FOUR KEY MACHINE COMPONENTS

CPU: THE "BRAIN" OF YOUR COMPUTER

CPU OPERATION

0.4 ns

MEMORY: YOUR COMPUTER'S "SCRATCH PAPER"

MEMORY REFERENCE

100 ns

In the next few videos, you'll learn about four key hardware components. Understanding these components helps determine whether you are working on a "big data" problem or if it's easier to analyze the data locally on your own computer.

CPU (Central Processing Unit)
The CPU is the "brain" of the computer. Every process on your computer is eventually handled by your CPU. This includes calculations and also instructions for the other components of the compute.

Memory (RAM)
When your program runs, data gets temporarily stored in memory before getting sent to the CPU. Memory is *ephemeral* storage - when your computer shuts down, the data in the memory is lost.

Storage (SSD or Magnetic Disk)
Storage is used for keeping data over long periods of time. When a program runs, the CPU will direct the memory to temporarily load data from long-term storage.

Network (LAN or the Internet)
Network is the gateway for anything that you need that isn't stored on your computer. The network could connect to other computers in the same room (a Local Area Network) or to a computer on the other side of the world, connected over the internet.

Other Numbers to Know?
You may have noticed a few other numbers involving the L1 and L2 Cache, mutex locking, and branch mispredicts. While these concepts are important for a detailed understanding of what's going on inside your computer, you don't need to worry about them for this course. If you're curious to learn more, check out **Peter Norvig's original blog post** from a few years ago, and **an interactive version** for today's current hardware.

QUIZ QUESTION

Rank the hardware component in order from fastest to slowest

Submit to check your answer choices!

SPEED	HARDWARE COMPONENT
Fastest	CPU
2nd Fastest	Memory (RAM)
3rd Fastest	Disk Storage (SSD)
Slowest	Network

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