Date: 9/5/21

JOINS

DEPT.

```
select * from dept;
```

DeptNo	DName	LOC
10	Accounting	New York
20	Research	Dallas
30	Sales	Chicago
40	Operations	Boston.

Ques. What is sql join & why do we need it?

To combine the records from 2 or more tables in a database system we use joins.

When we have to access the data from multiple tables then we use joins.

Ques

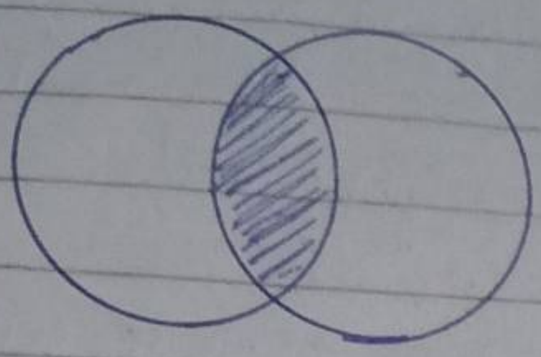
A Join refers to combining the fields from 2 or more than 2 tables by using a value that is common to each of the table which helps in reducing the repeated columns and data stored in column of ~~the~~ the same table.

It is necessary to get the data efficiently from multiple tables thats why we use joins.

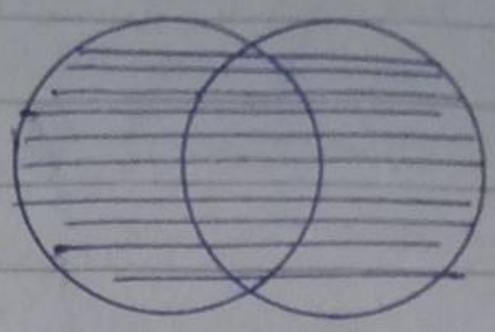
1) display the employee names, salary, dept names, location of all those employees working in organization.

```
Select ename, salary, dep dname, loc
from emp, dept;
```

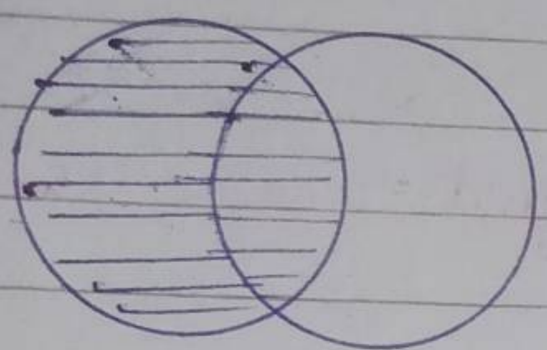
Inner join



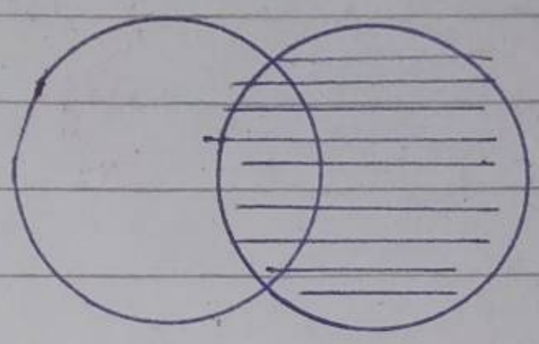
Full Join



Left join



Right join



Ques · What are the diff^n types of sql joins ?

1) Inner Join

It is a kind of join where we get all the records that match the condition in 2 or more than 2 tables. and then the records in all the tables that didn't match are not displayed.

It displays only the matching entries of two or more tables.

Syntax :- select table1.column1, table2.column2 -----
from table1
inner join table2
ON table1.common-field = table2.common-field;

2) left join.

This kind of join returns all the rows from left table in the combination with the matching records or rows from the right table.

If there are no matching values then it will return null values.

Syntax :- Select table1.col1, table2.col2, ...
from table1
left join table2
on table1.common-field = table2.common-field;

3) Right join.

This kind of join returns all the rows from the right table in combination with the matching records from the left table.

If there are no matching values then it will return null values.

Syntax :- select table1.col1, table2.col2, ----
from table1
right join table2
ON table1.common-field = table2.common-field;

4) Full join

~~All the~~ This kind of join combines right join in addition to left join.

