CIS 180 Homework 4

This homework contains 2 separate pieces…. First Class Functions and The AgreFil Leld Test.

Concepts that will be used:

- First Class Functions
- Lambda Expressions
- Loops
- Multidimensional Arrays
- Preventing Exceptions
- Using classes for modularity

First Class Functions(55 pts total)

Overall Picture:

For this part you are given the following java files:

1. FCFTester.java
   This class is complete, and you should not modify it at all. It contains the main method and will run tests to make sure your code is complete and working as it should.

2. FCFType1.java
   This Java file contains an interface (no class) with exactly 1 method header defined in it. You will use this as the data type for you function/method variables.

3. FCFType2.java
   This Java file contains an interface (no class) with exactly 1 method header defined in it. You will use this as the data type for you function/method variables. Note that it's return type and parameters (signature) are different from the FCFType1 interface.

4. MyFirstClassFunctions.java
   This class contains empty methods that you will need to fill in the code for. I will further outline these methods below.

Methods to be implemented:

- `public static void setFCFType1(FCFType1 methodParameter)`
  - This method should grab the method parameter and store it to the attribute "*methodAttribute1*" (10 pts)
- `public static FCFType1 getFCFType1()`

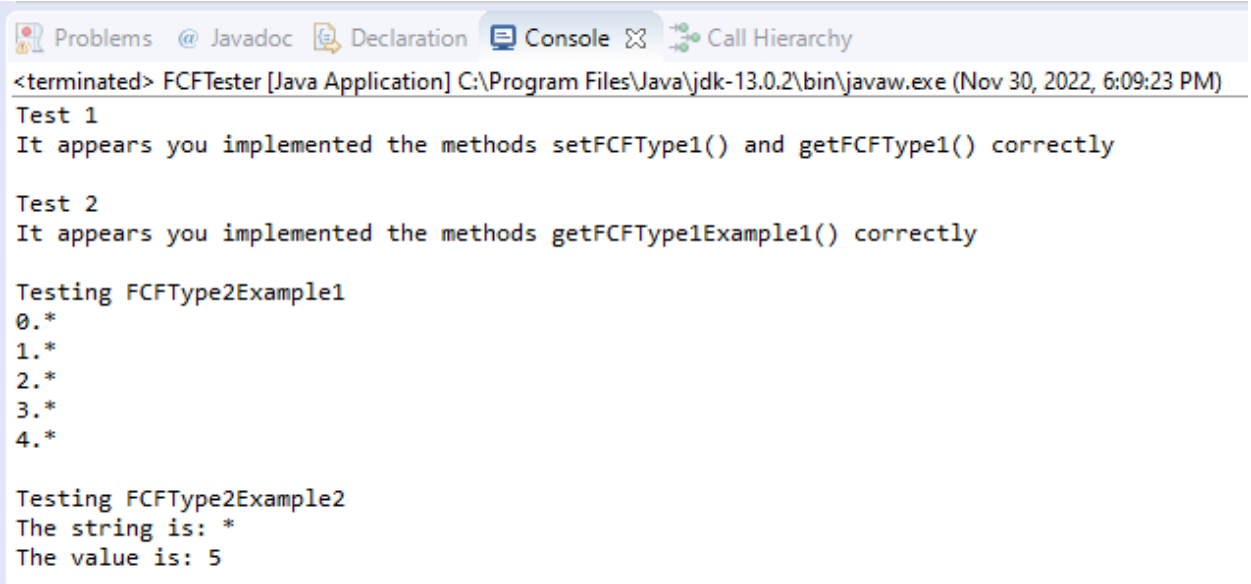
- This method should return the method attribute "*methodAttribute1*" (10 pts)

- `public static FCFType1 getFCFType1Example1()`
  - This method should return a lambda expression, matching that of FCFType1, that multiplies the two parameters together. (10 pts)
- `public static FCFType2 getFCFType2Example1()`
  - This method should return a lambda expression, matching that of FCFType2, that will use the FCFType2 int parameter as the number of times to print (on separate lines) the FCFType2 String parameter. Example output provided at the end of this pdf for reference. (10 pts)
- `public static FCFType2 getFCFType2Example2()`
  - This method should return the method `private static void thisNameReallyDoesNotMatter(String str, int value)`, which is already completed for you. Remember, you want to return the method, you do not want to call it. (10 pts)

Additional points:

- Comments: 5 points

If your code works correctly, when you run the program, the output should look like this:



Hint: Most of those methods can be implement with 1 line of code. The only exception is getFCFType2Example1(), and that's only because you'll need a for loop (probably a for loop, you could use other loops, but I don't think it would be as easy) and putting the both the line of code for the for loop, and the single System.out.println statement on the same line my look ugly. **You know what, just go look at slide 19 in slide set 11, there's a great example there to help you out.**

The Agrefil Leld Test(65 pts total)

Overall Picture:

I have 2 dimensional array of an unspecified size. The Agrefil Leld Test specifies 3 properties

1. The 2 dimensional array cannot be ragged (jagged).
2. The sum of all rows cannot equal any of the values in their respective row.
3. The sum of all columns cannot equal any of the values in their respective column.

You are given two classes to help you on your way, AgrefilLeld.java and AgrefilLeldTester.java The AgrefilLeld.java class contains one method called compliant. This method takes a two-dimensional int array as a parameter and is set to return a boolean. For your part, you must fill in the code for this method such that:

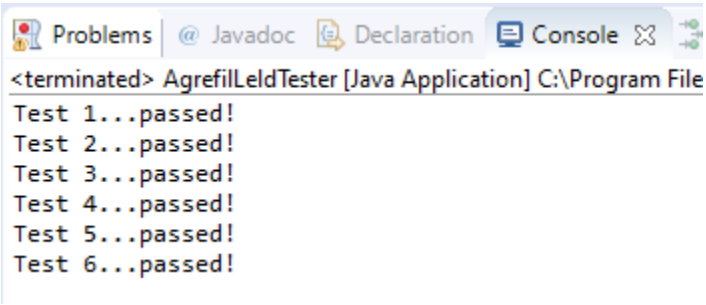
1. It returns true if it satisfies the properties listed above.
2. It returns false if it violates any of the properties.
3. It returns false if the parameter is not a proper 2-dimensional array.

As for AgrefilLeldTest.java, this class is complete, and you should not change it. It has been set up to test 6 cases to make sure you implemented the ***compliant()*** method correctly.This class should contain main (DO NOT put main in the AgrefilLeld class). Your goal is to make sure all six tests say passed (properly, based on the properties stated above). Each test passed is worth 10 points (60 pts total)

Additional points:

– Comments: 5 pts

If your code works correctly, when you run the program, the output should look like this:



Once you are complete (you know you are by checking off everywhere there are points on here), upload all pieces to Canvas before the due date. Be aware, this homework will not be accepted after the last day of classes (before study day).

Good luck!