

## Lecture 5

# Computer and Information Technology

- Parts of a Computer System
- Software and Its Types
- Hardware vs. Software

# Parts of a Computer System



Users



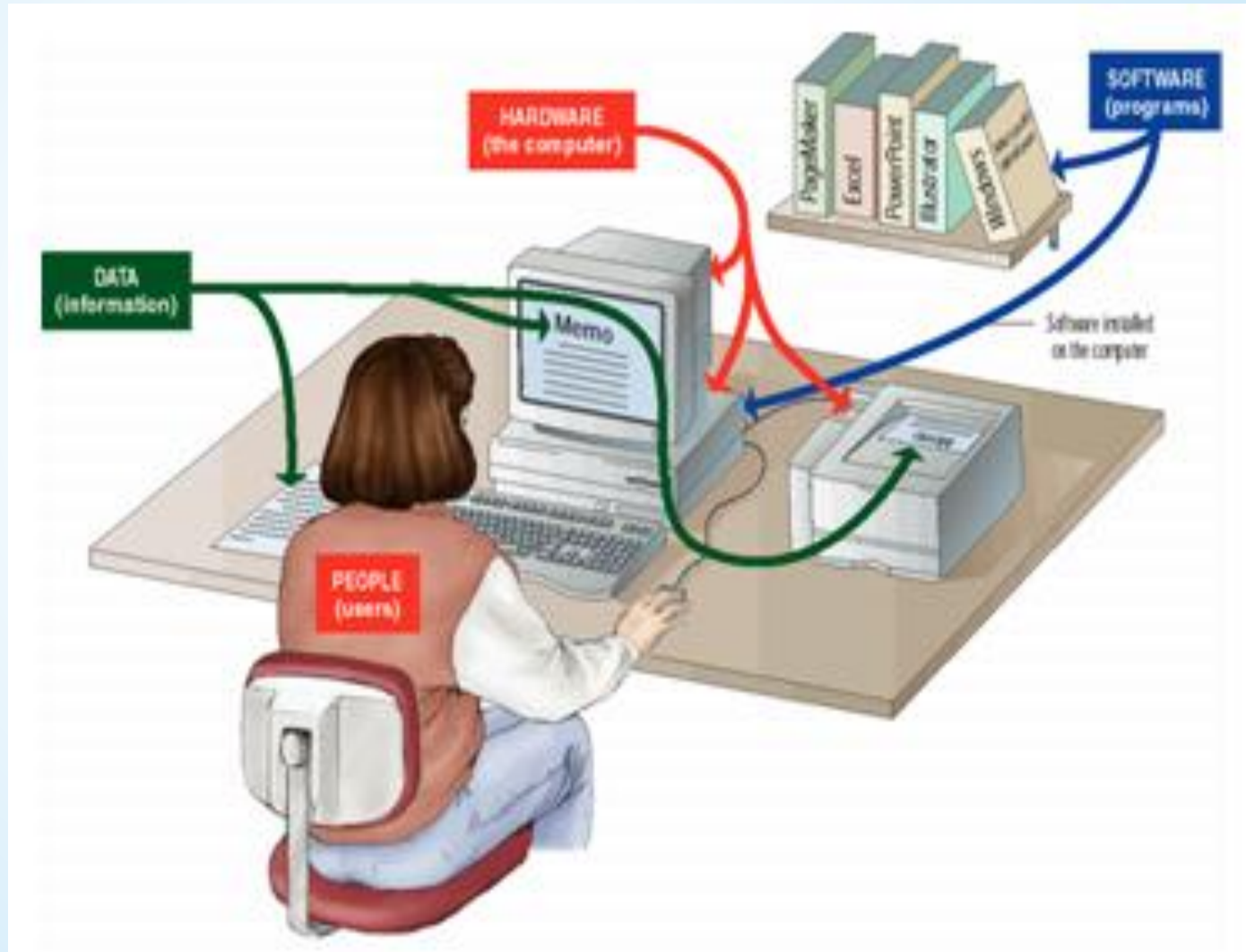
Data



Hardware





Software






# Parts of a Computer System: User

*User.....*

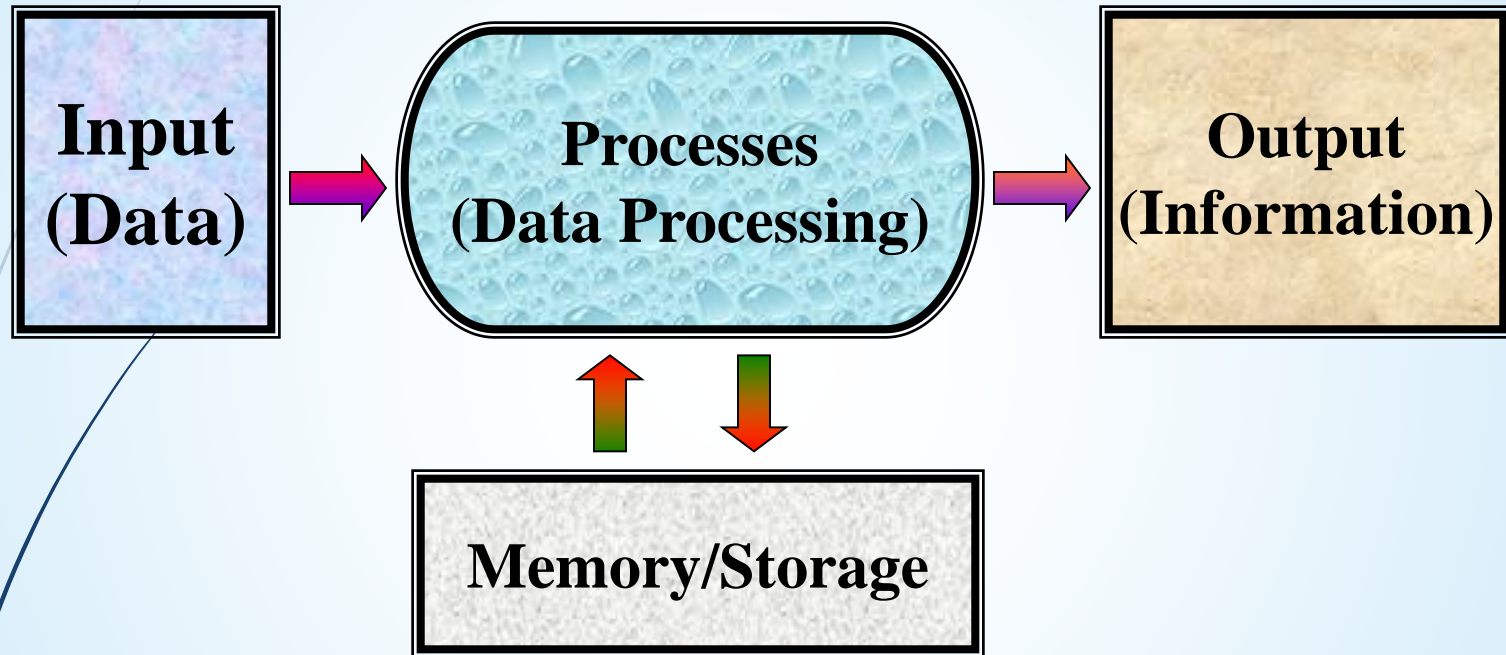
-  People are the Computer operators, also known as users or Humanware.
-  The user is a person perhaps like yourself – someone without much technical knowledge of computers but who uses computers to perform professional or personal tasks, enhance learning, or have fun.

# Parts of a Computer System: Data

## *Defining Data.....*

-  Data is anything in a form suitable for use with a computer.
-  The raw material from which information is generated. Data appear in the form of text, numbers, audio, video, images, figures, or any combination of these.
-  Data is measurement that can be disorganized.

# Parts of a Computer System: Data





# Parts of a Computer System: Data



## *Data Processing.....*

- 🖥 It's a process that converts the data into information.
- 🖥 A general term that stands for all logical, arithmetic, and input/output operations that can be performed on data by a computer.



