

# Outline

- 1 History of Computers
- 2 Generation of Computers
- 3 Computers for Individual Users
- 4 Components of a computer system

# History of Computers

## • Existence?

- Emanated because of the necessity of automating human tasks.
- The Chinese abacus was one of the early inventions that helped humans performing mathematical calculations.
- After the inventions of a multitude of diverse devices such as the Jacquard loom and Charles Babbage's analytical engine, calculating machines evolved into the modern computers.
- Categorized in several ways depending upon their usage, their power, speed at which they operate, the types of tasks that they can handle, the types of hardware they contain, the kinds of software they can run, and so on.

## Definition 1.1.

**Computer** A computer is an electronic device that processes data, converting it into information that is useful to people.

# Generation of Computers

- Computers at various stages of their evolution, have been divided into six generations.
- Every new generation has certain dramatic improvements as compared to its previous generations.
- The improvements were the results of the technology used for developing programming languages and the computer system's internal organization.

# Generation of Computers (contd...)

- The Mechanical Era (1623-1900).

- Telescope
- Earliest Human-powered Submarine
- Steam Turbine
- Pendulum Clock
- Pressure Cooker, Typewriter, Morse code and others
- Computational aid - Abacus, Difference Engine and Analytical Engine

1623 -  
Mech era  
• telescope  
• pressure cooker  
• pendulum clock  
• abacus\*

- First Generation Electronic Computers (1937-1953).

- Electron Microscope
- Jet Engine
- Helicopter
- Atomic bomb and others
- Computers - Atanasoff-Berry Computer, Harvard Mark - I, ENIAC (Electronic Numerator Integrator and Calculator), and EDVAC (Electronic Discrete Variable Automatic Computer)

1st gen  
• electron microscope\*  
• helicopter  
• atomic bomb  
• ENIAC  
• EDVAC

- Second-Generation Computers (1954-1962).

- Audio cassette
- Microchips
- Video disk, and others
- Atomic bomb and others
- Second generation Computers - TRADIC (Transistor Digital Computer), IBM 704, TX-0 (first programmable general-purpose computer - MIT), LARC (Livermore Atomic Research Computer - one of the first supercomputer), IBM 7030.

1954 -  
2nd gen.  
• microchips\*  
• audio cassettes  
• video disk

# Generation of Computers (contd...)

## • Third-Generation Computers (1963-1971).

- Calculator
- Computer Mouse
- RAM
- ATM, Bar code readers and others
- Third generation Computers - SYSTEM/360, PDP-8, CDC 7600, INTEL 4004, INTEL 8008

1963 -  
3rd gen.  
• calculator \*  
• barcode reader \*  
• ATM

## • Fourth-Generation Computers (1972-1984).

- Word processor
- Video game
- Walk-man, Cell phones and others
- Fourth generation Computers - ALTO (first workstation which had a built-in mouse used for input), APPLE I (designed by Steve Jobs), VAX 11/78, IBM PC, LISA, MACINTOSH (launched by Apple Computers, the first succesful computer to be mouse-driven along with GUI)

1972 -  
4th gen.  
• video-games  
• APPLE I  
• MACINTOSH

# Generation of Computers (contd...)

1983 -

5th gen

- Windows progs
- 3D videos

- Fifth-Generation Computers (1983-1990).

- CD-ROM
- Windows Programs
- High-definition television
- First 3-D video game, and others
- Fifth generation Computers - IBM PC-AT (very fast), PC/RT, PS/2, Intel 80486, Video Toaster (video editing system for computers)

- Sixth-Generation Computers (1990-Till Date).

- WWW
- JAVA
- DVD, iPod, YouTube etc.
- Sixth generation Computers - Powerbook, Pentium Microprocessor, Sun ultra workstation, iMac, Apple iMac Pedestal Computer, and Power Mac G5

1990 -

# Personal computers

- Most computers are meant to be used by only one person at a time.
- The six primary types of computers in this category are -
  - Desktop computers
  - Workstations
  - Notebook computers
  - Tablet computers
  - Handheld computers
  - Smart phones
- These systems are all examples of personal computers, but they also can be connected together to create networks.
- Learn about computer networks in other module.

desktop  
Workstations  
• Notebook  
Handheld  
Tablet  
Smart Phones

# Components of a computer system

- A complete computer system consist of four parts.

- Hardware ✓
- Software ✓
- Data ✓
- Users ✓

4 parts of  
a computer  
system

- Hardware - The mechanical devices that make up the computer.

- Tangible part of the computer that you can touch.
- Consists of interconnected devices that you can use to control its operation, input and output.

- Software- Set of instructions that makes the computer perform tasks.

- Tells the computer what to do.
- Some exists primarily for the computer's use, and others exist for the user enabling the user to perform tasks such as creating documents.



# Components of a computer system (contd...)

- Data - Consists of individual facts or pieces of information that by themselves may not make much sense to a person.
  - Computer's primary job is to process these tiny pieces of data in various ways converting them into useful information.
  - Different pieces of data on Average highway mileages of six different cars may not make much sense.
  - If someone creates a chart from the data that is visually compared and ranked the vehicles mileages, it could make some sense.
  - One example of data being processed into useful information.
- Users - Computer operators.
  - No computer is totally autonomous.
  - Even if a computer can do its job without a person sitting in front of it, people still design, build, program, and repair computer systems.
  - Lack of autonomy is especially true in personal computer systems.