

PYTHON

Python Introduction

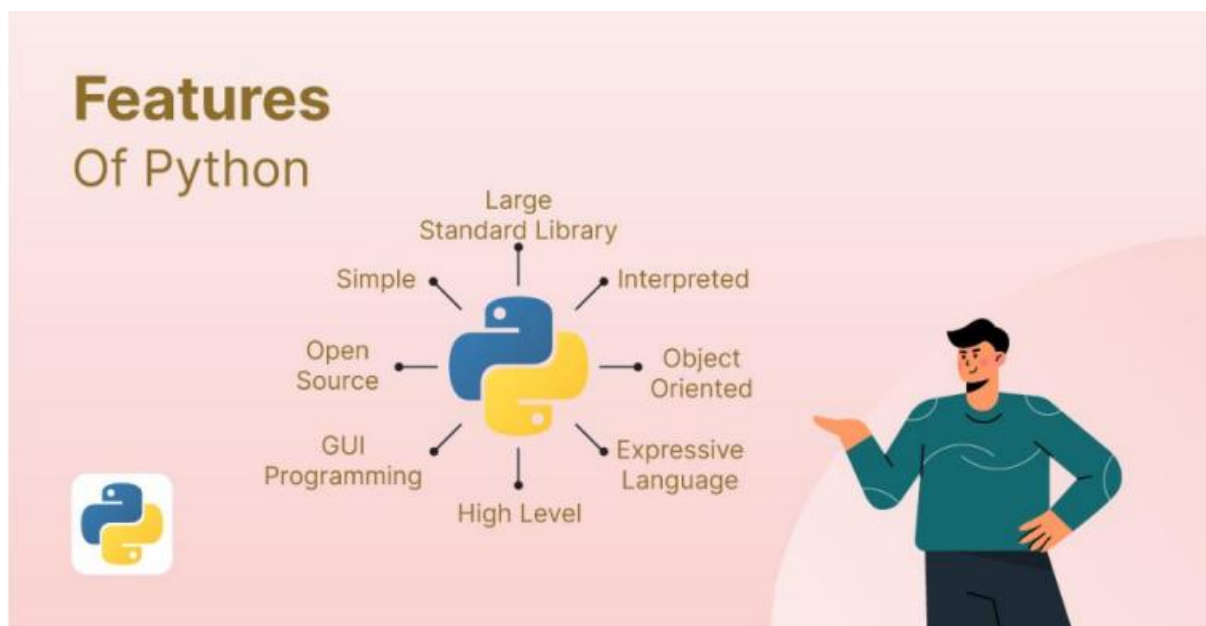
What is Python?

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.

Python Features Python is a dynamic, high-level, free open source, and interpreted programming language. It supports object-oriented programming as well as procedural-oriented programming. In Python, we don't need to declare the type of variable because it is a dynamically typed language. For example, `x = 10` Here, `x` can be anything such as String, int, etc. In this article we will see what characteristics describe the python programming language.



Features in Python

1. Free and Open Source
2. Easy to code Python is a high-level programming language.
3. Easy to Read As you will see, learning Python is quite simple.
4. Object-Oriented Language One of the key features of Python is Object-Oriented programming.
5. Interpreted Language:

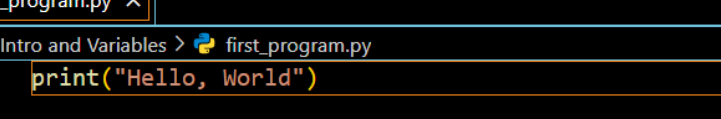
Why Python?

- 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 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.

First Program:



```
first_program.py X
```

Day-1 Intro and Variables > first_program.py

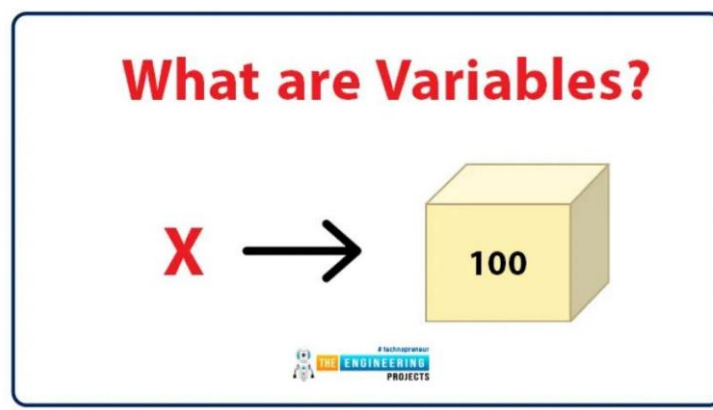
```
1 print("Hello, World")
2
```

PROBLEMS OUTPUT DEBUG CONSOLE **TERMINAL** PORTS

```
PS C:\Users\abhin\OneDrive\Desktop\10 k coders\7. Python> & C:/Users/abhin/App
● 7. Python/Day-1 Intro and Variables/first_program.py"
Hello, World
```

Python Variables

Python Variable is containers that store values. Python is not “statically typed”. We do not need to declare variables before using them or declare their type. A variable is created the moment we first assign a value to it. A Python variable is a name given to a memory location. It is the basic unit of storage in a program.



Example of Variable in Python

An Example of a Variable in Python is a representational name that serves as a pointer to an object. Once an object is assigned to a variable, it can be referred to by that name. In layman's terms, we can say that Variable in Python is containers that store values.

```
var = "10Kcoders"
```

Variables Assignment in Python

Here, we will define a variable in python. Here, clearly we have assigned a number, a floating point number, and a string to a variable such as age, salary, and name.

```
# An integer assignment
age = 45

# A floating point
salary = 1456.8

# A string
name = "John"

print(age)
print(salary)
print(name)
```

Output:

```
45
1456.8
John
```

Declaration and Initialization of Variables

Let's see how to declare a variable and how to define a variable and print the variable.

For example:

```
# declaring the var
Number = 100

# display
print( Number)
```

Output:

```
100
```

Redeclaring variables

in Python We can re-declare the Python variable once we have declared the variable and define variable in python already.

For example:

```
# declaring the var
Number = 100

# display
print("Before declare: ", Number)

# re-declare the var
Number = 120.3

print("After re-declare:", Number)
```

Output:

```
Before declare: 100
After re-declare: 120.3
```

Python Assign Values to Multiple Variables Also,

Python allows assigning a single value to several variables simultaneously with “=” operators.

For example:

```
a = b = c = 10

print(a)
print(b)
print(c)
```

Output:

```
10
10
10
```

Assigning different values to multiple variables

Python allows adding different values in a single line with “,” operators.

For example

```
a, b, c = 1, 20.2, "GeeksforGeeks"

print(a)
print(b)
print(c)
```

Output:

```
1
20.2
GeeksforGeeks
```

Python Installation:

<https://www.tutorialspoint.com/how-to-install-python-in-windows>

Python Syntax:

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!")
```

Try it Yourself »

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.

Creating a Comment

Comments starts with a #, and Python will ignore them:

Example

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

Multiline Comments

Python does not really have a syntax for multiline comments.
To add a multiline comment you could insert a # for each line:

Example

```
#This is a comment  
#written in  
#more than just one line  
print("Hello, World!")
```