

Introduction to Digital Signal Processing

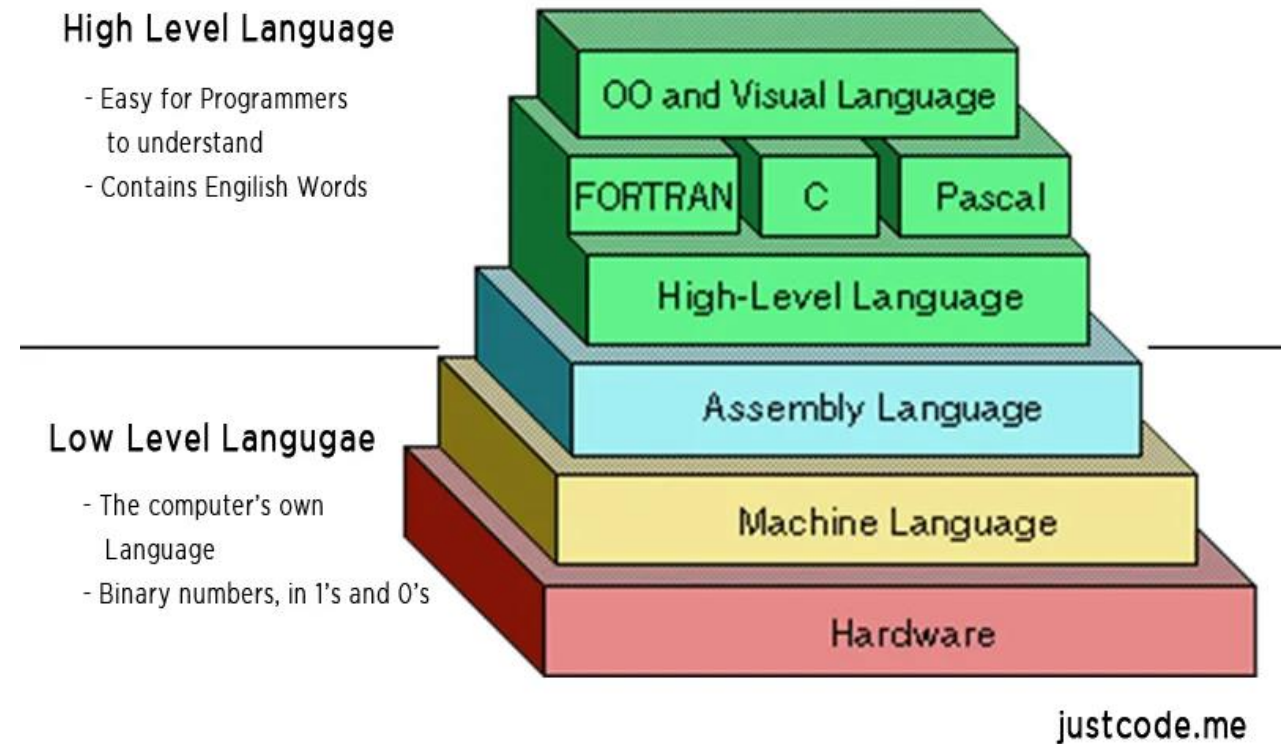
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Introduction to Python Programming

- Computers follow instructions.
- A program is simply a set of instruction that a computer executes.
- Instructions take the form of binary codes (machine code) that a microprocessor hardware is designed to "understand" and execute.
- Programming languages allow us to write instructions for a computer to execute.

