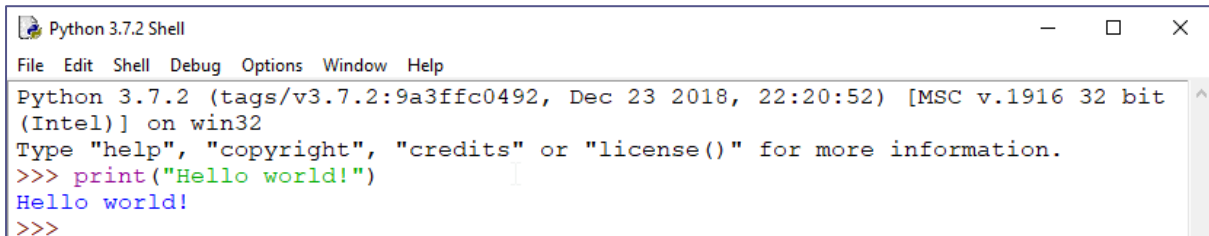


1. THE BASICS

Your first program: “Hello world!” We are going to use the `print()` function to write our first program. Python will evaluate what we enter in the brackets and print out a text **string** OR the result of a mathematical **expression**.

Open IDLE and type this into the interpreter or ‘shell’ and press ENTER:

You should get this response from the ‘shell’:

A screenshot of the Python 3.7.2 Shell window. The window title is "Python 3.7.2 Shell". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Window", and "Help". The main text area shows the following text: "Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32", "Type 'help', 'copyright', 'credits' or 'license()' for more information.", ">>> print('Hello world!)", "Hello world!", and ">>>".

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print('Hello world!')
Hello world!
>>>
```

All the interpreter is doing is printing to the screen the string of characters enclosed by speech marks that you entered inside the brackets. The `print()` function is a ready-made piece of code we can use to print to the screen.

There are many more **built-in functions** in Python that you will learn about later.

USING PYTHON AS A CALCULATOR

When we use numbers in Python, normal mathematical operators apply. Below is a list of the most commonly used operators.

command	name	example	output
+	Addition	4+5	9
-	Subtraction	8-5	3
*	Multiplication	4*5	20
/	Division	19/3	6.33
%	Remainder	19%3	1
**	Exponent	2**4	16
//	Whole Number Division (Floored Quotient)	7//2(rounded down)	3

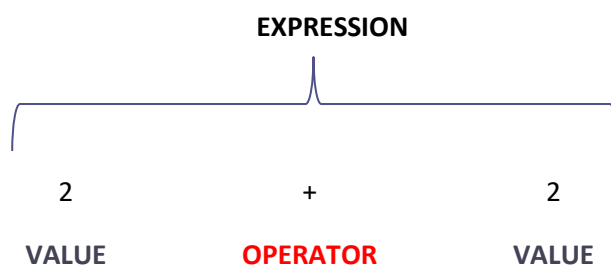
PSEUDO NUMBERS - WHAT ARE THEY?

These are numbers that are not meant for calculation, like a telephone or mobile number or a social security number, so we must use a STRING data type to record them, rather than an integer or float data type.

You will learn more about what a data type is in the next few pages.

EXPRESSIONS:

In mathematics, an expression means the numbers, symbols and operators that are grouped together to show the value of something. In Python, if we type an expression into the interpreter window, the 'shell', Python will interpret the answer and display it:



```
>>> 4+5
9
>>> 8-3
5
>>> 4*5
20
>>> 19/3
6.333333333333333
>>> 19%3
1
>>> 2**4
16
>>> 7//2
3
```

1.1 ORDER OF OPERATION

Python automatically understands the order of operation of any mathematical calculations; you may remember this as BIDMAS or BODMAS from your Mathematics lessons:

B rackets	B rackets
I ndices	O der
D ivision	D ivision
M ultiplication	M ultiplication
A ddition	A ddition
S ubtraction	S ubtraction

Example:

$$7 + (6 \times 5^2 + 3)$$

1. Evaluation the part of the calculation inside the brackets
 - a. Inside the brackets the first part to calculate is $5^2 = 25$
 - b. Next, multiply $6 \times 25 = 150$
 - c. Add $3 = 153$
2. Now evaluate the part of the calculation outside the brackets
 - a. $7 + 153 = 160$

```
>>> 7+(6*5**2+3)
160
>>>
```

EXERCISE 01: CALCULATE USING PYTHON

Use the Python interpreter 'shell' and the `print()` function to complete these exercises:

1. $50-5*6$
2. $(50-5*6)/4$
3. $8/5$
4. $4*3$
5. $12/3$
6. $21\%6$
7. $17//5$
8. $5*3+2$
9. $5**2$
10. $1//2$