Computer Fundamentals and Office Applications

Contents

- Basic of Computer
- Computer System
  - Hardware
  - Software
  - Data and user
- Types of Computer
- Input and Output Devices
- Functions of Computer
- Components of Computer
  - CPU, MEMORY (RAM, ROM, HDD, SSD)
- Computer Software
- Assembling and Dissembling

Course Details

- Course: **Computer Fundamentals and Office Application**
- 60 hours (20 Lectures)
- **Assessment**
  - Class attendance: 10%
  - Quiz and Assignment: 20%
  - Mid-term assessment: 20%
  - Final Evaluation: 25%
  - Project: 25%

Computer

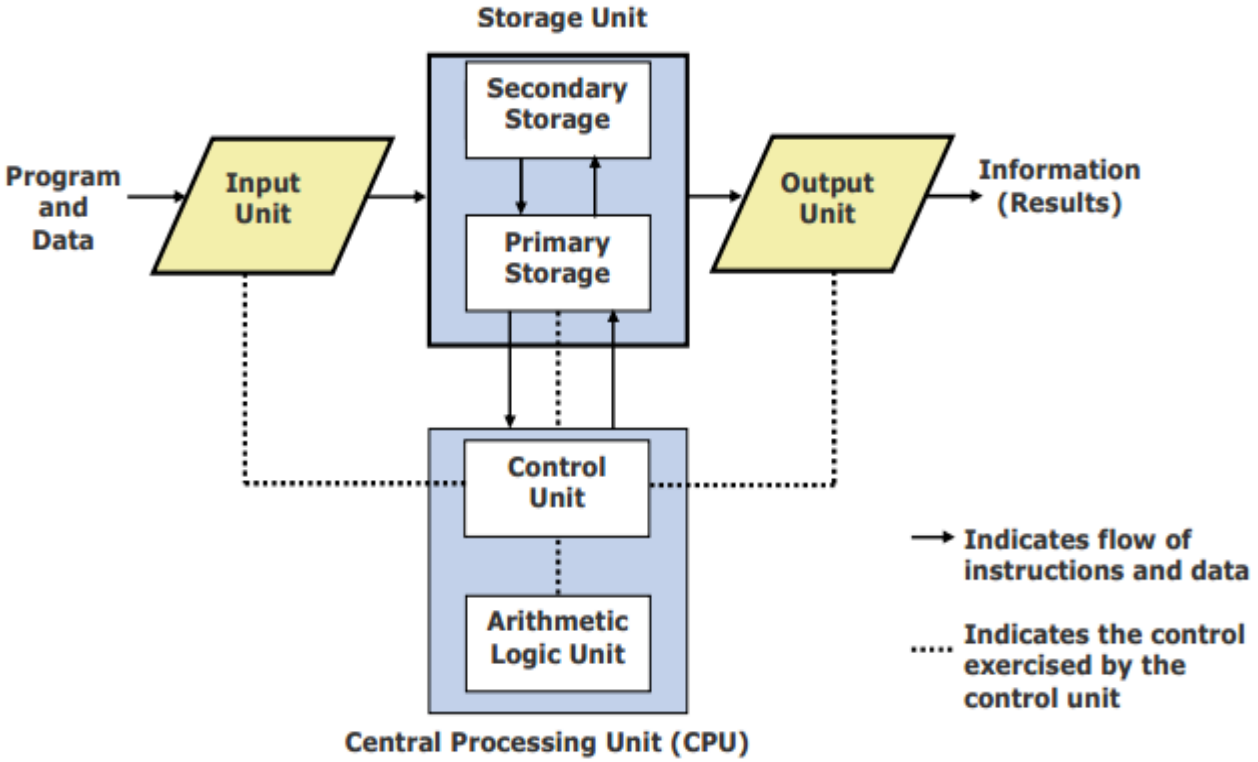
- The word computer comes from the word “compute”, which means, “to calculate”
- Thereby, a computer is an electronic device that can perform arithmetic operations at high speed
- A computer is also called a *data processor* because it can store, process, and retrieve data whenever desired

Computer (Cont..)

