Tuple

```
In [1]: t=() #creating empty tuple
        t
```

Out[1]: ()

```
In [2]: t=('apple')
        t
```

Out[2]: 'apple'

```
In [4]: t=(apple)
        t
```

```
---------------------------------------------------------------------------
NameError                                 Traceback (most recent call last)
Cell In[4], line 1
----> 1 t=(apple)
      2 t

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

```
In [13]: t=(10,20,30)
         t
```

Out[13]: (10, 20, 30)

```
In [6]: nestedtuple=(1,2,(10,20,30))
        nestedtuple
```

Out[6]: (1, 2, (10, 20, 30))

```
In [7]: len(nestedtuple)
```

Out[7]: 3

Tuple indexing

```
In [14]: t
```

Out[14]: (10, 20, 30)

```
In [15]: t[0]
```

Out[15]: 10

```
In [16]: t[10]
```

```
---------------------------------------------------------------------------
IndexError                                Traceback (most recent call last)
Cell In[16], line 1
----> 1 t[10]

IndexError: tuple index out of range
```

In [17]: `t(0)`

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[17], line 1
----> 1 t(0)

TypeError: 'tuple' object is not callable
```

In [18]:
```python
t1=('apple','banana','mango')
t1
```

Out[18]: ('apple', 'banana', 'mango')

In [22]: `t1`

Out[22]: ('apple', 'banana', 'mango')

In [23]: `t1[0]`

Out[23]: 'apple'

In [24]: `t1[1]`

Out[24]: 'banana'

In [25]:
```python
print(t1[1][0])
print(t1[1][1])
print(t1[1][2])
print(t1[1][3])
print(t1[1][4])
print(t1[1][5])
```

```
b
a
n
a
n
a
```

In [26]: `t1[-1]`

Out[26]: 'mango'

Tuple Slicing

In [27]:
```python
t2=('one','two','three','four','five','six','seven','eight','nine')
t2
```

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

```
In [28]:  t2[:2]
```

```
Out[28]:  ('one', 'two')
```

```
In [29]:  t2[2:]
```

```
Out[29]:  ('three', 'four', 'five', 'six', 'seven', 'eight', 'nine')
```

```
In [30]:  t2[-3]
```

```
Out[30]:  'seven'
```

```
In [31]:  t2
```

```
Out[31]:  ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine')
```

```
In [32]:  t2[-3]
```

```
Out[32]:  'seven'
```

Remove and change tuple

```
In [34]:  t2[1]=2
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[34], line 1
----> 1 t2[1]=2

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

```
In [35]:  t3=t2
```

```
In [36]:  t3
```

```
Out[36]:  ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine')
```

```
In [39]:  del t3
```

Loop through tuple

```
In [43]:  for i in t2:
              print(i)
```

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

In [44]:
```python
for i in enumerate(t2):
    print(i)
```
```
(0, 'one')
(1, 'two')
(2, 'three')
(3, 'four')
(4, 'five')
(5, 'six')
(6, 'seven')
(7, 'eight')
(8, 'nine')
```

In [45]:
```python
t2
```

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

In [46]:
```python
'five' in t2
```

Out[46]: True

In [47]:
```python
'test' in t2
```

Out[47]: False

In [48]:
```python
if 'eleven' in t2:
    print('Found the item in Tuple')
else:
    print('Not Found the item in Tuple')
```
```
Not Found the item in Tuple
```

Index position in Tuple

In [49]:
```python
t2
```

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

In [50]:
```python
t2.index('four')
```

Out[50]: 3

In [51]:
```python
t2.index('six')
```

Out[51]: 5

Sorting

```
In [52]:  sorted(t2, reverse=False)
```

Out[52]: ['eight', 'five', 'four', 'nine', 'one', 'seven', 'six', 'three', 'two']

```
In [53]:  sorted(t2, reverse=True)
```

Out[53]: ['two', 'three', 'six', 'seven', 'one', 'nine', 'four', 'five', 'eight']

```
In [54]:  t2
```

Out[54]: ('one', 'two', 'three', 'four', 'five', 'six', 'seven', 'eight', 'nine')

```
In [ ]:
```