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# A Review on Python the Fastest Growing Programming Language

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**Abstract**
Selecting a programming language that is easy for beginners to learn is crucial since it can accelerate the process of becoming a programmer. Python is a general-purpose programming language that is gaining popularity among researchers. Guido van Rossum created the Python programming language. Python is a scriptable and interpreted language for both learning and real-world programming. With the help of this language, writing a complex program may be done extremely quickly and with minimal code. In addition to comparing Python programming with other traditional programming languages, this paper outlines the key characteristics of Python.

**Keywords:** Object Oriented, High Level Programming, web development,

## Introduction

Python is a general-purpose programming language that is becoming increasingly popular for research. Python is a high-level, object-oriented programming language. It is employed in data science, software development, web development, and other fields. Simple syntax makes Python an excellent language to learn to program for beginners. It's a popular option for many different applications due to its versatility, readability, and simplicity. The accessibility of Python is a primary factor contributing to its growing popularity and continued user base. In the discipline of data science, Python is growing in popularity. A few of these frameworks and libraries were developed specifically for developing technologies. In the area of artificial intelligence, for example, libraries like PyBrain, scikit-learn, PyML, MIPS, etc., Pandas is one of the more important toolkits and libraries in the field of Big Data processing analysis.

## Why is Python so popular?

There are several reasons why Python is so popular for research. First, it is a very easy language to learn. The syntax is simple and straightforward, making it accessible to beginners. Second, Python is incredibly flexible. Numerous activities, such as web development, data science, machine learning, and scientific computing, can be accomplished with it. Third, there is a sizable and vibrant development community in Python. This indicates that a wealth of resources is at your disposal to assist you in learning Python and problem-solving.

## Recent trends in Python research

In Python research, there are several new trends. An emerging trend in machine learning and artificial intelligence is the growing utilization of Python. Python offers several machine learning and artificial

intelligence (AI) packages that make it easy to learn and use, making it a good choice for these kinds of jobs. Python is also being used for a variety of other research tasks, such as scientific computing, robotics, and natural language processing.

| Application domain | Recent trends |
|---|---|
| **Web development** | Python's popularity among web developers is rising as a result of its extensive library of web development frameworks and ease of use. |
| **Machine learning** | Python is a popular choice for machine learning research, due to its ease of use and its large library of machine learning libraries. |
| **Data science** | Python is becoming increasingly popular for data science, due to its Powerful data analysis libraries. |
| **Natural language processing** | Python is a popular choice for natural language processing research, due to its powerful text processing libraries. |
| **Robotics** | Because of its versatility and extensive library of robotics libraries, Python is becoming more and more popular for robotics research. |
| **Scientific computing** | Python is a popular choice for scientific computing research, due to its numerical computing libraries. |

**Table 1 The Recent Trends in Python Research**

**Top Reason behind Increasing Demand for Python Programming**

**Extensive Library Support**

Python language is related to Data Science, Machine Learning etc. Python has many library functions which are related to Data Science, Machine Learning etc. They make the work easier to the programmer because they can reuse the library.

**Easy a Readable Language**

Python is a very easy language. All syntax of python is too easy to learn. This language can easily learned by beginners. Python is easier than C, C++, Java etc. Due to these reasons python is a desirable programming language.

**Open Source and Free**

Python is an open-source language.

**Data Science**

Python is mostly used is data science with other language such as C++. Hence with simple usage and a large set of libraries and frameworks.

**Object-Oriented Language**

Python supports object-oriented features. Compared with other programming languages, Python’s class mechanism adds classes with a minimum of new syntax and semantics.

**Interpreted Language**

Python is an Interpreted Language because Python code is executed line by line at a time. Like other languages C, C++, Java etc. There is no need to compile python code this makes it easier to debug our code. The Source code of python is converted into an immediate form called bytecode.

**Frontend and Backend Development**

With a new project pyscript you can run and write python codes in html with the help of some tags <py-script> etc. This will help you do frontend development work in python like JavaScript. Backend is the strong forte of python it's extensively used for this work because of its framework like Django and flask. After seeing so many advantages of using python we can understand why python is so popular. In the industry future of python looks bright.

**Program for Creating Simple Calculator**

| C PROGRAM | PYTHON PROGRAM |
|---|---|
| #include<stdio.h><br>int main() {<br>int number1, number2, sum;<br>printf("Enter two integers: ");<br>scanf("%d %d", &number1,<br>&number2);<br>// calculating sum<br>sum = number1 + number2;<br>printf("%d + %d = %d", number1,<br>number2, sum);<br>return 0;<br>} | num1 = 1.5<br>num2 = 6.3<br>sum = num1 + num2<br>print("The sum of:", sum) |

**Table 2 Comparison of C program with Python program**

Table 2 shows that Python programming very small as compared to C program, also Python Program is easy to debug and understand.

**Applications of Python**

Python is a real-time, rapidly expanding programming language that may be used to develop apps across many different fields, such as:

**Web development**

Python is a widely used language for web development because of its robust tools for managing databases, templating, and HTTP requests. Among the well-liked Python web frameworks are Flask, Django, and Pyramid.

**Cryptographic functions-**

They are implemented in Python and comprise a broad variety of methods for creating secure applications. Both connection-oriented and connectionless protocol clients and servers can be created with Python.

Python is widely used in empirical and statistical computing, featuring tools such SciPy for Engineering, Math & Science, Pandas for data research and forecasting, Python for efficient editing and recording of work sessions, as well as visual representations and parallel processing

## Conclusion

There is no denying Python's emergence as a research language. Web development, data science, machine learning, natural language processing, robotics, scientific computing, and other fields have all seen an increase in interest in employing Python for research purposes in recent years. The future of Python research is bright. The language is still evolving, and new features and libraries are being added all the time. This will make Python even more powerful and versatile for research. Additionally, the Python community is growing rapidly, and this will help to ensure that there is a strong support system for researchers who use Python.

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