10/9/25

Task 4 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.

Algorithm.

1. start.
2. For adding elements to list first create a list with name "list" and assign the values. append()
3. For removing a specific element use "Pop:" or "remove".
4. For sorting the elements use "sorted(list)" function
5. For finding minimum value use "min(list)" and maximum use "max(list)".
6. For sum use function "sum(list)" and for average use the formula.
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 li

```
list.pop(1) # by index value.
Print(list).
list.remove(10) # by itemname.
Print(list).
l=[5,8,2,15,30,89]
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))))
```

6) You are tasked with creating a Python Program that showcases operations on tuples. Tuples are immutable sequences, similar to lists but with the key.

Algorithm.

1) Start.
2) To create a tuple use "tuple_name=(values)".
3) To access the elements of a tuple either use the index values.
4) To concatenate tuples use the operator "+".
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.

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])
# concatenate Tuples: combine two tuples to create
```

a new tuple.

```
t2 = (5, 0.5)
t3 = tuple + t2.
Print (t3)
```

immutable nature: Attempt to modify elements of the tuple and handle the resulting error.

```
tuple(3) = "P1" # ERROR.
```

5. You are tasked with creating a Python Program that showcases operations on dictionaries. Dictionaries in Python are unordered collections of item.

Algorithm.

1. Start the Program
2. Define a dictionary with key-value pairs of different data types.
3. Retrieve values from the dictionary using their corresponding keys.
4. modify Dictionary
5. Iterate over Dictionary.
6. stop.

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': newyork'}
Print (dictionary)
# Access values: Access values using keys.
Print (dictionary ['name'])
Print (dictionary ['age'])
# modify Dictionary: update values add new key-value
Pairs and remove existing Pairs.
dictionary ['name'] = "James"
Print (dictionary)
```

Output

no. of Participants in A, Hackathon: 4

Participant ID: A_1

Participant ID: A_2

Participant ID: A_4.

" ID = A_5.

Robotics challenge: 4

" ID: A_1.

" " = A_2.

" " A_3.

" A_4.

```
dictionary.pop('city')
Print(dictionary)
# Iterate over dictionary: use loops to iterate over keys
or 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	10/5/24

Result:-

Thus various data types list Tuples and Dictionary in Python Programming was used and verified successfully.