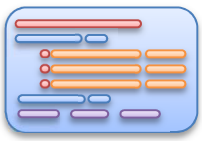


As you have learned, there are many programming languages out there. We are going to have a look at some Python programming code. The reasons for choosing this language include:

Aim: *Try some Python programming.*

1. *It is relatively easy to understand – there are not too many fiddly rules to remember.*
2. *Python is a cross-platform language. It can be used on many devices and operating systems.*
3. *You can create and test some simple scripts using the website www.repl.it.*
4. *There are a large number of libraries available online. These are ready-written programs that carry out common tasks.*
5. *Python is used by many of the biggest tech companies.*

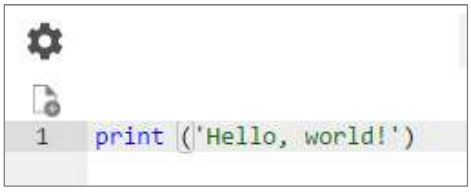
Having said this, programming languages have many similarities. Once you've got your head around the basics of programming it's much easier to learn new languages as and when you need to.

Task 1 – Getting Started in Python Online

You will be using a website called *repl.it*. This site allows you to play around with bits of Python code without the need to install applications. There are limitations to what you can do in *repl.it*, but it's a great way to get started.

a. Navigate to the website https://repl.it/languages/python3 (or visit www.repl.it and search for Python3). It is better to set up an account so that you can save your work.

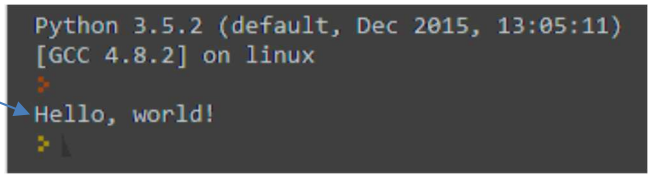
b. In a new *session*, type the code **print ('Hello, world!')** in the coding window. This is the white window on the left of the screen.



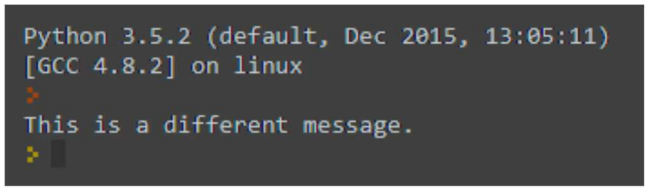
c. Click the *Run* button (or press 'Ctrl + Enter'). The Run button briefly turns to *Stop*. This can be used to halt programs.

d. Look at the output in the console. This is the black window on the right of the screen.

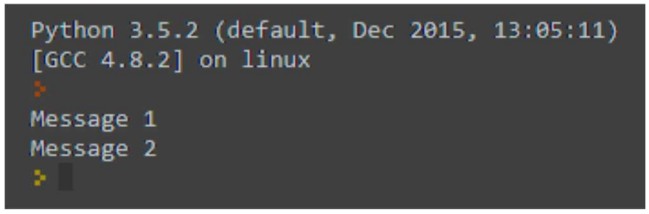
View the output from the program



e. Change the code in the coding window so that the output displays a different message when you run the program.



f. Create code so that you get the output shown on the right. You can use two lines of code with two print statements.



Extension

Try achieving this last task with one print statement. Use **\n** to create a new line in your text.

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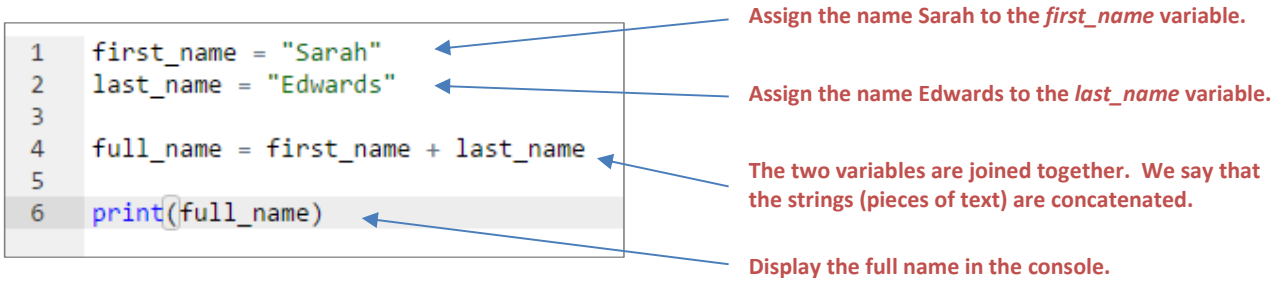
Getting Started with Python (page 2)

