

COMPUTER HARDWARE AND SOFTWARE

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FLOW OF THE PRESENTATION

- 01. COMPUTER**
- 02. COMPUTER HARDWARE**
- 03. COMPUTER SOFTWARE**
- 04. INSTITUTIONAL IMPLEMENTATION**

WHAT IS COMPUTER SYSTEM?

A computer system consists of a central processing unit, memory, input devices, output devices, and the operating system, with five main hardware components: Input, Processing, Storage, Output, and Communication devices.



WHAT IS COMPUTER?

A computer is an electronic device that processes data, stores, retrieves, and performs various tasks, combining hardware and software. It executes tasks and provides instructions for them.



COMPUTER HARDWARE

Hardware refers to external and internal devices that perform functions like input, output, storage, communication, and processing. It includes chips on a circuit board and requires an interface with the computer.



SUPERCOMPUTERS



Supercomputers are utilized in scientific and engineering applications for handling large databases and computations, thanks to advancements in multicore processors and GPUs.

Workstations



Workstation computers are specialized devices designed for intensive tasks like 3D rendering, engineering simulations, and CAD software, ensuring smooth, efficient performance and improved productivity in complex design and drafting tasks.

Mainframe



Mainframe computers are high-performance computing systems used for real-time data processing, healthcare data analysis, ATM transaction management, and cybersecurity defenses in businesses.

Server Computer



Supercomputers and mainframe computers are powerful computing systems used in scientific and engineering applications, handling massive databases, computations, healthcare data analysis, ATM transaction management, and cybersecurity defenses.

Mini Computers



Mini computers, also known as midrange computers, are smaller, less powerful multiuser computers used in business environments for tasks like word processing, database management, and networking.

Micro Computers



A microcomputer is an electronic device with a single microprocessor as its central processing unit (CPU), used for logic and arithmetic operations, and was once a term for personal computers.

TYPE OF COMPUTERS

DATA FLOW BETWEEN DEVICES

INPUT

Input is data sent to a computer for processing, received using an input device like keyboards, mice, microphones, webcams, touchpads, touch screens, computers, scanners, and switches.

STORAGE

Computer systems utilize primary, secondary, and tertiary types of memory for storing information and processing instructions. Primary memory holds program instructions, secondary is external, and tertiary functions automatically.

PROCESSING

Processing in computers involves the CPU interpreting input signals, loading programs, and displaying results. Power is determined by factors like transistor count, clock speed, and cores.

OUTPUT

Output, including audio, graphics, text, and video, is crucial for human interaction with computers and includes various forms, such as digital music, podcasts, and websites.

COMPUTER SOFTWARE

Software is a set of instructions, data, or programs used to operate computers and execute specific tasks. It is the opposite of hardware, which describes the physical aspects of a computer. Software refers to applications, scripts, and programs that run on a device, acting as the variable part.



TYPES OF APPLICATION SOFTWARE

General Purpose Software

Software suites, including MS Office, Adobe Creativity Suite, LibreOffice, and iWork, are bundles of functionally related software that enhance productivity, data organization, presentation, and communication.

Specific Purpose Software

Application-specific software packages cater to specific applications, while business application software enhances business functions, efficiency, and effectiveness, reducing time, enhancing productivity, and streamlining operations.

TYPES OF SYSTEM SOFTWARE

System Management Software

Operating systems software manages hardware, networking, application software, and data resources, while systems management software manages enterprise-wide IT systems, including application life-cycle, help desk, and disaster recovery.

System Development Software

Systems development involves defining, designing, testing, and implementing new software applications, including internal custom systems, database systems, and third-party software acquisition, using tools or computer programs for creation, debugging, maintenance, or support.

PROGRAMMING LANGUAGES

Programming languages are artificial languages used to control machine behavior and express algorithms, often divided into syntax and semantics for precise control and performance expression.



EDUCATION

Technology enhances learning experiences, digital literacy, and administrative functions through learning management systems, interactive tools, and data analysis software, supporting teaching, resource access, and academic progress tracking.

HEALTHCARE

Healthcare technology, including EHR systems, diagnostic software, and patient management systems, enhances patient care, ensures data accuracy, and streamlines operations, facilitating quicker and more accurate medical interventions.

THINGS HARDWARE AND SOFTWARE CAN OFFER

GOVERNMENT

Technology, such as database systems and workflow automation software, is utilized to improve public service delivery, increase transparency, and boost operational efficiency.

BUSINESS ORGANIZATIONS

Companies are leveraging CRM systems, project management software, and advanced analytics platforms to boost productivity, facilitate remote collaboration, and maintain competitiveness and profitability.

THANK YOU!

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