- Computer is an Electronic device which takes input as data and instructions, process and provide information as output

Input →Process→ Output

Computer Organization



Sub-System of Computer

- Hardware
- Software
- Data
- People

Input and Output Devices

- **Input Devices**: Mouse, Keyboard, Microphone, touchscreen, Scanner, MICR
- **Output Devices:** Monitor, Speaker, Projector, Printer

Memory & Storage

- Memory is used for ***Processing and Storing*** data in Computer.
- Two requirements
  - For storing the data that are being *currently handled by the CPU*
  - Storing the *results and the data* for future use
- ***Primary Memory*** – Where the data are held temporary. It is generally known as **Memory.**
- ***Secondary Memory*** – Where the data are stored permanently for future use. It is known as **Storage**.

Memory & Storage (Cont..)

- CPU *directly access* the data and information from *Primary Memory (PM)* using the data and address Buses.
- It *can't access directly* from *Secondary memory (SM)*.
- Information transferred from SM to PM using *I/O channels* and then CPU.
- Internal Process Memory- Place inside CPU or near CPU. Examples- Cache Memory and Registers.
- PM- Two types (RAM and ROM)
- SM- (Magnetic Disks and magnetic Tapes)

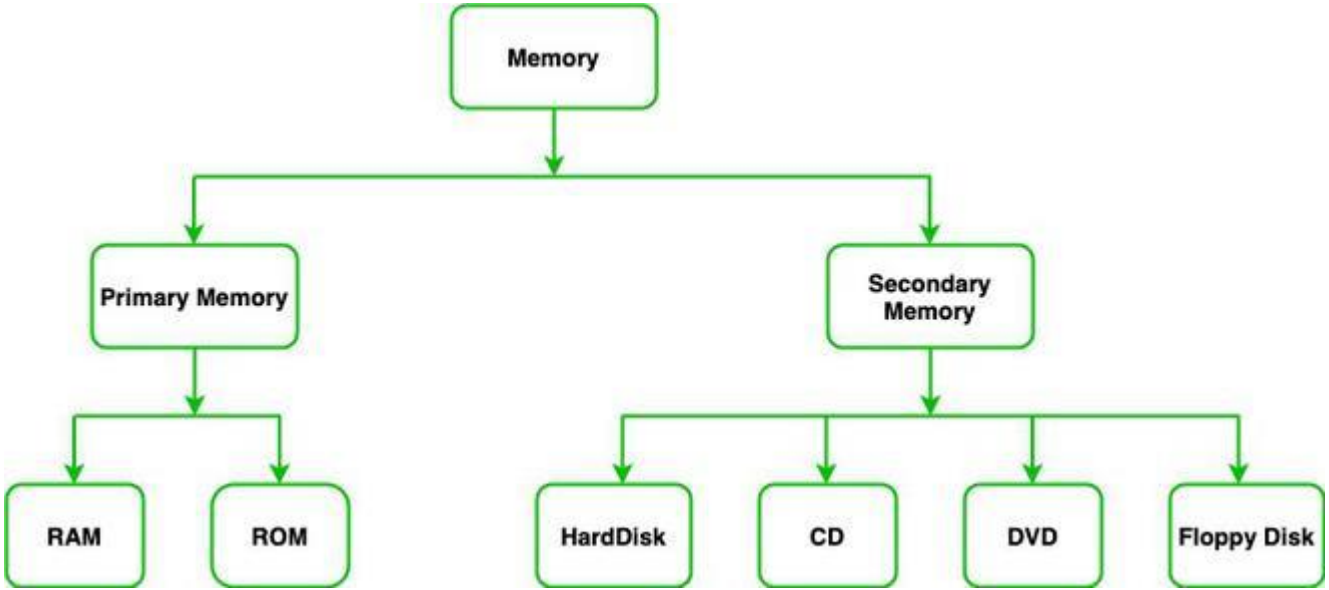
Random Access Memory (RAM)

- Primary Storage of a Computer is often referred to as RAM because of its random access capability.
- RAM chips are volatile (Loses all data when power is switched off)
- RAM stores the running ***application programs and data*** (CPU access quickly from RAM).
- It is also known as read/write memory.
- It is faster than other types of memory but fewer capacity than SM.

