Guido van Rossum - Biography

by Cian O'Brady

Guido van Rossum was born in Haarlem, the Netherlands on the 31st of January 1956 and is best known for developing the Python programming language. He received a masters in mathematics and computer science from the University of Amsterdam in 1982 (*van Rossum*, n.d.). He worked for the Dutch Centrum Wiskunde & Informatica (CWI) in Amsterdam before moving to the USA in 1995 (*van Rossum*, n.d.). He would go on to work at the United States National Institute of Standards and Technology (NIST) in Maryland and the Corporation for National Research Initiatives (CNRI) in Virginia (*van Rossum*, n.d.). In 2005 he began to work for Google. He is currently a software engineer at Dropbox, joining in 2013 (*Constine*, 2012). Dropbox is built on Python, the language that he created. He was entered into the Computer Museum's Hall of Fellows in 2018 and is currently an IEEE senior member (*van Rossum*, n.d.).

In an interview with Bill Venners from 2003, Van Rossum describes that he developed the Python language with large influence from the ABC scripting language, a language that he had been developing. He joined a team in 1983 that was developing ABC, however it was not a big success. When working on a different project in 1986 named the Amoeba project (Amoeba was a distributed operating system), he had decided to start developing his own scripting language where he wanted to take the positive properties of ABC, and create a new simple scripting language without any of ABC's problems (*Venners,* 2003). Some key aspects of python that were different to ABC included using indentation for statement grouping and having a small amount of powerful data types: dictionaries, lists, strings and numbers. Van Rossum also credits pythons success to its ability to be extended. He felt that ABC was flawed in its lack of ability to add low-level extensions. For example, ABC had no way of reading a file. What made this an issue was that ABC had no concept of a standard library and therefore no functions could be added to do this (*Venners,* 2003). Therefore Van Rossum decided to create a flexible extensibility model. He said in this interview with Venners that his approach to python was to, "provide a bunch of built-in object types, such as dictionaries, lists, the various kinds of numbers, and strings, to the language. But we'll also make it easy for third-party programmers to add their own object types to the system." (*Venners,* 2003). In an interview with Naomi Hamilton he said that his main goal when creating python was to improve programmer productivity. He was willing to accept a slower run time for programs in order to make programmers more productive. The first open source release of python was in early 1991 (*Hamilton,* 2008).

Python has become a very popular programming language. According to the TIOBE index, (an index that measures the popularity of programming languages), Python is the 4th most popular programming language after only Java, C and C++ as of October 2018 (*Tiobe.com*, 2018). Its position on this index is actually one place higher than its position of 5th from the previous year. In 2017, Stack Overflow found that Python was the fastest growing programming language and that by 2019 it would have the most active developers (*Heath*, 2018). The 2018 RedMonk Programming Language Rankings, who base their popularity rankings on a combination of the number of projects using the language on Github.com and the number of tags for that language on Stack Overflow, ranked Python 3rd on their list (*O'Grady*, 2018). This popularity has increased rapidly over recent years. In 2012, Stack Overflow listed it last of the 6 major programming languages (Python, Java, Javascript, php, C++, C#) in terms of Stack Overflow question views in high income countries. However in 2017, it was ranked first, and had grown 2.5-fold since 2012 (*Robinson*, 2017). But why has Python become so popular and widely used?

Python owes its popularity due to two main reasons: its simplicity and its flexibility. Python has a very simple syntax that is easy to understand. In a 1999 report Van Rossum described that Python should be understandable in plain English and should be an easy and intuitive language (*Computerhistory.org*, 2018). A key aspect of its syntax is that it uses indentation for statement grouping instead of the common curly brackets. This allows for a very readable language. Python is also a very dynamic language, which allows it to be very flexible. Due to the simplicity and flexibility of Python, it is very beginner friendly and would therefore turn away less developers looking to try Python. I believe this is a large factor why Python is growing in popularity. Python's main criticism is its speed, but the goal of the language was to increase programmer productivity, not to create the most efficient language.

One of Van Rossum's greatest traits was his dedication to the Python community. Python was dubbed the BDFL (Benevolent Dictator for Life) for Python until he relinquished the role in 2018. This role meant that he had the final say in any decisions made to change anything to do with Python. These potential changes were known as PEPs (Python Enhancement Proposals). He believed strongly in people sharing, giving and helping and said in a 1999 report named "Computer Programming for Everybody", that Python should be open source so that everyone could contribute to its development (*Computerhistory.org*, 2018). His activity and communication in the Python community could be a reason why the community became so large, as its leader was so actively involved and committed to its growth and improvement.

Guido van Rossum's legacy (for now) is his creation of Python, that has become more and more of a success since its release in 1991. His approach to creating Python as a simplistic flexible language that thrives on community engagement and sharing, has lead to a very popular language that is still growing today. His role in the community as the BDFL showed his hands on approach to constantly improve what he created and must be commended for it.

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