

SQL

Join Table :

1- Natural join:

- No join condition specified.
- Implicit EQUJOIN condition for each pair of attributes with same name from R and S.

2- Inner join:

- Default type of join.
- Tuple is included in the result [✱] only if a matching tuple exists in the other relation.

3- Left outer join:

- Every tuple in left table must appear in result.
- If no matching tuple:
 - Padded with NULL values for attributes of right table.

4- Right outer join:

- Every tuple in right table must appear in result.
- If no matching tuple:
 - Padded with NULL values for attributes of left table.

5- Full outer join.

Relational Algebra join:

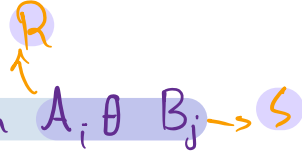
1 - Cartesian Product : (cross product, cross join)

- Denoted by \times , Binary set operation.
- Relations do not have to be union compatible.
- Useful when followed by a selection that matches values of attributes.

2 - JOIN operation:

- Denoted by \bowtie .
- Combine related tuples from two relations into single tuples.

3 - Theta join:

- Each $\langle \text{condition} \rangle$ of the form $A_i \theta B_j \rightarrow S$

- A_i and B_j have the same domain.
- θ is one of the comparison operators.

4 - EQUJOIN:

- only $=$ comparison operator used.
- Always have one or more pairs of attributes that have identical values in every tuple.

5 - Natural join:

- Denoted by $*$
- Removes second (superfluous) attribute in an EquiJoin condition.

6 - Join selectivity:

- Expected size of join result divided by the maximum sizes $n_R * n_S$


7- Inner joins:

- Type of match and combine operation
- Defined formally as a combination of cross product and selection.

8- outer join:

- All tuples in R , or in S , or both regardless of whether or not they have matching tuples in the other relation.

Types:

- Left, Right and Full outer join.