Programming: Translation and Writing

By Harry Winters, CL:2248, University of Iowa

Programming languages require a cycle of translation while “writing.” They follow an organizational hierarchy that translates from one level to the other for maximum efficiency.

Object-Oriented Programming
Assembly Programming
Operating Systems
Instruction Sets
Microarchitecture
Digital Logic

True/false, on/off, active/passive, 1/0…
Programs integrated into hardware.
A set of internal commands within the processor.
Manages hardware and software resources.
Write programs on the computer’s level.
Automate and code by constructs for intuitive programming.

Therefore, to write a program to get a computer to show “Hello, world” on a computer screen…

Write a program to print the words “Hello, world”
Write a program to get the data values of “Hello, world” and output them
Arrange for the changing of data values within graphics and memory
Increase or decrease data values to both generate new graphics and log the requested data
Store the data values of “Hello, world” and the changes in graphics within the register

…which without the abstraction, means that you…
… which is sent to the kernel so it can…
… which requires the CPU to…
… so it can take this data to memory which can…
… which the device reads as…

The evolution of programming relies on adding more steps to the hierarchy so programming will intuitively be writing.