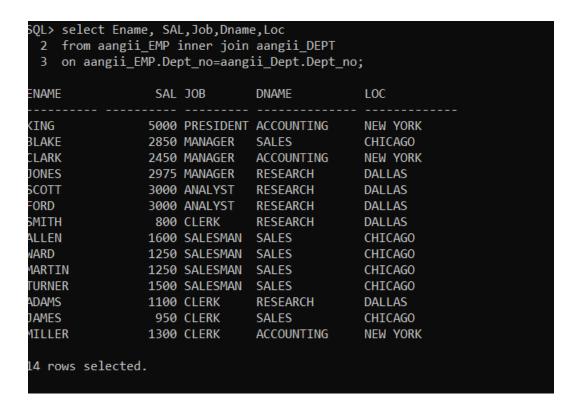**NAME: AANGI KHANDHAR**

FYCS

ROLL NO:23

PRACTICAL 5

INNER

- The INNER JOIN keyword selects all rows from both the tables as long as the condition satisfies.
- SYNTAX SELECT table1.column1,table1.column2,table2.column1,.... FROM table1 INNER JOIN table2 ON table1.matching_column = table2.matching_column;

```
SQL> select Ename, SAL,Job,Dname,Loc
  2  from aangii_EMP inner join aangii_DEPT
  3  on aangii_EMP.Dept_no=aangii_Dept.Dept_no;

ENAME            SAL JOB       DNAME           LOC
---------- ---------- --------- --------------- -------------
KING            5000 PRESIDENT ACCOUNTING      NEW YORK
BLAKE           2850 MANAGER   SALES           CHICAGO
CLARK           2450 MANAGER   ACCOUNTING      NEW YORK
JONES           2975 MANAGER   RESEARCH        DALLAS
SCOTT           3000 ANALYST   RESEARCH        DALLAS
FORD            3000 ANALYST   RESEARCH        DALLAS
SMITH            800 CLERK     RESEARCH        DALLAS
ALLEN           1600 SALESMAN  SALES           CHICAGO
WARD            1250 SALESMAN  SALES           CHICAGO
MARTIN          1250 SALESMAN  SALES           CHICAGO
TURNER          1500 SALESMAN  SALES           CHICAGO
ADAMS           1100 CLERK     RESEARCH        DALLAS
JAMES            950 CLERK     SALES           CHICAGO
MILLER          1300 CLERK     ACCOUNTING      NEW YORK

14 rows selected.
```

NATURAL:

- A natural join is a type of equi join which occurs implicitly by comparing all the same names columns in both tables. The join result has only one column for each pair of equally named columns.
- SYNTAX Select * From table1 natural join table2;

```
SQL> select * from aangii_EMP natural join aangii_DEPT;

   DEPT_NO    EMP_NO ENAME      JOB           MGR HIREDATE        SAL       COMM DNAME
           LOC
---------- ---------- --------- --------- ---------- --------- ---------- ---------- -------------- -------------
       10      7839 KING       PRESIDENT            17-NOV-81       5000            ACCOUNTING     NEW YORK
       30      7698 BLAKE      MANAGER        7839 01-MAY-81       2850            SALES
           CHICAGO
       10      7782 CLARK      MANAGER        7839 09-JUN-81       2450            ACCOUNTING     NEW YORK
       20      7566 JONES      MANAGER        7839 02-APR-81       2975            RESEARCH            DALLAS
       20      7788 SCOTT      ANALYST        7566 19-APR-87       3000            RESEARCH            DALLAS
       20      7902 FORD       ANALYST        7566 03-DEC-81       3000            RESEARCH            DALLAS
       20      7369 SMITH      CLERK          7902 17-DEC-80        800            RESEARCH            DALLAS
       30      7499 ALLEN      SALESMAN       7698 20-FEB-81       1600        300 SALES
           CHICAGO
       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
       20      7876 ADAMS      CLERK          7788 23-MAY-87       1100            RESEARCH            DALLAS
       30      7900 JAMES      CLERK          7698 03-DEC-81        950            SALES
           CHICAGO
       10      7934 MILLER     CLERK          7782 23-JAN-82       1300            ACCOUNTING     NEW YORK

14 rows selected.
```

