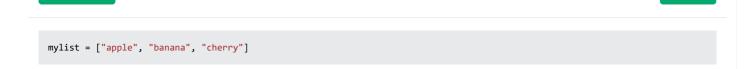


# **Python Lists**

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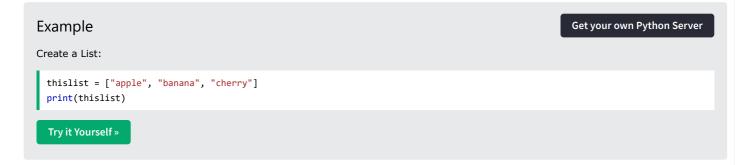


#### List

Lists are used to store multiple items in a single variable.

Lists are one of 4 built-in data types in Python used to store collections of data, the other 3 are <u>Tuple</u>, <u>Set</u>, and <u>Dictionary</u>, all with different qualities and usage.

Lists are created using square brackets:



#### List Items

List items are ordered, changeable, and allow duplicate values.

List items are indexed, the first item has index [0], the second item has index [1] etc.

#### Ordered

When we say that lists are ordered, it means that the items have a defined order, and that order will not change.

If you add new items to a list, the new items will be placed at the end of the list.

Note: There are some <u>list methods</u> that will change the order, but in general: the order of the items will not change.

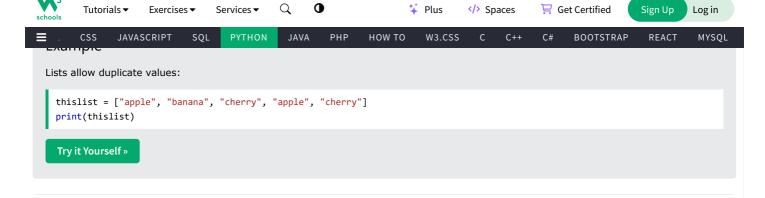
### Changeable

The list is changeable, meaning that we can change, add, and remove items in a list after it has been created.

## **Allow Duplicates**



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# List Length

To determine how many items a list has, use the len() function:

#### Example

Print the number of items in the list:

```
thislist = ["apple", "banana", "cherry"]
print(len(thislist))
```

Try it Yourself »

### List Items - Data Types

List items can be of any data type:

#### Example

String, int and boolean data types:

```
list1 = ["apple", "banana", "cherry"]
list2 = [1, 5, 7, 9, 3]
list3 = [True, False, False]
```

Try it Yourself »

A list can contain different data types:

#### Example

A list with strings, integers and boolean values:

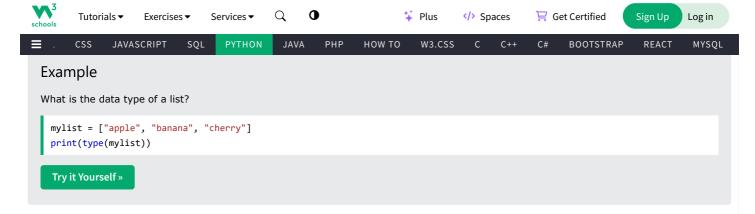
```
list1 = ["abc", 34, True, 40, "male"]
```

Try it Yourself »

### type()



From Python's perspective, lists are defined as objects with the data type 'list':



### The list() Constructor

It is also possible to use the list() constructor when creating a new list.

```
Using the list() constructor to make a List:
thislist = list(("apple", "banana", "cherry")) # note the double round-brackets
print(thislist)
Try it Yourself »
```

# Python Collections (Arrays)

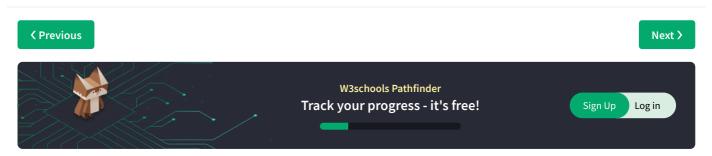
There are four collection data types in the Python programming language:

- List is a collection which is ordered and changeable. Allows duplicate members.
- **Tuple** is a collection which is ordered and unchangeable. Allows duplicate members.
- <u>Set</u> is a collection which is unordered, unchangeable\*, and unindexed. No duplicate members.
- <u>Dictionary</u> is a collection which is ordered\*\* and changeable. No duplicate members.

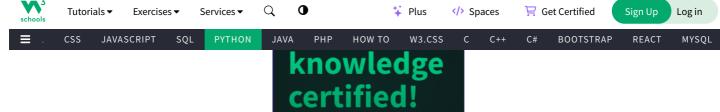
\*Set items are unchangeable, but you can remove and/or add items whenever you like.

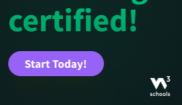
\*\*As of Python version 3.7, dictionaries are *ordered*. In Python 3.6 and earlier, dictionaries are *unordered*.

When choosing a collection type, it is useful to understand the properties of that type. Choosing the right type for a particular data set could mean retention of meaning, and, it could mean an increase in efficiency or security.









#### **COLOR PICKER**





