EXPERIMENT-7
(DBMS LAB)

CODE:

~ 1. Create Database

CREATE DATABASE company_db;

USE company_db;

~ 2. Create Tables

```
CREATE TABLE DEPT (
    DEPTNO INT PRIMARY KEY,
    DNAME VARCHAR(20),
    LOC VARCHAR(20)
);

CREATE TABLE EMP (
    EMPNO INT PRIMARY KEY,
    ENAME VARCHAR(50),
    JOB VARCHAR(20),
    MGR INT,
    HIREDATE DATE,
    SAL INT,
    COMM INT,
    DEPTNO INT,
    FOREIGN KEY (DEPTNO) REFERENCES DEPT(DEPTNO)
);

CREATE TABLE PROJECT (
    PNO INT PRIMARY KEY,
    PNAME VARCHAR(50),
    LOCATION VARCHAR(50)
);
```

```sql
CREATE TABLE EMP_PROJ (
    EMPNO INT,
    PNO INT,
    HOURS INT,
    FOREIGN KEY (EMPNO) REFERENCES EMP(EMPNO),
    FOREIGN KEY (PNO) REFERENCES PROJECT(PNO)
);


CREATE TABLE DEPENDENT (
    DEPENDENT_NAME VARCHAR(50),
    EMPNO INT,
    FOREIGN KEY (EMPNO) REFERENCES EMP(EMPNO)
);


-- 3. Insert Data
INSERT INTO DEPT VALUES (10, 'ACCOUNTING', 'NEW YORK');

INSERT INTO DEPT VALUES (20, 'RESEARCH', 'DALLAS');

INSERT INTO DEPT VALUES (30, 'SALES', 'CHICAGO');

INSERT INTO DEPT VALUES (40, 'OPERATIONS', 'BOSTON');


INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7369, 'SMITH', 'CLERK', 7902, '1980-12-17', 500, 800, 20);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7499, 'ALLEN', 'SALESMAN', 7698, '1981-02-20', 1600, 300, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7521, 'WARD', 'SALESMAN', 7698, '1981-02-22', 1250, 500, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7566, 'JONES', 'MANAGER', 7839, '1981-04-02', 2975, NULL, 20);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7654, 'MARTIN', 'SALESMAN', 7698, '1981-09-28', 1250, 1400, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7698, 'BLAKE', 'MANAGER', 7839, '1981-05-01', 2850, NULL, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7782, 'CLARK', 'MANAGER', 7839, '1981-06-09', 2450, NULL, 10);
```

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7788, 'SCOTT', 'ANALYST', 7566, '1982-12-09', 3000, NULL, 20);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7839, 'KING', 'PRESIDENT', NULL, '1981-11-17', 5000, NULL, 10);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7844, 'TURNER', 'SALESMAN', 7698, '1981-09-08', 1500, 0, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7876, 'ADAMS', 'CLERK', 7788, '1983-01-12', 1100, NULL, 20);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7900, 'JAMES', 'CLERK', 7698, '1981-12-03', 950, NULL, 30);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7902, 'FORD', 'ANALYST', 7566, '1981-12-03', 3000, NULL, 20);

INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)
VALUES (7934, 'MILLER', 'CLERK', 7782, '1982-01-23', 1300, NULL, 10);

INSERT INTO PROJECT VALUES (1, 'ProductX', 'Houston');

INSERT INTO EMP_PROJ VALUES (7369, 1, 12);

INSERT INTO DEPENDENT VALUES ('SMITH', 7369);

-- 4. Perform Queries
-- Task 1
SELECT EMP.ENAME

FROM EMP

JOIN EMP_PROJ ON EMP.EMPNO = EMP_PROJ.EMPNO

JOIN PROJECT ON EMP_PROJ.PNO = PROJECT.PNO

WHERE EMP.DEPTNO = 5 AND EMP_PROJ.HOURS > 10 AND PROJECT.PNAME = 'ProductX';

-- Task 2
SELECT EMP.ENAME

FROM EMP

JOIN DEPENDENT ON EMP.ENAME = DEPENDENT.DEPENDENT_NAME;

