Columbia College
Vancouver, Canada

Introduction to Computer Science and Programming 1
CSCI120

Chapter11: Recursion

Assignment 11

Note: This document has been designed and developed as part of an initiative for creating an OER (Open Education Resource) package for the course CSCI 120 at Columbia College.

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If it is a group assignment, please add the information here

# of Students in the Group:		
Student 1	*First name, last name*	*Student-ID*
Student 2	*First name, last name*	*Student-ID*
Student 3	*First name, last name*	*Student-ID*
Student 4	*First name, last name*	*Student-ID*

Requirements

- Please use meaningful name for your variables and functions
- Try to reuse your solutions as much as possible.
- For each of the following problem you need to
    - Define a function
    - For all test cases you have already written for your algorithm, write a function call inside the main function
- Define all the functions in one file (all in one)
- Define one main function
- Call the functions inside the main function
- If the function you have implemented for a question is big, please try to break down to multiple functions.
- Do not use methods, functions, statements that we have not covered in the previous lectures.

Problem1

- Write a function which receives an integer (n) and calculate the total sum of 1 until n recursively. For instance function(5) = 5+4+3+2+1 = 15

Problem2

- Define and implement a function that receive an integer and return the sum of all digits of the number. For instance, for number 3415 the function should return 3+4+1+5 = 13

Problem3

- Define and implement a function that print the Fibonacci series for an input number n. The following image shows the Fibonacci function.

$$f(n) = \begin{cases} 0 & if \quad n = 0 \\ 1 & if \quad n = 1 \\ F(n-1) + F(n-2) & if \quad n > 1 \end{cases}$$

Problem4

- Define and implement a function which receives a list of integers and calculate the sum of all elements of the list recursively.

Problem5

- Define and implement a function which receives a list of integers and find the maximum element of the list recursively.

Good Luck ☺