Database 2020 - Assignment 2

Deadline

Strict deadline **5 December 2020 at 16:00 CET**.
The deadline is definitive and it already accounts for vacation days.
No submission after the deadline will be considered.

Instructions

- The assignment must be done individually.
- Implement each query in its own **plain text file**, the file name must be **`query_<number>.sql`** . Example: `query_8.sql` .
- Each query will be evaluated by an automatic script that will compare its results with the ones from the reference implementation. Each query will then be either correct (+1 point) or wrong (+0 points). Misspelled file names or wrong file encodings count as wrong implementations (+0 points).
- The **attributes** in the results must be **ordered as they appear in the text**. Example: "return the beer name and its manufacturer" should be matched with a "`SELECT name, manf FROM ...`" Failure to properly order the columns leads to (+0 points).
- When asked to return information about a relation, select the attributes that identifies it, *i.e.* the primary key. Example: Select all the Beers that, "`SELECT name FROM Beers`".
- Non integer numbers must be rounded at the second decimal. Example 0.1234 → 0.12.
- Unless otherwise specified, results must be **distinct**.
- Do not create additional tables or persistent views.
- Do not modify in any way the existing schema/data.
- The queries will be tested against a PostgreSQL database instance, you can either install your own or use one of these provided.
  https://docs.google.com/spreadsheets/d/1IrRufeuw12lymAtuWWRgH1g0NUlqhzb1ClpEmaSPwcs
- Test your queries against the provided "`create_db.sql`" before submitting!
- Table names are capitalized like shown below. **Remember " in your queries.**

Delivery

- Create a .zip archive with, and only with, the 15 .sql files and upload it via this form: https://forms.gle/CXknhtq5Peym5qBu9.
- The name of the archive must be **`SQL_<mat>.zip`**, where mat is yout matricole. Example: `SQL_12345.zip`;
  Example command: `zip SQL_12345.zip query_*.sql`
- The archive must not contain anything else (no subfolders, no files). Extraction and evaluation are completely automated. Malformed archives, misspelled names, and malformed files will result in a total evaluation of 0 points.

Schema

```
Stadium(name, city, country, capacity)
     country FK (Nationality) REFERENCES country
Match(stadium, date, time, home, guest)
     stadium FK (Stadium) REFERENCES name
     home FK (Nationality) REFERENCES country
     guest FK (Nationality) REFERENCES country
Nationality(country, continent, group)

-- See attached file: create_db.sql
```

Queries

1. List the cities where at least one team from any of these groups ('A','B','C') played.
2. Find all cities where games between two teams from 'South America' teams were played.
3. Assuming that every match lasts 2 hours, find teams that have conflicts in their scheduled matches (that is, teams that are scheduled to play at two different locations on the same day, or teams whose match overlaps with another one played on the same day).
4. List the capacity for each stadium (*i.e* stadium, capacity) used for matches of at least one European team ('Europe') from group 'A'.
5. Find countries that schedule some games at a stadium that is not their largest.
6. List all pairs of countries (C1, C2) that have ever played one against the other and such that C1 has only stadiums with capacity over 100000 and C2 has only stadiums with capacity less than 10000.
7. Find European ('Europe') teams that never play home.
8. Find names of the stadiums where only European ('Europe') teams play.
9. Find the country (or countries, if there is a tie) that has the largest stadium.
10. List all matchup (team_1, team_2), where there exists a match (team_1 vs team_2) but no (team_2 vs team_1).
11. Find groups that contain a team (country) from every continent (do not assume to be on Earth).
12. Find the second last match in the database.
13. For each stadium, how many matches start in the morning (all times are local time, morning is from 6:00 through 11:59).
14. For each continent, find the capacity of the largest stadium, and the average capacity of them.
15. For each continent, how many matches are there between teams both of which are in this continent.