Read Only Memory (ROM)

- It stores data permanently.
- ROMs are mainly used to store programs and data which do not need to change and are frequently used. For example-***System Boot Program (BootStrap).***
- Stored Data can only be read and used but not possible to change (Write).
- It is mostly used in devices like calculator, laser printers.
- It is less expensive than RAM.
- Electrically Erasable Programmable Read-Only Memory (EPROM)
    - Rewritable storage chip or memory package

Memory


Memory
Primary Memory
Secondary Memory
RAM
ROM
HardDisk
CD
DVD
Floppy Disk

Storage System (Secondary Memory)

- Storage systems are devices which used for data storage.
- Data can be stored here permanently and can be used any time.
- Examples- Hard disks, Optical Disks, Magnetic Disks

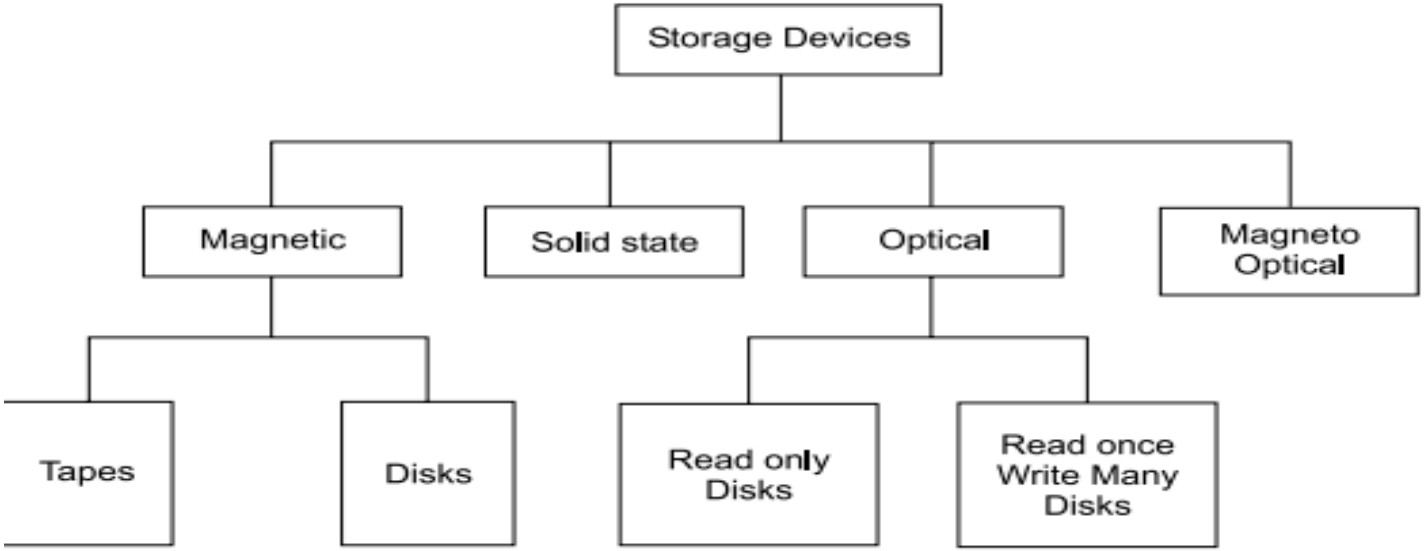


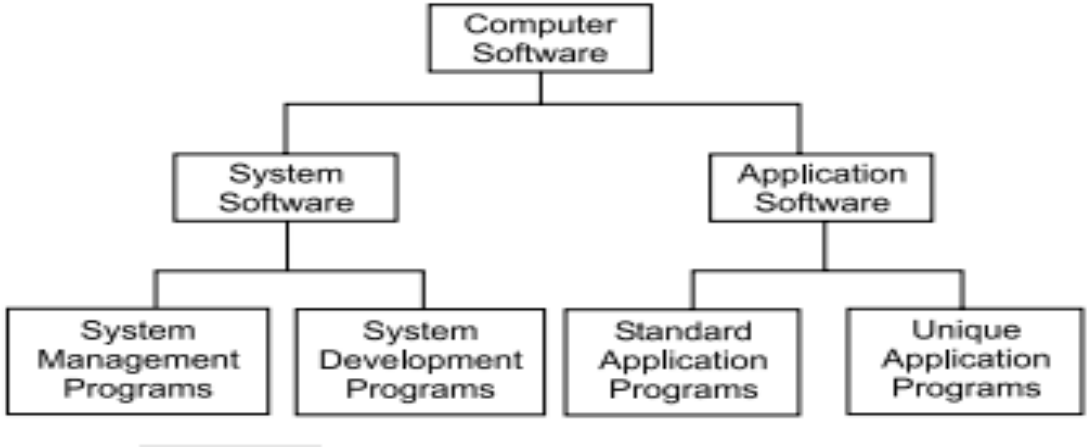
Fig. 3.7 Classification of storage systems