OUTER:

- In an outer join, unmatched rows in one or both tables can be returned.
  Right: returns only unmatched rows from the right table
  - SYNTAX SELECT table1.column1,table1.column2,table2.column1,.... FROM table1 RIGHT [OUTER] JOIN table2 ON table1.matching_column = table2.matching_column;

```
SQL> select Emp_no,Ename,SAL,aangii_EMP.Dept_no,aangii_DEPT.Dept_no,Dname
  2     from aangii_EMP right outer join aangii_DEPT
  3   on aangii_EMP.Dept_no=aangii_DEPT.Dept_no;

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

15 rows selected.
```

Left: returns only unmatched rows from the left table.

- SYNTAX SELECT table1.column1,table1.column2,table2.column1,.... FROM table1 LEFT [OUTER] JOIN table2 ON table1.matching_column = table2.matching_column;

```
SQL> select Emp_no,Ename,SAL,aangii_EMP.Dept_no,aangii_DEPT.Dept_no,Dname
  2     from aangii_EMP left outer join aangii_DEPT
  3     on aangii_EMP.Dept_no=aangii_DEPT.Dept_no;

   EMP_NO ENAME              SAL    DEPT_NO    DEPT_NO 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.
```

Full: returns unmatched rows from both tables
- SYNTAX SELECT table1.column1,table1.column2,table2.column1,.... FROM table1 FULL [OUTER] JOIN table2 ON table1.matching_column = table2.matching_column;

```
SQL> select Emp_no,Ename,SAL,aangii_EMP.Dept_no,aangii_DEPT.Dept_no,Dname
  2    from aangii_EMP full outer join aangii_DEPT
  3    on aangii_EMP.Dept_no=aangii_DEPT.Dept_no;

   EMP_NO ENAME              SAL    DEPT_NO    DEPT_NO 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:
- The CARTESIAN JOIN is also known as CROSS JOIN.
- In a CARTESIAN JOIN there is a join for each row of one table to every row of another table. This usually happens when the matching column or WHERE condition is not specified.
- SYNTAX SELECT * FROM TABLE1,TABLE2;

```
SQL> select * from aangii_EMP, aangii_DEPT;

