Tuple

- Tuple items are `ordered`, `unchangeable`, and `allow duplicate values`.
- Tuple items are indexed.
- Ordered, means that the items have a defined order, and that order will not change.
- Unchangeable, means that we cannot change, add or remove items after the tuple has been created.
- Allow duplicates, means they can have items with the same value.
- Starts with ()

```python
tup = (1, 2, 3)
```

Methods

count

Returns the `number of times` a `specified value occurs` in a tuple.

```python
tup = (1, 2, 3, 2, 2, 3)
print(tup.count(2))
```

index

Searches the tuple for a `specified value` and `returns the position`.

```python
tup = (1, 2, 3, 2, 2, 3)
print(tup.index(3))
```

len()

Returns `number of items` in sequence. Similar to that of list

```python
tup = (1, 2, 3, 2, 2, 3)
print(len(tup))
```

min()

Returns the `minimum value` in sequence. Similar to that of list

```python
tup = (1, 2, 3, 2, 2, 3)
print(min(tup))
```

max()

Returns the `maximum value` in sequence. Similar to that of list

```python
tup = (1, 2, 3, 2, 2, 3)
print(max(tup))
```

in

Finds if the element `is in the list`. Similar to that of list

```python
tup = (1, 2, 3, 2, 2, 3)
print(1 in tup)
print(6 in tup)
```

Slicing

- Slicing `[start:stop:step]` Similar to that of list
- **stop is exclusive**, **start defaults to 0**, **step defaults to 1**
- If start > stop or start > [len()](len()), empty list is returned

```python
tup = (1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
print(tup[1:4])
print(tup[3:])
print(tup[:3])
print(tup[::2])
print(tup[1:5:2])
print(tup[0:6:-1])
print(tup[::-1])
```

Tuple in a Tuple

Similar to that of list

```python
tup = (1, 2, 3, (4, 5), [6, 7], 8, 9)
print(tup[2])
print(tup[-2])
print(tup[3])
print(tup[4])
```

```python
tup1 = (1, 2, 3, 4, 5, 6, 7, 8)
tup2 = (1, (2, 3, 4), [5, 6, 7], (8,))
tup3 = (1, (2, 3, (4,), 5), (6, 7, 8))

print(4 in tup1)
print(4 in tup2)
print(4 in tup3)
```

Looping

You can iterate through a tuple in 2 ways Similar to that of list

1st Way

```python
tup = (3, 2, 1, 5, 7)
for i in tup:
        print(i)
```

2nd Way

```python
tup = (3, 2, 1, 5, 7)
for i in range(len(tup)):
        print(i, ":", tup[i])
```