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SDV602 – Milestone 3

Contents

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The heritage and philosophy of the programming language is explored (10 marks)

* Python was created by Guido van Rossum in 1991. He developed this coding language so that code could be more understandable and easier to read and write. He aimed to make code available to everyone he could. *(assignment 1 – heritage and philosophy)*

The famous name ‘python’ does not come from the snake fascinatingly, at actually comes from a old show on the BBC channel which was a television comedy sketch series called the ‘Monty Python Flying Circus’. (*About Python*, n.d.)

Because the coding language was created by one person, it means that its open source and easily accessible/user-friendly. Most of the functionality of python was created by Rossum, how ever one man could not possibly handle how much the language has scaled, and it is now run by a non-profit company called the ‘Python Software Foundation’ which is compromised of thousands of testers and developers constantly expanding the language and its popularity, hence as it was created for readability.

* Python’s philosophy emphasizes code readability by using programming paradigms to simplify writing and reading it, as to make it closer to reading a book. The python language was designed around being able to use multiple paradigms like Object oriented programming, functional, operational, imperative, procedural programming and many more.
* The programming language python is very versatile as has been designed to be used in an unimaginable number of use-cases, by allowing a simple high-level language that can be used easily by professionals to achieve their goals quicker than If they were using another low-level language (e.g. assembly)

The platform(s) for developing and running software applications for that language are analysed and described. (code libraries, IDEs) (10 marks)

Python is able to be run on many platforms, editors and can be used in many applications while having many built-in packages. The platform has been able to be used on many OS’s-like windows, mac and Linux.

Pycharm – has many features like a grahphical interface, unit testing and version control settings that can be imported into your code alongside your python code.

Visual studio code – is an integrated development environment made by Microsoft.

Sublime text – is an editor like visual code that allows you to edit and run code from the editor.

Libraries:

Code libraries in python can be used for many things, like a way to visualise charts using data on an application or providing a simpler way to do calculations. They can help with web dev, and also some can even help with machine learning.

* Pandas – offers data manipulation techniques and ways to manipulate data tables and time series.
* NumPy – is a mathematical library that can help you with large multi dimensional arrays and matrices.
* MatPlotLib – This can be used for mapping and graphing/plotting data into applications.

(*Top 90+ Python Libraries - Flexiple - Flexiple*, n.d.)

The characteristics, strengths and weaknesses of the programming environment are described. (10 marks)

The characteristics of python:

* Python is a simple high-level programming language designed for simplicity and usability, for an easy to learn and can still be used by developers for complex applications/functions.
* Python uses many cool features like extravagant indentation which means that the indentation of the python needs to be very clear, so the code that people write all follow script principles on how your code structures should work. (eg:

If (cacti) Then  
 print(cacti)

* The python execution sequence is run line by line instead of compiling large amounts of code at once. This can lead to slower loading time for larger applications, but vice-versa makes it easier to debug the code (by making it easier to pinpoint the line the error is coming from).

STRENTH:

* The main attractiveness of the python language is its vast usability and how easy it can be to learn for beginners trying to take a step into software development.
* The community of the python language have provided many libraries and packages with thousands of uses.
* The language is higher level than other languages meaning it could take less time to code some projects in python than other languages.
* IT contains uses for many applications and has OOP and has good community support with accessibility across multiple OS.(Tiwari, 2024)

WEAKNESSES:

* Python has a slower runtime than other languages as it uses a run by line protocol.
* When using some packages like matplotlib, errors still are commonly occurring with devices and so on so it may have some performance issues due to not enough refinement in libraries or IDEs compatibility.
* Errors. When it comes to errors, it does not pinpoint the lines that were not run when facing an error(this might just be me).(*Pros and Cons of Python*, n.d.)

# REFERENCES

* Assignment 1 – Heritage and philosophy – Found from the assignment 1 drop-box under SDV602-AS1-Classreview.

*About Python*. (n.d.). Retrieved 17 November 2024, from https://pythoninstitute.org/about-python

*Pros and Cons of Python*. (n.d.). Retrieved 17 November 2024, from https://serokell.io/blog/python-pros-and-cons

Tiwari, S. (2024, June 7). Top 10 Characteristics of Python Programming Language. *Medium*. https://medium.com/@st4046641/top-10-characteristics-of-python-programming-language-a644fdd67b6a

*Top 90+ Python Libraries—Flexiple—Flexiple*. (n.d.). Retrieved 17 November 2024, from https://flexiple.com/python/python-libraries