  EMP_NO ENAME      JOB              MGR HIREDATE        SAL       COMM    DEPT_NO    DEPT_NO DNAME                LOC
---------- ---------- --------- ---------- --------- ---------- ---------- ---------- ---------- -------------- -------------
      7839 KING       PRESIDENT            17-NOV-81      5000                    10         20 RESEARCH       DALLAS
      7839 KING       PRESIDENT            17-NOV-81      5000                    10         40 OPERATIONS     BOSTON
      7839 KING       PRESIDENT            17-NOV-81      5000                    10         10 ACCOUNTING     NEW YORK
      7839 KING       PRESIDENT            17-NOV-81      5000                    10         30 SALES          CHICAGO
      7698 BLAKE      MANAGER         7839 01-MAY-81      2850                    30         20 RESEARCH       DALLAS
      7698 BLAKE      MANAGER         7839 01-MAY-81      2850                    30         40 OPERATIONS     BOSTON
      7698 BLAKE      MANAGER         7839 01-MAY-81      2850                    30         10 ACCOUNTING     NEW YORK
      7698 BLAKE      MANAGER         7839 01-MAY-81      2850                    30         30 SALES          CHICAGO
      7782 CLARK      MANAGER         7839 09-JUN-81      2450                    10         20 RESEARCH       DALLAS
      7782 CLARK      MANAGER         7839 09-JUN-81      2450                    10         40 OPERATIONS     BOSTON
      7782 CLARK      MANAGER         7839 09-JUN-81      2450                    10         10 ACCOUNTING     NEW YORK
      7782 CLARK      MANAGER         7839 09-JUN-81      2450                    10         30 SALES          CHICAGO
      7566 JONES      MANAGER         7839 02-APR-81      2975                    20         20 RESEARCH       DALLAS
      7566 JONES      MANAGER         7839 02-APR-81      2975                    20         40 OPERATIONS     BOSTON
      7566 JONES      MANAGER         7839 02-APR-81      2975                    20         10 ACCOUNTING     NEW YORK
      7566 JONES      MANAGER         7839 02-APR-81      2975                    20         30 SALES          CHICAGO
      7788 SCOTT      ANALYST         7566 19-APR-87      3000                    20         20 RESEARCH       DALLAS
      7788 SCOTT      ANALYST         7566 19-APR-87      3000                    20         40 OPERATIONS     BOSTON
      7788 SCOTT      ANALYST         7566 19-APR-87      3000                    20         10 ACCOUNTING     NEW YORK
      7788 SCOTT      ANALYST         7566 19-APR-87      3000                    20         30 SALES          CHICAGO
      7902 FORD       ANALYST         7566 03-DEC-81      3000                    20         20 RESEARCH       DALLAS
      7902 FORD       ANALYST         7566 03-DEC-81      3000                    20         40 OPERATIONS     BOSTON
      7902 FORD       ANALYST         7566 03-DEC-81      3000                    20         10 ACCOUNTING     NEW YORK
      7902 FORD       ANALYST         7566 03-DEC-81      3000                    20         30 SALES          CHICAGO
      7369 SMITH      CLERK           7902 17-DEC-80       800                    20         20 RESEARCH       DALLAS
      7369 SMITH      CLERK           7902 17-DEC-80       800                    20         40 OPERATIONS     BOSTON
      7369 SMITH      CLERK           7902 17-DEC-80       800                    20         10 ACCOUNTING     NEW YORK
      7369 SMITH      CLERK           7902 17-DEC-80       800                    20         30 SALES          CHICAGO
      7499 ALLEN      SALESMAN        7698 20-FEB-81      1600        300         30         20 RESEARCH       DALLAS
      7499 ALLEN      SALESMAN        7698 20-FEB-81      1600        300         30         40 OPERATIONS     BOSTON
      7499 ALLEN      SALESMAN        7698 20-FEB-81      1600        300         30         10 ACCOUNTING     NEW YORK
      7499 ALLEN      SALESMAN        7698 20-FEB-81      1600        300         30         30 SALES          CHICAGO
      7521 WARD       SALESMAN        7698 22-FEB-81      1250        500         30         20 RESEARCH       DALLAS
      7521 WARD       SALESMAN        7698 22-FEB-81      1250        500         30         40 OPERATIONS     BOSTON
      7521 WARD       SALESMAN        7698 22-FEB-81      1250        500         30         10 ACCOUNTING     NEW YORK
      7521 WARD       SALESMAN        7698 22-FEB-81      1250        500         30         30 SALES          CHICAGO
      7654 MARTIN     SALESMAN        7698 28-SEP-81      1250       1400         30         20 RESEARCH       DALLAS
      7654 MARTIN     SALESMAN        7698 28-SEP-81      1250       1400         30         40 OPERATIONS     BOSTON
      7654 MARTIN     SALESMAN        7698 28-SEP-81      1250       1400         30         10 ACCOUNTING     NEW YORK
      7654 MARTIN     SALESMAN        7698 28-SEP-81      1250       1400         30         30 SALES          CHICAGO
      7844 TURNER     SALESMAN        7698 08-SEP-81      1500          0         30         20 RESEARCH       DALLAS
      7844 TURNER     SALESMAN        7698 08-SEP-81      1500          0         30         40 OPERATIONS     BOSTON
      7844 TURNER     SALESMAN        7698 08-SEP-81      1500          0         30         10 ACCOUNTING     NEW YORK
      7844 TURNER     SALESMAN        7698 08-SEP-81      1500          0         30         30 SALES          CHICAGO
      7876 ADAMS      CLERK           7788 23-MAY-87      1100                    20         20 RESEARCH       DALLAS
```

SELF:
- As the name signifies, in SELF JOIN a table is joined to itself. That is, each row of the table is joined with itself and all other rows depending on some conditions
- SYNTAX SELECT a.column 1 , b.column2 FROM table_name a, table_name b WHERE some_condition;

```
SQL> select e2.ename employee, e1.ename manager
  2  from aangii_EMP e1, aangii_EMP e2
  3  where e1.EMP_no = 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
JAMES       BLAKE
MILLER      CLARK

13 rows selected.
```