

Assignment #3 **due February 21, 2019 at noon**

For this assignment, you are provided a MySQL database backup file. This is a text file full of SQL commands that will create tables and insert data to populate a database. The data are taken from a real system that enables users to view real estate information for areas around Cleveland according to the roles assigned in the system.

Submit a plain text file (.txt or .sql) to Canvas by the due date and time.

Steps for setup:

1. Download eeecs341as3.sql from Canvas
2. Create a database in your local MySQL instance, for example:

```
mysql> create database eeecs341as3;
```
3. Next, switch to the database and load the database backup file, for example:

```
mysql> use eeecs341as3  
mysql> source eeecs341as3.sql
```
4. Now, examine the table definitions one-by-one, for example:

```
mysql> show tables;  
mysql> show create table user;
```

Once you have loaded the tables and you understand the entities and relationships represented by the tables, answer the following questions by providing SQL queries that are valid in MySQL:

1. Find the ID and name for all users who are not associated with a role.
2. Find names that are used by more than fifty (50) users. For each name, also return the count of how many times the name is used, and sort the list of names so that the most popular name is at the top of the list.
3. For each user, return the user ID, user name, and count of distinct areas that the user is able to access based on the roles assigned to the user.
4.
$$\pi_{\text{user.id, user.name, role.id, role.name}} \left(\sigma_{\text{user.id=user_role.user_id} \wedge \text{role.id=user_role.role_id} \wedge \text{role.name='Ward 6'}} \left(\text{user} \times \text{role} \times \text{user_role} \right) \right)$$
5.
$$\pi_{\text{user.id, user.name}} \left(\sigma_{\text{user_role.user_id is null}} \left(\text{user} \bowtie_{\text{user.id = user_role.user_id}} \text{user_role} \right) \right)$$