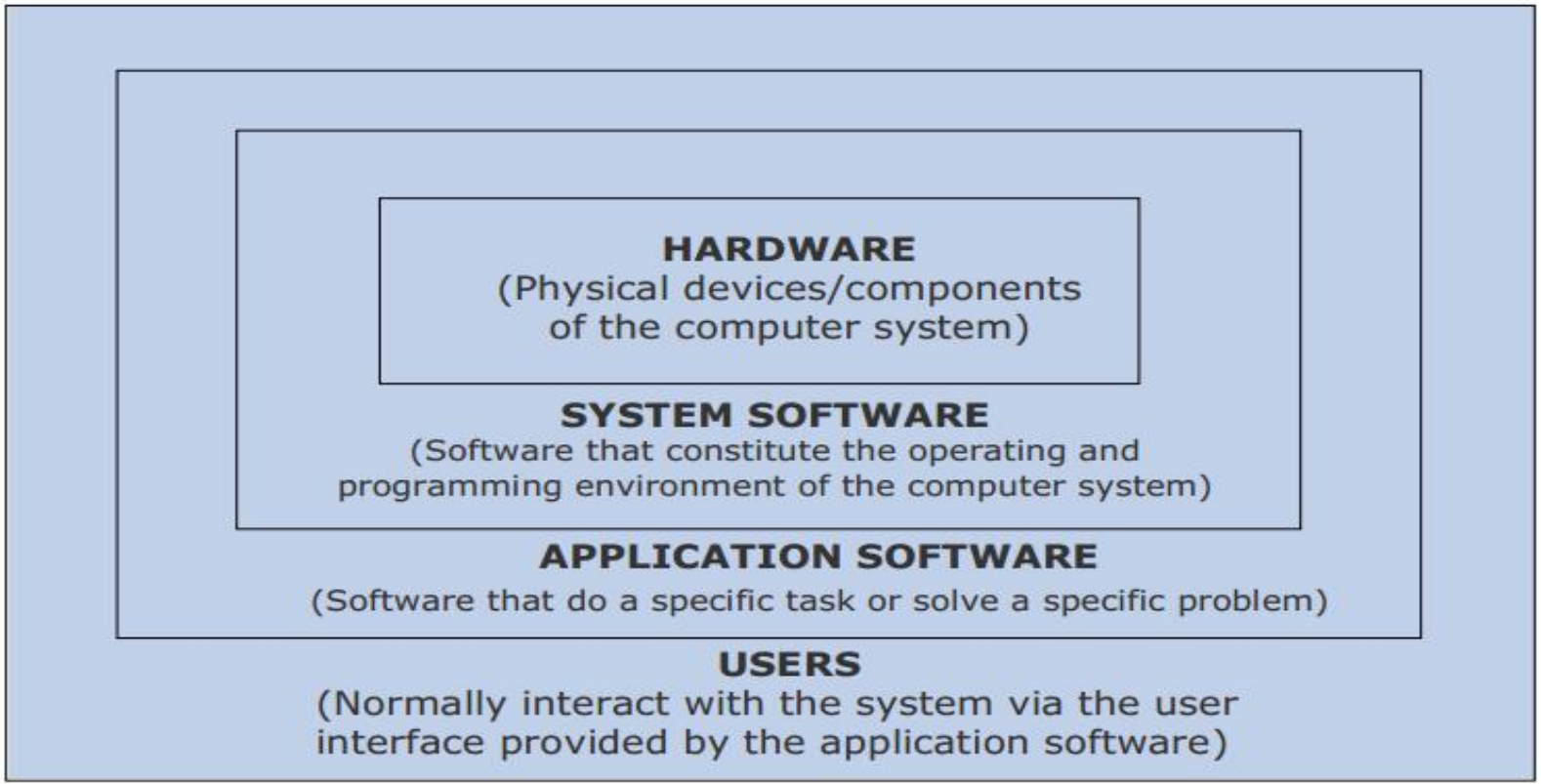
Computer Software

- Instruction
  - Order given to the computer
  - ***Integer Instruction, Control Flow Instruction***
- Program
  - Set of ***Logical Instructions***
  - Developed by specific ***Programming Language***
  - ***Game Programs, Word Processors, Browser***
- Software
  - Set of Programs
  - An interface between the ***Hardware and User***
