CECS 536, Fall 2020
Take Home 2

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Due Date: Wednesday November 4. Send as an attachment from your UofL account by noon.

The following questions all ask you to write some SQL commands. The document that you should return is an *SQL script*. This is simply a text document that contains only SQL commands. One way to do this is to type your answers on the command line and then cut and paste them into a plain text file; when naming this file, give it a 'sql' extension (that is, finish the name with '.sql'). Another way to do this is to use Workbench (recommended), type your answers in the Query Tab and then use the Save Script option under the File menu. Note that you can also cut and paste from the Query Tab (Cut and Paste are available under the Edit menu).

Many of the questions are queries that return answers from a database. Each answer should include your SQL query; in addition, some questions ask you to also provide the answer (indicated with '+ Answer') that you get when you run your query in your MySQL system. *Please do not provide an answer when this is not asked for.*

Use only SQL that we have seen in class. Answers with constructs that we have not seen in class will not receive credit. If you have any doubts or questions, please do not hesitate to contact me!

- (75 points) Use the World database and the tables `city`, `country` and `countrylanguage` for this part of the exam.

  1. (+ Answer) Find out the minimum, maximum, range (maximum minus minimum) and mean (average) of attribute `population` in table `country`. Try to do it in a single query!

  2. (+ Answer) Find out whether there are any missing values (and if so, how many) in attributes `IndepYear` and `LifeExpectancy` in `country`.

  3. (+ Answer) List the top (largest) 5 cities by population.

  4. (+ Answer) Find out how many countries are monarchies and how many are republics.

  5. Find out, for each language, the number of countries where that language is spoken.

  6. Find the countries where there is more than one official language.

  7. (+ Answer) Find out the total population of all Spanish-speaking countries (defined as countries where Spanish is spoken).

  8. (+ Answer) Find the average GNP for countries that gained independence after 1970 and for all countries. How do they compare?

  9. Find, on each country, how many people speaks the official language(s). Note: table `countrylanguage` gives you a percentage; you are asked about the number of people.

  10. (EXTRA CREDIT) Find the largest (most populated) city on each country. Note: you can assume that there are no ties.

- (25 points) Execute the following instructions, in the order given. Show the SQL command used to execute the instruction.

  1. Create a schema called `Experiment`.

2. Inside this schema, create a table called `Test`. This table should have four columns, `Id` (of type INTEGER) `Name` (of type CHAR(10)) and `Height` and `Weight` of type DOUBLE.

3. Insert into this table the following rows:

   `(1, ‘‘Jones’’, 5.8, 178), (2, ‘‘Smith’’, 5.7, 188), (3, ‘‘Lewis’’, 5.9, 204), (4, ‘‘Ford’’, 6.1, 210)`

4. Change Smith's weight to 186.

5. Change Lewis' height to 5.10.

6. Delete the information about Jones.

7. (+ Answer) List all the table's contents.