**SOFTWARE ENVIRONMENT**

**Python** is a high-level, interpreted scripting language developed in the late 1980s by Guido van Rossum at the National Research Institute for Mathematics and Computer Science in the Netherlands. The initial version was published at the alt.sources [newsgroup](https://en.wikipedia.org/wiki/Usenet) in 1991, and version 1.0 was released in 1994.

Python 2.0 was released in 2000, and the 2.x versions were the prevalent releases until December 2008. At that time, the development team made the decision to release version 3.0, which contained a few relatively small but significant changes that were not backward compatible with the 2.x versions. Python 2 and 3 are very similar, and some features of Python 3 have been backported to Python 2. But in general, they remain not quite compatible.

Both Python 2 and 3 have continued to be maintained and developed, with periodic release updates for both. As of this writing, the most recent versions available are 2.7.15 and 3.6.5. However, an official [End Of Life date of January 1, 2020](https://pythonclock.org/) has been established for Python 2, after which time it will no longer be maintained. If you are a newcomer to Python, it is recommended that you focus on Python 3, as this tutorial will do.

Python is still maintained by a core development team at the Institute, and Guido is still in charge, having been given the title of BDFL (Benevolent Dictator For Life) by the Python community. The name Python, by the way, derives not from the snake, but from the British comedy troupe [Monty Python’s Flying Circus](https://en.wikipedia.org/wiki/Monty_Python%27s_Flying_Circus), of which Guido was, and presumably still is, a fan. It is common to find references to Monty Python sketches and movies scattered throughout the Python documentation.

**Why Choose Python?**

If you’re going to write programs, there are literally dozens of commonly used languages to choose from. Why choose Python? Here are some of the features that make Python an appealing choice.

Python is Popular

Python has been growing in popularity over the last few years. The 2018 [Stack Overflow Developer Survey](https://insights.stackoverflow.com/survey/2018) ranked Python as the 7th most popular and the number one most wanted technology of the year. [World-class software development countries around the globe use Python every single day.](https://realpython.com/world-class-companies-using-python/)

According to [research by Dice](https://insights.dice.com/2016/02/01/whats-hot-and-not-in-tech-skills/) Python is also one of the hottest skills to have and the most popular programming language in the world based on the [Popularity of Programming Language Index](https://pypl.github.io/PYPL.html).

Due to the popularity and widespread use of Python as a programming language, Python developers are sought after and paid well. If you’d like to dig deeper into [Python salary statistics and job opportunities, you can do so here](https://dbader.org/blog/why-learn-python).

Python is Interpreted

Many languages are compiled, meaning the source code you create needs to be translated into machine code, the language of your computer’s processor, before it can be run. Programs written in an interpreted language are passed straight to an interpreter that runs them directly.

This makes for a quicker development cycle because you just type in your code and run it, without the intermediate compilation step.

One potential downside to interpreted languages is execution speed. Programs that are compiled into the native language of the computer processor tend to run more quickly than interpreted programs. For some applications that are particularly computationally intensive, like graphics processing or intense number crunching, this can be limiting.

In practice, however, for most programs, the difference in execution speed is measured in milliseconds, or seconds at most, and not appreciably noticeable to a human user. The expediency of coding in an interpreted language is typically worth it for most applications.

### Python is Free

The Python interpreter is developed under an OSI-approved open-source license, making it free to install, use, and distribute, even for commercial purposes.

A version of the interpreter is available for virtually any platform there is, including all flavors of Unix, Windows, macOS, smartphones and tablets, and probably anything else you ever heard of. A version even exists for the half dozen people remaining who use OS/2.

### Python is Portable

Because Python code is interpreted and not compiled into native machine instructions, code written for one platform will work on any other platform that has the Python interpreter installed. (This is true of any interpreted language, not just Python.)

### Python is Simple

As programming languages go, Python is relatively uncluttered, and the developers have deliberately kept it that way.

A rough estimate of the complexity of a language can be gleaned from the number of keywords or reserved words in the language. These are words that are reserved for special meaning by the compiler or interpreter because they designate specific built-in functionality of the language.

Python 3 has 33 keywords, and Python 2 has 31. By contrast, C++ has 62, Java has 53, and Visual Basic has more than 120, though these latter examples probably vary somewhat by implementation or dialect.

Python code has a simple and clean structure that is easy to learn and easy to read. In fact, as you will see, the language definition enforces code structure that is easy to read.

### But It’s Not That Simple

For all its syntactical simplicity, Python supports most constructs that would be expected in a very high-level language, including complex dynamic data types, structured and functional programming, and [object-oriented programming](https://realpython.com/python3-object-oriented-programming/).

Additionally, a very extensive library of classes and functions is available that provides capability well beyond what is built into the language, such as database manipulation or GUI programming.

Python accomplishes what many programming languages don’t: the language itself is simply designed, but it is very versatile in terms of what you can accomplish with it.

## Conclusion

This section gave an overview of the **Python** programming language, including:

* A brief history of the development of Python
* Some reasons why you might select Python as your language of choice

Python is a great option, whether you are a beginning programmer looking to learn the basics, an experienced programmer designing a large application, or anywhere in between. The basics of Python are easily grasped, and yet its capabilities are vast.

Proceed to the next section to learn how to acquire and install Python on your computer.

**Python** is an [open source](https://simple.wikipedia.org/wiki/Open_source) [programming language](https://simple.wikipedia.org/wiki/Programming_language) that was made to be easy-to-read and powerful. A [Dutch](https://simple.wikipedia.org/wiki/Netherlands) programmer named [Guido van Rossum](https://simple.wikipedia.org/wiki/Guido_van_Rossum) made Python in 1991. He named it after the television show [Monty Python's Flying Circus](https://simple.wikipedia.org/wiki/Monty_Python%27s_Flying_Circus). Many Python examples and tutorials include jokes from the show.

