Python course materials

# Functions and Methods Homework

Complete the following questions: \_\_\_\_ **Write a function that computes the volume of a sphere given its radius.**

The volume of a sphere is given as

def vol(rad):  
 pass

# Check  
vol(2)

33.49333333333333

**Write a function that checks whether a number is in a given range (inclusive of high and low)**

def ran\_check(num,low,high):  
 pass

# Check  
ran\_check(5,2,7)

5 is in the range between 2 and 7

If you only wanted to return a boolean:

def ran\_bool(num,low,high):  
 pass

ran\_bool(3,1,10)

True

**Write a Python function that accepts a string and calculates the number of upper case letters and lower case letters.**

Sample String : 'Hello Mr. Rogers, how are you this fine Tuesday?'  
Expected Output :   
No. of Upper case characters : 4  
No. of Lower case Characters : 33

HINT: Two string methods that might prove useful: **.isupper()** and **.islower()**

If you feel ambitious, explore the Collections module to solve this problem!

def up\_low(s):  
 pass

s = 'Hello Mr. Rogers, how are you this fine Tuesday?'  
up\_low(s)

Original String : Hello Mr. Rogers, how are you this fine Tuesday?  
No. of Upper case characters : 4  
No. of Lower case Characters : 33

**Write a Python function that takes a list and returns a new list with unique elements of the first list.**

Sample List : [1,1,1,1,2,2,3,3,3,3,4,5]  
Unique List : [1, 2, 3, 4, 5]

def unique\_list(lst):  
 pass

unique\_list([1,1,1,1,2,2,3,3,3,3,4,5])

[1, 2, 3, 4, 5]

**Write a Python function to multiply all the numbers in a list.**

Sample List : [1, 2, 3, -4]  
Expected Output : -24

def multiply(numbers):   
 pass

multiply([1,2,3,-4])

-24

**Write a Python function that checks whether a word or phrase is palindrome or not.**

Note: A palindrome is word, phrase, or sequence that reads the same backward as forward, e.g., madam,kayak,racecar, or a phrase “nurses run”. Hint: You may want to check out the .replace() method in a string to help out with dealing with spaces. Also google search how to reverse a string in Python, there are some clever ways to do it with slicing notation.

def palindrome(s):  
 pass

palindrome('helleh')

True

#### Hard:

**Write a Python function to check whether a string is pangram or not. (Assume the string passed in does not have any punctuation)**

Note : Pangrams are words or sentences containing every letter of the alphabet at least once.  
For example : "The quick brown fox jumps over the lazy dog"

Hint: You may want to use .replace() method to get rid of spaces.

Hint: Look at the [string module](https://stackoverflow.com/questions/16060899/alphabet-range-in-python)

Hint: In case you want to use [set comparisons](https://medium.com/better-programming/a-visual-guide-to-set-comparisons-in-python-6ab7edb9ec41)

import string  
  
def ispangram(str1, alphabet=string.ascii\_lowercase):  
 pass

ispangram("The quick brown fox jumps over the lazy dog")

True

string.ascii\_lowercase

'abcdefghijklmnopqrstuvwxyz'

#### Great Job!