TUPLE

```
t=()
t
```

```
()
```

```
type(t)
```

```
tuple
```

```
t1=(1,2,3,4,5)  # tuple of int values
t1
```

```
(1, 2, 3, 4, 5)
```

```
t2=(1.1,2.2,3.3,4.4,5.5) # tuple of float values
t2
```

```
(1.1, 2.2, 3.3, 4.4, 5.5)
```

```
t3=('one','two','three','four','five',) # tuple of string values
t3
```

```
('one', 'two', 'three', 'four', 'five')
```

```
t4=(2,2.2,'one',('hii'),(8,9),(3,4)) # nested tuples
t4
```

```
(2, 2.2, 'one', 'hii', (8, 9), (3, 4))
```

```
t5=(10,'one',3.3) # tuple of mixed data types
t5
```

```
(10, 'one', 3.3)
```

```
t6=('one',20,[30,70],[80,40],{'Amrita','Ankita'},(11,22,33))
t6
```

```
('one', 20, [30, 70], [80, 40], {'Amrita', 'Ankita'}, (11, 22, 33))
```

```
len(t6)
```

```
6
```

Tuple Indexing

```
t3[4]
```

```
'five'
```

```
t4[5]
```

```
(3, 4)
```

```
t5[2]
```

```
3.3
```

```
t6[-3]
```

```
[80, 40]
```

```
t6[-1],[0]
```

```
((11, 22, 33), [0])
```

Tuple Slicing

```
mytuple=('one','two','three','four','five','six','seven','eight')
mytuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
mytuple[0:3]
```

```
('one', 'two', 'three')
```

```
mytuple[2:5]
```

```
('three', 'four', 'five')
```

```
mytuple[:3] # return first three items
```

```
('one', 'two', 'three')
```

```
mytuple[:2] # return first two items
```

```
('one', 'two')
```

```
mytuple[-3:] # return last three items
```

```
('six', 'seven', 'eight')
```

```
mytuple[:] # return whole tuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

Remove & Change Items

```
mytuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
del mytuple[0] # tuples are immutable we can not delete tuple items
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
/tmp/ipython-input-92-1609617200.py in <cell line: 0>()
----> 1 del mytuple[0] # tuples are immutable we can not delete tuple items

TypeError: 'tuple' object doesn't support item deletion
```

Next steps: Explain error

```
mytuple[0]=1 # we can not CHANGE tuple items
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
/tmp/ipython-input-93-2697784751.py in <cell line: 0>()
----> 1 mytuple[0]=1 # we can not CHANGE tuple items

TypeError: 'tuple' object does not support item assignment
```

Next steps: Explain error

```
del mytuple
```

Loop through a tuple

```
mytuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
for i in mytuple:
  print(i)
```

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

```
for i in enumerate(mytuple):
  print(i)
```

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

Tuple Membership

```
mytuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
'one' in mytuple # if 'one' exist in the list
```

```
True
```

```
'ten' in mytuple
```

```
False
```

```
'seven' in mytuple
```

```
True
```

```
if 'seven' in mytuple:
      print('seven is present in the tuple')
else:
      print('seven is not present in the tuple')
```

```
seven is present in the tuple
```

```
if 'thirty' in mytuple:
      print('thirty is present in tuple')
else:
      print('thirty is not present in tuyple')
```

```
thirty is not present in tuyple
```

Index Position

```
mytuple
```

```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
mytuple.index('one')
```

```
0
```

```
mytuple.index('six')
```

```
5
```

```
mytuple1=('seven','twenty','fifteen','hundred')
mytuple1
```

```
('seven', 'twenty', 'fifteen', 'hundred')
```

```
mytuple1.index('seven')
```

```
0
```

Sorting

```
mytuple2=(1,59,36,17,28,65,73,85)
```

```
sorted(mytuple2)
```

```
[1, 17, 28, 36, 59, 65, 73, 85]
```

```
sorted(mytuple2,reverse=True)
```

```
[85, 73, 65, 59, 36, 28, 17, 1]
```