

B.TECH. COMPUTER SCIENCE AND ENGINEERING – July - Dec, 2024

CSLR51 – Database Management Systems Laboratory

#Session: 04 || Date: 08/08/2024

Moodle Due: 11/08/2024 at 06 PM Relational Database Design – Company Schema – Nested Queries

Name : Ashwin R

Roll No. : 106122018

Q1.

7.1.1-> SELECT Fname, Lname FROM EMPLOYEE WHERE Super_ssn IS NULL;

7.1.2-> SELECT E.Fname, E.Lname FROM EMPLOYEE AS E WHERE E.Ssn IN
(SELECT D.Essn FROM DEPENDENT AS D WHERE E.Fname = D.Dependent_name
AND E.Sex = D.Sex);

7.1.3-> SELECT E.Fnam, E.Lname FROM EMPLOYEE AS E, DEPENDENT AS D
WHERE E.Ssn = D.Essn AND E.Sex = D.Sex AND E.Fname =D.Dependent_name;

7.1.4->
SELECT E.Fanme, E.Lname FROM EMPLOYEE AS E WHERE EXISTS
(SELECT * FROM DEPENDENT AS D WHERE E.Ssn = D.Essn AND E.Sex = D.Sex
AND E.Fname = D.Depedent_name);

SELECT Fname, Lname FROM EMPLOYEE WHERE NOT EXISTS
(SELECT * FROM DEPENDENT WHERE Ssn = Essn); //

SELECT Fname, Lname FROM EMPLOYEE WHERE EXISTS
(SELECT * FOM DEPENDENT WHERE Ssn = Essn) AND EXISTS (SELECT * FROM

DEPARTMENT WHERE Ssn = Mgr_ssn);

SELECT Fname, Lname FROM EMPLOYEE WHERE NOT EXISTS

((SELECT Pnumber FROM PROJECT WHERE Dnum = 5) EXCEPT (SELECT Pno
FROM WORKS_ON WHERE Ssn = Essn));

SELECT Lname, Fname FROM EMPLOYEE WHERE NOT EXISTS

(SELECT * FROM WORK_ON B WHERE (B.Pno IN(SELECT Pnumber FROM PROJECT
WHERE Dnum = 5) AND NOT EXISTS (SELECT * FROM WORKS_ON C WHERE C.Essn
= Ssn AND C.Pno = B.Pno)));

7.1.5 ->

SELECT DISTINCT Essn FROM WORKS_ON WHERE Pno IN (1,2,3); //

SELECT E.Lname AS Employee_name, S.Lname AS Supervisor_name FROM
EMPLOYEE AS E, EMPLOYEE AS S WHERE E.Super_ssn = S.Ssn; //

7.1.6 ->

SELECT Fname, Lname, Address FROM (EMPLOYEE JOIN DEPARTMENT ON Dno =
Dnumber) WHERE Dname = 'Research';

SELECT E.Lname AS Employee_name, S.Lname AS Supervisor_name FROM
(EMPLOYEE AS E LEFT OUTER JOIN EMPLOYEE AS S ON E.Super_Ssn = S.Ssn); //

SELECT Pnumber, Dnum, Lname, Address, Bdate FROM ((PROJECT JOIN
DEPARTMENT ON Dnum = Dnumber) JOIN EMPLOYEE ON Mgr_ssn = Ssn) WHERE
Plocation = 'Stafford';

```
SELECT E.Lname, S.Lname FROM EMPLOYEE E, EMPLOYEE S WHERE E.Super_ssn  
+= S.Ssn;
```

Q2.

a.

```
SELECT D.Dname, COUNT(E.Ssn) AS NumberOfEmployees  
FROM EMPLOYEE E  
JOIN DEPARTMENT D ON E.Dno = D.Dnumber  
GROUP BY D.Dname  
HAVING AVG(E.Salary) > 30000;
```

b.

```
i) SELECT D.Dname, COUNT(E.Ssn) AS NumberOfFemaleEmployees  
FROM EMPLOYEE E  
JOIN DEPARTMENT D ON E.Dno = D.Dnumber  
WHERE E.Sex = 'F' AND E.Salary > 30000  
GROUP BY D.Dname;
```

```
ii) SELECT D.Dname, COUNT(E.Ssn) AS NumberOfMaleEmployees  
FROM EMPLOYEE E  
JOIN DEPARTMENT D ON E.Dno = D.Dnumber  
WHERE E.Sex = 'M'  
GROUP BY D.Dname  
HAVING AVG(E.Salary) > 30000;
```

c.

```
SELECT E.Fname, E.Lname  
FROM EMPLOYEE E  
WHERE E.Dno = (SELECT Dno FROM EMPLOYEE ORDER BY Salary DESC LIMIT 1);
```

d.

```
SELECT E.Fname, E.Lname  
FROM EMPLOYEE E  
WHERE E.Salary >= (SELECT MIN(Salary) + 10000 FROM EMPLOYEE);
```

