Submitted By - kirti

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 $$\frac{4}{3} πr^3$$

In [ ]:
```
import numpy
def vol(rad):
    return(4/3)*numpy.pi*rad**3
```

In [ ]:
```
# Check
vol(2)
```

Out[ ]:
```
33.510321638291124
```

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

In [ ]:
```
def ran_check(num,low,high):
    if num>low and num<high:
        print(num,"is in the range between",low,"and",high)
    else:
        print(num,"is not in the range between",low,"and",high)
```

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

```
5 is in the range between 2 and 7
```

If you only wanted to return a boolean:

In [ ]:
```
def ran_bool(num,low,high):
    if num>low and num<high:
        print("True")
    else:
        print("False")
```

In [ ]:
```
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!

In [ ]:
```
def up_low(s):
    upper,lower=0,0
```

```
    for i in s:
        if i.isupper():
            upper+=1
        elif i.islower():
            lower+=1
    print("No. of Upper case characters :",upper)
    print("No. of Lower case characters :",lower)
```

In [ ]:

```
s = 'Hello Mr. Rogers, how are you this fine Tuesday?'
up_low(s)
```

```
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 [ ]:

```
l=[]
def unique_list(lst):
    for i in lst:
        if i not in l:
            l.append(i)
    print("Unique List :",l)
```

In [ ]:

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

```
Unique List : [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 [ ]:

```
def multiply(numbers):
    p=1
    for i in numbers:
        p*=i
    print(p)
```

In [ ]:

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

```
-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 [ ]:

```
def palindrome(s):
    f=0
    for i in range(0,len(s)):
        if s[i]!=s[len(s)-i-1]:
            print("False")
            f=1
            break
    if f==0:
        print("True")
```

In [ ]:

```
palindrome('helleh')
```

```
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 [ ]:

```
import string

def ispangram(str1, alphabet=string.ascii_lowercase):
    str1=str1.lower()
    str1=str1.replace(' ','')
    str1=set(str1)
    str2=set(alphabet)
    print(str1)
    print(str2)
    return str1==str2
```

In [ ]:

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

```
{'m', 'x', 'r', 'q', 'w', 'k', 'n', 'o', 'h', 'c', 'v', 'p', 't', 'g', 'f', 'i', 'b', 'j', 'l', 'u', 's', 'e', 'y',
'z', 'd', 'a'}
{'m', 'x', 'r', 'q', 'w', 'k', 'n', 'o', 'h', 'c', 'v', 'p', 't', 'g', 'f', 'i', 'b', 'j', 'l', 'u', 's', 'e', 'y',
'z', 'd', 'a'}
```

Out[ ]:

```
True
```

In [ ]:

```
string.ascii_lowercase
```

Out[ ]:

```
'abcdefghijklmnopqrstuvwxyz'
```

Great Job!