Task4: Use various data types. list, Tuples and Dictionary in python programming

Aim:
To use various data types. list, Tuples and Dictionary the python programming

@ you are working on a python project that requires you to manage and manipulate a list of numbers. your task is to create a python program that demonstrates the following list operations.

Algorithm:
1. start
2. for adding elements to list first create a list with name "list" and assign values within [ ] brackets, inorder to add a new value use the function append()
3. for removing a specific element use "pop (index value) or remove (item name)".
4. for sorting the element use "sorted (list)" function
5. for finding minimum value use "min(list)" and for maximum use "max (list)"
6. for sum use function "sum (list)" and for average use the formula "sum(list)/len(list)"
7. Print the output
8. End

Program
# Add elements: Add elements to the list
list = [10,20]
c = 30

```
list append (a)
print (list)
# Remove element : Remove specific element
from the list
list.pop (1 )# by indexvalue
print(list)
list remove (10) # by item name
print (list)
# sort element : sort the list in ascending
and desending order
l = [5,8,9,15,30,89]
print(sorted(l))
# find minimum and maximum: find the
minimum and maximum elements in the list
print("the minimum value is:", min(l)
print("the maximum value is:", max(l)
# calculate sum and Average
print("the sum is:", sum(l))
print("the average is:", (sum(l)/len(l)))
```

(b) you are tasked with creating a python program that show cases operations on tuples. Tuples are immutable sequence similar to lists but with the key difference that they cannot be changed after creation. your program should illustrate the following tuple operations

Algorithm:

1. Start
2. To create a tuple use "tuple_name=(values)"
3. To access the elements of a tuple use

Output:

[10, 20, 30]

[10, 30]

[5, 8, 9, 15, 30, 89]

the minimum value is: 5,

the maximum value is: 89

the sum is: 156

the average: 26.0

values (tuple_name_index_value) or the tuple slicing (tuple_name [start:end)

4. To concatenate tuples use the operator "+" (tuple1 "+" tuple2)

5. Try to modify the tuple elements by assigning the values directly like, tuple (index) = new_value, will result in an error as it immutable

6. print the out put

7. end

program:

```
# create a tuple: define a tuple with elements of different data types
(10, 'hello', 3.14, 'world')
tuple = (10, 'hello', 3.14, 'world')
print (tuple)
# Access elements: Access individual elements and slices of the tuple
for i in tuple
print(i)
print (tuple[1:3])
print(tuple[:-1])
# concatenateTuples: combine two tuples to create a new tuple
t2 = (5, 6.5)
t3 = tuple + t2
print(t3)
# Immutable nature: Attempt to modify elements of the tuple & handle
```

use the index

output

(10, 'hello', 3.14, 'world')

10

hello

3.14

world

('hello', 3.14)

(10, 'hello', 3.14)

⑥ you are tasked with creating a python program that showcases operations on dictionaries. Dictionaries in Python are unordered collection of items. Each pair consisting of a key and a value.

Algorithm:

1. Start the program.
2. Define a dictionary with key value pairs of different data type
3. Retrive value from the dictionary using their corresponding keys.
4. Modify Dictionary
5. Iterate over Dictionary
6. Stop the program

Program:

```
#Create a Dictionary: Define a dictionary with key-value pairs of different data types
{'name':'Alice',,'age':30,'city':'New York'}
dictionary = {'name':'Alice', 'age': 30, 'city': 'New York
print(dictionary)
#Access Values: Access values using keys
print(dictionary['name'])
print(dictionary['age'])
# Modify Dictionary: Update value, add new key-value pairs, and remove existing pairs
dictionary['name'] = "James"
Print(dictionary)
```

output:

{'name': 'Alice', 'age': 30, 'city': 'new york'}

Alice

30

{'name': 'James', age: 30, 'city': 'new york'}

{'name': 'James', 'age': 30}

key: name

key: age

dict_items([('name', 'James'), ('age', 30)])

```
dictionary['city']
print(dictionary)
# Iterate over Dictionary: use loops to,
  iterate over key or the values
for k in dictionary
print("key",k)
print(dictionary.items())
```

VEL TECH	
EX No.	4
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	
TOTAL (20)	15
SIGN WITH DATE	18

Result:

Thus various data types, list, Tuples and Dictionary in Python programming was used and verified successfully