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LAB - 7

create database lab7;

use lab7;

CREATE TABLE employee (emp_id INT PRIMARY KEY, fname VARCHAR(50), lname VARCHAR(50), ssn CHAR(9), bdate DATE, address VARCHAR(100), sex CHAR(1), salary DECIMAL(10, 2), super_ssn CHAR(9), dno INT);

CREATE TABLE department (dnumber INT PRIMARY KEY, dname VARCHAR(50), mgr_ssn CHAR(9), mgr_start_date DATE);

CREATE TABLE project (pnumber INT PRIMARY KEY, pname VARCHAR(50), plocation VARCHAR(50), dnum INT);

CREATE TABLE works_on (emp_id INT, pno INT, hours DECIMAL(4, 1), PRIMARY KEY (emp_id, pno));

CREATE TABLE dependent (emp_id INT, dependent_name VARCHAR(50), sex CHAR(1), bdate DATE, relationship VARCHAR(50), PRIMARY KEY (emp_id, dependent_name));

INSERT INTO employee (emp_id, fname, lname, ssn, bdate, address, sex, salary, super_ssn, dno) VALUES (1, 'John', 'Smith', '123456789', '1980-06-09', '123 Apple St', 'M', 50000, '333445555', 5), (2, 'Franklin', 'Wong', '987654321', '1978-02-17', '456 Orange St', 'M', 60000, NULL, 1), (3, 'Aayush', 'Kharb', '888888888', '2002-07-01', '789 Mango St', 'M', 45000, '987654321', 3);

INSERT INTO department (dnumber, dname, mgr_ssn, mgr_start_date) VALUES (5, 'Research', '333445555', '2021-01-01'), (1, 'Administration', '987654321', '2019-07-01');

INSERT INTO project (pnumber, pname, plocation, dnum) VALUES (101, 'ProductX', 'Houston', 5), (102, 'ProductY', 'San Francisco', 1);

INSERT INTO works_on (emp_id, pno, hours) VALUES (1, 101, 12), (2, 102, 8);

INSERT INTO dependent (emp_id, dependent_name, sex, bdate, relationship) VALUES (1, 'John', 'M', '2005-09-01', 'Son'), (2, 'Sophia', 'F', '2008-05-10', 'Daughter');

```
mysql> SELECT * FROM employee;
+--------+----------+--------+-----------+------------+--------------+------+----------+-----------+------+
| emp_id | fname    | lname  | ssn       | bdate      | address      | sex  | salary   | super_ssn | dno  |
+--------+----------+--------+-----------+------------+--------------+------+----------+-----------+------+
|      1 | John     | Smith  | 123456789 | 1980-06-09 | 123 Apple St | M    | 50000.00 | 333445555 |    5 |
|      2 | Franklin | Wong   | 987654321 | 1978-02-17 | 456 Orange St| M    | 60000.00 | NULL      |    1 |
|      3 | Aayush   | Kharb  | 888888888 | 2002-07-01 | 789 Mango St | M    | 45000.00 | 987654321 |    3 |
+--------+----------+--------+-----------+------------+--------------+------+----------+-----------+------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM department;
+---------+----------------+-----------+----------------+
| dnumber | dname          | mgr_ssn   | mgr_start_date |
+---------+----------------+-----------+----------------+
|       1 | Administration | 987654321 | 2019-07-01     |
|       5 | Research       | 333445555 | 2021-01-01     |
+---------+----------------+-----------+----------------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM project;
+---------+----------+---------------+------+
| pnumber | pname    | plocation     | dnum |
+---------+----------+---------------+------+
|     101 | ProductX | Houston       |    5 |
|     102 | ProductY | San Francisco |    1 |
+---------+----------+---------------+------+
2 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM dependent;
+--------+----------------+------+------------+--------------+
| emp_id | dependent_name | sex  | bdate      | relationship |
+--------+----------------+------+------------+--------------+
|      1 | John           | M    | 2005-09-01 | Son          |
|      2 | Sophia         | F    | 2008-05-10 | Daughter     |
+--------+----------------+------+------------+--------------+
2 rows in set (0.00 sec)
```

QUERRIES ANSWER

select e.fname, e.lname from employee e join works_on w on e.emp_id = w.emp_id join project p on
w.pno = p.pnumber where e.dno = 5 and p.pname = 'productx' and w.hours > 10;

```
+-------+-------+
| fname | lname |
+-------+-------+
| John  | Smith |
+-------+-------+
1 row in set (0.00 sec)
```

select e.fname, e.lname from employee e join dependent d on e.emp_id = d.emp_id where e.fname =
d.dependent_name;

```
+-------+-------+
| fname | lname |
+-------+-------+
| John  | Smith |
+-------+-------+
1 row in set (0.00 sec)
```

select e.fname, e.lname from employee e join employee s on e.super_ssn = s.ssn where s.fname =
'franklin' and s.lname = 'wong';

```
+--------+-------+
| fname  | lname |
+--------+-------+
| Aayush | Kharb |
+--------+-------+
1 row in set (0.00 sec)
```

select e.fname, e.lname from employee e where not exists (select p.pnumber from project p where not
exists (select w.pno from works_on w where w.emp_id = e.emp_id and w.pno = p.pnumber));

```
Empty set (0.01 sec)
```

select e.fname, e.lname from employee e left join works_on w on e.emp_id = w.emp_id where
w.emp_id is null;

```
+--------+-------+
| fname  | lname |
+--------+-------+
| Aayush | Kharb |
+--------+-------+
1 row in set (0.00 sec)
```

select distinct e.fname, e.lname, e.address from employee e join works_on w on e.emp_id = w.emp_id join project p on w.pno = p.pnumber join department d on e.dno = d.dnumber where p.plocation = 'houston' and d.dnumber <> p.dnum;

```
Empty set (0.01 sec)
```

select e.lname from employee e join department d on e.ssn = d.mgr_ssn left join dependent dep on e.emp_id = dep.emp_id where dep.emp_id is null;

```
Empty set (0.00 sec)
```