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MySQL : Join

- Join is used to combines the row of two or more tables based on related columns between them.
- The main purpose of Join is to retrieve the data from multiple tables in other words Join is used to perform multi-table query.
- Types of Join
  - Inner Join
  - Outer join

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MySQL : Join

- **Inner join:** Inner Join is a join operation in DBMS that combines two or more table based on related columns and return only rows that have matching values among tables. Inner join of two types.
  - Equi Join
  - Natural Join

- **Equi Join :** Equi Join is a type of Inner join in which we use equivalence('=') condition in join condition

Example:

Table A	
Column A	Column B
a	a
a	b

Table B	
Column A	Column B
a	a
a	c

Result:	
Column A	Column B
a	a

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MySQL : Join

Natural Join: Natural join is a type of inner join in which we not need of any comparison operators. In natural join columns should have the same name and domain. There should be at least one common attribute between two tables.

Example:

Table A

Number	Square
2	4
3	9

Table B

Number	Cube
2	8
3	27

Result:

Number	Square	Cube
2	4	8
3	9	27

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MySQL : Join

- **Outer Join:** Outer join is a type of join that retrieve matching as well as non-maching records from related tables.
- There three types of outer join
  - Left outer join
  - Right outer join
  - Full outer join

- **Left Outer Join :** It is also called left join. This type of outer join retrieve all records from left table and retrive maching record from right table.
- **Right Outer Join :** It is also called right join. This type of outer join retrieve all records from right table and retrive maching record from left table.
- **Full Outer Join:** In full outer join all the rows from both table are inserted in result table.

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MySQL : Join

- **CROSS JOIN :** CROSS JOIN returns all the records from the left and right tables. CROSS JOIN returns a combination of each row in the left table paired with each row in the right table.

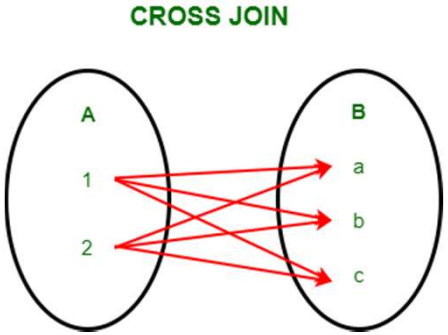
- Examples:

Table 1- Customer

ID	NAME	AGE	PHONE
1	Ram Kumar	21	48474
2	Shyam Sharma	47	33996

Table 2- Orders

ORDER_ID	AMOUNT	PLACED_ON
101	999	4/19/2023
102	4999	4/20/2023




```
SELECT *
FROM CUSTOMER
CROSS JOIN ORDERS;
```

ID	NAME	AGE	PHONE	ORDER_ID	AMOUNT	PLACED_ON
1	Ram Kumar	21	48474	101	999	4/19/2023
2	Shyam Sharma	47	33996	101	999	4/19/2023
1	Ram Kumar	21	48474	102	4999	4/20/2023
2	Shyam Sharma	47	33996	102	4999	4/20/2023

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MySQL : Join

- **SELF JOIN :** A self join is a regular join that is used to join a table with itself. It basically allows us to combine the rows from the same table based on some specific conditions.
- Examples:

student_id	name	course_id	duration
1	Adam	1	3
2	Peter	2	4
1	Adam	2	4
3	Brian	3	2
2	Shane	3	5

```
SELECT  s1.student_id, s1.name
FROM student AS s1, student s2
WHERE s1.student_id=s2.student_id
AND s1.course_id<>s2.course_id;
```

student_id	name
1	Adam
2	Shane
1	Adam
2	Peter