**Exercise 1: Ranking and Window Functions**

Goal: Use ROW\_NUMBER(), RANK(), DENSE\_RANK(), OVER(), and PARTITION BY.

Scenario:

Find the top 3 most expensive products in each category using different ranking functions.

Steps:

1. Use ROW\_NUMBER() to assign a unique rank within each category.

2. Use RANK() and DENSE\_RANK() to compare how ties are handled.

3. Use PARTITION BY Category and ORDER BY Price DESC.

**QUERY:**

USE OnlineRetailStore;

-- CREATING PRODUCTS TABLE

CREATE TABLE Products (

ProductID INT PRIMARY KEY,

ProductName VARCHAR(100),

Category VARCHAR(50),

Price DECIMAL(10, 2)

);

--INSERTING SAMPLE DATA INTO PRODUCTS TABLE

INSERT INTO Products VALUES

(1, 'iPhone 15', 'Electronics', 1000),

(2, 'Samsung Galaxy', 'Electronics', 950),

(3, 'MacBook Pro', 'Electronics', 2000),

(4, 'Dell XPS', 'Electronics', 1800),

(5, 'Cotton T-shirt', 'Apparel', 30),

(6, 'Silk Shirt', 'Apparel', 45),

(7, 'Leather Jacket', 'Apparel', 120),

(8, 'Denim Jeans', 'Apparel', 50),

(9, 'Blender', 'Home Appliance', 80),

(10, 'Microwave Oven', 'Home Appliance', 120),

(11, 'Air Fryer', 'Home Appliance', 120)

--SELECTING ALL ROWS AND COLUMNS FROM TABLE

SELECT \* FROM PRODUCTS;

--USING ROW\_NUMBER() TO ASSIGN A UNIQUE RANK WITHIN EACH CATEGORY.

SELECT

ProductID, ProductName, Category, Price,

ROW\_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC) AS RowNum

FROM Products;

--USING RANK() AND DENSE\_RANK() TO COMPARE HOW TIES ARE HANDLED

SELECT

ProductID, ProductName, Category, Price,

RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS Rank

FROM Products;

SELECT

ProductID, ProductName, Category, Price,

DENSE\_RANK() OVER (PARTITION BY Category ORDER BY Price DESC) AS DenseRank

FROM Products;

--FIND TOP 3 MOST EXPENSIVE PRODUCTS IN EACH CATEGORY USING DIFFERENT RANKING FUNCTIONS.

WITH RankedProducts AS (

SELECT \*,

ROW\_NUMBER() OVER (PARTITION BY Category ORDER BY Price DESC) AS RowNum

FROM Products

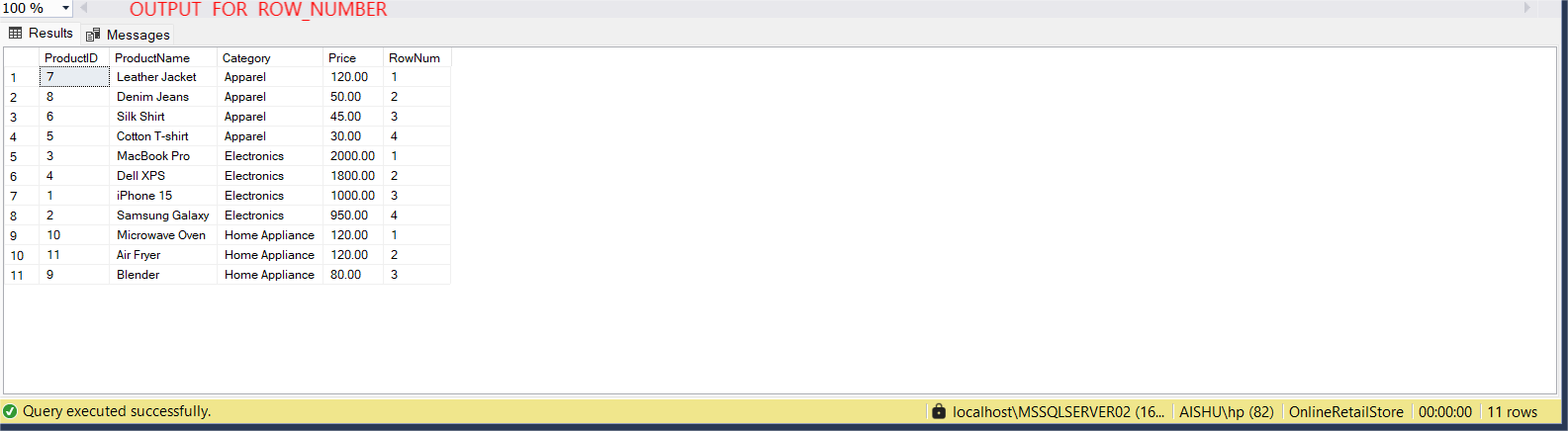
)

