COSC 1437, Professor Clark

Assignment 9: 10 points

Write a Program: Your choice! Find the Grammy winning songs with the highest danceability and energy ratings, or find the countries with the highest density and life expectancy.

You will be reading a file of data containing either Grammy songs or Country information. The files are located on Canvas with this assignment. Each file has a header row telling you what the data in that column is.

The data files are in .csv format. That stands for Comma Separated Values (which should help you on what delimiter you need…). To view the file, if you double-click it, it launches in Excel. If you right-click on it, you can open it with a text editor to see it in the format the computer will read it. Note that there are more columns present than you'll have to provide output for – pay attention to the column numbers that you need. Make sure to put the file in the correct location for your IDE.

Specific Requirements (Program design help):

- Create a class for either Song or Country (depending upon the option you chose). Make 4 attributes. For Grammys, you will need one for song title, artist, danceability, and energy. For Countries, you will need one for country name, population, density, and life expectancy. You will need a parameterized constructor and the four get methods.
- Create an ArrayList of type Song or Country.
- Open the file for reading and then read a line at a time from the file. (Don't forget that the file's first row contains column names. You'll want to read that first line and just throw it away. Start reading a line at a time of file data after that first line).
- Divide the line read from the file into its tokens.
- Put the tokens from the line into their correct object in the ArrayList. Remember that you'll have more tokens than what you need to put into the object. You need to know what position the column was in the file for the data you're reading.
- Locate the *index* of the highest danceability and then the highest energy (if doing Grammys) or the *index* of the highest density and then the highest life expectancy (if doing Countries)
- Print out the information about the correct Song or the correct Country with the highest values, using the indexes that you found from bullet #5 above.

As example output, I will provide you with the *lowest* grammy and country information. If you can make your output match mine, it's then a quick change to be looking for the highest instead of the lowest. Have your output style match mine (except yours will show the highest songs/countries instead of the lowest).

Turn in a .txt file report to Canvas with your output and source code.

Example Output:

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The song with the lowest danceability is Yes by Coldplay, with a
danceability rating of 0.161!

The song with the lowest energy is E-Mac - Interlude by OutKast, with
an energy rating of 0.124!

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The country with the lowest density is Mongolia. It has a population
of 2.839 million people, with a density of 1.8 people per square
kilometer.

The country with the lowest life expectancy is Sierra Leone. It has a
population of 6.092 million people, with a life expectancy of 45.6
years.
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