0.1 Can we talk about programming now?

So, we discussed briefly what information is, short history of computers and what hardware is. But how does it all interact with each other to give us experience we used to call normal computer work?

To put it simply — hardware is the bare bones, blood system, muscles and joints of the computer. However, it's just laying there, doing nothing, *until we tell it what to do*. Where does the impulse come from? How can we step up from all the components just assembled together to interactions between them, producing some useful work for us? *Well, we must program it.*

Let's say, that you want to view some photos, saved on your disk in your laptop. What actions are you gonna do to view those photos? I imagine something similar to this:

1. Turn the power on
2. Wait for display to show something
3. See welcome screen, once your OS finished booting up
4. Enter your password to log in
5. Locate your photos somewhere on computer
6. Click on it, for application to appear and show your image

Everything in this list, except for turning the power on relied on some software to work correctly. It is software, that displaying things on your screen. It is software searches for OS files to boot up computer, it is software transforming your keyboard typing to something computer can understand, it is software waits for the correct password to be entered, it is software shows you neat folders and files for you to navigate, it is software starting application to show you photos. There is a *ton of software involved* in such a simple process, isn't it?

We also must answer for a crucial question: 'what is software?'. Well, it's instructions, telling the computer what to do[1]. Software is just a fancy term for computer programs.

So, how does one tell computer what to do? Well, mostly, it boils down to tell *processor* what to do[2]. As was discussed in '**??**' on page **??**, CPUs are able to receive and implement instructions in *machine code*

[1] https://www.britannica.com/technology/software

[2] I purposefully don't write 'CPU' instead of processor here since some programs run on GPU processors