Assignment: User Guide

Implementation

Login and Database Creation

1. Navigate to the src directory.
2. To enter the MySQL Command-Line Client, at the “$ ” prompt, enter:
   mysql -u me -p
   Then, at the “Enter password: ” prompt, enter:
   myUserPassword
3. To create the relevant database, at the “mysql>” prompt, enter:
   CREATE DATABASE assignment_20169321;
4. To use the aforementioned database, enter:
   USE assignment_20169321

Table Creation and Value Insertion

1. To create the relevant tables, enter:
   SOURCE assignment_tables.sql
2. To show the relevant tables, enter:
   SHOW TABLES;
   The output should be as follows:

```
+-------------------------------+
| Tables_in_assignment_20169321 |
+-------------------------------+
| athletes                      |
| countries                     |
| events                        |
| results                       |
| sports                        |
+-------------------------------+
5 rows in set (0.00 sec)
```

3. To show the description of the athletes table, enter:
   DESC athletes;
   The output should be as follows:

```
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| athlete_pk     | char(6)     | NO   | PRI | NULL    |       |
| country_fk     | char(3)     | YES  | MUL | NULL    |       |
| family_name    | varchar(36) | NO   |     | NULL    |       |
| given_name     | varchar(36) | NO   |     | NULL    |       |
| gender         | char(1)     | NO   |     | NULL    |       |
| dob            | date        | NO   |     | NULL    |       |
| height         | int(3)      | NO   |     | NULL    |       |
| athlete_weight | int(3)      | NO   |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
8 rows in set (0.01 sec)
```

4. To show the description of the countries table, enter:
   DESC countries;
   The output should be as follows:

```
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| country_pk   | char(3)     | NO   | PRI | NULL    |       |
| country_name | varchar(36) | NO   | UNI | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
```

5. To show the description of the events table, enter:
   DESC events;
   The output should be as follows:

```
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| event_pk       | char(6)     | NO   | PRI | NULL    |       |
| sport_fk       | char(6)     | YES  | MUL | NULL    |       |
| gender         | char(1)     | YES  |     | NULL    |       |
| event_name     | varchar(36) | NO   | UNI | NULL    |       |
| event_datetime | datetime    | NO   |     | NULL    |       |
| venue          | varchar(36) | NO   |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

6. To show the description of the results table, enter:
   DESC results;
   The output should be as follows:

```
+------------+---------+------+-----+---------+-------+
| Field      | Type    | Null | Key | Default | Extra |
+------------+---------+------+-----+---------+-------+
| athlete_fk | char(6) | NO   | PRI | NULL    |       |
| event_fk   | char(6) | NO   | PRI | NULL    |       |
| position   | int(1)  | NO   |     | NULL    |       |
| medal      | char(1) | YES  |     | NULL    |       |
+------------+---------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

7. To show the description of the sports table, enter:
   DESC sports;
   The output should be as follows:

```
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| sport_pk   | char(6)     | NO   | PRI | NULL    |       |
| sport_name | varchar(36) | NO   | UNI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

8. To insert the relevant entities into the relevant tables, enter:
   SOURCE assignment_values.sql

9. To show the entities of the athletes table, enter:
   SELECT * FROM athletes;
   The output should be as follows:

```
+------------+------------+-------------+------------+--------+------------+--------+----------------+
| athlete_pk | country_fk | family_name | given_name | gender | dob        | height | athlete_weight |
+------------+------------+-------------+------------+--------+------------+--------+----------------+
| 029145     | SWE        | AALTONEN    | Paavo      | M      | 1983-12-04 |    180 |             75 |
| 115612     | ZAM        | CHINYEMBA   | Patrick    | M      | 2001-07-28 |    172 |             61 |
| 182321     | SWE        | AARBERG     | Jan-Erik   | M      | 1985-07-09 |    182 |             78 |
| 193021     | USA        | ABBOTT      | Jeremy     | M      | 1991-03-23 |    173 |             72 |
| 193131     | USA        | AALTEN      | Cornelia   | W      | 1999-12-28 |    172 |             48 |
| 193432     | USA        | GRANT       | Rhyan      | M      | 1991-08-01 |    173 |             72 |
| 193821     | JPN        | AOKI        | Kushina    | W      | 1998-06-06 |    173 |             48 |
| 281921     | ZAM        | MAPFUMO     | Lucy       | W      | 2000-04-06 |    170 |             47 |
| 283191     | AUS        | SCOTT       | Lachlan    | M      | 1992-08-21 |    177 |             75 |
| 381022     | AUS        | WINWOOD     | Alex       | M      | 1997-02-02 |    174 |             60 |
| 383131     | AUS        | BEHICH      | Aziz       | M      | 1990-12-16 |    170 |             63 |
| 389121     | USA        | RYAN        | Mat        | M      | 1992-08-04 |    184 |             82 |
| 390112     | USA        | DUKE        | James      | M      | 1992-08-21 |    174 |             74 |
| 398012     | AUS        | WRIGHT      | Bailey     | M      | 1992-08-15 |    186 |             84 |
| 481640     | USA        | MALTO       | Stephanie  | W      | 1997-03-03 |    171 |             47 |
| 489231     | AUS        | CHRIS       | David      | M      | 1990-01-11 |    171 |             73 |
| 547232     | USA        | BOYLE       | Martin     | M      | 1993-04-23 |    191 |             75 |
| 582322     | AUS        | KARACIC     | Fran       | M      | 1996-05-12 |    181 |             75 |
| 839111     | AUS        | MCGOWAN     | Ryan       | M      | 1989-08-15 |    191 |             75 |
| 839198     | USA        | ELDER       | Steve      | M      | 1995-01-01 |    180 |             67 |
+------------+------------+-------------+------------+--------+------------+--------+----------------+
20 rows in set (0.00 sec)
```

10. To show the entities of the countries table, enter:
    SELECT * FROM countries;
    The output should be as follows:

```
+-------------+----------------+
| country_pk | country_name   |
+-------------+----------------+
| AUS         | Australia      |
| JPN         | Japan          |
| SWE         | Sweden         |
| USA         | United States  |
| ZAM         | Zambia         |
+-------------+----------------+
5 rows in set (0.00 sec)
```

11. To show the entities of the events table, enter:
    SELECT * FROM events;
    The output should be as follows:

```
+----------+----------+--------+-------------------------------+---------------------+-----------------------+
| event_pk | sport_fk | gender | event_name                    | event_datetime      | venue                 |
+----------+----------+--------+-------------------------------+---------------------+-----------------------+
| 274100   | 328931   | W      | Women's 100m Butterfly Final  | 2021-07-27 11:30:00 | Tokyo Aquatics Centre |
| 318402   | 673480   | M      | Men's Skeet Second Round      | 2021-07-27 15:45:00 | Asaka Shooting Range  |
| 371121   | 938031   | M      | Winwood vs Chinyemba          | 2021-07-28 18:00:00 | Kokugikan Arena       |
| 936103   | 673480   | M      | Men's Skeet Final Round       | 2021-07-28 15:45:00 | Asaka Shooting Range  |
| 937802   | 482301   | M      | Men's Final: Australia vs USA | 2021-07-26 10:00:00 | Miyagi Stadium        |
+----------+----------+--------+-------------------------------+---------------------+-----------------------+
5 rows in set (0.00 sec)
```

12. To show the entities of the results table, enter:
    SELECT * FROM results;
    The output should be as follows:

```
+----------+------------+----------+-------+
| event_fk | athlete_fk | position | medal |
+----------+------------+----------+-------+
| 274100   | 193131     |        1 | G     |
| 274100   | 193821     |        3 | B     |
| 274100   | 281921     |        2 | S     |
| 274100   | 481640     |        4 | NULL  |
| 318402   | 029145     |        1 | NULL  |
| 318402   | 182321     |        2 | NULL  |
| 318402   | 193021     |        3 | NULL  |
| 318402   | 283191     |        4 | NULL  |
| 318402   | 390112     |        5 | NULL  |
| 318402   | 489231     |        6 | NULL  |
| 371121   | 115612     |        1 | G     |
| 371121   | 381022     |        2 | NULL  |
| 936103   | 029145     |        1 | G     |
| 936103   | 182321     |        2 | S     |
| 936103   | 193021     |        3 | B     |
| 937802   | 193021     |        2 | S     |
| 937802   | 383131     |        1 | G     |
| 937802   | 389121     |        2 | S     |
| 937802   | 398012     |        1 | G     |
| 937802   | 547232     |        2 | S     |
| 937802   | 582322     |        1 | G     |
| 937802   | 839111     |        1 | G     |
| 937802   | 839198     |        2 | S     |
+----------+------------+----------+-------+
23 rows in set (0.00 sec)
```

13. To show the entities of the sports table, enter:
    SELECT * FROM sports;
    The output should be as follows:

```
+----------+-----------------+
| sport_pk | sport_name      |
+----------+-----------------+
| 482301   | 3x3 Basketball |
| 938031   | Boxing          |
| 673480   | Shooting        |
| 328931   | Swimming        |
+----------+-----------------+
4 rows in set (0.00 sec)
```

Usage

Queries

To show the results of the relevant queries, enter:
SOURCE assignment_queries.sql
The output should be as follows:

1. Show the number of athletes representing each country.

```
+---------+-------+
| country | count |
+---------+-------+
| AUS     |     7 |
| JPN     |     1 |
| SWE     |     2 |
| USA     |     8 |
| ZAM     |     2 |
+---------+-------+
5 rows in set (0.00 sec)
```

2. Show all participating countries ordered by name.

```
+----------------------+
| country_listing      |
+----------------------+
| Zambia (ZAM)         |
| United States (USA)  |
| Sweden (SWE)         |
| Japan (JPN)          |
| Australia (AUS)      |
+----------------------+
5 rows in set (0.00 sec)
```

3. Show the age of the average American athlete.

