

A SQL JOIN is used to combine rows from two or more tables based on a related column between them.

It allows you to query data from multiple tables as if the data were part of a single table.

JOINs are essential for relational databases, where data is often split into separate, normalized tables to reduce redundancy and improve structure.

# Types of JOINs in SQL

## 1. INNER JOIN

#### Definition:

An INNER JOIN returns only the rows that have matching values in both tables.

If a row in one table doesn't have a corresponding match in the other table, it is not included in the results.

This is the most common type of join used in SQL.

syntax:

**SELECT columns** 

FROM table1

**INNER JOIN table2** 

ON table1.common\_column = table2.common\_column;

#### Example:

SELECT employees.name, departments.department\_name

FROM employees

**INNER JOIN departments** 

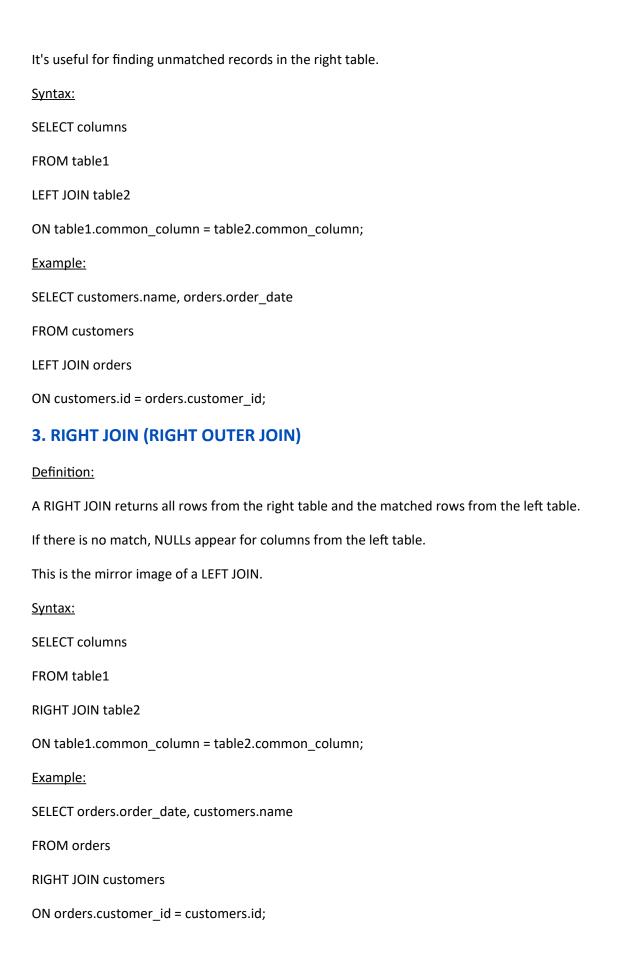
ON employees.department\_id = departments.id;

## 2. LEFT JOIN (LEFT OUTER JOIN)

### **Definition:**

A LEFT JOIN returns all rows from the left table and the matched rows from the right table.

If there is no match, the result will contain NULL for columns from the right table.



## 4. FULL JOIN (FULL OUTER JOIN)

**FROM** products

# **Definition:** A FULL JOIN returns all rows from both tables, with NULLs in places where there is no match. If a row exists in one table but not the other, the result still includes it with NULL for the missing side. This join is useful when you need a complete set of data from both tables. Syntax: **SELECT columns** FROM table1 FULL OUTER JOIN table2 ON table1.common\_column = table2.common\_column; Example: SELECT a.name, b.order\_date FROM customers a FULL OUTER JOIN orders b ON a.id = b.customer id; 5. CROSS JOIN Definition: A CROSS JOIN returns the Cartesian product of two tables, combining each row from the first table with all rows from the second. This can create very large result sets and is typically used in special cases such as generating combinations. Syntax: **SELECT** \* FROM table1 CROSS JOIN table2; Example: SELECT products.name, colors.color

CROSS JOIN colors;