Lab #08

***Alexander Fan***

***100229106***

CPSC 1150 - 003

Instructor: H. Darbandi

Lab Title: Strings

Date Completed: Jul 02, 2020

Department: CSIS

Program: Strings

File Name: Lab08.java

Purpose: Working with Strings

Technical Information:

(You should fill the following information based on compiler and computer you are using).

Compiler: Java SDK version 14

Computer: AMD Ryzen 5 2600 3.40 GHz, 16 GB ram, 64-bit processor, Java SDK 14

Operating System: Windows 10

Language: Java

Program Logic (Pseudocode)

Algorithm:

**START**

*public static String sum (String str1, String str2)*

1. If(str1.length() > str2.length()) //if length of string 2 is less than string 1
   1. String temp = str1
   2. Str1 = str2
   3. Str2 = temp
2. Str1 = reverse(str1) //reverse strings
3. Str2 = reverse(str2) //reverse strings
4. Int carry = 0; //initialize carry value to 0
5. Char[] ch1 = str1.toCharArray()
6. Char[] ch2 = str2.toCharArray()
7. Char[] finalChar = new char[ch1.length + ch2.length] //add two lengths together for space in array
8. For loop (int I = 0; I < ch1.length; i++)
   1. Int sum = (int)(ch1[i] – ‘0’) + (int)(ch2[i] – ‘0’) + carry
   2. finalCh[i] = (char)(sum % 10 + ‘0’)
   3. carry = sum/10
9. for loop (int I = ch1.length; I < ch2.length; i++)
   1. int sum = (int) (ch2[i] – ‘0’) + carry
   2. finalCh[i] = (char)(sum % 10 + ‘0’)
   3. carry = sum / 10
10. String sumStr = String.copyValueOf(finalCh)
11. sumStr = sumStr.trim(); //clear out whitespaces.
12. If(carry > 0) //if a carry still exists
    1. sumStr += (char)(carry + ‘0’)
13. sumStr = reverse(sumStr)
14. return sumStr

*public static String reverse (String str)*

1. String rev = “” //initialize blank string
2. For loop (int I = 0; I < str.length(); i++)
   1. Rev = str.charAt(i) + rev
3. Return rev;

*public static String addComma(String str)*

1. String result = “” //initialize blank string
2. For loop (int I = 1; I <= str.length(); i++)
   1. Char ch = str.charAt(str.length() – i);
   2. If(I % 3 == 1 and I > 1)
      1. Result = “,” + result
   3. Result = ch + result;
3. Return result5

**END**

Generate your test cases based on the specifications in your lab assignment. Follow following format for each test case: (Refer to external document of your previous lab)

*purpose*

*input*

*output*

*expected value*

*passed or failed*

**Test Cases:**

***Test Case 1:***

Input:

String 1 = 999999999999999999999999999999

String 2 = 999999999999999999999999999999

Expected Output: 1,999,999,999,999,999,999,999,999,999,998

Actual Output: 1,999,999,999,999,999,999,999,999,999,998

Passed

***Test Case 2:***

Input:

String 1 = 39983928349458

String 2 = 92387486729

Expected Output: 40,076,315,836,187

Actual Output: 40,076,315,836,187

Passed

***Test Case 3:***

Input:

String 1 = 782782782782782

String 2 = 4567867543

Expected Output: 782,787,350,650,325

Actual Output: 782,787,350,650,325

Passed

***Test Case 4:***

Input:

String 1 = 904624161061315940

String 2 = 32046549846031049898646546

Expected Output: 32,046,550,750,655,210,959,962,486

Actual Output: 32,046,550,750,655,210,959,962,486

Passed