CSCI 121 Project 09

Introduction

Purpose

The purpose of this project is to help the students to reinforce the knowledge from **Chapter 14** of the textbook.

Objectives

1. Review the top-down design.
2. Understand and apply the concept of recursive thinking.

Problem Description

Write the following 2 functions and test them.

Both of them need to be **recursive** function.

```
int sum(int n);
// Recursive version to calculate the sum of
// 1 + 2 + .... + n

// For str_length:
// option 1:
int str_length(char s[], int counter);
// option 2:
int str_length(char s[]);
// Recursive version of strlen in C strings.
// It returns the length of the string s[].
// (the null character, '\0', is not counted in the length)
```

Sample Run

Note: I use ⌨ symbol to show user inputs, you do **NOT** need to do ⌨ in your program.

```
Enter a positive integer: ⌨10
The sum of 1+2+...+10 is: 55

Enter a sentence: ⌨Hello World!
```

```
It contains 12 chars, including white spaces

Do you want to have another run? Y/N: ⌨y

Enter a positive integer: ⌨100
The sum of 1+2+...+100 is: 5050

Enter a sentence: ⌨I love programming!
It contains 19 chars, including white spaces

Do you want to have another run? Y/N: ⌨n

Program ended with exit code: 0
```

Extra Credit

For the function `int str_length()`, you will get 2 extra credit if you only use **1** parameters, so the function will looks like this: `int str_length(char s[])`

Submission

Before you submit your file to Blackboard, please make sure:

- Your file name is correct, as `YourNameProj9.cpp`.
- You file can be successfully compiled and run without any errors.

Upload **only** `YourNameProj9.cpp` file to `Proj9` link inside `Projects` folder.