**Python Introduction:**

* Python is a general-purpose , interpreted, interactive, object-oriented, high-level programming language.
* It was created by Guido van Rossum during 1985- 1990.
* Python got its name from “Monty Python’s flying circus”.
* Python was released in the year 2000.

**Python Features:**

* **Python is interpreted**: Python is processed at runtime by the interpreter. You do not need to compile your program before executing it.
* **Python is Interactive**: You can actually sit at a Python prompt and interact with the interpreter directly to write your programs.

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| Compiler | | | | Interpreter | | | | |
| Compiler Takes **Entire** program as input | | | | Interpreter | Takes **Single** instruction | | | as |
| input |  | | |  |
| Intermediate Object Code is **Generated** | | | | **No** Intermediate | | Object | Code | |
| is **Generated** | |  |  | |
| Conditional | Control | Statements | are | Conditional | Control | Statements | | are |
| Executes **faster** | |  |  | Executes **slower** | |  | |  |
| **Memory Requirement** is **More**(Since Object | | | | **Memory Requirement** is **Less** | | | | |
| Code is Generated) | |  |  |
| Program need not be **compiled** every time | | | | Every time | higher | level program | | is |
| converted into lower level program | | | |  |
| **Errors** are | displayed | after **entire** | | **Errors** are | displayed | | for **every** | |
| **program** is checked | |  | | **instruction** interpreted (if any) | | | |  |
| **Example** : C Compiler | | | | **Example** : PYTHON | | | | |

* **Python is Object-Oriented**: Python supports Object-Oriented style or technique of programming that encapsulates code within objects.
* **Python is a Beginner's Language:** Python is a great language for the beginner- level programmers and supports the development of a wide range of applications.
* **Easy-to-learn:**Python is clearly defined and easily readable. The structure of the program is very simple. It uses few keywords.
* **Easy-to-maintain:** Python's source code is fairly easy-to-maintain.
* **Portable:** Python can run on a wide variety of hardware platforms and has the same interface on all platforms.
* **Interpreted:** Python is processed at runtime by the interpreter. So, there is no need to compile a program before executing it. You can simply run the program.
* **Extensible:** Programmers can embed python within their C,C++,Java script ,ActiveX, etc.
* **Free and Open Source:** Anyone can freely distribute it, read the source code, and edit it.
* **High Level Language:** When writing programs, programmers concentrate on solutions of the current problem, no need to worry about the low level details.
* **Scalable:** Python provides a better structure and support for large programs than shell scripting.

**Applications:**

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| **Application** | **Features** |
| Console Based Application | Python can be used to develop console based  applications. For example: **IPython**. |
| Audio or Video based Applications | Python proves handy in multimedia section. Some of real applications are: Tim Player, cplay  etc. |
| 3D CAD Applications | Fandango is a real application which provides  full features of CAD. |
| Web Applications | Python can also be used to develop web based application. Some important developments are: Python Wiki Engines, Pocoo, Python Blog  Software etc. |
| Enterprise Applications | Python can be used to create applications which can be used within an Enterprise or an Organization. Some real time applications are:  OpenErp, Tryton, Picalo etc. |
| Applications for Images | Using Python several application can be developed for image. Applications developed  are: VPython, Gogh, imgSeek etc. |

**Company uses python**

* Bit Torrent file sharing
* Google search engine
* Youtube
* Dropbox
* Intel
* Cisco,
* HP
* IBM
* i–Robot
* NASA