Lab # 8

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CPSC 1150 - 003

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Lab Title: Lab 8

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Program to create, print, reverse, sort, insert, and find unique in arrays

File Name: Part2A.java

Purpose: read two positive integer numbers each up to 30 digits, and then add them and

print the result along with input numbers.

Input: two positive integer

Output: result along with input numbers

Technical Information:

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

Compiler: IntelliJ IDEA Community Edition 2023.1.1

Computer: (R) Core(TM) i7-10870H CPU @ 2.20GHz 2.21 GHz, 16 GB of RAM

Operating System: Windows 10 Home Single Language

Language: Java

Program Logic (Pseudocode)

**sumOf(String s1, String s2)**

Algorithm: Finds the sum of the 2 integers (definition)

* 1. String s1: first integer passed as a string
  2. String s2: second integer passed as a string

START

1. string\_sum 🡨 “”
2. carry 🡨 0
3. i 🡨 length of s1 -1
4. j 🡨 length of s2 -1
5. WHILE i >= 0 OR j >= 0 OR carry > 0
   1. digit1 🡨 i
   2. IF digit1 >= 0

digit1 🡨 character at (i) of s1 – ‘0’

ELSE digit1 = 0

* 1. digit2 🡨 j
  2. IF digit2 >= 0

digit2 🡨 character at (j) of s2 – ‘0’

ELSE digit2 = 0

* 1. sum 🡨 digit1 + digit2 + carry
  2. carry 🡨 sum/10
  3. digit 🡨 sum MOD 10
  4. string\_sum 🡨 digit + string\_sum
  5. DECREMENT i
  6. DECREMENT j

1. RETURN string\_sum

END

**formatting(String n)**

Algorithm: Formats the string to add commas every 3 digits

(definition)

* 1. String n: string of the integer to add commas in between

START

1. temp 🡨 0
2. k 🡨 length of n
3. WHILE k > 0
   1. IF k MOD 3 == 0

INCREMENT temp

* 1. DECREMENT k

1. l 🡨 length of n + temp
2. char[ ] arr 🡨 charr[ ] with length l
3. FOR i = arr.length, j = n.length() – 1 UNTIL i >= 0
   1. IF count MOD 4 == 0

arr[i] 🡨 “,”

INCREMENT j

ELSE arr[i] 🡨 character of n at j

* 1. INCREMEMT count
  2. DECREMENT i
  3. DECREMENT j

1. RETURN arr

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 first lab)

*purpose*

*input*

*output*

*expected value*

*passed or failed*

Test Cases:

Test Case 1:

Input:

input first number:

39983928349458

input second number:

92387486729

Output:

39,983,928,349,458 +

92,387,486,729

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40,076,315,836,187

Expected:

39,983,928,349,458 +

92,387,486,729

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40,076,315,836,187

Passed