

# ASSIGNEMENT-PYTHON

## 1.What is Python? Why is it so popular?

- The python language is one of the most accessible programming languages available because it has simplified syntax and not complicated, which gives more emphasis on natural language.
- Due to its ease of learning and usage, python codes can be easily written and executed much faster than other programming languages.
- It is popular because;
  - It's one of the best languages when learning to code
  - Python is heavily used in the Internet of Things
  - Python is instrumental in data science and AI
  - Python is versatile for web development

## 2. What are the key features of python?

**Features in Python:** There are many features in Python, some of which are discussed below:

### 1. Easy to code:

Python is a high-level programming language. Python is very easy to learn the language as compared to other languages like C, C#, JavaScript, Java, etc. It is very easy to code in python language and anybody can learn python basics in a few hours or days. It is also a developer-friendly language.

### 2. Free and Open Source:

Python language is freely available at the official website and you can download it from the given download link below click on the Download Python keyword. Since it is open-source, this means that source code is also available to the public. So, you can download it as, use it as well as share it.

### 3. Object-Oriented Language:

One of the key features of python is Object-Oriented programming. Python supports object-oriented language and concepts of classes, objects encapsulation, etc.

### 4. GUI Programming Support:

Graphical User interfaces can be made using a module such as PyQt5, PyQt4,

wxPython, or Tk in python. PyQt5 is the most popular option for creating graphical apps with Python.

## **5. High-Level Language:**

Python is a high-level language. When we write programs in python, we do not need to remember the system architecture, nor do we need to manage the memory.

## **6. Extensible feature:**

Python is an Extensible language. We can write us some Python code into C or C++ language and also, we can compile that code in C/C++ language.

## **7. Python is Portable language:**

Python language is also a portable language. For example, if we have python code for windows and if we want to run this code on other platforms such as Linux, Unix, and Mac then we do not need to change it, we can run this code on any platform.

## **8. Python is Integrated language:**

Python is also an integrated language because we can easily integrated python with other languages like C, C++ etc.

## **9. Interpreted Language:**

Python is an Interpreted Language because Python code is executed line by line at a time. like other languages C, C++, Java, etc. there is no need to compile python code this makes it easier to debug our code. The source code of python is converted into an immediate form called bytecode.

## **10. Large Standard Library:**

Python has a large standard library which provides a rich set of module and functions so you do not have to write your own code for every single thing. There are many libraries present in python for such as regular expressions, unit-testing, web browsers, etc.

## **11. Dynamically Typed Language:**

Python is a dynamically-typed language. That means the type (for example- int, double, long, etc.) for a variable is decided at run time not in advance because of this feature we don't need to specify the type of variable.

### **3. What type of language is python? Programming or scripting?**

Python is an interpreted language. Python uses an interpreter to translate and run its code. Hence Python is a **scripting language**.

### **4. What is pep 8?**

- PEP 8, sometimes spelled PEP8 or PEP-8, is a document that provides guidelines and best practices on how to write Python code.
- It was written in 2001 by Guido van Rossum, Barry Warsaw, and Nick Coghlan.
- The primary focus of PEP 8 is to improve the readability and consistency of Python code.

### **5. Python an interpreted language. Explain?**

- Python program runs directly from the source code. Each time Python programs are executed code is required.
- Python converts source code written by the programmer into intermediate language which is again translated into the native language / machine language that is executed. So, Python is an Interpreted language.
- It is processed at runtime by the interpreter.
- The program need not be compiled before its execution.
- It is similar to PERL and PHP.
- Python is also interactive where it can prompt and interact with the interpreter directly to write the programs.
- It supports the object-oriented style of the technique which encapsulates the code within the objects.

### **6. How is memory managed in Python?**

- The Python memory manager manages chunks of memory called “Blocks”.
- A collection of blocks of the same size makes up the “Pool”.
- Pools are created on Arenas, chunks of 256kB memory allocated on heap=64 pools.
- If the objects get destroyed, the memory manager fills this space with a new object of the same size.

## 7. What is namespace in Python?

- A namespace is a collection of names and the details of the objects referenced by the names. We can consider a namespace as a which maps object names to objects. The keys of the dictionary correspond to the names and the values correspond to the objects in python.
- In python, there are four types of namespaces, namely built-in namespaces, global namespaces, local namespaces and enclosing namespaces.

### **Built-in namespace:**

A built-in namespace contains the names of built-in functions and objects. It is created while starting the python interpreter, exists as long as the interpreter runs, and is destroyed when we close the interpreter. It contains the names of built-in data types, exceptions and functions like `print ()` and `input ()`.

### **Global namespace:**

Global namespaces are defined at the program or module level. It contains the names of objects defined in a module or the main program. A global namespace is created when the program starts and exists until the program is terminated by the python interpreter.

### **Local namespace:**

A local namespace is defined for a class, a function, a loop, or any block of code. The names defined in a block of code or a function are local to it. The variable names cannot be accessed outside the block of code or the function in which they are defined. The local namespace is created when the block of code or the function starts executing and terminates when the function or the block of code terminates.

### **Enclosing namespace:**

As we know that we can define a block of code or a function inside another block of code or function, A function or a block of code defined inside any function can access the namespace of the outer function or block of code. Hence the outer namespace is termed as enclosing namespace for the namespace of the inner function or block of code.