CSE 1112: Computer System Lab

Topics
Basic idea of computer hardware and software

Lecture 1

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Outline

- Introduction
- Hardware
- Types of hardware
- Software
- Types of software

INTRODUCTION

A computer is an electronic device that accept data (input) and, process data arithmetically and logically, produce information (output).

It is divided into two main categories

➢ Hardware

➢ Software

HARDWARE

➢ Hardware is the physical aspect of computers, telecommunications, and other devices.

➢ It includes not only the computer proper but also the cables, connectors, power supply units, and peripheral devices such as the keyboard, mouse, audio speakers, and printers.

TYPES OF HARDWARE

INTERNAL HARDWARE

Internal hardware is also called components. It includes

➢ CPU
➢ Motherboard
➢ RAM
➢ ROM

CENTRAL PROCCESSING UNIT (CPU)

➤ It is the brains of the computer.
➤ Most of calculations take place here.
➤ Two typical components of a CPU are
    Arithmetic Logic Unit (ALU)
    Control Unit (CU)

MOTHERBOARD

➤ Is the main circuit board of a microcomputer.
➤ It contains the CPU, memory, expansion slots and all the controllers required to control standard hardware devices.

RANDOM ACCESS MEMORY (RAM)

➢ RAM is the place in a computer where the operating system, application programs, and data in current use are kept .

➢ It is a temporary memory and can be compared to a person's short-term memory

READ ONLY MEMORY (ROM)

➢ It is a technology that allows you to write data only once. After the data has been written, you can read it an unlimited number of times.

INPUT HARDWARE

Input hardware consists of external devices by which we give information and instructions to the computer. Common input hardware are:

➢ Keyboard
➢ Mouse
➢ Scanner

KEYBOARD

➤ The set of typewriter-like keys that enables you to enter data into a computer

MOUSE

➤ A device that controls the movement of the cursor or pointer on a display screen

SCANNER

➤ A device that can read text or illustrations printed on paper and translate the information into a form the computer can use.

OUTPUT HARDWARE

Output hardware consists of internal and external devices that transfer information from the computer's CPU to the computer user.

Common output hardware are

➢ Monitor

➢ Printer

➢ Speaker

MONITOR

➢ A display screen used to present output from a computer, video camera, VCR or other video generator.

PRINTER

➢ In computers, a printer is a device that accepts text and graphic output from a computer and transfers the information to paper

SPEAKER

➢ Speakers or headphones to an output port to hear the audio produced by the computer.

CONNECTING HARDWARE

Connecting device allow hardware devices to communicate with each other

Common devices are

➢ Modem
➢ LAN Card

MODEM

➢ Modems connect a personal or portable computer to dial-up networks through a regular telephone line

LAN CARD

➢ A Local Area Network (LAN) card is used to provide wireless Internet access to computer users in home or roaming networks.

STORAGE HARDWARE

A computer storage device is any type of hardware that stores data. Some common storage devices are

- Hard Disc
- Floppy Disc
- CD ROM

HARD DISC

➢ A magnetic disk on which you can store computer data. The term hard is used to distinguish it from a soft, or Floppy disk.

FLOPPY DISC

➢ A flexible plastic disk coated with magnetic material and covered by a protective jacket, used primarily by computers to store data magnetically.

CD ROM

➢ A CD-ROM is a CD that can be read by a computer with an optical drive

SOFTWARE

➢ A set of instructions that enables physical components
  of a computer to work in a synchronize way is known
  as Software .

➢ This set of instructions is often called a program.

➢ Computers cannot do any useful work without instructions
  from software

TYPES OF SOFTWARE

Computer software is also divided in four major types

➢ System Software
➢ Programming Software
➢ Application Software
➢ Utility Software

SYSTEM SOFTWARE

System software helps in running the computer hardware and the computer system.

Main system soft wares are

➤ Operating systems
➤ Device drivers

DEVICE DRIVERS

➢ In computing, a device driver is a computer program allowing higher-level computer programs to interact with a hardware device

OPERATING SYSTEMS

➢ An operating system is an interface between hardware and user; it is responsible for the management and coordination of activities and the sharing of the limited resources of the computer.

APPLICATION SOFTWARE

It enables the users to accomplish certain specific tasks. Following are the types of application software

➢WEB BROWSING SOFTWARE

It allows one to surf the Web. Example MS Internet Explorer

➢WORD PROCCESSING SOFTWARE

Allows users to create, edit a document. Example MS Word

SPREADSHEET SOFTWARE

Allows users to create document and perform calculation.
Example: MS Excel etc

DATABASE SOFTWARE

Allows users to store and retrieve vast amount of data.
Example: MS Access etc.

PRESENTATION GRAPHICS SOFTWARE

Allows users to create visual presentation. Example MS
Power Point

UTILITY SOFTWARE

Utility software helps in the management of computer hardware and application software. It performs a small range of tasks. Some typical examples of utility software are

➢ DISK DEFRAGMENTORS

It detect computer files whose contents are stored on the hard disk in disjointed fragments, and move the fragments together to increase efficiency.

BACKUP

This utility make a copy of all information stored on a disk, and restore either the entire disk or selected files

DISK PARTITIONER

It divide an individual drive into multiple logical drives, each with its own file system which can be mounted by the operating system and treated as an individual drive.

ANTI-VIRUS

These utilities scan computer for viruses.

PROGRAMMING SOFTWARE

This is one of the most commonly known and popularly used forms of computer software. These software come in forms of tools that assist a programmer in writing computer Programs.

The tools that help the programmers in instructing a computer system include

➢ text editors

➢ compilers

➢ interpreters