Assignment 3

ENSF 608 Fall 2020

Department of Electrical and Computer Engineering
Schulich School of Engineering

The objective of this assignment is to apply your understanding of SQL syntax and programming on a practical database application.

Due: Tuesday, December 1st, 11:59 PM

Submission: This is an individual assignment. Your submission must be your own original work.

There are two components to this assignment. Your submission should be two files:

- A single .pdf file with your relational model (Lastname_Firstname_Assignment3.pdf)
- A single .sql file with your query solutions (Lastname_Firstname_Assignment3.sql)

Please upload your submission to the Assignment 3 Solutions D2L dropbox folder.

Weighting: This assignment is out of 30 marks and is worth 15% of your overall grade.

Grading:

The relational data model should follow the formatting conventions outlined in the lecture notes. Your solution may be computer generated or hand drawn but must be legible.

All relations should have a name, primary key, attribute(s) as necessary, and foreign key(s) as necessary. Use arrows to represent foreign keys (referential integrity).

Your SQL solutions will be run through MySQL Workbench. **All statements must compile and execute correctly to receive marks.**

Marks will be deducted for incorrect or missing information. Solutions must be neat and organized.

Question Narrative

The directors of an annual music competition have decided to organize their participants using a database.

The competitors must be at least 5 years old and may be no older than 18. They are registered by their teacher, and all teachers belong to a studio.

Competitors must perform an approved piece of music from the composition catalog. Each composition has a genre and may only be played for a competition category of the same genre.

Competitors are entered into a competition category. Each competition has an assigned date, time, genre, and minimum/maximum participation age. Performers earn a score out of 100 for each composition that they perform in a particular category.

A file called `competition.sql` has been provided for your use in this assignment. Execute this file in MySQL Workbench to build and populate the schema.

PART 1 (10 marks)

Based on the file provided, create the relational model for the competition schema. Include all primary keys and referential integrity constraints.

PART 2 (20 marks)

Create a new .sql script to write your solutions to the questions below. Use comments to provide any requested written answers.

1. Write a query to list all student names (first and last) and the name of the music studio that they belong to (1 mark).

2. Write a query to count how many students belong to each music studio group (1 mark).

3. Write a query to count how many teachers belong to each music studio group (1 mark).

4. Write a query to list the last name of all teachers who have more than one student registered in the competition (1 marks).

5. Write a query to list all student names (first and last) who are performing in Romantic genre category, along with the title of their chosen composition (2 marks).

6. Students may choose to play any of the compositions from their category's genre. Not all compositions are currently being played in a category, and some compositions are being played multiple times by different students. Write a query to list all possible compositions and which categories they are currently being performed in (2 marks).

7. The competition organizers have hired a team to analyze the performance results. The external team do not have permission to view all of the data. Create a view called SCORE_ANALYSIS that only lists the ages of each competitor and their final performance score (1 mark).

8. Display the rows of SCORE_ANALYSIS from the highest score to the lowest score (1 mark).

9. Write a query to find the highest score, the lowest score, and the average score using SCORE_ANALYSIS (1 mark).

10. The competition organizers have decided to add copyright information to their list of available compositions. Alter the COMPOSITION table to add a new column called Copyright with a default value 'SOCAN'. Display all rows in the updated table (2 marks).

11. Write a query that uses the NOT EXISTS command to select any competitors who do not meet the age restrictions for their chosen performance category (2 marks).

12. Alter the COMPETITOR table to add a CHECK constraint that all competitors must be at least 5 years old and not older than 18 (1 mark).

13. Harmony Inc. has decided to change their company name to Harmony Studio. Change this information in the database and display results in the STUDIO table. Under the update command, write a comment (#) to explain how this change was updated in all applicable tables (2 marks).

14. Based on the current database state, which tables would be impacted if the composition by Beethoven was removed? Answer using a comment (#) in your .sql file (1 mark).

15. All teachers must have a registered certificate number under their current name and studio information. Any changes will require documentation to be submitted to the competition organizers. In your file, use a comment (#) to explain how the following code addresses this issue (1 mark).

```
CREATE TRIGGER Certification
BEFORE UPDATE ON TEACHER FOR EACH ROW
SIGNAL SQLSTATE '45000'
SET MESSAGE_TEXT = 'Proof of certification must be provided to the main
office.';
```