

UNIT 1 – FUNDAMENTALS OF COMPUTER

1. Introduction and Objectives of Computer

1.1 Meaning of Computer

The word *computer* comes from the Latin word “**computare**”, which means *to calculate*. In the early days, computers were primarily used for arithmetic calculations, but over time, their role expanded dramatically.

Today, a computer is defined as an **electronic machine** that:

- Accepts raw data as input,
- Processes it according to pre-defined instructions (program),
- Produces meaningful information as output,
- And stores both data and results for future use.

Computers are not limited to numerical work; they now handle text, images, sound, and video across diverse fields — education, business, medicine, entertainment, and more.

1.2 Definition

“A computer is an electronic device that accepts data and instructions, processes them to generate useful information, and stores the results for future use.”

1.3 Characteristics of a Computer

1. **Speed:**

Computers can perform millions of calculations in a second. For example, tasks that might take humans hours can be completed by a computer in seconds.

2. **Accuracy:**

Computers follow instructions exactly. Errors usually occur due to incorrect data or program design, not because of the computer itself.

3. **Automation:**

Once a program is loaded, the computer performs all operations automatically without manual supervision.

4. **Storage Capacity:**

A computer can store vast amounts of data permanently or temporarily. Data can be retrieved quickly when needed.

5. **Versatility:**

Computers can perform different types of tasks — calculations, designing, gaming, data analysis, etc. — all at once.

6. **Diligence:**

Unlike humans, computers never get tired, bored, or distracted. They can perform repetitive tasks with equal efficiency.

7. **Connectivity:**

Modern computers can connect and communicate with others through networks and the Internet, enabling global information exchange.

8. **Logical Decision Making:**

Computers can follow logical conditions (like “if-else” statements) to make automated decisions.

1.4 Objectives of a Computer

1. **Data Processing:** To convert raw data into useful information.
 2. **Speed and Efficiency:** To perform large volumes of operations in minimal time.
 3. **Accuracy:** To produce reliable and error-free results.
 4. **Automation:** To reduce human effort and dependency.
 5. **Data Storage:** To maintain large databases and retrieve them efficiently.
 6. **Communication:** To enable data sharing and digital communication.
 7. **Decision Support:** To help in analysis, forecasting, and planning.
 8. **Productivity:** To increase overall work output and simplify complex tasks.
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2. Development of Computer System

2.1 Historical Background

The evolution of the computer can be divided into two major eras — **Mechanical Era** and **Electronic Era**.

2.2 Mechanical Era

Before electronic circuits, various mechanical devices were developed to perform basic calculations.

Device	Inventor	Year	Function
Abacus	Ancient China	3000 BC	First manual counting device.
Pascaline	Blaise Pascal	1642	Performed addition and subtraction mechanically.
Leibniz Calculator	Gottfried Leibniz	1671	Could multiply and divide.
Analytical Engine	Charles Babbage	1833	Concept of programmable computer.
Tabulating Machine	Herman Hollerith	1890	Used punched cards for data processing.

💡 **Charles Babbage** is known as the *Father of the Computer*, and **Ada Lovelace** is regarded as the *First Computer Programmer*.

2.3 Electronic Era

The electronic era began with the invention of **vacuum tubes**, and since then, computers have evolved through **five generations**.

3. Types of Computers – Characteristics and Limitations

Computers can be categorized based on their **purpose, size, and processing capability**.

3.1 Based on Purpose

Type	Description	Example
Analog Computer	Works with continuous data such as temperature, speed, or voltage. Used in scientific and industrial applications.	Thermometers, flight simulators
Digital Computer	Works on binary data (0s and 1s). Performs arithmetic and logical operations.	PCs, laptops
Hybrid Computer	Combines features of analog and digital systems.	Used in hospitals for monitoring body functions.

3.2 Based on Size and Performance

Type	Description	Uses
Microcomputer	Small, personal computers for general use.	Homes, offices
Minicomputer	Multi-user systems used by small organizations.	Banks, institutions
Mainframe	Large, powerful systems for centralized data processing.	Airlines, government databases
Supercomputer	Fastest machines for scientific and weather modeling.	ISRO, NASA, research centers

3.3 Limitations of Computer

- No intelligence or emotions.
 - Dependent on human instructions.
 - Can malfunction due to software/hardware errors.
 - Requires constant power supply.
 - Expensive for high-end applications.
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4. Generations of Computer

Generation	Period	Technology Used	Key Features	Examples
1st	1940–1956	Vacuum tubes	Large, slow, generated heat, used punch cards.	ENIAC, UNIVAC
2nd	1956–1963	Transistors	Smaller, faster, less heat, more reliable.	IBM 1401
3rd	1964–1971	Integrated Circuits (ICs)	Compact, powerful, supported high-level languages.	IBM 360
4th	1971–Present	Microprocessors	Use of chips, personal computers invented.	Apple II, IBM PC
5th	Present & Future	Artificial Intelligence, Quantum Computing	Voice recognition, robotics, natural language processing.	AI Systems, Supercomputers

5. Types of PCs – Desktop, Laptop, Notebook, Workstation

Type	Description	Advantages	Applications
Desktop PC	Fixed computer with separate monitor, CPU, keyboard, and mouse.	Affordable, easy maintenance, upgradable.	Offices, schools.
Laptop	Portable personal computer with battery power.	Mobility, wireless features, built-in camera.	Students, professionals.
Notebook/Ultrabook	Slimmer and lighter version of laptop.	Energy-efficient, portable.	Travelers, educators.
Workstation	High-performance system designed for graphics, engineering, or animation.	Multi-tasking, high speed.	CAD/CAM, animation, research.

