

Tuples in python

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Tuple



Tuple has the following attributes:

The element of the tuple can be of any type.

(There is no restriction on the type of the element.). A tuple is same as list, except that the set of elements is enclosed in parentheses instead of square brackets and these elements are immutable.

Ex:

```
t = ('python',1,3.4) # heterogeneous
t1 = (11,22,33,44) #homogeneous
```

Tuple



Tuple is a data structure containing zero or more elements.

Creation of tuple

- An empty tuple can be created using a constructor, tuple () or ().
- Tuple with two elements.

$$t3 = (1, 2)$$

• Tuple with a single element.

Tuple



- Each element of a tuple can be referred to by a index or a subscript.
- Index is an integer.

Ex:

Tuple



- Tuples are immutable. Once created, we cannot change the number of elements
- no append, no insert, no remove, no delete.

Traceback: 'tuple' object does not support item

Assignment

Tuple



Benefits of usage of type - Tuple:

- Tuples are faster than lists.
- If the user wants to protect the data from accidental changes, tuple can be used.
- Tuples can be used as keys in dictionaries, while lists can't.

Tuple



• Elements in the tuple can repeat .

```
>>> t1=(11,22,33,44,22,11,55)
```

- Tuple is a sequence .
- Tuple is also iterable is eager and not lazy.

```
t2=(5,10,15,20)
for i in t2:
    print(i, end=' ')
```

• Tuples can be nested. We can have tuple of tuples.

```
t=(1,2,3,4,(6,7,8))
for i in t:
    print(i)
```

Tuple



• Assignment of one tuple to another causes both to refer to the same tuple.

• tuples can be sliced. This creates a new tuple.

Tuple

Built in Functions

Method	Description	Example
len(tup)	Gives the total length of the tuple.	>>> tuple1 = (10,20,30,40,50) >>> len(tuple1) 5
sorted()	Takes elements in the tuple and returns a new sorted list. It should be noted that, sorted () does not make any changes to the original tuple	<pre>>>> tuple1 = ('rama', 'shama', 'bhama', 'balarama') >>>sorted(tuple1) ['balarama', 'bhama', 'rama', 'shama']</pre>

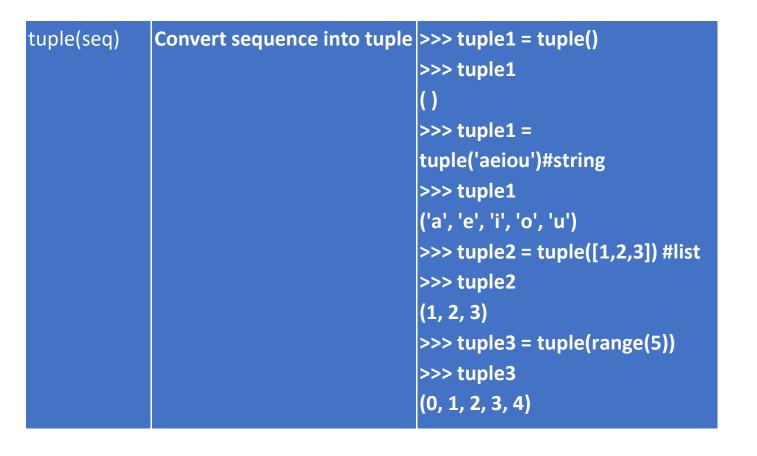


Tuple



min()	Returns the element from tuple with max value	>>>tuple1=(22,33,11,55,44,120) >>>min(tuple1) 11
max()	Returns the element from tuple with min value	>>>tuple1=(22,33,11,55,44,120) >>>max(tuple1) 120
sum()	Returns the sum of elements of the tuple.	>>>tuple1=(22,33,11,55,44,120) >>>sum(tuple1) 285

Tuple





Tuple

Method	Description	Example
count()	Returns the count of the items.	>>> tuple1 = (10,20,30,10,40,10,50) >>> tuple1.count(10)
		3 >>> tuple1.count(90) 0
index()	Returns the index of the item specified	>>> tuple1 = (10,20,30,40,50) >>> tuple1.index(30) 2 >>> tuple1.index(90) ValueError: tuple.index(x): x not in tuple.



Tuple



Concatenation:

Allows us to join two tuples by using operator '+'.

Ex:

```
>>> tuple1 = (11,33,55,77,99)
>>> tuple2 = (22,44,66,88,100)
>>> tuple1 + tuple2
#concatenates two tuples
(11, 33, 55, 77, 99, 22, 44, 66, 88 100)
```

Tuple

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• Repetition:

The repetition operator **enables the tuple elements to be repeated** multiple times. The repetition operator **requires the first operand to be a tuple and the second operand to be an integer** only.

```
Ex:

>>> t1=(1,2,3,4)

>>> t1*2
(1, 2, 3, 4, 1, 2, 3, 4)

>>> t1*t1

Traceback (most recent call last):

File "<stdin>", line 1, in <module>

TypeError: can't multiply sequence by non-int of type 'tuple
```

Tuple



Membership Operator:

in and not in

in returns True if a particular item exists in the list. otherwise False not in operator returns True if the element is not present, otherwise False

```
Ex: >>> tup1 = (10,2.2,(22,33,43),('python') ) # heterogeneous tuple
>>> 'python' in tup1

True
>>> 'ruby' not in tup1

True
```



THANK YOU

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