Lab – 4 Multi Table Queries

Topics

1. Set Operations (Union, intersection, set difference)
2. Types of Joins
   (a) Cross Join (Cartisian Product)
   (b) Inner Join (Equi and Non Equi)
   (c) Natural Join
   (d) Outer Join (Left, Right and Full)
   (e) Self Join

Q.1. List employee number, name, his department and the department name.

SQL>
```
Select empno, ename, deptno, dname from emp natural
join dept order by 1;
```

OUTPUT :

EMPNO	ENAME	DEPTNO	DNAME
7369	SMITH	20	RESEARCH
7499	ALLEN	30	SALES
7521	WARD	30	SALES
7566	JONES	20	RESEARCH
7654	MARTIN	30	SALES
7698	BLAKE	30	SALES
7782	CLARK	10	ACCOUNTING
7788	SCOTT	20	RESEARCH
7839	KING	10	ACCOUNTING
7844	TURNER	30	SALES
7876	ADAMS	20	RESEARCH
7900	JAMES	30	SALES
7902	FORD	20	RESEARCH
7934	MILLER	10	ACCOUNTING

14 rows selected.

Q.2 List employee name, his department name and the department location.

SQL>
```
Select ename, dname, loc from emp natural join dept
order by empno;
```

OUTPUT :

ENAME	DNAME	LOC
SMITH	RESEARCH	DALLAS
ALLEN	SALES	CHICAGO
WARD	SALES	CHICAGO
JONES	RESEARCH	DALLAS
MARTIN	SALES	CHICAGO
BLAKE	SALES	CHICAGO
CLARK	ACCOUNTING	NEW YORK
SCOTT	RESEARCH	DALLAS

```
KING        ACCOUNTING      NEW YORK
TURNER      SALES           CHICAGO
ADAMS       RESEARCH        DALLAS
JAMES       SALES           CHICAGO
FORD        RESEARCH        DALLAS
MILLER      ACCOUNTING      NEW YORK

14 rows selected.
```

Q.3 List employee name, department name for all the clerks in the company.

```
SQL> Select ename, dname from emp natural join dept where
     job = 'CLERK' order by ename, dname;
```

OUTPUT :

```
ENAME      DNAME
---------- --------------
MILLER     ACCOUNTING
ADAMS      RESEARCH
SMITH      RESEARCH
JAMES      SALES
```

Q.4 List employee number, name, job, his manager's name and manager's job.

```
SQL> Select e.empno, e.ename, e.job, m.ename, m.job from emp e,
     emp m where e.mgr = m.empno;
```

OUTPUT :

```
    EMPLNO EMPLNAME  EMPLJOB   MGRNAME    MGRJOB
---------- ---------- --------- ---------- ---------
      7902 FORD       ANALYST   JONES      MANAGER
      7788 SCOTT      ANALYST   JONES      MANAGER
      7900 JAMES      CLERK     BLAKE      MANAGER
      7844 TURNER     SALESMAN  BLAKE      MANAGER
      7654 MARTIN     SALESMAN  BLAKE      MANAGER
      7521 WARD       SALESMAN  BLAKE      MANAGER
      7499 ALLEN      SALESMAN  BLAKE      MANAGER
      7934 MILLER     CLERK     CLARK      MANAGER
      7876 ADAMS      CLERK     SCOTT      ANALYST
      7782 CLARK      MANAGER   KING       PRESIDENT
      7698 BLAKE      MANAGER   KING       PRESIDENT
      7566 JONES      MANAGER   KING       PRESIDENT
      7369 SMITH      CLERK     FORD       ANALYST

13 rows selected.
```

Q.5 List the jobs common to department 20 and 30.

```
SQL> Select job from emp where deptno = 20 intersect select job from
     emp where deptno = 30;
```

OUTPUT :

```
JOB
---------
CLERK
MANAGER
```

Q.6 List the jobs unique to department 20.

SQL >

```
Select job from emp where deptno = 20 minus select job from
emp where deptno <> 20;
```

OUTPUT :

```
JOB
---------
ANALYST
```

Q.7 List the employees belonging to the department of 'MILLER'.

