DSCI 551 – Fall 2021

Homework 3 (SQL), 100 points

Due: 10/22, Friday, 11:59pm

In this homework, install the Sakila database as described in https://dev.mysql.com/doc/sakila/en/.

Or you may follow these steps to install it on EC2.

- Download package:
  - wget https://downloads.mysql.com/docs/sakila-db.tar.gz
- Unzip it:
  - tar xvf sakila-db.tar.gz
- Install:
  - cd sakila-db
  - mysql -u root -p < sakila-schema.sql
  - mysql -u root -p < sakila-data.sql
- Now log in to mysql, you should see the *sakila* database.
- Run the following command in mysql, if you haven't created a user named “dsci551” with password “Dsci-551” in mysql, please refer to lab 1.

  GRANT ALL PRIVILEGES ON sakila.* TO 'dsci551'@'localhost';

- Download “hw3_grade.sh” from blackboard and put it in the directory (e.g LASTNAME_FIRSTNAME_HW3) you are working on
  a. cd LASTNAME_FIRSTNAME_HW3
  b. chmod 707 hw3_grade.sh

1. Please write SQL query for each of the following questions. (50 pts, 5 pts each)

   Submission format:

   For each problem, create a file named “q1_<problem_index>.sql”,

   For example, for problem a, “q1_a.sql”

   Inside your sql files, it should look like this

use sakila;

<your sql query>

a. Find actors in the actor table whose first name contains “er”. Return all columns. Your columns’ names and order should look **EXACTLY** like

```
+----------+-------------+-----------+--------------------+
| actor_id | first_name  | last_name | last_update        |
+----------+-------------+-----------+--------------------+
```

b. Find the second highest amount in the payment table using order by and limit. Return the amount only. Your column name should look **EXACTLY** like

```
+--------+
| amount |
+--------+
```

c. Find all films acted by the actor with actor_id = 1; Return actor_id, first_name, last_name, film_id, film_title. Your columns’ names and order should look **EXACTLY** like

```
+----------+-------------+--------------+----------+------+
| actor_id|first_name| last_name | film_id | title  |
+----------+-------------+--------------+----------+------+
```

d. Find all store addresses that are in Argentina (country_id=6; you can use this information directly); Return address_id, address, and city_id. Your columns’ names and order should look **EXACTLY** like

```
+------------+----------------------------------+---------+
| address_id | address                          | city_id |
+------------+----------------------------------+---------+
```

e. Find all actors who have played in at least 1 film that is shorter than 48 minutes (length < 48); Return distinct actor_id only, in **ascending order**. Your column name should look **EXACTLY** like

```
+----------+
| actor_id |
+----------+
```

f. Find the top 5 actors who have played in most films based on records in the film_actor table; Return actor_id and the count of films played (name this column film_count); sort the result by film_count in descending order. Your columns' names and order should look **EXACTLY** like

```
+----------+------------+
| actor_id | film_count |
+----------+------------+
```

g. Find the actors who acted in more than 30 films. Show actor names in ascending order by first name then last name. Your column names and order should look **EXACTLY** like:

```
+--------------+---------------+
| first_name  | last_name   |
+--------------+---------------+
```

h. Find the languages that are not presented in any films. Sort the result in ascending order.

```
+----------+
| name     |
+----------+
```

i. Find out how many different categories of films Ed Chase has appeared in. Your column names and order should look **EXACTLY** like:

```
+----------------------------+
| number_of_categories |
+----------------------------+
```

j. Use Any to find the *title* and *release years* of all films that the actor_id =1 has acted in. Sort the result by title in ascending order. Your column names and order should look **EXACTLY** like:

```
+------------------+-------------------+
| title            | release_year  |
+------------------+-------------------+
```

2.Create a view table called ‘Comedy_film’ that contains all the films in the ‘Comedy’ category. You can design your own view table (select columns you need) to meet the requirements below. [20 pts]

Then query from ‘Comedy_film’ and other tables that you need to **find all the actors who acted in those comedy films**. The final output should be actors’ id, first name, and last name only. (no duplicates and sort actor_id in descending order)

Submission format:

Create a file named “q2.sql”

Your sql file should look like this (if you miss “USE sakila;**” and “**DROP VIEW IF EXISTS Comedy_film;**” points will be deducted):**

```
USE sakila;
DROP VIEW IF EXISTS Comedy_film;

<your sql query>
<your sql query>
```

3. [30 pts] Suppose one time you wish to find films that an actor played, but you couldn't remember the actor's full name. Instead, you only remember that his/her last name is "`Temple`". Luckily, you once created a table called '`nicer_but_slower_film_list`' in the `sakila` database where it stores all the information about films and actors.
(note that 'nicer_but_slower_film_list' is a view which is already defined in the database)
However, a super villain named "Novie man" realized that that table still exists and cast a spell on your `mysql` command so that you can't use your `mysql` command at all. So every time you type `mysql`, your terminal spits out "`command not found`".

But you have Python! Use mysql.connector and write a python script called "search.py". Show what films (with fid) have an actor or actors whose name contains "Temple" (case-sensitive). In the meantime, show how many films you find.

Submission format:

a. Create a file named search.py
b. Don't print anything extra
c. Use "dsci551" as username and "Dsci-551" as password.

Execution format:

```
python search.py
```

Output format (print in terminal. First line is shown below, second line is an empty line, 3rd line and above are shown below, sorted by fid ascendingly):

```
37 films in total.
```

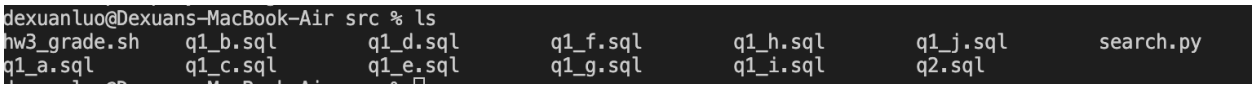
```
Anthony Temple plays A Beautiful Mind(1)
Cheryl Temple and Anthony Temple play Catch Me If You Can(5)
...
```

Note:

1. The word “and” between multiple actors
2. Verbs are different for singular/plural subjects
3. Title casing for the titles

Submission:

1. Your submission folder should contain 13 files and look **EXACTLY** like this (PLEASE INCLUDES hw3_grade.sh, otherwise 10 pts will be deducted), any extra files like “README” will be ignored



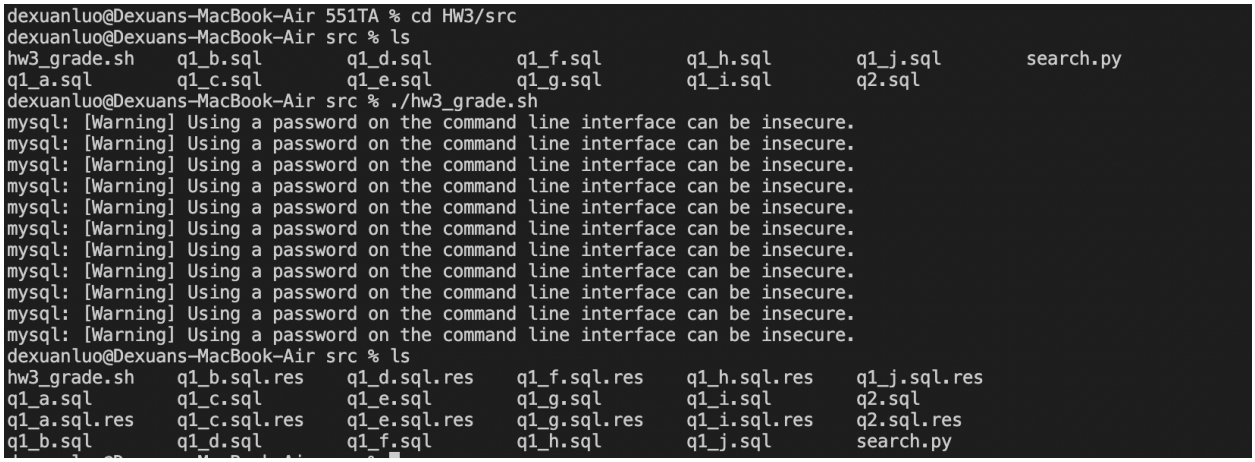
Please understand how TA will run your sql files for q1 and q2.

The TAs will simply run.

./hw3_grade.sh

And then the command will generate a bunch of “.res” files. Then TA will grade based on those “.res” files. If your filename is incorrect or your username and password is incorrect for the database points will be deducted. Test your files with the given grading script before you submit. **If you change a single byte in hw3_grade.sh, 50 pts will be deducted**.

After running the grading script your directory should look **EXACTLY** like



2. Put all files in the same directory and compress it into a zip file.
   Zip file name format: LASTNAME_FIRSTNAME_HW3.zip

   Make sure when the file is unzipped, the folder name is LASTNAME_FIRSTNAME_HW3

3. If you modify a column or delete a record or drop a table from TA's database, your homework will be graded 0.