

# Guido Van Rossum, THE BENEVOLENT DICTATOR FOR LIFE

*Guido Van Rossum is a Dutch software engineer, best known as the **author of the Python programming language**. Until July 2018, when he stepped down from the position, Van Rossum oversaw the Python development process. As a result, he was jokingly known as the “Benevolent Dictator For Life”, reflecting the tension between being the lead designer and having to balance his sense of what’s right with what the users want.*

## BIOGRAPHY:

### EARLY LIFE

Van Rossum was born in the Hague, Netherlands on the 31<sup>st</sup> of January 1956. His mother and father, a school teacher and an architect respectively, have three children in total, of which Guido is the oldest. Both parents lived through the Nazi occupation of the Netherlands during World War II, and Van Rossum recalls frequently hearing anecdotes of the hardships they experienced during this time. Interestingly, his father refused to join the Army and as a result was forced to spend some time in prison and on various work camps. Politically, his parents are described as “left-leaning”, especially his mother who was a pacifist. Van Rossum believes that this influenced him a lot and shaped his outlook on life.



A self-confessed nerd, Guido admits that although his mother encouraged exercise and outdoor activities, he never had much interest in this. Instead, his main hobby growing up revolved around electronics.

### UNIVERSITY

Van Rossum earned a Masters Degree in Maths and Computer Science from the University of Amsterdam. At that time, no formal Computer Science degree was offered to students, but members of the university’s faculty tailored the degree to suit his situation. Initially, Van Rossum had sporadic access to programming languages, mainly those associated with mathematics. Pascal and ALGOL 60 were the languages he was first exposed to, and he continued to develop his learning by hanging out with more experienced programmers. During this period of time, Van Rossum claims that he was learning a “haphazard collection of topics” and expressed a desire for a more focused education in computer science. The University of Amsterdam had an agreement with another nearby university, Vrije Universiteit Amsterdam, that allowed him to take courses lead by Andrew Tanenbaum, best known as the author of the Minix Operating System. In his third year, Van Rossum began working part-time in the university’s Service Centre, where he made sure the operating system was kept up to date and wrote additional utility tools.

# WORK:

## CWI

Fresh out of university, Van Rossum began working at a research institute in Amsterdam called CWI. Funded by the Dutch government and other research grants, it conducts academic-level research into computer science and mathematics. Python is a direct product of his experience at CWI, so in hindsight this was a crucial time for Van Rossum. He worked in a group responsible for the implementation of the ABC language, but ultimately the project failed and was wound down, causing Van Rossum to move to the Amoeba team.

## PYTHON

The motivation behind the creation of Python was not to make money, but to simply become a more productive programmer. In the early nineties, shell scripting and C programming were the bread and butter of his programming work. However, Van Rossum noticed that the development of certain utilities, such as a login system, were taking him too long. Tasks that previously took minutes in ABC would take him days in C, and often wouldn't even work in the shell. The need for a language that would "bridge the gap between C and the shell" became obvious to Van Rossum, so this was his initial reasoning behind the creation of Python. To keep him occupied during the Christmas break, he began developing his new language.

How did he come up with the name? Van Rossum liked the idea of naming languages after heroic figures. For example, Pascal was named after a French philosopher and Eiffel was named after the engineer who designed the Eiffel Tower. But, he opted for a more modern, fun approach and called it Python to reflect his love for the sketch comedy show Monty Python.

Van Rossum spent some time processing the failures of the ABC project at CWI. He thought some aspects of the ABC language were great; such as the indentation for statement grouping, lists and dictionaries and the idea that you don't have to declare variable types because the system can figure it out itself. When deciding on his philosophy for the Python language, he felt it was vital to implement these features. On the other hand, Van Rossum hated that key words were in upper case in ABC as he felt it was an old-fashioned approach. He also wanted to make Python more accessible than ABC, with small, built functions. Extendibility. Readability. A Modular System. These were all critical design features that Van Rossum wanted to incorporate into the Python development process.

Python fast became a lot more than just a programming language. The Python community grew rapidly, far beyond Van Rossum's expectations. From the start, Van Rossum always intended for his software to be shared. Python was open-source even before the term "open-source" was around. He gave to the programming world, and thankfully they gave back. What began as a mailing list grew into an online newsgroup and physical get togethers. A key reason for the new language's rapid growth was Van Rossum's responsiveness. He encouraged open debate, and if people sent him code contributions or even an idea that he liked, there was a high chance of it being implemented into the Python language. A Python Enhancement Proposal Platform was established, and source control systems were used. A democratic style structure formed, with Van Rossum at the helm as "The Benevolent Dictator for Life"

## OTHER WORK

Van Rossum always made a conscious effort to separate his Python development efforts from his paid work commitments. He spent seven years working as a software engineer for Google, where he

developed Mondrian - a web-based code review system written in Python. He is now a Principal Engineer at Dropbox, working on APIs for external developers.

## IMPACT:

Python is revolutionary in its simplicity, readability and design. Since its creation, it has become one of the essential building blocks of the digital world. It's intuitive to learn, with code as understandable as plain English, yet incredibly powerful. Powerful enough to provide the backbone for Facebook, Dropbox and Instagram, to name but a few.

The awards Van Rossum has received, including recently being made a Fellow of the Computer History museum, are testament to the impact he has had on the world of programming.

Some of Python's uses include web and API development, writing scripts to automate simple tasks, machine learning and perhaps most importantly analysing data. As a result, its popularity is continuing to rise, especially in recent years. Stack Overflow reported last year that Python is not only the most popular language on its site, but also the fastest-growing language. Some of the largest companies in the world are now using Python on a regular basis – Google, Facebook, Instagram, Spotify, Netflix, Dropbox.

Initially, Python was intended to be a 'gap filler' between C and the Shell. However, over the past few years it has emerged as one of the most important programming languages. It is no longer just a back-room utility language, but also a key driver of the explosion in big data analytics, machine learning and artificial intelligence. Sophisticated data analysis has become one of the fastest-growing areas of IT. The vast majority of the libraries used for data science or machine learning have Python interfaces, such as NumPy or Pandas.

In such a vast battleground, Python is the preferred language of many developers. They seek fast, effective and efficient solutions to their problems, and Python provides them with this ability. It has the flexibility to adapt and extend to new technologies, so its rapid growth is unlikely to slow down just yet.

One thing's for sure: Guido Van Rossum, a somewhat reserved man with few public appearances, has had a huge impact on the world as we know it. By creating the Python language and enabling its astonishing growth, he has put tremendous power in the hands of thousands of software developers worldwide.

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