4th --TUPLE()

In Python, a tuple is an ordered, immutable collection of elements. Tuples can store multiple items in a single variable and are defined using parentheses (), though parentheses are optional in many contexts.

```python
In [1]: t = ()
        t
```

Out[1]: ()

```python
In [2]: type(t)
```

Out[2]: tuple

```python
In [4]: t = (10,20,30)
        t
```

Out[4]: (10, 20, 30)

```python
In [5]: len(t)
```

Out[5]: 3

```python
In [7]: t1 = (10,2.3,'nit',(1+2j),True,10,20)
        t1
```

Out[7]: (10, 2.3, 'nit', (1+2j), True, 10, 20)

```python
In [8]: print(t)
        print(t1)
```

```
(10, 20, 30)
(10, 2.3, 'nit', (1+2j), True, 10, 20)
```

count

```python
In [9]: t.count(10)
```

Out[9]: 1

```python
In [10]: t1.count(2.3)
```

Out[10]: 1

```python
In [11]: t1
```

Out[11]: (10, 2.3, 'nit', (1+2j), True, 10, 20)

index

```
In [12]: t1.index(2.3)
```

Out[12]: 1

```
In [13]: t
```

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

```
In [14]: t[0]
```

Out[14]: 10

```
In [15]: t[0] = 100
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[15], line 1
----> 1 t[0] = 100

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

```
In [16]: icici = (1234567,'cizps7898y','dob-3rd mar 1987','mob1234')
         icici
```

Out[16]: (1234567, 'cizps7898y', 'dob-3rd mar 1987', 'mob1234')

```
In [17]: t
```

Out[17]: (10, 20, 30)

```
In [18]: t2 = t * 3
         t2
```

Out[18]: (10, 20, 30, 10, 20, 30, 10, 20, 30)

```
In [19]: t2
```

Out[19]: (10, 20, 30, 10, 20, 30, 10, 20, 30)

```
In [20]: t1
```

Out[20]: (10, 2.3, 'nit', (1+2j), True, 10, 20)

```
In [21]: t1[1:6]
```

Out[21]: (2.3, 'nit', (1+2j), True, 10)

```
In [22]: t2
```

Out[22]: (10, 20, 30, 10, 20, 30, 10, 20, 30)

```
In [23]: t2[1:6:3]
```

Out[23]: (20, 20)

```
In [24]:  t2
```

```
Out[24]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

```
In [25]:  t2[1:6:5]
```

```
Out[25]:  (20,)
```

```
In [26]:  t2
```

```
Out[26]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

```
In [27]:  t1
```

```
Out[27]:  (10, 2.3, 'nit', (1+2j), True, 10, 20)
```

```
In [28]:  t1[:]
```

```
Out[28]:  (10, 2.3, 'nit', (1+2j), True, 10, 20)
```

```
In [29]:  t1
```

```
Out[29]:  (10, 2.3, 'nit', (1+2j), True, 10, 20)
```

```
In [30]:  t1[::-1]
```

```
Out[30]:  (20, 10, True, (1+2j), 'nit', 2.3, 10)
```

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

```
Out[31]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

```
In [32]:  t2[::-1]
```

```
Out[32]:  (30, 20, 10, 30, 20, 10, 30, 20, 10)
```

```
In [33]:  t2
```

```
Out[33]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

```
In [34]:  t2[::-2]
```

```
Out[34]:  (30, 10, 20, 30, 10)
```

```
In [35]:  t2
```

```
Out[35]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

```
In [36]:  t2[::-3]
```

```
Out[36]:  (30, 30, 30)
```

```
In [37]:  t2
```

```
Out[37]:  (10, 20, 30, 10, 20, 30, 10, 20, 30)
```

In [38]: `t2[::2]`

Out[38]: `(10, 30, 20, 10, 30)`

In [1]:
```
t = (1,2,3,4,5,6,7,8)
t
```

Out[1]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [2]: `t[3:-1]`

Out[2]: `(4, 5, 6, 7)`

In [3]: `t`

Out[3]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [4]: `t`

Out[4]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [5]: `t[1:4]`

Out[5]: `(2, 3, 4)`

In [6]: `t`

Out[6]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [7]: `t[1:]`

Out[7]: `(2, 3, 4, 5, 6, 7, 8)`

In [8]: `t`

Out[8]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [9]: `t[:5]`

Out[9]: `(1, 2, 3, 4, 5)`

In [10]: `t`

Out[10]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [11]: `t[1:7:3]`

Out[11]: `(2, 5)`

In [12]: `t`

Out[12]: `(1, 2, 3, 4, 5, 6, 7, 8)`

In [13]: `t[::-1]`

Out[13]: (8, 7, 6, 5, 4, 3, 2, 1)

In [14]: `t[::1]`

Out[14]: (1, 2, 3, 4, 5, 6, 7, 8)

In [15]: `t`

Out[15]: (1, 2, 3, 4, 5, 6, 7, 8)

In [16]:
```python
for i in t:
    print(i)
```

```
1
2
3
4
5
6
7
8
```

In [18]:
```python
for i in enumerate(t):
    print(i)
```

```
(0, 1)
(1, 2)
(2, 3)
(3, 4)
(4, 5)
(5, 6)
(6, 7)
(7, 8)
```

RANGE

In [56]: `range(5)`

Out[56]: range(0, 5)

In [57]: `list(range(5))`

Out[57]: [0, 1, 2, 3, 4]

In [58]: `range(10,20)`

Out[58]: range(10, 20)

In [59]: `list(range(10,20))`

Out[59]: [10, 11, 12, 13, 14, 15, 16, 17, 18, 19]

In [60]: `range(10,50,5)`

Out[60]: range(10, 50, 5)

In [61]: `list(range(10,50,5))`

Out[61]: `[10, 15, 20, 25, 30, 35, 40, 45]`

Sorting

In [20]: `mytuple2 = (34,67,99,12,6,90,67)`

In [21]: `sorted(mytuple2)`

Out[21]: `[6, 12, 34, 67, 67, 90, 99]`

In [23]: `sorted(mytuple2,reverse=True) #sort in descending order`

Out[23]: `[99, 90, 67, 67, 34, 12, 6]`

In [24]: `sorted(mytuple2,reverse=False)`

Out[24]: `[6, 12, 34, 67, 67, 90, 99]`

In [ ]: