PIERIAN ◐ DATA

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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 [1]:  def vol(rad):
             pass
```

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

```
Out[2]:  33.49333333333333
```

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

```
In [3]:  def ran_check(num,low,high):
             pass
```

```
In [4]:  # Check
         ran_check(5,2,7)
```

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

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]:
```python
def multiply(numbers):
    pass
```

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

Out[12]: -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.

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

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

Out[14]: 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 al
phabet 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)

In [15]:
```python
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 [17]: `string.ascii_lowercase`

Out[17]: `'abcdefghijklmnopqrstuvwxyz'`

Great Job!