CSE 3302 Fall 2017

Lab 2a

This lab has one problem as described below.

For this problem you must perform the following:

1. Develop only the java Functional (Lambda Expression) program solutions - this MUST use lambda expressions and .stream() operations ONLY.
2. You are to develop and get running in Eclipse.
   1. Code.
      1. Main program.
         1. You need to create the problem as a main program - the code is in the body of the program. You may create methods within this main class that does the computations called from the main method - please do not put methods in other classes.
         2. Name this class FunctionalTexasCities.java
      2. Data declarations
         1. You will create a class named texasCitiesClass for the data that is being manipulated.
      3. Algorithm
         1. Input.
            1. File Name - the program will read in the file:

*L02a Cityname\_wo\_headers.csv*

* + - * 1. I would suggest using a buffered read and split on "," since the data is CSV.
        2. The file has 3 columns (like the L02 Lab slides): city name, county name, and population.
      1. Output.
  1. File name. The output is written to a file:

*L02a\_Functional\_Output.txt*

* 1. Output format: the file writes the following header



* 1. **Each column is delineated by a tab character both in the header and in the subsequent data.**
  2. Each subsequent line will have the following (refer to the header when in doubt):

The county name will be listed in A-Z alphabetic order

The number of cities in that county is listed

The total population of that county is listed

The average population of that county is listed

The name of the largest city is listed

The population of the largest city is listed

* 1. Data format
     1. Number of cities is an integer with no decimal places
     2. Population data must be integer, no decimal place and with thousands separators
        1. Code constructs
           1. Operations.

You are ONLY allowed to use Lambda expressions and Stream operations

You are not allowed to use Collections.sort or basic for loops

* + - * 1. Data Structures. You may only use the collection ArrayList.
        2. Exception handling - surround necessary code with try and catch blocks or throw exceptions. Your code must NOT crash when properly run but you will assume the input and output files are there and correct.

Submission checklist

1. All materials should be delivered in a single .zip (not .rar) file and named lastname\_firstname\_ID Four (4) files total as follows.
2. Java files - you should have 2 java files:
   1. FunctionalTexasCities.java
   2. texasCitiesClass.java
3. You should have 2 \*.txt (files)
   1. L02a\_Functional\_Output.txt
   2. L02a Cityname\_wo\_headers.csv

Uniqueness of solution. Students may work together on a lab assignment, BUT the submittal needs to be distinct from what someone else submits. GTAs will review each submittal - exact appearances in submittals will result in an investigation - this the investigation determines that two submittals are identical both submittals will receive a zero for the entire assignment.