



# INTRODUCTION TO PROGRAMMING IN PYTHON

Comments, Printing, Data Types & Concatenation



# PROGRAMMING LANGUAGES

**Why do programming  
Languages exist?**



# PROGRAMMING LANGUAGES

- Programming languages exist because computers can only understand binary, but it's very difficult to write a program directly in binary so over time programming languages developed.
- By using programming languages it makes it far simpler to write programs that solve problems.

# PROGRAMMING LANGUAGES

- There are a large number of programming languages. Below are the logos for some programming languages. Which ones do you recognise?



- How many other programming languages can you name?
- [Wikipedia list of programming languages](#)

## READ THE PASSAGE BELOW

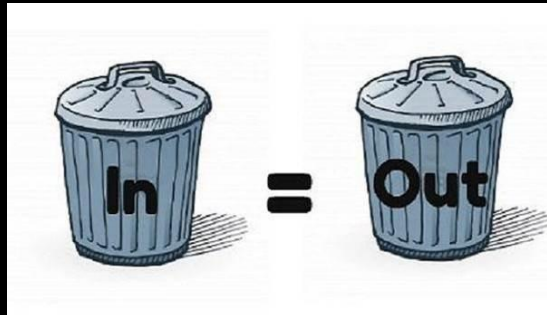
- “According to research at Cambridge University, it doesn't matter in what order the letters in a word are, the only important thing is that the first and last letter be at the right place. The rest can be a total mess and you can still read it without a problem. This is because the human mind does not read every letter by itself, but the word as a whole.”

# SYNTAX

- A human's ability to make sense of communication even when it's grammar or spelling is not quite correct is a special skill that we take for granted.
- Computers cannot distinguish what was intended if a message is not clear. They can only follow set rules. This leads to a basic rule of computing:

## **Garbage In, Garbage Out**

- That is, if your program does not have accurate syntax then the program won't work as expected.
  - The rules of a programming language are known as it's syntax.





