

An Overview on Information Technology

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Topics

- ❑ Our Digital World (ch. 1)
- ❑ Computer System (ch. 2-4)
- ❑ Computer Network & Internet (ch. 8-9)
- ❑ The Use of Information Technology (ch. 11-13)
- ❑ Social and Ethical Issues (ch. 1, 4, 8, 9, 13, etc)

Reference

- The slides are taken/modified from:
 - G. Beekman & M. J. Quinn, Tomorrow's Technology and You (Ch 2-4, 8-9)
 - William F. Slater III, Internet History and Growth, Chicago Chapter of the Internet Society, September 2002
 - Emily Miller-Francisco, Teaching the Ethics of Information and Information Technology, Southern Oregon University, 2005
 - OSS and Its Application, POSS ITB
 - Ruth Rikowski, Teaching Ethical Issues in IT: how and when
 - Inggriani Liem, "Pemanfaatan IT, Komputer, Email, Internet"

Our Digital World



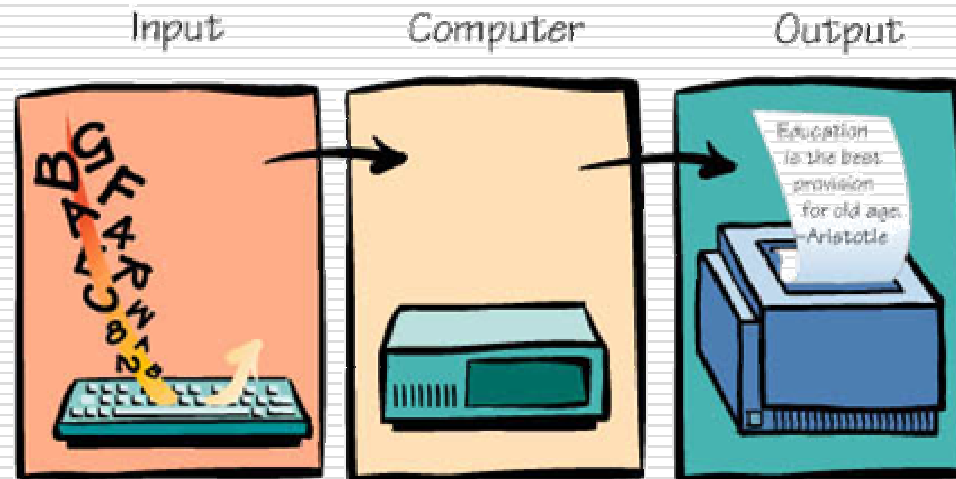
Computers in Perspective

- ❑ Computers are no longer a luxury but rather a commodity
- ❑ Computers and their applications are involved in all aspects of our daily life
- ❑ The computer is an incredibly versatile tool.
 - It can compute your taxes or deploy a missile.



Computers in Perspective

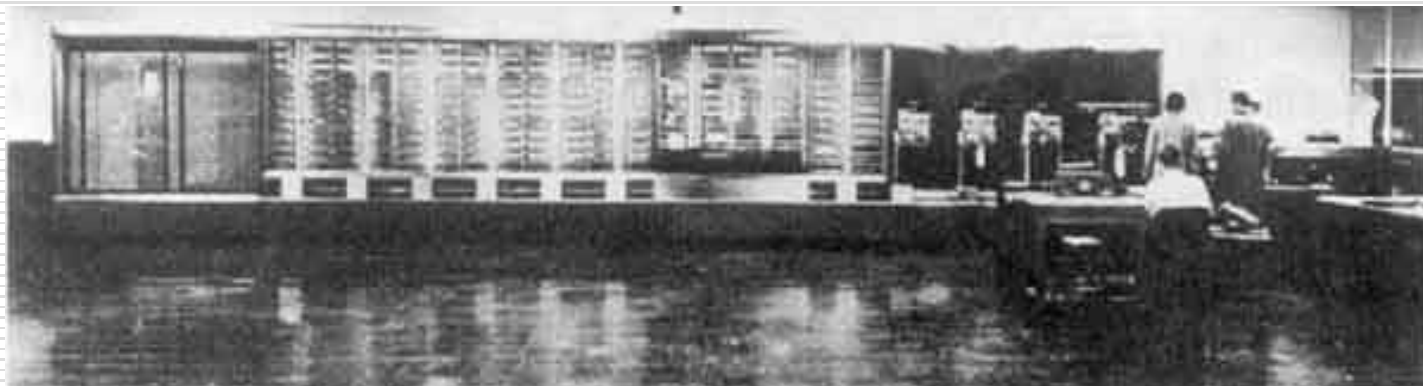
- ✓ All computers take in information called input and give out information called output.