Python is an interpreted language. Interpreted languages do not need to be [compiled](https://simple.wikipedia.org/wiki/Compiled_language) to run. A program called an [interpreter](https://simple.wikipedia.org/wiki/Interpreter_(computing)) runs Python code on almost any kind of computer. This means that a programmer can change the code and quickly see the results. This also means Python is slower than a compiled language like [C](https://simple.wikipedia.org/wiki/C_(programming_language)), because it is not running [machine code](https://simple.wikipedia.org/wiki/Machine_code) directly.

Python is a good programming language for beginners. It is a high-level language, which means a programmer can focus on what to do instead of how to do it. Writing programs in Python takes less time than in some other languages.

Python drew inspiration from other programming languages like C, [C++](https://simple.wikipedia.org/wiki/C%2B%2B), [Java](https://simple.wikipedia.org/wiki/Java_(programming_language)), [Perl](https://simple.wikipedia.org/wiki/Perl), and [Lisp](https://simple.wikipedia.org/wiki/LISP).

Python has a very easy-to-read syntax. Some of Python's syntax comes from C, because that is the language that Python was written in. But Python uses whitespace to delimit code: spaces or tabs are used to organize code into groups. This is different from C. In C, there is a [semicolon](https://simple.wikipedia.org/wiki/Semicolon) at the end of each line and curly braces ({}) are used to group code. Using whitespace to delimit code makes Python a very easy-to-read language.

## Python use [[change](https://simple.wikipedia.org/w/index.php?title=Python_(programming_language)&veaction=edit&section=1) | [change source](https://simple.wikipedia.org/w/index.php?title=Python_(programming_language)&action=edit&section=1)]

Python is used by hundreds of thousands of programmers and is used in many places. Sometimes only Python code is used for a program, but most of the time it is used to do simple jobs while another programming language is used to do more complicated tasks.

Its [standard library](https://simple.wikipedia.org/w/index.php?title=Standard_library&action=edit&redlink=1) is made up of many [functions](https://simple.wikipedia.org/wiki/Computable_function) that come with Python when it is installed. On the [Internet](https://simple.wikipedia.org/wiki/Internet) there are many other [libraries](https://simple.wikipedia.org/w/index.php?title=Library_(computing)&action=edit&redlink=1) available that make it possible for the Python language to do more things. These libraries make it a powerful language; it can do many different things.

Some things that Python is often used for are:

* Web development
* Scientific programming
* Desktop [GUIs](https://simple.wikipedia.org/wiki/GUI)
* Network programming
* [Game](https://simple.wikipedia.org/wiki/Video_game) programming

**MYSQL**:

MYSQL is an [open-source](https://en.wikipedia.org/wiki/Open-source_software) [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) (RDBMS).[[5]](https://en.wikipedia.org/wiki/MySQL#cite_note-whatismysql-5)[[6]](https://en.wikipedia.org/wiki/MySQL#cite_note-6) Its name is a combination of "My", the name of co-founder Wideness’s daughter,[[7]](https://en.wikipedia.org/wiki/MySQL#cite_note-7) and "[SQL](https://en.wikipedia.org/wiki/SQL)", the abbreviation for [Structured Query Language](https://en.wikipedia.org/wiki/Structured_Query_Language). A [relational database](https://en.wikipedia.org/wiki/Relational_database) organizes data into one or more data tables in which data types may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an [operating system](https://en.wikipedia.org/wiki/Operating_system) to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

MySQL is [free and open-source software](https://en.wikipedia.org/wiki/Free_and_open-source_software) under the terms of the [GNU General Public License](https://en.wikipedia.org/wiki/GNU_General_Public_License), and is also available under a variety of [proprietary](https://en.wikipedia.org/wiki/Proprietary_software) licenses. MySQL was owned and sponsored by the [Swedish](https://en.wikipedia.org/wiki/Sweden) company [MySQL AB](https://en.wikipedia.org/wiki/MySQL_AB), which was bought by [Sun Microsystems](https://en.wikipedia.org/wiki/Sun_Microsystems) (now [Oracle Corporation](https://en.wikipedia.org/wiki/Oracle_Corporation)).[[8]](https://en.wikipedia.org/wiki/MySQL#cite_note-sunacquire-8) In 2010, when Oracle acquired Sun, Widenius [forked](https://en.wikipedia.org/wiki/Fork_(software_development)) the [open-source](https://en.wikipedia.org/wiki/Open-source) MySQL project to create [MariaDB](https://en.wikipedia.org/wiki/MariaDB).[[9]](https://en.wikipedia.org/wiki/MySQL#cite_note-9)

MySQL has stand-alone clients that allow users to interact directly with a MySQL database using SQL, but more often MySQL is used with other programs to implement applications that need relational database capability. MySQL is a component of the [LAMP](https://en.wikipedia.org/wiki/LAMP_(software_bundle)) [web application](https://en.wikipedia.org/wiki/Web_application) [software stack](https://en.wikipedia.org/wiki/Software_stack) (and [others](https://en.wikipedia.org/wiki/List_of_AMP_packages)), which is an acronym for [*Linux*](https://en.wikipedia.org/wiki/Linux)*,*[*Apache*](https://en.wikipedia.org/wiki/Apache_HTTP_Server)*, MySQL,*[*Perl*](https://en.wikipedia.org/wiki/Perl)*/*[*PHP*](https://en.wikipedia.org/wiki/PHP)*/*[*Python*](https://en.wikipedia.org/wiki/Python_(programming_language)).

**FLASK**:

Flask is a micro web framework written in Python. It is classified as a micro framework because it does not require particular tools or libraries. It has no database abstraction layer, form validation, or any other components where pre-existing third-party libraries provide common functions