Topic: Computer Architecture

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1. Provide three examples of hardware and three examples of software. How do they work together to perform a task like printing a document?

+Example of hardware: Keyboard, Printer, Mouse, etc.

+Example of software: Microsoft Word, Microsoft Excel, Window (Operating System), etc.

+Hardware is the physical equipment you can touch, while software is the set of programs that control the hardware. But, How do they work together to perform a task like printing a document? Well, when printing a document, you create it in Microsoft Word(software), the operating system and printer driver(software) send instructions, and the printer (hardware) produces the printed copy.

2. Is a touchscreen an input device, an output device, or both? Explain your answer.

+ A touch screen both shows information and receives command from the user. So basically it can be both. It is an output device because it displays information like images, text, and videos on the screen. It is also an input device because you can touch the screen to select options, type, scroll, or open applications.

3. What is the Von Neumann architecture?

+ The Von Neumann architecture is a computer design model that explains how a computer system is organized and how it works. It is based on the idea that both data and instructions are stored in the same memory. This means the computer uses one memory system to store programs and the data those programs use. The architecture has four main parts: the input unit, the output unit, the memory unit, and the central processing unit (CPU). The CPU is divided into the control unit and the arithmetic logic unit (ALU). The control unit directs operations, the ALU performs calculations, memory stores data and instructions, and input/output devices allow communication between the computer and the user.

4. Open Task Manager (Windows) or system monitor (Linux/macOS) and answer:

a. What happens to CPU usage when you open many applications?

+When you open many applications, CPU usage increases. This happens because each application needs processing power to run. The CPU has to handle more tasks at the same time, such as loading programs, running background processes, and responding to user actions. As a result, the percentage of CPU usage shown in Task Manager or System Monitor goes up. If too many applications are open, the CPU may become heavily used, which can slow down the computer.

b. Why do you think that happens?

+ I think this happens because the CPU is responsible for processing instructions from every program that is running. When you open many applications, each one needs the CPU to perform calculations, manage data, and respond to user actions. As more programs run at the same time, the CPU has to divide its time and resources among them. This increases the workload, so the CPU usage percentage becomes higher. If there are too many tasks, the computer may slow down because the CPU is trying to handle everything at once.