

Tuple Data Structure

- Rules and Guidelines of Tuple Data Structure
 - Tuple is immutable unlike list.
 - Tuple is also indexable and sequential data structure like list
 - Tuple can be created using () parenthesis and tuple function
 - Immutable : We can not change the element of tuple once it's defined.
 - Tuple data structure is much faster as compared to list.

Tuple

- Index
- Count

```
In [1]: 1 tp = (1,2,3,4,5,6)
```

```
In [2]: 1 tp
```

```
Out[2]: (1, 2, 3, 4, 5, 6)
```

```
In [3]: 1 len(tp)
```

```
Out[3]: 6
```

```
In [4]: 1 tp = (12,34,56,78,12,34,34,67,89,34,78,[11,22,33,43},{12,34,56,78})
```

```
In [6]: 1 print(tp)
```

```
(12, 34, 56, 78, 12, 34, 34, 67, 89, 34, 78, [11, 22, 33, 43], {56, 34, 12, 78})
```

```
In [7]: 1 len(tp)
```

```
Out[7]: 13
```

Count

```
In [8]: 1 tp.count(34)
```

```
Out[8]: 4
```

```
In [9]: 1 tp.index(78)
```

```
Out[9]: 3
```

```
In [10]: 1 tp.index(78, tp.index(78) + 1)
```

```
Out[10]: 10
```

```
In [11]: 1 t = (23,45,67,89,[12,34,56,78,(3,4,5),[45,67,8,9]])
```

```
In [12]: 1 t
```

```
Out[12]: (23, 45, 67, 89, [12, 34, 56, 78, (3, 4, 5), [45, 67, 8, 9]])
```

```
In [13]: 1 t[0]
```

```
Out[13]: 23
```

```
In [14]: 1 t[0] = "A" # Tuple obj does not support item assignment
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[14], line 1  
----> 1 t[0] = "A" # Tuple obj does not support item assignment  
  
TypeError: 'tuple' object does not support item assignment
```

```
In [15]: 1 t[4]
```

```
Out[15]: [12, 34, 56, 78, (3, 4, 5), [45, 67, 8, 9]]
```

```
In [16]: 1 t
```

```
Out[16]: (23, 45, 67, 89, [12, 34, 56, 78, (3, 4, 5), [45, 67, 8, 9]])
```

```
In [18]: 1 t[4][1]
```

```
Out[18]: 34
```

```
In [19]: 1 t[4][1] = "A"
```

```
In [20]: 1 print(t)
```

```
(23, 45, 67, 89, [12, 'A', 56, 78, (3, 4, 5), [45, 67, 8, 9]])
```

Note

In the tuple or in every data structure, You can change a element if you found that element is part of mutable data structure, only that element you can change.

```
In [21]: 1 t
```

```
Out[21]: (23, 45, 67, 89, [12, 'A', 56, 78, (3, 4, 5), [45, 67, 8, 9]])
```

```
In [23]: 1 t[-1][-2]
```

```
Out[23]: (3, 4, 5)
```

```
In [24]: 1 type(t[-1][-2])
```

```
Out[24]: tuple
```

```
In [26]: 1 t[-1][-2][-1]
```

```
Out[26]: 5
```

```
In [27]: 1 t[-1][-2][-1] = "55"
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[27], line 1  
----> 1 t[-1][-2][-1] = "55"  
  
TypeError: 'tuple' object does not support item assignment
```

```
In [28]: 1 lst = [1,3,5,(12,34,56,[4,45,5],56,78)]
```

```
In [29]: 1 len(lst)
```

```
Out[29]: 4
```

```
In [32]: 1 lst[-1][0] = "A"
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[32], line 1  
----> 1 lst[-1][0] = "A"  
  
TypeError: 'tuple' object does not support item assignment
```

In []:

1