WEEK 7

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SQL - Set Operations – Union, Intersect and Minus

1) Make a list of all project numbers for projects that involve an employee whose last name is 'Smith', either as a worker or as a manager of the department that controls the project.

```
company=# (SELECT DISTINCT pnumber
company(# FROM project, department, employee
company(# WHERE dnum=dnumber AND mgr_ssn=ssn AND lname='Smith')
company-# UNION
company-# (SELECT DISTINCT pnumber
company(# FROM project, works_on, employee
company(# WHERE pnumber=pno AND essn=ssn AND lname='Smith');
 pnumber
---------
       1
       2
(2 rows)
```

2) Retrieve the names of the employee who does not have dependents.

```
company=# SELECT fname,minit,lname
company-# FROM employee
company-# WHERE NOT EXISTS (SELECT* FROM dependent WHERE ssn=essn);
 fname  | minit |  lname
--------+-------+---------
 James  | E     | Borg
 Alicia | J     | Zelaya
 Ramesh | K     | Narayan
 Joyce  | A     | English
 Ahmed  | V     | Jabbar
(5 rows)
```

3) Retrieve the Social Security numbers of all employees who either work in department 5 or directly supervise an employee who works in dept 5.

```
company=# (SELECT ssn from employee where dno = 5)
company-# UNION
company-# (SELECT DISTINCT super_ssn FROM employee WHERE dno = 5);
    ssn
-----------
 123456789
 333445555
 453453453
 666884444
 888665555
(5 rows)
```

4) Using Intersect find all projects controlled by the department 5 and has employee ssn 123456789 working in that project.

```
company=# (SELECT pnumber FROM project WHERE dnum = 5)
company-# INTERSECT
company-# (SELECT pno FROM works_on WHERE essn = '123456789');
 pnumber
---------
       1
       2
(2 rows)
```

5) Using Except find all ssn of employees who works in department 5 but not in Bellaire location.

```
company=# (SELECT ssn FROM employee WHERE dno = 5)
company-# EXCEPT
company-# (SELECT ssn FROM employee WHERE ssn IN
company(# (SELECT essn FROM works_on WHERE pno IN
company(# (SELECT pnumber FROM project WHERE plocation = 'Bellaire')));
    ssn
-----------
 666884444
 333445555
(2 rows)
```

6) Find the name of the employee who has the same name as the dependent of any employee (use intersect).

```
company=# (SELECT fname FROM employee)
company-# INTERSECT
company-# (SELECT dependent_name FROM dependent);
 fname
-------
(0 rows)
```