

Program

OS

Remember?

User

Typically you

Program

LibreOffice, Firefox, Chrome,
Twitter, Instagram ...

OS

GNU/Linux, MacOS, Windows,
....

Hardware

Hard disk, memory, display,
keyboard

Program

A sequence of CPU instructions stored in a file is called a program.

- Firefox (a web browser)
- Libre Office (a word processor)
- VLC (a media player)

“two” types

- interpreted programs (Python, php)
- compiled programs (C, C++,..)

and ...

- byte compiled programs (Java)

C, C++, Ada,

Program written in C

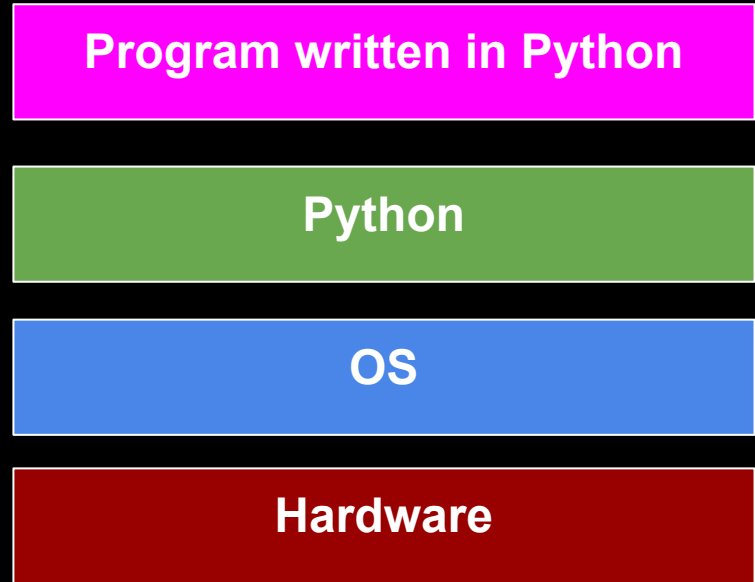
OS

Hardware

OS - Interpreter

Written as text in a programming language that is not compiled into a program directly.

Instead the program (in text form) is read by an interpreter which in turn converts the instruction (in the programming language) in to one, or rather many, CPU instructions.



OS - Virtual Machine

Interpreter / Virtual Machine

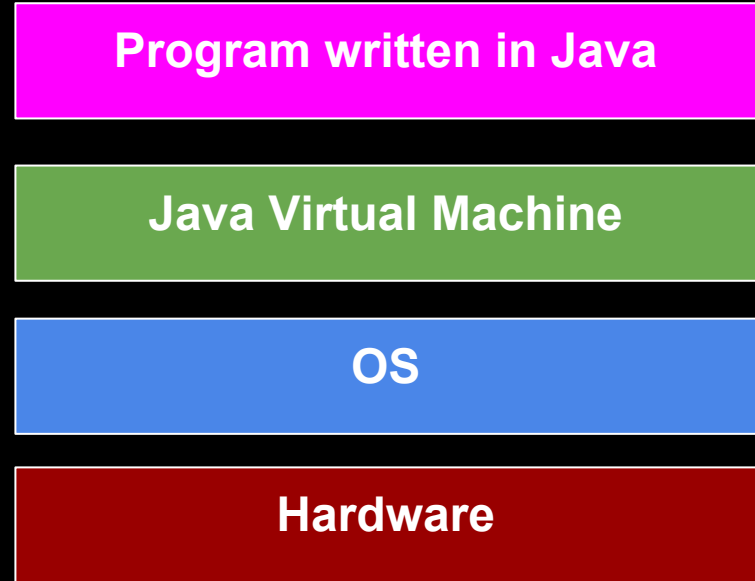
OS

Hardware

OS - Java Virtual Machine

written as text in a programming language.

As with the compiled program the text (source code) is compiled. But the result is not instructions for the CPU but for a so called bytecode interpreter (Java Virtual Machine)



User

Program written in Java

Program written in Python

Java Virtual Machine

Program written in C

Python

OS

Hardware

Process

A program and its context is executed in a process.

A program can be run many times at the same time - in different processes.