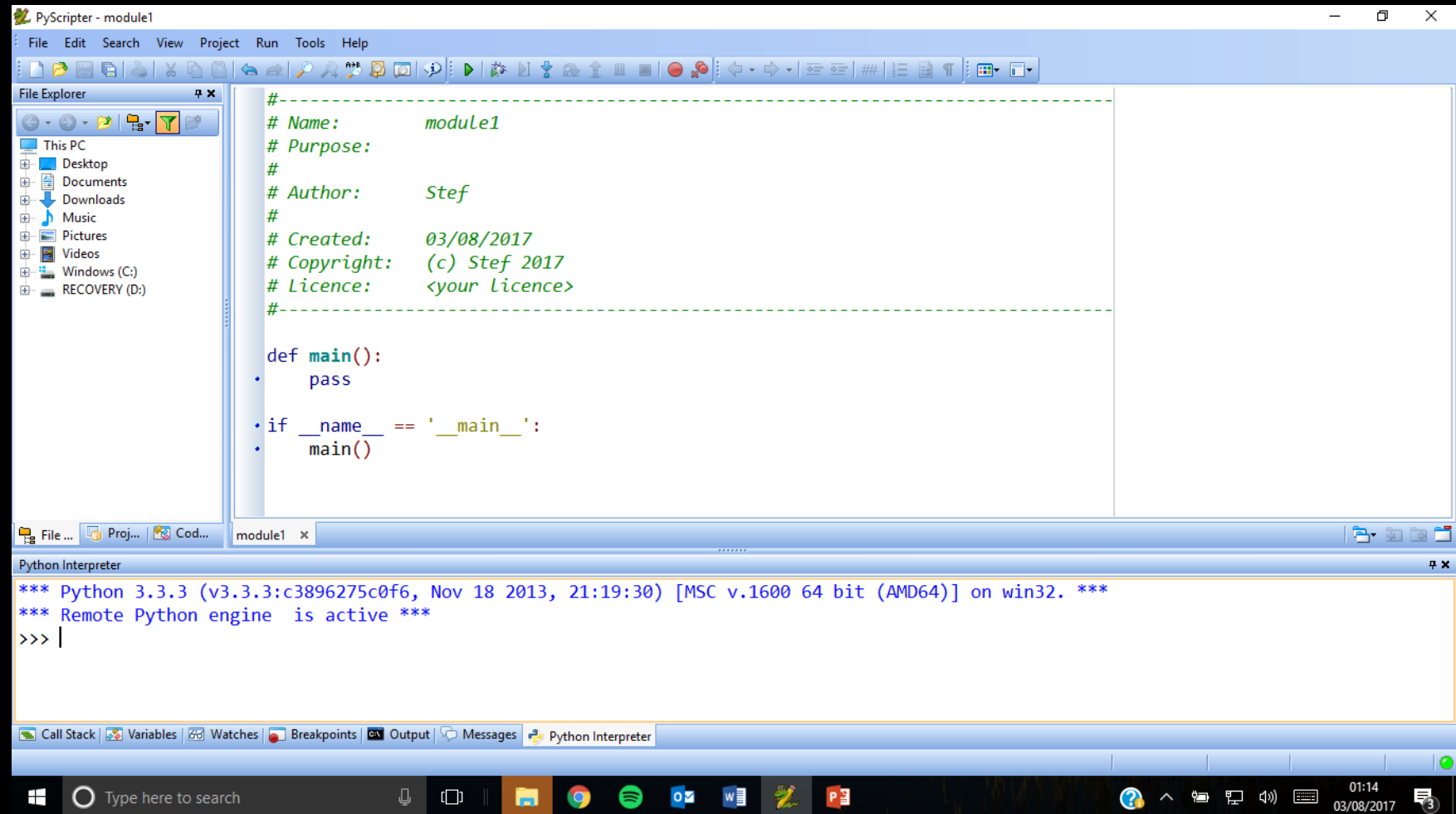
# PYTHON

- The language we are going to be learning is called Python.
- It is a versatile language that is widely used in real world applications. Some applications that use Python include Google, YouTube, Spotify, DropBox and Instagram.



# PYSCRIPTER

- You can write python code in a wide number of editors.
- In class, we will be using PyScripter.
- It has 3 sections – a file selector, the area to write code and the interpreter where the output of a program can be seen.





# COMMENTS

- Comments are used to explain what a program does. This makes it easier for the programmer or different programmers to make change to the program later.
- In Python, all code after a # symbol is considered a comment. Comments are not executed when the program runs.
- You can also make longer sections of comments in Python by putting triple single quotes ('''') at the start and end of the comment section.
- You may have noticed that PyScripter adds some comments for you automatically.

# THE PRINT COMMAND

- The syntax for the print command is shown below.

```
print ("Text to print to the screen")
```

- The key aspects to remember are:
  - The word `print` is in lowercase
  - Everything to be printed is inside brackets
  - Text we want to print directly is in speech marks (*Note: It is possible to use single or double quotation marks however we can run into some problems if we use single quotes and the statement contains an apostrophe*)
- Now try the Print command syntax True/False exercise on the Moodle course.
- Then open Print.py and fix each of the print statements adding a comment to say what you changed in each case.

# VARIABLES AND DATA TYPES

- In programming we use variables to store data we will use in our program.
- Variables can have different data types depending on the data that is stored in them. To begin with you only need to know about 4 data types: -
  - String: This is the data type for data that contains any combination of text, numbers and other characters such as brackets.
  - Integer: This is the data type to store whole numbers.
  - Float: This is the data type for numbers with a fractional part. These are sometimes also called decimal or real.
  - Boolean: This data type is one of two choices True or False.
- Now try the Data types quiz on Moodle

# CONCATENATION

- Concatenation is a long word that just means joining 2 strings together.
- We can join two strings in python using the plus sign (+). This is useful if we want to print a statement including a value stored in a variable as shown below.

```
· name = "Bob"  
· print("Hello " + name)
```

- NOTE: Concatenation simply directly joins the two strings here. If we did not include a space after the word hello it would output HelloBob instead of Hello Bob.
- Open the file Concatenation\_practice.py and make the sentences requested.