Name: Deepak Keshri **Class: FYIT** **Roll No: 134**

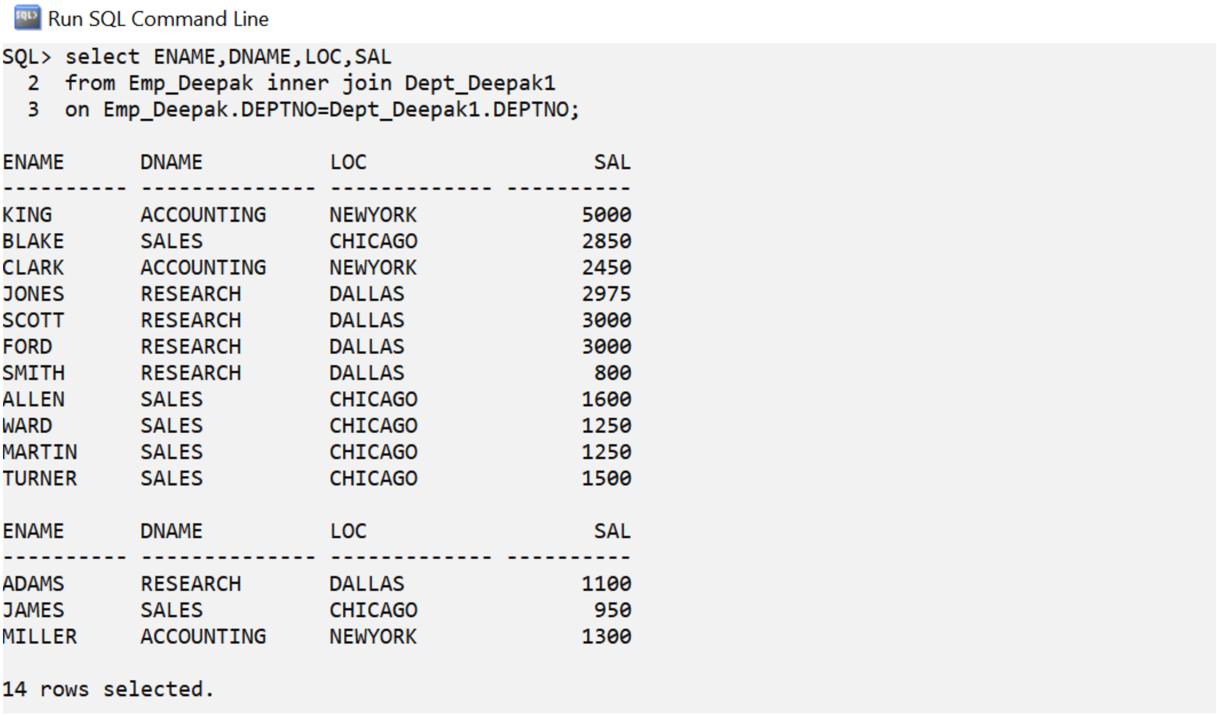
Practical No: 5 [Join]

Join: JOIN means "to combine two or more tables”. JOIN clause is used to combine the records from two or more tables in a database.

Inner Join: the INNER JOIN to fetch rows that have matching values in both the tables that we are joining.

Syntax:

1. **SELECT** columns
2. **FROM** table1
3. **INNER** JOIN table2
4. **ON** table1.**column** = table2.**column**;

