

30-jan-2025

Tuple-Data-Structure

```
In [5]: # Tuple Creation
```

```
In [9]: t = () # Tuple data structure is store data in () brackets , its allows duplicat
```

```
In [13]: # tuple is immutable  
# means  
#my_tuple = (1, 2, 3)  
# my_tuple[0] = 10 # ❌ This will cause an error
```

```
In [15]: #that's once a tuple is created , its elements cannot be changed , add or remove
```

```
In [17]: t1 = (123,32,34,5,1)  
t1
```

```
Out[17]: (123, 32, 34, 5, 1)
```

```
In [19]: tf=2.2,3.3,4.4,5.5
```

```
In [21]: tf # tuple store diff, dtata type
```

```
Out[21]: (2.2, 3.3, 4.4, 5.5)
```

```
In [25]: # ex  
t3= (121,"prem", (12,12),[34,65],{"prem","pawar"})  
t3
```

```
Out[25]: (121, 'prem', (12, 12), [34, 65], {'pawar', 'prem'})
```

```
In [27]: len(t3)
```

```
Out[27]: 5
```

Tuple Indexing

```
In [30]: t1
```

```
Out[30]: (123, 32, 34, 5, 1)
```

```
In [37]: t1[2]
```

```
Out[37]: 34
```

```
In [39]: t3
```

```
Out[39]: (121, 'prem', (12, 12), [34, 65], {'pawar', 'prem'})
```

```
In [41]: t3[0][0]
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[41], line 1  
----> 1 t3[0][0]  
  
TypeError: 'int' object is not subscriptable
```

```
In [43]: t3[1][0]
```

```
Out[43]: 'p'
```

```
In [45]: t3[-2]
```

```
Out[45]: [34, 65]
```

Tuple Slicing

```
In [48]: t1
```

```
Out[48]: (123, 32, 34, 5, 1)
```

```
In [50]: t1[0:3]
```

```
Out[50]: (123, 32, 34)
```

```
In [52]: t1[:10]
```

```
Out[52]: (123, 32, 34, 5, 1)
```

```
In [54]: t1[-1:]
```

```
Out[54]: (1,)
```

```
In [57]: t1[::-1]
```

```
Out[57]: (1, 5, 34, 32, 123)
```

```
In [59]: t1.sort()
```

```
-----  
AttributeError                            Traceback (most recent call last)  
Cell In[59], line 1  
----> 1 t1.sort()  
  
AttributeError: 'tuple' object has no attribute 'sort'
```

```
In [61]: # cannot use the sort() method on a tuple because tuples are immutable  
         # (they cannot be changed after creation).
```

Remove and change

```
In [64]: # Since tuples are immutable, you cannot directly change or remove elements
```

```
In [66]: # we convert tuple into list then we can change the element
```

```
In [68]: #example
```

```
In [114... mt = (12,23,34,45,56)
temp_list = list(mt)
```

```
In [116... temp_list
```

```
Out[116... [12, 23, 34, 45, 56]
```

```
In [118... temp_list[1]=32
temp_list = tuple(temp_list)
mt = tuple(temp_list)
print(mt)
```

```
(12, 32, 34, 45, 56)
```

```
In [126... mt2 = 1,2,3,4,5
```

```
In [128... t_list = list (mt2)
t_list.remove(3)
mt2 = tuple (t_list)
print(mt2)
```

```
(1, 2, 4, 5)
```

del

```
In [131... mt2
```

```
Out[131... (1, 2, 4, 5)
```

```
In [133... del(mt2)
```

```
In [135... mt2
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[135], line 1
----> 1 mt2

NameError: name 'mt2' is not defined
```

loop through a tuple

```
In [141... mt
```

```
Out[141... (12, 32, 34, 45, 56)
```

```
In [143... for i in mt:
```

```
print(i)
```

```
12  
32  
34  
45  
56
```

```
In [147... for j, k in enumerate (mt):  
            print(f"index = {j}, and value are = {k}")
```

```
index = 0, and value are = 12  
index = 1, and value are = 32  
index = 2, and value are = 34  
index = 3, and value are = 45  
index = 4, and value are = 56
```

Tuple in Membership

```
In [150... mt
```

```
Out[150... (12, 32, 34, 45, 56)
```

```
In [152... 23 in mt
```

```
Out[152... False
```

```
In [154... 12 in mt
```

```
Out[154... True
```

```
In [156... if 12 in mt:  
            print("True")  
else:  
            print("False")
```

```
True
```

```
In [158... if 22 in mt:  
            print("True")  
else:  
            print("False")
```

```
False
```

index position

```
In [162... mt
```

```
Out[162... (12, 32, 34, 45, 56)
```

```
In [164... mt.index(4)
```

```
-----  
ValueError                                Traceback (most recent call last)  
Cell In[164], line 1  
----> 1 mt.index(4)  
  
ValueError: tuple.index(x): x not in tuple
```

```
In [166... mt.index(32)
```

```
Out[166... 1
```

Sorting

```
In [172... mt
```

```
Out[172... (12, 32, 34, 45, 56)
```

```
In [178... sorted(mt, reverse=True)
```

```
Out[178... [56, 45, 34, 32, 12]
```

```
In [180... mt
```

```
Out[180... (12, 32, 34, 45, 56)
```

```
In [ ]: mt2=
```