

Important Questions

1. Types of joins in Sql Server

Retrieve data from multiple tables using the JOIN clause, there are **five** types of joins:

- 1) inner join
- 2) left outer join or Left Join
- 3) right outer join or Right Join
- 4) full outer join or Full join
- 5) cross join

Example:

```
CREATE TABLE #EMP
(
    EMPID BIGINT,
    EMPNAME VARCHAR(100),
    PLACE VARCHAR(100)
)

INSERT INTO #EMP
SELECT 101,'SAIRAM','HYDERABAD'
UNION ALL
SELECT 101,'SAIRAM','SECUNDRABAD'
UNION ALL
SELECT 101,'SAIRAM','WARANGAL'
UNION ALL
SELECT 102,'SRIKANTH','KARIMNAGAR'
UNION ALL
SELECT 102,'SRIKANTH','SIDDIPET'
UNION ALL
SELECT 103,'RAMESH','ONGOLE'

CREATE TABLE #EMPTRANS
(
    EMPID BIGINT,
    TRANSID BIGINT
)

INSERT INTO #EMPTRANS
SELECT 101,1000001
UNION ALL
SELECT 101,1000002
UNION ALL
SELECT 102,1000003
UNION ALL
SELECT 102,1000004
```

Table: **#EMP**

EMPID	EMPNAME	PLACE
101	SAIRAM	HYDERABAD
101	SAIRAM	SECUNDRABAD
101	SAIRAM	WARANGAL
102	SRIKANTH	KARIMNAGAR
102	SRIKANTH	SIDDIPET
103	RAMESH	ONGOLE

Table: **#EMPTRANS**

EMPID	TRANSID
101	1000001
101	1000002
102	1000003
102	1000004
105	1000006

1) Inner join:

Matched rows between the two tables specified in the INNER JOIN statement based on one or more columns having matching data.

Resultant row count = (Matched row_count from left table * Match row_count from right table)+...(Matched row_count from left table * Match row_count from right table)

==> From the above tables

Resultant row count = $(3*2)+(2*2) = 10$

```
SELECT * FROM #EMP E
INNER JOIN #EMPTRANS T on E.EMPID = T.EMPID
```

2) Left Join:

Based on the two tables specified in the join clause, all data is returned from the left table. On the right table, the matching data is returned in addition to NULL values where a record exists in the left table, but not in the right table.

Resultant row count = (Matched row_count from left table * Matched row_count from right table) +...(Matched row_count from left table * Matched row_count from right table) + Unmatched row_count from left table

==> From the above tables

Resultant row count = $(3*2) + (2*2) + 1 = 11$

```
SELECT * FROM #EMP E
LEFT JOIN #EMPTRANS T on E.EMPID = T.EMPID
```

3) Right Join:

Based on the two tables specified in the join clause, all data is returned from the right table. On the left table, the matching data is returned in addition to NULL values where a record exists in the right table but not in the left table.

Resultant row count = (Matched row_count from left table * Matched row_count from right table) + ... + (Matched row_count from left table * Matched row_count from right table) + Unmatched row_count from right table

==> From the above tables

Resultant row count = $(2*3) + (2*2) + 1 = 11$

```
SELECT * FROM #EMP E  
RIGHT JOIN #EMPTRANS T on E.EMPID = T.EMPID
```

4) Full Join:

Based on the two tables specified in the join clause, all data is returned from both tables regardless of matching data.

Resultant row count = (Matched row_count from right table * Matched row_count from left table) + ... + (matched row_count from left table * matched row_count from left table) + Unmatched row_count from left table + Unmatched row_count from right table

==> From the above tables

Resultant row count = $(2*3) + (2*2) + 1 + 1 = 12$

```
SELECT * FROM #EMP E  
RIGHT JOIN #EMPTRANS T on E.EMPID = T.EMPID
```

5) Cross Join:

Based on the two tables specified in the join clause, a Cartesian product is created if a WHERE clause does filter the rows. The size of the Cartesian product is based on multiplying the number of rows from the left table by the number of rows in the right table. Please heed caution when using a CROSS JOIN.

Resultant row count = row_count from right table * row_count from left table

==> From the above tables

Resultant row count = $6*5 = 30$

```
SELECT * FROM #EMP E  
CROSS JOIN #EMPTRANS T on E.EMPID = T.EMPID
```

Self Join (this is not a Join):

In this circumstance, the same table is specified twice with two different aliases in order to match the data within the same table.

Resultant row count = (matched row_count from left table * matched row_count from left table) + ... + (matched row_count from left table * matched row_count from left table)

==> From the above tables

$$\text{Resultant row count} = (3*3) + (2*2) + (1*1) = 14$$

```
SELECT * FROM #EMP E
INNER JOIN #EMP T on E.EMPID = T.EMPID
```

The screenshot shows a Stack Overflow post titled "SQL JOINS" with a score of 25. It contains several Venn diagrams illustrating different SQL join types and their corresponding SQL queries. The queries include LEFT JOIN, RIGHT JOIN, INNER JOIN, FULL OUTER JOIN, and FULL JOIN. The post also includes a comment about the difference between LEFT JOIN and RIGHT JOIN, and a link to a SQL Server 2005 documentation page.

Codeproject has this image which explains the simple basics of SQL joins, taken from: http://www.codeproject.com/KB/database/Visual_SQL_Joins.aspx

SQL JOINS

LEFT JOIN

SELECT <column_list>
FROM TableA A
LEFT JOIN TableB B
ON A.Key = B.Key

RIGHT JOIN

SELECT <column_list>
FROM TableA A
RIGHT JOIN TableB B
ON A.Key = B.Key

INNER JOIN

SELECT <column_list>
FROM TableA A
INNER JOIN TableB B
ON A.Key = B.Key

FULL OUTER JOIN

SELECT <column_list>
FROM TableA A
FULL OUTER JOIN TableB B
ON A.Key = B.Key
WHERE B.Key IS NULL

FULL JOIN

SELECT <column_list>
FROM TableA A
FULL JOIN TableB B
ON A.Key = B.Key
WHERE A.Key IS NULL
OR B.Key IS NULL

Full - problem with left join
LEFT JOIN on inline tables
SQL Server: How to make a query with a left outer join + dependent inner join?
SQL: Exclude and Move columns on Left outer Join
generate sql temp table of sequential dates to left outer join to need help with Left Outer join?
SQL Server 2005 - Join based on criteria in table column
Execution time diff between two select queries in sql server 2005
Left Outer Join with one result per match and "priority" of match set by a different field in match SQL Server 2005
Self Join in SQL Server 2005
SQL Server 2005 LEFT JOIN?
SQL Server 2005 Inconsistent Query Results Between SSMS and SQL Job
SQL Server - Using Join to show only entries from second table
Remove NULL values from multiple LEFT JOIN in sql server
Difference between IN and JOIN
Remove dups on one side but not on the other in SQL JOIN

2. Index ?
- 3.