

Lesson 1 - Wetting your Appetite document version 1.2

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- **Introduction**¹

- Python is a general-purpose high-level programming language. Its design philosophy emphasizes code readability. Python claims to "[combine] remarkable power with very clear syntax", and its standard library is large and comprehensive. Its use of indentation as block delimiters is unusual among popular programming languages.
- Python supports multiple programming paradigms (primarily object oriented, imperative, and functional) and features a fully dynamic typememory management, similar to Perl, Ruby, Scheme, and Tcl. Like other dynamic languages, Python is often used as a scripting language. system and automatic
- The language has an open, community-based development model managed by the non-profit Python Software Foundation, which maintains the de facto standard definition of the language in CPython, the reference implementation.
- Python is often used as a scripting language for most advanced softwares.
- Python has seen extensive use in the information security industry, including in exploit development. Python has been successfully embedded in a number of software products as a scripting language, including in finite element method software such as Abaqus, 3D animation packages such as Maya, MotionBuilder, Softimage, modo, and Blender, and 2D imaging programs like GIMP, Inkscape, Scribus, and Paint Shop Pro.Maya is now promoting Python as the best choice for writing regular scripts. It has even been used in several videogames.

1. Referenced from Wikipedia with little changes in source.

- For many operating systems, Python is a standard component; it ships with most GNU/Linux distributions, with NetBSD, and OpenBSD, and with Mac OS X. Red Hat Linux and Fedora both use the pythonic Anaconda installer. Gentoo Linux uses Python in its package management system, Portage, and the standard tool to access it, emerge. Pardus uses it for administration and during system boot.
 - Among the users of Python are YouTube and the original BitTorrent client. Large organizations that make use of Python include Google, Yahoo!, CERN, NASA, and ITA. Most of the Sugar software for the One Laptop Per Child XO, now developed at Sugar Labs, is written in Python.

• **Implementations**

- CPython:

The mainstream Python implementation, known as CPython, is written in C meeting the C89 standard. CPython compiles the Python program into intermediate bytecode, which is then executed by the virtual machine. It is distributed with a large standard library written in a mixture of C and Python. CPython ships in versions for many platforms, including Microsoft Windows and most modern Unix-like systems. CPython was intended from almost its very conception to be cross-platform; its use and development on esoteric platforms such as Amoeba, alongside more conventional ones like Unix and Mac OS, has greatly helped in this regard.
- Stackless Python is a significant fork of CPython that implements microthreads; it does not use the C memory stack. CPython uses a GIL to allow only one thread to execute at a time while the Stackless Python threads are independent of the OS and can run concurrently. Stackless Python is better suited to scalable tasks and for use on microcontrollers or other limited resource platforms due to the thread's light weight. It can be expected to run on approximately the same platforms that CPython runs on.

• **What is python good for?**

Python is a high-level general-purpose programming language that can be applied to many different classes of problems.

The language comes with a large standard library that covers areas such as string processing (regular expressions, Unicode, calculating differences between files), Internet protocols (HTTP, FTP, SMTP, XML-RPC, POP, IMAP, CGI programming), software engineering (unit testing, logging, profiling, parsing Python code), and operating system interfaces (system calls, file-systems, TCP/IP sockets).

- **Python is slow?**

- Yes, Python is slow but if you compare it with CPP or C. Python of course is slower on a per instruction level than C period. If you're not happy with that, use Pyrex. If you're not happy with that use swig/boost-python. If you're still unhappy read along.
- The benefit of python is not only implementation time alone, that's wrong arguing.
- The benefit of clear, concise, uncluttered and short code is time-savings on implementation and maintenance, less bugs and greater speed.
- Any sufficiently large problem is hard to express in C or Assembler alone. Thus projects implement half of a lisp-parser to express the domain problems. By that time they've bought in slowness of a parser and ugliness of a low-level language coupled with a half-bred language. Congrats to that.
- What you have to realize is that a big factor for speed is algorithmic intelligence. And when your algorithms are expressed as clearly and shortly as possible, it is much easier to archive this goal.
- The good about Python is that it is one of the current sweet spots between simplicity and conciseness, being a mainstream language, and having a large library (Batteries included). A lot of functional languages may be better, but they aren't mainstream yet.

- **Example Maya Script**

- You can download My script named Zeno² from [Here](#) (It is not well documented but I developed it during a big Open Short Movie Project.)

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