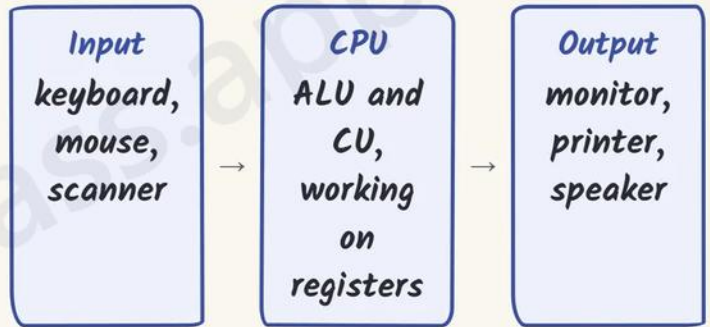


how a machine holds data, decides logic, and counts in three bases besides its own

The four-part model

- every computer system runs on the same loop: input, processing, output, with memory holding data at every stage
- input devices bring data and instructions in, from a keyboard to a scanner
- the CPU is where processing happens, it fetches an instruction, decodes it, then executes it
- output devices show the result, a monitor, a printer, a speaker

One instruction, start to finish *



Inside the CPU *

ALU

arithmetic logic unit, does the actual add, subtract, compare, AND, OR

Control unit

fetches, decodes, and directs every other part, never computes on its own

Registers

tiny, fastest storage inside the CPU itself, holds the value being worked on right now

System software vs Application software

System software

System software

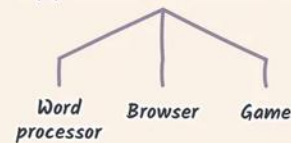


three branches under system software, the ones the syllabus always names

- runs the machine itself: the operating system, device drivers, language translators
- starts the moment the machine is switched on, the user rarely sees it directly

Application software

Application software



three everyday examples, each a program written for one user-facing job

- written for one user-facing job: a word processor, a browser, a game
- installed on top of system software, and depends on it to run at all

system software runs the machine, application software runs on top of it