  - Software is the ***Soul*** of Computer where hardware is the ***Heart***
- ***Application is a type of Software that does a certain task.***

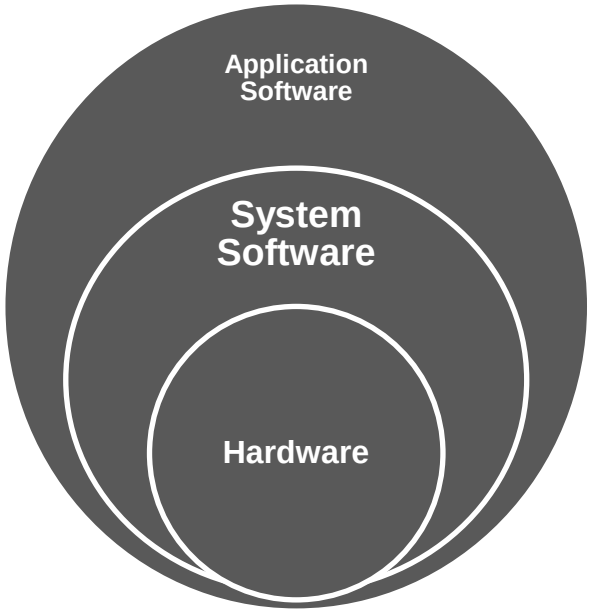
Types of Software

- System Software
  - System Management Programs
  - System Development Programs
- Application Software
  - Standard Application Programs
  -