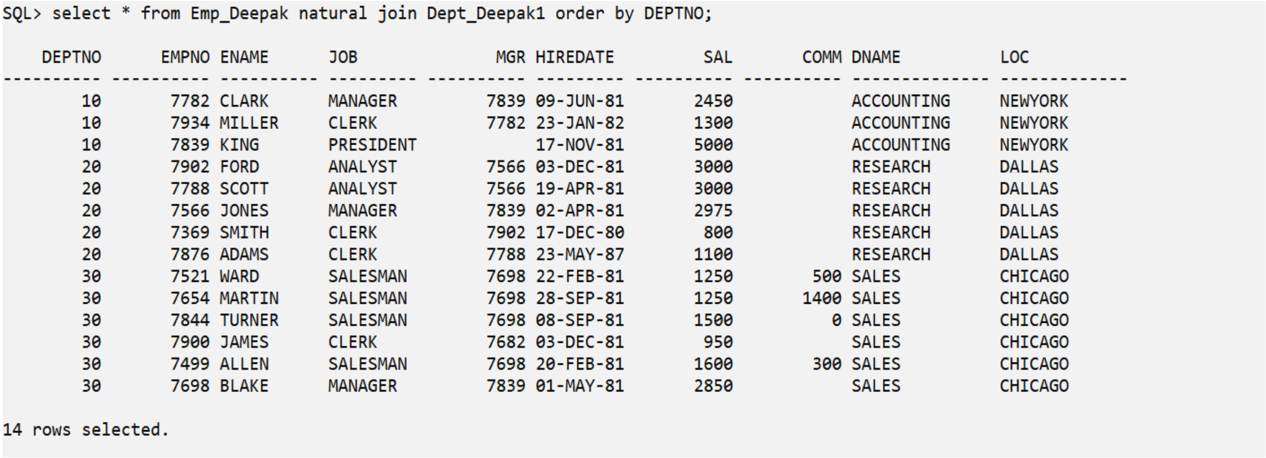


```
SQL> select ENAME,DNAME,LOC,SAL
  2  from Emp_Deepak inner join Dept_Deepak1
  3  on Emp_Deepak.DEPTNO=Dept_Deepak1.DEPTNO;

ENAME      DNAME          LOC                  SAL
---------- -------------- ------------- ----------
KING       ACCOUNTING     NEWYORK             5000
BLAKE      SALES          CHICAGO             2850
CLARK      ACCOUNTING     NEWYORK             2450
JONES      RESEARCH       DALLAS              2975
SCOTT      RESEARCH       DALLAS              3000
FORD       RESEARCH       DALLAS              3000
SMITH      RESEARCH       DALLAS               800
ALLEN      SALES          CHICAGO             1600
WARD       SALES          CHICAGO             1250
MARTIN     SALES          CHICAGO             1250
TURNER     SALES          CHICAGO             1500

ENAME      DNAME          LOC                  SAL
---------- -------------- ------------- ----------
ADAMS      RESEARCH       DALLAS              1100
JAMES      SALES          CHICAGO              950
MILLER     ACCOUNTING     NEWYORK             1300

14 rows selected.
```

Natural Join: Natural join can only be performed if there is a common attribute (column) between the relations. The name and type of the attribute must be same.

Syntax:

1. **SELECT** *
2. **FROM** table1 Natural join table2;

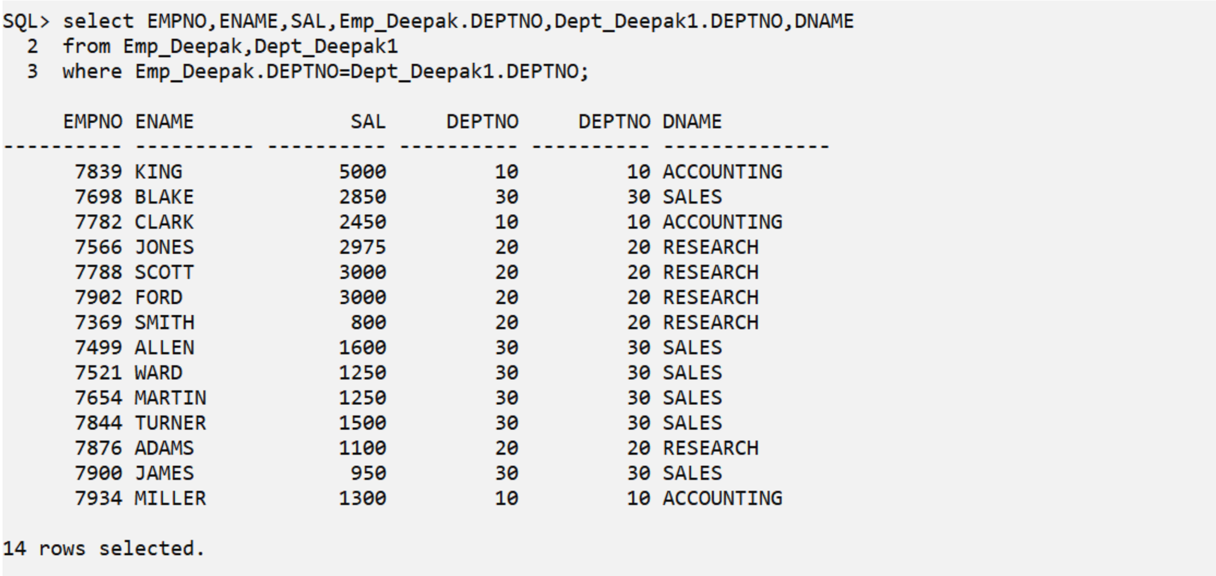


```
SQL> select * from Emp_Deepak natural join Dept_Deepak1 order by DEPTNO;

    DEPTNO      EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM DNAME          LOC
---------- ---------- ---------- --------- ---------- --------- ---------- ---------- -------------- -------------
        10       7782 CLARK      MANAGER         7839 09-JUN-81       2450            ACCOUNTING     NEWYORK
        10       7934 MILLER     CLERK           7782 23-JAN-82       1300            ACCOUNTING     NEWYORK
        10       7839 KING       PRESIDENT            17-NOV-81       5000            ACCOUNTING     NEWYORK
        20       7902 FORD       ANALYST         7566 03-DEC-81       3000            RESEARCH       DALLAS
        20       7788 SCOTT      ANALYST         7566 19-APR-81       3000            RESEARCH       DALLAS
        20       7566 JONES      MANAGER         7839 02-APR-81       2975            RESEARCH       DALLAS
        20       7369 SMITH      CLERK           7902 17-DEC-80        800            RESEARCH       DALLAS
        20       7876 ADAMS      CLERK           7788 23-MAY-87       1100            RESEARCH       DALLAS
        30       7521 WARD       SALESMAN        7698 22-FEB-81       1250        500 SALES          CHICAGO
        30       7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400 SALES          CHICAGO
        30       7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0 SALES          CHICAGO
        30       7900 JAMES      CLERK           7682 03-DEC-81        950            SALES          CHICAGO
        30       7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300 SALES          CHICAGO
        30       7698 BLAKE      MANAGER         7839 01-MAY-81       2850            SALES          CHICAGO

14 rows selected.
```