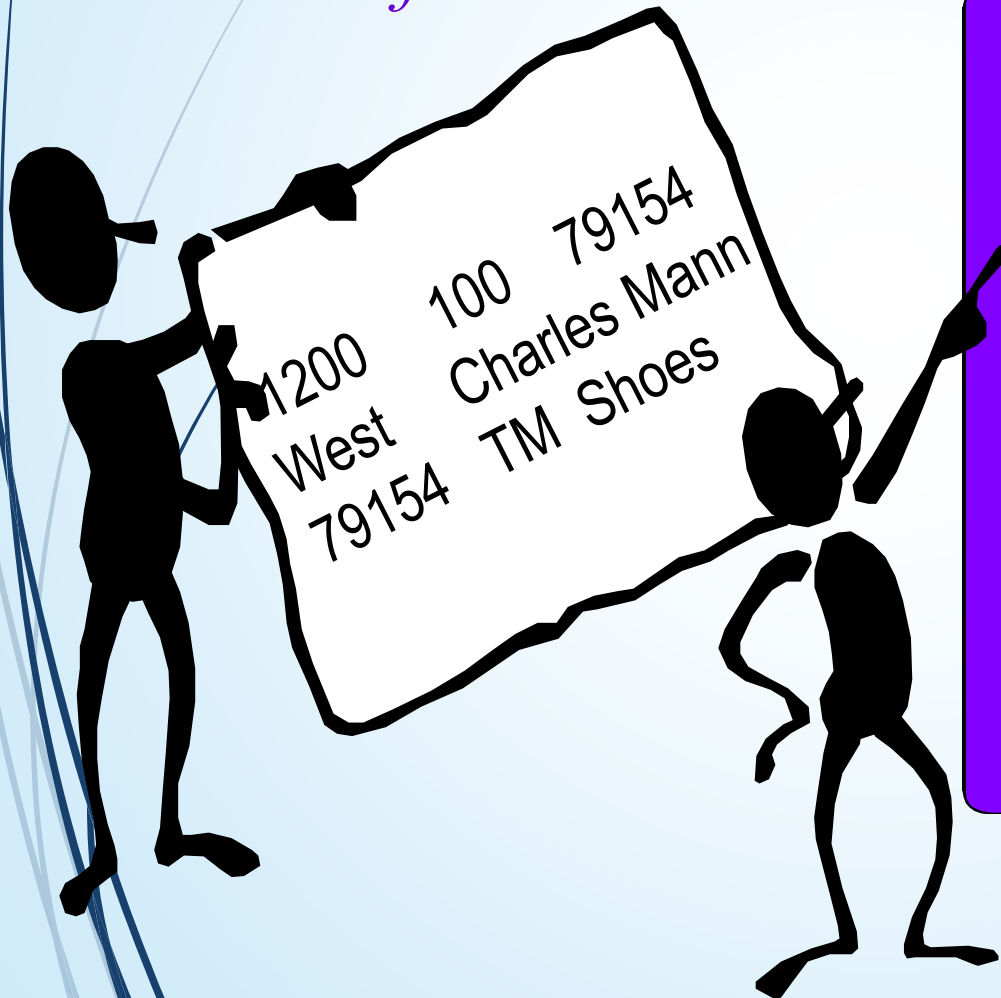
# Parts of a Computer System: Data

## *Defining Information.....*

-  Information is the result of processing, manipulating and organizing data in a way that adds to the knowledge of the receiver.
-  When data becomes organized it becomes Information.