6. Components of Computer System

A computer system consists of **Hardware, Software, Peopleware, and Data.**

6.1 Hardware

The tangible, physical parts of a computer system:

- Input devices (keyboard, mouse)
 - Output devices (monitor, printer)
 - Processing unit (CPU)
 - Storage devices (HDD, SSD)
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6.2 Software

The set of instructions that tells the computer what to do.

- **System Software:** Manages hardware (e.g., Operating Systems like Windows, Linux).
 - **Application Software:** Performs specific tasks (e.g., MS Word, Photoshop).
 - **Utility Software:** Supports maintenance tasks (e.g., antivirus, file compressors).
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6.3 Firmware

A type of software permanently stored in hardware, such as the **BIOS** (Basic Input/Output System).

6.4 Peopleware

Refers to the users, programmers, and IT professionals who operate or develop the computer systems.

6.5 Data

Raw facts, figures, or symbols that the computer processes into meaningful information.

7. Types of PC (Desktop, Laptop, Notebook) – Recap

As already discussed, these categories differ mainly by portability, power consumption, and purpose of use.

Summary of Unit 1

- Computer = Electronic data processing machine.
- Developed through 5 generations from mechanical to AI-based systems.
- Classified by size, purpose, and usage.
- Components include hardware, software, and users.
- PCs come in various forms like desktop, laptop, and workstation.

UNIT – 2: INPUT AND OUTPUT DEVICES

This unit explains the **peripheral devices** used to provide input to the computer and receive output from it. These devices act as **the interface between the user and the computer system**.

1. Input Devices

1.1 Definition

Input devices are the **hardware components** that allow users to **enter data, commands, and instructions** into a computer for processing.

Without input devices, a computer would not be able to receive any data from the user.

1.2 Functions

1. Convert user actions or data into a form understandable by the computer (binary code).
 2. Transmit that data to the CPU for processing.
 3. Help interact with software programs.
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1.3 Common Input Devices

(a) Keyboard

- The **most common input device**, used to type text, numbers, and symbols.
- It follows the **QWERTY layout**.
- Keys are divided into groups:
 - **Alphanumeric keys:** A–Z, 0–9
 - **Function keys:** F1–F12 (used for shortcuts)
 - **Control keys:** Ctrl, Alt, Esc, Shift, etc.
 - **Cursor keys:** Arrow keys for navigation.

- **Numeric keypad:** For quick numerical entry.

Types:

- Standard (104 keys)
 - Multimedia keyboards (extra shortcut keys)
 - Wireless/Bluetooth keyboards
 - Virtual (on-screen) keyboards
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(b) Mouse

- A **pointing device** that controls the movement of a pointer (cursor) on the screen.
- It detects motion over a surface and sends coordinates to the computer.

Functions:

- Selecting, dragging, dropping, opening, and closing items.

Types:

- Mechanical (ball-based)
 - Optical (LED sensor)
 - Laser mouse
 - Wireless/Bluetooth mouse
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(c) Trackball

- Similar to a mouse but has a **ball on top** that the user rotates to move the cursor.
 - Used in limited space areas like control rooms or kiosks.
 - Common in laptops and specialized devices.
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(d) Joystick

- Used to control cursor movement in **computer games, simulations, and CAD applications**.
- Has a **stick** that pivots in different directions and sends signals corresponding to movement.

Types:

- Digital joystick (simple on/off control)
 - Analog joystick (detects degree of movement)
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(e) Digitizing Tablet (Graphics Tablet)

- A flat electronic pad used with a **stylus pen** to draw or write directly onto a computer.
 - Converts pen strokes into digital form.
 - Common in digital art, architecture, and engineering design.
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(f) Scanner

- Converts **printed text or images into digital format**.
- Works on the principle of optical reflection.

Types:

- Flatbed scanner (flat glass surface)
- Sheet-fed scanner (for documents)
- Handheld scanner (portable)
- 3D scanner (captures object dimensions)

Output format: JPEG, PNG, PDF, etc.

(g) Camera / Webcam

- Used to capture photos and videos directly into the computer.
- **Webcams** are used for video conferencing, online classes, and live streaming.

Features: Resolution, autofocus, night vision, microphone support.

