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Course: CS1073

Section: FR03B

Assignment number: 6

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Anagram.java:

```
/**
 This is a GUI application program for an anagram tester.
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*/


import javafx.application.Application;
import javafx.stage.Stage;
import javafx.scene.Scene;
import javafx.scene.control.Label;
import javafx.scene.control.TextField;
import javafx.scene.control.Button;
import javafx.scene.text.Text;
import javafx.scene.layout.FlowPane;
import javafx.geometry.Pos;
import javafx.event.ActionEvent;
import java.util.Scanner;


public class Anagram extends Application {

      private TextField wordTextField1, wordTextField2;
      private Text result;

      public void start (Stage primaryStage) {

            primaryStage.setTitle ("Anagram Tester");

           Label firstW = new Label ("1st word:");
            wordTextField1 = new TextField();
            wordTextField1.setPrefWidth(145);

           Label secondW = new Label ("2nd word:");
            wordTextField2 = new TextField();
            wordTextField2.setPrefWidth(145);

            Button anagram = new Button ("Are these anagrams?");
            anagram.setOnAction(this::anagramProcess);


            result = new Text ("Let's test some possible anagrams!");

            FlowPane pane = new FlowPane (firstW, wordTextField1,
                                          secondW, wordTextField2,
                                               anagram, result);
            pane.setAlignment(Pos.CENTER);
            pane.setHgap(40);
            pane.setVgap(40);

            Scene scene = new Scene (pane, 320, 300);
            primaryStage.setScene(scene);

            primaryStage.show();

        }

        public void anagramProcess (ActionEvent event){

             String word1 = wordTextField1.getText();
             String word2 = wordTextField2.getText();

             int counter = 0;

            char[] array1 = word1.toLowerCase().toCharArray();
            char[] array2 = word2.toLowerCase().toCharArray();


            if (word1.length() == word2.length()){

                for(int i=0; i<word1.length(); i++){
                    boolean isAnagram = false;

                    for(int j=0; j<word2.length() &&
                        !(isAnagram); j++){

                        if (array1[i] == array2[j]){

                            counter++;
                            isAnagram = true;
                            array2[j] = (char) 0;

                        }

                    }

                }

            }
            if (counter == word1.length()){
                result.setText(word2 + " is an anagram of " +
                                    word1);
            }
            else {
                result.setText(word2 + " is not an anagram of " +
                                    word1);
            }



//              ANOTHER WAY WITHOUT USING ARRAYS:
//               word1 = word1.toLowerCase();
//               word2 = word2.toLowerCase();
//               int counter = 0;
//               if (word1.length() == word2.length()){
```
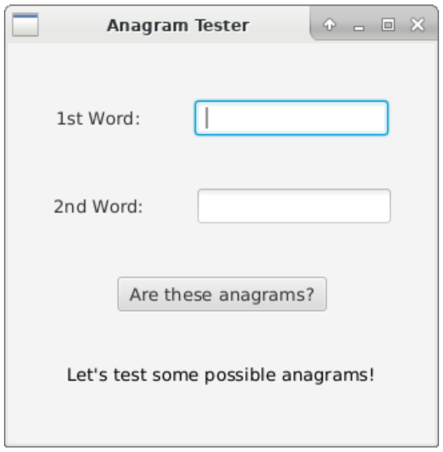
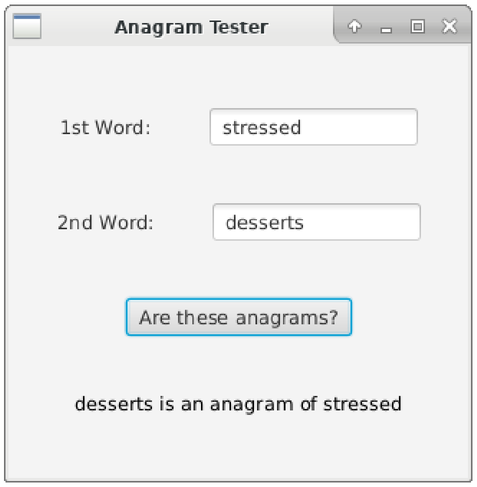

```
//
//                   for (int i=0; i<word1.length(); i++){
//
//                       boolean isAnagram = false;
//
//                       for (int j=0; j<word2.length() && !(isAnagram);
//                            j++){
//
//                           if(word1.charAt(i) == word2.charAt(j)){
//                               counter++;
//                               isAnagram = true;
//                               word2 = word2.substring(0, j) +
//                                       word2.substring(j+1);
//                           }
//                       }
//                   }
//               }
//
//               if(counter == word1.length()){
//                   result.setText(word2 + "is an anagram of " + word1);
//               }
//               else{
//                   result.setText(word2 + " is not an anagram of " +
//                                  word1);
//               }

      }

}
```

OUTPUT:



Let's test some possible anagrams!

