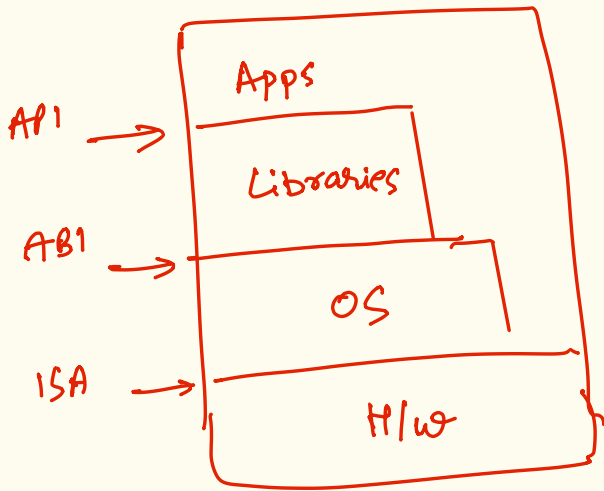




⊛ ABSTRACTIONS

are essential / useful
for all work!

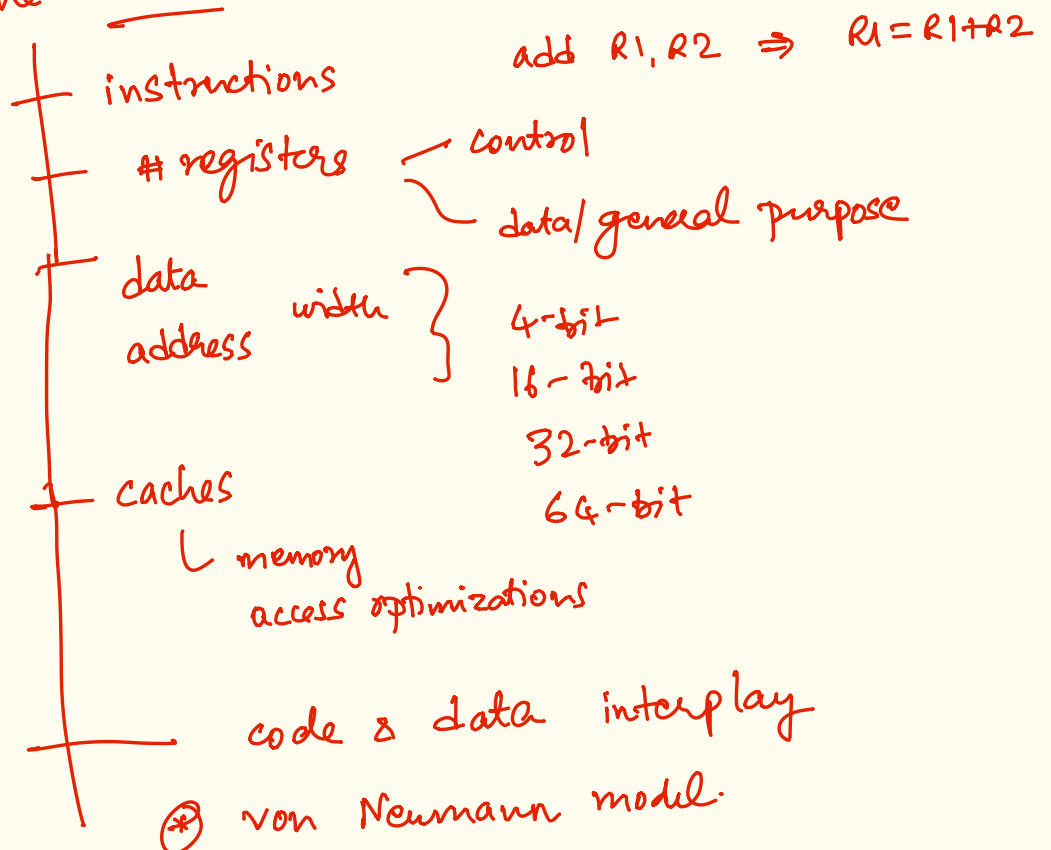
hardware abstractions

(i) disk controller (for disk IO)

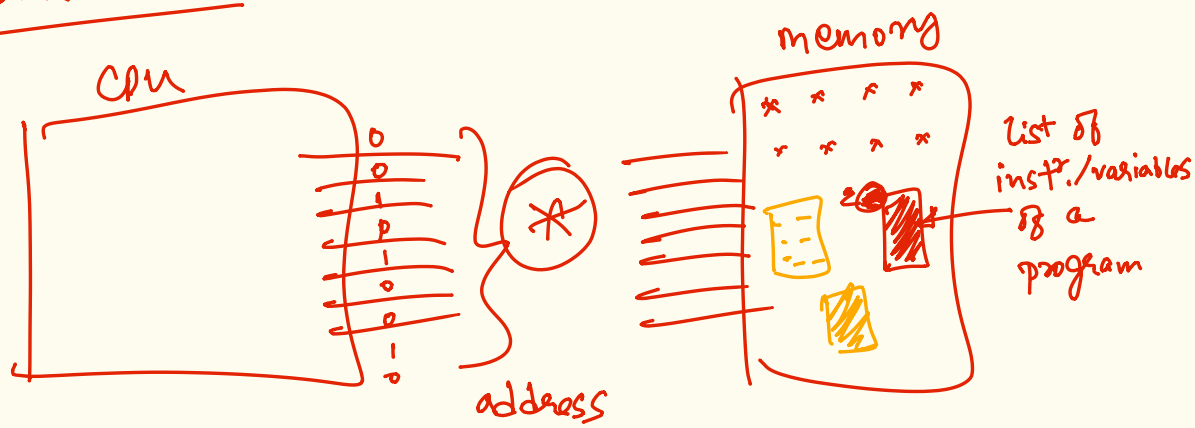
— via blocks $\leftrightarrow$ < track, sector, head >

(ii) of via the CPU

the ISA ~ instruction set architecture



von-Neumann model



address bus
(address-width) — 16-bits
 2^{16} addresses

special register

PC ~ program counter

eip ~ instruction pointer

is a register that stores an address / location.

PC

fetch instruction at PC

decode inst^r.

execute the instruction (*)

next PC — (i) $PC = PC + 1$

(ii) update PC

OS requirements :

- ~ work workflow mgmt.
- ~ efficiency of resource usage / capacity.
- ~ efficiently share / multiple resources
- ~ error / exception / failure handling
- ~ isolation properties
- ~ useful abstractions!

OS design principles

- (i) LDE ~ limited Directed
(privileged modes of execution) execution
- (ii) interrupt-driven execution.