

## MATRIX EXERCISE

Assigning subsequent rows to matrix first row element

```
In [6]: my_list=[[1,2,3],[4,5,6],[7,8,9],[10,11,12]]
        print("my list :",*str(my_list))
        result=(my_list[0][val] + my_list[val+1] for val in range(len(my_list)-1))
        print("The matrix : " +str(result))

my list :[[1, 2, 3], [4, 5, 6], [7, 8, 9], [10, 11, 12]]
The matrix : {1: [4, 5, 6], 2: [7, 8, 9], 3: [10, 11, 12]}
```

Adding matrics and subtracting matrics

```
In [19]: import numpy as np
        A = np.array([[10,5],[9,9]])
        B = np.array([[4,4],[5,6]])
        print("elements in A")
        print(A)
        print("elements in B")
        print(B)
        print("addition of two matrix")
        print(np.add(A,B))
        print("subtraction of two matrices")
        print(np.subtract(A,B))

elements in A
[[10  5]
 [ 9  9]]
elements in B
[[4 4]
 [5 6]]
addition of two matrix
[[14  9]
 [14 15]]
subtraction of two matrices
[[6 1]
 [4 3]]
```

## FUNCTION

how to get list of parameter name from a function in python

```
In [32]: def fun(a, b, c):
        return a**b**c
        import inspect
        print(inspect.signature(fun))

(a, b, c)

another way!

In [30]: def myfun(a,b,c,d=89,s=34):
        pass
        f1=myfun
        f1.__code__.co_varnames
        #f1.__code__.co_argcount

Out[30]: ('a', 'b', 'c', 'd', 's')
```

