

SQL JOIN

In database systems, data is usually stored in multiple tables to reduce duplication and improve organization. To retrieve related data from different tables, SQL provides a feature called **JOIN**.

What is JOIN?

A **JOIN** in SQL is used to **combine rows from two or more tables** based on a **common column** between them. This common column is usually a **primary key** in one table and a **foreign key** in another table.

Purpose of JOIN

The main purpose of JOIN is to:

- Retrieve related data from multiple tables
- Display combined information in one result
- Maintain data normalization while accessing full details

Types of JOIN

1. **INNER JOIN**
Returns only the records that have matching values in both tables.
2. **LEFT JOIN (LEFT OUTER JOIN)**
Returns all records from the left table and matching records from the right table. If there is no match, NULL values are returned.
3. **RIGHT JOIN (RIGHT OUTER JOIN)**
Returns all records from the right table and matching records from the left table.
4. **FULL JOIN**
Returns all records when there is a match in either table.

Example

If there is an **Employee** table and a **Department** table, JOIN can be used to display employee names along with their department names.

Conclusion

JOIN is an important SQL operation that allows users to combine data from multiple tables efficiently. It helps in retrieving meaningful information from relational databases.