



PES UNIVERSITY EC CAMPUS DBMS LAB WEEK 8

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SRN: PES2UG19CS301
SECTION: E

PROBLEM STATEMENT : SQL - Joins: inner, outer; Sub queries

1. Using nested query retrieve the names of all employees who have two or more dependents.

```
companydb=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE (SELECT COUNT(*) FROM DEPENDENT WHERE SSN=ESSN)>=2;
  fname | lname
-----+-----
FRANKLIN | WONG
JOHN     | SMITH
(2 rows)

companydb=#
```

2. Using nested query Retrieve the name of each employee who has a dependent with the same first name and is the same sex as the employee.

```
companydb=# SELECT FNAME,LNAME FROM EMPLOYEE AS E WHERE E.SSN IN (SELECT ESSN FROM DEPENDENT AS D WHERE D.DEPENDENT_NAME=E.FNAME AND E.SEX=D.SEX);
  fname | lname
-----+-----
(0 rows)

companydb=# select * from dependent;
  essn | dependent_name | sex | relationship | bdate
-----+-----
333445555 | ALICE          | F   | DAUGHTER     | 1986-04-05
333445555 | THEODORE       | M   | SON           | 1983-10-25
333445555 | JOY            | F   | SPOUSE       | 1958-05-03
987654321 | ABNER          | M   | SPOUSE       | 1942-02-28
123456789 | MICHAEL        | M   | SON           | 1988-01-04
123456789 | ALICE          | F   | DAUGHTER     | 1988-12-30
123456789 | ELIZABETH      | F   | SPOUSE       | 1967-05-05
(7 rows)

companydb=# select * from EMPLOYEE;
  fname | minit | lname | ssn | bdate | address | sex | salary | dno | super_ssn
-----+-----
JAMES  | E     | BORG  | 888665555 | 1937-11-10 | 405 STONE, HOUSTON, TX | M | 55000 | 1 | 888665555
FRANKLIN | T     | WONG  | 333445555 | 1955-12-08 | 638 VOSS, HOUSTON, TX | M | 40000 | 5 | 888665555
JOHN   | B     | SMITH | 123456789 | 1965-01-09 | 731 FONDREN, HOUSTON, TX | M | 30000 | 5 | 333445555
JENNIFER | S     | WALLACE | 987654321 | 1941-06-20 | 291 BERRY, BELLAIRE, TX | F | 43000 | 4 | 888665555
ALICIA | J     | ZELAYA | 999887777 | 1968-01-19 | 3321 CASTLE, SPRING, TX | F | 25000 | 4 | 987654321
RAMESH | K     | NARAYAN | 666884444 | 1962-09-15 | 975 FIRE OAK, HOUSTON, TX | M | 38000 | 5 | 333445555
JOYCE  | A     | ENGLISH | 453453453 | 1972-07-31 | 5631 RICE, HOUSTON, TX | F | 25000 | 5 | 333445555
AHMAD  | V     | JABBAR | 987987987 | 1969-03-29 | 975 FIRE OAK, HOUSTON, TX | M | 25000 | 4 | 987654321
(8 rows)
```

3. Using nested query retrieve names of employees whose salary is greater than the salary of all the employees in department 5.

```
companydb=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE SALARY > ALL(SELECT SALARY FROM EMPLOYEE WHERE DNO=5);
  fname | lname
-----+-----
 JAMES  | BORG
JENNIFER | WALLACE
(2 rows)
```

