

Tuples in Python

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1. Creating Tuples - (a) Empty Tuples

```
In [22]:  T1 = ()
          print(type(T1))

          T2 = tuple()
          print(type(T2))
```

```
<class 'tuple'>
<class 'tuple'>
```

1. Creating Tuples - (b) Non Empty Tuples

```
In [24]:  T6 = (10,)
          print(type(T6))
```

```
<class 'tuple'>
```

```
In [25]:  a, b = 10, 20
          print(a,b)
```

```
10 20
```

```
In [26]:  Q, R = divmod(10,3)
          print("Quotient : ", Q)
          print("Remainder : ", R)
```

```
Quotient :  3
Remainder :  1
```

2. Accessing the elements in a Tuple

```
In [27]:  T3 = (1, 9, 4, 3, 0, 2, 5)
          T4 = ('Python', 'C', 'C++', 'Java')
          T5 = ('19BAR0007', 'Nithik V', 9.8)
          print(T3[-4])
          print(T4[0])
          print(T5[:])
```

```
3
Python
('19BAR0007', 'Nithik V', 9.8)
```

3. Updating a Tuple

```
In [28]: ▶ T4 = ('Python', 'C', 'C++', 'Java')
          T5 = ('19BAR0007', 'Nithik V', 9.8)
          T6 = T4 + T5
          print(T6)

('Python', 'C', 'C++', 'Java', '19BAR0007', 'Nithik V', 9.8)
```

4. Deleting elements in a Tuple

```
In [29]: ▶ del T4[2]

-----
-----
TypeError                                Traceback (most recent call
last)
<ipython-input-29-aad645217ec7> in <module>
----> 1 del T4[2]

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

```
In [30]: ▶ del T4
          print(T4)

-----
-----
NameError                                Traceback (most recent call
last)
<ipython-input-30-0935fbc2e704> in <module>
      1 del T4
----> 2 print(T4)

NameError: name 'T4' is not defined
```

5. Basic Operations in Tuples

```
In [31]: # Length
print(len(T5))

# Concatenation
print(T3 + T5)

# Repetition
print(T5 * 2)

# Membership
print('Nithik V' in T6)
print('Pava' in T6)

# Iteration
for ele in T6:
    print(ele)

# Maximum
print(max(T3))

# Minimum
print(min(T3))

# Sum
print(sum(T3))

# Tuple from String
T7 = tuple('Python')
print(T7)

# Tuple from List
T8 = tuple([10, 20, 30, 40, 50])
print(T8)
```

```
3
(1, 9, 4, 3, 0, 2, 5, '19BAR0007', 'Nithik V', 9.8)
('19BAR0007', 'Nithik V', 9.8, '19BAR0007', 'Nithik V', 9.8)
True
False
Python
C
C++
Java
19BAR0007
Nithik V
9.8
9
0
24
('P', 'y', 't', 'h', 'o', 'n')
(10, 20, 30, 40, 50)
```

6. Nested Tuples

```
In [32]: ▶ Items = (('Zebronic', 750),('Boult', 1099),('Realme', 1599))
for i in Items:
    print(i)

('Zebronic', 750)
('Boult', 1099)
('Realme', 1599)
```

7. Tuple Methods

```
In [33]: ▶ print(T7.index('h'))
print(T8.count(10))
print(sorted(T7))

3
1
['P', 'h', 'n', 'o', 't', 'y']
```

8. zip()

```
In [34]: ▶ T = (1, 2, 3, 4, 5)
L = ['A', 'B', 'C', 'D', 'E']
print(list(zip(T,L)))

[(1, 'A'), (2, 'B'), (3, 'C'), (4, 'D'), (5, 'E')]
```

9. Program to count the number of +s, -s, and 0s

```
In [ ]: ▶ T = (9, -8, 0, 6, -4, 3, 0, -2, 1, 7)
np = 0
nn = 0
nz = 0
ne = 0
no = 0
for e in T:
    if e > 0:
        np = np + 1
    elif e < 0:
        nn = nn + 1
    else:
        nz = nz + 1
print("Number of Positives : ", np)
print("Number of Negatives : ", nn)
print("Number of Zeros : ", nz)
```

10. Program to count the number of even and odd numbers

```
In [ ]: ▶ s_odd = 0
s_even = 0
for i in T:
    if i % 2 == 0:
        s_even = s_even + i
    else:
        s_odd = s_odd + i
print('Sum of Odd : ', s_odd)
print('Sum of Even : ', s_even)
```

11. Program to swap two values

```
In [ ]: ▶ A = 10
B = 20
print("Before Swapping :")
print("A = ", A, "B = ", B)
print()
(A, B) = (B, A)
print("After Swapping :")
print("A = ", A, "B = ", B)
print()
```

```
In [ ]: ▶ email = "selva@gmail.com"
usr, dom = email.split('@')
print("User Name : ", usr)
print("Domain : ", dom)
print()
```

```
In [ ]: ▶ T = (1, 0, -9, 8, -4, 10, -2)
newT = ()
for i in T:
    if i > 0:
        newT += (i,)
print(newT)
```