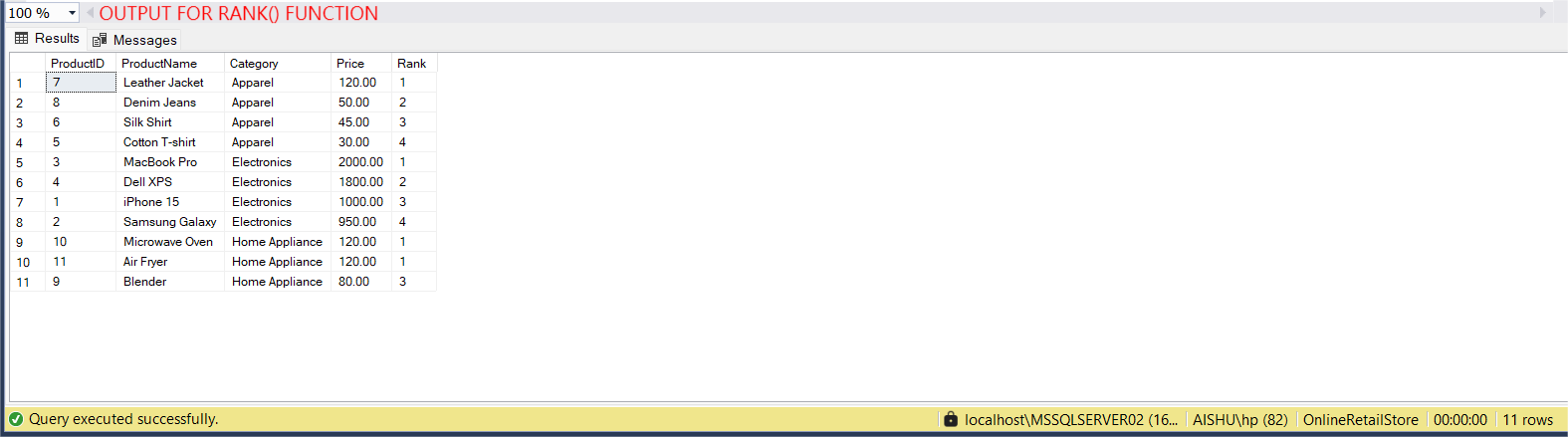
SELECT \*

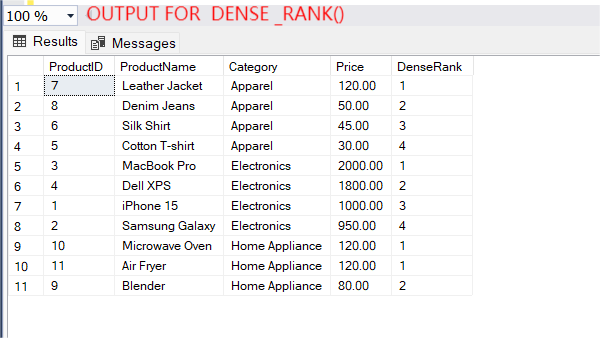
FROM RankedProducts

WHERE RowNum <= 3;

**OUTPUT:**

****

****

****