

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 $\frac{4}{3} \pi r^3$

```
In [6]: def vol(r):  
        v = (4/3) * 3.14 * (r**3)  
        #print(v)  
        return v
```

```
In [7]: x = vol(2)  
print(x)  
  
33.49333333333333
```

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

```
In [3]: in range(1,2)
```

```
In [ ]: if num in range(low,high+1):  
        return True
```

```
In [8]: def ran_check(num, low, high):  
        if num >= low and num<=high:  
            return True  
        else:  
            return False
```

```
In [ ]: def ran_check(num, low, high):  
        if num >= low and num<=high:  
            return True  
        return False
```

```
In [11]: def ran_check(num, low, high):  
         return num >= low and num<=high
```

```
In [ ]: def ran_check(num, low, high):  
         return num in range(low,high+1)
```

```
In [10]: # Check  
ran_check(5,2,7)
```

Out[10]: True

```
In [5]: ran_check(5,5,5)
```

Out[5]: True

If you only wanted to return a boolean:

```
In [5]: def ran_bool (num,low,high):  
        pass
```

```
In [6]: ran_bool(3,1,10)
```

Out[6]: 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!

```
In [7]: def up_low(s):  
        pass
```

```
In [8]: 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]

```
In [9]: def unique_list(lst):  
        pass
```

```
In [10]: unique_list([1,1,1,1,2,2,3,3,3,3,4,5])
```

Out[10]: [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

```
In [11]: def multiply(numbers):  
        pass
```

```
In [12]: multiply([1,2,3,-4])
```

Out[12]: -24

Write a Python function that checks whether a passed in string is palindrome or not.

Note: A palindrome is word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run.

```
In [13]: def palindrome(s):  
        pass
```

```
In [14]: palindrome('helleh')
```

Out[14]: True

Hard:

Write a Python function to check whether a string is pangram or not.

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: Look at the string module

```
In [15]: import string  
  
def ispangram(str1, alphabet=string.ascii_lowercase):  
    pass
```

```
In [16]: ispangram("The quick brown fox jumps over the lazy dog")
```

Out[16]: True

```
In [12]: string.ascii_lowercase
```

```
-----  
NameError                                Traceback (most recent call last)  
<ipython-input-12-ac9229703b09> in <module>  
----> 1 string.ascii_lowercase  
  
NameError: name 'string' is not defined
```

```
In [16]: def f():  
        global a  
        b = 8  
        print(a)
```

```
a = 5  
b = 6  
print(a)  
f()  
  
5  
5
```

Great Job!

```
In [ ]:
```