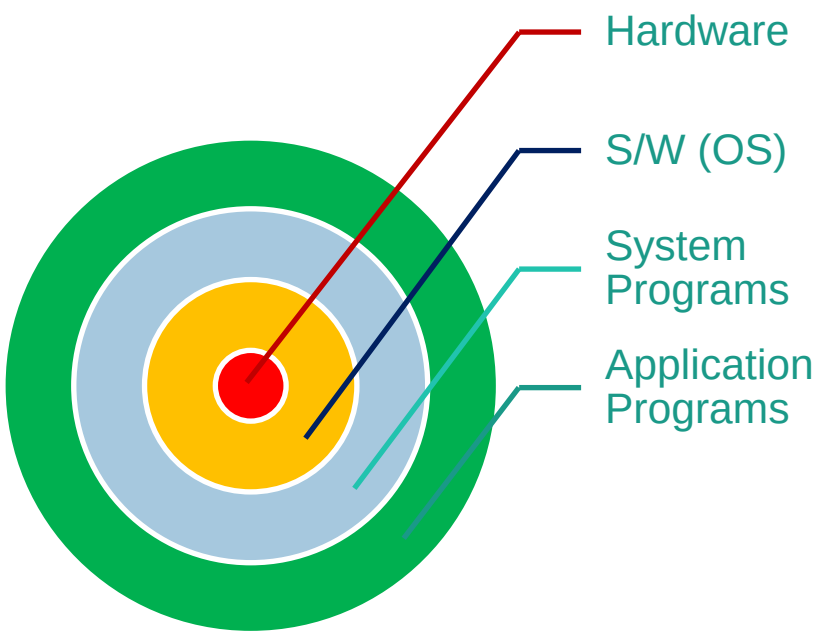



HARDWARE
(Physical devices/components of the computer system)
SYSTEM SOFTWARE
(Software that constitute the operating and programming environment of the computer system)
APPLICATION SOFTWARE
(Software that do a specific task or solve a specific problem)
USERS
(Normally interact with the system via the user interface provided by the application software)

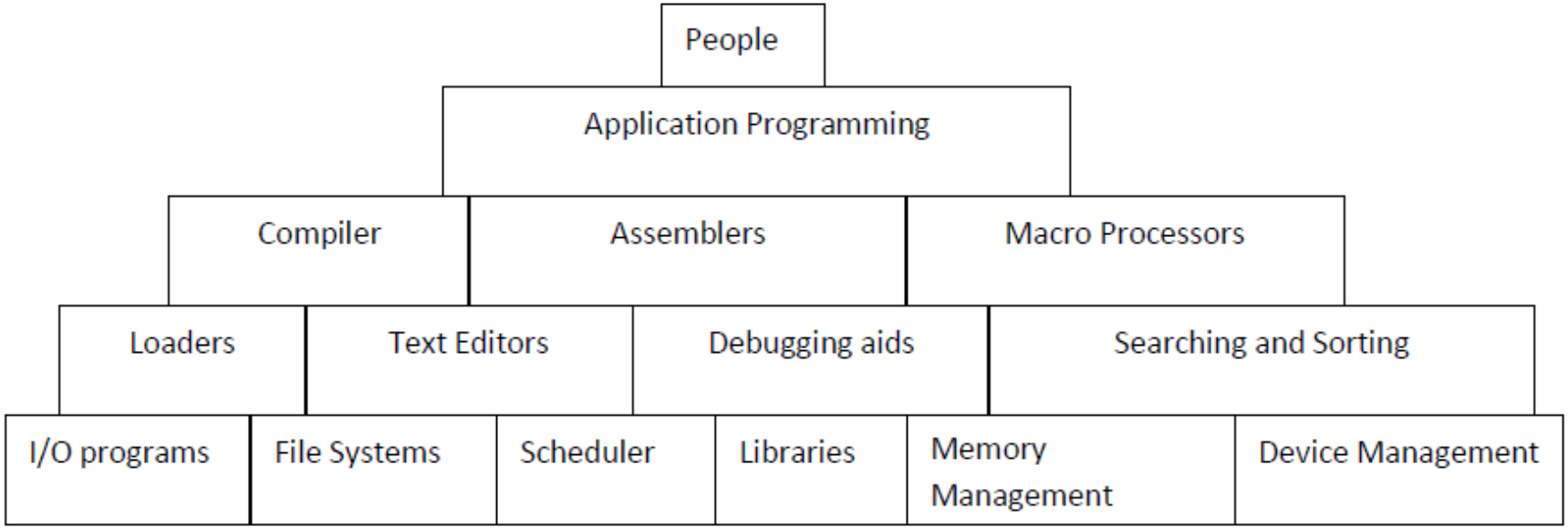
- **Application programming:** provides services to the user (e.g. word processor)
- **Systems programming:** provides services to the computer hardware (e.g. disk defragmenter)
- Requires a greater degree of hardware awareness



Operating System



Evolution of a programming system



References

- If not indicated, Google Image