Names of Variables

What Can We Call a Variable?

So far we have only used a since letter to represent a variable, and that is because that is the most common way they are used in mathematics, so for example if we wanted to represent *pi*, the ratio of a circle's circumference to its diameter:

```
P = 3.1415926536
```

But in computer programming we can call a variable name almost anything we want, and usually we try to create variable names that are as descriptive as possible, this is important so that other people can read our programs and easily understand what they do, particularly since a lot of programs we write will be done as part of a team:

```
Pi = 3.1415926536
```

Calling this variable `Pi` seems like it might be sufficient when we create the variable, but we might later realise that we need to do some calculations with *pi* just as 3.14, and other calculations with *pi* with ten decimal places, so we can do, the following:

```
TheValueOfPiToTwoDecimalPlaces = 3.14
```

And we also have:

```
TheValueOfPiToTenDecimalPlaces = 3.1415926536
```

What Can't We Call a Variable?

There are only a limited number of specific words that cannot be used as variable names, for example, we know that the words `True` and `False` have a specific meaning in Python, and so we shouldn't use them as variable names as they are already reserved for a different use (they are called *reserved words*). There are also several built-in functions and features in Python and we shouldn't use their names as variable names, for example, we know that the function `print` tells the system to write messages to the screen, so we can't use that as a variable name. We'll present a full list of names we can't use as variables on the next page.

Camel Case

Capitalizing each word in a variable name makes it easier to read, for example, `ThisIsAVariable`. There are alternatives, but they have their own drawbacks:

- Spaces: `This is a variable`
  Using spaces to separate the words in a variable name causes some systems to treat them like separate variables.
- Dashes: `This-is-a-variable`
  Using dashes to separate the words in a variable name causes some systems to treat the dashes as if they are the subtract symbol.
- Underscores: `This_is_a_variable`
  Using underscores to separate the words in a variable name can sometimes look like spaces particularly if the editor you are using to type in the commands changes the colour of certain words or adds underlines.