SQL

Joind Table:

1. Natural join:
   - No join condition specified.
   - Implicit EQUIJOIN 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 taple 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 taple must appear in reuslt.
   - 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 $\bowtie$.
   - Combin related tuples from two relations into single tuples.
3. Theta join:
   - Each <condition> of the form $A_i \theta B_j$ → S (R)
   - A_i and B_j have the same domain.
   - θ is one of the comparison operators.
4. EQUIJOIN:
   - 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 size $n_R * n_S$.

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.