COSC2429 – Introduction to Programming

Assessment 3 – Test 2 – 2022C

Individual – Timed Programming Test 1

Deadline: Saturday 10:00 AM + 05 minutes, Week 8

Late work: Deduction of 10% per minute

Submission Instructions

1) Only submit the python files, name your files as question1.py, question2.py, ...
    - No capital letter in the file names
    - Make sure it works properly (PyCharm, Python 3.8x)
    - If you use any other python version/IDE, you must note that in the comment at the beginning of your code
2) Place all your files in **ONE folder**:
    - named the folder as **<Your sID_Name>,** where 'sID' is your student ID, and 'name' is your full name. This is a correct way to name your folder: s1234567_NguyenMinhNhat
3) Zip the folder <Your sID_Name>, and submit **only this zip file** to Canvas
4) Point deduction will be given if you:
    - Have incorrect file names, function names, variable names.
    - Forget file header in the correct format.
    - Forget function docstrings in the correct format.
    - Have no or little code comments.
    - Write too long and repetitive code where iteration can help shorten it.
    - Place all your code in the main program without using functions.

Question 1

Write a program to count all letters, digits, and special symbols from a given string.

Example 1: Input: Enter a string: P@#yn26at^&i5ve

Output: Letters: 8

Digits: 3

Symbols: 4

Example 2: Input: Enter a string: RRmmmIIIIT 123

Output: Letters: 10

Digits: 3

Symbols: 1

Question 2

Write a program that takes a string where each of the words are separated by comma as an input from a user. The program prints all the words input from the user in a list. Then filter the words that do not start with vowel alphabets and print each of the filtered words (which do not start with vowel alphabets) in separate lines.

The output of the program must be as in the example given below:

Example: Input: Enter the words separated by comma: Hi,I,am,Python,And,who,is,He

Output: ['Hi', 'I', 'am', 'Python', 'And', 'who', 'is', 'He']

Hi

Python

who

He

Question 3

Write a program that takes a sequence of numbers separated by space as an input from a user. Find and display the maximum value and all their positions in the input sequence.

Example: *Input:* Enter a sequence of numbers: 15 17.2 7 -8.8 9.2 17.2 -3.5
Output: The maximum value is 17.2 at position(s) 1, 5

Question 4

Assume that a representative board is selected from a school of **n** students. For simplicity, there are no constraints on the number of members of the board, that is, the representative board may contain from **1** to **n** students. This question is about the number of possible ways to select such a representative board from **n** students.

a. Write a **recursive** function with parameter **n** (a positive integer) that computes and returns the number of possible ways to select a representative board from **n** students.
b. In the main program (user interface), the prompt asks the user to input a positive integer **num**. Call the function you wrote in part a) with the parameter value **num** and display the output message which should look like in the following example.

Example: *Input:* Enter thee number of students: 3
Output: There are **7** way(s) to select a representative board from **3** students.

Explanation. The **7** ways to select a representative board from 3 students A, B and C are below:

(i) {A}
(ii) {B}
(iii) {C}
(iv) {A, B}
(v) {A, C}
(vi) {B, C}
(vii) {A, B, C}

Notes. ***A recursive function is required in this question.***

---------- End of the Test ----------