Equi Join: When a theta join uses only equivalence condition, it becomes an equi join.

Syntax:

3. **SELECT** column list
4. **FROM** table1, table2....
5. **WHERE** table1.column_name =
6. table2.column_name;



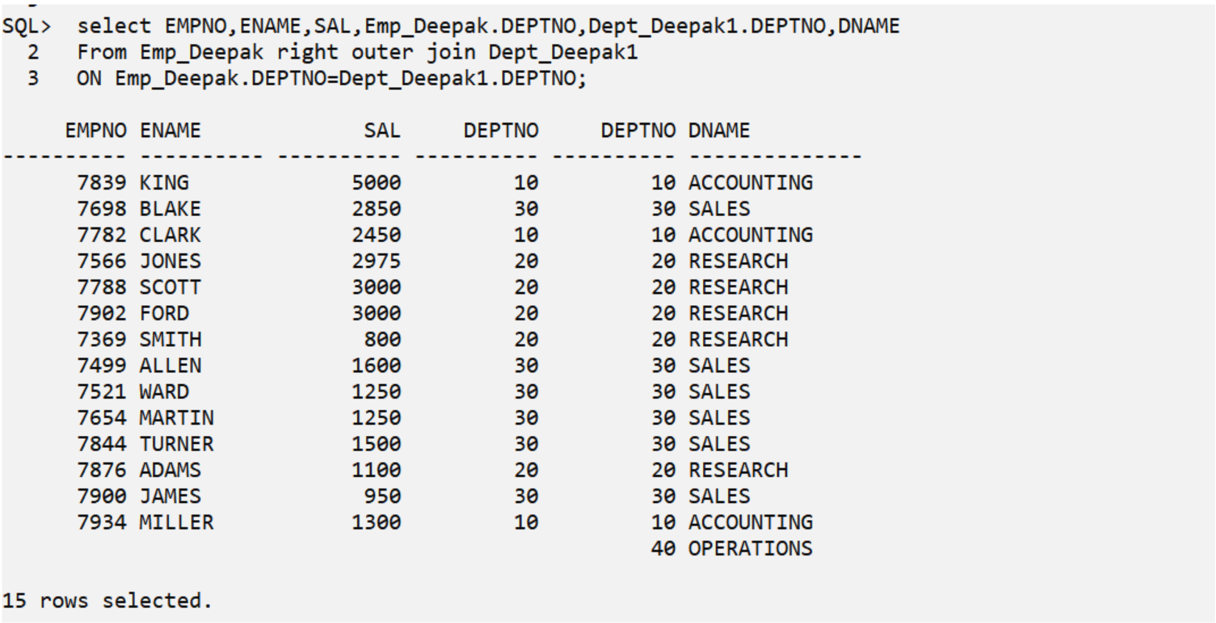
```
SQL> select EMPNO,ENAME,SAL,Emp_Deepak.DEPTNO,Dept_Deepak1.DEPTNO,DNAME
  2  from Emp_Deepak,Dept_Deepak1
  3  where Emp_Deepak.DEPTNO=Dept_Deepak1.DEPTNO;

     EMPNO ENAME             SAL     DEPTNO     DEPTNO DNAME
---------- ---------- ---------- ---------- ---------- --------------
      7839 KING             5000         10         10 ACCOUNTING
      7698 BLAKE            2850         30         30 SALES
      7782 CLARK            2450         10         10 ACCOUNTING
      7566 JONES            2975         20         20 RESEARCH
      7788 SCOTT            3000         20         20 RESEARCH
      7902 FORD             3000         20         20 RESEARCH
      7369 SMITH             800         20         20 RESEARCH
      7499 ALLEN            1600         30         30 SALES
      7521 WARD             1250         30         30 SALES
      7654 MARTIN           1250         30         30 SALES
      7844 TURNER           1500         30         30 SALES
      7876 ADAMS            1100         20         20 RESEARCH
      7900 JAMES             950         30         30 SALES
      7934 MILLER           1300         10         10 ACCOUNTING

14 rows selected.
```

Outer Join: In an outer join, along with tuples that satisfy the matching criteria, we also include some or all tuples that do not match the criteria.

