EXPERIMENT NO:- 04

OBJECTIVE: To understand the use of inbuilt function and relational algebra with sql query.

- **CREATE THE FOLLOWING TABLES (EMP & DEPT):**

1. **TABLE EMP:**

EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	17-DEC-80	500	800	20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7782	CLARK	MANAGER	7839	09-JUN-81	2450		10
7788	SCOTT	ANALYST	7566	09-DEC-82	3000		20
7839	KING	PRESIDENT		17-NOV-81	5000		10
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7876	ADAMS	CLERK	7788	12-JAN-83	1100		20
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7902	FORD	ANALYST	7566	03-DEC-81	3000		20
7934	MILLER	CLERK	7782	23-JAN-82	1300		10

```
SQL> CREATE TABLE EMP(
  2   EMPNO INT PRIMARY KEY,
  3   ENAME VARCHAR(40),
  4   JOB VARCHAR(40),
  5   MGR INT,
  6   HIREDATE VARCHAR(40),
  7   SAL INT,
  8   COMM INT,
  9   DEPTNO INT);

Table created.

SQL>
```

```
Administrator: Command Prompt - sqlplus                                    —  ⬜  ✕

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES('7369'
,'SMITH','CLERK','7902','17-DEC-80','500','800','20');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES('7499'
,'ALLEN','SALESMAN','7698','20-FEB-81','1600','300','30');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES('7521'
,'WARD','SALESMAN','7698','22-FEB-81','1250','500','30');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7566','JON
ES','MANAGER','7839','02-APR-81','2975','20');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES('7654'
,'MARTIN','SALESMAN','7698','28-SEP-81','1250','1400','30');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7698','BLA
KE','MANAGER','7839','01-MAY-81','2850','30');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7782','CLA
RK','MANAGER','7839','09-JUN-81','2450','10');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7788','SCO
TT','ANALYST','7566','09-DEC-82','3000','20');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,HIREDATE,SAL,DEPTNO) VALUES('7839','KING','
PRESIDENT','17-NOV-81','5000','10');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,COMM,DEPTNO) VALUES('7844'
,'TURNER','SALESMAN','7698','08-SEP-81','1500','0','30');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7876','ADA
MS','CLERK','7788','12-JAN-83','1100','20');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7900','JAM
ES','CLERK','7698','03-DEC-81','950','30');

1 row created.
```

```
SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7902','FOR
D','ANALYST','7566','03-DEC-81','3000','20');

1 row created.

SQL> INSERT INTO EMP(EMPNO,ENAME,JOB,MGR,HIREDATE,SAL,DEPTNO) VALUES('7934','MIL
LER','CLERK','7782','23-JAN-82','1300','10');

1 row created.
```

2.   **TABLE DEPT:**

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

```
SQL> CREATE TABLE DEPT(
  2   DEPTNO INT PRIMARY KEY,
  3   DNAME VARCHAR(40),
  4   LOC VARCHAR(40));

Table created.

SQL>
```

```
SQL> INSERT INTO DEPT(DEPTNO,DNAME,LOC) VALUES('10','ACCOUNTING','NEW YORK');

1 row created.

SQL> INSERT INTO DEPT(DEPTNO,DNAME,LOC) VALUES('20','RESEARCH','DALLAS');

1 row created.

SQL> INSERT INTO DEPT(DEPTNO,DNAME,LOC) VALUES('30','SALES','CHICAGO');

1 row created.

SQL> INSERT INTO DEPT(DEPTNO,DNAME,LOC) VALUES('40','OPERATIONS','BOSTON');

1 row created.

SQL>
```

- **WRITE THE NESTED QUERIES FOR THE FOLLOWING QUERIES.**

1. LIST THE DETAILS OF THE EMPS WHOSE SALARIES MORE THAN THE EMPLOYEE BLAKE.

```
SQL> SELECT * FROM EMP WHERE SAL > (SELECT SAL FROM EMP WHERE ENAME ='BLAKE');
     EMPNO ENAME
---------- ----------------------------------------------------
JOB                                          MGR
----------------------------------------- ----------
HIREDATE                                     SAL       COMM      DEPTNO
----------------------------------------- ---------- ---------- ----------
      7566 JONES
MANAGER                                     7839
02-APR-81                                   2975                        20

      7788 SCOTT
ANALYST                                     7566
09-DEC-82                                   3000                        20

     EMPNO ENAME
---------- ----------------------------------------------------
JOB                                          MGR
----------------------------------------- ----------
HIREDATE                                     SAL       COMM      DEPTNO
----------------------------------------- ---------- ---------- ----------

      7839 KING
PRESIDENT
17-NOV-81                                   5000                        10

      7902 FORD
ANALYST                                     7566
     EMPNO ENAME
---------- ----------------------------------------------------
JOB                                          MGR
----------------------------------------- ----------
HIREDATE                                     SAL       COMM      DEPTNO
----------------------------------------- ---------- ---------- ----------
03-DEC-81                                   3000                        20
```