How to Print Multiple Arguments in Python?

```
In [40]: def books(book_name,year):
        print("BOOKS DETAILS : " , book_name + ',' + year)
        books("Harry potter" , "1984")
        books("Ruskin bond" , "1998")
        books("mark twain" , "1985")

BOOKS DETAILS : Harry potter,1984
BOOKS DETAILS : Ruskin bond,1998
BOOKS DETAILS : mark twain,1985

DICTIONARY EXERCISE

sort python Dictionaries by key or value
```

```
In [55]: def diction():

        key = {}
        key[2] = 23
        key[1] = 78
        key[5] = 56
        key[6] = 295
        key[10] = 27
        print("key", key)
        print("keys and values sorted")

        for i in sorted(key):
            print((i, key[i]), end=" ")

def main():
    diction()
if __name__ == "__main__":
    main()

key {2: 23, 1: 78, 5: 56, 6: 295, 10: 27}
keys and values sorted
(1, 78) (2, 23) (5, 56) (6, 295) (10, 27)

python dictionary with keys having multiple inputs
```

```
In [59]: my_dict = {}

a, b, c = 50, 126, 80
my_dict[a, b, c] = a + b - c

a, b, c = 52, 54, 11
my_dict[a, b, c] = a + b - c

print("The dictionary are :")
print(my_dict)

The dictionary are :
{(50, 126, 80): 96, (52, 54, 11): 95}

TUPLES

Python program to Find the size of a Tuple
```

```
In [60]: tup1= ("hema","Arthi", 1, 3)
        tup2= ("Python", "Language")
        tup3= ((1,"Java"), (2, "Python"), (3, "C"))

#print size
print("Size of tuple1: ", tup1.__sizeof__(), "bytes")
print("Size of tuple2: ", tup2.__sizeof__(), "bytes")
print("Size of tuple3: ", tup3.__sizeof__(), "bytes")

Size of tuple1: 56 bytes
Size of tuple2: 40 bytes
Size of tuple3: 48 bytes

Python – Maximum and Minimum K elements in Tuple
```

```
In [66]: my_tuple = (17, 255, 396, 90, 60, 88)

print("The tuple is : ")
print(my_tuple)

K = 2
print("The value of K has been initialized to ")
print(K)
my_result = []
my_tuple = list(my_tuple)
temp = sorted(my_tuple)

for idx, val in enumerate(temp):
    if idx < K or idx >= len(temp) - K:
        my_result.append(val)
my_result = tuple(my_result)

print("The result is : " )
print(my_result)

The tuple is :
(17, 255, 396, 90, 60, 88)
The value of K has been initialized to
2
The result is :
(17, 60, 255, 396)

Way to remove i'th character from string in python
```

```
In [68]: test_str = "GeeksForGeeks"
        print ("The original string is : " + test_str)
        z = str(input("Which character you want to remove ?"))
        new_str = test_str.replace(z, '', 1)
        print ("The string after removal of i'th character(works) : " + new_str)

The original string is : GeeksForGeeks
Which character you want to remove ?e
The string after removal of i'th character(works) : GeksForGeeks

Reverse words in a given string in python
```

```
In [71]: string = str(input("Enter a string value :"))
        s = string.split()[::-1]
        l = []
        for i in s:
            l.append(i)
        print(" ".join(l))

Enter a string value :hi this is python
python is this hi

Python program to check whether the string is Symmetrical or Palindrome
```

```
In [72]: string = 'amaama'
        half = int(len(string) / 2)

        if len(string) % 2 == 0:
            first_str = string[:half]
            second_str = string[half:]
        else:
            first_str = string[:half]
            second_str = string[half+1:]

        if first_str == second_str:
            print(string, 'string is symmetrical')
        else:
            print(string, 'string is not symmetrical')

        if first_str == second_str[::-1]:
            print(string, 'string is palindrome')
        else:
            print(string, 'string is not palindrome')

amaama string is symmetrical
amaama string is palindrome

Minimum of two numbers in python
```

```
In [73]: a=[]
        n=int(input("Enter number of elements:"))
        for i in range(1,n+1):
            b=int(input("Enter element:"))
            a.append(b)
        a.sort()
        print("The smallest element is:",a[n-(n-1)])
        print("The second smallest element is:",a[n-(n-2)])

Enter number of elements:4
Enter element:12
Enter element:124
Enter element:15
Enter element:12
The smallest element is: 12
Second smallest element is: 15

Maximum of two numbers in python
```

```
In [74]: a=[]
        n=int(input("Enter number of elements:"))
        for i in range(1,n+1):
            b=int(input("Enter element:"))
            a.append(b)
        a.sort()
        print("First largest element is:",a[n-1])
        print("Second largest element is:",a[n-2])

Enter number of elements:4
Enter element:45
Enter element:455
Enter element:65
Enter element:45
First largest element is: 455
Second largest element is: 65

Ways to find length of list
```

```
In [77]: List = []
        n_5 = int(input("Enter no of array elements :"))
        for i in range(n_5):
            n_6 = int(input())
            List.append(n_6)
        len(List)

Enter no of array elements :4
5
7
8
9
4

Out[77]: 4

Python program to swap two elements in a list
```

```
In [76]: def swapPositions(list, pos1, pos2):

        list[pos1], list[pos2] = list[pos2], list[pos1]
        return list

List = []
n_5 = int(input("Enter no of array elements :"))
for i in range(n_5):
    n_6 = int(input())
    List.append(n_6)
pos1, pos2 = 1, 3

print(swapPositions(List, pos1-1, pos2-1))

Enter no of array elements :5
4
5
6
1
5
[6, 5, 4, 1, 5]

Python program to interchange first and last elements in a list
```

```
In [78]: def swapList(newList):
        size = len(newList)
        temp_1 = newList[0]
        newList[0] = newList[size - 1]
        newList[size - 1] = temp_1
        return newList

n_4 = int(input("Enter an integer :"))
newList = []
for i in range(n_4):
    c = int(input())
    newList.append(c)
print(swapList(newList))

Enter an integer :4
7
8
9
5
[5, 8, 9, 7]

Write a program to check if the given number is a palindrome number
```

```
In [79]: n_3 = int(input("Enter number:"))
        temp = n_3
        rev = 0
        while(n_3>0):
            dig = n_3 %10
            rev = rev*10+dig
            n_3 = n_3//10
        if(temp == rev):
            print("The number is a palindrome!")
        else:
            print("The number isn't a palindrome!")

Enter number:121
The number is a palindrome!

Print the following pattern

1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
```

```
In [80]: rows = 6
        for i in range(rows):
            for j in range(i+1):
                print(i, end=' ')
            print('')

1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

Iterate the given list of numbers and print only those numbers which are divisible by 5
```

```
In [81]: x = []
        n = int(input("Enter no. of list elements"))
        for i in range(n,1):
            x_1 = int(input())
            x.append(x_1)
        x_2 = []
        def div_5(x):
            print("Given list",x)
            for i in x:
                if i%5 == 0:
                    x_2.append(i)
        div_5(x)
        print("The list is",x_2)

Enter no. of list elements4
4
5
7
8
Given list [4, 5, 7, 8]
The list is [5]

Write a program to remove characters from a string starting from zero up to n and return a new string.
```

```
In [82]: str_1 = str(input("Enter string values"))
        print ("The original string is : " + str_1)
        n = int(input("Enter the position of the string to remove"))
        new_str = str_1[:(n-1)] + str_1[n:]
        print ("The string after removal of i'th character : " + new_str)

Enter string values45781457
The original string is : 45781457
Enter the position of the string to remove5
The string after removal of i'th character : 4578457

Write a function called show_stars(rows). If rows are 5, it should print the following: * **

*****
*****
*****
*****
*****

In [84]: m = int(input("Enter an integer:"))
        for i in range(0,m):
            for j in range(0, i+1):
                print(" ", end=" ")
            print("\n")

Enter an integer:5
*
**
***
****
*****

check if the number is an Armstrong number or not
```

```
In [85]: n = int(input("Enter a integer value:"))
        sum = 0
        temp = n
        while temp>0:
            dig = temp % 10
            sum += dig **3
            temp //= 10

        if sum == n:
            print("The number is armstrong number")
        else:
            print("It is not a armstrong number")

Enter a integer value:123
It is not a armstrong number
```

```
In [ ]:
```