DBMS LAB
Lab Assignment number 08

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Aim: Experiment to study and implement Join in SQL.

Theory:

Join:-

Join operation is used to retrive data from two or more than two tables based on some logical relationship between tables.
Join condition is specified on common column between two tables.
Join condition can be specified either from clause or where clause
There are two methods of specifying join condition
By using join key word
Without using join keyword.

Without using Join keyword:-
General syntax:-
Select <list of columns> from table1 as t1,table2 as t2 where t1.colname=t2.colname
Eg. Retrive empname and dname of dept for which emp is
working.
Select ename,dname from emp as e,dept as d where e.dno=d.dno

ename	dname
John	comp
smit	comp
Neha	it
smita	comp

Select ename,dno,dname from emp as e,dept as d where e.dno=d.dno -- Error (Ambiguous column name dno)

Select ename,e.dno,dname from emp as e,dept as d where e.dno=d.dno

ename	dno	dname
John	101	comp
smit	101	comp
Neha	102	it
smita	101	comp

By using join key word:-
Select e.ename,e.dno,dname from(emp as e join dept as d on e.dno=d.dno)

Types of Joins:-

1.Inner Join -

Inner Join keyword returns rows when there is at least one match in both table.
An inner join requires each record in the two joined tables to have a matching record.
An inner join essentially combines the records from two tables (A and B) based on a given join-predicate.
The result of the join can be defined as the outcome of first taking the Cartesian product (or cross-join) of all records in the tables then return all records which satisfy the join predicate

Select e.ename,e.dno,dname from(emp as e inner join dept as d on e.dno=d.dno)
Two types:-1) Self join
2) Equijoin

A. Self-join:-

A self-join is joining a table to itself
Eg. Display empname ,supervisor name of supervisor
who supervises that employee.
Select e.ename as empname , s.ename as supervisorname from emp as e,emp as s where e.superssn=s.ssn

ssn	ename	salary	dno	superssn
1	John	45000.0000	101	10
2	smita	42000.0000	101	10
10	Neha	25000.0000	102	NULL
5	smit	35000.0000	101	15
15	Nisha	40000.0000	103	10

Employee Table

empname	supervisorname
John	Neha
smita	Neha
smit	Nisha
Nisha	Neha

Output

select *from emp as e,emp as s

ssn	ename	salary	dno	superssn	ssn	ename	salary	dno	superssn
1	John	45000.0000	101	10	1	John	45000.0000	101	10
2	smita	42000.0000	101	10	1	John	45000.0000	101	10
10	Neha	25000.0000	102	NULL	1	John	45000.0000	101	10
5	smit	35000.0000	101	15	1	John	45000.0000	101	10
15	Nisha	40000.0000	103	10	1	John	45000.0000	101	10
1	John	45000.0000	101	10	2	smita	42000.0000	101	10
2	smita	42000.0000	101	10	2	smita	42000.0000	101	10
10	Neha	25000.0000	102	NULL	2	smita	42000.0000	101	10
5	smit	35000.0000	101	15	2	smita	42000.0000	101	10
15	Nisha	40000.0000	103	10	2	smita	42000.0000	101	10
1	John	45000.0000	101	10	10	Neha	25000.0000	102	NULL
2	smita	42000.0000	101	10	10	Neha	25000.0000	102	NULL

Eg. Display empname ,supervisor name of supervisor
who supervises that employee where supervisor salary is greater than salary of supervisor.

Select e.ename , s.ename from emp as e,emp as s where e.superssn=s.ssn and e.salary>s.salary

ename	ename
John	Neha
smita	Neha
Nisha	Neha

B. Equi join:-

Only rows satisfying selection criteria from both joined tables are selected. Selection criteria is based on equality condition on common column.

join condition uses only equality predicate "="

Eg. Display ename and dname of department for which employee is working.

select ename,dname from emp as e,dept as d where e.dno=d.dno

2. Outer Join:- Result of innerjoin + non matching records

LEFT OUTER JOIN - Rows satisfying selection criteria from both joined tables are selected as well as all remaining rows from left joined table are being kept along with null those are not having matching records in right joined table .

Select e.ename,e.dno,dname from(emp as e left outer join dept as d on e.dno=d.dno)

ename	dno	dname
John	101	comp
smita	101	comp
Neha	102	it
smit	101	comp
Nisha	103	NULL

RIGHT OUTER JOIN - Rows satisfying selection criteria from both joined tables are selected as well as all remaining rows from right joined table are being kept along with Nulls those are not having matching records in left joined table values.

Select e.ename,e.dno,dname from(emp as e right outer join dept as d on e.dno=d.dno)

ename	dno	dname
John	101	comp
smita	101	comp
smit	101	comp
Neha	102	it
NULL	NULL	extc

FULL OUTER JOIN - rows satisfying selection criteria from both joined tables are selected as well as all remaining rows both from left joined table and right joined table are those are not having matching records.

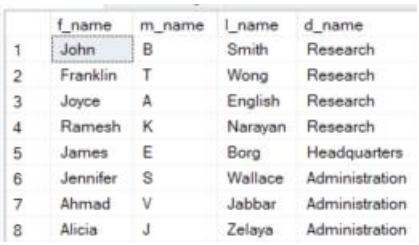
Select e.ename,e.dno,dname from(emp as e full outer join dept as d on e.dno=d.dno)

ename	dno	dname
John	101	comp
smita	101	comp
Neha	102	it
smit	101	comp
Nisha	103	NULL
NULL	NULL	extc

Output:
Display ename and dname of the department for which the employee is working using Joins.

1. Perform Left Outer Join

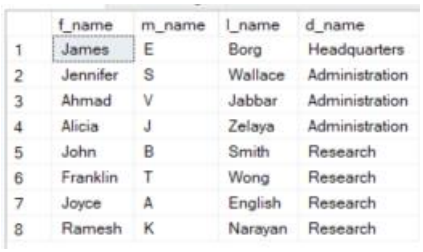
   select Fname, Mname, Lname, Dname from (Employee as e left outer join Department as d on e.Dno=d.Dnumber);



	f_name	m_name	l_name	d_name
1	John	B	Smith	Research
2	Franklin	T	Wong	Research
3	Joyce	A	English	Research
4	Ramesh	K	Narayan	Research
5	James	E	Borg	Headquarters
6	Jennifer	S	Wallace	Administration
7	Ahmad	V	Jabbar	Administration
8	Alicia	J	Zelaya	Administration

2. Perform Right Outer Join

   select Fname, Mname, Lname, Dname from (Employee as e right outer join Department as d on e.Dno=d.Dnumber);



	f_name	m_name	l_name	d_name
1	James	E	Borg	Headquarters
2	Jennifer	S	Wallace	Administration
3	Ahmad	V	Jabbar	Administration
4	Alicia	J	Zelaya	Administration
5	John	B	Smith	Research
6	Franklin	T	Wong	Research
7	Joyce	A	English	Research
8	Ramesh	K	Narayan	Research

3. Perform Full Outer Join

   select Fname, Mname, Lname, Dname from (Employee as e full outer join Department as d on e.Dno=d.Dnumber);

	f_name	m_name	l_name	d_name
1	John	B	Smith	Research
2	Franklin	T	Wong	Research
3	Joyce	A	English	Research
4	Ramesh	K	Narayan	Research
5	James	E	Borg	Headquarters
6	Jennifer	S	Wallace	Administration
7	Ahmad	V	Jabbar	Administration
8	Alicia	J	Zelaya	Administration

Conclusion: Hence we successfully studied and implemented all types of Joins in DBMS.