2.LIST THE EMPS WHOSE JOBS ARE SAME AS MILLER OR SAL IS MORE THAN ALLEN.

```
SQL> SELECT * FROM EMP WHERE JOB = (SELECT JOB FROM EMP WHERE ENAME ='MILLER' )
OR SAL><SELECT SAL FROM EMP WHERE ENAME = 'ALLEN'>;
     EMPNO ENAME
---------- --------------------------------
JOB                                      MGR
-------------------------------- ----------
HIREDATE                                 SAL       COMM     DEPTNO
--------------------------------- ---------- ---------- ----------
      7369 SMITH
CLERK                                   7902
17-DEC-80                                500        800         20
      7566 JONES
MANAGER                                 7839
02-APR-81                               2975                    20
     EMPNO ENAME
---------- --------------------------------
JOB                                      MGR
-------------------------------- ----------
HIREDATE                                 SAL       COMM     DEPTNO
--------------------------------- ---------- ---------- ----------

      7698 BLAKE
MANAGER                                 7839
01-MAY-81                               2850                    30
      7782 CLARK
MANAGER                                 7839
     EMPNO ENAME
---------- --------------------------------
JOB                                      MGR
-------------------------------- ----------
HIREDATE                                 SAL       COMM     DEPTNO
--------------------------------- ---------- ---------- ----------
09-JUN-81                               2450                    10
      7788 SCOTT
ANALYST                                 7566
09-DEC-82                               3000                    20
      7839 KING
     EMPNO ENAME
---------- --------------------------------
JOB                                      MGR
-------------------------------- ----------
HIREDATE                                 SAL       COMM     DEPTNO
--------------------------------- ---------- ---------- ----------
PRESIDENT
17-NOV-81                               5000                    10
      7876 ADAMS
```

```
      7876 ADAMS
CLERK                                       7788
12-JAN-83                                   1100                         20

    EMPNO ENAME
---------- ------------------------------------------------
JOB                                          MGR
---------- ------------------------------------------------
HIREDATE                                     SAL       COMM      DEPTNO
---------- ------------------------------------------------
      7900 JAMES
CLERK                                       7698
03-DEC-81                                    950                         30

      7902 FORD
ANALYST                                     7566
03-DEC-81                                   3000                         20

    EMPNO ENAME
---------- ------------------------------------------------
JOB                                          MGR
---------- ------------------------------------------------
HIREDATE                                     SAL       COMM      DEPTNO
---------- ------------------------------------------------

      7934 MILLER
CLERK                                       7782
23-JAN-82                                   1300                         10

10 rows selected.
```

3.FIND THE HIGHEST PAID EMPLOYEE OF SALES DEPARTMENT.

```
SQL> select * from emp where sal in (select max(sal) from emp where deptno in
  2  (select d.deptno from
  3  dept d where d.dname = 'SALES'));

    EMPNO ENAME
---------- ------------------------------------------------
JOB                                          MGR
---------- ------------------------------------------------
HIREDATE                                     SAL       COMM      DEPTNO
---------- ------------------------------------------------
      7698 BLAKE
MANAGER                                     7839
01-MAY-81                                   2850                         30

SQL>
```

