**Exercise 1: Ranking and Window Functions**

-- Drop the table if it already exists

IF OBJECT\_ID('dbo.SalesData', 'U') IS NOT NULL

DROP TABLE dbo.SalesData;

-- Create the table

CREATE TABLE SalesData (

SalesID INT IDENTITY(1,1) PRIMARY KEY,

SalesPerson VARCHAR(50),

Region VARCHAR(50),

SalesAmount INT

);

-- Insert sample data

INSERT INTO SalesData (SalesPerson, Region, SalesAmount)

VALUES

('Aniketh', 'North', 5000),

('Surya', 'North', 7000),

('Shashi', 'North', 7000),

('Vidhya', 'South', 4000),

('Nandini', 'South', 6000),

('Jyothi', 'South', 4000),

('Vikram', 'East', 8000),

('Arjun', 'East', 8000),

('Sandeep', 'East', 3000),

('Akhila', 'West', 9000);

-- Final Output: All window functions in a single table

SELECT

SalesID,

SalesPerson,

Region,

SalesAmount,

RANK() OVER (PARTITION BY Region ORDER BY SalesAmount DESC) AS RankInRegion,

DENSE\_RANK() OVER (PARTITION BY Region ORDER BY SalesAmount DESC) AS DenseRankInRegion,

ROW\_NUMBER() OVER (PARTITION BY Region ORDER BY SalesAmount DESC) AS RowNumInRegion,

NTILE(4) OVER (ORDER BY SalesAmount DESC) AS Quartile,

LAG(SalesAmount, 1) OVER (PARTITION BY Region ORDER BY SalesAmount DESC) AS PrevSales,

LEAD(SalesAmount, 1) OVER (PARTITION BY Region ORDER BY SalesAmount DESC) AS NextSales,

SUM(SalesAmount) OVER (PARTITION BY Region) AS TotalRegionSales,

AVG(SalesAmount \* 1.0) OVER (PARTITION BY Region) AS AvgRegionSales

FROM SalesData

ORDER BY Region, SalesAmount DESC;

