Arrays

An array is a special variable, which can hold more than one value at a time.

If you have a list of items (a list of car names, for example), storing the cars in single variables could look like this:

```
car1 = "Ford"
car2 = "Volvo"
car3 = "BMW"
```

However, what if you want to loop through the cars and find a specific one? And what if you had not 3 cars, but 300?

The solution is an array!

Note: *Python does not have built-in support for Arrays, but Python Lists can be used instead.*

however, to work with arrays in Python you will have to import a library, like the NumPy library.

Example

Create an array containing car names:

```
cars = ["Ford", "Volvo", "BMW"]
```

```
--------------------------------
['Ford', 'Volvo', 'BMW']
```

Access the Elements of an Array

You refer to an array element by referring to the *index number*.

Example

Get the value of the first array item:

```
cars = ["Ford", "Volvo", "BMW"]

x = cars[0]

print(x)
```

```
--------------------------------

Ford
```

Example

Modify the value of the first array item:

```
cars = ["Ford", "Volvo", "BMW"]

cars[0] = "Toyota"

print(cars)
================================

['Toyota', 'Volvo', 'BMW']
```

The Length of an Array

Use the `len()` method to return the length of an array (the number of elements in an array).

Example

Return the number of elements in the `cars` array:

```
cars = ["Ford", "Volvo", "BMW"]

x = len(cars)

print(x)
================================

3
```

Looping Array Elements

You can use the `for in` loop to loop through all the elements of an array.

Example

Print each item in the `cars` array:

```
cars = ["Ford", "Volvo"]

for x in cars:
  print(x)
```

```
==========

Ford
Volvo
```

Adding Array Elements

You can use the `append()` method to add an element to an array.

Example

Add one more element to the `cars` array:

```
cars = ["Ford", "Volvo", "BMW"]

cars.append("Honda")

print(cars)
```

```
==============================

['Ford', 'Volvo', 'BMW', 'Honda']
```

Example

Delete the second element of the `cars` array:

```
cars = ["Ford", "Volvo", "BMW"]

cars.pop(1)

print(cars)
```

```
['Ford', 'BMW']
```

You can use `remove()` method to remove an element from the array.

```
cars = ["Ford", "Volvo", "BMW"]

cars.remove("Volvo")

print(cars)
```

```
['Ford', 'BMW']
```