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python programming assignment Day 3

1. Write a Python program to construct the following pattern, using a nested for loop. Search about method

```
In [9]: rows = 6
#incremental stars shape
for i in range(0, rows):
    for j in range(0, i + 1):
        print("*", end= ' ')
    print("\n")
#reverse stars second half
for i in range(rows + 1, 0, -1):
    for j in range(0, i - 1):
        print("*", end= ' ')
    print("\n")
```

```
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * *
* * * * *
* * * *
* * *
* *
*
```

2. Write a Python program that accepts a word from the user and reverse it

```
In [13]: reverse_word = str(input("enter the text to reverse it: "))
print(reverse_word[::-1])
```

```
enter the text to reverse it: mostafa
afatsom
```

or "with function method"

```
In [37]: def reverse_func(to_be_reversed):  
         return to_be_reversed[::-1]  
         print(to_be_reversed)
```

```
In [38]: reverse_func("mostafa")
```

```
Out[38]: 'afatsom'
```

Or "with input method"

```
In [40]: def reverse_func(input_e):  
         return input_e[::-1]  
         print(input_e)  
         input_e = input("enter the text: ")  
         reverse_func(input_e)
```

```
enter the text: mostafa
```

```
Out[40]: 'afatsom'
```

3. Write a Python program that accepts a string and calculate the number of digits and letters

```
In [46]: s = '1 said oooo00 i bl1nded by the l1!ghts'  
  
         numbers = sum(c.isdigit() for c in s)  
         letters = sum(c.isalpha() for c in s)  
         spaces = sum(c.isspace() for c in s)  
         others = len(s) - numbers - letters - spaces  
  
         print("no. of numbers in text = ", numbers)  
         print("no. of letters in text = ", spaces)  
         print("no. of other characters in text = ", others)  
  
         no. of numbers in text = 5  
         no. of letters in text = 7  
         no. of other characters in text = 1
```

4. Write a Python program that prints all the numbers from 0 to 6 except 3 and 6

```
In [49]: list_of_letters = []  
         for i in range(7):  
             if i == 6 or i == 3:  
                 pass  
             else:  
                 list_of_letters.append(i)  
  
         print(list_of_letters)
```

```
[0, 1, 2, 4, 5]
```

5. Write a Python function to find the Max of three numbers.

```
In [54]: #more than 3 numbers as a bonus ^_^
def max_finder(*args):
    return(max(*args))
```

```
In [52]: max_finder(1,20,44,2,155)
```

```
Out[52]: 155
```

6- Write a Python program to reverse a string.

```
In [63]: def string_reverse(text):
        return text[::-1]
```

```
In [64]: string_reverse("mostafa")
```

```
Out[64]: 'afatsom'
```

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

```
In [83]: text = "mostafa is a promising data scientist"
output = []
def unique_char(text):
    to_set = set(text)
    for i in to_set:
        output.append(i)
    print(output)

unique_char(text)

to_string= ''.join(output)
print(to_string)

['r', 'i', 'g', 'm', 'f', 's', 'c', 'e', 'p', 'o', 'n', ' ', 't', 'd', 'a']
rigmfscepon tda
```

8- Write a Python program to print the even numbers from a given list.

```
In [96]: numbers=[1,44,23,412,55,23,22,512,265,2]
even_numbers=[]
for i in numbers:
    if i % 2 == 0:
        even_numbers.append(i)
print(even_numbers)

[44, 412, 22, 512, 2]
```

9- Write a Python function that accepts a string and calculate the number of upper case letters and lower case letters.

```
In [104]: text = "MOSTAFA is a promising DATA scientist"
is_upper_case = sum(c.isupper() for c in text)
is_lower_case = sum(c.islower() for c in text)
print("no. of upper case characters: ",is_upper_case)
print("no. of loser case characters: ",is_lower_case)

no. of upper case characters:  11
no. of loser case characters:  21
```

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

```
In [119]: n = [1,2,3]
def multiply(n):
    total = 1
    for i in range(0, len(n)):
        total *= n[i]
    print(total)
multiply(n)

6
```

another way:

```
In [120]: import numpy as np
```

```
In [3]: from numpy import prod
a = [1,2,3]
def multiply(a):
    return prod(a)
multiply(a)
```

Out[3]: 6