Alexandria University
Faculty of Engineering
Computer and Systems Engineering
Department

CS121: Computer Programming 1
Assigned: Saturday, November 9nd, 2024
Due: Saturday, November 23th, 2024

Lab 5
Recursion - Strings

Lab Objectives

1. Getting Familiar with C programming language.
2. Practice Functions and recursion concepts.
3. Practice Strings.

Problem Set

1. Write a recursive function to calculate and return the sum of digits of a given number

2. **Count the Words**
   In this problem, you are given a line of text (use gets()/fgets() to read a string line). Your task is to count the number of words in the input text. The input text will contain letters{a-z, A-Z,0-9}, spaces and tabs ('\t').

   Sample Input and Output:
   • Input: "Hello World!" → Output: "2 words".
   • Input: " Can you count the number of words" → Output: "7 words"
   • Input: " Be ware of specail cases " → Output: "5 words

3. **String Occurrence**
   You should write a program that takes two inputs:
   1. A string line (use gets()/fgets() function to read a whole line).
   2. A string word.
   It should find ALL occurrences of the word in the input line. Your program should print the beginning index of each occurrence and it should print the total number of occurrences.

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For example
If the input line is "aabacd aabaaba aabcaaba", and the input word is "aaba",
your program should print:

       Occurrence at index 0
       Occurrence at index 7
       Occurrence at index 10
       Occurrence at index 19
       Total number of occurrences = 4

NOTES

1. You are encouraged to ask any questions on MS teams, or in person.
2. Cheating will be severely penalized (for both parties). So, it is better to deliver nothing than deliver a copy!.
3. You are not allowed to use any AI Tool.
4. Submission details will be announced on MS Teams.

Good Luck