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# Python Tuples

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## Tuple

A tuple is a collection which is ordered and **unchangeable**. In Python tuples are written with round brackets.

### Example

Create a Tuple:

```
thistuple = ("apple", "banana", "cherry")
print(thistuple)
```

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## Access Tuple Items

You can access tuple items by referring to the index number, inside square brackets:

### Example

Print the second item in the tuple:

```
thistuple = ("apple", "banana", "cherry")
print(thistuple[1])
```

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## Negative Indexing

Negative indexing means beginning from the end, **-1** refers to the last item, **-2** refers to the second last item etc.

### Example

Print the last item of the tuple:

```
thistuple = ("apple", "banana", "cherry")  
print(thistuple[-1])
```

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## Range of Indexes

You can specify a range of indexes by specifying where to start and where to end the range.

When specifying a range, the return value will be a new tuple with the specified items.

### Example

Return the third, fourth, and fifth item:

```
thistuple = ("apple", "banana", "cherry", "orange", "kiwi", "melon",  
"mango")  
print(thistuple[2:5])
```

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**Note:** The search will start at index 2 (included) and end at index 5 (not included).

Remember that the first item has index 0.

## Range of Negative Indexes

Specify negative indexes if you want to start the search from the end of the tuple:

### Example

This example returns the items from index -4 (included) to index -1 (excluded)

```
thistuple = ("apple", "banana", "cherry", "orange", "kiwi", "melon",  
"mango")  
print(thistuple[-4:-1])
```

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## Change Tuple Values

Once a tuple is created, you cannot change its values. Tuples are **unchangeable**, or **immutable** as it also is called.

But there is a workaround. You can convert the tuple into a list, change the list, and convert the list back into a tuple.

### Example

Convert the tuple into a list to be able to change it:

```
x = ("apple", "banana", "cherry")  
y = list(x)  
y[1] = "kiwi"  
x = tuple(y)  
  
print(x)
```

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## Loop Through a Tuple

You can loop through the tuple items by using a **for** loop.

### Example

Iterate through the items and print the values:

```
thistuple = ("apple", "banana", "cherry")
for x in thistuple:
    print(x)
```

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You will learn more about **for** loops in our [Python For Loops](#) Chapter.

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## Check if Item Exists

To determine if a specified item is present in a tuple use the **in** keyword:

### Example

Check if "apple" is present in the tuple:

```
thistuple = ("apple", "banana", "cherry")
if "apple" in thistuple:
    print("Yes, 'apple' is in the fruits tuple")
```

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# Tuple Length

To determine how many items a tuple has, use the `len()` method:

## Example

Print the number of items in the tuple:

```
thistuple = ("apple", "banana", "cherry")  
print(len(thistuple))
```

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## Add Items

Once a tuple is created, you cannot add items to it. Tuples are **unchangeable**.

## Example

You cannot add items to a tuple:

```
thistuple = ("apple", "banana", "cherry")  
thistuple[3] = "orange" # This will raise an error  
print(thistuple)
```

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## Create Tuple With One Item

To create a tuple with only one item, you have to add a comma after the item, unless Python will not recognize the variable as a tuple.

## Example

One item tuple, remember the comma:

```
thistuple = ("apple",)
print(type(thistuple))

#NOT a tuple
thistuple = ("apple")
print(type(thistuple))
```

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---

## Remove Items

**Note:** You cannot remove items in a tuple.

Tuples are **unchangeable**, so you cannot remove items from it, but you can delete the tuple completely:

### Example

The **del** keyword can delete the tuple completely:

```
thistuple = ("apple", "banana", "cherry")
del thistuple
print(thistuple) #this will raise an error because the tuple no longer
exists
```

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## Join Two Tuples

To join two or more tuples you can use the **+** operator:

## Example

Join two tuples:

```
tuple1 = ("a", "b" , "c")
tuple2 = (1, 2, 3)

tuple3 = tuple1 + tuple2
print(tuple3)
```

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## The tuple() Constructor

It is also possible to use the `tuple()` constructor to make a tuple.

## Example

Using the `tuple()` method to make a tuple:

```
thistuple = tuple(("apple", "banana", "cherry")) # note the double round-
brackets
print(thistuple)
```

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## Tuple Methods

Python has two built-in methods that you can use on tuples.

Method	Description
<u><a href="#">count()</a></u>	Returns the number of times a specified value occurs in a tuple
<u><a href="#">index()</a></u>	Searches the tuple for a specified value and returns the position of where it was found

# Test Yourself With Exercises

## Exercise:

Print the first item in the `fruits` tuple.

```
fruits = ("apple", "banana", "cherry")  
print(      )
```

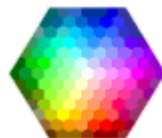
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