

# Python: Simple though an Important Programming language

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**Abstract** - Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, It is used for both learning and real-life programming. It is easy to learn as most of the commands are similar to normal word used by humans (e.g. To print any statement or any value we simply write "print (statements)"). Many of the famous application are developed using python (e.g. Instagram, Dropbox.). Python might have a great scope in future so it's a very important language. In this paper we will see why python is so important and why we should learn in.

**Key words** - Python, Python programming, high level programming language, Real world programming.

## INTRODUCTION

Python is a general-purpose programming language also known as scripting language. It is an open source language.

Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms', including object-oriented, imperative, functional and procedural, and has a large and comprehensive standard library. It has a design philosophy that emphasize code readability notably using significant whitespace i.e. scope of particular set of codes are determined by using whitespaces only unlike other programming languages where curly braces are used. Python is also known as interpretive language, meaning you don't have to write the programs. You can just enter statements into python environment and they'll execute.

## Software developer's choice

According a article on Google posted on zdnet.com Python has grown to become one of the top programming languages in the world, with more developers than ever now using it for data analysis, machine learning, DevOps and web development.

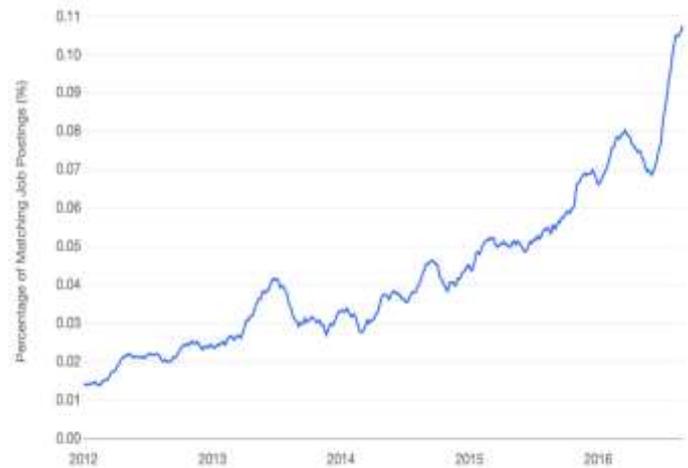
Now a days use of Data analysis and machine learning have increased so for that, Data analysis and machine learning in particular have moved up in python developers' priorities, according to 2018 Python developer survey.

Today, 58 percent who uses python do so for data analysis, up from 50 percent last year, overtaking web development on 52 percent. The other rapidly rising uses for python are machine learning and DevOps.

## Worlds one of the most popular coding language

The popularity of Python has risen steadily over the past 15 years, finally breaking the top 5 on the Tiobe Index a few years ago. This is because Python is a major language in some of most exciting technologies today. Machine learning, artificial intelligence (AI), Big Data, and Robotics all rely heavily on Python (Robotics also relies on C for its use in systems programming). Cyber Security, one of the top software challenges of our time, is also driven by Python.

It's surprising how simple Python is to learn. It's now the most popular introductory language taught in universities and often picked up by experienced developers as a second or third language.



Growth on Python Machine Learning Jobs

## Python is good for beginners

Python should be your first programming language because you will quickly learn how to think like a programmer. Python is very readable. You won't waste a lot of time memorizing the complex syntax that other programming languages such as C, C++, etc. will present you. Instead, you will be able to focus on learning programming concepts and paradigms. Once you understand those tools you can move on to other more powerful, specific languages and readily understand a given piece of code.

Once you learn the basics you start getting interested to know more about python, this is the time when you try to get more

deeper into learning it. You start using different libraries and modules. One can work on graphics in python using Python Imaging Library, make games with libraries such as Pygame or Pyglet,

Another important thing is that it comes bundled with IDLE. IDLE is both an interactive shell and an integrated development environment (IDE) for Python i.e. it is easy to write and run python programs.

#### Features:

##### 1. Easy to learn:

Python is very easy to use and high-level language.

Its statements consist of normal words so it becomes easier for any beginner to understand the code. For example, to print any string in python we use keyword "print" instead of complex keywords such as "cout" in C++, "System.out.print" in Java, etc. Thus, it is programmer friendly language.

##### 2. Expressive Language:

Python language is more expressive. The sense of expressive is the code is easily understandable. In languages like C, C++, etc. programmers sometimes use comments to make others programmer understand what's going on in that part of the code but in Python use of comments is very less because one can get an idea of the code by looking at it.

