1. Python - Introduction

Python was implemented in 1989 by Guido van Rossum as a successor to ABC language(1980).

Primary motivation was to write readable code and enforce it during programming.

An important feature of Python is dynamic name resolution (late binding), which binds method and variable names during program execution.Python is a dynamic, interpreted (bytecode-compiled) language. There are no type declarations of variables, parameters, functions, or methods in source code.Type checking is deferred until run time

Python supports multiple programming paradigms, including object-oriented, imperative and functional programming or procedural styles

Python 2.0 was released on 16 October 2000 and Python 3 was released in 2008.

Python refers to anything used in a program as object

Why python?

- Easy to learn programming language
- Have data types and constructs that lets you to code in fewer lines compared to c/c++
- OOPS is lot easier compared to language like JAVA
- Clean syntax and code readability.
- Gaining popularity
- Object oriented, imperative and functional.
- Its got an extensive community of developers supported by rich set of modules for different purposes
- The ability to write programs interactively (in piece meal) and completing the entire program makes it easier and productive - Guido Van Rossum
- Easy to interact with other programming languages like C, JavaObjC, Fortran..

In 1999, Van Rossum submitted a funding proposal to DARPA called Computer Programming for Everybody, in which he further defined his goals for Python:

- An easy and intuitive language just as powerful as major competitors
- open source, so anyone can contribute to its development
- code that is as understandable as plain English
- suitability for everyday tasks, allowing for short development times

Some popular python projects are:

1. Dropbox - File sharing application
2. Openstack - a cloud computing IaaS platform
3. Salt - a configuration management and remote execution engine
4. Ubuntu Software Center - a graphical package manage
5. YUM - a package management utility for RPM-compatible Linux operating systems

6. ViewVC - a web-based interface for browsing CVS and SVN repositories
7. Google App Engine - a platform for developing and hosting web applications in Google-managed data centers, including Python.
8. Grok - a web framework based on Zope Toolkit technology
9. scikit-learn - a library for machine learning.
10. Robot Framework - a generic test automation framework for acceptance testing and acceptance test-driven development (ATDD)

More references can be found at https://en.wikipedia.org/wiki/List*of*Python_software

Python is written in C.

Python interpreter:

Python is available in most of the OS flavors. Most popular among them is Windows and Unix. For MAC and Linux, they come with a per-installed python interpreter with them.

You can try any programming construct at the python shell before combining them as a program

Ensure python is in the OS path variable

```
which python
/usr/bin/python
```

Invoke python shell:

```
python
Python 2.7.10 (default, Jul 14 2015, 19:46:27)
[GCC 4.2.1 Compatible Apple LLVM 6.0 (clang-600.0.39)] on   darwin
Type "help", "copyright", "credits" or "license" for more   information.
>>>
```

Python shell has >> as the prompt Use CTRL+D to exit the shell

You can type any python command on the shell:

Python source files: It uses the file with extension .py Save all your commands in .py file and run it using the python interpreter (pass the fill as a parameter to the interpreter)

```
$ python first_program.py
```