

Introduction to Computer Systems

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1. Definition

- A computer system is a set of interconnected hardware and software components that work together to perform various computing tasks.

2. Basic Components

- **Hardware:** Physical components of a computer system such as the central processing unit (CPU), memory (RAM), storage devices, input devices (keyboard, mouse), and output devices (monitor, printer).
- **Software:** Programs and applications that instruct the hardware on what tasks to perform, including operating systems, applications, and utility programs.

3. Types of Computer Systems

- **Personal Computers (PC):** Designed for individual use and typically found in homes and offices.
- **Servers:** Computers that provide services or resources to other computers on a network.
- **Mainframes:** Powerful computers used by large organizations for critical applications like banking and data processing.
- **Embedded Systems:** Computers integrated into other devices like cars, appliances, and medical devices.

4. Computer System Architecture

- **Input:** Data and instructions entered into the computer system.
- **Processing:** CPU executes instructions and manipulates data.
- **Output:** Results produced by the computer system.
- **Storage:** Data and instructions saved for future use.

5. Operating System

- Software that manages computer hardware resources and provides common services for computer programs.
- Examples include Windows, macOS, Linux, and Unix.

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6. Key Concepts

- **Binary System:** Computers use a binary system (0s and 1s) for data representation and processing.
- **Memory:** Temporary storage used by the CPU to hold data and instructions during processing.
- **CPU:** Central Processing Unit is the brain of the computer that executes instructions.

7. Conclusion

- Understanding computer systems is essential in today's digital world as they form the backbone of modern technology and enable a wide range of applications in various fields.