Right join: RIGHT JOIN returns all the values from the values from the rows of right table and the matched values from the left table. If there is no matching in both tables, it will return NULL.

Syntax:

1. SELECT table1.column1, table1.column2, table2.column1....
2. FROM table1
3. RIGHT JOIN table2
4. ON table1.matching_column = table2.matching_column;

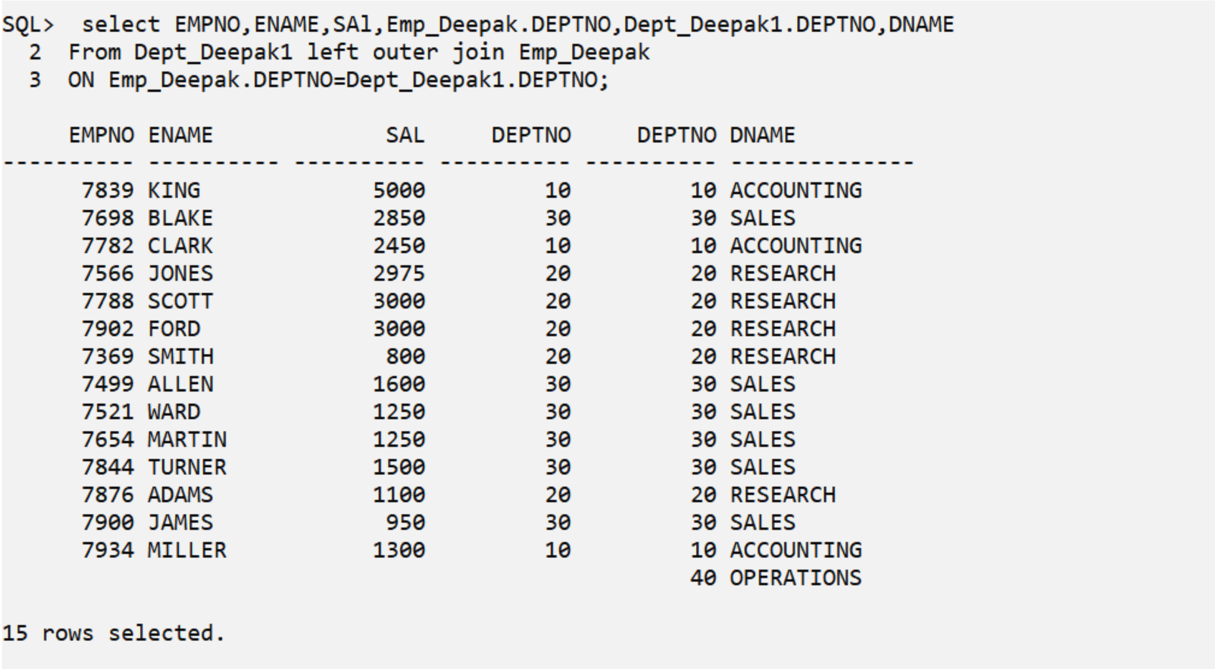


```
SQL>  select EMPNO,ENAME,SAL,Emp_Deepak.DEPTNO,Dept_Deepak1.DEPTNO,DNAME
  2   From Emp_Deepak right outer join Dept_Deepak1
  3   ON Emp_Deepak.DEPTNO=Dept_Deepak1.DEPTNO;

     EMPNO ENAME             SAL     DEPTNO     DEPTNO DNAME
---------- ---------- ---------- ---------- ---------- --------------
      7839 KING             5000         10         10 ACCOUNTING
      7698 BLAKE            2850         30         30 SALES
      7782 CLARK            2450         10         10 ACCOUNTING
      7566 JONES            2975         20         20 RESEARCH
      7788 SCOTT            3000         20         20 RESEARCH
      7902 FORD             3000         20         20 RESEARCH
      7369 SMITH             800         20         20 RESEARCH
      7499 ALLEN            1600         30         30 SALES
      7521 WARD             1250         30         30 SALES
      7654 MARTIN           1250         30         30 SALES
      7844 TURNER           1500         30         30 SALES
      7876 ADAMS            1100         20         20 RESEARCH
      7900 JAMES             950         30         30 SALES
      7934 MILLER           1300         10         10 ACCOUNTING
                                                    40 OPERATIONS

15 rows selected.
```

Left join: left join returns all the values from left table and the matching values from the right table. If there is no matching join value, it will return NULL.

