TUPLE CREATION

```
tup1=() #enpty
tup2=(1,2,3,4) #int
tup3=(10.33,65.99,48.30) #float
tup4=('Apple','Banana','Mango') #string
tup5=("Mrunal",30,(50,60,70),(120,113,456)) #nested tuples
tup6=(68,"Ram",78.36) #mixed data types
tup7=("Mrunal",56,[80,60],[635,456],{"Shyam","Radha"},(89.3,40))
len(tup7) #length of tup
6
```

TUPLE INDEXING

```
tup2[0] #retreive 1st ele of tup
1
tup4[-2]
'Banana'
tup5[0][0] #nested indexing- accessing 1st char of 1st ele in tup
'M'
tup5[0][7]
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[98], line 1
----> 1 tup5[0][7]

IndexError: string index out of range
tup7[-3]
[635, 456]
```

TUPLE SLICING

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

```
myTuple[0:3] #return all ele from 0th index to 3rd index excluding 3rd index
```

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

```
myTuple[1:6]
```

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

```
myTuple[:3] #1st 3 ele excluding 3rd index
```

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

```
myTuple[:] #return all ele
```

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

```
myTuple[-4:] #return last 4 ele
```

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

```
myTuple[-4:-2] #return last 4th ele to last 2nd excluding last 2nd
```

```
('five', 'six')
```

REMOVE & CHANGE ITEMS

```
myTuple
```

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

```
del myTuple[0] #tuples are immutable so we cannot delete any ele from it
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[130], line 1
----> 1 del myTuple[0]

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

```
myTuple[0]=1 #immutable so we can't even change any ele in tup
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[132], line 1
----> 1 myTuple[0]=1

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

```
del myTuple #deleting whole tup is possible

myTuple

---------------------------------------------------------------------------
-----
NameError                                 Traceback (most recent call
last)
Cell In[150], line 1
----> 1 myTuple

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

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')

'three' in myTuple #check if three is in tuple or not

True
```

```
'Mrunal' in myTuple
```

```
False
```

```
if 'six' in myTuple:
    print('It is present')
else:
    print('It is absent')
```

```
It is present
```

INDEX POSITION

```
myTuple
```

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

```
myTuple.index('one') #gives the index num of the ele
```

```
0
```

```
myTuple.index('mrunal')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
Cell In[175], line 1
----> 1 myTuple.index('mrunal')

ValueError: tuple.index(x): x not in tuple
```

```
myTuple.index("six")
```

```
5
```

```
myTuple.index('four')
```

```
3
```

SORTING

```
myTuple2=(63,75,96,12,25,65,44,15)
```

```
sorted(myTuple2) #return sorted tuple but does not change original tuple
```

```
[12, 15, 25, 44, 63, 65, 75, 96]
```

```
sorted(myTuple2,reverse=True) #descending order
```

```
[96, 75, 65, 63, 44, 25, 15, 12]
```