Tuple creation

```
In [1]: tup1=()
```

```
In [4]: tup2=(10,30,60)    #tuple of int numbers
        tup2
```

```
Out[4]: (10, 30, 60)
```

```
In [5]: tup3=(10.77,30.66,60.89)    #tuple of float numbers
        tup3
```

```
Out[5]: (10.77, 30.66, 60.89)
```

```
In [12]: tup4=('one','two','three','four')    #tuple of string
         tup4
```

```
Out[12]: ('one', 'two', 'three', 'four')
```

```
In [13]: tup5=('Asif',25,5.7,1+2j,True)
         tup5
```

```
Out[13]: ('Asif', 25, 5.7, (1+2j), True)
```

```
In [14]: tup6=(100,"Venky",(50,100),(75,25))  #nested loops
         tup6
```

```
Out[14]: (100, 'Venky', (50, 100), (75, 25))
```

```
In [17]: tup7=("Venky",25,{"john","Dvid"},(99,22,33))  #tuple of mixed dta type
         tup7
```

```
Out[17]: ('Venky', 25, {'Dvid', 'john'}, (99, 22, 33))
```

```
In [18]: len(tup7)
```

```
Out[18]: 4
```

Tuple Indexing

```
In [23]: tup2[0]  #Retrieve first element of the tuple
```

```
Out[23]: 10
```

```
In [20]: tup4[0] #Retrieve first element of the tuple
```

```
Out[20]: 'one'
```

```
In [22]: tup4[0][0] #Nested indexing- Access the first character of the first tuple element
```

```
Out[22]:  'o'
```

```
In [25]:  tup4[-1] #last element of the tuple
```

```
Out[25]:  'four'
```

```
In [32]:  tup4
```

```
Out[32]:  ('one', 'two', 'three', 'four')
```

```
In [30]:  #Nested indexingFirst, we define the index of the tuple, then we define the index w
          tup4[2][1]
```

```
Out[30]:  'h'
```

```
In [33]:  tup4[3][3]
```

```
Out[33]:  'r'
```

```
In [35]:  tup5
```

```
Out[35]:  ('Asif', 25, 5.7, (1+2j), True)
```

```
In [36]:  tup5[-1]
```

```
Out[36]:  True
```

```
In [37]:  tup5[3]
```

```
Out[37]:  (1+2j)
```

Tuple slicing

```
In [38]:  mytuple=('one','two','three','four','five','six','seven','eight')
```

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

```
Out[40]:  ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
In [41]:  mytuple[0:3]  #returns all items from 0th to 3rd indexing the item
```

```
Out[41]:  ('one', 'two', 'three')
```

```
In [42]:  mytuple[2:] #returns 2nd element to last element
```

```
Out[42]:  ('three', 'four', 'five', 'six', 'seven', 'eight')
```

```
In [43]:  mytuple[:4] # returns firts four items
```

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

```
In [44]: mytuple[:10] #it returns complete tuple even if we declare out of range in slicing
```

```
Out[44]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
In [45]: mytuple[-1:] #returns last item
```

```
Out[45]: ('eight',)
```

```
In [46]: mytuple[:-1] #Returns except last item
```

```
Out[46]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven')
```

```
In [47]: mytuple[-2:] #returns last 2 items
```

```
Out[47]: ('seven', 'eight')
```

```
In [48]: mytuple[-4:-1] #return last 3 items
```

```
Out[48]: ('five', 'six', 'seven')
```

```
In [49]: mytuple[:]   #return whole tuple
```

```
Out[49]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

Remove and Change items

```
In [50]: mytuple
```

```
Out[50]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

```
In [52]: del mytuple[0] #tuples are immutable which means can't delete tuple items
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[52], line 1
----> 1 del mytuple[0] #tuples are immutable which means can't delete tuple items

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

```
In [53]: mytuple.clear()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[53], line 1
----> 1 mytuple.clear()

AttributeError: 'tuple' object has no attribute 'clear'
```

```
In [54]: mytuple.remove()
```

```
---------------------------------------------------------------------------
AttributeError                            Traceback (most recent call last)
Cell In[54], line 1
----> 1 mytuple.remove()

AttributeError: 'tuple' object has no attribute 'remove'
```

In [56]: `mytuple[0]=1  #Tuples are immutable which means we can't change tuple items`

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[56], line 1
----> 1 mytuple[0]=1  #Tuples are immutable which means we can't change tuple items

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

In [58]: `del mytuple #Deleting entire tuple object is possible`

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[58], line 1
----> 1 del mytuple #Deleting entire tuple object is possible

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

In [59]:
```python
mytuple1=('hi','hello','how are you')
mytuple1
```

Out[59]: `('hi', 'hello', 'how are you')`

In [60]: `del mytuple1`

Loop throgh a tuple

In [63]:
```python
mytuple=('one','two','three','four','five','six','seven','eight')
mytuple
```

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

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

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

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

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

In [66]:
```
for i in mytuple:
    print(mytuple)
```

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

In [67]:
```
for i in enumerate(mytuple):
    print(mytuple)
```

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

Tuple Memebership

In [68]:
```
mytuple
```

Out[68]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')

In [70]:
```
'one' in mytuple  #check if 'one' exist in the list
```

Out[70]: True

In [71]:
```
'ten' in mytuple
```

Out[71]: False

In [72]:
```
'ten' not in mytuple
```

Out[72]: True

In [73]:
```
'one' in mytuple
```

Out[73]: True

```
In [76]:  'five' in mytuple
```

Out[76]: True

'three' in mytuple

```
In [80]:  'three' not in mytuple
```

Out[80]: False

```
In [74]:  if 'three' in mytuple:
              print("Three is present in the tuple")
          else:
              print("Three is not present in the tuple")
```

Three is present in the tuple

```
In [75]:  if 'eleven' in mytuple:
              print("eleven is present in the tuple")
          else:
              print("eleven is not present in the tuple")
```

eleven is not present in the tuple

Index Position

```
In [82]:  mytuple
```

Out[82]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')

```
In [83]:  mytuple.index('one')
```

Out[83]: 0

```
In [84]:  mytuple.index('five')
```

Out[84]: 4

```
In [85]:  mytuple.index('eight')
```

Out[85]: 7

Sorting

```
In [87]:  mytuple2=(43,67,99,12,6,90,67)
```

```
In [88]:  mytuple2
```

Out[88]: (43, 67, 99, 12, 6, 90, 67)

```
In [90]:  sorted(mytuple2)
```

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

In [91]:  mytuple3=(45,92,33,81,10,24,6,7,99,57)
          mytuple3

Out[91]:  (45, 92, 33, 81, 10, 24, 6, 7, 99, 57)

In [92]:  sorted(mytuple3)

Out[92]:  [6, 7, 10, 24, 33, 45, 57, 81, 92, 99]

In [93]:  l=[32,45,78,95,55,60]
          l

Out[93]:  [32, 45, 78, 95, 55, 60]

In [94]:  type(l)

Out[94]:  list

In [95]:  type(mytuple3)

Out[95]:  tuple

In [96]:  print(type(mytuple3))

          <class 'tuple'>

In [97]:  id(mytuple3)

Out[97]:  2647824156480

In [98]:  id(mytuple3[6])   #it retrieves the address of 6th index element from the mytuple3

Out[98]:  140721873959512

In [ ]:
```