Syntax:

1. SELECT table1.column1, table1.column2, table2.column1....
2. FROM table1
3. LEFT JOIN table2
4. ON table1.matching_column = table2.matching_column;

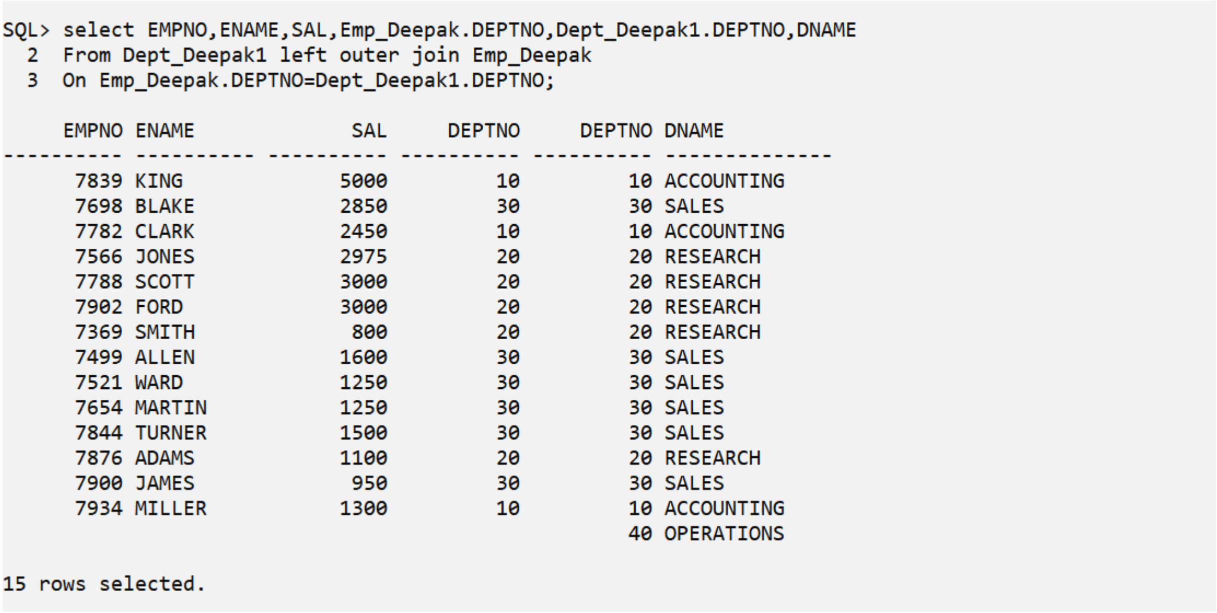


```
SQL>  select EMPNO,ENAME,SAl,Emp_Deepak.DEPTNO,Dept_Deepak1.DEPTNO,DNAME
  2  From Dept_Deepak1 left outer join Emp_Deepak
  3  ON Emp_Deepak.DEPTNO=Dept_Deepak1.DEPTNO;

     EMPNO ENAME             SAL     DEPTNO     DEPTNO DNAME
---------- ---------- ---------- ---------- ---------- --------------
      7839 KING             5000         10         10 ACCOUNTING
      7698 BLAKE            2850         30         30 SALES
      7782 CLARK            2450         10         10 ACCOUNTING
      7566 JONES            2975         20         20 RESEARCH
      7788 SCOTT            3000         20         20 RESEARCH
      7902 FORD             3000         20         20 RESEARCH
      7369 SMITH             800         20         20 RESEARCH
      7499 ALLEN            1600         30         30 SALES
      7521 WARD             1250         30         30 SALES
      7654 MARTIN           1250         30         30 SALES
      7844 TURNER           1500         30         30 SALES
      7876 ADAMS            1100         20         20 RESEARCH
      7900 JAMES             950         30         30 SALES
      7934 MILLER           1300         10         10 ACCOUNTING
                                                    40 OPERATIONS

15 rows selected.
```

<u>Full join:</u> Full outer join is like a left or right join except that it contains all rows from both tables.

<u>Syntax:</u>

1. SELECT table1.column1, table1.column2, table2.column1,
2. FROM table1
3. FULL JOIN table2
4. ON table1.matching_column = table2.matching_column;

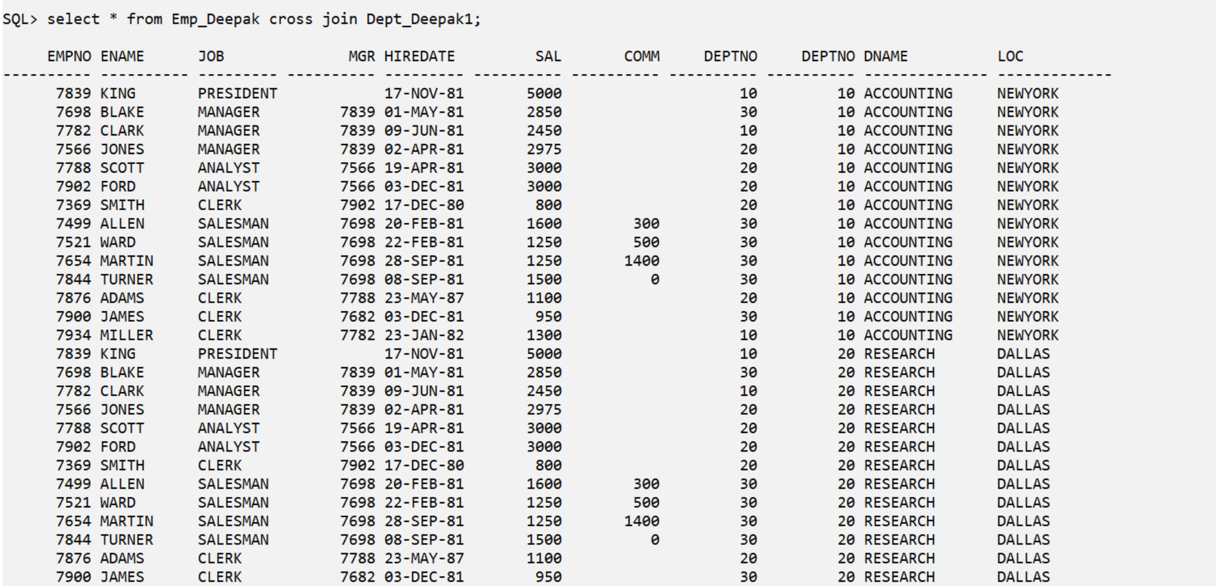


```
SQL> select EMPNO,ENAME,SAL,Emp_Deepak.DEPTNO,Dept_Deepak1.DEPTNO,DNAME
  2  From Dept_Deepak1 left outer join Emp_Deepak
  3  On Emp_Deepak.DEPTNO=Dept_Deepak1.DEPTNO;

     EMPNO ENAME             SAL     DEPTNO     DEPTNO DNAME
---------- ---------- ---------- ---------- ---------- --------------
      7839 KING             5000         10         10 ACCOUNTING
      7698 BLAKE            2850         30         30 SALES
      7782 CLARK            2450         10         10 ACCOUNTING
      7566 JONES            2975         20         20 RESEARCH
      7788 SCOTT            3000         20         20 RESEARCH
      7902 FORD             3000         20         20 RESEARCH
      7369 SMITH             800         20         20 RESEARCH
      7499 ALLEN            1600         30         30 SALES
      7521 WARD             1250         30         30 SALES
      7654 MARTIN           1250         30         30 SALES
      7844 TURNER           1500         30         30 SALES
      7876 ADAMS            1100         20         20 RESEARCH
      7900 JAMES             950         30         30 SALES
      7934 MILLER           1300         10         10 ACCOUNTING
                                                    40 OPERATIONS

15 rows selected.
```

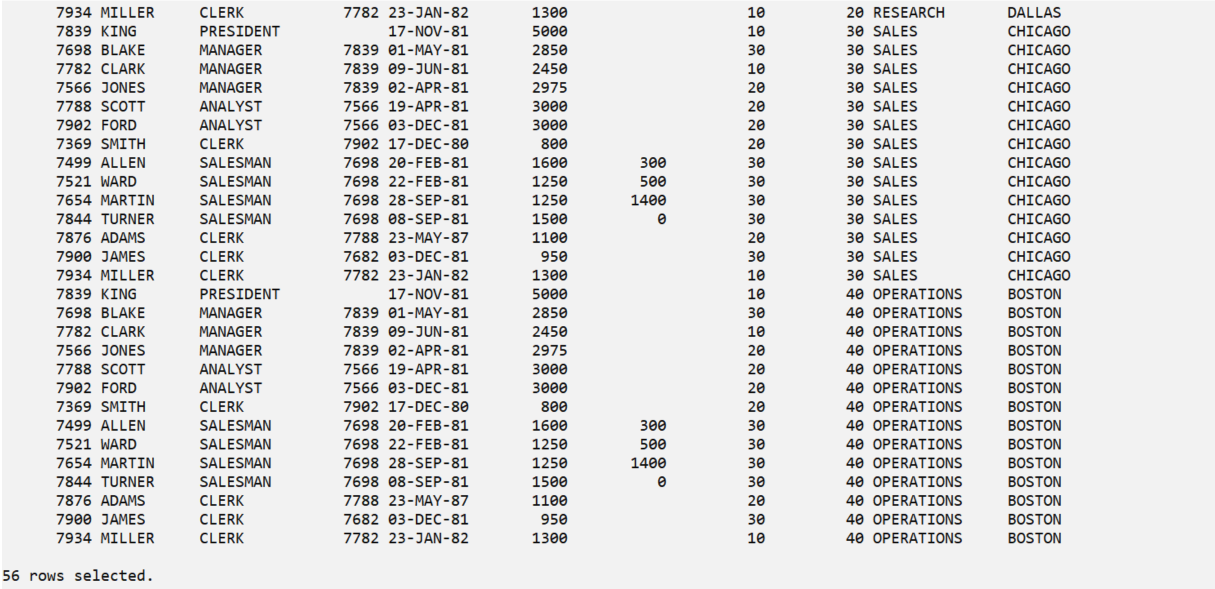
Cross join: CROSS JOIN specifies that all rows from first table join with all of the rows of second table.

