

Introduction to Computers

Considers:

- Definition of computer
- Computer system devices
- Central Processing Unit
- Introduction to software

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What Is A Computer?

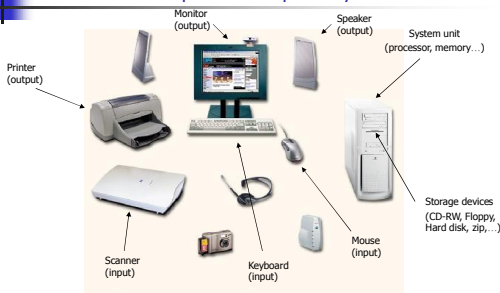
A computer is an electronic device, operating under the control of instructions (software) stored in its own memory unit,

- that can accept data (input),
- manipulate data (process), and
- produce information (output) from the processing.
- Generally, the term is used to describe a collection of devices that function together as a system.

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Devices that comprise a computer system



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What Does A Computer Do?

Computers can perform four general operations, which comprise the information processing cycle.

- Input
- Process
- Output
- Storage

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Data and Information

- All computer processing requires **data**, which is a collection of raw facts, figures and symbols, such as numbers (e.g. 32), words (e.g. Sokwe), images, video and sound, given to the computer during the input phase.
- Computers **manipulate** data to create information.
- **Information** is data that is organized, meaningful, and useful.
- E.g. Lister, 32; song (organized sound); film (organized sound, images, motion), etc.
- During the output Phase, the information that has been created is put into some form, such as a printed report.
- The information can also be put in computer storage for future use.

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Why Is A Computer So Powerful?

- The ability to perform the information processing cycle with **amazing speed**.
- **Reliability** (low failure rate).
- **Accuracy**.
- Ability to **store** huge amounts of data and information.
- Ability to **communicate** with other computers.

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How Does a Computer Know what to do?

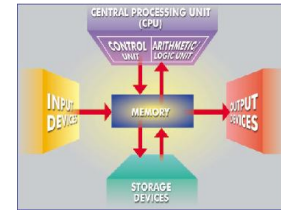
- It must be given a detailed list of instructions, called a **compute program** or **software**, that tells it exactly what to do.
- Before processing a specific job, the computer program corresponding to that job must be stored in memory.
- Once the program is stored in memory the compute can start the operation by executing the program instructions one after the other.

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What Are The Primary Components Of A Computer ?

- **Input** devices.
- **Central Processing Unit** (containing the control unit and the arithmetic/logic unit).
- **Memory**.
- **Output** devices.
- **Storage** devices.



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Input Devices

- **Keyboard.**
- **Mouse.**
- **Stylus / pen for tablets**
- **Modem**
- **Scanner**
- **Touch Screen Input**
- **OCR (optical card reader)**

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The Keyboard

- The most commonly used input device is the keyboard on which **data is entered by manually** keying in or typing certain keys.
- A keyboard typically has 101 or 105 keys.



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The Mouse

- Is a **pointing device** which is used to control the movement of a mouse pointer on the screen to make selections from the screen.
- It has one to five buttons.
- The bottom of the mouse is flat and contains a mechanism that detects movement of the mouse.



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The Central processing Unit

- The central processing unit (CPU) contains electronic circuits that cause processing to occur.
- The CPU
 - **interprets** instructions to the computer,
 - **performs** the logical and arithmetic processing operations, and
 - **causes** the input and output operations to occur.
- It is considered the “brain” of the computer.



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Memory

- Memory also called Random Access Memory or **RAM** (temporary memory) is the main memory of the computer.
- It consists of electronic components that store data including numbers, letters of the alphabet, graphics and sound.
- Any information stored in RAM is lost when the computer is turned off.
- Read Only Memory or **ROM** is memory that is etched on a chip that has start-up directions for your computer.
- It is permanent memory.

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Amount Of RAM In Computers

- The amount of memory in computers is typically measured in kilobytes or megabytes.
- One kilobyte (K or KB) equals approximately 1,000 memory locations and one megabyte (M or MB) equals approximately one million locations
- A memory location, or byte, usually stores one character.
- Therefore, a computer with 8 MB of memory can store approximately 8 million characters.
- One megabyte can hold approximately 500 pages of text information.

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Output Devices

- Output devices make the information resulting from the processing available for use.
- The two output devices more commonly used are the **printer** and the computer **screen**.
- The printer produces a hard copy of your output, and the computer screen produces a soft copy of your output.
- **Speakers**



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Storage Devices

- Auxiliary storage devices are used to store data when they are not being used in memory.
- The most common types of auxiliary storage used on personal computers are floppy disks, hard disks, CD-ROM drives, USB flash drives and MicroSD.

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Flash Drives

- A flash drive is a small storage device that can be used to transport files from one computer to another.



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Using a Flash Drive

- A flash drive is easy to use.
- Once you have created a paper or other work, simply plug your flash drive into a USB port.
- The USB port will appear on the back of a desktop computer's PC tower or on the side of a laptop.

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- Most computers are set up to give an audible notice such as a chime when a new device is plugged in. This is normal.
- When you option to save your work by selecting “Save As,” you will find that your flash drive appears as an additional drive.


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Why Carry a Flash Drive?



- You should always carry a backup copy of any important work you’ve completed.
- As you create a paper or large project, make a backup on your flash drive and save it separate from your computer.
- A flash drive will also come in handy if you are able to print out homework at school.



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- You can write a paper at home, save it to your flash drive, then plug the drive into a USB port on a school computer.
- Then simply open the document and print it out. Check with your teacher or librarian to see if this is an option.
- A flash drive is also handy for working on your paper or project on several computers at once. Carry your flash drive to your friend’s house for a joint project or for group study.
- Another reason to use a flash drive is that they are sturdier than floppy disks.
- A flash drive will survive teenage abusers much more successfully than floppy disks or CDs.

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Hard Disks

- Another form of auxiliary storage is a hard disk. A hard disk consists of one or more rigid metal plates coated with a metal oxide material that allows data to be magnetically recorded on the surface of the platters.
- The hard disk platters spin at a high rate of speed, typically 5400 to 7200 revolutions per minute (RPM).
- Storage capacities of hard disks for personal computers range from 10 GB to 120 GB (one billion bytes are called a gigabyte).

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Compact Discs

- A compact disk (CD), also called an optical disc, is a flat round, portable storage medium that is usually 4.75 inch in diameter.
- A CD-ROM (read only memory), is a compact disc that used the same laser technology as audio CDs for recording music.
- In addition it can contain other types of data such as text, graphics, and video.
- The capacity of a CD-ROM is 650 MB of data.

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Computer Software



Computer software is the key to productive use of computers. Software can be categorized into two types:

- **Operating system** software
- **Application** software.

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Operating System Software

Operating system software tells the computer how to perform the functions of **loading, storing and executing** an application and **how to transfer data**.

Today, many computers use an operating system that has a graphical user interface (GUI) that provides visual clues such as icon symbols to help the user.

Microsoft **Windows XP** is a widely used graphical operating system.

Microsoft Windows 7 is also available.

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Application Software

Application Software consists of programs that tell a computer how to produce information. Some of the more commonly used packages are:

- **Word processing**
- **Electronic spreadsheet**
- **Database**
- **Presentation graphics**

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Word Processing



- Word Processing software is used to create and print documents.
- A key advantage of word processing software is that users easily can make changes in documents.

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Word Processing :

- Creation, editing, and/or printing of documents and texts by means of computer systems.

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Features and advantages :

- Editing is possible before printing
- Data can be made attractive by formatting, such as bold, italic, underline and many more.
- Documents can easily be send electronically
- Spell-check feature is provided

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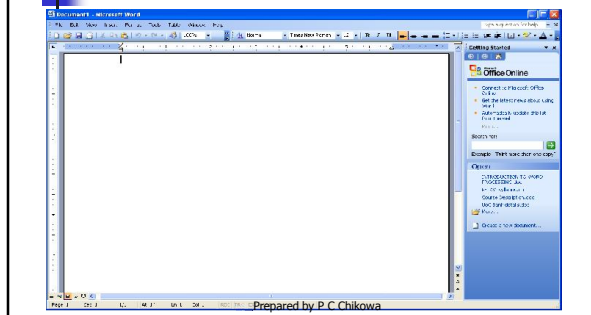
Application areas of word processing :

- Business - Legal Copies, Letterheads, Letters, Memos, Circulars etc.
- Education - To develop word processing skills from the very beginning
- Home - Dealing with assignments being completed at home, or occasionally recreational ex. Maintaining diary

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Introduction to parts of a word window :



Copying a block to another file :

- Select text >> Click Home >> Copy
- >> Move cursor to the location in another file, where that selected block is to be pasted
- >> Click Home >> Paste

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Newspaper Style Columns :

- Select text >> Click Page Layout
- >> Click Columns
- >> Select number of Columns and
- >> Click

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Headers and Footers :

- A text or graphics usually printed on top or bottom of every page in document.
Step : Click Insert >> Click Header and Footer >> Click Header, Footer or page Number

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Finding Text :

- It is a feature used to find specific word or phrase. Step · Home >> Editing>>Find
- Setting Up Printers : Click Start menu on desktop Click Printers and Faxes Right click the printer which you want to save as default Printer and select Set As Default Printer

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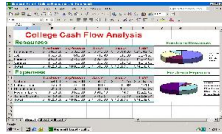
Printing the document file :

- Step : Click Office Button >> Select (and Click) Print
Insert clip art Step : Click Insert>> Click Clip Art
Insert graph Step : Click Insert >> Click Insert Chart (icon). Different chart options appear to choose from.

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Electronic Spreadsheets

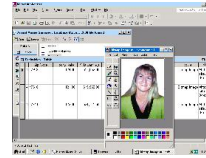


- Electronic spreadsheet software allows the user to add, subtract, and perform user-defined calculations on rows and columns of numbers.
- These numbers can be changed and the spreadsheet quickly recalculates the new results.

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Database Software



- Allows the user to enter, retrieve, and update data in an organized and efficient manner, with flexible inquiry and reporting capabilities.

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Presentation Graphics



- Presentation graphic software allows the user to create documents called slides to be used in making the presentations.
- Using special projection devices, the slides display as they appear on the computer screen.

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