TUPLE CREATION

In [2]:
```
tup1 = ()  # Empty tuple
```

In [3]:
```
tup2 = (10,30,60)   # tuple of integer numbers
```

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

In [7]:
```
tup4 = ('one','two',"three")  # tuple of strings
```

In [9]:
```
tup5 = ('Sidra',25,(50,100),(150,90))   # Nested tuples
```

In [10]:
```
tup6 = (100,'Sidra',17.765)  # tuple of mixed data types
```

In [11]:
```
tup7 = ('Sidra',25,[50,100],[150,90],{'Sidra' , 'Asiya'} , (99,22,33))
```

In [12]:
```
len(tup7) # length of list
```

Out[12]: 6

TUPLE INDEXING

In [13]:
```
tup2[0]  # Retrieve first element of the tuple
```

Out[13]: 10

In [14]:
```
tup4[0]  # Retrieve first element of the tuple
```

Out[14]: 'one'

In [15]:
```
tup4[0][0] # Nested indexing - Access the first character of the first tuple elemen
```

Out[15]: 'o'

In [16]:
```
tup4[-1] # Last item of the tuple
```

Out[16]: 'three'

In [17]:
```
tup5[-1]  # Last item of the tuple
```

Out[17]: (150, 90)

TUPLE SLICING

In [37]:
```
mytuple = ('one' , 'two' , 'three' , 'four' , 'five' , 'six' , 'seven' , 'eight')
```

In [19]:
```
mytuple[0:3] # Return all items from 0th to 3rd index location excluding the item
```

Out[19]:
```
('one', 'two', 'three')
```

In [20]:
```
mytuple[2:5] # List all items from 2nd to 5th index location excluding the item
```

Out[20]:
```
('three', 'four', 'five')
```

In [21]:
```
mytuple[:3] # Return first three items
```

Out[21]:
```
('one', 'two', 'three')
```

In [22]:
```
mytuple[:2] # Return first two items
```

Out[22]:
```
('one', 'two')
```

In [23]:
```
mytuple[-3:] # Return last three items
```

Out[23]:
```
('six', 'seven', 'eight')
```

In [24]:
```
mytuple[-2:] # Return last two items
```

Out[24]:
```
('seven', 'eight')
```

In [25]:
```
mytuple[-1] # Return last item of the tuple
```

Out[25]:
```
'eight'
```

In [26]:
```
mytuple[:] # Return whole tuple
```

Out[26]:
```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

REMOVE & CHANGE ITEMS

In [27]:
```
mytuple
```

Out[27]:
```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

In [28]:
```
del mytuple[0] # Tuple arw=e immutable which means we can't DELETE tuple items
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [28], in <cell line: 1>()
----> 1 del mytuple[0]

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

In [29]:
```
mytuple[0] = 1 # Tuple are immutable which means we can't CHANGE tuple items
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Input In [29], in <cell line: 1>()
----> 1 mytuple[0] = 1

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

In [30]:
```
del mytuple # Deleting entire tuple object is possible
```

LOOP THROUGH A TUPLE

In [38]:
```
mytuple
```

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

In [39]:
```
for i in mytuple:
    print(i)
```

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

In [40]:
```
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

In [41]:
```
mytuple
```

Out[41]:
```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

In [42]:
```
'one' in mytuple # Check if 'one' exist in the list
```

Out[42]:
```
True
```

In [43]:
```
'ten' in mytuple # Check if 'ten' exist in the list
```

Out[43]:
```
False
```

In [44]:
```
if 'three' in mytuple:  # Check if 'three' exist in the list
    print('Three is present in the tuple')
else:
    print('eleven is not present in the tuple')
```

```
Three is present in the tuple
```

INDEX POSITION

In [45]:
```
mytuple
```

Out[45]:
```
('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight')
```

In [46]:
```
mytuple.index('one') # Index of first element equal to 'one'
```

Out[46]:
```
0
```

In [47]:
```
mytuple.index('five') # Index of first element equal to 'five'
```

Out[47]:
```
4
```

In [49]:
```
mytuple1 = ('one', 'two' , 'three' , 'four' , 'one' , 'one' , 'two' , 'three')
```

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

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

In [51]:
```
mytuple1.index('one') # Index of first element equal to 'one'
```

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

SORTING

In [52]:
```
mytuple2 = (43,67,99,12,6,90,67)
```

In [53]:
```
sorted(mytuple2) # Return a new sorted list and doesn't change original tuple
```

Out[53]:
```
[6, 12, 43, 67, 67, 90, 99]
```

In [54]:
```
sorted(mytuple2, reverse=True) # Sort in descending order
```

Out[54]:
```
[99, 90, 67, 67, 43, 12, 6]
```