Ex. No: 4 **12.02.2025**	**JOIN OPERATION**

AIM:

To execute independent sub-query, correlated sub-query and correlated sub-query using EXIST operator.

CREATING THE TABLE:

```
SQL> create table employee(empid number(5),empFname varchar(10),empLname varchar(10),age number(3),email varchar(15),phno number(10));

Table created.
```

INSERTING VALUES IN THE TABLE:

```
SQL> insert into employee values(1,'kabesh','m',19,'kabeshm.23it@kongu.edu',9600891966);

1 row created.

 SQL> insert into employee values(2,'kamalesh','m',19,'kamaleshm.23it@kongu.edu',9876543210);

1 row created.

SQL> insert into employee values(3,'jegan','jb',19,'jeganjb.23it@kongu.edu',9012345678);

1 row created.

SQL> insert into employee values(4,'jeyasanjay','m',19,'jeyasanjaym.23it@kongu.edu',8764657659);

1 row created.
```

Employee table:

```
SQL> select * from employee;

output:

 EMPID  EMPFNAME    EMPLNAME  AGE  EMAIL                            PHNO
 -------- ----------------   ---------------- ------ ----------------------------------    ------------
 1        kabesh       m         19   kabeshm.23it@kongu.edu       9600891966
 2        kamalesh     m         19   kamaleshm.23it@kongu.edu     9876543210
 3        jegan        jb        19   jeganjb.23it@kongu.edu       9012345678
 4        jeyasanjay   m         19   jeyasanjaym.23it@kongu.edu   8764657659
```

```
4 rows created.
```

CREATING THE TABLE:

```
SQL> create table project(proid number(5),empid number(5),proname varchar(15));
```

INSERTING VALUES IN THE TABLE:

```
SQL> insert into project values(111,1,'Project1');

1 row created.

SQL> insert into project values(222,2,'Project2');

1 row created.

SQL> insert into project values(333,3,'Project3');

1 row created.

SQL> insert into project values(444,3,'Project4');

1 row created.

SQL> insert into project values(555,4,'Project5');

1 row created.

SQL> insert into project values(666,9,'Project6');

1 row created.

SQL> insert into project values(777,7,'Project7');

1 row created.
```

Projects table

```
SQL> select * from project;

output:

 PROID  EMPID  PRONAME

 -------- --------   ------------
 111   1   Project1

 222   2   Project2

 333   3   Project3

 444   3   Project4

 555   4   Project5

 666   9   Project6

 777   7   Project7
7 rows created.
```

INNER JOIN:

```
SQL> SELECT e.empid, e.empFname, e.empLname, p.proid, p.proname
FROM employee e INNER JOIN project p ON e.empid = p.empid;
output:
EMPID  EMPFNAME    EMPLNAME  PROID  PRONAME
 --------   ----------------     ----------------  ---------    -------------
  1         kabesh            m               111        Project1
  2         kamalesh          m               222       Project2
  3         jegan             jb              333       Project3
  3         jegan             jb              444       Project4
  4         jeyasanjay        m               555       Project5

5 rows selected.
```

FULL JOIN:

```
SQL>SELECT e.empid, e.empf_n, e.empl_n, p.projid
FROM employee e FULL JOIN project p ON e.empid = p.empid;
output:
 EMPID  EMPFNAME    EMPLNAME  PROID
 --------     ----------------   ------------------  -------
  1          kabesh            m                 111
 2         kamalesh          m                  222
 3         jegan             jb                 333
 3         jegan             jb                 444
 4         jeyasanjay        m                  555
 9         NULL              NULL               666
 7        NULL               NULL               777
```

7 rows selected.

LEFT OUTER JOIN:

```
SQL> SELECT e.empFname, e.empLname, p.proid, p.proname
FROM employee e LEFT JOIN project p ON e.empid = p.empid;
```

output:

```
 EMPFNAME    EMPLNAME  PROID  PRONAME
 -----------------    ---------------    --------    --------------
  kabesh                  m          111       Project1
  kamalesh                m          222       Project2
  jegan                   jb         333       Project3
  jegan                   jb         444       Project4
  jeyasanjay              m          555       Project5
```

5 rows selected.

RIGHT OUTER JOIN:

```
SQL>
 EMPID  EMPFNAME    EMPLNAME  PROID  PRONAME
 --------    ----------------    -----------------    --------  ---------------
  1         kabesh               m          111       Project1
  2         kamalesh             m          222       Project2
  3         jegan                jb         333       Project3
  3       jegan            jb         444     Project4
  4       jeyasanjay        m         555     Project5
  NULL   NULL             NULL        666     Project6
  NULL   NULL             NULL        777     Project7
```

7 rows selected.

NATURAL JOIN

```
SQL> SELECT empid, empFname, empLname, proid, proname
        FROM employee NATURAL JOIN project;
 EMPFNAME    EMPLNAME  PROID  PRONAME
 ----------------    ---------------    --------    --------------
  kabesh               m          111      Project1
  kamalesh             m          222      Project2
  jegan                jb         333      Project3
  jegan                jb         444      Project4
  jeyasanjay           m          555      Project5
```

5 rows selected.

CROSS JOIN

```
SELECT e.empid, e.empf_n, e.empl_n, p.projid, p.projname
FROM employee e
CROSS JOIN project p;
 EMPID  EMPFNAME    EMPLNAME  PROID  PRONAME
 --------   ----------------    ----------------  ---------  ---------------
  1        kabesh             m         111          Project1
  1        kabesh             m         222          Project2
  1        kabesh             m         333          Project3
  1        kabesh             m         444          Project4
  1        kabesh             m         555          Project5
```

```
1       kabesh          m        666       Project6
1       kabesh          m        777       Project7
2       kamalesh        m        111       Project1
2       kamalesh        m        222       Project2
2       kamalesh        m        333       Project3
2       kamalesh        m        444       Project4
2       kamalesh        m        555       Project5
2       kamalesh        m        666       Project6
2       kamalesh        m        777       Project7
3       jegan           jb       111       Project1
3       jegan           jb       222       Project2
3       jegan           jb       333       Project3
3       jegan           jb       444       Project4
3       jegan           jb       555       Project5
3       jegan           jb       666       Project6
3       jegan           jb       777       Project7
4       jeyasanjay      m        111       Project1
4       jeyasanjay      m        222       Project2
4       jeyasanjay      m        333       Project3
4       jeyasanjay      m         444      Project4
4       jeyasanjay      m         555      Project5
4       jeyasanjay      m         666      Project6
4       jeyasanjay      m         777      Project7

28 rows selected.
```

CONTENTS	MARKS ALLOTED	MARKS OBTAINED
Aim, Algorithm, SQL, PL/SQL	30	
Execution and Result	20	
Viva	10	
Total	60	

RESULT:

Thus, inner join, left join, right join, natural join, full join, cross join using two tables were executed successfully.