

Task # 4

Topics

use various data types , list , tuples and dictionary in python programming

Aim :- To use various data types , list , tuples and dictionary in python programming .

a. 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 .

1. Add Elements : Add elements to the list .
2. Remove Element : Remove specific element from the list .
3. Sort Elements : Sort the list in ascending order and descending order .
4. Find Minimum and Maximum : Find the minimum and maximum elements in the list .
5. Calculate Sum and average : Calculate the sum and average of the elements in a list .

ALGORITHM :

1. Start
2. For adding elements to a list first create a list with name 'list' and assign the 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 elements use "sorted(list)" function.
5. 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]  
a = 30  
list.append(a)  
print(list)  
  
# Remove elements : Remove specific elements from the  
list .  
list.pop(1) # by index value.  
print(list)  
  
list.remove('10') # by item name  
print(list)  
  
# Sort elements : sort the elements in ascending  
# and descending 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)
print ("The maximum value is : " + max)
# calculate the sum and average
print ("The sum is : " + str(sum))
print ("The average is : " + str((sum / len(l))))
```

Output:

```
[1]: Restart : c:/users/student/Desktop/sum.py
[2]: sum([10,20,30])
[3]: [10,30]
[4]: [30]
[5]: [5,8,9,15,30,89]
[6]: The min value is:5
[7]: The max value is:89
[8]: The sum is:156
[9]: The Avg is: 26.0
[10]: [10,20,30,40,50,60,70,80,90,100]
[11]: sum([10,20,30,40,50,60,70,80,90,100])
[12]: 550
[13]: [10,20,30,40,50,60,70,80,90,100]
[14]: sum([10,20,30,40,50,60,70,80,90,100])
[15]: 550
```

b. you are tasked - creating a python program that implement operations on tuples. Tuples are immutable sequences. Similar to list but with the key difference that they cannot be changed after creation your program illustrate the following tuple operations:

1. Creating a tuple : Creating a tuple with elements or different datatypes (10, 'hello', 3.14, world)
2. Access Elements : Access individual elements and slice of tuple.
3. Concatenate Tuple : Combine two tuples to create a new tuple.
4. Immutable Nature : Attempt to modify elements of the tuple and handle the resulting error.

ALGORITHM :-

1. Start
2. To create a tuple use "tuple.name = (values)"
3. To access the elements of the tuple either use the index values (tuple.name(index-value))
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 is immutable.
6. Print the output
7. End .

Output: Restart: c:\users\student\o

(ρ_{AOD} , ρ_{H_2} , ρ_{O_2} , ρ_{N_2})

hello world

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'hello', 3.14)

(10, 'Hello', 3.14)

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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:-1])  
# concatenate tuples: combine two tuples to create  
new tuple.  
t2 = (5,0.5)  
t3 = tuple + t2  
Print (t3)  
# immutable nature: Attempt to modify elements of  
the tuple q handle the resulting error.  
tuple [3] = "Pi" # ERROR
```

RESULT: Thus, various data types, List, Tuples & Dictionary in python programming was used & verified successfully.

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EX No.	
PERFORMANCE (S)	
RESULT AND ANALYSIS (S)	
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