# Parts of a Computer System: Data

*Data vs. Information.....*



Monthly Sales Report for West Region		
Sales Rep: Charles Mann		
Emp No. 79154		
<u>Item</u>	<u>Qty Sold</u>	<u>Price</u>
TM Shoes	1200	\$100



# Parts of a Computer System: Hardware

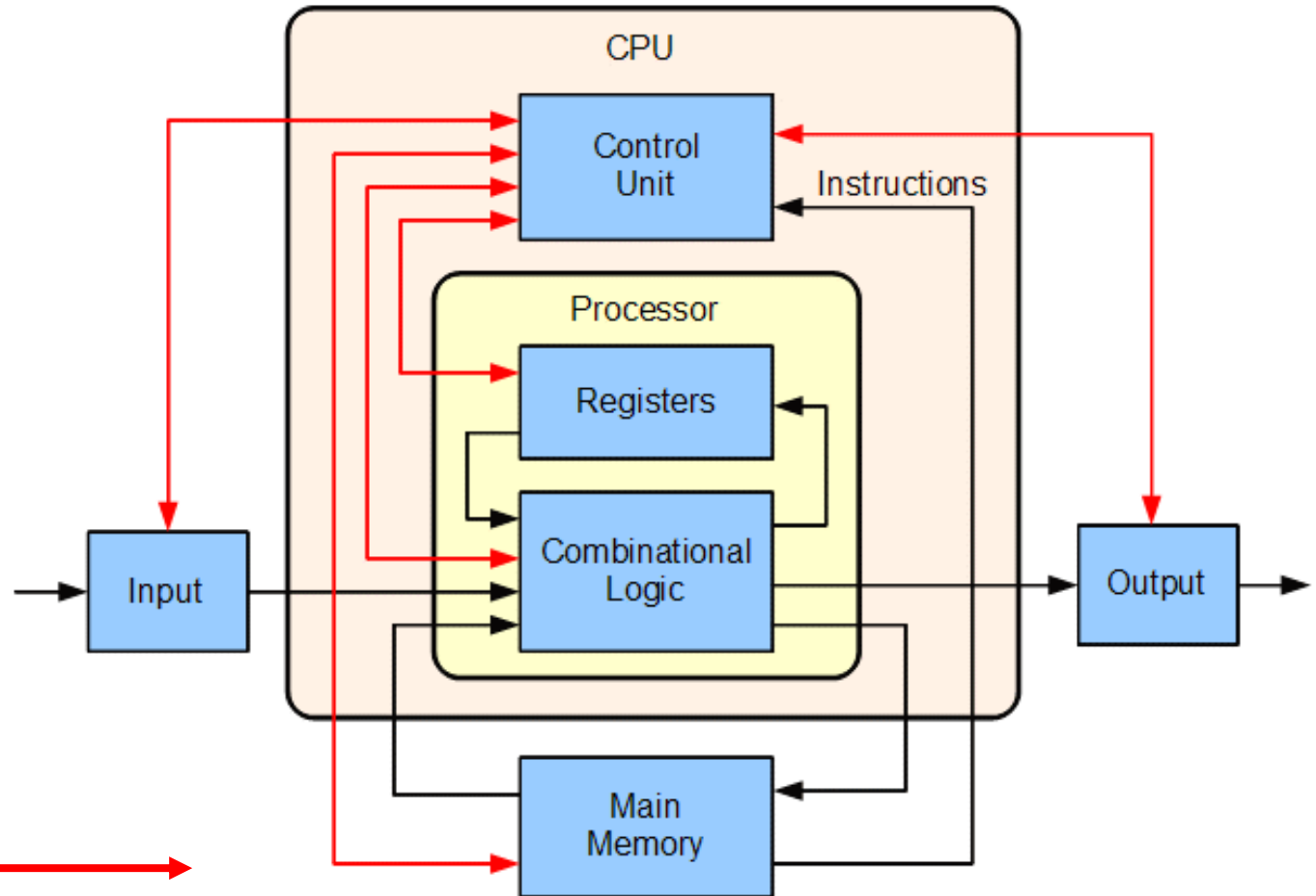
## *Hardware.....*

- ❏ The physical devices that make up the computer are called Hardware.
- ❏ Any part of the Computer you can touch.
- ❏ The term device refers to any piece of hardware



# Parts of a Computer System: Hardware

*The Architecture.....*







Control Flow →

Data Flow →

# Parts of a Computer System: Software

## *Software.....*

-  Software is a set of instructions that makes the computer perform tasks.
-  Software tells the Computer what to do.
-  The term program refers to any piece of software.
-  Examples: Operating Systems, Web browser, Word processors, Adobe Photoshop, Games etc.