e.

```
SELECT E.Fname, E.Lname  
FROM EMPLOYEE E  
WHERE E.Salary >= (SELECT MIN(Salary) + 10000 FROM EMPLOYEE);
```

f.

```
SELECT E.Fname, E.Lname  
FROM EMPLOYEE E  
JOIN DEPENDENT D ON E.Ssn = D.Essn  
WHERE E.Fname = D.Dependent_name;
```

g.

```
SELECT E.Fname, E.Lname  
FROM EMPLOYEE E  
JOIN EMPLOYEE S ON E.Super_ssn = S.Ssn  
WHERE S.Fname = 'Tejaswi' AND S.Lname = 'Kumar';
```

h.

```
SELECT E.Fname, E.Lname
FROM EMPLOYEE E
WHERE NOT EXISTS (
    SELECT P.Pnumber
    FROM PROJECT P
    WHERE P.Dnum = 5
    AND NOT EXISTS (
        SELECT W.Essn
        FROM WORKS_ON W
        WHERE W.Pno = P.Pnumber
        AND W.Essn = E.Ssn
    )
);
```

i.

```
SELECT P.Pname, SUM(W.Hours) AS TotalHours
FROM PROJECT P
JOIN WORKS_ON W ON P.Pnumber = W.Pno
GROUP BY P.Pname;
```

j.

```
SELECT E.Fname, E.Lname
FROM EMPLOYEE E
WHERE NOT EXISTS (
    SELECT P.Pnumber
    FROM PROJECT P
    WHERE NOT EXISTS (
        SELECT W.Essn
```

```
FROM WORKS_ON W
WHERE W.Pno = P.Pnumber
AND W.Essn = E.Ssn
)
);
```

k.

```
SELECT E.Fname, E.Lname
FROM EMPLOYEE E
WHERE NOT EXISTS (
    SELECT W.Essn
    FROM WORKS_ON W
    WHERE W.Essn = E.Ssn
);
```

l.

```
SELECT AVG(Salary) AS AverageFemaleSalary
FROM EMPLOYEE
WHERE Sex = 'F';
```

m.

```
ELECT DISTINCT E.Fname, E.Lname, E.Address
FROM EMPLOYEE E
JOIN WORKS_ON W ON E.Ssn = W.Essn
JOIN PROJECT P ON W.Pno = P.Pnumber
WHERE P.Plocation = 'Madurai'
AND E.Dno NOT IN (
```

```
SELECT D.Dnumber
FROM DEPT_LOCATIONS D
WHERE D.Dlocation = 'Madurai'
);
```

n.

```
SELECT E.Lname
FROM EMPLOYEE E
JOIN DEPARTMENT D ON E.Ssn = D.Mgr_ssn
WHERE NOT EXISTS (
    SELECT 1
    FROM DEPENDENT DEP
    WHERE DEP.Essn = E.Ssn
);
```

o.

```
SELECT E1.Fname, E1.Lname
FROM EMPLOYEE E1
JOIN EMPLOYEE E2 ON E1.Super_ssn = E2.Ssn
JOIN EMPLOYEE E3 ON E2.Super_ssn = E3.Ssn
WHERE E3.Lname = 'XYZ';
```

p.

```
SELECT DISTINCT E.Fname, E.Lname
FROM EMPLOYEE E
JOIN WORKS_ON W ON E.Ssn = W.Essn
JOIN PROJECT P ON W.Pno = P.Pnumber
WHERE P.Dnum = 10;
```

q.

```
SELECT E.Ssn, E.Fname
FROM EMPLOYEE E
WHERE E.Ssn IN (
    SELECT W.Essn
    FROM WORKS_ON W
    GROUP BY W.Essn
    HAVING COUNT(DISTINCT W.Pno) >= 2
)
ORDER BY (
    SELECT COUNT(*)
    FROM EMPLOYEE E2
    WHERE E2.Super_ssn = E.Ssn
);
```

r.

```
SELECT E.Fname, E.Lname, D.Dependent_name
FROM EMPLOYEE E
JOIN DEPENDENT D ON E.Ssn = D.Essn
WHERE E.Sex = 'M';
```

s.

```
SELECT E.Fname, E.Lname
FROM EMPLOYEE E
JOIN DEPARTMENT D ON E.Dno = D.Dnumber
JOIN EMPLOYEE M ON D.Mgr_ssn = M.Ssn
WHERE E.Salary > M.Salary;
```


t.

```
SELECT DISTINCT E.Fname, E.Lname
```

```
FROM EMPLOYEE E
```

```
WHERE E.Dno = (SELECT D.Dnumber FROM DEPARTMENT D WHERE D.Dname = 'CS')
```

```
OR E.Ssn IN (SELECT E1.Super_ssn FROM EMPLOYEE E1 JOIN DEPARTMENT
```

```
D1 ON E1.Dno = D1.Dnumber WHERE D1.Dname = 'CS');
```