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A REFLECTION ON PYTHON

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HISTORY & PHILOSOPHY OF PYTHON

During the 1980s in the Netherlands, young computer scientist and mathematician Guido van Rossum (b. 1956) was working in the government funded research lab *Centrum Wiskunde & Informatica* (CWI), where he was employed as an advanced computer programmer on language building and systems development projects. In an interview with Oracle Developers (2019), van Rossum explained that creating the languages and systems was mainly done with either the C language or shell scripts. He began to envision an intermediate language and it was here that van Rossum birthed the idea of Python, a language that can program like C but uses readable terms of expression like a shell script. Taking inspiration from the defunct language van Rossum had worked on, ABC, he was able to use the better of its features such as data types and statement nesting to work as a foundation for what would be the first versions of Python (GeeksForGeeks, 2022).

Released in 1991, Python 0.9.0 quickly made a well-received impact on the programming community. Being open source made it available to anyone free of charge, which was considered rare in those times as programming languages often were attached to business models (Exyte, 2023). The primary objective of Python was to be an environment that catalysed productivity through the philosophical building blocks of accessibility readability, and ease of learning. Although van Rossum is credited as the sole creator of Python, its further development has derived primarily from the community. Version 1.0, released in 1994, saw the addition of new features like lambda, filter(), and map() which all came from a generous community member. Python is an extendable language with a board standard library and over 137,000 libraries written by community members, all of which has bolstered its features, scope, and popularity (Scarlett, 2023). With much contribution from the community, Python could be considered a never-ending project. The language has maintained its standards with a language governance committee known as the *Python Steering Council.* Created in 2018 by van Rossum, the council are 5-person group that volunteer their programming expertise to act as role models and standard keepers of Python. *Python Enhancement Proposals* (PEP) is formulated process used by the council to vet community contributions against their standards (Bailey, 2023). As of 2023, Python is the third most used programming language in the world (Statista, 2023).

DEVELOPMENT PLATFORMS

This level of popularity has opened Python up to be supported by multitude of operating platforms (Windows, MacOS, Linux, etc.) and coding environments, however, this applicability comes with its requirements from the language. A good coding platform for writing Python should include saving and reloading of project files, code running abilities, a debugging system, syntax colour coding, and automatic formatting (Fincher, 2018). Some of the most popular platforms provide these abilities and more.

Visual Studio Code – One of the most popular coding environments for the most popular languages. VS code is a free, full featured code editor usable on Windows, MacOS, and Linux. Some of its key features that make it an excellent platform are its built-in file explorer that allows easy project file management, multiple terminal languages (Bash, PowerShell, cmd, etc.), running code within the environment, and providing debugging support. VS also comes with a large library of extensions, many of which are tailored to the Python experience (Awan, 2023).

PyCharm – An Integrated Development Environment (IDE) that is dedicating entirely to the Python language. It provides the core features of environment code running, debugging, and code formatting, but also provides a local history management tool to track and rollback changes, and a package manager feature to view and manage all installed packages and libraries (TutorialsPoint, 2023). PyCharm is commonly considered the best IDE for beginners, even by van Rossum himself (Lex Clips, 2022).

Sublime – Supported by all platforms, Sublime is a popular coding environment created by Jon Skinner, an engineer of Google. It is a text editor used for code writing that comes with established support extensions for Python.

CHARACTERISTICS, STRENGTHS, AND WEAKNESSES

Python is a language that takes pride in being easy to read, quick to learn, and community based. These objectives are matched with strong characteristics that have made it as popular and accessible as it is. Its readability comes from being a high-level language where meaningful variable names create a syntax that is easier to understand for beginners. With the support for Object Oriented Programming (OOP), Python is a great learning environment for those new to the art of coding as well the language itself as OOP is a standard used in other popular languages like JavaScript, HTML, and Java (Novotny, 2022). With a large scope of applications including web/software development, data science, automation, and machine learning, Python has found its way into almost every key facet of modern tech development (Hiren, 2022).

Despite strengths of its key characteristics, there are common disadvantages that have been feedback from the developer community that highlighted various difficulties found with Python.

Python is memory intensive and needs a large amount of space to host its wide array of features. It is difficult to test as the code is reliant on every error being fixed to return a desired output (Joy, 2019), which is even more challenge to work with when integrating with other languages. Speed limitation is a common drawback of Python due to being a dynamically written language. The code is read and interpreted line for line during execution as opposed to complied codes which are directly translated into CPU readable code (Smithee, 2022).

FINAL REFLECTION

I am a novice coder who began developing with JavaScript. I did not understand how difficult it was to grasp the language and syntax of JS until I began to code in Python. Coding does not come naturally to me, so the employment of a dynamically typed language that is easy to read, understand, and learn has helped to restore my confidence in learning to code and has made the process more enjoyable. I am not advanced enough in my practice to agree with the criticism of better developers, but I can wholly agree that the features and applicability of Python accounts for its increasing popularity, and that it is a great language for beginners. As the tech world is moving into a new era of deep learning and artificial intelligence, I expect to see Python holding the frontlines of the future as it is today.

REFERENCES

Awan, A. A. (2023, February). ***Setting up VS Code for Python: A complete guide***. DataCamp. https://www.datacamp.com/tutorial/setting-up-vscode-python

Bailey, C. (2023). ***The Python steering council***. Real Python. https://realpython.com/lessons/python-steering-council/

Exyte. (2023). ***A brief history of Python***. https://exyte.com/blog/a-brief-history-of-python

Fincher, J. (2018, March 13). ***Python IDEs and code editors (Guide)***. Real Python. https://realpython.com/python-ides-code-editors-guide/#introduction-to-ides-and-code-editors

GeeksForGeeks. (2022, November 26). ***History of Python***. GeeksforGeeks. https://www.geeksforgeeks.org/history-of-python/

Hiren. (2022, September 6). ***Python's career scope after a python course***. TOPS Technologies. https://www.tops-int.com/blog/a-complete-guide-to-the-scope-of-python-language-in-india

Joy, A. (2019, September 14). ***5 main disadvantages of Python programming language***. Pythonista Planet. https://pythonistaplanet.com/disadvantages-of-python/

Lex Clips. (2022, November 29). ***How to learn Python programming | Guido van Rossum and Lex Fridman*** [Video]. YouTube. https://www.youtube.com/watch?v=F2Mx-u7auUs

Novotny, J. (2022, March 23). ***A programmers' guide to Python: Advantages & disadvantages***. Linode. https://www.linode.com/docs/guides/pros-and-cons-of-python/

Oracle Developers. (2019, February 26). ***The Story of Python, by Its Creator, Guido van Rossum*** [Video]. YouTube. https://www.youtube.com/watch?v=J0Aq44Pze-w

Scarlett, R. (2023, March 7). ***Why Python keeps growing, explained***. The GitHub Blog. https://github.blog/2023-03-02-why-python-keeps-growing-explained/

Smithee, A. (2022). ***What you need to know about compiling code***. Opensource.com. https://opensource.com/article/22/10/compiling-code

Statista. (2023, June 2). ***Most used languages among software developers globally 2023***. https://www.statista.com/statistics/793628/worldwide-developer-survey-most-used-languages/

TutorialsPoint. (2023). ***Pycharm - Introduction***. Tutorialspoint. https://www.tutorialspoint.com/pycharm/pycharm_introduction.htm