Task 2 – Displaying a Name

The programming script below takes a first name and a last name, joins them together and then displays the full name. At this stage, the actual names are fixed in the program.



Note 1: *In Python, a single equals sign (=) assigns a value to a variable. Line 1 could be read as 'The variable first_name is assigned the value Sarah'.*

Note 2: *Python is a case sensitive language. This means that capital letters make a difference to the program. In the example above, 'first_name' would be a different variable to 'First_Name'. Also, typing 'Print' with an upper-case P would not work. The line spaces make no difference, however. You can add these to make your programs easier to read. Other spaces (e.g. either side of the + and = symbols) generally don't have an effect, but spaces and tabs at the start of a line **definitely do** have an effect on your Python programs.*

a. Type the program into *repl.it* and run it. Write down the exact output that appears in the console.

b. We want to add a space between the first name and the last name. We can do this by inserting the code + " " + between the *first_name* and *last_name* variables in line 4, in place of the single + symbol. Edit line 4 and rerun the program. Carefully write out the new line 4 below.

Note: *The '+' symbol joins two words (or strings) together. We are therefore now joining the first name, a space and the last name together.*

c. A variable is a space in the computer's memory. Think of it like a box where you can keep information until it's needed. Write down the names of the three variables used in this program.

d. We could make this program more efficient by getting rid of the *full_name* variable completely. Change line 6 to the code shown below. Delete the line of code that is no longer required.

```
print(first_name + " " + last_name)
```

e. Enter the title "***07.2 Fixed Names***" into the name box at the top. Click the Save button.

f. You can access your saved programs at any time by logging in and using the *my repls* link in the top-right. Your teacher may also want you to copy and paste the code into a document (with the title above it) for marking purposes.

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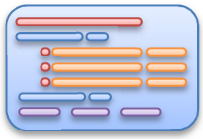

Task 3 – Accepting Inputs in Python

In the previous script, we fixed the first and last names in the code. In real life, it would be more common to ask the user to enter their name and then do something with the information.

a. Start a new session named "***07.3 Input Names***".

b. Try out the code on the right and run it (note the space after the word 'Hello'). Type your first name into the console on the right and press *Enter*.

```
1  first_name = input("Enter your first name:")
2
3  print("Hello " + first_name)
```

c. You should see an output something like the one shown here (with your own name, of course).

```
Enter your first name: Sarah
Hello Sarah
>
```

d. Try the program on the right. This time, you enter your first name, then your last name.

e. Have a look at the output and check that you understand what is happening.

```
1  first_name = input("Enter your first name:")
2  last_name = input("Enter your last name:")
3
4  full_name = first_name + " " + last_name
5
6  print("Your full name is " + full_name)
```

f. Make this code more efficient by removing the *full_name* variable again.

g. **Save** your program.

Extension for Experts

Try and create this program on a single line, completely removing all the variables. Save the program as "***07.3E Single Line***".

Task 4 – Scripting Challenge

Copy and paste the code into a new session named "***07.4 Full Name***". Extend it so that it also asks you for your middle initial and includes this when concatenating the strings to form your full name.

Our last line is shown below. Yours might be slightly different.

```
Enter your first name: Sarah
Enter your middle initial: J
Enter your last name: Edwards
Your full name is Sarah J Edwards
>
```

```
4
5  print("Your full name is " + first_name + " " + middle_intial + " " + last_name)
```

Extension - Numbers

What happens if you enter numbers into the console rather than names? Is it possible to input two numbers and total them, so that 1 + 2 = 3 rather than 12? We will look at this in the next task.

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