4. LIST THE EMPLOYEES WHO ARE SENIOR TO MOST RECENTLY HIRED EMPLOYEE WORKING UNDER KING.

```
Administrator: Command Prompt - sqlplus                    —  □  ×

SQL>  select * from emp where hiredate < (select max(hiredate) from emp where mg
r
  2   in
  3   (select empno from emp where ename = 'KING')> ;

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

      7698 BLAKE
MANAGER                                             7839
01-MAY-81                                           2850                    30

     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                  MGR
-------------------------------------------------- ----------
HIREDATE                                            SAL      COMM     DEPTNO
-------------------------------------------------- ---------- ---------- ----------

      7788 SCOTT
ANALYST                                             7566
09-DEC-82                                           3000                    20

      7844 TURNER
SALESMAN                                            7698

     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                  MGR
-------------------------------------------------- ----------
HIREDATE                                            SAL      COMM     DEPTNO
-------------------------------------------------- ---------- ---------- ----------
08-SEP-81                                           1500        0          30

      7900 JAMES
CLERK                                               7698
03-DEC-81                                           950                     30

      7902 FORD

     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                  MGR
-------------------------------------------------- ----------
HIREDATE                                            SAL      COMM     DEPTNO
-------------------------------------------------- ---------- ---------- ----------
ANALYST                                             7566
03-DEC-81                                           3000                    20
```

5.LIST THE NAMES OF THE EMPS WHO ARE GETTING THE HIGHEST SAL DEPT WISE.

```
SQL> select e.ename,e.deptno from emp e where e.sal in
  2   (select max(sal) from emp group by deptno) ;

ENAME                                               DEPTNO
-------------------------------------------- ------------
BLAKE                                                   30
SCOTT                                                   20
KING                                                    10
FORD                                                    20

SQL>
```

6.LIST THE EMPS WHOSE SAL IS EQUAL TO THE AVERAGE OF MAX AND MINIMUM .

```
SQL> select * from emp where sal =(select (max(sal)+min(sal))/2 from emp);

no rows selected

SQL>
```

7.LIST THE EMPS WHO JOINED IN THE COMPANY ON THE SAME DATE.

```
SQL> select * from emp e where hiredate in
  2   (select hiredate from emp where e.empno <> empno);

     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                MGR
---------------------------------------------- ------------
HIREDATE                                           SAL       COMM      DEPTNO
--------------------------------------------- ---------- ---------- ----------
      7902 FORD
ANALYST                                           7566
03-DEC-81                                         3000                       20

      7900 JAMES
CLERK                                             7698
03-DEC-81                                          950                       30

     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                MGR
---------------------------------------------- ------------
HIREDATE                                           SAL       COMM      DEPTNO
--------------------------------------------- ---------- ---------- ----------


SQL>
```

8.FIND OUT THE EMPS WHO JOINED IN THE COMPANY BEFORE THEIR MANAGERS.

```
SQL> select * from emp w,emp m where w.mgr = m.empno and
  2   w.hiredate< m.hiredate;

     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
      7782 CLARK

     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
MANAGER                                       7839

     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
09-JUN-81                                     2450                   10

     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
HIREDATE                                       SAL       COMM     DEPTNO
---------------------------------------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------------------------------------
JOB                                            MGR
---------------------------------------- ----------
```

```
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
      7839 KING
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
PRESIDENT
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
17-NOV-81                           5000                  10
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------


      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
--------                            ----       ----       ------
      EMPNO ENAME
      ----- -----
JOB                                 MGR
---                                 ---
HIREDATE                            SAL        COMM       DEPTNO
```

```
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     7698 BLAKE
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
MANAGER                                    7839
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
01-MAY-81                                  2850                    30
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     7839 KING
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
-----------                           ---------  ---------  ---------
     EMPNO ENAME
----------  ---------------------------------
JOB                                         MGR
---------                              ---------
HIREDATE                                    SAL        COMM      DEPTNO
```

```
PRESIDENT
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
17-NOV-81                       5000                    10
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------


     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
      7566 JONES
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
     EMPNO ENAME
---------- ----------
JOB                              MGR
---------- ----------
HIREDATE                         SAL       COMM     DEPTNO
---------- ---------- ---------- ----------
MANAGER                         7839
```

```
MANAGER                            7839
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
02-APR-81                          2975                    20
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
     7839 KING
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
PRESIDENT
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
    EMPNO ENAME
--------- ----------------------------------------
JOB                                 MGR
------------------------- ----------------------------------------
HIREDATE                            SAL      COMM     DEPTNO
------------------------- --------- --------- ---------
17-NOV-81                          5000                    10
```

```
     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                MGR
--------------------------------------------- ----------
HIREDATE                                           SAL       COMM     DEPTNO
--------------------------------------------- ---------- ---------- ----------
     EMPNO ENAME
---------- --------------------------------------------------
JOB                                                MGR
--------------------------------------------- ----------
HIREDATE                                           SAL       COMM     DEPTNO
--------------------------------------------- ---------- ---------- ----------


SQL>
```