

FUNDAMENTALS OF COMPUTER SYSTEMS

Assignment 1

Key distinction between computer hardware and software comes down to their nature and roles of the computer system.

Hardware refers to the physical parts of a computer that you can see, touch, etc. They are the components that make the computer run and process data examples;

Central Processing Unit (CPU) - The brain of computer responsible for carrying out instructions.

Random Access Memory (RAM) - Temporary memory that holds the data the CPU is actively using.

Storage devices (HDD/SSD) - Hard drives where data is stored long-term.

Advancement in Hardware

- Improvement like faster processors or more efficient GPUs enhancement performance enabling smoother multitasking
- Upgrading to SSDs from traditional HDDs dramatically speeds up data access.

Software consists of the instructions and programs that tell the hardware what to do, i.e. the code and algorithms behind the tasks a computer performs.

Examples;

Operating systems (OS) - The core software that manages all hardware resources and allows other software to run.

System Software - The underlying software that supports the basic functions of the computer such as BIOS.

Advancement in Software.

- As software becomes more efficient, it can do more with less hardware power.
- OS update also improves system security, add new features and enhance compatibility with new hardware.

How both hardware and software work together;

- They are both linked, working together to perform tasks. The CPU, memory and storage drive all interact based on the instructions provided by the software.

Role of OS - Interacts between hardware and user-level software allocating resources like CPU power and memory to each task.