Why Python is my favorite language

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Introduction

Python is one of the most popular general purpose programming languages around the world nowadays and is extremely well-known in machine learning applications. It is well designed to be easy to learn and easy to prototyping, so choose Python is a good choice for the new Machine Learning project.

Python has a brief yet powerful syntax

The design philosophy of Python makes it easy to learn, easy to use, and highly readable. For example, rather than use the ordinary enigmatic punctuations as logic operators which are widely used in C language family like **&&**, **||**, **^**, Python uses much more comprehensible English keywords, ***and***, ***or***, ***xor***, to express the same meaning.

Python is designed by constantly following several simple rules and applying them universally. Python is claimed as an Object-Oriented Programming Language, not only supporting inheritance and polymorphism, but, internally, everything is regarded as an object, for instance, an integer, belongs to *class int*, having a set of methods, and arithmetic operators are syntactic sugar which is translated to corresponding methods in the end. Except for OOP, Python also supports functional programming style, mainly by providing first-class functions and closures.

Another reason that makes Python more expressive than other popular languages is that it provides convenient literals. It is easy to construct most data structures in Python by literal strings, such as UTF strings, *List*, *Set*, and *Dictionary*.

Python has a dynamic and strong type system

Python is dynamically and strongly typed. The biggest advantage of using dynamic typing is that users don't have to specify the type of a variable before using it. A variable can hold objects with different types at different times to match its semantics. The strong type system guarantees that there is no implicit type conversions confuse the programmer which means code like **'abc'+5** in Python cannot be executed, but instead, **'abc'+str(5)**.

To make Python programs more scalable and practical in larger projects, the community has started utilizing the advantages of the static type system and providing features like type hints. The latest release for Python also includes a type checker tool.

Python is well-suited for machine learning applications

Supported by a wide array of open-source communities, Python has become increasingly popular in fields like data processing and machine learning. The main reason that people choose Python instead of other languages is that they can implement their ideas and algorithms with Python concisely, without being too much concerned with underlying minutiae of the language itself. There are a lot of machine learning related packages available now, using packages like Scipy and Numpy, Python gains the support matrix arithmetic. And with the Matplotlib package, it is also able to visualize the data graphically.

Conclusion

Based on upon arguments, Python is a good choice for the new project because teammates will be able to learn it in a short time and can fast prototyping and doing an experiment. From collecting data to visualizing results, Python can do all them well.