What is Python?

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

* web development (server-side),
* software development,
* mathematics,
* system scripting.

### What can Python do?

* Python can be used on a server to create web applications.
* Python can be used alongside software to create workflows.
* Python can connect to database systems. It can also read and modify files.
* Python can be used to handle big data and perform complex mathematics.
* Python can be used for rapid prototyping, or for production-ready software development.

### Why Python?

* Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
* Python has a simple syntax similar to the English language.
* Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
* Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
* Python can be treated in a procedural way, an object-oriented way or a functional way.

### Good to know

* The most recent major version of Python is Python 3, which we shall be using in this tutorial. However, Python 2, although not being updated with anything other than security updates, is still quite popular.
* In this tutorial Python will be written in a text editor. It is possible to write Python in an Integrated Development Environment, such as Thonny, Pycharm, Netbeans or Eclipse which are particularly useful when managing larger collections of Python files.

### Python Syntax compared to other programming languages

* Python was designed for readability, and has some similarities to the English language with influence from mathematics.
* Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
* Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

Example:-

print(“Hello World”)

# Python Syntax

**Execute Python Syntax**

1. Python syntax can be executed by writing directly in the Command Line:

>>> print("Hello, World!")  
Hello, World!

1. Or by creating a python file on the server, using the .py file extension, and running it in the Command Line:

C:\Users\Your Name>python myfile.py

**Python Indentation**

Indentation refers to the spaces at the beginning of a code line.

Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

Python uses indentation to indicate a block of code.

**Example:-**

if 5 > 2:  
  print("Five is greater than two!")

**OUTPUT:-**

Five is greater than two!

Five is greater than two!

Python Variables

In Python, variables are created when you assign a value to it:

Example:-

x=5

y=”Hello, World!”

Comments

Python has commenting capability for the purpose of in-code documentation.

Comments start with a #, and Python will render the rest of the line as a comment:

Example:-

#this is a comment

print(“Hello World”)

**GUI Design using Python**

**Graphical User Interface (GUI)**

* **Tkinter** is GUI library built into Python standard library,
* providing easy-to-program **user interface for applications**
* **tkinter** is Python interface to **Tk**(**widget library** of GUI toolkit for **Tcl/Tk**)
* **Tcl/Tk** is the scripting and graphics facility developed by
* **John Ousterhout** at University of California
* **Tcl** stands for **T**ool **c**ontrol **l**anguage
* **Widgets** are components of an interface, those enable us to perform a function or access a service

**Example:-**

import tkinter as tk

win=tk.Tk()

win.title(‘Fun With GUI in Python’)

win.resizable(False,False)

win.mainlop()

