2022 Spring -- CSCI 1300L
Lab 03: Handling input and output, and calculations

Introduction

In this lab, you will use the Python to handle user inputs and make the program display the related information. You will further learn and use Python to do mathematical calculations with different data types. You should write all lines of codes in one section (i.e. do not immediately "run" the program line by line when the interpreter mode is used.)

Lab objectives

After completing this lab, you will be able to:
(1) understand and use two different number data types, integers and float point numbers,
(2) use variables, numbers, and operators, and strings,
(3) calculate results from the values of variables, and
(4) code in Python to process both user inputs and program outputs.

Assignment

You will write a Python program to calculate the percentage of college undergraduate students at different class years (categories): freshman, sophomore, junior, and senior.

1) First, an end user inputs positive integers for these four numbers.
2) Then, the program calculates the total number of students by getting the sum of all these four values.
3) Next, the program will display the total number of students.
4) Followed by the first output, i.e. the total number of students, the program calculate the percentage of these four values. Make sure all these four numbers are obtained from the user and the total number is calculated.
5) Finally, the program will display the percentages of students for the four class years (categories).

Look at the following example:

```
Please enter the count of freshman students:
60
Please enter the count of sophomore students:
40
Please enter the count of junior students:
50
Please enter the count of senior students:
50
```

According to the provided information, there are 200 students in total.
Freshman: 30.0%
Sophomore: 20.0%
Junior: 25.0%
Senior: 25.0%

Note that the four integers shown in the example (60,40,50,50) are obtained from the user's keyboard. The rest of words and numbers are generated by the program. If the user's input is different from the example, the output may also be different.

Your program's output does not need to be exactly the same as the example output. Further, there is no specific requirement regarding the program's handling of invalid inputs at this time (e.g. the user attempts to enter a negative number or a word for the number of students). However, your program must be able to:
(1) handle the four user inputs one after one,
(2) save the values into variables,
(3) display the relevant message so that the user is notified what to see/do next,
(4) correctly calculate and display the total number of students from the four input values, and
(5) correctly calculate and display the four percentage values after the calculation. Keep in mind, the output must be a percentage value (e.g. 30.0%), not a fraction value (e.g. 0.30).

Submission instruction

After you have completed the assignment, upload and submit the Python source code file *Lab03.py* to eLC. Always double check that your submission was successful on eLC.

Grading

A score between 0 and 5 will be assigned, with a minimum of 1 point increment.

1. The program can successfully accept an end user's valid input of numbers. (1 point)
2. There are necessary and relevant displaying messages before and after the user inputs, i.e. the output makes sense. (1 point)
3. All calculations are correct (total number: 1 point; percentages: 1 point). (2 points)
4. Only a single source code file is submitted and no other file is submitted (0.5) and the entire Python program can be executed without any additional error (0.5). (1 point)

Special notice regarding the submission:

Late submission penalty. Points will be deducted from the original grade. If your submission is after the posted deadline…

(1) within 24 hours: -2
(2) between 24 hours and 48 hours: -3
(3) between 48 hours and 72 hours: -4
(4) after 72 hours: assignment will not be accepted.