JAVA ASSIGNMENT 3 - Strings

Requirements -

You will create a class that will perform several different functions on Strings that are sent to it.

All the methods you create will be static. Only the two methods listed below should be public. Any methods that you write to help these methods should be private because they are only used internally within the class.

1. Take 3 string and 2 integer inputs from the user in the main method.

2. Create a method "**isAnagram**" that takes the first 2 Strings and checks whether the 2 strings are anagrams of each other or not. This method will be called from the main method where it will return a Boolean value. If the 2 strings are anagrams, this method will return True, else it will return False. Based on the returned value you will print either a or b -

   a. <string 1> and <string 2> are anagrams of each other

   b. <string 1> and <string 2> are not anagrams of each other

   Note: Here the actual input will be shown in place of <string 1> and <string 2> An Anagram of a string is another string that contains the same characters, only the order of characters can be different. The most important property in an Anagram is that all the letters must be used only once. Your method should ignore the case or any white space.

   For example -

   Silent and *Listen*

   Keep and *Peek*

   Your method should ignore the case or any white spaces in the String.

3. Create another method named '**extractSubstring'** which should take a third string and two integer values start and end as inputs. The two integer values should be the starting and ending index of the substring respectively. This method should return the extracted substring. Make sure to handle edge cases where start index and end index may be out of bounds of the string. For invalid index inputs, display the following usage

   "Usage: java Enter a valid index within the given string length."

4. Your output should be like the following test samples. (This is a screenshot from Terminal, you may test using IDE as well)

```
PS C:\Users\tanya\OneDrive\Documents\Courses\MSIS 2601-1 - OOPS\Assignments\Assignment_3\Strings\src> javac MohananiTanyaA3.java
PS C:\Users\tanya\OneDrive\Documents\Courses\MSIS 2601-1 - OOPS\Assignments\Assignment_3\Strings\src> java MohananiTanyaA3
Anagram String 1 = Debit card
Anagram String 2 = Bad credit
Substring Extraction String 3 = Delightful
Starting index of substring = 2
Ending index of substring = 6

Debit card and Bad credit are anagrams of each other.

The extracted substring is: light

Program Completed.
```

```
Anagram String 1 = The Morse Code.
Anagram String 2 = Here Comes Dot!
Substring Extraction String 3 = Happiness
Starting index of substring = 1
Ending index of substring = 3

The Morse Code. and Here Comes Dot! are anagrams of each other.

The extracted substring is: app

Program Completed.
```

```
Anagram String 1 = Angel
Anagram String 2 = Devil
Substring Extraction String 3 = Goodmorning!
Starting index of substring = 4
Ending index of substring = 14

Angel and Devil are not anagrams of each other.

Usage: java Enter a valid index within the given string length.

Program Completed.

Process finished with exit code 0
```

```
Anagram String 1 = Angel
Anagram String 2 = Devil
Substring Extraction String 3 = Goodmonring!
Starting index of substring = -1
Ending index of substring = 4

Angel and Devil are not anagrams of each other.

Usage: java Enter a valid index within the given string length.

Program Completed.
```

Notes:

1. The program should always print 'Program Completed.' before exiting.

2. Check if your program works properly by giving different inputs.

3. Give comments to increase code readability.

4. Mention the sources used to complete the assignment.

5. Save the file as LastnameFirstnameA3.java

6. Submit .java file and a screenshot of the terminal when you run the program.

7. Submit screenshots of all the sample test cases provided.

7. Pay close attention to indentation, punctuation, and spelling of the required output.

8. Make sure your code runs on Terminal with command line inputs (You may need to delete the "packages" line, if it shows up on your code and doesn't run on Terminal