

TUPLE CREATION

```
In [27]: tup1 = () #empty tuple
```

```
In [28]: tup1
```

```
Out[28]: ()
```

```
In [29]: tup2 = (10,20,30) #tuple of integer number
```

```
In [30]: tup2
```

```
Out[30]: (10, 20, 30)
```

```
In [31]: tup3 = (10.77,30.66,60.89) #tuple of float numbers
```

```
In [32]: tup3
```

```
Out[32]: (10.77, 30.66, 60.89)
```

```
In [33]: tup4 = ("one",'two','three') #tuple of string numbers
```

```
In [34]: tup4
```

```
Out[34]: ('one', 'two', 'three')
```

```
In [35]: tup5 = ('savitri',25,(50,100),(150,90)) #nested tuples
```

```
In [36]: tup5
```

```
Out[36]: ('savitri', 25, (50, 100), (150, 90))
```

```
In [37]: tup6 = (100,'savitri',17.765) # tuple of mixed datatypes
```

```
In [38]: tup6
```

```
Out[38]: (100, 'savitri', 17.765)
```

```
In [39]: t7 = ('savitri',25,[50,100],[150,90],{'john','david'},(99,22,33))
```

```
In [40]: t7
```

```
Out[40]: ('savitri', 25, [50, 100], [150, 90], {'david', 'john'}, (99, 22, 33))
```

```
In [41]: len(t7)
```

```
Out[41]: 6
```

TUPLE INDEXING

```
In [42]: tup2[0] #retrive frst element of the tuple by using index
```

```
Out[42]: 10
```

```
In [43]: tup4
```

```
Out[43]: ('one', 'two', 'three')
```

```
In [44]: tup4[1]
```

```
Out[44]: 'two'
```

```
In [45]: tup4[0][0] #nested indexing - acess the frst character of the frst tuple elem
```

```
Out[45]: 'o'
```

```
In [46]: tup4
```

```
Out[46]: ('one', 'two', 'three')
```

```
In [47]: tup4[-1] #last item of the element
```

```
Out[47]: 'three'
```

TUPLE SLICING

```
In [62]: ts = ('one','two','three','four','six','seven','eight')
```

```
In [49]: ts[0:4] # 0 to 3 index level elements displayed
```

```
Out[49]: ('one', 'two', 'three', 'four')
```

```
In [50]: ts[2:5]
```

```
Out[50]: ('three', 'four', 'six')
```

```
In [51]: ts[:3] #return frst 3 items
```

```
Out[51]: ('one', 'two', 'three')
```

```
In [52]: ts[:2]
```

```
Out[52]: ('one', 'two')
```

```
In [53]: ts[-3:]
```

```
Out[53]: ('six', 'seven', 'eight')
```

```
In [54]: ts
```

```
Out[54]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [55]: ts[-2:]
```

```
Out[55]: ('seven', 'eight')
```

```
In [56]: ts[-1]
```

```
Out[56]: 'eight'
```

```
In [57]: ts[:]
```

```
Out[57]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [58]: del ts[0]    #TUPLES are immutable which means we can not DELETE TUPLE items
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[58], line 1  
----> 1 del ts[0]  
  
TypeError: 'tuple' object doesn't support item deletion
```

```
In [59]: ts[0] = 1    #TUPLES are immutable which means we CAN NOT CHANGE TUPLE items
```

```
-----  
TypeError                                Traceback (most recent call last)  
Cell In[59], line 1  
----> 1 ts[0] = 1  
  
TypeError: 'tuple' object does not support item assignment
```

```
In [60]: del ts    #DELETE ENTIRE TUPLE OBJECT IS POSSIBLE
```

LOOP THROUGH A TUPLE

```
In [63]: ts
```

```
Out[63]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [64]: for i in ts:  
         print(i)
```

```
one  
two  
three  
four  
six  
seven  
eight
```

```
In [65]: for i in enumerate(ts):  
         print(i)
```

```
(0, 'one')  
(1, 'two')  
(2, 'three')  
(3, 'four')  
(4, 'six')  
(5, 'seven')  
(6, 'eight')
```

TUPLE MEMBERSHIP

```
In [66]: ts
```

```
Out[66]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [67]: 'one' in ts
```

```
Out[67]: True
```

```
In [68]: 'ten' in ts
```

```
Out[68]: False
```

```
In [69]: if 'three' in ts:
          print('three is present in the tuple')
        else:
          print('three is not present in the tuple')
```

```
three is present in the tuple
```

```
In [70]: ts
```

```
Out[70]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [71]: ts.index('one')
```

```
Out[71]: 0
```

```
In [72]: ts[o]
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[72], line 1
----> 1 ts[o]

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

```
In [80]: ts
```

```
Out[80]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [74]: ts[0]
```

```
Out[74]: 'one'
```

```
In [76]: ts[0] = ten
```

```
-----
NameError                                Traceback (most recent call last)
Cell In[76], line 1
----> 1 ts[0] = ten

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

```
In [81]: ts.index('one')
```

```
Out[81]: 0
```

```
In [83]: ts
```

```
Out[83]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

```
In [85]: ts.index('six')
```

```
Out[85]: 4
```

```
In [86]: ts
```

```
Out[86]: ('one', 'two', 'three', 'four', 'six', 'seven', 'eight')
```

SORTING

```
In [88]: ts1 = (43,67,99,12,6,90,67)
```

```
In [89]: ts1
```

```
Out[89]: (43, 67, 99, 12, 6, 90, 67)
```

```
In [90]: sorted(ts1) #returns a new sorted list and doesn't change original tuple
```

```
Out[90]: [6, 12, 43, 67, 67, 90, 99]
```

```
In [91]: sorted(ts1, reverse = True) #sort in descending order
```

```
Out[91]: [99, 90, 67, 67, 43, 12, 6]
```

```
In [ ]:
```

```
In [ ]:
```

```
In [ ]:
```

```
In [ ]:
```