Here is a screenshot showing the application when it is first launched:

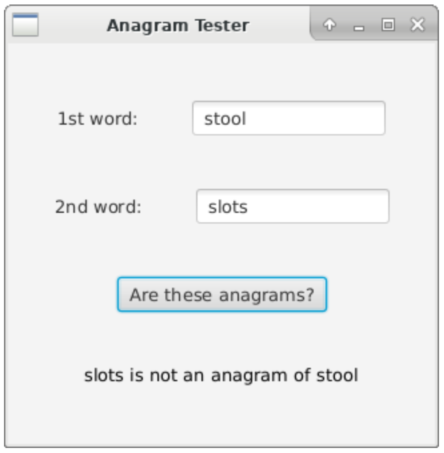


stressed

desserts

desserts is an anagram of stressed

Here is a view after the user has entered two words (that are anagrams) and pressed the "Are these anagrams?" button:

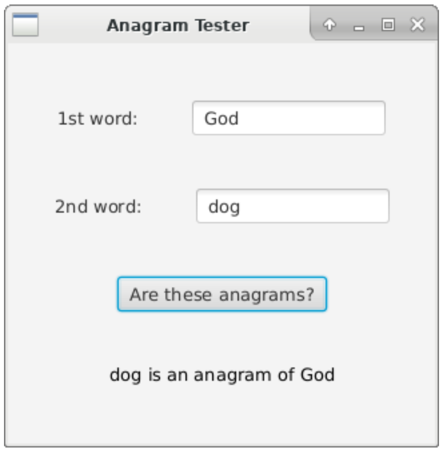


stool

slots

slots is not an anagram of stool

Here is a view after the user has entered two words (that are NOT anagrams) and pressed the "Are these anagrams?" button:

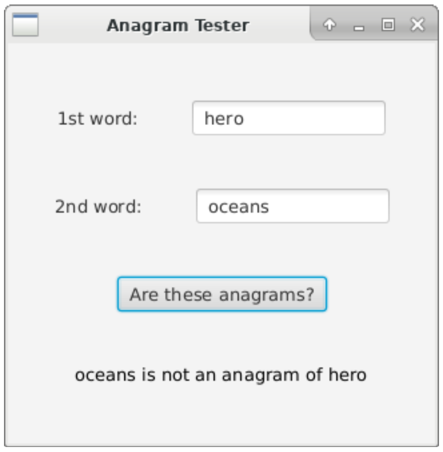


God

dog

dog is an anagram of God

Here is a view after the user has entered two words (that are anagrams) and pressed the "Are these anagrams?" button:



hero

oceans

oceans is not an anagram of hero

Here is a view after the user has entered two words (that are NOT anagrams) and pressed the "Are these anagrams?" button:

DiceAnalyzer.java:

```
public abstract class DiceAnalyzer {

    public static int getLongestIncreasingSequence (int[] diceRolls) {

            int maxSequence = 0;
            int currentSequence = 0;

            for (int i = 1; i < diceRolls.length; i++) {
                  if (diceRolls[i] > diceRolls[i-1]) {
                        currentSequence++;
                  }
                  else {
                        if (currentSequence > maxSequence) {
                              maxSequence = currentSequence;
                        }
                        currentSequence = 1;
                  }
            }
            if (currentSequence > maxSequence) {
                  maxSequence = currentSequence;
            }
            return maxSequence;
    }

    public static boolean isTargetSumPossible (int[] diceRolls, int
                                                  target) {

        boolean isPossible = false;
        for (int i = 0; i < diceRolls.length && !(isPossible); i++) {

            for (int j = i + 1; j < diceRolls.length && !(isPossible);
                 j++) {

                if(diceRolls[i] + diceRolls[j] == target) {
                    isPossible = true;
                }
            }
        }
        return isPossible;
    }

}
```

Q2Output.txt:

```
rollsArrayA: 2, 5, 2, 3, 5, 6
longest increasing sequence (should be 4): 4

rollsArrayB: 2, 3, 1, 6, 5, 1, 2, 4, 5, 6, 2, 3, 6
longest increasing sequence (should be 5): 5

rollsArrayC: 6, 2, 4, 3, 1, 2, 3, 3, 5, 2, 4, 4, 5, 5
longest increasing sequence (should be 3): 3

rollsArrayD: 6, 5, 5, 4, 3, 3, 3, 2, 1
longest increasing sequence (should be 1): 1

rollsArrayE: array with length of 0 (no elements)
longest increasing sequence (should be 0): 0

Searching for target total in dice roll pairs:
3 from rollsArrayA (should be false): false
4 from rollsArrayA (should be true): true
5 from rollsArrayA (should be true): true
6 from rollsArrayA (should be false): false
2 from rollsArrayC (should be false): false
7 from rollsArrayC (should be true): true
12 from rollsArrayC (should be false): false
7 from rollsArrayE (should be false): false
```