

Tuple Creation

```
In [1]: t = () # Empty Tuple
```

```
In [2]: t1 = (1,2,3,4) # Tuple of integers  
t2 = (1.1,2.2,3.3,4.4) # Tuple of float  
t3 = ('one', 'two', 'three') # Tuple of string  
t4 = (10,'ram', True, 1+2j, 25.5) # Tuple of mixed datatypes
```

```
In [3]: t5 = (10, 20.2, 'ram', (1,2,3), (10, 20)) # Nested tuple
```

```
In [4]: t6 = ('ram', 25, [50,100,150], [200,300], {'John', 'David'}, (11,22,33))
```

```
In [5]: len(t6) # Length of tuple
```

```
Out[5]: 6
```

Tuple Indexing

```
In [6]: t1[0] # Retrieve 1st element of tuple
```

```
Out[6]: 1
```

```
In [7]: t3[0]
```

```
Out[7]: 'one'
```

```
In [8]: t3[0][0] # Nested Indexing
```

```
Out[8]: 'o'
```

```
In [9]: t3[-1] # Retrieve last element of tuple
```

```
Out[9]: 'three'
```

```
In [10]: t5[-1]
```

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

Tuple Slicing

```
In [26]: mytuple = (10, 20, 30, 40, 50, 60, 70, 80)
```

```
In [27]: mytuple[0:3] # Return all item from 0th to 3rd index (n-1) n = 0, 1, 2, 3...  
           # Here n = 3 there for 3-1 = 2
```

Out[27]: (10, 20, 30)

In [28]: mytuple[2:5]

Out[28]: (30, 40, 50)

In [29]: mytuple[:3] *# Return 1st three item of tuple*

Out[29]: (10, 20, 30)

In [30]: mytuple[:2]

Out[30]: (10, 20)

In [31]: mytuple[-3:] *# return last three item of tuple*

Out[31]: (60, 70, 80)

In [32]: mytuple[-2:]

Out[32]: (70, 80)

In [33]: mytuple[:-1]

Out[33]: (10, 20, 30, 40, 50, 60, 70)

In [34]: mytuple[-1]

Out[34]: 80

In [35]: mytuple[:] *# return whole tuple*

Out[35]: (10, 20, 30, 40, 50, 60, 70, 80)

Remove and Change Items

In [36]: mytuple

Out[36]: (10, 20, 30, 40, 50, 60, 70, 80)

del mytuple[0] *# Tuples are immutable which means we cant delete tuple itmes*

In [38]: mytuple[0] = 'one' *# Tuples are immutable which means we cant change tuple itmes*

```
-----
TypeError                                Traceback (most recent call last)
Cell In[38], line 1
----> 1 mytuple[0] = 'one'

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

```
In [39]: del mytuple # Deleting entire tuple object is possible
```

```
In [40]: mytuple
```

```
-----  
NameError                                Traceback (most recent call last)  
Cell In[40], line 1  
----> 1 mytuple  
  
NameError: name 'mytuple' is not defined
```

Loop through a Tuple

```
In [41]: mytuple1 = ('one', 'two', 'three', 'four')
```

```
In [42]: mytuple1
```

```
Out[42]: ('one', 'two', 'three', 'four')
```

```
In [43]: for i in mytuple1:  
         print(i)
```

```
one  
two  
three  
four
```

```
In [44]: for i in enumerate(mytuple1):  
         print(i)
```

```
(0, 'one')  
(1, 'two')  
(2, 'three')  
(3, 'four')
```

Tuple Membership

```
In [45]: mytuple1
```

```
Out[45]: ('one', 'two', 'three', 'four')
```

```
In [46]: 'one' in mytuple1 # heck if 'one' exist in the mytuple1
```

```
Out[46]: True
```

```
In [47]: 'six' in mytuple1
```

```
Out[47]: False
```

```
In [48]: if 'two' in mytuple1:
          print("Two is present in mytuple1")
        else:
          print("Two is not present in mytuple1")
```

Two is present in mytuple1

```
In [49]: if 'seven' in mytuple1:
          print("Seven is present in mytuple1")
        else:
          print("Seven is not present in mytuple1")
```

Seven is not present in mytuple1

Index Position

```
In [50]: mytuple1
```

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

```
In [51]: mytuple1.index('one')
```

```
Out[51]: 0
```

```
In [52]: mytuple1.index('four')
```

```
Out[52]: 3
```

Sorting

```
In [53]: mytuple2 = (25,14,55,34,67,87,40)
```

```
In [54]: sorted(mytuple2) # Returns a new sorted list and doesn't change original tuple
```

```
Out[54]: [14, 25, 34, 40, 55, 67, 87]
```

```
In [55]: sorted(mytuple2) # Sort in ascending order
```

```
Out[55]: [14, 25, 34, 40, 55, 67, 87]
```

```
In [56]: sorted(mytuple2, reverse=True) # Sort in descending order
```

```
Out[56]: [87, 67, 55, 40, 34, 25, 14]
```

```
In [57]: mytuple2.sort()
```

```
-----  
AttributeError                                Traceback (most recent call last)  
Cell In[57], line 1  
----> 1 mytuple2.sort()  
  
AttributeError: 'tuple' object has no attribute 'sort'
```

In []: