Assignment 3

ENSF 608 Fall 2021

Department of Electrical and Software 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: Friday, November 12th, 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 32 marks and is worth 12% 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

You will be working with a database that summarizes the results of the archery events at the Tokyo 2020 Olympic Games. This data is adapted from the official results provided by the IOC. Only the top archery performers are included in the database. For more information, see https://olympics.com/en/olympic-games/tokyo-2020.

There are two types of registered participants: athletes and coaches. Each is assigned an Olympic ID number. When registering, athletes provide their year of birth, sex, and the first games that they competed in. Coaches do not provide the same information but must complete an orientation workshop. Their workshop completion is recorded as "Complete" or "Pending".

There are five events scheduled across five different days. All female participants are registered to compete in the "Women" individual event, all male participants are registered to compete in the "Men" individual event. Some countries have also entered teams in the three different team events ("Men's Team", "Women's Team", "Mixed Team"). Teams vary from 3 to 6 members.

Medal results are included for all individual and team events. Participants may earn bronze, silver, or gold. An additional table is used to summarize the total archery medals won by each country since the modern version of the sport began in 1972.

A file called `olympicarchery.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 (22 marks)

Create a new .sql script to write your solutions to the questions below. Answer the written response questions using comments in your sql file.

1. Write a query to list all athlete names (first and last) and the name of the country that they represent (1 mark).

2. Write a query to list the names and countries of any coaches who have not yet completed their orientation workshop (1 mark).

3. Write a query to count how many athletes belong to each country (1 mark).

4. Write a query to list the Olympic ID number and birth year of all participants. If their birth year is not available, "null" should be listed instead. Order your list from oldest to youngest (2 marks).

5. Write a query to list the names of all countries that have more than one athlete listed in the database (1 mark).

6. Write a query to find the names of all athletes who have won a medal in this Olympics. Only list each name once (2 marks).

7. Write a query to list the names of all countries that have won at least five medals in archery overall since 1972 (1 mark).

8. Write a query to find the number of archery medals won for each country in this Olympics (2 marks).

9. Write a query to list the names of all athletes who are competing in the Olympic Games for the first time (1 mark).

10. Write a query to find the names of the oldest and youngest athletes (list multiple if there is a tie) (1 mark).

11. The media have requested the names and birth years of the athletes competing in team events, but they do not have permission to view all the other data. Create a view called TEAM_ATHLETES that only lists the desired data. Display the rows of TEAM_ATHLETES from the youngest to oldest athlete (3 marks).

12. Organizers are printing the schedules for each archery event. Create a new table called INDIVID_W for all athletes who are competing on July 30th. Display the table, which should include the event date, venue name, last name of each competitor, and their country (3 marks).

13. Written response: What will happen when the following query is run and why (1 mark)?

```
INSERT INTO COACH VALUES ('T2020_046', 'Pending')
```

14. Written response: What would be the impact of the following deletion and why (1 mark)?

```
DELETE FROM PARTICIPANT WHERE OlympicID = 'T2020_001';
```

15. Written response: Describe a possible constraint that should be considered for the TEAM table. What other table(s) would need to be involved (1 mark)?