COMP1005/1405 Fall 2024 Tutorial 3

Do not post the tutorial or the tutorial and/or solutions on any website.

Objectives

- Practice writing/running Python code in the terminal
- Practice applying and manipulating **Strings and Lists functions** in the code

Expectations

To receive full grades for this tutorial, you must complete Problems 1-3.

Grading Scheme for Tutorials

For each tutorial, you will be graded based on the following scale:

- 2/2 for demonstrate problems 1 - 3 and your **YourStudentNumber_T3.zip** file
    - Section A Tutorial Sessions: submit your work to the tutorial BrightSpace. The zip file should contain your solutions to all the required problems.
    - Section C, D, and E Tutorial Sessions: demonstrate your tutorial work in person to a teaching assistant by the end of the tutorial session.
- 1/2 if you are missing problems or your solutions need significant improvement.
- 0/2 if you do not submit to BrightSpace or demonstrate to a teaching assistant
    - Section A Tutorial Sessions: no submission to the tutorial BrightSpace
    - Section C, D, and E Tutorial Sessions: not demonstrating your tutorial work to a teaching assistant by the end of the tutorial session

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Problem 1 (Interactive mode – Strings and Splicing)

Start the Python interpreter in the **interactive mode** and do the following.

Copy the **commands** you wrote in the interactive mode and the **output** you received to the text file. Include your written answers for **2.a**. Use VSCode to create and save this file as **p1.txt**.

1. Using slicing, retrieving string values by index and concatenation to do the following:
   Expected input: school = 'Private School'
   Expected output: 'Pool'
2. Using the split method, split the following phrase on the 'h' and save the returned list of strings in a variable named ***phraseList*** (include your work in the p1.txt file).
   Expected input: phrase = 'So, long and thanks for all the fish'

   Answer the following questions in the p1.txt file:
   a. What is the size of the ***phraseList*** list?
   b. What method do we use to find the length of a list?
   c. Are there any unexpected elements in the list after splitting on 'h'? If so, why did it happen?
3. Using the strip method:
   a. day = ' Carpe diem ' (there are 5 spaces on either side of the words)
   Expected output: 'Carpe diem'
   b. day = ' Carpe diem ' (there are 5 spaces on either side of the words)
   Expected output: 'rpe di'

The following Sample Output for splicing a string (just an example output).

```
>>> school = 'Private School'
>>> school[1:]
'rivate School'
```

Problem 2 (List)

Write a Python file named **p2.py** in VSCode to implement the menu order.

1. **Create a Menu Order**
    a. Assign values to a list that represents the menu order.

["Ice Cream", 3.67, 2, "Donuts", 2.50, 6, "Roll", 7.89, 3, "Pizza", 13.45, 5, "Fish and Chips", 15.20, 23, "Poutine", 8.51, 13, "Tacos", 3.00, 19]

2. **Process the List:**
    a. Create sublists using slicing to categorize the data: foodItems(String List), prices(Floating List), quantities(Integer List)
    b. For the foodItems list, calculate the mean length (integer value) of the food items.
    c. For the prices list, multiply each price by its corresponding quantity, then round the result to two decimal places.

    Hint: You can use round(value, number_of_digits) to round values to the specified number of decimal places, and calculate the total price of the food item we choose.

    i.e. For **Ice Cream**, updatePrice[0] = price[0] * quantities[0]

    d. For the quantities list, convert quantities to their corresponding uppercase alphabet characters (1 → A, 2 → B, ..., 26 → Z). **Hint:** Refer to the chr() method.

3. **Output the Result:**
    a. Display the results using formatted strings (f-strings). **Hint**: Refer to our for-loop example for range(), list, reverse list.

Sample Output:

```
The mean length of the item names if 7

Menu Order Summary: (Food Name:  Price,  Quantity)

        Ice Cream: 7.34 , B

        Donuts: 15.0 , F

        Roll: 23.67 , C

        Pizza: 67.25 , E

        Fish and Chips: 349.6 , W

        Poutine: 110.63 , M

        Tacos: 57.0 , S
```

Problem 3 (List + String)

Write a Python file named **`p3.py`** in VSCode to implement the string related program.

1. Prompt the user input of entering a paragraph of text.
2. Count the total number of words in the user input. Assume that every word is substring followed by a space character (**‘ ’**).

   Hint: string method: `split()`
3. Count the total number of sentences in the user input. Assume that every sentence is substring followed by a dot character (**‘.’**).
4. Print the sentences, one sentence per line with capitalized the first letter of each sentence.

   Hint: string method: `split()`, `upper()`

Sample Output:

```
Please write a paragraph and hit enter when you’re finished.:
hello, here are some words. and some sentences. you can count
them.

Sample output:

Total number of words = 12
Total number of sentences = 3

Capitalized sentences are:
Hello, here are some words.
And some sentences.
You can count them.
```

Compress Files (zip files)

1. Create a directory/folder and copy/move all your tutorial files to it.
2. Enter this directory, select all files, and create a zip file as described above. Name it **`YourStudentNumber_T3`** (replace **YourStudentNumber** with your 9-digit student number).

Final Step

For Section A (Submit the work before the tutorial ends):

1. **Submit** your `zip` file to our Merged Tutorial Brightspace. The due date of your submission is aligned with your tutorial session.
2. **After** you submit the file, download your submission from Brightspace and confirm that it is a zip file containing **`p1.txt`**, **`p2.py`**, and **`p3.py`**. **Extract** the .py files and execute those again to ensure they work properly. Occasionally, a problem can occur during the upload process, and files can become corrupted.

For Sections C, D and E (Show the TAs your work before the tutorial ends):

1. **Problem 1:** Show txt file to TAs and explain your calculation.
2. **Problem 2-3:** Run your Python files in VS Code to demonstrate it is working.
3. Answer the questions TA may ask.
4. Finally, show the TA your zip file and extract the files.