# Classification of Software

Software

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graph TD; Software[Software] --> Application[Application Software]; Software --> System[System Software];
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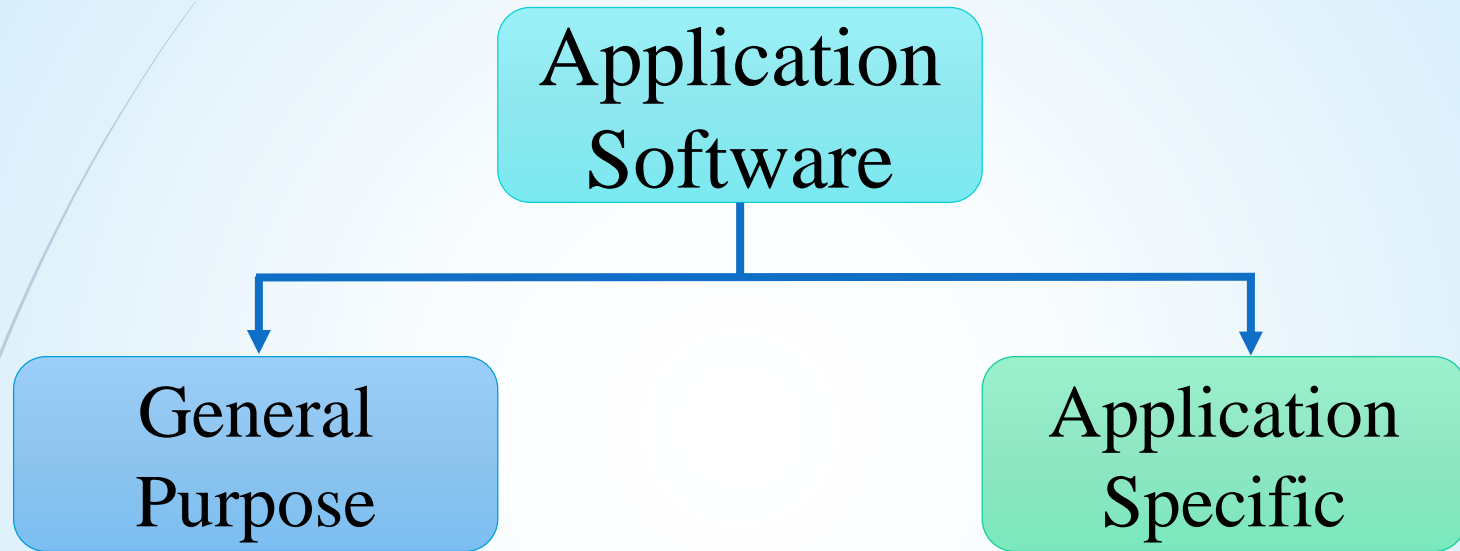
Application Software

- Performs information processing tasks for end user
- User gets to take the benefits of computer hardware through these software

System Software

- Manages and supports operations of computer system and its network
- Application programs gets to use the hardware through system software

