1. How interpreter works in python?

An interpreter is a kind of program that excutes other programs. when you write python programs it converts source code written by the developer into intermediate language which is again translated into the native language or machine language that is excuted.

1. Python features ?

***A. 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++, javascrpit, java etc. It is very easy to code in python language and anybody can learn python basics in a few hours or days.

***B. Free and open source:*** python language is freely available at the official website and we can use.

***C. Object oriented Language:*** One of the key features of python is object oriented language and concepts of classes, objects encapsulation.

***D. Graphical user Interface (GUI) Support:***GUI user interfaces can be made using a module such as pyqt5, pyqt4, wxpython or tk in python. Pyqt5 is the most popular for creating graphical apps with python.

***E. High Level Language:***python is a high level language. When we write programs in python, we dont need to remember the system architecture, nor do we need to manage the memory.

***F. Extensible Feature:***python is a extensible language we can write us some python code into c or c++ language and also we compilethat code in c/c++ language.

***G.PORTABLE Language****:* python language is also a portable language.

Eg: If we have python code for windows and if we want to run this code on other platform such as linux, unix, mac that we need not change it, we can run this code on my platform.

**H. Integrated Language:** Python is also an integrated language but we can easily integrated python with other languages like c, c++ etc..

**I.Interpreted Language:** Python is an interpreted language because python code is excuted line by line at at a time. Like other languages c, c++, java etc. There is no need to compile python code this makes its easier to debug our code. The source code of python is converted into an immediate form called bytecode.

**J**.**LargeStandardLibrary**: 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.

**K.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. Interpreter CPython, IronPython, Jython ?

**CPYTHON:**  CPython is the default and most widely used interpreter or implementation of Python, written in C. It is the original Python version, which users download from its official website, Python.org. It can be better described as a mixture of both an interpreter and compiler as it converts your written Python source code into bytecode. By bytecode, we refer to a program code that gets compiled and processed into a low-level language that can be used as instructions for the interpreter. It is this bytecode that gets executed on the CPython Virtual Machine. Since it is the original Python implementation, CPython has the highest compatibility with a variety of Python packages and modules and is the best choice if users need to write code that completely matches the Python standards.

**IronPython:** IronPython is the popular Python implementation that has been written in C-Sharp (C#) and has been designed to run on the NET platform. It creates a bridge between the Python and NET universe and allows Python users to get access to C-sharp functions and classes, as well as NET libraries and frameworks directly from IronPython. IronPython excels for programs that make use of threading and can be found on the ironpython net website.

**JYTHON:** Jython is another Python implementation that has been written in the Java language whose implementation can run in Java platforms. Similar to CPython, it first converts the source code into bytecode, which, as mentioned before, are a set of instructions that are needed by an interpreter. In Jython, these are written in Java and can run on the Java Virtual Machine, which is the same environment that Java itself uses. Jython allows users to easily work with Java programs since you can call, as well as utilize, your Java functions and classes directly from Jython without any additional effort which is immensely beneficial as Python users can get access into the enormous ecosystem of libraries and frameworks that come along with Java. The same is true on the opposite end.

**4. Dynamically typed programming language:** Python is both a strongly typed and a dynamically typed language. Strong typing means that variables do have a type and that the type matters when performing operations on a variable. Dynamic typing means that the type of the variable is determined only during runtime.

**5.Difference between procedure oriented and object oriented programming?** In procedural programming, program is divided into small parts called functions. In object oriented programming, program is divided into small parts called objects. Procedural programming follows top down approach. Object oriented programming follows bottom up approach.

**6. Setting path in python Importance.?** Before starting working with Python, a specific path is to set. Your Python program and executable code can reside in any directory of your system, therefore Operating System provides a specific search path that index the directories Operating System should search for executable code.

**7. Environment variables importance in python.?**

Variables that exist outside of your code as a part of your server environment can help you by both streamling and making more secure the process of running your scripts and applications.

8.**Source file:** Python source files are files that contain python source code. As python can be used as a scripting language, python source files can be considered as a scripts.

**9.Compiler:** Compiler is a special program that is written in a specific programming languageto convert high level language or human readable language to machine readable language.

**10.Interpreter:** An interpreter is a kind of program that excutes other programs. when you write python program, it converts source code written by the developer into intermediate language which is again translated native language or machine language.

**11.Interpreted programming Language:** Python is a interpreted programming language which means the source code of python program is converted into byte code that is then excecuted by the python virtual machine.

12.**Interactive Mode:** It is a commond line shell which gives immediate feedback for each statement while running previously fed statements in active memory.

13.**Automatic Garbage collection:** Python deletes unwanted objects (built in types or class insatances) automatically to free the memory space.The process by which python periodically free and reclaims blocks of memory that no longer are in use is called garbage collection.