Practical Number: 6

Title of the Exercise : Querying the database based on join opertation

a)Simple join and Self join b)Outer join and Inner join

Date of the Exercise :

OBJECTIVE (AIM) OF THE EXPERIMENT

To perform nested Queries and joining Queries using DML command.

b) Procedure for doing the experiment:

Step no.	Details of the step
1	**Relating Data through Join Concept** The purpose of a join concept is to combine data spread across tables. A join is actually performed by the „where" clause which combines specified rows of tables. Syntax; select columns from table1, table2 where logical expression; **Types of Joins** 1. Simple Join 2. Self Join 3. Outer Join 4. Inner Join
2	1. Simple Join **a) Equi-join:** A join, which is based on equalities, is called equi-join. **b) Non Equi-join:** It specifies the relationship between **Table Aliases** Table aliases are used to make multiple table queries shorted and more readable. We give an alias name to the table in the „from" clause and use it instead of the name throughout the query.
3	**Self join:** Joining of a table to itself is known as self-join. It joins one row in a table to another. It can compare each row of the table to itself and also with other rows of the same table.
	Outer Join: It extends the result of a simple join. An outer join returns all the rows returned by simple join as well as those rows from one table that do not match any row from the table. The symbol (+) represents outer join. **Inner join:** Inner join returns the matching rows from the tables that are being joined

c) Simple Join

a) Equi-join

Example: select * from item, cust where item.id=cust.id;

b) Non Equi-join

Example: select * from item, cust where item.id<cust.id;

Self join

Example: select * from emp x ,emp y where x.salary >= (select avg(salary) from x.emp where x. deptno =y.deptno);

Outer Join

Example: select ename, job, dname from emp, dept where emp.deptno (+) = dept.deptno;

d) Queries:

1. Use select from clause.
2. Use like operator to match job and in select clause to get the result.

Ans:

```
SQL> select ename,sal from emp where sal>(select min(sal) fromemp where job like 'A%');
ENAME                SAL
-------------------------------
Arjun               12000
Gugan                20000
Karthik              15000
```

Q2: Issue a query to find all the employees who work in the same job as Arjun.
Ans:

```
SQL> select * from emp;
    EMPNO ENAME          JOB          DEPTNO       SAL
-------------------------------------------------------------------
        1 Mathi          AP              1      10000
        2 Arjun          ASP             2      12000
        3 Gugan          ASP             2      20000
        4 Karthik        AP              1      15000
SQL> select ename from emp where job=(select job from emp where ename='Arjun');
ENAME
---------
Arjun
Gugan
```

Q3: Issue a query to display information about employees who earn more than any employee in dept 1.
Ans:

```
SQL> select * from emp where sal>(select max(sal) from emp where empno=1);

    EMPNO ENAME          JOB          DEPTNO       SAL
-------------------------------------------------------------------
        2 Arjun          ASP             2      12000
        3 Gugan          ASP             2      20000
        4 Karthik        AP              1      15000
```

JOINS

Tables used

```
SQL> select * from emp;

    EMPNO ENAME          JOB          DEPTNO       SAL
-------------------------------------------------------------------
        1 Mathi          AP              1      10000
        2 Arjun          ASP             2      12000
        3 Gugan          ASP             2      20000
        4 Karthik        AP              1      15000

SQL> select * from dept;

   DEPTNO DNAME         LOC
-------------------------------------------
        1 ACCOUNTING    NEW YORK
```

```
 2 RESEARCH      DALLAS
30 SALES         CHICAGO
40 OPERATIONS    BOSTON
```

EQUI-JOIN

Q4: Display the employee details, departments that the departments are same in both the emp and dept.

Solution:

1. Use select from clause. 2. Use equi join in select clause to get the result.

Ans:

```
SQL> select * from emp,dept where emp.deptno=dept.deptno;
   EMPNO ENAME      JOB    DEPTNO   SAL     DEPTNODNAME         LOC
---------------------------------------------------------------------------
       1 Mathi          AP            1     10000         1  ACCOUNTING     NEW YORK
       2 Arjun          ASP           2     12000         2  RESEARCH       DALLAS
       3 Gugan          ASP           2     20000         2 RESEARCH       DALLAS
       4 Karthik        AP            1     15000         1 ACCOUNTING     NEW YORK
```

NON-EQUIJOIN

Q5: Display the employee details, departments that the departments are not same in both the emp and dept.

Solution:

1.Use select from clause. 2. Use non equi join in select clause to get the result.

Ans:

SQL> select * from emp,dept where emp.deptno!=dept.deptno;

```
   EMPNO ENAME     JOB          DEPTNO       SAL     DEPTNO    DNAME         LOC
-------------------------------------------------------------------------------------
       2 Arjun          ASP           2     12000         1  ACCOUNTING     NEW YORK
       3 Gugan          ASP           2     20000         1  ACCOUNTING     NEW YORK
       1 Mathi          AP            1     10000         2  RESEARCH       DALLAS

   EMPNO ENAME          JOB          DEPTNO       SAL     DEPTNO DNAME         LOC
-------------------------------------------------------------------------------------
       4 Karthik        AP            1     15000         2 RESEARCH       DALLAS
       1 Mathi          AP            1     10000        30 SALES          CHICAGO
       2 Arjun          ASP           2     12000        30 SALES          CHICAGO
   EMPNO ENAME          JOB          DEPTNO       SAL     DEPTNO DNAME         LOC
-------------------------------------------------------------------------------------
       3 Gugan          ASP           2     20000        30 SALES          CHICAGO
       4 Karthik        AP            1     15000        30 SALES          CHICAGO
       1 Mathi          AP            1     10000        40 OPERATIONS     BOSTON
   EMPNO ENAME          JOB          DEPTNO       SAL     DEPTNO DNAME         LOC
-------------------------------------------------------------------------------------
       2 Arjun          ASP           2     12000        40 OPERATIONS     BOSTON
       3 Gugan          ASP           2     20000        40 OPERATIONS     BOSTON
       4 Karthik        AP            1     15000        40 OPERATIONS     BOSTON
12 rows selected.
```