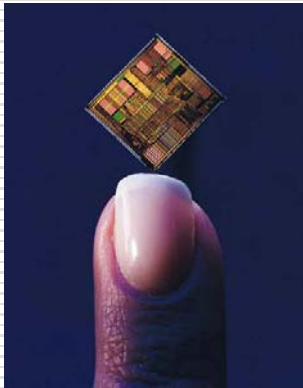
Computers: A Brief History

□ The First Real Computers

- 1939: **Konrad Zuse** completed the first programmable, general-purpose digital computer
- 1943: The team led by mathematician **Alan Turing** and others completed Colossus, considered by many to be the first electronic digital computer
- 1944: Thanks to a one million dollar grant from IBM, Harvard professor **Howard Aiken** developed the Mark I.



Computers: A Brief History



- ❑ The development of Integrated Circuits (IC) in mid 1960's brings about computer revolution



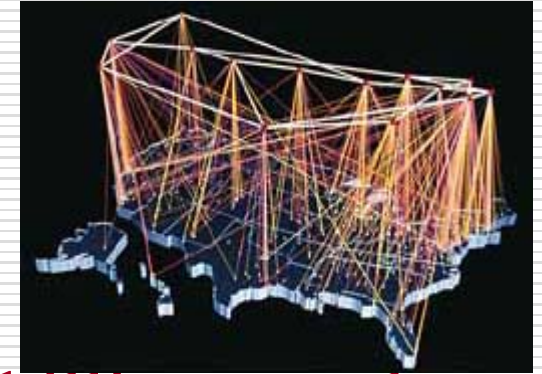
- 1971: The first **microprocessor** was invented by **Intel** engineers.
- The **personal computer revolution** began in 1970:
 - ❑ Apple
 - ❑ Commodore
 - ❑ Tandy

A Brief Taxonomy

- ✓ Embedded Computers
- ✓ Personal Computers
- ✓ Workstations
- ✓ Portable Computers
 - ✓ Notebook
 - ✓ PDA
- ✓ Servers
- ✓ Mainframes
- ✓ Supercomputers



The Internet Revolution



- ✓ The Emergence of Networks
 - ✓ Connect devices together
- ✓ The Internet Explosion → Over a billion people with Internet access by the end of 2005
 - ✓ Electronic Mail
 - ✓ World Wide Web
 - ✓ Hypertext links → tie together millions of web pages
- ✓ Internet supports varied activities:
 - ☐ eBay used to make international transactions
 - ☐ Real-time multiplayer games

Living in Digital World



- ❑ Now we are in a new age, **the information age**
 - In history we have had: an agricultural age and an industrial age
- ❑ More and more people earn their livings working with words, numbers, and ideas.
- ❑ Computer literacy is already improving our day-to-day lives and careers.
- ❑ Applications: Computers in Action
 - Applications enable you to use a computer for specific purposes.

