1- Write SQL queries to calculate total sales, average order value, and highest-selling product from a sales database.

- **Total Sales**
  - **SELECT SUM(TotalDue) AS TotalSales**

    FROM Sales.SalesOrderHeader;
- **Average Order Value**
  - SELECT AVG(TotalDue) AS AverageOrderValue
  - FROM Sales.SalesOrderHeader;
- **Highest-selling Product**
  - **SELECT ProductID,**

    ProductName,

    SUM(OrderQty) AS TotalQuantitySold

    FROM Sales.SalesOrderDetail sod

    JOIN Production.Product prod ON sod.ProductID = prod.ProductID

    GROUP BY ProductID, ProductName

    ORDER BY TotalQuantitySold DESC

    LIMIT 1;

2- Analyze a customer database and identify the top 5% of customers based on their total purchase amount

```
SELECT customer_id,
    total_purchase_amount
    FROM (
        SELECT customer_id,
        SUM(order_amount) AS total_purchase_amount,
        NTILE(100) OVER (ORDER BY SUM(order_amount) DESC) AS percentile
    FROM orders
    GROUP BY customer_id
```

```
) AS percentile_calculation
WHERE percentile <= 5;
```

3- Write a query to find the month with the highest revenue for a given year from an orders table

- SELECT YEAR(order_date) AS order_year,

```
    MONTH(order_date) AS order_month,
    SUM(order_amount) AS total_revenue
FROM orders
WHERE YEAR(order_date) = :given_year
GROUP BY YEAR(order_date), MONTH(order_date)
ORDER BY total_revenue DESC
LIMIT 1;
```

4- Identify the top 10 products with the highest total sales revenue, including the product name, product category, and total revenue

```
SELECT p.product_name,
    pc.product_category,
    SUM(od.unit_price * od.quantity) AS total_revenue
FROM order_details od
JOIN products p ON od.product_id = p.product_id
JOIN product_categories pc ON p.category_id = pc.category_id
GROUP BY p.product_name, pc.product_category
ORDER BY total_revenue DESC
LIMIT 10;
```

5- Determine the average number of days it takes for orders to be shipped after they are placed, categorized by shipping method

```
SELECT shipping_method,
    AVG(DATEDIFF(shipped_date, order_date)) AS average_shipping_days
FROM orders
WHERE shipped_date IS NOT NULL
GROUP BY shipping_method;
```

6- How does sales performance vary across the product categories?

```
SELECT Prod_Category, Total_order,
ROUND(Total_revenue/Total_order, 2) AS Average_order_value,
Total_revenue
FROM (
  SELECT(COUNT(DISTINCT SOH.SalesOrderID)) AS Total_order,
SUM(LineTotal) AS Total_revenue,
     PC.Name AS Prod_Category
  FROM Sales.SalesOrderHeader SOH
  INNER JOIN Sales.SalesOrderDetail SOD
  ON SOH.SalesOrderID = SOD.SalesOrderID
  INNER JOIN Production.Product P
  ON P.ProductID = SOD.ProductID
  INNER JOIN Production.ProductSubcategory PSC
 ON PSC.ProductSubcategoryID = P.ProductSubcategoryID
  INNER JOIN Production.ProductCategory pc
 ON PC.ProductCategoryID = PSC.ProductCategoryID
  GROUP BY PC.Name) sub
ORDER BY Total_revenue DESC;
```

7-Which region generated the highest revenue?

```
SELECT ST.[Group] AS Region, SUM(SOH.Totaldue) AS Total_sales
FROM Sales.SalesTerritory ST
INNER JOIN Sales.SalesOrderHeader SOH
ON ST.TerritoryID = SOH.TerritoryID
```

```
GROUP BY ST.[Group]
ORDER BY total_sales DESC;
```