

Why use binary?

Computers use electricity

They are made up of electrical circuits

The first computers used physical switches to power mechanical parts. A switch can be on or off

So everything has to be stored as either on or off - which gives you two values, 1 and 0

Why use binary?

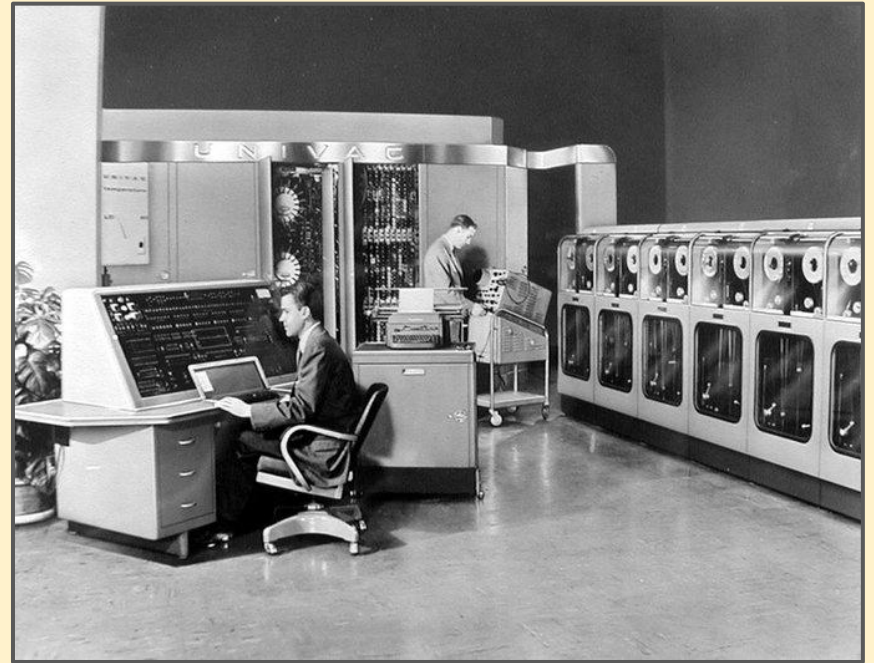
After mechanical switches, computers used vacuum tubes or valves.

These could be full or empty - 2 states



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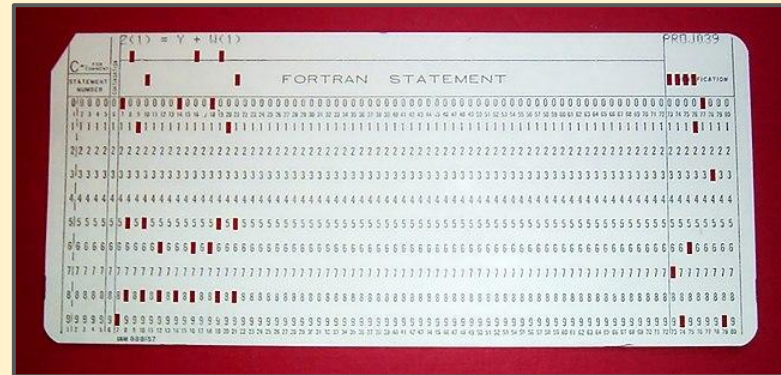
From about 1955, electronic transistors were used. These are like small switches - they can be on or off. Two states (on or off) means two numbers (1 or 0). So we need to use binary.



Why use binary?

Before hard drives, programs and data were “stored” using paper tape or punched cards

These used holes to “store” data. A section of the tape or card could have a hole or not have a hole = 2 states



Why use binary?

Modern data storage uses:

- hard disk drives - which use magnetic storage. A section can be positive or negative (2 states)
- CD Rom or DVD disks - which use a disk with “pits” in it which reflect light differently to “flat” areas (2 states)
- solid state drives - which use electrical charge. Which can be positive or negative (2 states)