Syntax:

1. **SELECT** *
2. **FROM** table1
3. CROSS JOIN table2;



```
SQL> select * from Emp_Deepak cross join Dept_Deepak1;

     EMPNO ENAME      JOB              MGR HIREDATE         SAL       COMM     DEPTNO     DEPTNO DNAME          LOC
---------- ---------- --------- ---------- --------- ---------- ---------- ---------- ---------- -------------- -------------
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         10 ACCOUNTING     NEWYORK
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850                    30         10 ACCOUNTING     NEWYORK
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10         10 ACCOUNTING     NEWYORK
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20         10 ACCOUNTING     NEWYORK
      7788 SCOTT      ANALYST         7566 19-APR-81       3000                    20         10 ACCOUNTING     NEWYORK
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20         10 ACCOUNTING     NEWYORK
      7369 SMITH      CLERK           7902 17-DEC-80        800                    20         10 ACCOUNTING     NEWYORK
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30         10 ACCOUNTING     NEWYORK
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30         10 ACCOUNTING     NEWYORK
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30         10 ACCOUNTING     NEWYORK
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30         10 ACCOUNTING     NEWYORK
      7876 ADAMS      CLERK           7788 23-MAY-87       1100                    20         10 ACCOUNTING     NEWYORK
      7900 JAMES      CLERK           7682 03-DEC-81        950                    30         10 ACCOUNTING     NEWYORK
      7934 MILLER     CLERK           7782 23-JAN-82       1300                    10         10 ACCOUNTING     NEWYORK
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         20 RESEARCH       DALLAS
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850                    30         20 RESEARCH       DALLAS
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10         20 RESEARCH       DALLAS
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20         20 RESEARCH       DALLAS
      7788 SCOTT      ANALYST         7566 19-APR-81       3000                    20         20 RESEARCH       DALLAS
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20         20 RESEARCH       DALLAS
      7369 SMITH      CLERK           7902 17-DEC-80        800                    20         20 RESEARCH       DALLAS
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30         20 RESEARCH       DALLAS
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30         20 RESEARCH       DALLAS
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30         20 RESEARCH       DALLAS
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30         20 RESEARCH       DALLAS
      7876 ADAMS      CLERK           7788 23-MAY-87       1100                    20         20 RESEARCH       DALLAS
      7900 JAMES      CLERK           7682 03-DEC-81        950                    30         20 RESEARCH       DALLAS
```