SQL >

```
Select e.ename from empe, empm where
m.ename = 'MILLER' and e.deptno = m.deptno;
```

OUTPUT :

```
EMPLNAME
----------
CLARK
KING
MILLER
```

Q.8 List all the employees who have the same job as 'SCOTT'.

SQL >

```
Select e.ename from emp e, emp m where m.ename = 'scott'
and e.job = m.job;
```

OUTPUT :

```
EMPLNAME
---------
SCOTT
FORD
```

Q.9 Display the names of the employees who are working in sales or research department.

SQL >

```
Select ename from emp natural join dept where dname
in ('Sales', 'Research') order by empno;
```

OUTPUT :

```
ENAME
----------
SMITH
ALLEN
WARD
JONES
MARTIN
BLAKE
SCOTT
TURNER
ADAMS
JAMES
FORD

11 rows selected.
```

Q.10 Display name and salary of the employees who is working in 'CHICAGO'.

SQL>

```
Select ename sal from emp natural join dept where
loc = 'CHICAGO' order by empno;
```

OUTPUT :

```
ENAME                SAL
---------- ----------
ALLEN              1600
WARD               1250
MARTIN             1250
BLAKE              2850
TURNER             1500
JAMES               950

6 rows selected.
```

Q.11 List the details of employees in department 10 who have the same job as in department 30.

SQL>

```
Select e.* from emp e, emp m where e.deptno = 10 and
m.deptno = 30 and e.job = m.job;
```

OUTPUT :

```
     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM
DEPTNO
---------- ---------- --------- ---------- --------- ---------- ---------
-
      7782 CLARK      MANAGER          7839 09-JUN-81       2450
10
      7934 MILLER     CLERK            7782 23-JAN-82       1300
10
```

Q.12 List the employee name, length of his name, his manager's name whose name length is greater than their managers name length.

```
SQL> Select e.ename , length(e.ename) , m.ename from emp e ,
     emp m where e.mgr = m.empno and length(e.ename) >(m.ename);
```

OUTPUT:

```
EMPLNAME         LEMPL MGRNAME
---------- ---------- ----------
TURNER                6 BLAKE
MARTIN                6 BLAKE
MILLER                6 CLARK
CLARK                 5 KING
BLAKE                 5 KING
JONES                 5 KING
SMITH                 5 FORD

7 rows selected.
```

Q.13 List employees and his manager's details, where that employee's salary is greater than his manager's salary.

```
SQL> Select e.ename , m.* from emp e, emp m where e.mgr = m.empno
     and e.sal >m.sal;
```

OUTPUT:

```
EMPNAME    EMPNO ENAME      JOB       MGR HIREDATE         SAL       COMM     DEPTNO
---------- ----- ---------- --------- ---- --------- ---------- ---------- ----------
FORD        7566 JONES      MANAGER   7839 02-APR-81       2975                    20
SCOTT       7566 JONES      MANAGER   7839 02-APR-81       2975                    20
```

Q.14 List those employee names whose manager name is 'JONES'.

```
SQL> Select e.ename from emp e , emp m where e.mgr = m.empno
     and m.ename = 'JONES';
```

OUTPUT:

```
EMPNAME
----------
SCOTT
FORD
```

Q.15 Display employee name, department name, salary and commission for those employees whose salary in between 2000 and 5000 while the department location is 'CHICAGO'.

```
SQL> Select ename , dname , sal , comm from emp natural join dept
     where sal between 2000 and 5000 and Loc = 'CHICAGO';
```

OUTPUT :

```
ENAME      DNAME          SAL        COMM
---------- -------------- ---------- ----------
BLAKE      SALES          2850
```

Q.16 Display those employees who are working in the same department where his manager is work.

