SQL Server Tutorial

Part 117 - Difference between ROWS and RANGE

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In this session we will learn

- Difference between ROWS and RANGE

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Difference between ROWS and RANGE

Calculate the running total of Salary and display it against every employee row

Id	Name	Salary
1	Mark	1000
2	John	2000
3	Pam	3000
4	Sara	4000
5	Todd	3000

Name	Salary	RunningTotal
Mark	1000	1000
John	2000	3000
Pam	3000	6000
Sara	4000	10000
Todd	5000	15000

ROWS or RANGE clause is not specified. It's default value is used.

```sql
SELECT Name, Salary,
       SUM(Salary) OVER(ORDER BY Salary) AS RunningTotal
FROM Employees
```

The above query can be re-written using an explicit value for ROWS or RANGE clause

```sql
SELECT Name, Salary,
       SUM(Salary) OVER(ORDER BY Salary
       RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS RunningTotal
FROM Employees
```

Difference between ROWS and RANGE

Calculate the running total of Salary and display it against every employee row

Id	Name	Salary
1	Mark	1000
2	John	2000
3	Pam	3000
4	Sara	4000
5	Todd	3000

Name	Salary	RunningTotal
Mark	1000	1000
John	2000	3000
Pam	3000	6000
Sara	4000	10000
Todd	5000	15000

We can also achieve the same result, by replacing RANGE with ROWS

```sql
SELECT Name, Salary,
       SUM(Salary) OVER(ORDER BY Salary
       ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS RunningTotal
FROM Employees
```

What is the difference between ROWS and RANGE

The difference is in the way duplicate rows are treated. ROWS treat duplicates as distinct values, where as RANGE treats them as a single entity.

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Difference between ROWS and RANGE

Calculate the running total of Salary and display it against every employee row

```
SELECT Name, Salary,
        SUM(Salary) OVER(ORDER BY Salary
        ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS RunningTotal
FROM Employees
```

Id	Name	Salary
1	Mark	1000
2	John	1000
3	Pam	3000
4	Sara	3000
5	Todd	3000

Name	Salary	RunningTotal
Mark	1000	1000
John	1000	2000
Pam	3000	5000
Sara	3000	8000
Todd	5000	13000

```
SELECT Name, Salary,
        SUM(Salary) OVER(ORDER BY Salary
        RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS RunningTotal
FROM Employees
```

Id	Name	Salary
1	Mark	1000
2	John	1000
3	Pam	3000
4	Sara	3000
5	Todd	3000

Name	Salary	RunningTotal
Mark	1000	2000
John	1000	2000
Pam	3000	8000
Sara	3000	8000
Todd	5000	13000

Difference between ROWS and RANGE

All together side by side. The following query shows how running total changes

1. When no value is specified for ROWS or RANGE clause

2. When RANGE clause is used explicitly with it's default value

3. When ROWS clause is used instead of RANGE clause

```sql
SELECT Name, Salary,
       SUM(Salary) OVER(ORDER BY Salary) AS [Default],
       SUM(Salary) OVER(ORDER BY Salary
                        RANGE BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS [Range],
       SUM(Salary) OVER(ORDER BY Salary
                        ROWS BETWEEN UNBOUNDED PRECEDING AND CURRENT ROW) AS [Rows]
FROM Employees
```

Id	Name	Salary
1	Mark	1000
2	John	1000
3	Pam	3000
4	Sara	3000
5	Todd	3000

Name	Salary	Default	Range	Rows
Mark	1000	2000	2000	1000
John	1000	2000	2000	2000
Pam	3000	8000	8000	5000
Sara	3000	8000	8000	8000
Todd	5000	13000	13000	13000

Additional Resources

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Resources:

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