

```
In [ ]: #Tuple
```

```
In [1]: t = ()    #creating empty tuple
print(t,type(t))
```

```
() <class 'tuple'>
```

```
In [8]: ti = (1,4,8,9,20) #Tuple creation with int
print(ti,type(ti))
```

```
(1, 4, 8, 9, 20) <class 'tuple'>
```

```
In [9]: tf = (1.5,20.2,30.3,50.9) #Tuple creation with float
print(tf,type(tf))
```

```
(1.5, 20.2, 30.3, 50.9) <class 'tuple'>
```

```
In [10]: ts = ('a','b','c','d','e') #Tuple creation with str
print(ts,type(ts))
```

```
('a', 'b', 'c', 'd', 'e') <class 'tuple'>
```

```
In [11]: tb = (True,False) #Tuple creation with bool
print(tb,type(tb))
```

```
(True, False) <class 'tuple'>
```

```
In [12]: tc = (10+5j, 11+10j) #Tuple creation with complex
print(tc,type(tc))
```

```
((10+5j), (11+10j)) <class 'tuple'>
```

```
In [7]: ta = (10,10.0,'a','b',True,10+10j) # Tuple creation with all data t
ta
```

```
Out[7]: (10, 10.0, 'a', 'b', True, (10+10j))
```

```
In [13]: td = (1,5,10,1,5,6,9,10) # tuple with duplicates elements
td
```

```
Out[13]: (1, 5, 10, 1, 5, 6, 9, 10)
```

```
In [14]: tuple = (1,1,2,3,4,5,6,7,8,10,10)
tuple
```

```
Out[14]: (1, 1, 2, 3, 4, 5, 6, 7, 8, 10, 10)
```

```
In [15]: tuple.count(1) # count specific elements with tuple.count(element)
```

```
Out[15]: 2
```

```
In [16]: tuple.index(1) # to perform index operations
```

```
Out[16]: 0
```

```
In [17]: tuple.index(10)
```

```
Out[17]: 9
```

```
In [19]: tuple[::]
```

```
Out[19]: (1, 1, 2, 3, 4, 5, 6, 7, 8, 10, 10)
```

```
In [20]: tuple[-1]
```

```
Out[20]: 10
```

```
In [21]: tuple[0:9]
```

```
Out[21]: (1, 1, 2, 3, 4, 5, 6, 7, 8)
```

```
In [22]: tuple[0:11]
```

```
Out[22]: (1, 1, 2, 3, 4, 5, 6, 7, 8, 10, 10)
```

```
In [23]: tuple[::2]
```

```
Out[23]: (1, 2, 4, 6, 8, 10)
```

```
In [24]: tuple[::5]
```

```
Out[24]: (1, 5, 10)
```

```
In [26]: for i in tuple: # print tuple data by using for loop
          print(i,end=' ')
```

```
1 1 2 3 4 5 6 7 8 10 10
```

```
In [29]: for i in enumerate(tuple): # print tuple data by using enumerate
          print(i,end=' ')
```

```
(0, 1) (1, 1) (2, 2) (3, 3) (4, 4) (5, 5) (6, 6) (7, 7) (8, 8) (9, 10) (10, 10)
```

```
In [30]: tuple
```

```
Out[30]: (1, 1, 2, 3, 4, 5, 6, 7, 8, 10, 10)
```

```
In [31]: 1 in tuple # tuple membership
```

```
Out[31]: True
```

```
In [32]: 11 in tuple
```

```
Out[32]: False
```

```
In [33]: all(tuple) #All/Any
```

Out[33]: True

In [34]: `any(tuple)`

Out[34]: True

In [37]: `sorted(tuple) #sorting the elements`

Out[37]: [1, 1, 2, 3, 4, 5, 6, 7, 8, 10, 10]

In [38]: `sorted(tuple, reverse = True)`

Out[38]: [10, 10, 8, 7, 6, 5, 4, 3, 2, 1, 1]

In [43]: `ti = (1, 4, 8, 9, 20)`
`ti`

Out[43]: (1, 4, 8, 9, 20)

In [46]: `del ti`
`ti`

```
-----  
NameError                                Traceback (most recent call last)  
Cell In[46], line 1  
----> 1 del ti  
      2 ti  
  
NameError: name 'ti' is not defined
```

In [49]: `ti = (1, 4, 8, 9, 20)`
`ti`

Out[49]: (1, 4, 8, 9, 20)

In [51]: `ti[0] = 1`

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[51], line 1  
----> 1 ti[0] = 1  
  
TypeError: 'tuple' object does not support item assignment
```

In []:

In []:

In []: