COMP 1030

Assignment #2- Version 1

This assignment is worth 20% of your final grade

IMPORTANT Assignment #2 Information

You can start this assignment anytime once it is posted and work on it up to the time it is due. Do not wait until the last miute to upload as the site closes at 5pm ET sharp. Begin uploading at 4:30 at the latest.

Due Date: TODAY 5pm ET, (Wednesday, April 8)

Academic Integrity

This is an INDIVIDUAL assignment. It will be assessed (using AI software) for similarity to other submissions, and if there is an unreasonable resemblance to other submissions or to code found online, you will receive a grade of 0 and an academic misconduct will be filed. Please write your code **independently** and do not share your work with others. If two or more submissions show unreasonable similarities – **all** submissions will receive a zero.

Please note that we do use software that can check for non-trivial differences from other submissions. (In other words, don't change a variable name and think it is somehow original work).

Your solution must be based upon constructs that were taught during this course. Use of constructs that were not taught during this course will constitute a zero for that answer. Constructs mean a java standalone concept. For example we have not studied threads in java, therefore the use of threads is not appropriate, however we have studied Strings, and therefore the use of a String method that we have not studied is permitted.

You are free to access any information you wish to complete the assignment.

However, **WORK ALONE**, working with others will trigger the AI software to award a zero for the submission.

If the work submitted appears to be materially beyond the caliber of work you have demonstrated to date or the complexity of the solution appears to be suspect, a verbal code review may be requested to assess if the submitted code is understood. If you are unable to explain the code design you will be awarded a zero for the assignment.

Partial marks will be awarded if you can demonstrate a reasonable understanding of the problem, the logic of the solution and/or the constructs required to solve the problem. It is suggested that you provide a flow chart of your proposed solution if you are not confident in your coded solution.

Once your code is completed, paste all code into a Word document maintaining the proper formatting of the code.

Using java write code to meet the following requirements

Design a class which represents a birth certificate. The class will have the following attributes:

- 4 instance variables: first name, last name, city of birth, date of birth (string) **2 points**
- A class variable that represents the country set to: ABCDEFGHIJKLMNOPQRSTUVWXYZ **1 point**
- Two constructors: a default constructor, a constructor that takes 4 arguments **4 points**
- Appropriate setters and getters **4 points**
- A static method which will randomly scramble and return the country name, that is, each letter is randomly assigned a new location, unless the letter is a vowel (excluding "y") in which case the letter is not included in the scramble. **21 points**
- Two overloaded methods, one takes a string and the other a char. The purpose of the method is to determine if the argument of the method occurs in any of the state of the object and to return to the caller the number of occurrences found. **21 points**
- A method which will store the first and last name in a new custom object, and will return the object to the user. The user must provide a 4 digit pin number to retrieve the state of the new object. **12 Points**

Design a test harness class to test the birth certificate class based upon the following parameters:

- Create a two dimensional array with 10 rows and 30 columns. Automatically populate the array with birth certificate objects in which the first name, last name, city of birth, and date of birth are set to random values based upon four different lists, of 5 entries each, which you make up. However if the city of birth is Toronto (make sure it is in the list!) insert a "#" symbol between each letter for the persons first name. **15 Points**
- Iterate the array and print out the state of each object as well as the scrambled "country name". Print a dashed line after each block of object data. Place the appropriate line(s) of code in a try catch block in the event that the array iteration goes out of bounds. **6 Points**
- Test the last method of the birth certificate class (hardcode the pin number into the method call) **3 points**
- Iterate the array a second time and retrieve the state of each object, however in this case the print out should be organized based upon the city of birth such that the data is sorted in groups based upon the city. For example, in total there will be 300 objects based upon 5 different cities. So your print out should first show all the objects from city1 (the number of objects is of course random based upon the initial populating process) , then city 2 etc. Print a dashed line after each block of object data **21 Points**

Note: Whenever you are communicating with the user or printing information, you must use appropriate messaging so the user knows what they are reading or how to appropriately respond to the computer prompts.