Name : ASHUTOSH MISHRA
Roll no : 30
Class : FYCS

Practical 5
JOINS

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 ashutosh_EMP inner join ashutosh_DEPT
  3      on ashutosh_EMP.Dept_no=ashutosh_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

ENAME              SAL JOB        DNAME          LOC
---------- ---------- --------- -------------- -------------
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 ashutosh_EMP natural join ashutosh_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,ashutosh_EMP.Dept_no,ashutosh_DEPT.Dept_no,Dname
  2       from ashutosh_EMP right outer join ashutosh_DEPT
  3       on ashutosh_EMP.Dept_no=ashutosh_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.
```

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,ashutosh_EMP.Dept_no,ashutosh_DEPT.Dept_no,Dname
  2      from ashutosh_EMP left outer join ashutosh_DEPT
  3      on ashutosh_EMP.Dept_no=ashutosh_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,ashutosh_EMP.Dept_no,ashutosh_DEPT.Dept_no,Dname
  2      from ashutosh_EMP full outer join ashutosh_DEPT
  3      on ashutosh_EMP.Dept_no=ashutosh_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 ashutosh_EMP, ashutosh_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         30 SALES           CHICAGO
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         10 ACCOUNTING      NEW YORK
      7839 KING       PRESIDENT            17-NOV-81       5000                    10         40 OPERATIONS      BOSTON
      7698 BLAKE      MANAGER      7839 01-MAY-81       2850                    30         20 RESEARCH        DALLAS
      7698 BLAKE      MANAGER      7839 01-MAY-81       2850                    30         30 SALES           CHICAGO
      7698 BLAKE      MANAGER      7839 01-MAY-81       2850                    30         10 ACCOUNTING      NEW YORK
      7698 BLAKE      MANAGER      7839 01-MAY-81       2850                    30         40 OPERATIONS      BOSTON
      7782 CLARK      MANAGER      7839 09-JUN-81       2450                    10         20 RESEARCH        DALLAS
      7782 CLARK      MANAGER      7839 09-JUN-81       2450                    10         30 SALES           CHICAGO
      7782 CLARK      MANAGER      7839 09-JUN-81       2450                    10         10 ACCOUNTING      NEW YORK
      7782 CLARK      MANAGER      7839 09-JUN-81       2450                    10         40 OPERATIONS      BOSTON
      7566 JONES      MANAGER      7839 02-APR-81       2975                    20         20 RESEARCH        DALLAS
      7566 JONES      MANAGER      7839 02-APR-81       2975                    20         30 SALES           CHICAGO
      7566 JONES      MANAGER      7839 02-APR-81       2975                    20         10 ACCOUNTING      NEW YORK
      7566 JONES      MANAGER      7839 02-APR-81       2975                    20         40 OPERATIONS      BOSTON
      7788 SCOTT      ANALYST      7566 19-APR-87       3000                    20         20 RESEARCH        DALLAS
      7788 SCOTT      ANALYST      7566 19-APR-87       3000                    20         30 SALES           CHICAGO
      7788 SCOTT      ANALYST      7566 19-APR-87       3000                    20         10 ACCOUNTING      NEW YORK
      7788 SCOTT      ANALYST      7566 19-APR-87       3000                    20         40 OPERATIONS      BOSTON
      7902 FORD       ANALYST      7566 03-DEC-81       3000                    20         20 RESEARCH        DALLAS
      7902 FORD       ANALYST      7566 03-DEC-81       3000                    20         30 SALES           CHICAGO
      7902 FORD       ANALYST      7566 03-DEC-81       3000                    20         10 ACCOUNTING      NEW YORK
      7902 FORD       ANALYST      7566 03-DEC-81       3000                    20         40 OPERATIONS      BOSTON
      7369 SMITH      CLERK        7902 17-DEC-80        800                    20         20 RESEARCH        DALLAS
      7369 SMITH      CLERK        7902 17-DEC-80        800                    20         30 SALES           CHICAGO
      7369 SMITH      CLERK        7902 17-DEC-80        800                    20         10 ACCOUNTING      NEW YORK
      7369 SMITH      CLERK        7902 17-DEC-80        800                    20         40 OPERATIONS      BOSTON
      7499 ALLEN      SALESMAN     7698 20-FEB-81       1600        300         30         20 RESEARCH        DALLAS
      7499 ALLEN      SALESMAN     7698 20-FEB-81       1600        300         30         30 SALES           CHICAGO
      7499 ALLEN      SALESMAN     7698 20-FEB-81       1600        300         30         10 ACCOUNTING      NEW YORK
      7499 ALLEN      SALESMAN     7698 20-FEB-81       1600        300         30         40 OPERATIONS      BOSTON
      7521 WARD       SALESMAN     7698 22-FEB-81       1250        500         30         20 RESEARCH        DALLAS
      7521 WARD       SALESMAN     7698 22-FEB-81       1250        500         30         30 SALES           CHICAGO
      7521 WARD       SALESMAN     7698 22-FEB-81       1250        500         30         10 ACCOUNTING      NEW YORK
      7521 WARD       SALESMAN     7698 22-FEB-81       1250        500         30         40 OPERATIONS      BOSTON
      7654 MARTIN     SALESMAN     7698 28-SEP-81       1250       1400         30         20 RESEARCH        DALLAS
      7654 MARTIN     SALESMAN     7698 28-SEP-81       1250       1400         30         30 SALES           CHICAGO
      7654 MARTIN     SALESMAN     7698 28-SEP-81       1250       1400         30         10 ACCOUNTING      NEW YORK
```