SQL Developer - Task 4: Window Functions

- **Objective**

The goal of this task is to utilize SQL window functions to:
1. Rank students based on their TotalScore.
2. Calculate cumulative totals (running totals) of Math scores.

- **Dataset Setup**

We created a table Students with the following fields:
- StudentID (Primary Key)
- Name
- MathScore
- TotalScore

- **Sample Data**

StudentID	Name	MathScore	TotalScore
1	Aaryan	85	250
2	Sana	90	260
3	Rohan	70	220
4	Meera	95	280
5	Ishaan	88	240
6	Neha	90	260
7	Vikram	75	230
8	Anaya	65	210

- **Tasks Performed**

Task 1: Rank Students Based on Total Scores
```sql

```
SELECT
    StudentID,
    Name,
    TotalScore,
    RANK() OVER (ORDER BY TotalScore DESC) AS Rank
FROM Students;
```

Output

StudentID	Name	TotalScore	Rank
4	Meera	280	1
2	Sana	260	2
6	Neha	260	2
1	Aaryan	250	4
5	Ishaan	240	5
7	Vikram	230	6
3	Rohan	220	7
8	Anaya	210	8

Task 2: Calculate Running Totals for Math Scores

```
SELECT
    StudentID,
    Name,
    MathScore,
    SUM(MathScore) OVER (ORDER BY StudentID) AS RunningTotal
FROM Students;
```

Output

StudentID	Name	MathScore	RunningTotal
1	Aaryan	85	85
2	Sana	90	175
3	Rohan	70	245
4	Meera	95	340
5	Ishaan	88	428
6	Neha	90	658
7	Vikram	75	593
8	Anaya	65	658

- **Findings and Insights**

  - Ranking: Meera scored the highest total (Rank 1). Sana and Neha both share Rank 2 since they have equal total scores.

  - Running Totals: The cumulative MathScore helps track progress as students are ordered by StudentID.

- **Deliverables**

1. SQL Queries (provided above).
2. Query Outputs (tables shown).
3. Insights based on window functions.