##### 3. Interpreted Language:

Python is interpreted language i.e. interpreter executes the code line by line at a time. This makes debugging easy. Whenever interpreter finds an error it stops executing the code at that statement, due to this the programmer can find the statement that contains error easily and don't have to search for errors as in other languages like C, C++, etc.

##### 4. Cross-platform language:

Python can run equally on different platforms such as Windows, Linux, Unix, Macintosh etc. We don't have to write code again to run it on another platform. If we have a code written to run on Windows operating system we can execute the same code on other operating system such as Linux, UNIX etc. without making changes in the code. Thus, Python is a portable language.

##### 5. Free and Open Source:

Python language is freely available (www.python.org), we don't need any special license or need to pay for it. The source-code is also

available. Even though all rights of this program are reserved for the Python institute, but it is open source and there is no limitation in using, changing and distributing. You can freely use and distribute Python, even for commercial use. Therefore, it is open source.

##### 6. Object Oriented Language:

Python supports object-oriented language. Concept of classes and objects comes into existence. Everything in Python is an object. Object oriented programming (OOP) helps you solve a complex problem intuitively. With OOP, you are able to divide these complex problems into smaller sets by creating objects.

Python is a multi-paradigm programming language: object-oriented programming and structured programming are fully supported. Python uses dynamic typing and a combination of reference counting and a cycle-detecting garbage collector for memory management. An important feature of Python is dynamic name resolution (late binding), which binds method and variable names during program execution. Python was designed to be highly extensible. Python can also be embedded in existing applications that need a programmable interface.

##### 7. Extensible:

It implies that other languages such as C/C++ can be used to compile the code and thus it can be used further in your python code

##### 8. Large Standard library:

Python has a large and broad library. It reduces the programmer's efforts as the codes are already written. It can help to do regular expressions, documentation generation, unit testing, threading, databases, web browsers, email, xml, html, GUI, Tk etc.

##### 9. GUI programming support:

Graphical user interfaces can be developed using Python. Tkinter is a basic interface for designing GUIs in Python. Tkinter is a standard object-oriented interface that is distributed with Python interpreter. It provides the essential tools for designing GUI.

##### 10. Integrated:

It can be easily integrated with languages like C, C++, JAVA etc.

## Drawbacks:

Though python has many features and is one of the fastest growing language it also has some drawbacks.

### 1. Speed:

Python is interpreted language and is slow as compared to C/C++ or Java. Unlike C or C++, it's not closer to hardware because Python is a high-level language. As we all know that compilation and execution help to work normally, but in this case, execution of Python takes place with the help of an interpreter instead of the compiler as we have seen that Python code is executed line by line, which causes it to slow down.

### 2. Mobile Development:

However, Python is strong in desktop and server platforms, that is it is an excellent server-side language but for the mobile development, Python is not a very good language which means it is a weak language for mobile development.

### 3. Memory Consumption:

For any memory intensive tasks Python is not a good choice. That is why it is not used for that purpose. Python's memory consumption is also high, due to the flexibility of the data types.

### 4. Database Access:

Python is a robust programming language with minimal stress and worries. But, this language is highly insecure and can be used only at one's own risk.

Even though it has some drawbacks but, due to its features it can be neglected.

## Top Companies Embracing Python Programming Language

**Google:** Google's first search engine and the entire stack were written in Python. It was developed in the late 90s which uses old-school they still use Python extensively.

**Facebook:** Facebook uses the Python language in their Production Engineering.

**NASA:** NASA uses Workflow Automation Tool which is written in Python.

**Nokia:** Nokia which is a Finnish company is a popular telecommunication industry. It uses Python for its platform such as S60.

**IBM:** IBM an American-based multinational computer manufacturer also uses Python for their factor tool control applications.

**SGI Inc:** SGI (Silicon Graphics International) uses Python for its Linux installer.

**Walt Disney Feature Animation:** This animation studio uses Python as a scripting language for their animations.

**Yahoo! Maps:** It is a map developed by Yahoo! and many of its services are also written in Python.

## Future of Python

Python has been voted for the most favorite programming language of all time. It is undoubtedly beating other programming languages. It has been used for developing almost every kind of applications whether it is web applications or game applications. Numerous programmers have increased the use of Python programming languages and it is certainly used worldwide. Python programmers would be the most demandable in the future of IT industries which makes Python future brighter.

## CONCLUSION

From the above we get to know that Python is not only easy but also very important. The most important thing is that it has a great scope in future. Most of the beginners in field of programming wish to work in top companies such as Google, Facebook, etc. and these companies also use python so if you want to fulfill your wish learning Python may prove to be an important step for it. The use of python has kept on increasing so it might also help in your job.

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