**Programming listed from highest level of complexity to lowest:**

1. Declarative structures > HTML, JSON
2. Scripting languages / Interpreters > Python, Javascript, LUA
3. Virtual Machine / Drivers / Executables > C++, C#, Pascal
4. Assembly Languages > CPU Instructions

RAM is used to store data, CPU is used to interpret and write data through:

* Registers, CPU internal RAM (cache?). Specific registers for specific functions
* ALU (Arithmetic logic unit)
* Status flags
* Program Counters (PC). As a program is executed sequentially, the program counter increases
* Input/Output: used so a human can read data and input data

In high level programming languages: Function ( Argument, Argument )

In assembler languages the naming convention is: Opcode ( Operand, Operand)

Operands can be registers, memory addresses or constants (numeric values)

MOVE > moves two operands from a source to a destination

ADD / SUB > Adds or subtracts a register from or to a value/register

JUMP > specifies the condition on when to move and a location to go to

Run a virtual machine and play with it in an assembly language. We could implement it in VHDL and run it in an [FPGA](https://en.wikipedia.org/wiki/Field-programmable_gate_array)

Checking integrity of downloaded software

Installing new keepass

Creating password

Updating password on laptop