It displays records from the tables when the conditions are met, and displays a null value when there is a no match.

Syntax :- select table1.col1 , table2.col2 , ----
from table1
FULL JOIN table2
ON table1.common-field = table2.common-field.

1) to display information of dept. of 10, 20, 30.
select deptno, dname from dept
where deptno IN (10, 20, 30);

deptno	dname
10	Accounting
20	Research
30	Sales

2) to get information of emp. who work in the deptno 10, 20, 30
select * from emp. where deptno IN (10, 20, 30);

→ select emp.ename, emp.deptno , dept.deptno, dept.dname
from emp
INNER JOIN
ON emp.deptno = dept.deptno
where emp.deptno IN (10, 20, 30) order by emp.deptno;

for each row in the employee table, the statement checkes if the value of deptno, column equals the value of the value of deptno in the department table

If the condit^{n} emp.deptno = dept.deptno is satisfied, the combined row that includes data from rows in both employees and dept. tables are included in the result set. 3)

3) display employee name, salary, deptno of those employees whose salary > 2000

deptname

```
select ename, salary, deptno
select emp.ename, emp.salary, emp.deptno, dept.deptno
       dept.dname
from emp
join ON dept emp.deptno = dept.deptno
  where emp.salary > 2000;
```

#

Assignment.

1) Write a sql query to display empname, dept name, salary, location.

2) to display all the employees (empname, salary, dept name, locath) who are work in "DALLAS".

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3) display empname, salary, deptno, deptname and location of all the employee show matching as well as non-matching records from emp table.

* INNER JOIN.

```
Select * from Emp E
Inner Join Dept D
ON E. deptno = D. deptno;
```

LEFT JOIN

```
Select * from Emp E
Left Join Dept D
On E. deptno = D. deptno;
```

RIGHT JOIN

```
Select * from Emp E
Right Join Dept D
ON E. deptno = D. deptno;
```

FULL JOIN

```
Select * from Emp E
Full Join Dept D
ON E. deptno = D. deptno;
```

* SELF JOIN

Self Join is a simple join with the same table itself. It is mainly used when the heirarchy is involved or some relationships are there betn records in the same table.

Eg :- ~~Each~~ Each employee will have one manager & each manager is employee as well.
So for each manager there will be record in the employee table.

```
Select E1.EmpNo , E1.MGR , E1.Name
From Emp E1, Emp E2
Where E1.MGR =
```

1) Display all the employee who worked in same dept as that of Allen.

```
Select E1.Ename, E1.Deptno, E2.*
From Emp E1, Emp E2
where E1.deptno = E2.deptno
AND E2.Ename = 'Allen';
```

Cross Join.

Cross Join is a Cartesian Product of 2 tables, it will connect all the rows from the left Table to each row of the Right table.
So, the query result of Cross Join is a number of rows in left table multiplied by the no. of rows in the right table.

Syntax :- Select Table1 T1
CROSS JOIN Table T2
OR
Select Table1.Col1 , Table2.Col2 , ----
FROM Table1 , Table2 , -----

Ex: above 2 tables (Emp, Dept)
We can write the cross join statement like below.
Select COUNT(*) from Emp Cross Join Dept ;

COUNT(*)
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2) List Empno, Emp.name, his dept. and dept name
Select E.Empno, E.ename, D.deptno, D.Dname
from Emp E, Dept D
Where E.deptno = D.deptno;

3) List Employee name, his dept name & dept. locatn
Select E.ename, D.Dname, D.Loc from Emp E, Dept D
where E.deptno = D.deptno;

4) List emp.name, dept name for all the clerks.
Select E.ename, E.job, D.Dname from Emp E, Dept D
Where E.deptno = D.deptno
AND JOB LIKE 'CLERK';

Assignment

1) Display name & salary of employee who is working in 'Chicago'.