Low-level vs. High-level programming languages

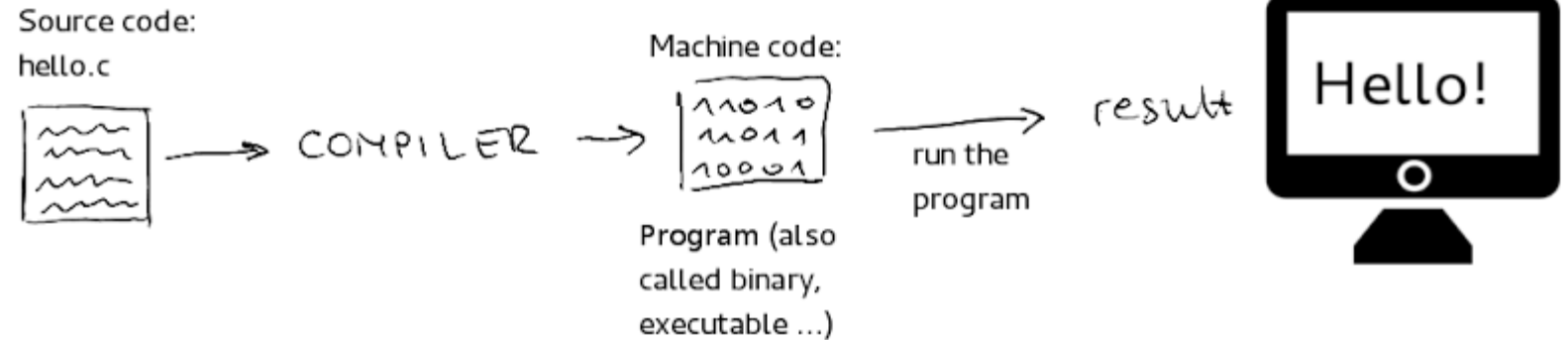
- Low-level languages allow us to write efficient programs but are tedious and time consuming.
- High-level languages are more human friendly and make it easier to develop complex software.



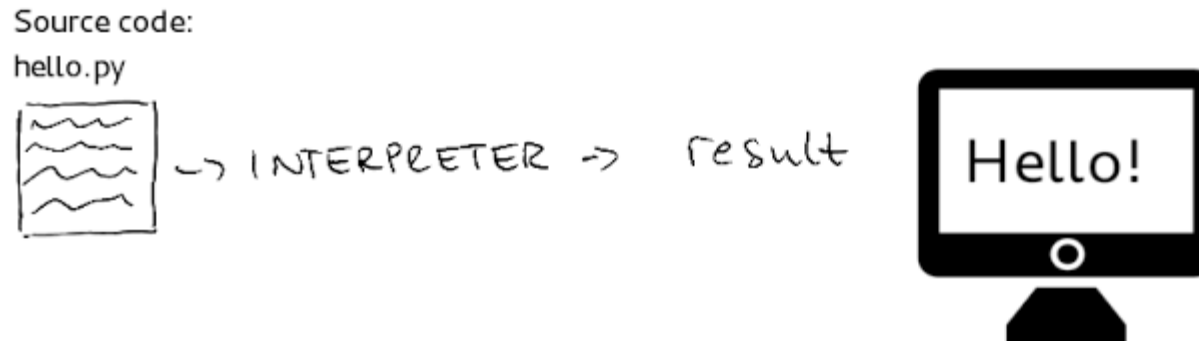
Source: <https://i2.wp.com/justcode.me/wp-content/uploads/2017/06/Low-Level-and-High-Level-Language.png?fit=800%2C529&ssl=1>

Compiled vs. Interpreted languages

Compiled language



Interpreted language



Source: <https://encrypted-tbn0.gstatic.com/images?q=tbn%3AANd9GcQUbS3z-1I-coi1oPrDmfzr1rAplmtaHwdKECcfEfWLDNHlzk>

Python

- A high-level, interpreted, general-purpose programming language.
- One of the most popular languages for scientific computing.
- Why Python?
 - Open source and free.
 - Actively developed.
 - Strong community worldwide
 - Huge set of libraries for various applications

Python

- Most programs are for processing some form of data.
- Programming languages consists of set of basic building blocks for representing and processing/transforming data.
- To learn a programming language, one needs to be aware of these building blocks, and how to put them together meaningfully.