LEFTOUT-JOIN

Tables used

SQL> select * from stud1;

Regno	Name	Mark2	Mark3	Result
101	john	89	80	pass
102	Raja	70	80	pass
103	Sharin	70	90	pass
104	sam	90	95	pass

SQL> select * from stud2;

NAME	GRA
john	s
raj	s
sam	a
sharin	a

Q6: Display the Student name and grade by implementing a left outer join.

Ans: SQL> select stud1.name,grade from stud1 left outer join stud2 on stud1.name=stud2.name;

Name	Gra
john	s
raj	s
sam	a
sharin	a
smith	null

RIGHTOUTER-JOIN

Q7: Display the Student name, register no, and result by implementing a right outer join.

Ans:

SQL> select stud1.name, regno, result from stud1 right outer join stud2 on stud1.name = stud2.name;

Name	Regno	Result
john	101	pass
raj	102	pass
sam	103	pass
sharin	104	pass

Rollno	Name	Mark1	Mark2	Total
1	sindu	90	95	185
2	arul	90	90	180

FULLOUTER-JOIN

Q8: Display the Student name register no by implementing a full outer join.

Ans:

SQL> select stud1.name, regno from stud1 full outer join stud2 on (stud1.name= stud2.name);

Name	Regno
john	101
raj	102
sam	103
sharin	104

SELFJOIN

Q9: Write a query to display their employee names Ans:

SQL> select distinct ename from emp x, dept y where x.deptno=y.deptno;

ENAME

Arjun
Gugan
Karthik
Mathi

Q10: Display the details of those who draw the salary greater than the average salary. Ans:

SQL> select distinct * from emp x where x.sal >= (select avg(sal) from emp);

EMPNO	ENAME	JOB	DEPTNO	SAL
3	Gugan	ASP	2	20000
4	Karthik	AP	1	15000
11	kavitha	designer	12	17000

e) Result:

Thus the nested Queries and join Queries was performed successfully and executed.

Consider the following Tables:
EMPLOYEE(Emp_id, EMP_name,Job_name,Manager_id,Hire_date,Salary,Deptno)
DEPARTMENT(Deptno, Dname, MGRSSN)
PROJECT(Pname,Pno,Plocation,Deptno)

emp_id	emp_name	job_name	manager_id	hire_date	salary	E_Bonus	dep_no
68319	KAYLING	PRESIDENT		1991-11-18	6000.00	300.00	1001
66928	BLAZE	MANAGER	68319	1991-05-01	2750.00	200.00	3001
67832	CLARE	MANAGER	68319	1991-06-09	2550.00	200.00	1001
65646	JONAS	MANAGER	68319	1991-04-02	2957.00	200.00	2001
67858	SCARLET	ANALYST	65646	1997-04-19	3100.00	250.00	2001
69062	FRANK	ANALYST	65646	1991-12-03	3100.00	250.00	2001
63679	SANDRINE	CLERK	69062	1990-12-18	900.00	150.00	2001
64989	ADELYN	SALESMAN	66928	1991-02-20	1700.00	180.00	3001
65271	WADE	SALESMAN	66928	1991-02-22	1350.00	180.00	3001
66564	MADDEN	SALESMAN	66928	1991-09-28	1350.00	180.00	3001
68454	TUCKER	SALESMAN	66928	1991-09-08	1600.00	180.00	3001
68736	ADNRES	CLERK	67858	1997-05-23	1200.00	150.00	2001
69000	JULIUS	CLERK	66928	1991-12-03	1050.00	150.00	3001
69324	MARKER	CLERK	67832	1992-01-23	1400.00	150.00	1001

Department Table

deptno	dname	Citylocation	dCountry
1001	Accounting	New York	United States of America,
2001	Research	Dallas	United States
3001	Sales	Chicago	United States of America
4001	Marketing	Los Angeles	United States

Project Table

Pno	Pname	PCitylocation	Dept No
111	P_1	New York	1001
112	P_2	Dallas	1001
113	P_3	Chicago	2001
114	P_4	Denmark	2001
115	P_5	Paris	3001
116	P_6	Chicago	3001
117	P_7	Paris	4001

Write a query for the following:-

Q.1 Display the max salaries for each designation ordered in descending order.

Q.2 Display the employees where salary is more than their manager.

Q.3 Display the project details for sales department.

Q.4 Display the name and salaries of employees working in department at location Chicago.

Q.5 Find the project location for employees working in department Research.

Q.6 Display the names of departments having same project location.

Q.7 Display the employee details who working on project p_3 and p_6.

Q.8Display the department names handling more than one project.