-- Task 3

```sql
SELECT EMP.ENAME
FROM EMP
JOIN EMP AS MANAGER ON EMP.MGR = MANAGER.EMPNO
WHERE MANAGER.ENAME = 'Franklin Wong';


-- Task 4
SELECT ENAME
FROM EMP
WHERE NOT EXISTS (
    SELECT PNO
    FROM PROJECT
    WHERE NOT EXISTS (
        SELECT *
        FROM EMP_PROJ
        WHERE EMP.EMPNO = EMP_PROJ.EMPNO AND PROJECT.PNO = EMP_PROJ.PNO
    )
);


-- Task 5
SELECT ENAME
FROM EMP
WHERE EMPNO NOT IN (SELECT EMPNO FROM EMP_PROJ);


-- Task 6
SELECT ENAME
FROM EMP
JOIN EMP_PROJ ON EMP.EMPNO = EMP_PROJ.EMPNO
JOIN PROJECT ON EMP_PROJ.PNO = PROJECT.PNO
JOIN DEPT ON EMP.DEPTNO = DEPT.DEPTNO
WHERE PROJECT.LOCATION = 'HOUSTON'
AND DEPT.LOC != 'HOUSTON';


-- Task 7
```

SELECT ENAME

FROM EMP

WHERE JOB = 'MANAGER'

AND EMPNO NOT IN (SELECT EMPNO FROM DEPENDENT);

OUTPUT:

```
mysql> -- Task 1
mysql> SELECT EMP.ENAME
    -> FROM EMP
    -> JOIN EMP_PROJ ON EMP.EMPNO = EMP_PROJ.EMPNO
    -> JOIN PROJECT ON EMP_PROJ.PNO = PROJECT.PNO
    -> WHERE EMP.DEPTNO = 5 AND EMP_PROJ.HOURS > 10 AND PROJECT.PNAME = 'ProductX';
Empty set (0.00 sec)
```

```
mysql> -- Task 2
mysql> SELECT EMP.ENAME
    -> FROM EMP
    -> JOIN DEPENDENT ON EMP.ENAME = DEPENDENT.DEPENDENT_NAME;
+-------+
| ENAME |
+-------+
| SMITH |
+-------+
1 row in set (0.00 sec)
```

```
mysql> -- Task 3
mysql> SELECT EMP.ENAME
    -> FROM EMP
    -> JOIN EMP AS MANAGER ON EMP.MGR = MANAGER.EMPNO
    -> WHERE MANAGER.ENAME = 'Franklin Wong';
Empty set (0.00 sec)
```

```
mysql> -- Task 4
mysql> SELECT ENAME
    -> FROM EMP
    -> WHERE NOT EXISTS (
    ->     SELECT PNO
    ->     FROM PROJECT
    ->     WHERE NOT EXISTS (
    ->         SELECT *
    ->         FROM EMP_PROJ
    ->         WHERE EMP.EMPNO = EMP_PROJ.EMPNO AND PROJECT.PNO = EMP_PROJ.PNO
    ->     )
    -> );
+-------+
| ENAME |
+-------+
| SMITH |
+-------+
1 row in set (0.00 sec)
```

```
mysql> -- Task 5
mysql> SELECT ENAME
    -> FROM EMP
    -> WHERE EMPNO NOT IN (SELECT EMPNO FROM EMP_PROJ);
+--------+
| ENAME  |
+--------+
| ALLEN  |
| WARD   |
| JONES  |
| MARTIN |
| BLAKE  |
| CLARK  |
| SCOTT  |
| KING   |
| TURNER |
| ADAMS  |
| JAMES  |
| FORD   |
| MILLER |
+--------+
13 rows in set (0.00 sec)
```

```
mysql> -- Task 6
mysql> SELECT ENAME
    -> FROM EMP
    -> JOIN EMP_PROJ ON EMP.EMPNO = EMP_PROJ.EMPNO
    -> JOIN PROJECT ON EMP_PROJ.PNO = PROJECT.PNO
    -> JOIN DEPT ON EMP.DEPTNO = DEPT.DEPTNO
    -> WHERE PROJECT.LOCATION = 'HOUSTON'
    -> AND DEPT.LOC != 'HOUSTON';
+-------+
| ENAME |
+-------+
| SMITH |
+-------+
1 row in set (0.00 sec)
```

```
mysql> -- Task 7
mysql> SELECT ENAME
    -> FROM EMP
    -> WHERE JOB = 'MANAGER'
    -> AND EMPNO NOT IN (SELECT EMPNO FROM DEPENDENT);
+-------+
| ENAME |
+-------+
| JONES |
| BLAKE |
| CLARK |
+-------+
3 rows in set (0.00 sec)
```