## CS3380 – Lab Exercise 5

### Goals:

1. Loading the world database from a dump file.
2. Writing queries in MySQL against the world database
3. Single Table Queries
4. Multiple Table Queries (INNER JOIN)
5. Aggregate Functions

### Data/Tables

***World Database***:

Use “DESCRIBE <tablename>” or “DESC <tablename>” to see column information for a table.

Primary keys are underlined. Foreign keys are in italics.

**City:**  (ID, Name, *CountryCode*, District, Population)

**Country:**  (Code, Name, Continent, Region, SurfaceArea, IndepYear, Population, GNP, GNPOld,

LocalName, GovernmentForm, HeadOfState, *Capital*, Code2)

**CountryLanguage:**  (*CountryCode*, Language, IsOfficial, Percentage)

### Loading a Database from a Dump File

1. Navigate to your *cs3380/mysql* folder. **Not** **public\_html/cs3380**
2. Fetch dump file by executing the following command:   
    wget <http://diglib1.cecs.missouri.edu/~cs3380/data/world.dmp>  
   The file *world.dmp* should be in your folder now.
3. Look at the contents of the dump file. ($cat world.dmp)
4. Log into MySQL (*mysql –p*) and switch to your database.
5. Load the database using the following command:   
    mysql> source world.dmp
6. If successful, then with “*show tables”* you should have 3 tables in your database.

### Query File

Create a file called “*Lab5.sql”* for storing your answers to the queries below. Lines that begin with ‘#’ are treated as comments in SQL. Run each query in MySQL first, and when you think it is correct, copy it into your *Lab5.sql* file. **Add comment at each question with how many lines were returned.**

### Queries (Single & Multiple Tables)

1. List Name, District, and Population of all Cities ordered by District in descending order.
2. List CountryLanguages that are NOT official and have a percentage greater than 8 percent.
3. List all Country with names that start with B.
4. List each country with all the official languages spoken in that country and the name of each countries capital, ordered by country name then language.
5. List each country and all the cities in that country.
6. List the Country name, it's capital, and capital's population for all Countries.
7. List each Country name, its official language, and capital name ordered by Language.
8. List each Country Name, Country Population, Capital Name, Capital Population, GNP, and LocalName.

### Queries (Aggregation)

1. List the average, minimum, and maximum population of Cities in the database
2. List the Country name, it's population, and the sum of each countries city's population.
3. For each Country, list the maximum population of any of its cities and the name of that city.
4. For each Country, list the number of cities it contains.

1. For each Country, list the number of cities, in descending order

1. For each Country with 5-10 languages, list the number of languages spoken, in descending order by number of languages as well as the name of the capital for that Country.

**Bonus:**

1. How many Cities, Countries, and CountryLanguages are in the database (Hint: this will require nested SELECT statements)?

### Please submit printed Lab5.sql by Friday 2/25/11 at 5pm to CS main office mailbox.