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Python Lists

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```
mylist = ["apple", "banana", "cherry"]
```

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 Tuple, Set, and Dictionary, all with different qualities and usage.

Lists are created using square brackets:

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Example

Create a List:

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

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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

Since lists are indexed, lists can have items with the same value:

Example

Lists allow duplicate values:

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

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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:

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

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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]
```

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A list can contain different data types:

Example

A list with strings, integers and boolean values:

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

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type()

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

```
<class 'list'>
```

What is the data type of a list?

```python
mylist = ["apple", "banana", "cherry"]
print(type(mylist))
```

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The list() Constructor

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

Example

Using the `list()` constructor to make a List:

```python
thislist = list(("apple", "banana", "cherry")) # note the double round-brackets
print(thislist)
```

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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.
- **Set** is a collection which is unordered, unchangeable*, and unindexed. No duplicate members.
- **Dictionary** is a collection which is ordered** and changeable. No duplicate