Computer System



Computer System

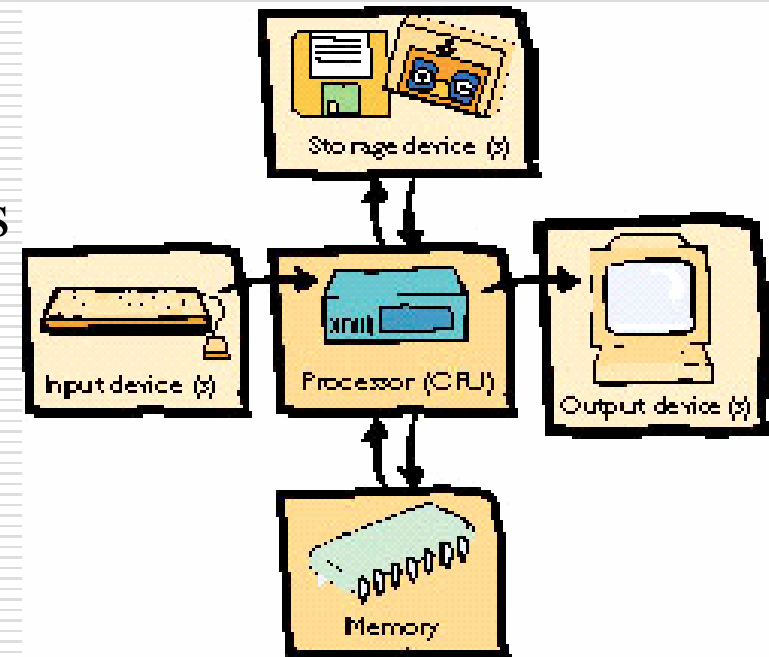
- ✓ The computer's versatility is built upon its:
 - **Hardware:** The physical part
 - **Software:** The instructions that tells hardware how to transform the input data (information in a form it can read) into the necessary output



Hardware:

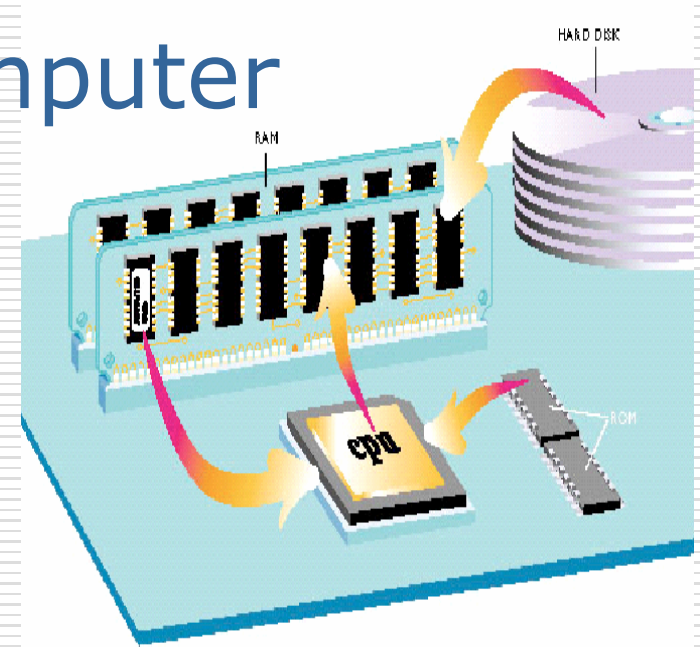
Basic Functions & Components

- Input-Process/Store-Output
- Input devices
 - Keyboards and pointing devices (mouse)
- Output devices
 - Display or video monitor
 - Printer
 - Speakers
- Central Processing Unit (CPU)
- Memory & Storage devices



The CPU: The Real Computer

- ❑ Is An extraordinarily complex collection of electronic circuits
- ❑ Interprets and executes the instructions in each program
- ❑ Housed along with other chips and electronic components on the **motherboard**



The Computer's memory

- ✓ RAM (random access memory)
 - Used to store program instructions and data temporarily
 - Unique addresses and data can be stored in any location
 - Can quickly retrieve information
 - Will not remain if power goes off (volatile)
- ROM
- Flash memory
 - Used for phones, pagers, portable computers, handheld computers, and PDAs