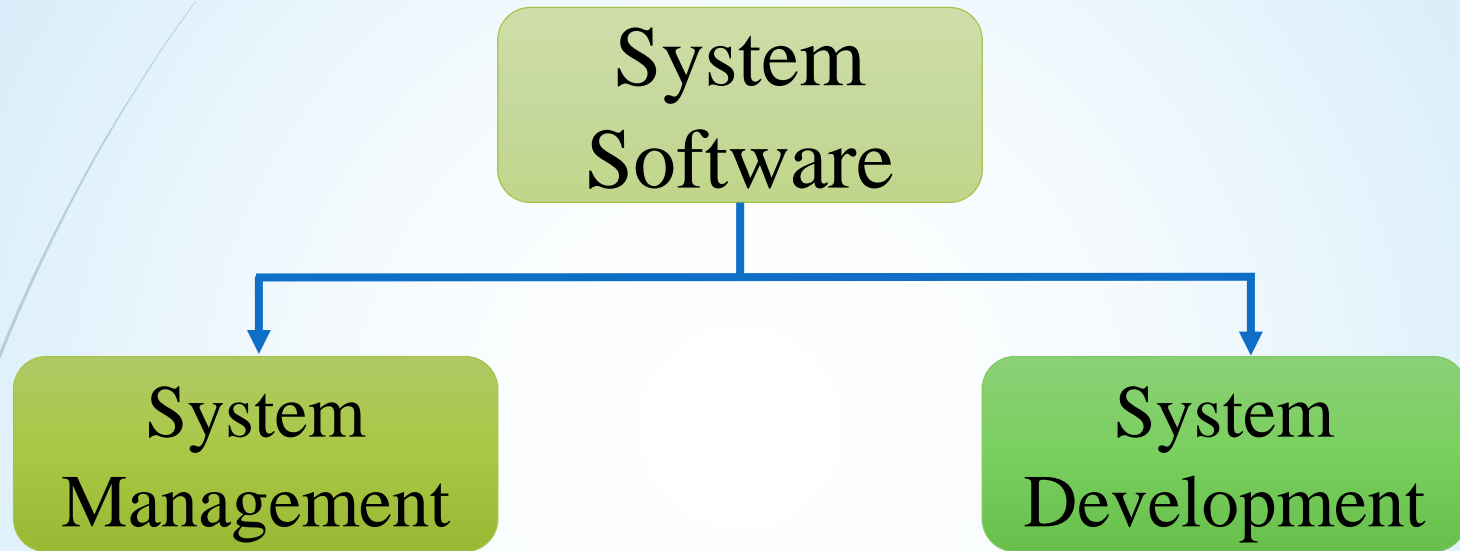
# Classification of Application Software



- Made for consumer market not targeting any particular field or specific customer
- Examples are Software Suites, Word Processors, Presentation Makers, Spreadsheet, Browser, Graphics Designer, etc.

- Made for specific customer or specific application in business
- Examples are Inventory Management, ERP, Supply Chain Management, Hospital Management, etc.

# Classification of System Software



Main operating system, network management, application launcher and all the utilities like disk formatting, scanning and defragmenting tools fall into this category.

Programming language (translator), its library and components, program editing interface and tools – they all fall into this category



# Some Other Types of Software

## Firmware

Firmware is a software program or set of instructions programmed on a hardware device. It provides the necessary instructions for how the device communicates with the other computer hardware mainly at low level device specific operation.

Firmware is usually stored in read only memories and can't be changed or deleted. This is done to confirm security. But devices with upgradable firmware is not uncommon.

Example: Routers, Phones, Computer BIOS, Smart Household Appliances (washing machine, oven, refrigerator) contains ROM chip to hold their firmware

# Some Other Types of Software

## Embedded Software

Embedded software operates more like application software running on a PC and the firmware is like the operating system to it. Embedded software typically implements higher-level features and functions of the device and directly interfaces with the end user. And the firmware takes care of low-level tasks such as converting analog sensor signals to digital data and managing communications protocols and the operation of the device.

Example: A smart TV now a days can run various online and offline programs. All the programs we see (Netflix, YouTube, Browser, IP TV, Games, Video Conferencing, etc.) are embedded software whereas the system software running from its ROM to operate the TV and all its programs is its firmware.


# Some Other Types of Software

## Shareware

Shareware is a type of proprietary software which is initially provided free of charge to users, who are allowed and encouraged to make and share copies of the program. Shareware is often offered as a download from a website or on a compact disc included with a magazine.

## Freeware

Freeware is software that is free to use. Unlike commercial software, it does not require any payment or licensing fee. It is similar to shareware, but will not eventually ask you for payment to continue using the software. We can legally download and use freeware for as long as we want without having to pay for it. There is no fixed set of rules of agreement and the developer has the right to discontinue its support for the freeware.



Thank You for Your Patience  
Stay Home, Stay Safe  
Always put on a mask when  
you are in public!

