



Everything about Python Tuple



Creating

```
# Empty tuple
empty_tuple = ()

# Single-element tuple
# (comma is needed)
single = (10,)

# homogenous
t3 = (1,2,3)
print(t3)

# heterogenous
t4 = (1,2,3,True,'hello')
print(t4)

# tuple in tuple
t5 = (1,2,3,(4,5))
print(t5)

# using type conversion
t6 = tuple((1,2,3, 'Rudra', 'z'))
print(t6)
```

Editing

Tuples are immutable, meaning you cannot change their elements.

```
numbers[0] = 10 # Error: TypeError
```

Instead, create a new tuple:

```
new_tuple = (10,) + numbers[1:]
print(new_tuple) # (10, 2, 3, 4, 5)
```

Accessing Characters

```
# Indexing
print(numbers[0]) # 1

# Slicing
print(numbers[1:4]) # (2, 3, 4)
```

Deleting

You cannot delete elements, but you can delete the entire tuple:

```
del numbers
```

Operations

```
A = (1, 2, 3)
B = (4, 5, 6)

# Concatenation
print(A + B) # (1, 2, 3, 4, 5, 6)

# Repetition
print(A * 2) # (1, 2, 3, 1, 2, 3)

# Membership Test
print(2 in A) # True

# iteration
for i in t1:
    print(i)
```

About Tuple

- Immutable list
- Order matter
- Allow duplicated

Tuple Unpacking

Basic

```
a, b, c = (1, 2, 3)
print(a, b, c) # 1, 2, 3
```

Use *

```
a, b, *others = (1, 2, 3, 4, 5)
print(a, b) # 1, 2
print(others) # [3, 4, 5]
```

zip()

Basic

```
a = (1, 2, 3)
b = ('a', 'b', 'c')

zipped = tuple(zip(a, b))
print(zipped) # ((1, 'a'), (2, 'b'), (3, 'c'))
```

Converting Tuple to Dictionary (with zip)

```
keys = ("name", "age", "city")
values = ("Alice", 25, "New York")

person = dict(zip(keys, values))
print(person)
# Output: {'name': 'Alice', 'age': 25, 'city': 'New York'}
```

Tuple Comparison

```
print((1, 2, 3) < (1, 2, 4))
# True
# (compares third element)

print((2, 3) > (1, 5))
# True
# (compares first element)

print((1, 2, 3) == (1, 2, 3))
# True
# (all elements are same)
```

Tuple Functions

When/ Why	Function	Input	Output
Length	len()	len((1,2,3))	3
Find Index	index()	(1,2,3).index(2)	1
count Occurrences	count()	(1,2,2,3).count(2)	2
Min Value	min()	min((3,1,5))	1
Max Value	max()	max((3,1,5))	5
Covert to tuple	tuple()	tuple([1,2,3])	(1, 2, 3)