```
+-------------+
| average_age |
+-------------+
|          27 |
+-------------+
1 row in set (0.00 sec)
```

4. Show the names and nationalities of all gold medalists

```
+--------------------------+
| gold_medalists           |
+--------------------------+
| AALTEN, Cornelia (USA)   |
| CHINYEMBA, Patrick (ZAM) |
| AALTONEN, Paavo (SWE)    |
| BEHICH, Aziz (AUS)       |
| WRIGHT, Bailey (AUS)     |
| KARACIC, Fran (AUS)      |
| MCGOWAN, Ryan (AUS)      |
+--------------------------+
7 rows in set (0.01 sec)
```

5. Show the height of the average athlete.

```
+------------+
| avg_height |
+------------+
|        177 |
+------------+
1 row in set (0.00 sec)
```

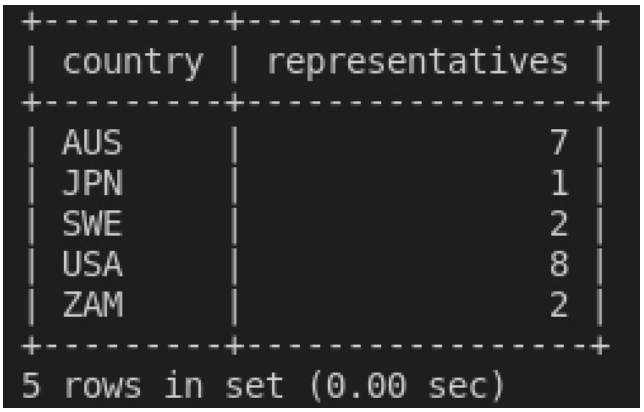
6. Show the names and nationalities of all athletes shorter than the average athlete.

```
+--------------------------+
| athletes                 |
+--------------------------+
| CHINYEMBA, Patrick (ZAM) |
| ABBOTT, Jeremy (USA)     |
| AALTEN, Cornelia (USA)   |
| GRANT, Rhyan (USA)       |
| AOKI, Kushina (JPN)      |
| MAPFUMO, Lucy (ZAM)      |
| SCOTT, Lachlan (AUS)     |
| WINWOOD, Alex (AUS)      |
| BEHICH, Aziz (AUS)       |
| DUKE, James (USA)        |
| MALTO, Stephanie (USA)   |
| CHRIS, David (AUS)       |
+--------------------------+
12 rows in set (0.00 sec)
```

Advanced Features

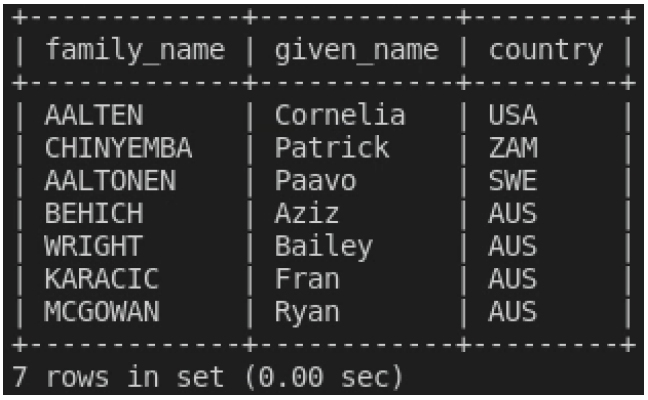
1. To recreate the recreate the relevant tables, enter:
   SOURCE assignment_tables.sql
2. To create the relevant stored procedures, enter:
   SOURCE assignment_procedures.sql
3. To insert the relevant entities into the relevant tables, using the relevant stored procedures, enter:
   SOURCE assignment_values2.sql
4. To show the entities of each of the tables, enter the commands outlined in steps 9-13 of *Implementation* > *Table Creation and Value Insertion*.
5. To implement the relevant views, enter:
   SOURCE assignment_views.sql

6. To show the entities of the representatives view, enter:
   SELECT * FROM representatives;
   The output should be as follows:



```
+---------+-----------------+
| country | representatives |
+---------+-----------------+
| AUS     |               7 |
| JPN     |               1 |
| SWE     |               2 |
| USA     |               8 |
| ZAM     |               2 |
+---------+-----------------+
5 rows in set (0.00 sec)
```

7. To show the entities of the winners view, enter:
   SELECT * FROM winners;
   The output should be as follows:



```
+-------------+------------+---------+
| family_name | given_name | country |
+-------------+------------+---------+
| AALTEN      | Cornelia   | USA     |
| CHINYEMBA   | Patrick    | ZAM     |
| AALTONEN    | Paavo      | SWE     |
| BEHICH      | Aziz       | AUS     |
| WRIGHT      | Bailey     | AUS     |
| KARACIC     | Fran       | AUS     |
| MCGOWAN     | Ryan       | AUS     |
+-------------+------------+---------+
7 rows in set (0.00 sec)
```

Python Integration

1. To exit the MySQL Command-Line Client, enter:
   exit
2. To download the Python 3 MySQL connector, at the “$ ” prompt, enter:
   pip3 install mysql-connector-python
3. To run the relevant python3 file, at the “$ ” prompt, enter:
   python3 assignment.py
   Then, at the “Enter username: ” prompt, enter:
   me
   Lastly, at the “Enter password: ” prompt, enter:
   myUserPassword
   The output should be as follows: