به نام خدا

hello_world.py

Python Programming with Algorithmic Approach Course

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Teacher

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Code is poetry written for machines!

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Essentially, computer programming is about taking some input and creating some output - thus solving a problem. What happens in between the input and output, what we could call *a black box*, is the focus of this course.

What is Python?

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

Web Development: Django and Flask are popular web frameworks for building web applications.

Data Science: Python is extensively used for data analysis, data visualization, and machine learning. Libraries like Pandas, NumPy, Matplotlib, and Seaborn are commonly used in this domain.

For machine learning and deep learning, Python has libraries such as Scikit-learn, TensorFlow, and PyTorch.

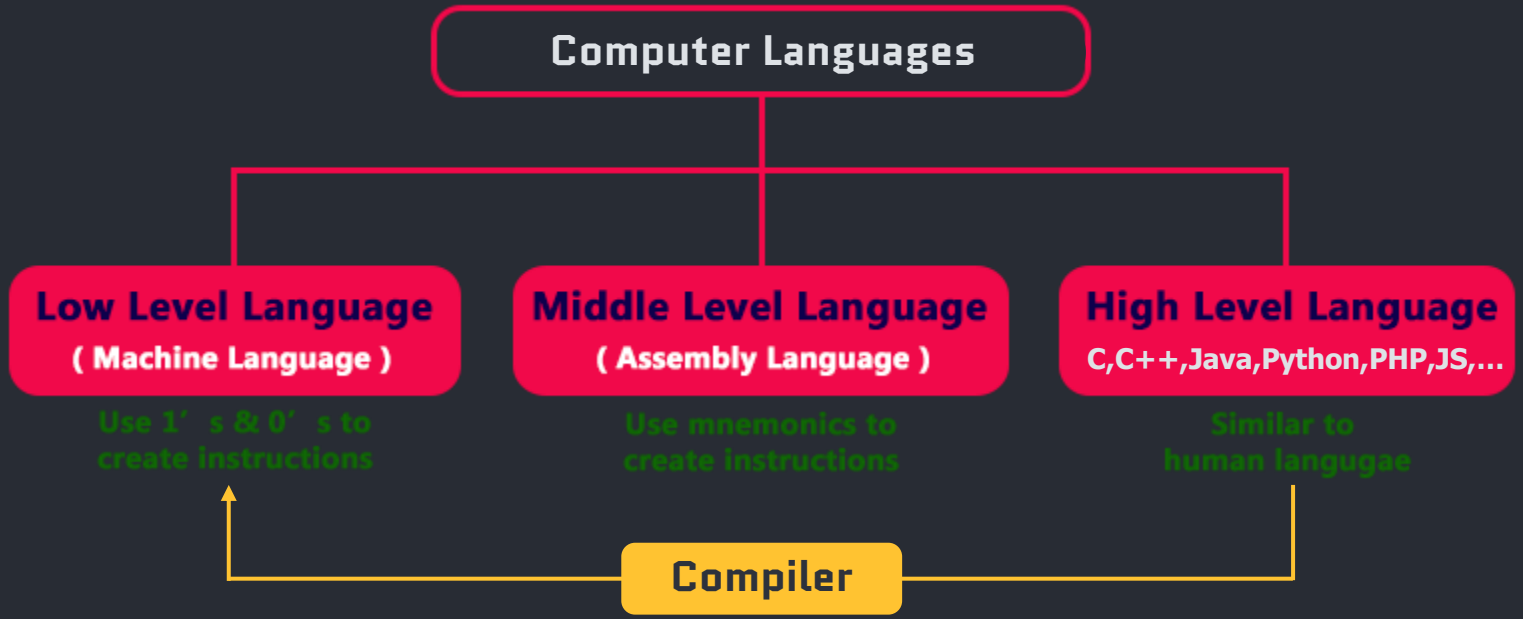
Scientific Computing: Python is used in various scientific fields for tasks like simulations, data analysis, and numerical computing. Libraries like SciPy and NumPy are indispensable in this context.

Artificial Intelligence: Python is widely used in the development of AI applications, including natural language processing (with libraries like NLTK and spaCy), computer vision, and more.

