Bloomberg
STARTUP

Week 8 In-class Exercise

1) For Loop Practice with ‘FizzBuzz’

Create a file called fizzbuzz.py

FizzBuzz is an infamous interview problem often given to programming job applicants and a good number of candidates do not successfully complete it. That being said, it should be no trouble for the fearless students in this class!

FizzBuzz asks for a program that prints the numbers 1-100, but for multiples of 3 prints ‘Fizz’ instead of the number, and for multiples of 5 prints ‘Buzz’. If a number is both a multiple of 3 and of 5, it prints ‘FizzBuzz’.

Complete the problem in steps! First, print 1-100 using a for-loop. Then print ‘Fizz’ in the correct spots, then print ‘Buzz’ in the correct spots, then lastly print ‘FizzBuzz’ in the correct spots.

The first 20 lines should look like this:

```
1
2
Fizz
4
Buzz
Fizz
7
8
Fizz
Buzz
11
Fizz
13
14
FizzBuzz
16
17
Fizz
19
Buzz
```

2) Looping through strings

Create a new file called ‘vowel_counting.py’.

2a) Writing the ‘is_vowel’ function

First, write a function called ‘is_vowel’ that takes a string (hopefully a single letter) as its only parameter, and returns True if the letter is a vowel, and False if it is not a vowel.

Test your new function before proceeding:

```
print( is_vowel(‘a’) )                     # should print ‘True’
print( is_vowel(‘d’) )                     # should print ‘False’
print( is_vowel(‘E’) )                     # should print ‘True’
print( is_vowel(‘a whole long string’) )   # should print ‘False’
```

2b) Writing the ‘num_vowels’ function

Next, write a function called ‘num_vowels’ that will return the number of vowels in a string.

Remember that a string can be treated like a list of text characters. Use a for-loop to check each character in the string with your ‘is_vowel’ function. The function should return the number of vowels found in the string.

Test your function before proceeding:

```
     print( num_vowels(“bread”) )            # should print ‘2’
     print( num_vowels(“onomatopoeia”) )     # should print ‘8’
     print( num_vowels(“Les Miserables”) )   # should print ‘5’
```

2c) Writing the ‘most_vowels’ function

Next, write a function called ‘most_vowels’ that will take a list of strings as its only parameter, and return the string with the most vowels.

Use a for-loop along with your ‘num_vowels’ function to determine which string has the most vowels.

Test your function before proceeding:

```
      print( most_vowels( [“bread”, “onomatopoeia”, “Les Miserables”] ) )
             # should print “onomatopoeia”
```

2d) Which common English word has the most vowels?

We are providing a Python module to you that contains a list of the 10,000 most-used words in the English language.

Create a file 'words.py' in the same directory as your current file 'vowel_counting.py'.

In a new web browser tab, go to c9.io and open the workspace called 'bstartupstars/lesson_modules'. Double-click on the file 'words.py' to open and use the command 'ctrl-a' to select all the text and 'ctrl-c' to copy. Now, go back to your own workspace, and open the words.py file. 'ctrl-v' to paste.

The words module has one function you can use, 'get_all_words'. This returns the list of the 10,000 most common words in the English language.

To test the module in 'vowel_counting.py':

```
    import words

    word_list = words.get_all_words()

    print( word_list[0] )                    # should print 'of'
```

Now that you have a list of 10000 words, use your most_vowels function to find which word has the most vowels.

Word with most vowels: ____________________________

2e) Challenge: Which word has the most consonants?

Create new functions 'num_consonants', and 'most_consonants'. Can you re-use your 'is_vowel' function?

Word with most consonants: ________________________