

Lecture #1 - An Overview of Computers

Hardware, Software & Media

Computer Sizes: Micro, Main-Frame, Super

Software:

System directly controls and uses the computer's hardware  
Applications perform tasks desired by user, eg: Word Processing

Media: Floppy Disks, Fixed (Hard) Disks, "ZIP" disks, Magnetic Tape,  
CD Rom, Paper, etc

General concept of any System

Input->Process->Output

Feedback & Control

Illustrations: Heating System, Educational System

Add Memory/Storage for a computer system

Only 5 functions can be performed by a Computer System

Input (1) (Human concepts -> Electronics)

Process (Electronics)

Arithmetic (2)

Logical Comparison (3)

Store & Retrieve (4)

Output (5) (Electronics -> Human concepts)

High speed and large amount of storage allow these 5 simple functions to  
make a computer system perform complicated activities.

The hardware of a Computer System

Input Devices

Central Processing Unit - (Arithmetic Logic Unit & Control)

Storage:

Internal or Primary Memory (Volatile)

RAM & ROM

Auxiliary or Secondary Storage (Relatively permanent) eg: Disk, CDROM

Output devices

Connectivity

Communication

Networks

The "Boot" or startup procedure

ROM contains the address on the disk where the Operating System (OS)  
is stored. ROM has a program to start the OS.

# Lecture #1 - An Overview of Computers (cont'd)

How people store & process data and information

Symbols & Codes (Alphabets, Area codes, ZIP codes, etc)

How computers physically store & process data

Bits & Bytes, KiloBytes, MegaBytes, GigaBytes, TeraBytes. (factor 1024)

Storage Units:

(Approximate time if one byte were equated to one second)

Kilobytes, (1024B) approximately Thousand Bytes, 1 'KiloSec' = 17 Minutes

Megabytes, (1024KB) approximately Million Bytes, 1 'MegaSec' = 12 Days

Gigabytes, (1024MB) approximately Billion Bytes, 1 'GigaSec' = 32 Years

Terabytes, (1024GB) approximately Trillion Bytes, 1 'TeraSec' = 32,000 Years

Speeds

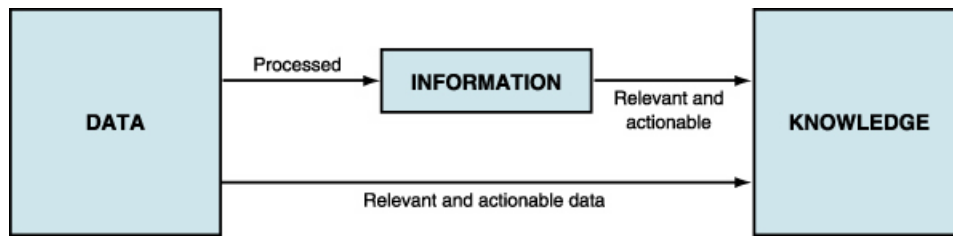
Millisecond, Microsecond, Nanosecond, Picosecond (Factor .001 (1/1000))

(1 thousandth, 1 millionth, 1 Billionth, 1 trillionth)

Logical storage of data

Characters, Fields, Records, Files, Databases

Data → Information → Knowledge



Users (End Users) and Computer Professionals (Programmers etc)

Efficiency and effectiveness

(either a flyswatter or a five lb. mallet can kill a fly)

The Computer Information System

Model: I - P - O (with Feedback & Control)

Definition: Elements & Procedures that interact to accomplish a goal.

Machine Components	The Link	Human Components
<b>HARDWARE</b>	<b>DATA</b>	<b>PEOPLE</b>
<b>SOFTWARE</b>		<b>PROCEDURE</b>

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