Select Ename, Salary
from Emp
Where deptno = (Select deptno from Dept Where LOC
LIKE 'CHICAGO');

2) Display diff^n designat^n in dept 20 & 30 (using union)

```
Select DISTINCT JOB, DEPTNO
FROM EMP
Where deptno = 20 UNION Select DISTINCT JOB, DEPTNO
FROM EMP
Where Deptno = 30;
```

2) Display diff^n designat^n in dept 20 & 30 (records should not be duplicate.)

by using JOIN

```
Select DISTINCT JOB, Deptno
from Emp
Where deptno IN (20, 30);
```

3) Display name of Employees & the dept. name who are working in Sales or Research dept.

```
Select E.Ename, E.deptno, D.Dname
from Emp E, Dept D
Where E.deptno = D.deptno
AND D.Dname IN ('Sales', 'Research')
ORDER By Deptno;
```

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on)

PTNO.

uld

1) To display the ~~names~~ emp. names, salary and dept. names of all the employees whose salary is greater than 2000

```
Select E.Ename, E.Salary, E.Deptno, D.Deptno, D.Dname
From Emp E, Dept D
Where E.Deptno = D.Deptno
AND Salary > 2000;
```

OR

by using JOIN

```
Select E.Ename, E.Salary, D.Deptno, D.DName
from Emp E
JOIN Dept D
ON E.Deptno = D.Deptno
where Salary > 2000;
```

2) To display KING'S Employee number, name, deptno and Dept locatn.

```
Select Emp.EmpNo, Emp.Ename, Emp.deptno, Dept.Loc
FROM Emp, Dept
Where Emp.Deptno = Dept.Deptno
AND ENAME = 'KING';
```

OR

```
Select Emp.Deptno, Emp.Ename, Emp.Deptno, Dept.Deptno,
       Dept.Loc
From Emp, Dept
Where Emp.Deptno = Dept.Deptno
AND INITCAP (Ename) = 'King';
```

Deptno	Ename	Deptno	Deptno	Loc
10	KING	10	10	New york

3) Find the name of each employee along with the name of that employee's manager.

```
Select E1.Ename || 'WORKS FOR' || E2.Ename
AS "Employees AND Their Managers"
FROM Emp E1, Emp E2
where E1.MGR = E2.EmpNo;
```

NOTE :-

The sql natural join is type of equi join and is a structured in such a way that columns with the same name of associated tables will appear once only.

The associated tables have one or more pairs of identically named columns.

The column must be the same data type.

We can not use ON clause in natural join

→
```
Select Ename, Salary, Dept.Deptno, Dname, Loc
From Emp, Dept
where Emp.Deptno = Dept.Deptno;
```

OR

```
Select Emp.Ename, Emp.Salary, Dept.Deptno, Dept.Dname,
                                            Dept.Loc
From Emp
Inner Join Dept
ON Emp.Deptno = Dept.Deptno;
```

Parent table Dept.

Left join

Select E.ename, E.empno, D.deptno, D.Dname, D.loc
from Emp E
Left join Dept D
on ~~E.E~~ E.deptno = D.deptno;

→ result will be same as ~~right~~ left outer join

OR

Select E.ename, E.empno, D.deptno, D.dname, D.Loc
From Empt E
Left outer join Dept D
ON E.deptno = d.deptno (+);

4) display all the employees who join before their managers

Select E1.empno, E1.MGR, E1.ename
From Emp E1, Emp E2
AND E1.HIREDATE < E2.HIREDATE;

EmpNo	MGR	EName
7521	7698	WARD
7499	7698	ALLEN
7782	7839	CLARK
7698	7839	BLAKE
7566	7839	JONES
7369	7902	SMITH

Salgrade ; Table

Select * from salgrade;

GRADE	LOSAL	HISAL
1	700	1200
2	1201	1400
3	1401	2000
4	2001	3000
5	3001	9999

→ Fetch records from 2 tables

Select E.Ename, E.Salary, S.Grade
From Emp E, Salgrade S
where E.Salary
Between S.LOSAL AND S.HISAL;

→ How to fetch records using joins on more than 2 tables.

Select E.Deptno, E.Ename, D.Dname, S.Grade
From Emp E, Dept D, Salgrade S
where E.Deptno = D.Deptno
And E.Salary Between S.Losal And S.Hisal;

5) List all the departments that have employees who exist in them.

Select * from dept
where exists (Select deptno from emp where
where dept.deptno = emp.empno deptno);

deptno	Dname	Loc
10	Accounting	New York
20	Research	Dallas
30	Sales	Chicago