**CSC380 Fall 2018**

## Tutorial 7

1. **Assume the following relational schema:**

EMPLOYEE(Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT(Dname, DNo )

PROJECT(PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

List all employees in department 5 whose salary is between $30,000 & $40,000.

```
SELECT *
  FROM  EMPLOYEE
    WHERE  DeptNo = 5   AND  Salary BETWEEN 30000 AND 40000;
```

2. **Assume the following relational schema:**
   STAFF(sno, fname, lname, position, sex, dob, salary, bno)

Produce a list of salaries for all staff, arranged in descending order of salary.

```
SELECT  sno, fname, lname, salary
 FROM  staff
   ORDER BY salary  DESC;
```

3. **Assume the following relational schema:**
   Property (PropertyNo, Street, City, postcode, Type, OwnerNo, Rooms, Rent)

Produce a list of properties arranged in order of property type and within each property type ordered by rent in descending order.

```
SELECT propertyNo, type, rooms, rent
 FROM property
    ORDER BY  type, rent  DESC;
```

4. **Assume the following relational schema:**

EMPLOYEE(Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT(Dname, DNo )

PROJECT(PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

List all employees, ordered by department and, within each department, ordered alphabetically by last name, first name.

```
SELECT *
  FROM  EMPLOYEE
   ORDER BY  DeptNo, Lname, Fname;
```

5. **Assume the following relational schema:**
   Property (PropertyNo, Street, City, postcode, Type, OwnerNo, Rooms, Rent)

How many properties cost more than 350 per month to rent?

```
SELECT COUNT(*) AS count
  FROM  property
   WHERE   rent > 350;
```

6. **Assume the following relational schema:**
   VIEWING (ClientNo, PropertyNo, ViewDate, Comment)

How many different properties were viewed in May 1998?

```
SELECT  COUNT(DISTINCT  PropertyNo)  AS  count
 FROM  viewing
  WHERE  Viewdate  BETWEEN  '1-May-98'  AND  '31-May-98';
```

7. **Assume the following relational schema:**
   STAFF(sno, fname, lname, position, sex, dob, salary, bno)

Find the total number of Managers and the sum of their salaries.

```
SELECT  COUNT(sno)  AS  count,  SUM(salary)  AS  sum
  FROM  staff  WHERE  position  =  'Manager';
```

8. **Assume the following relational schema:**
   STAFF(sno, fname, lname, position, sex, dob, salary, bno)

Find the minimum, maximum, and average staff salary.

```
SELECT MIN(salary) AS  min,  MAX(salary)  AS  max,       AVG(salary)  AS avg
 FROM staff;
```

9. **Assume the following relational schema:**
   STAFF(sno, fname, lname, position, sex, dob, salary, bno)

Find the number of staff working in each branch and the sum of their salaries.

```
SELECT  bno, COUNT(sno) AS count, SUM(salary) AS sum
 FROM  staff
  GROUP BY bno;
```

10. **Assume the following relational schema:**

STAFF(sno, fname, lname, position, sex, dob, salary, bno)

For each branch office with more than one member of staff, find the number of staff working in each branch and the sum of their salaries.

```
SELECT  bno, COUNT(sno) AS count, SUM(salary) AS sum
 FROM  staff
  GROUP BY bno
   HAVING COUNT(sno) > 1;
```

11. **Assume the following relational schema:**
    EMPLOYEE(Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

    DEPARTMENT(Dname, DNo )

    PROJECT(PName, PNo, PLocation, Dno)

    WORKS_ON(SSN, PNo, Hours)

For each project on which more than two employees work, retrieve the project number and the number of employees who work on the project.

```
SELECT PNo, COUNT (SSN)
  FROM  WORKS_ON
    GROUP BY PNo
     HAVING COUNT(SSN) > 2;
```

**12. Assume the following relational schema:**

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

BRANCH (bno, street, city, postcode)

List the staff who work in the branch at '163 Main St'.

```
SELECT  sno,  fname,  lname,  position
 FROM staff
   WHERE  bno  = (SELECT  bno
                FROM  branch
                 WHERE  street = '163 Main St');
```

**13. Assume the following relational schema:**

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

List the staff whose salary is greater than the average salary, and list by how much their salary is greater than the average.

```
SELECT sno, fname, lname, position, salary – (SELECT
      avg(salary) FROM staff ) AS sal_diff
 FROM staff
   WHERE  salary  > ( SELECT  avg(salary)
                  FROM  staff  );
```

**14. Assume the following relational schema:**

PROPERTYFORRENT (pno, street, area, city, pcode, type, rooms, rent, sno)

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

BRANCH (bno, street, city, postcode)

