
PYTHON PROGRAMMING LANGUAGE AND ITS SCOPE IN FUTURE

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ABSTRACT

Python is a high-level programming language. Python programming is developed by Guido van Rossum. He is a Dutch programmer. This language is designed in a very easy way. The syntax of this language is very easy. It is a very good choice for those who are learning programming for the first time. Using this language, a complex program can be written in very easy way and the program will be short in size. This paper describes the main features of Python programming and also comparison is made with traditional programming languages.

Keywords: Object Oriented, High Level Programming, Open Source, Interpreted, Machine Learning

I. INTRODUCTION

Python programming is designed by Guido van Rossum. He started implementing of python 1989. Python is object-oriented high-level programming language. It is used in web development, data science, creating software prototypes, and so on. Simple syntax makes Python an excellent language to learn to program for beginners. Python is highly expansible. Python is an easily extensible interpreter. The important advantage of this software that when developer write program, they write it with fun. The Millennial Coding Language: Python's Growing Open-Source Community Appeal. One of the most important reasons that Python is both already popular and still growing in terms of users is the accessibility. It is just like English language. Python is becoming very popular in the field of data science. Some of these libraries and frameworks are specially created and useful for emerging technologies. To name a few, in the field of AI, libraries such as PyBrain, scikit-learn, PyML, MIPS, etc., In the field of Big Data processing analysis, toolkits and libraries such as Pandas are more useful.

II. TOP REASONS 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 [1].

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 [2].

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 [3], Python has become the most promising option to handle it.

Automation: -

Python is used as home automation system. We have to write some code for home automation system then there use can use python language. With basic python code the code will reach the advance label and software testing is major part for automation [4].

Portable: -

Python is also a portable language. For example, if we have python code for windows and if we want to run this code on other platforms such as Linux, Unix, and Mac then we don't need to change it, we can run this code on any platform [5].

A High-Level Language: -

Python is a high-level programming language because programmers don't need to remember the system architecture, nor do they have to manage the memory. This makes it super programmer friendly and is one of the key features of python [6].

Large Standard Library: -

Python has an extensive standard library available for anyone to use. This means that programmer don't have to write their code for every single thing unlike other programming languages. There are libraries for image manipulation, databases, unit-testing, expressions and a lot of other functionalities. In addition to the standard library, there is also a growing collection of thousands of components, which are all available in the Python Package Index [7].

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. It's a mixture of the class mechanisms found in C++ and Modula-3. Python classes provide all the standard features of oop language except strong encapsulation, which is only one of many features associated with the term "object-oriented" [8].

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>, <py-env>, 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.

Python is already being used by "FACEBOOK", "GOOGLE".

III. PROGRAM FOR CREATING SIMPLE CALCULATOR

Table 1: Comparison of C program with Python program

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

Table1 shows that Python programming very small as compared to C program, also Python Program is easy to debug and understand.

IV. APPLICATIONS OF PYTHON

Python is a real-time and growing programming language that may be used to create applications in a variety of disciplines, including:

- **Internet Development** -Python frameworks like Django, Pyramid, Flask, and Bottle, as well as content management systems like Plone and Django CMS, can be used to quickly construct online applications. Python's standard library is used to handle a variety of internet protocols, including HTTPS, FTP, SSL, and the processing of JSON, XML, and Email, among others [9].
- **Cryptographic functions**- which include a wide range of algorithms for constructing secure applications, are implemented in Python. Python allows users to create clients and servers for both connection-oriented and connectionless protocols [10].
- 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 [11].
- Python is also used in the development of ERP and ecommerce systems. Tryton is a three-tier high-level general purpose application platform, while Odoo is an all in-one management software for enterprise administration applications.
- In Python, everything is an object. Object-oriented programming (OOP) aids in the intuitive solution of difficult problems. You may use OOP to break down these big problems into smaller chunks by creating objects [12].

V. POPULAR SOFTWARE PROGRAMS WRITTEN IN PYTHON

YouTube

With over 4 million views per day and 60 hours of video uploaded every minute, YouTube has become one of the most visited sites on the planet. Python is used for different purposes all over the site and because of its speed, it allows for the development of maintainable features in record time. Every time you watch a video, you're executing Python code.

Google

Python is recognized as an official language at Google and has been with them since the beginning. Its flexibility, rapid development, scalability and excellent performance are the reasons why Python is so actively used – in things such as system administration tools and lots of Google App Engines apps. Google has a strong relationship with the language and sponsors various Python conferences.

Instagram

Founded in 2010, Instagram has become one of the most popular photo / videos sharing social media apps with over 300 million users. The app utilises many languages but its application servers are built using iterations of Python with Django as the web framework.

Reddit

An entertainment, social networking, and news site – all rolled into one. It's one of the biggest communities on the web and its registered users, people like you, provide the content. Originally written in Common Lisp, it was rewritten in Python in 2005 to gain greater development flexibility and access to Python's plethora of code libraries.

Spotify

Spotify is a popular music streaming service and a big fan of Python – they use it in their back-end services and in data analysis. The Python module, Luigi, is used to power the Radio and Discover features, as well as the recommendations for people to follow. Speed is an important factor at Spotify and Python accomplishes this. Spotify is also active in the Python community and sponsors conferences.

Dropbox

Dropbox lives in the cloud – offering services in cloud storage, data management, file sharing, and client software. Originally, both the Dropbox server (running on the cloud) and desktop client software were

primarily written in Python. Drew Houston, co-founder of Dropbox, considers Python one of his favourite languages due to its simplicity, flexibility, and elegance.

Quora

Got a question? You can ask it here – on just about any topic you can think of. The creators of Quora, who used to work for Facebook, chose Python because it's expressive and quick to write. LiveNode, one of the internal systems that manages the display of content on the webpage, is partly written in Python.

VI. FUTURE OF PYTHON

Python is being used worldwide as a wide range of application development and system development programming language. Huge brands and search engine giants are using python to make their task easier. Google, Yahoo, Quora, Facebook are using python programming to solve their complex programming problems. You can take up the Vskills Certified Python Developer that will help you build your basics in Python. Moreover, this Vskills Certification in Python Programming develops your skills on various areas like data structures, object-oriented python, working with XML, working with files and working with modules etc.

VII. CONCLUSION

Python plays an important role in data analytics for analysing the complete set of data, prediction, diagnosis, and mining the data to provide recommendations of future course of actions. Python is free and is an open-source language which makes it easy to distribute. Continuous growth in the scientific programming part of Python is experienced. So, things that support the performance of Python as a language and its stability are going to continue to evolve. Beyond that, Python is a powerful and solid language. Python an extensive library and built-in features which makes it easy to tackle the needs of Data science. The ultimate objective of this paper is to create awareness and application of Python in the research work and there is a need of Python developer in analytical field of the world.

VIII. REFERENCES

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