Lecture Assignment 2

Due date: 26-09-2023

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Select two questions based on your preference!

Hossein is thinking of what a restart does to his computer system. He thinks, *"if the restart button turns off the computer system, then there is no power to the system. Without power, no part of the system can turn on the system. How the system turns on after then?"* **Help him!**

When Hossein restarts their computer, it doesn't completely turn off the power for the computer. Instead, it starts a self-controlled sequence of actions where the computer's operating system shuts down, the central processing unit (CPU) freezes/buffers for a bit, and afterwards, the CPU jumps to ROM where the BIOS is and starts a boot process with the master boot record (MBR). This process knows where to find the master drive and the BIOS loads info into the random access memory (RAM) to start the computer's bootloader. The loader loads the operating system kernel into RAM and hands over control to the CPU. his allows Hossein to boot up the computer again without needing to physically flip the power supply switch off and on or use the power button on the case of the computer.

What do we talk about when we talk about system programming, system-level programming, and application-level programming?

System programming = building a foundation for the operation of higher-level software by directly interfacing with hardware and the operating system. Stuff like managing resources like memory, CPU, and I/O devices, making drivers, kernel modules, and system utilities. (Task manager)

System-level programming = writing code to interact with system-level APIs and libraries. It focuses on developing code that operates at a level above hardware-specific details but still interfaces with the operating system. (Security software)

Application-level programming = building user-friendly interfaces and features that solve practical problems. Like developing software applications that provide functionality to end-users. (Google web browser)