The Python provides many built-in functions / methods to carry out various operations on the elements of tuples. Any function is directly called by using its name, whereas a method is invoked by using the object / variable name.

len() function

It is used to find/ return number of elements in the tuple.

#Python code

tup = (10,20,30,40,50,60)

L= len(tup)

print('Length : ', L)

The output of this code will be

Length : 6

tuple() function

It is used to create an empty tuple or to convert a list / string into a tuple.

#Python code

tup1 = tuple()   # To create an empty tuple

print('Empty tuple : ', tup1)

List = [1, 2, 3, 4, 5, 6]

tup2 = tuple(List)   # To convert a list into tuple

print('List to tuple : ', tup2)

st = 'KKNPP'

tup3=tuple(st)   # To convert a string into tuple

print('String to tuple : ', tup3)

The output of this code will be

Empty tuple : ()

List to tuple : (1, 2, 3, 4, 5, 6)

String to tuple : ('K', 'K', 'N', 'P', 'P')

min() function

It is used to find/ return the minimum value of the elements stored in the tuple.

tup = (-70, -80,10,20, 30)

sma= min(tup)

print('Minimum element : ', sma)

The output of this code will be

Minimum element : -80

max() function

It is used to find/ return the maximum value among the elements stored in the tuple.

tup = (-70, -80,10,20, 30)

big = max(tup)

print('Maximum element : ', big)

The output of this code will be

Maximum element : 30

sorted() function

It is used to arrange the elements of the tuple in an ascending / alphabetical order or in a descending order. To arrange the tuple in the reverse / descending order, the parameter / argument reverse should be set as True. This parameter is False by default.

Unlike sort() function in the list, this function doesn't change the original order of the tuple elements.

#Python code

tup1=('DELHI', 'INDORE', 'PATNA','CHENNAI', 'MUMBAI', 'COCHIN')

tup2 = (-70, -80,10,20, 30)

print('Alphabetical order:')

print(sorted(tup1))

print('Descending order:')

print(sorted(tup2, reverse=True))

The output of this code will be

Alphabetical order:

['CHENNAI', 'COCHIN', 'DELHI', 'INDORE', 'MUMBAI', 'PATNA']

Descending order:

[30, 20, 10, -70, -80]

sum() function

This function is used to find / return the sum of elements of tuple

#Python code
tup = (1, 2, 3, 4, 5, 6)

s = sum(tup)   **# To find sum**

print('Sum = ', s)

The output of this code will be

Sum = 21

eval() function

This function is used to evaluate whether the type of elements supplied through input() function is a list or a tuple.

If we type elements with brackets [ ], then they are considered as values of a list. The elements provided with or without parentheses () are treated as values of tuple.

#Python code

```
tup = eval(input('Enter the elements within () : '))
s = 0
for i in tup:
    s += i
print('Tuple = ',tup)
print('Its sum = ', s)
print('Its average =', s / len(tup))
```

The output of this code will be

Enter the elements within () : (1, 2, 3, 4)

Tuple = (1, 2, 3, 4)

Its sum = 10

Its average = 2.5

The following code illustrates how to use the eval() function to evaluate the elements of the list.

```
 #Python code
List = eval(input('Enter elements within [ ] : '))
print('List : ',List)
ele = int(input('Enter an element '))
List.append(ele)
ele = int(input('Enter an element '))
```

List.append(ele)

print('New List after appending two elements : ',List)

List.pop()

print('New List after popping an element : ',List)

The output of this code will be

Enter melements within [ ] : [1,2]

List : [1, 2]

Enter an element 3

Enter an element 4

New List after appending two elements : [1, 2, 3, 4]

New List after popping an element : [1, 2, 3]

count() method

This method is used to find the occurrence / presence of a value / an element in the tuple. As methods are invoked/ called with the objects, the method count() is written with the object i.e. the name of the tuple.

#Python code

tup = eval(input('Enter elements of a tuple : '))

ele = int(input('Enter an element to be counted : '))

print('Number of times ', ele ,' present : ',tup.count(ele))

The output of this code will be

Enter elements of a tuple : (10,20,30,20,40,50,20)

Enter an element to be counted : 20

Number of times 20 present : 3

index() method

This method is used to display index / subscript of the first occurrence / presence of an element in the tuple.

#Python code

```
Str = input('Enter elements separated by commas : ').split(',')
List = [int(num) for num in Str]   # convert string into list
print('The List is ',List)
tup = tuple(List)
print('The tuple is ',tup)
ele = int(input('Enter an element : '))
try:
    print('Index of ', ele ,' is : ',tup.index(ele))
except ValueError:
    print(ele ,' is not found in the tuple ')
```

OUTPUT – 1

Enter elements separated by commas : 10,15,20,15,25,15

The List is [10, 15, 20, 15, 25, 15]

The tuple is (10, 15, 20, 15, 25, 15)

Enter an element : 15

Index of 15 is : 1

OUTPUT – 2

Enter elements separated by commas : 1,2,3,4,5,6

The List is [1, 2, 3, 4, 5, 6]

The tuple is (1, 2, 3, 4, 5, 6)

Enter an element : 7

7 is not found in the tuple

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