

## **PRACTICAL : 02**

**Aim :-** Develop programs to learn different types of structures (list, dictionary, tuples) in python

**Practical 2.1:-** To write a Python Program to find the maximum from a list of numbers.

### **Program :-**

```
list=[]  
  
num=int(input("enter number of element in list:"))  
  
for i in range(1,num+1):  
    a=int(input("enter elements:"))  
    list.append(a)  
  
print("largest number:",max(list))
```

### **Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.1.py =====  
enter number of element in list:5  
enter elements:23  
enter elements:4  
enter elements:21  
enter elements:32  
enter elements:67  
largest number: 67
```

**Practical 2.2 :-** Write a Python program which will return the sum of the numbers in the array, returning 0 for an empty array. Except the number 13 is very unlucky, so it does not count and number that come immediately after 13 also do not count. Example : [1, 2, 3, 4] = 10 [1, 2, 3, 4, 13] = 10 [13, 1, 2, 3, 13] = 5

**Program :-**

```
n = int(input("Enter array size: "))
```

```
array = []
```

```
for i in range(0,n):
```

```
    x = int(input("Enter element:"))
```

```
    array.append(x)
```

```
prevElement = 0
```

```
currElement = 0
```

```
sum = 0
```

```
if len(array)==0:
```

```
    sum = 0
```

```
else:
```

```
    for i in range(len(array)):
```

```
        currElement = array[i]
```

```
        if currElement==13:
```

```
            prevElement = currElement
```

```
            continue
```

```
        elif prevElement==13:
```

```
            prevElement = currElement
```

```
            continue
```

```
        else:
```

```
            sum = sum + array[i]
```

```
            prevElement = currElement
```

```
print("Sum of numbers in array : ",sum)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.2.py ===  
Enter array size: 5  
Enter element:13  
Enter element:1  
Enter element:2  
Enter element:3  
Enter element:13  
Sum of numbers in array : 5
```

**Practical 2.3 :-** Write a Python program which takes a list and returns a list with the elements "shifted left by one position" so [1, 2, 3] yields [2, 3, 1].  
**Example:** [1, 2, 3] → [2, 3, 1] [11, 12, 13] → [12, 13, 11]

**Program :-**

```
n = int(input("Enter array size : "))
```

```
arr = []
```

```
for i in range(0,n):
```

```
    x = int(input("Enter element :"))
```

```
    arr.append(x)
```

```
for i in range(0,len(arr)):
```

```
    if i==0:
```

```
        temp = arr[i]
```

```
    else:
```

```
        arr[i-1] = arr[i]
```

```
arr[len(arr)-1] = temp
```

```
print("list after shifted left by one position:")
```

```
print(arr)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.3.py =====  
Enter array size : 5  
Enter element :1  
Enter element :2  
Enter element :3  
Enter element :4  
Enter element :5  
list after shifted left by one position:  
[2, 3, 4, 5, 1]
```

**Practical 2.4 :-** Write a program to convert a list of characters into a string.

**Program :-**

```
str = ['P','y','t','h','o','n']  
  
print("list of charater:")  
  
print(str)  
  
str1="".join(str)  
  
print("list after converting into string:")  
  
print(str1)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.4.py =====  
list of charater:  
['P', 'y', 't', 'h', 'o', 'n']  
list after converting into string:  
Python
```

**Practical 2.5 :-** Write a Python program

1) To generate a list except for the first 5 elements, where the values are square of numbers between 1 and 30(both included)

**Program :-**

```
list = []
for i in range(5,31):
    list.append(i*i)
print("square of number except first five number:")
print(list)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.5.1.py =====
square of number except first five number:
[25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441,
 484, 529, 576, 625, 676, 729, 784, 841, 900]
```

2) To generate a list of first and last 5 elements where the values are square of numbers between 1 and 30.

**Program :-**

```
list = []
for i in range(1,6):
    list.append(i*i)
for i in range(26,31):
    list.append(i*i)
print("Square of value of first and last 5 elements between 1 to 30 :")
print(list)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.5.2.py =====
Square of value of first and last 5 elements between 1 to 30 :
[1, 4, 9, 16, 25, 676, 729, 784, 841, 900]
```

**Practical 2.6 :-** Write a python program to print numbers given in the list after removing even numbers from it.

**Program :-**

```
n = int(input("Enter array size: "))
```

```
list = []
```

```
for i in range(0,n):
```

```
    x = int(input("Enter element:"))
```

```
    list.append(x)
```

```
print("Original list:")
```

```
print(list)
```

```
for i in list:
```

```
    if(i%2 == 0):
```

```
        list.remove(i)
```

```
print("list after removing EVEN numbers:")
```

```
print(list)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.6.py =====  
Enter array size: 5  
Enter element:1  
Enter element:2  
Enter element:3  
Enter element:4  
Enter element:5  
Original list:  
[1, 2, 3, 4, 5]  
list after removing EVEN numbers:  
[1, 3, 5]
```

**Practical 2.7 :-** Write a program to count the numbers of characters in the string and store them in a dictionary data structure.

**Program :-**

```
str=input("enter string: ")
print('String : ',str)
c = 0
for i in str:
    if i==' ':
        pass
    else:
        c = c + 1
d = {'characters':0}
d['characters'] = c
print(d)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.7.py =====
enter string: Python
String : Python
{'characters': 6}
```



**Practical 2.8 :-** Write a program to use split and join methods in the string and trace a birthday with a dictionary data structure.

**Program :-**

```
a = ['v','i','d','h','i']  
print("join method:", ".join(a))  
b = ','.join(a)  
print("split method:", b.split(','))  
d = {  
    'neha':{'birthday':'Aug 1'},  
    'sohan':{'birthday':'june 21'},  
    'hiyan':{'birthday':'July 7'},  
    'divyam':{'birthday':'may 9'}  
}  
name = input("enter name:")  
print("birthday:", d[name])
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.8.py =====  
join method: vidhi  
split method: ['v', 'i', 'd', 'h', 'i']  
enter name:sohan  
birthday: {'birthday': 'june 21'}
```

**Practical 2.9 :-** Write a python program to sort a dictionary by value.

**Program :-**

```
dict={'a':14,'b':9,'c':20,'d':1409}
dict_sort=sorted(dict.items(),key=lambda y: y[1])
print(dict_sort)
```

**Output :-**

```
===== RESTART: D:\Vidhi\PDS Practical\prac_2\p_2.9.py =====
[('b', 9), ('a', 14), ('c', 20), ('d', 1409)]
```