SQL >

```
Select e.ename from emp e, emp m where e.mgr = m.empno
and e.deptno = m.deptno;
```

OUTPUT :

```
EMPNAME
----------
FORD
SCOTT
JAMES
TURNER
MARTIN
WARD
ALLEN
MILLER
ADAMS
CLARK
SMITH

11 rows selected.
```

Q.17 Display those employee names who joined the company before '31-Dec-82' while the department location is 'NEWYORK' or 'CHICAGO'.

SQL >

```
Select ename from emp natural join dept where
hiredate < to_date('31-DEC-82', 'dd-mm-yy') and loc in ('CHICAGO',
'NEWYORK');
```

OUTPUT :

```
ENAME
----------
ALLEN
WARD
MARTIN
BLAKE
TURNER
JAMES

6 rows selected.
```

Q.18 Display the employee name, job and his managers. Display also the employees who are without manager.

SQL >

```
Select e.ename , e.job , m.ename from emp e, emp m where
e.mgr = m.empno(+);
```

OUTPUT :

EMPNAME	EMPJOB	MGRNAME
FORD	ANALYST	JONES
SCOTT	ANALYST	JONES
JAMES	CLERK	BLAKE
TURNER	SALESMAN	BLAKE
MARTIN	SALESMAN	BLAKE
WARD	SALESMAN	BLAKE
ALLEN	SALESMAN	BLAKE
MILLER	CLERK	CLARK
ADAMS	CLERK	SCOTT
CLARK	MANAGER	KING
BLAKE	MANAGER	KING
JONES	MANAGER	KING
SMITH	CLERK	FORD
KING	PRESIDENT	

14 rows selected.

Q.19 Display the name of the department where no employee is working.

SQL >

```
Select dname from emp right outer join dept on
emp.deptno = dept.deptno minus select dname from dept natural join emp;
```

OUTPUT :

```
DNAME
--------------
OPERATIONS
```

Q.20 Display the details of all the employees who are sub – ordinate to 'BLAKE'.

SQL >

```
Select e.* from emp e, emp m where e.mgr = m.empno
and m.ename = 'BLAKE';
```

OUTPUT :

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7900	JAMES	CLERK	7698	03-DEC-81	950		30

Q.21 Display the employee name and department name even if there are no employees working in a particular department.

```
SQL> Select ename, dname from emp right outer join dept on
     emp.deptno = dept.deptno;
```

OUTPUT :

```
ENAME      DNAME
---------- --------------
SMITH      RESEARCH
ALLEN      SALES
WARD       SALES
JONES      RESEARCH
MARTIN     SALES
BLAKE      SALES
CLARK      ACCOUNTING
SCOTT      RESEARCH
KING       ACCOUNTING
TURNER     SALES
ADAMS      RESEARCH
JAMES      SALES
FORD       RESEARCH
MILLER     ACCOUNTING
           OPERATIONS

15 rows selected.
```

Q.22 Display the department name and total number of employees in each department.

```
SQL> Select dname, count(empno) as No of emp from emp inner join
     dept on emp.deptno = dept.deptno group by dname;
```

OUTPUT :

```
DNAME          NOOFEMP
-------------- -------
ACCOUNTING           3
RESEARCH             5
SALES                6
```

Q.23 Display the department name along with total salary in each department.

```
SQL> Select dname , sum(sal) from emp inner join dept on
     emp.deptno = dept.deptno groupby dname;
```

OUTPUT :

```
DNAME          TOTOLSAL
-------------- ----------
ACCOUNTING           8750
RESEARCH            10875
SALES                9400
```

Q.24 List the jobs common to department 'RESEARCH' and 'SALES'.

SQL>

```
Select job from emp natural join dept where dname =
'RESEARCH' intersect select job from emp natural join dept where
dname = 'SALES';
```

OUTPUT:

```
JOB
---------
CLERK
MANAGER
```

Q.25 List the jobs unique to department 'RESEARCH'.

SQL>

```
Select job from emp natural join dept where dname = 'RESEARCH'
minus select job from emp natural join dept where dname = 'RESEARCH';
```

OUTPUT:

```
JOB
---------
ANALYST
```


Teacher I/C
18/10
Mr. Raj Kumar Singh