What is Python?

**Python** is a very popular general-purpose interpreted, interactive, object-oriented, and high-level programming language. Python is dynamically-typed and garbage-collected programming language. It was created by Guido van Rossum during 1985- 1990..

It is used for:

* web development (server-side),
* software development,
* mathematics,
* system scripting-**Scripts are usually used to conduct a specific task, or solve a specific problem**

### 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.

# Python Comments

Comments can be used to explain Python code.

Comments can be used to make the code more readable.

Comments can be used to prevent execution when testing code.

### Example

#This is a comment  
print("Hello, World!")

#print("Hello, World!")

Variables

Variables are containers for storing data values.

Python has no command for declaring a variable.

A variable is created the moment you first assign a value to it.

Variable names are case-sensitive.

### Example

x = 5  
y = "John"  
print(x)  
print(y)

String variables can be declared either by using single or double quotes:

Example

x = "John"  
# is the same as  
x = 'John'

## Casting

If you want to specify the data type of a variable, this can be done with casting.

Example

x = str(3)    # x will be '3'  
y = int(3)    # y will be 3  
z = float(3)  # z will be 3.0

## Get the Type

You can get the data type of a variable with the type() function.

Example

x = 5  
y = "John"  
print(type(x))  
print(type(y))

## Strings

Strings in python are surrounded by either single quotation marks, or double quotation marks.

'hello' is the same as "hello".

You can display a string literal with the print() function:

Example

print("Hello")  
print('Hello')

## Assign String to a Variable

Assigning a string to a variable is done with the variable name followed by an equal sign and the string:

Example

a = "Hello"  
print(a)

## Multiline Strings

You can assign a multiline string to a variable by using three quotes:

Example

You can use three double quotes:

a = """Lorem ipsum dolor sit amet,  
consectetur adipiscing elit,  
sed do eiusmod tempor incididunt  
ut labore et dolore magna aliqua."""  
print(a)

## Strings are Arrays

Like many other popular programming languages, strings in Python are arrays of bytes representing unicode characters.

However, Python does not have a character data type, a single character is simply a string with a length of 1.

Square brackets can be used to access elements of the string.

Example

Get the character at position 1 (remember that the first character has the position 0):

a = "Hello, World!"  
print(a[1])

## Looping Through a String

Since strings are arrays, we can loop through the characters in a string, with a for loop.

Loop thorugh letters in the word “banana”:

for x in "banana":

print(x)

o/p🡪

b

a

n

a

n

## a

## String Length

To get the length of a string, use the len() function.

Example

The len() function returns the length of a string

a = "Hello, World!"  
print(len(a))

o/p🡪13

## Check String

To check if a certain phrase or character is present in a string, we can use the keyword in.

Example

Check if “free” is present in the following text:

txt = "The best things in life are free!"  
print("free" in txt)

o/p🡪True