

2.2: Types Walkthrough

In this walkthrough, we are going to be developing your knowledge of types within programming languages, and the Python language. In the previous element of this pre-session work, we considered strongly and weakly typed languages. We stated that, in programming, a type is an attribute of data which instructs the system how to process and use the data.

There are several different standard types which are available within programming languages. These are normally:

* Integer (whole numbers)
* Float (decimal numbers)
* Character (letters)
* Boolean (true / false)

You will notice that there is no string in this list – most programming languages do not consider string a “primitive” type (with primitive types being the basic building blocks for data types). We will look further into String in the second hybrid session of this week.

Python, however, doesn’t have a character type – instead it sees characters as strings of length 1.

As we don’t define the specific type within Python when using Python, it can be useful to use the type() command to establish what Python has interpreted the data as. This is especially useful if Python is not doing what you expected and you want to check what it is doing.

Let’s look at an example. Create a new project called Week2, where you can store all your Week2 files. Create a new Python file and enter the following code:

print(type(42))

print(type(42.42))

print(type(“BS1220”))

print(type(True))

Warning: Make sure that you have a capital T for True – this is a built-in value in Python, which is case sensitive.

When you run this, you should get the following output:

Output when running the code listed above.  Output is:
<class 'int'>
<class 'float'>
<class 'str'>
<class 'bool'>

You should have expected these outputs – it is essentially telling you:

* 42 is an integer
* 42.42 is a float (or a decimal number)
* BS1220 is a string
* True is a Boolean value

**Activity:**

To help you practice guessing which type Python will assign to a piece of data, we have created a Microsoft Forms quiz. Have a guess at what you think the type is in the Form, and then see whether you were correct using the type() command in Python.

The link to the Form is: [Types Quiz](https://forms.office.com/Pages/ResponsePage.aspx?id=fa3wnqvqpUigevu4IDP6AxRj3zIYDapCpFE_7cFfSelUN1pDRzE1REcyT1daWlZEQ0xWQlY4R0lHNC4u)