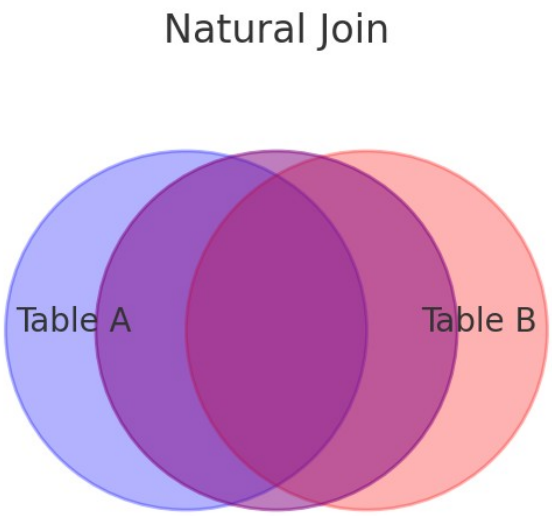
Types of Joins

Joins are used to retrieve data from multiple tables based on a related column. Different types of joins exist, each with its own advantages and disadvantages.

1. Natural Join

A Natural Join automatically joins tables based on common column names and data types. It removes duplicate columns from the result.



Advantages:

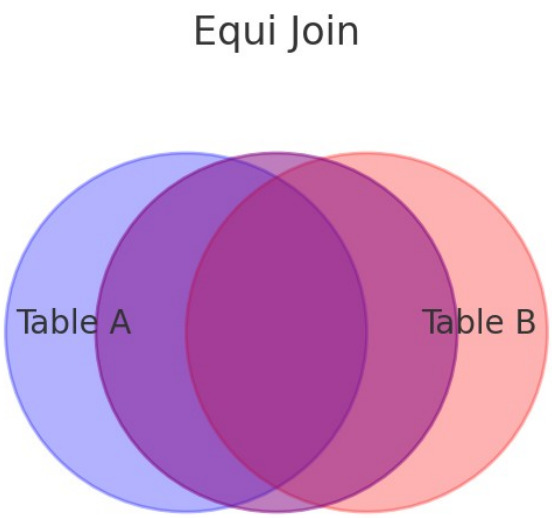
- Reduces redundancy.
- No need to specify join conditions.

Disadvantages:

- Unintended matches may occur if column names are the same but unrelated.

2. Equi Join

An Equi Join retrieves data based on equality between column values in both tables using the '=' operator.

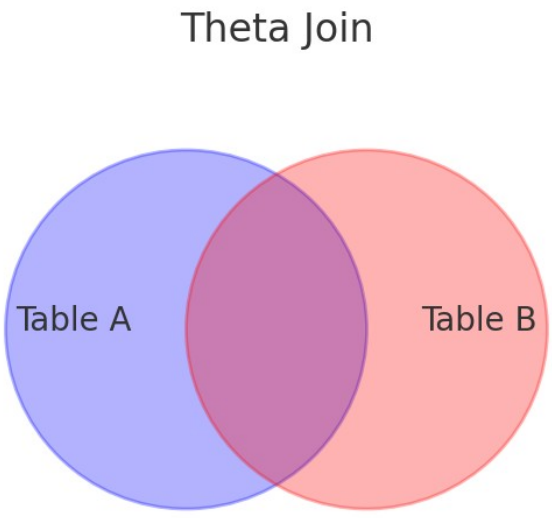


Advantages:
- Simple to implement.
- Ensures accurate data matching.

Disadvantages:
- Returns duplicate column values.

3. Theta Join

A Theta Join retrieves data using conditions other than '=' such as '<', '>', '<=', or '!='.

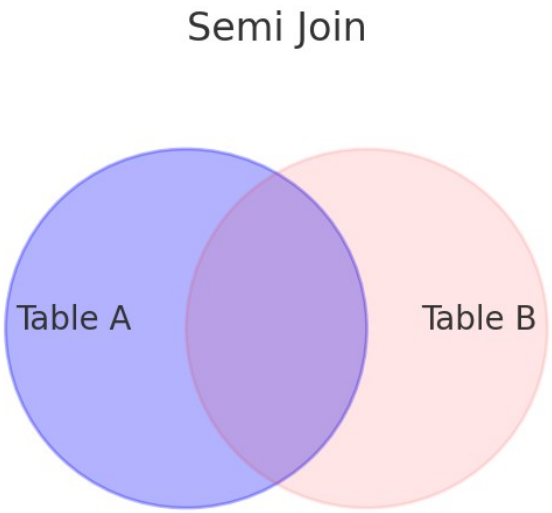


Advantages:
- Provides flexibility in joining conditions.

Disadvantages:
- Less optimized compared to Equi Join.

4. Semi Join

A Semi Join returns rows from the first table where a match exists in the second table but does not include columns from the second table.

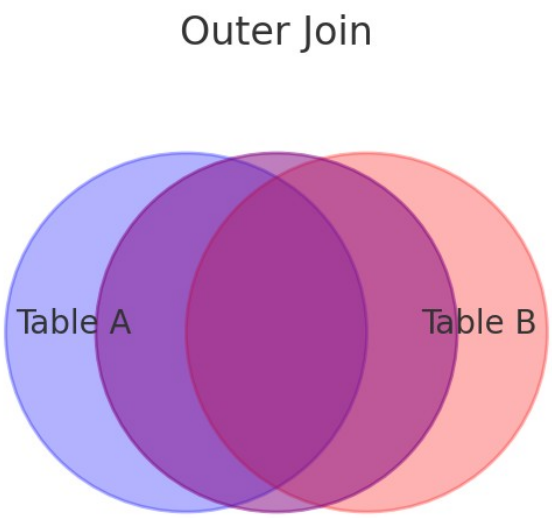


Advantages:
- Efficient for retrieving only required data.

Disadvantages:
- Cannot return data from the second table.

5. Outer Join

Outer Joins return both matching and non-matching rows. Types include Left Outer Join, Right Outer Join, and Full Outer Join.



Advantages:
- Ensures no data is lost from one or both tables.

Disadvantages:
- Slower performance compared to inner joins.