ACS Applied Computer Science

THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

ACS-2906-070
Computer Architecture and System Software

Fall 2024

Laboratory 9

Due date: November 20nd, 11:59 PM **Total marks: 10**

Motivation

The goal of this laboratory is to reinforce recursion.

Questions

1. (10 points) Recursively calculate

$$\left(\sum_{i=1}^{x} i\right) + y = (1 + 2 + \cdots + x) + y = \frac{x(x+1)}{2} + y$$

Sample Output:

```
Input x: 5
Input y: 4
The answer is: 19
```

since $1 + 2 + 3 + 4 + 5 + 4 = 19$

Hint: You may want to review the printing procedure, which is on Nexus, to print a multiple digit number.

Evaluation:

- You **must** solve using a **RECURSIVE** procedure for doing the addition. Using the equation to return the answer will not be accepted. Use the equation just to check if your code is working.
- x and y are between 0 and 9. So the range for the response is between $[0, 54]$
- You **must** comment your code to explain that you understand the underlying functionality to receive full marks.

Submission instructions

Submit your laboratory solutions through Nexus.