EX.NO:3                                        **JOIN OPERTATIONS**

28.3.2024

**Aim**: To execute various types of Join.

**TYPES OF JOIN**

* Cross join or Cartesion product
* Inner join
* Natural join
* Left outer join
* Right outer join
* Full outer join
* Self join
* Equi join

SQL> create table instructor(id varchar(5) primary key,namevarchar(7),deptnamevarchar(3),salary number(5));

Table created.

SQL> create table teaches(id varchar(5) primary key,course\_idvarchar(6),section char(1),semester number(1),year number(1));

Table created.

SQL> select \* from instructor;

ID NAME DEP SALARY

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IT02 nalini IT 90000

IT09 devi IT 40000

ECE32 ajay ECE 25000

SH12 senthil SH 55000

CSE02 raji CSE 30000

SQL> select \* from teaches;

ID COURSE S SEMESTER YEAR

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CSE02 CS401 A 4 2

IT09 IT402 A 4 2

ECE32 ECE404 B 4 2

IT02 CS405 B 4 2

**CROSS JOIN (OR) CARTESSION PRODUCT:**

CROSS JOINs are used to combine each row of one table with each row of another table, and return the Cartesian product of the sets of rows from the tables that are joined.

SQL> select \* from instructor,teaches;

ID NAME DEP SALARY ID COURSE S SEMESTER YEAR

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IT02 nalini IT 90000 CSE02 CS401 A 4 2

IT09 devi IT 40000 CSE02 CS401 A 4 2

ECE32 ajay ECE 25000 CSE02 CS401 A 4 2

SH12 senthil SH 55000 CSE02 CS401 A 4 2

CSE02 raji CSE 30000 CSE02 CS401 A 4 2

IT02 nalini IT 90000 IT09 IT402 A 4 2

IT09 devi I T 40000 IT09 IT402 A 4 2

ECE32 ajay ECE 25000 IT09 IT402 A 4 2

SH12 senthil SH 55000 IT09 IT402 A 4 2

CSE02 raji CSE 30000 IT09 IT402 A 4 2

IT02 nalini IT 90000 ECE32 ECE404 B 4 2

ID NAME DEP SALARY ID COURSE S SEMESTER YEAR

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IT09 devi IT 40000 ECE32 ECE404 B 4 2

ECE32 ajay ECE 25000 ECE32 ECE404 B 4 2

SH12 senthil SH 55000 ECE32 ECE404 B 4 2

CSE02 raji CSE 30000 ECE32 ECE404 B 4 2

IT02 nalini IT 90000 IT02 CS405 B 4 2

IT09 devi IT 40000 IT02 CS405 B 4 2

ECE32 ajay ECE 25000 IT02 CS405 B 4 2

SH12 senthil SH 55000 IT02 CS405 B 4 2

CSE02 raji CSE 30000 IT02 CS405 B 4 2

20 rows selected.

**INNER JOIN:**

Inner joins combine records from two tables whenever there are matching values in a field common to both tables.

SQL> select \* from instructor inner join teaches on instructor.id=teaches.id;

ID NAME DEP SALARY ID COURSE S SEMESTER YEAR

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IT02 nalini IT 90000 IT02 CS405 B 4 2

IT09 devi IT 40000 IT09 IT402 A 4 2

ECE32 ajay ECE 25000 ECE32 ECE404 B 4 2

CSE02 raji CSE 30000 CSE02 CS401 A 4 2

**NATURAL JOIN:**

A natural join is a type of join operation that combines rows from two or more tables based on their common columns.

**With key word:**

SQL> select \* from instructor natural join teaches;

ID NAME DEP SALARY COURSE S SEMESTER YEAR

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IT02 nalini IT 90000 CS405 B 4 2

IT09 devi IT 40000 IT402 A 4 2

ECE32 ajay ECE 25000 ECE404 B 4 2

CSE02 raji CSE 30000 CS401 A 4 2

**without key word:**

SQL> select \* from instructor,teaches where instructor.id=teaches.id;

ID NAME DEP SALARY ID COURSE S SEMESTER YEAR

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IT02 nalini IT 90000 IT02 CS405 B 4 2

IT09 devi IT 40000 IT09 IT402 A 4 2

ECE32 ajay ECE 25000 ECE32 ECE404 B 4 2

CSE02 raji CSE 30000 CSE02 CS401 A 4 2

SQL> create table emp(empidvarchar(6) primary key,cityvarchar(10));

Table created.

SQL> create table customer(custidvarchar(6),city varchar(10));

Table created.

**Left outer join:**

A left outer join returns all of the rows for which the join condition is true and, in addition, returns all other rows from the dominant table and displays the corresponding values from the subservient table as NULL.

SQL> select \* from emp;

EMPID CITY

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A1 newyork

A2

A3 chicago

A4 chicago

A5 paris

SQL> select \* from customer;

CUSTID CITY

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B1 newyork

B2 newyork

B3

B4 chicago

B5 moscow

**With key word:**

SQL> select \* from emp natural left outer join customer;

CITY EMPID CUSTID

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newyork A1 B1

newyork A1 B2

chicago A4 B4

chicago A3 B4

A2

paris A5

6 rows selected.

**Without key word:**

SQL> select \* from emp,customer where emp.city=customer.city(+);

EMPID CITY CUSTID CITY

------ ---------- ------ ----------

A1 newyork B1 newyork

A1 newyork B2 newyork

A4 chicago B4 chicago

A3 chicago B4 chicago

A2

A5 paris

6 rows selected.

**Right outer join:**

A right outer join is a method of combining tables. The result includes unmatched rows from only the table that is specified after the RIGHT OUTER JOIN clause.

**With keyword:**

SQL> select \* from emp natural right outer join customer;

CITY EMPID CUSTID

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newyork A1 B2

newyork A1 B1

chicago A3 B4

chicago A4 B4

B3

moscow B5

6 rows selected.

**Without key word:**

SQL> select \* from emp,customer where emp.city(+)=customer.city;

EMPID CITY CUSTID CITY

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A1 newyork B2 newyork

A1 newyork B1 newyork

A3 chicago B4 chicago

A4 chicago B4 chicago

B3

B5 moscow

6 rows selected.

**Full outer join:**

An full outer join is a method of combining tables so that the result includes unmatched rows of both tables.

SQL> select \* from emp natural full outer join customer;

CITY EMPID CUSTID

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newyork A1 B1

newyork A1 B2

chicago A4 B4

chicago A3 B4

A2

paris A5

B3

moscow B5

8 rows selected

**Self join:**

A Self Join is a type of a JOIN query used to compare rows within the same table.

SQL> create table employee(empid number(5),empnamevarchar(10),salary number(10),manageid number(5));

Table created.

SQL> select \* from employee;

EMPID EMPNAME SALARY MANAGEID

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1 dhoni 700000 3

2 rutu 800000 4

3 jadeja 600000 2

4 virat 900000 4

SQL> select e.empname,m.empname from employee e,employee m where e.manageid=m.empid;

EMPNAME EMPNAME

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Jadeja rutu

Dhoni jadeja

Virat virat

Rutu virat

**Equi join:**

An equi join is any JOIN operation that uses the equals sign. If there is a query with more than one join condition, out of which one condition has an equals sign.

SQL> select name,course\_id from instructor,teaches where instructor.id=teaches.id and instructor.name='nalini';

NAME COURSE

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nalini CS405

**Result:**

Thus all the types of join have been executed successfully