List the properties that are handled by staff who work in the branch at ‘163 Main St’.

```
SELECT pno, street, area, city, pcode, type, rooms, rent
 FROM property_for_rent
  WHERE sno  IN
     (SELECT  sno
       FROM  staff
        WHERE  bno =
             (SELECT  bno
               FROM  branch
                 WHERE  street  =  ‘163 MainSt’));
```

**15. Assume the following relational schema:**

EMPLOYEE(Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT(Dname, DNo )

PROJECT(PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

Show the resulting salaries if every employee working on ‘X’ project is given all %10 raise.

```
SELECT SSN, Fname, Lname, (Salary + (Salary*0.1)) AS Salary_after_raise
  FROM  EMPLOYEE
    WHERE SSN IN ( SELECT SSN FROM WORKS_ON
                        WHERE PNO = ( SELECT PNO FROM PROJECT
                                          WHERE PName = ‘X’)  );
```

**16. Assume the following relational schema:**

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

Find staff whose salary is larger than the salary of at least one member of staff at branch B3.

```
SELECT  sno,  fname,  lname,  position, salary
  FROM staff
    WHERE salary > SOME
         (SELECT salary
           FROM  staff
            WHERE bno = ‘B3’);
```

**17. Assume the following relational schema:**

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

Find staff whose salary is larger than the salary of every member of staff at branch B3.

```
SELECT  sno,  fname,  lname,  position, salary
  FROM staff
    WHERE salary > ALL
         (SELECT salary
           FROM  staff
            WHERE bno = ‘B3’);
```

**18. Assume the following relational schema:**

EMPLOYEE (Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT (Dname, DNo )

PROJECT (PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

For each department that has more than 5 employees, retrieve the department number and the number of its employees who are making more than $40,000.

```
SELECT DeptNo, COUNT (*)
  FROM  EMPLOYEE
    WHERE Salary > 40000 AND DeptNo IN ( SELECT DeptNo  FROM EMPLOYEE
                                         GROUP BY DeptNo
                                         HAVING COUNT (*) > 5  )
    GROUP BY DeptNo ;
```

**19. Assume the following relational schema:**

CLIENT (ClientNo, Fname, Lname, telNo, Type, Rent)

VIEWING (ClientNo, PropertyNo, Date, Comment)

List the names of all clients who have viewed a property along with any comment supplied.

```
SELECT  c.clientNo, fname,  lname,  propertyNo,  comment
  FROM  client  c,  viewing  v
   WHERE  c.clientNo  =  v.clientNo;
```

**20. Assume the following relational schema:**

EMPLOYEE (Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT (Dname, DNo )

PROJECT (PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

List all employees and identify the projects they are working on, ordered by department and, within each department, ordered alphabetically by last name, first name.

```
SELECT  E.SSN, Fname, Lname, DeptNo, Pno
  FROM   EMPLOYEE  E, WORKS_ON  W
    WHERE   E.SSN = W.SSN
     ORDER BY DeptNo, Lname, Fname;
```

**21. Assume the following relational schema:**

PROPERTYFORRENT (pno, street, area, city, pcode, type, rooms, rent, sno)

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

BRANCH (bno, street, city, postcode)

For each branch, list the staff who manage properties, including the city in which the branch is located and the properties they manage.

```
SELECT  b.bno, b.city, s.sno, fname, lname, pno
 FROM  branch b, staff s, propertyForRent p
  WHERE  b.bno = s.bno  AND  s.sno = p.sno;
```

**22. Assume the following relational schema:**

PROPERTYFORRENT (pno, street, area, city, pcode, type, rooms, rent, sno)

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

BRANCH (bno, street, city, postcode)

Find the number of properties handled by each staff member and branch.

```
SELECT  s.bno,  s.sno,  COUNT(*)  AS  count
  FROM  staff  s,  propertyForRent  p
    WHERE  s.sno = p.sno
          GROUP BY s.bno, s.sno;
```

**23. Assume the following relational schema:**

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

Find all staff who work in a London branch.

```
SELECT  sno,  fname,  lname,  position
  FROM  staff  s
   WHERE  EXISTS
```

(SELECT *

FROM branch b

WHERE s.bno = b.bno AND city = ‘London’);

**24. Assume the following relational schema:**

EMPLOYEE (Fname, Lname, SSN, DOB, Address, Sex, Salary, DeptNo)

DEPARTMENT (Dname, DNo )

PROJECT (PName, PNo, PLocation, Dno)

WORKS_ON(SSN, PNo, Hours)

Retrieve the names of employees who works on no project.

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

**25. Assume the following relational schema:**

PROPERTYFORRENT (pno, street, area, city, pcode, type, rooms, rent, sno)

STAFF (sno, fname, lname, position, sex, DOB, salary, bno)

BRANCH (bno, street, city, postcode)

Construct a list of all cities where there is either a branch office or a rental property.

```
(SELECT  city   FROM  branch)
UNION
(SELECT  city   FROM  propertyforrent);
```