We'll use a sample table named Sales for the examples. The Sales table structure is as follows:

sql

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CREATE TABLE Sales (

SaleID INT,

SaleDate DATE,

CustomerID INT,

ProductID INT,

Amount DECIMAL(10, 2)

);

INSERT INTO Sales (SaleID, SaleDate, CustomerID, ProductID, Amount) VALUES

(1, '2024-01-01', 101, 1001, 150.00),

(2, '2024-01-02', 102, 1002, 200.00),

(3, '2024-01-03', 101, 1001, 100.00),

(4, '2024-01-04', 103, 1003, 300.00),

(5, '2024-01-05', 102, 1002, 250.00),

(6, '2024-01-06', 101, 1001, 175.00),

(7, '2024-01-07', 104, 1004, 400.00),

(8, '2024-01-08', 105, 1005, 350.00),

(9, '2024-01-09', 102, 1002, 225.00),

(10, '2024-01-10', 101, 1001, 125.00);

**Question 1: Calculate the running total of sales amount.**

**Solution 1:**

SELECT

SaleID,

SaleDate,

Amount,

SUM(Amount) OVER (ORDER BY SaleDate) AS RunningTotal

FROM Sales;

**Question 2: Calculate the average sales amount over the last 3 sales.**

**Solution 2:**

SELECT

SaleID,

SaleDate,

Amount,

AVG(Amount) OVER (ORDER BY SaleDate ROWS BETWEEN 2 PRECEDING AND CURRENT ROW) AS AvgLast3Sales

FROM Sales;

**Question 3: Rank the sales by amount for each customer.**

**Solution 3:**

SELECT

SaleID,

SaleDate,

CustomerID,

Amount,

RANK() OVER (PARTITION BY CustomerID ORDER BY Amount DESC) AS RankByAmount

FROM Sales;

**Question 4: Calculate the cumulative distribution of sales amount.**

**Solution 4:**

SELECT

SaleID,

SaleDate,

Amount,

CUME\_DIST() OVER (ORDER BY Amount) AS CumulativeDistribution

FROM Sales;

**Question 5: Calculate the difference in sales amount between the current sale and the previous sale.**

**Solution 5:**

SELECT

SaleID,

SaleDate,

Amount,

Amount - LAG(Amount, 1) OVER (ORDER BY SaleDate) AS AmountDifference

FROM Sales;

**Question 6: Calculate the lead sales amount for the next sale.**

**Solution 6:**

SELECT

SaleID,

SaleDate,

Amount,

LEAD(Amount, 1) OVER (ORDER BY SaleDate) AS NextSaleAmount

FROM Sales;

**Question 7: Find the first sale amount for each customer.**

**Solution 7:**

SELECT

SaleID,

SaleDate,

CustomerID,

Amount,

FIRST\_VALUE(Amount) OVER (PARTITION BY CustomerID ORDER BY SaleDate) AS FirstSaleAmount

FROM Sales;