4. Retrieve the names of employees who have no dependents.(use Exists/Not Exists)

```
companydb=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE NOT EXISTS(SELECT * FROM DEPENDENT WHERE SSN=ESSN);
  fname | lname
-----+-----
 JAMES  | BORG
ALICIA  | ZELAYA
RAMESH  | NARAYAN
JOYCE   | ENGLISH
AHMAD   | JABBAR
(5 rows)

companydb=# select * from EMPLOYEE;
  fname |  minit |  lname |  ssn |  bdate | address | sex | salary | dno | super_ssn
-----+-----+-----+-----+-----+-----+----+-----+----+-----
 JAMES  | E      | BORG   | 888665555 | 1937-11-10 | 405 STONE,HOUSTON,TX | M | 55000 | 1 | 
FRANKLIN | T      | WONG   | 333445555 | 1955-12-08 | 638 VOSS,HOUSTON,TX | M | 40000 | 5 | 888665555
JOHN    | B      | SMITH  | 123456789 | 1965-01-09 | 731 FONDREN,HOUSTON,TX | M | 30000 | 5 | 333445555
JENNIFER | S      | WALLACE | 987654321 | 1941-06-20 | 291 BERRY,BELLAIRE,TX | F | 43000 | 4 | 888665555
ALICIA  | J      | ZELAYA | 999887777 | 1968-01-19 | 3321 CASTLE,SPRING,TX | F | 25000 | 4 | 987654321
RAMESH  | K      | NARAYAN | 666884444 | 1962-09-15 | 975 FIRE OAK,HOUSTON,TX | M | 30000 | 5 | 333445555
JOYCE   | A      | ENGLISH | 453453453 | 1972-07-31 | 5631 RICE,HOUSTON,TX | F | 25000 | 5 | 333445555
AHMAD   | V      | JABBAR | 987987987 | 1969-03-29 | 975 FIRE OAK,HOUSTON,TX | M | 25000 | 4 | 987654321
(8 rows)

companydb=# select * from dependent;
  essn | dependent_name | sex | relationship | bdate
-----+-----+----+-----+-----
333445555 | ALICE | F | DAUGHTER | 1986-04-05
333445555 | THEODORE | M | SON | 1983-10-25
333445555 | JOY | F | SPOUSE | 1958-05-03
987654321 | ABNER | M | SPOUSE | 1942-02-28
123456789 | MICHAEL | M | SON | 1988-01-04
123456789 | ALICE | F | DAUGHTER | 1988-12-30
123456789 | ELIZABETH | F | SPOUSE | 1967-05-05
(7 rows)
```

5. List the names of managers who have at least one dependent.

```
companydb=# SELECT DISTINCT FNAME,LNAME FROM EMPLOYEE AS E,DEPARTMENT AS D,DEPENDENT AS F WHERE E.SSN=D.MGR_SSN AND E.SSN=F.ESSN;
  fname | lname
-----+-----
FRANKLIN | WONG
JENNIFER | WALLACE
(2 rows)

companydb=# SELECT FNAME,LNAME FROM EMPLOYEE WHERE EXISTS (SELECT * FROM DEPENDENT WHERE SSN = ESSN)
AND
EXISTS (SELECT * FROM DEPARTMENT WHERE SSN = MGR_SSN);
  fname | lname
-----+-----
FRANKLIN | WONG
JENNIFER | WALLACE
(2 rows)

companydb=#
```

6. Using natural Join retrieve the name and address of every employee who works for the 'Research' department.

```
companydb=# SELECT FNAME,LNAME,ADDRESS FROM EMPLOYEE AS E,DEPARTMENT AS D WHERE E.DNO=D.DNUMBER AND D.DNAME='RESEARCH';
```

fname	lname	address
FRANKLIN	WONG	638 VOSS,HOUSTON,TX
JOHN	SMITH	731 FONDREN,HOUSTON,TX
RAMESH	NARAYAN	975 FIRE OAK,HOUSTON,TX
JOYCE	ENGLISH	5631 RICE,HOUSTON,TX

(4 rows)

```
companydb=# SELECT * FROM DEPARTMENT;
```

dname	dnumber	mgr_ssn	mgr_start_date
RESEARCH	5	333445555	1988-05-22
ADMINISTRATION	4	987654321	1995-01-01
HEADQUARTERS	1	888665555	1981-06-19

(3 rows)

```
companydb=# select * from EMPLOYEE;
```

fname	minit	lname	ssn	bdate	address	sex	salary	dno	super_ssn
JAMES	E	BORG	888665555	1937-11-10	405 STONE,HOUSTON,TX	M	55000	1	
FRANKLIN	T	WONG	333445555	1955-12-08	638 VOSS,HOUSTON,TX	M	40000	5	888665555
JOHN	B	SMITH	123456789	1965-01-09	731 FONDREN,HOUSTON,TX	M	30000	5	333445555
JENNIFER	S	WALLACE	987654321	1941-06-20	291 BERRY,BELLAIRE,TX	F	43000	4	888665555
ALICIA	J	ZELAYA	999887777	1968-01-19	3321 CASTLE,SPRING,TX	F	25000	4	987654321
RAMESH	K	NARAYAN	666884444	1962-09-15	975 FIRE OAK,HOUSTON,TX	M	38000	5	333445555
JOYCE	A	ENGLISH	453453453	1972-07-31	5631 RICE,HOUSTON,TX	F	25000	5	333445555
AHMAD	V	JABBAR	987987987	1969-03-29	975 FIRE OAK,HOUSTON,TX	M	25000	4	987654321

(8 rows)

```
companydb=# |
```