COMP 306: Database Management Systems

Spring 2022 - Homework 2

Question 1) [5 pts] Import “world.sql” into MySQL through the terminal, then check the newly created database. In the MySQL client, use the newly imported database and run a “SHOW TABLES” command. In your report, include the **command you typed to import the file** and a **screenshot of the result after you run “SHOW TABLES”**.

Question 2) [4*5=20 pts]
Write retrieval queries (SELECT - FROM - WHERE) for each of the following. Include the **command you used** and a **screenshot of the resulting output** in your report. You are free to use either the terminal client or MySQL Workbench.

A) Find the name and GNP of all countries that are located in the continent of Europe and have become independent after 1930.
B) Find the country codes, country names, city names and populations of every city that are in countries with a life expectancy greater than 75 years and country population less than 1 million people.
C) Find the set of languages (no duplicates) that are spoken in countries with a surface area greater than 1 million km^2 where more than 50 percent of the population speaks that language.
D) Find the country codes and names of cities whose population is less than 90000 and who are part of a country where more than 1 percent of the population speaks German.

Question 3) [5*5=25 pts]
Write SQL queries to perform each of the following actions. For each part, include the **SQL statement you used** and a **screenshot of the client** right after you executed that statement in your report. You are free to use either the terminal client or MySQL Workbench, but you must write the SQL statements regardless.

A) Create a new table called “students” to store university students visiting various cities. All students **must** have ids, names and universities (id must be unique). Your students table should contain following attributes:
    - An id field to be used as primary key
    - A name field
    - A university field
B) Insert yourself as a record. Your id must be “1” and university must be “KU”. Insert your name as: <**Name Surname**>.

C) Insert additional records to the table (you can assign their ids sequentially starting with 2):
   - John Stark in KU
   - Yasemin A in SU
   - Can Y in BOUN
   - Efe G in SU
   - Armagan T in SU
   - Cem K in KU
   - Yang W in KU
   - Uras C in Boun

D) We need to fix a mistake we made in the last part. Update the student's university with the student name "Efe G" as "KU".

E) We have another mistake in that table. Delete the student named "John Stark", because that is not a real student.

Question 4) [45 pts (part b: 3 pts, others: 7 pts each)]
Write SQL queries to perform each of the following actions. For each part, include the **SQL statement you used** and a **screenshot of the client** right after you executed that statement in your report. You are free to use either the terminal client or MySQL Workbench, but you must write the SQL statements regardless.

A) Create a new table called "visit" to store the visiting relationship between students and cities. Each city can be visited by multiple students and each student can visit multiple cities. It should contain following attributes (in order):
   - A field referencing students table.
   - A field referencing city table

   You must decide what name these attributes should have and how they should reference related tables. Primary key is the combination of the above two attributes. For referential integrity, you must restrict deletions and cascade updates from referenced tables.

B) Import the provided "visit.txt" file to the table to populate it. In your report, include the command you used to import.

C) Find the city id and city name of cities that are visited by all students.

D) Find the id and name of students who have visited Amsterdam but not Paris.

E) Find the id and name of students who have not visited a city in the Russian Federation.

F) Find the id and name of students who have visited at least 1 city in Africa.

G) Find the continents that are not visited by any of the students (There mustn't be any duplicates in the output).

Question 5) [5 pts] Export the world database to a file named "world-export.sql" using the terminal. Include the **command you typed** in your report and **include the exported file in your submission**.

Submission

Your submission should consist of two files:

- A pdf report with the commands and screenshots
- The exported file in the last question

Try to keep screenshots to the relevant part only, instead of taking the screenshot of your entire screen. Your screenshots must be legible.