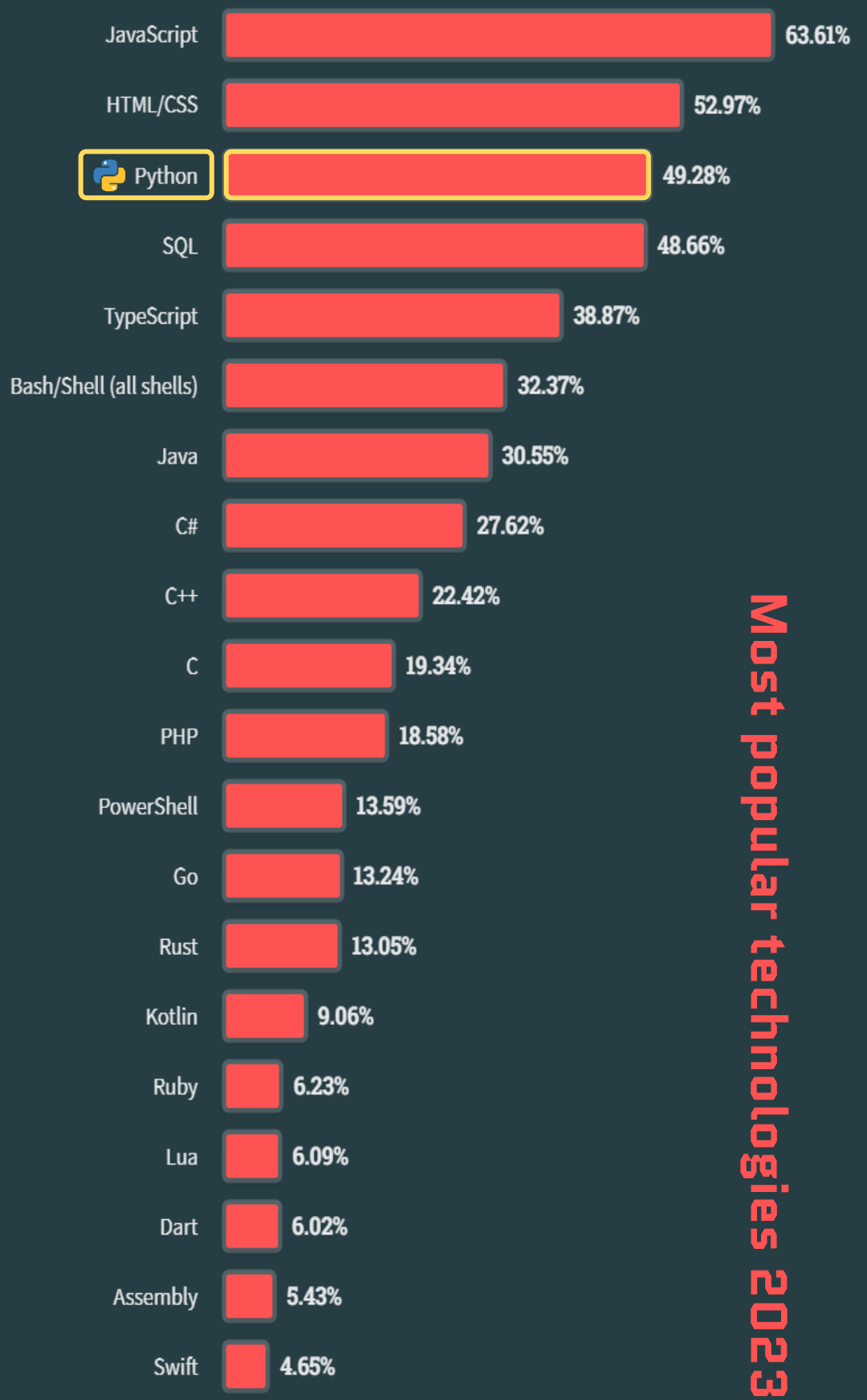
Network Servers and Protocols, Cybersecurity, IoT

Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.



- Python doesn't convert its code into machine code, something that hardware can understand. It converts it into something called byte code. So within Python, compilation happens, but it's just not in a machine language.


