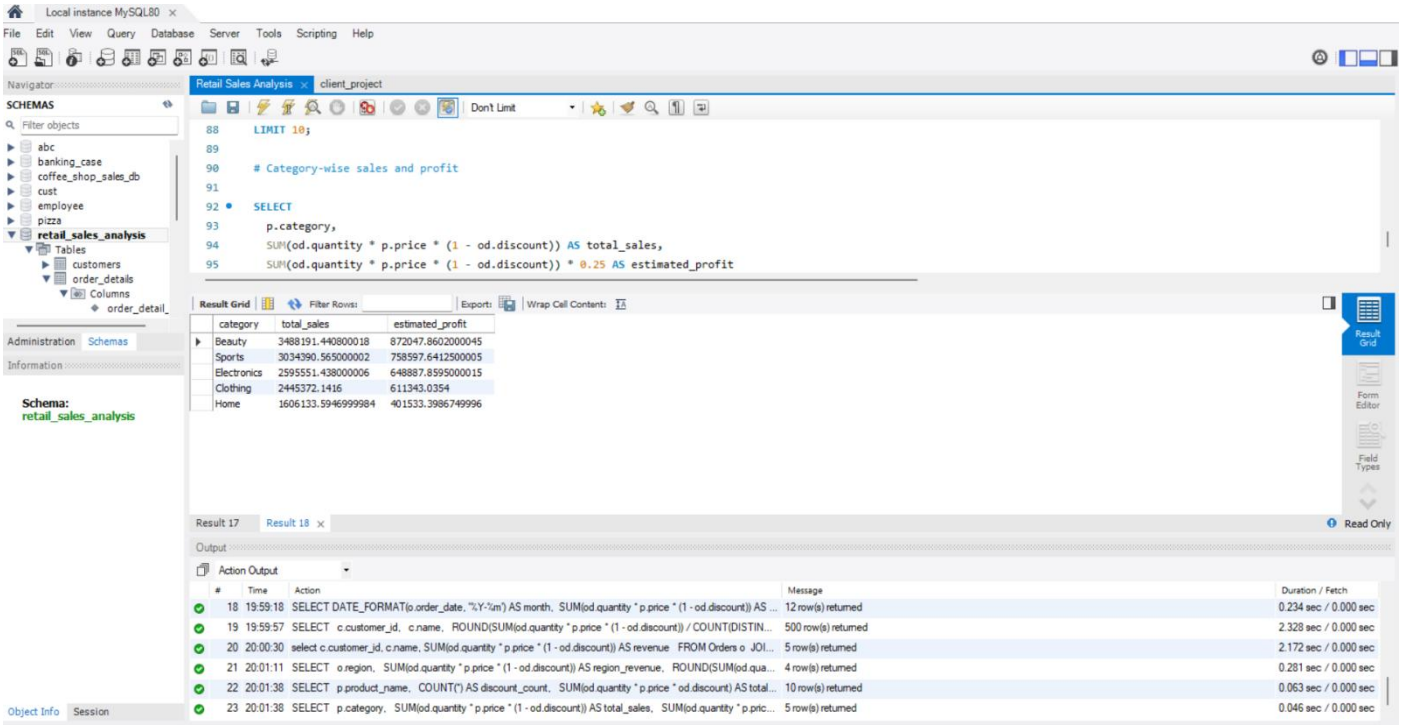
7. Products with the highest discount usage

```
SELECT
  p.product_name,
  COUNT(*) AS discount_count,
  SUM(od.quantity * p.price * od.discount) AS total_discount_value
FROM Order_Details od
JOIN Products p ON od.product_id = p.product_id
WHERE od.discount > 0
GROUP BY p.product_name
ORDER BY discount_count DESC
LIMIT 10;
```



8. Category-wise sales and profit

```
SELECT
  p.category,
  SUM(od.quantity * p.price * (1 - od.discount)) AS total_sales,
  SUM(od.quantity * p.price * (1 - od.discount)) * 0.25 AS estimated_profit
FROM Order_Details od
JOIN Products p ON od.product_id = p.product_id
GROUP BY p.category
ORDER BY total_sales DESC;
```



Insights and Recommendation:-

The best selling product is Situation with total quantity 784 and under performing product is money with total quantity 170.

The customer name Benjamin Serrano is top customer with average order value 2014.26.

There is not much difference in sales based on region.

The discount can be increase little to make sales more. As it shows more discount the sales is also more for the product.

Conclusion:-

The SQL analysis provided clear insights into product performance, customer behavior, and revenue trends.

Implementing recommendations can enhance profitability and operational efficiency.