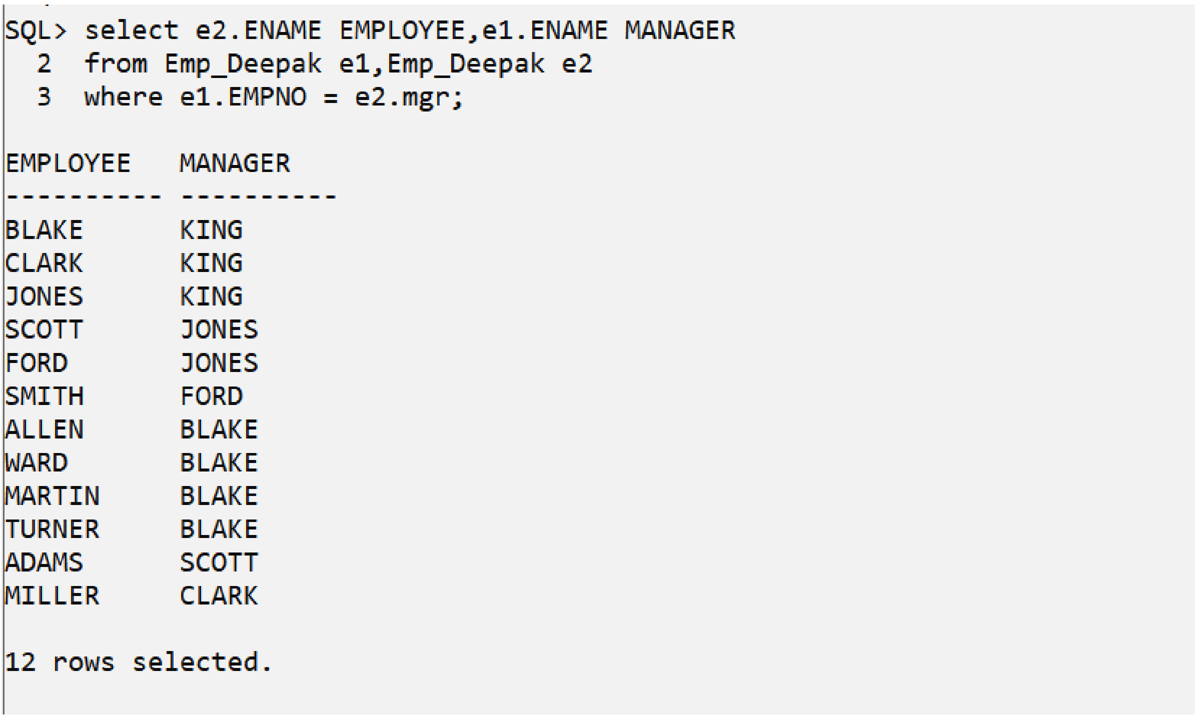


```
      7934 MILLER     CLERK           7782 23-JAN-82       1300                    10         20 RESEARCH       DALLAS
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         30 SALES          CHICAGO
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850                    30         30 SALES          CHICAGO
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10         30 SALES          CHICAGO
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20         30 SALES          CHICAGO
      7788 SCOTT      ANALYST         7566 19-APR-81       3000                    20         30 SALES          CHICAGO
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20         30 SALES          CHICAGO
      7369 SMITH      CLERK           7902 17-DEC-80        800                    20         30 SALES          CHICAGO
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30         30 SALES          CHICAGO
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30         30 SALES          CHICAGO
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30         30 SALES          CHICAGO
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30         30 SALES          CHICAGO
      7876 ADAMS      CLERK           7788 23-MAY-87       1100                    20         30 SALES          CHICAGO
      7900 JAMES      CLERK           7682 03-DEC-81        950                    30         30 SALES          CHICAGO
      7934 MILLER     CLERK           7782 23-JAN-82       1300                    10         30 SALES          CHICAGO
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         40 OPERATIONS     BOSTON
      7698 BLAKE      MANAGER         7839 01-MAY-81       2850                    30         40 OPERATIONS     BOSTON
      7782 CLARK      MANAGER         7839 09-JUN-81       2450                    10         40 OPERATIONS     BOSTON
      7566 JONES      MANAGER         7839 02-APR-81       2975                    20         40 OPERATIONS     BOSTON
      7788 SCOTT      ANALYST         7566 19-APR-81       3000                    20         40 OPERATIONS     BOSTON
      7902 FORD       ANALYST         7566 03-DEC-81       3000                    20         40 OPERATIONS     BOSTON
      7369 SMITH      CLERK           7902 17-DEC-80        800                    20         40 OPERATIONS     BOSTON
      7499 ALLEN      SALESMAN        7698 20-FEB-81       1600        300         30         40 OPERATIONS     BOSTON
      7521 WARD       SALESMAN        7698 22-FEB-81       1250        500         30         40 OPERATIONS     BOSTON
      7654 MARTIN     SALESMAN        7698 28-SEP-81       1250       1400         30         40 OPERATIONS     BOSTON
      7844 TURNER     SALESMAN        7698 08-SEP-81       1500          0         30         40 OPERATIONS     BOSTON
      7876 ADAMS      CLERK           7788 23-MAY-87       1100                    20         40 OPERATIONS     BOSTON
      7900 JAMES      CLERK           7682 03-DEC-81        950                    30         40 OPERATIONS     BOSTON
      7934 MILLER     CLERK           7782 23-JAN-82       1300                    10         40 OPERATIONS     BOSTON

56 rows selected.
```

Self-join: A self-join is a join in which a table is joined with itself. To join a table itself means that each row of the table is combined with itself and with every other row of the table.

Syntax:

1. **SELECT** a. column_name, b.column_name...
2. **FROM** table1 a, table1 b
3. **WHERE** a.common_filed = b.common_field;



```
SQL> select e2.ENAME EMPLOYEE,e1.ENAME MANAGER
  2  from Emp_Deepak e1,Emp_Deepak e2
  3  where e1.EMPNO = e2.mgr;

EMPLOYEE   MANAGER
---------- ----------
BLAKE      KING
CLARK      KING
JONES      KING
SCOTT      JONES
FORD       JONES
SMITH      FORD
ALLEN      BLAKE
WARD       BLAKE
MARTIN     BLAKE
TURNER     BLAKE
ADAMS      SCOTT
MILLER     CLARK

12 rows selected.
```