JavaScript
63.61%
HTML/CSS
52.97%
Python
49.28%
SQL
48.66%
TypeScript
38.87%
Bash/Shell (all shells)
32.37%
Java
30.55%
C#
27.62%
C++
22.42%
C
19.34%
PHP
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Kotlin
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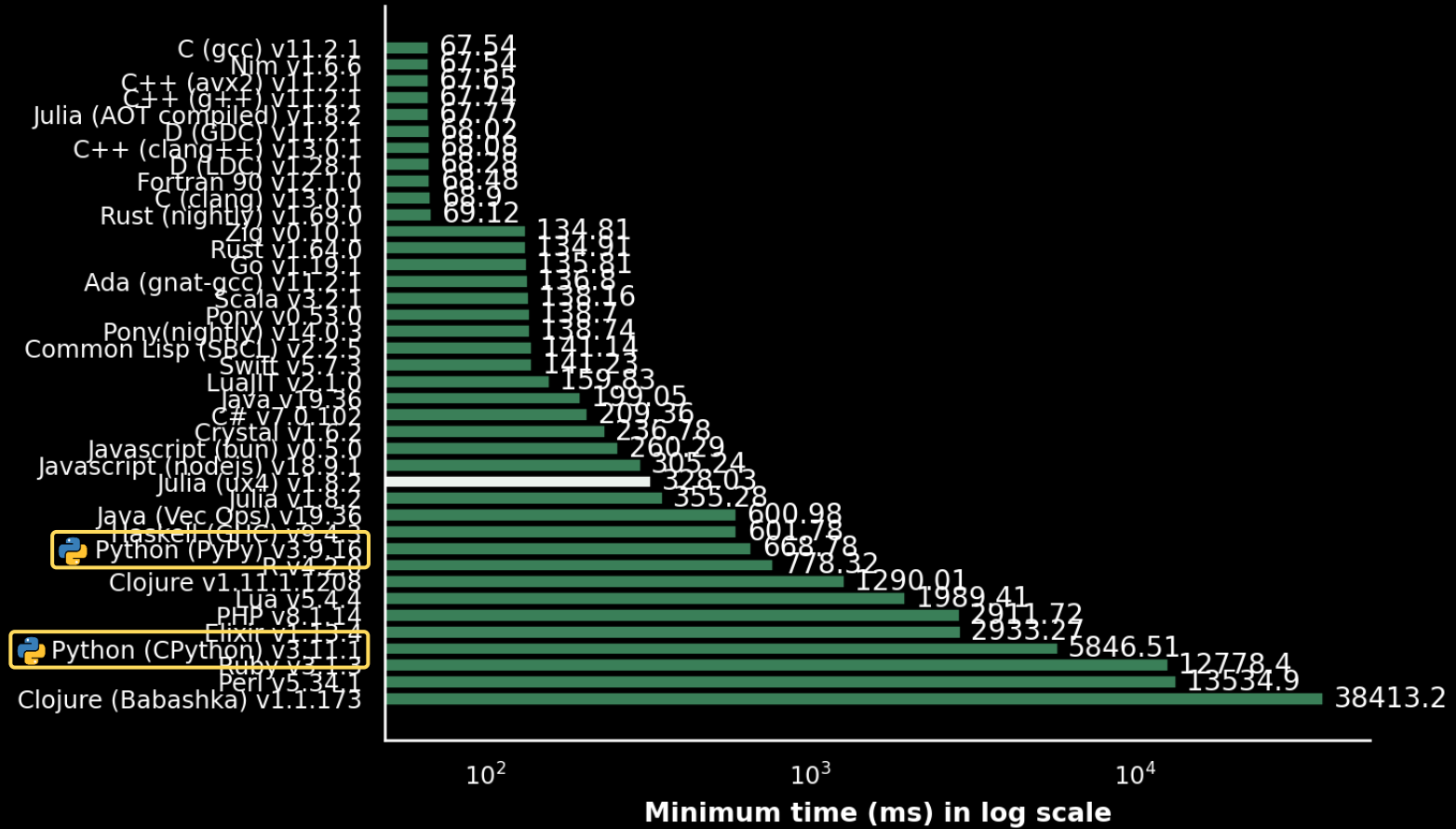
Most popular technologies 2023

Speed comparison of various programming languages

Method: calculating π through the Leibniz formula 100000000 times



Pseudocode

Pseudocode is a way of representing an algorithm in a human-readable form that resembles a programming language, but isn't tied to any specific programming language. It uses natural language and some simple constructs from programming to describe the steps a program should take to accomplish a specific task.

```
1. Start
2. Input height of person A (height_A)
3. Input height of person B (height_B)
4. If height_A is equal to height_B
    a. Print "Both people are the same height."
5. Else if height_A is greater than height_B
    a. Print "Person A is taller than Person B."
6. Else
    a. Print "Person B is taller than Person A."
7. End
```

Getting Started

Download and install python

https://www.python.org/downloads/

Download and install VS Code

https://code.visualstudio.com/download

print and input functions

hello.py

```python
print("Hello world!")
```

input_value.py

```python
# get an input and save the value in variable
variable = input("Give an input: ")
print(variable)
```

References

https://www.w3schools.com/python/python_intro.asp

https://survey.stackoverflow.co/2023/#most-popular-technologies-language

https://github.com/niklas-heer/speed-comparison

THANKS!

Do you have any questions?

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Telegram support group