**Assignment Answers**

1. Guido Van Rossum
2. Python supports all, **procedural**, **functional**, and **OOPs**, programming techniques.
3. Yes
4. **.py**
5. Interpreted
6. A module, a function body, and a class definition are examples of some code blocks in Python.
7. **#** is a character used to give single-line comments.
8. There are three ways we can check the versions for Python. These are:

(i). Using a command in terminal

Eg:- **python --version**

(ii). Using the **sys library**

Eg:- **import sys**

**print(sys.version)**

(i). Using the **platform library**

Eg:- **import platform**

**print(platform.python\_version())**

1. Lambda
2. Preffered Installer Program
3. max(), min(), len(), range(), are few examples of built-in functions in Python.
4. 79
5. The following are the benefits of using Python:

(i). It is easy and simple to learn.

(ii). It supports almost every type of programming paradigm like procedural, functional, and OOPs.

(iii). It provides thousands of libraries for different functionalities, which makes our work easier.

(iv). It is the go-to-one language for web development, data analysis, data science, machine learning, and artificial intelligence.

(v). It is open-sourced and has large community support.

1. In Python, the Python memory management system handles memory allocations and deallocations in Python. It takes care of the bulk of the memory management work and allows us to concentrate on our code. So, we can see that the whole part of memory management in Python is divided into two parts; **allocation** and **deallocation**.

**Part 1: Memory Allocation**

Basically, there are two ways in which memory allocation happens in Python. These are:

**(i) Static Memory Allocation -** The allocation happens on contiguous blocks of memory. We call it to stack memory allocation because the allocation happens in the function call stack. The size of memory to be allocated is known to the compiler and whenever a function is called, its variables get memory allocated on the stack.

**(i) Dynamic Memory Allocation -** It uses heap data structures in its implementation, implying that variables are in the heap memory. As the name suggests, dynamically allocated variables are not permanent and can be changed while a program is running. The variables are needed outside of method or function calls or are shared within multiple functions globally and are stored in Heap memory.

**Part 2: Memory Deallocation**

To handle the deallocation,i.e., to release memory blocks no longer in use, of memory in Python, a program called the Garbage Collector is used.

Garbage collection in Python refers to the interpreter’s memory management process of freeing up unneeded and undesired memory for our applications. It operates in the background and is triggered when the reference count reaches zero. Here, the reference count means the number of identifiers which refers to a particular value, whose value increases and decreases as follows.

The reference count rises when the following occur:

* An object is given a new name.
* An object is placed in a container, such as a tuple or a dictionary.

The reference count lowers when the following occurs:

* An object’s reference is reassigned.
* An object’s reference moves out of scope.
* An object is removed.

1. We can follow the steps given below to install Python on Windows and set its path to the system variable.

* To install Python on Windows:

1. Open the official Python website in your web browser. Navigate to the Downloads tab for Windows.
2. Choose the latest Python 3 release. In our example, we choose the latest Python 3.7.3 version.
3. Click on the link to download the Windows x86 executable installer if you are using a 32-bit installer. In case your Windows installation is a 64-bit system, then download Windows x86-64 executable installer.
4. Once the installer is downloaded, run the Python installer.
5. Check the Install launcher for all users' check boxes. Further, you may check the Add Python 3.7 to path check box to include the interpreter in the execution path.
6. Once the installation is over, you will see a Python Setup Successful window.

* To set the path variable for Python, follow the steps given below:

1. Right-clicking This PC and going to Properties.
2. Clicking on the Advanced system settings in the menu on the left.
3. Clicking on the Environment Variables button o​n the bottom right.
4. In the System variables section, select the Path variable and click on Edit. The next screen will show all the directories that are currently a part of the PATH variable.
5. Clicking on New and entering Python’s install directory.

16. Yes, indentation is the most important feature of Python syntax.