CS5001: Lab 9. Due on Friday, Nov-10-2023.

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You can work on this lab either individually or in small group of two or three students. If working in a group, include names of all the students in the submission PDF.

Getting credit for this lab. This lab handout has several empty boxes that prompt you to answer a question. As part of the lab, you are to write the answers to these questions inside the boxes/blanks. When you are finished, you should create a PDF and upload it on Canvas. If you don't finish, you have until 11:59 PM on Friday, Nov-10-2023 to submit.

What computer to use? If your primary computer is a laptop, bring it to the lab to work on, as lab is an excellent opportunity to get started with Python on your machine. You should follow the instructions on the course website. Ask a TA for help if you have problems with your installation. If you prefer, you could also use one of the machines in the lab room to work on this lab assignment.

Lab Materials. Lab materials can always be found on Canvas under the appropriate lab posting.

For today's lab, you need: this handout, EnglishWords.txt, GetData.py, ShowCertainLength_Q.py. All the files are posted on Canvas with the lab handout.

1 Operations on Lists

Assume that x = ['abc','abcd','abcde','abcdef']. Now fill out the table: (**14*3 = 42 points**)

	Expression	I think the value is	Python says
1.	len(x)	4	4
2.	'a' in x	False	False
3.	x[2][1:3]	'bc'	bc
4.	x.count('a')	0	0
5.	x[2].split('c')	['ab' ,'de']	['ab', 'de']
6.	x.extend(100)	error	Traceback (most recent call last): File "/Users/cathyqin/Desktop/testlab09.py", line 9, in <module> x.extend(100) TypeError: 'int' object is not iterable
7.	x.extend([100])	None	None extend() is a void method, only the statement x.extend([100]) won't return anything, but if you print x, it will return ['abc', 'abcd', 'abcde', 'bcdef', 100]

2. The Function ShowCertainLength

2.1) Take a look at the module ShowCertainLength.py. Complete the implementation of the function CertainLength. **(20 points)**

def CertainLength(L,m):
""" Returns the number of strings in L that have length m.
PreC: L is a list of strings and m is a positive int
"""

```
counter = 0 #track the number of strings that have length m
for s in L:
    if len(s) == m:
        counter += 1
return counter
```

2.2) What is the output when ShowCertainLength.py is run after including your code above? (14 points)

```
len(L) = 109583

m  ShowCertainLength(L,m)
----------------------------
5       6919
6       11492
7       16882
8       19461
```

3 Reverse

This script creates a list y that is the same as x except that the order of the entries is reversed:

x = [10,20,30,40]
y = []
y.append(x[3])
y.append(x[2])
y.append(x[1])
y.append(x[0])

Give an implementation of the following function so that it performs as specified: **(24 points)**

```
def Reverse(x):
        """ Returns a list that is the same as x except that the order of its entries is reversed.
        PreC: x is a list of numbers """

        ret = [] #initialize an empty list
        for i in range(len(x) - 1, -1, -1): #set the for loop from the last to the first index in list x
            ret.append(x[i])
        return ret


if __name__ == '__main__':
    x = [10,20,30,40]
    y = Reverse(x)
    print(y)
```