PYTHON

21 Session

Step by Step Coding

All Code in Git

Tuple

- Tuple

Tuple is exactly same as **List** except that is immutable. I.e Once we creates Tuple object , we can not perform any changes in that object.

Tuple Representation

The elements will be placed within () brackets or without bracket with comma separator.

Ex:

```
String type Tuple

countryName=(“INDIA","USA","UK","SRI LANKA”,"CHINA","ITLY")
```

Note: For single valued tuple. compulsory the value should ends with comma .

Bracket are optional to use, but recommended.

- Tuple characteristics
  - Insertion order Preserved
  - Duplicate Object are Allowed
  - Heterogeneous Object are Allowed
  - Dynamic Size
  - It Support +Ve and -Ve Index
  - Tuple Objects are immutable

- Tuple Object Creation
  - Empty Tuple
  - Tuple with Element
  - Tuple with one Element
  - Tuple with Parenthesis are optional
  - Tuple with tuple() & range()function
  - Tuple with List as Input

- Accessing Elements of Tuple
  1. By Using Index
  2. By Using Slice Operator

- # Immutability

  Once we create the tuple object , we can not modify its content

- Traversing the Tuple Elements

1. Using While loop
2. Using For loop

Tuple Function

- len(): It return number of element present in the Tuple

Ex: myTuple=(1,2,3,4)

Print(len(myTuple))

Output : 4

- Tuple Function
  - count(): It return the number of occurrence of specified item in the Tuple

Ex: myTuple= (1,1,2,2,3,3,4,4)

```
print(myTuple.count(1))  Output : 2
print(myTuple.count(2))  Output : 2
print(myTuple.count(3))  Output : 2
print(myTuple.count(4))  Output : 2
```

- # Tuple Function

  - index(): It return the index of first occurrence of specified item in the Tuple

Ex: myTuple= (1,1,2,2,3,3,4,4)

```
print(myTuple.index(1))  Output : 0
print(myTuple.index(2))  Output : 2
print(myTuple.index(3))  Output : 4
print(myTuple.index(4))  Output : 6
```

Tuple Function

- sorted(): In Tuple by default insertion order is preserved . If want to sort the elements of a tuple according to default natural sorting order then we should got for sorted() method

Number : Default natural sorting order is Ascending Order .

String : Default natural sorting order is Alphabetical Order .

Ex: myTuple1= (10,8,5,7,9)

```
myTuple2=sorted(myTuple1)
print(myTuple2)
print(myTuple1)
```

Output = [5,7,8,9,10]

Output = [10,8,5,7,9]

```
sorted(myTuple1,reverse=true)
```

- # Tuple Function
  - min(): It returns MIN value
  - max(): It returns MAX value

Ex: myTuple1= (10,8,5,7,9)

```
print(min(myTuple1))
print(max(myTuple1))
```

Output =5

Output = 10

- Tuple Operators
  - Concatenation Operator (+)

Ex: myTuple1= (10,8,5,7,9)

myTuple2= (1,2,3,4,5)

```
myTuple= myTuple1 + myTuple2

print(myTuple)
```

Output = (10,8,5,7,9,1,2,3,4,5)

- Tuple Operators
  - Repetition Operator (*)

Ex: myTuple1= (10,20,30)

```
myTuple= myTuple1 * 3

print(myTuple)
```

Output = (10,20,30,10,20,30,10,20,30)

Tuple Comparing

- cmp() : It compares the element of both tuples.
  If both tuples are equal then returns 0.
  If the first tuple is less than the second tuple then it returns -1
  If the first tuple is grater than second tuple then it returns +1

```
myTuple1=  ( 10,20,30 )
myTuple2= ( 40,50,60 )
myTuple3= (10,20,30 )

print(cmp(myTuple1,myTuple2))  Output:-1
print(cmp(myTuple1,myTuple3))  Output:0
print(cmp(myTuple2,myTuple3))  Output:1
```

NOTE: Only available in python 2 not in 3

Difference Between List and Tuple

List	Tuple
List is a Group of Comma separated values within Square Bracket and Square Brackets are mandatory	Tuple is a group of Comma separated values within Parenthesis and Parenthesis are optional
List Object are Mutable	Tuple Object are Immutable
If the Content is not fixed and keep on changing then we should go for list	If the Content is fixed and never changes then we should go for tuple

Thank You