(h) Microphone

- Converts **sound waves** into electrical signals for processing.
 - Used for voice recording, speech recognition, or online meetings.
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(i) Barcode Reader

- Reads information encoded in the form of **black and white bars (barcodes)**.
 - Used in billing counters, libraries, and inventory management.
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(j) Biometric Devices

- Capture **biological data** like fingerprints, face, or iris pattern for authentication.
 - Used in security systems, attendance, and smartphones.
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2. Output Devices

2.1 Definition

Output devices are hardware components that **present the processed information** from the computer to the user in a readable or usable form — visually, audibly, or physically.

2.2 Types of Output Devices

1. **Visual Output Devices** – Display information on screen.
 2. **Hard Copy Output Devices** – Produce physical output (e.g., printer).
 3. **Audio Output Devices** – Produce sound output.
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2.3 Visual Output Devices

(a) Monitor (Visual Display Unit – VDU)

- Displays text, images, and videos generated by the computer.
- Acts as a **primary output device**.

Types of Monitors:

1. **CRT (Cathode Ray Tube):** Bulky, old technology, used in early computers.
2. **LCD (Liquid Crystal Display):** Lightweight, thin, energy-efficient.
3. **LED (Light Emitting Diode):** Brighter and more advanced version of LCD.
4. **Plasma Display:** Used in large TV screens.
5. **Touchscreen Monitors:** Act as both input and output device.

Video Standards:

- **VGA (Video Graphics Array)** – 640×480 resolution
 - **SVGA (Super VGA)** – Higher resolution (800×600 or more)
 - **XGA, UXGA, 4K** – Modern high-definition standards
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(b) Projector

- Projects computer display on a large screen using a lens system.
- Used in classrooms, meetings, and seminars.

Types:

- LCD Projector
 - DLP Projector
 - LED Projector
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2.4 Hard Copy Output Devices

(a) Printer

Converts digital data into printed form on paper.

Types:

1. **Impact Printers:** Strike ribbon against paper.
 - *Dot Matrix Printer* – Prints by impact of pins.
 - *Line Printer* – Prints a full line at once.
 - *Drum Printer* – Uses a rotating drum.
2. **Non-Impact Printers:** Do not strike paper.
 - *Inkjet Printer* – Sprays ink through nozzles.
 - *Laser Printer* – Uses toner and laser beam.
 - *Thermal Printer* – Uses heat on special paper.

Characteristics:

- Print quality (DPI – Dots per inch)
 - Speed (Pages per minute)
 - Color or monochrome printing
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(b) Plotter

- Used to draw **large designs, maps, blueprints.**
- Works by moving a pen over paper.
- Common in engineering and architectural fields.

Types: Drum plotter, Flatbed plotter, Inkjet plotter.

2.5 Audio Output Devices

- **Speakers:** Convert digital audio signals into sound waves.
 - **Headphones/Earphones:** Provide personal listening experience.
 - **Sound Cards:** Hardware inside CPU that processes audio input/output.
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3. Audio/Video Input, Display, and Sound

Modern computers can handle **multimedia** — combining audio and video for rich communication.

- **Audio Input:** Microphone, headset, MIDI keyboard
- **Audio Output:** Speakers, amplifiers
- **Video Input:** Webcam, camcorder, digital camera
- **Video Output:** Monitors, projectors, VR headsets

Audio and video quality depend on **graphics card** and **sound card**.

4. Graphical Processing Unit (GPU) and Ports

4.1 GPU (Graphics Processing Unit)

- A **specialized electronic chip** designed to handle image, video, and 3D rendering.
- Works alongside the CPU to improve visual performance.
- Essential for gaming, animation, and scientific visualization.

Types:

1. **Integrated GPU** – Built into the CPU (common in laptops).
 2. **Dedicated GPU** – Separate card for high-end graphics tasks (e.g., NVIDIA, AMD).
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4.2 Ports and Connectors

Ports are **physical docking points** through which peripheral devices connect to the computer.

Port Type	Function	Example
USB (Universal Serial Bus)	Connects pen drives, cameras, keyboards	USB 2.0, 3.0
HDMI (High-Definition Multimedia Interface)	Transfers audio and video	Projectors, TVs
VGA / DVI Port	Connects monitor display	CRT/LCD Monitors
Ethernet Port	Internet/network connection	LAN cable
Audio Jack	Connects speakers/headphones	3.5 mm jack
Power Port	Supplies electrical power	Charger socket

5. Storage Devices (Hard Drive, Discs, Cards)

Storage devices are used to **store data permanently or temporarily**.

Type	Description	Examples
Primary Storage	Temporary (volatile) memory.	RAM, Cache
Secondary Storage	Permanent storage for data.	Hard Disk, SSD
Optical Storage	Uses laser to read/write data.	CD, DVD, Blu-ray
Removable Storage	Portable and external.	Pen Drive, Memory Card
Cloud Storage	Online data storage.	Google Drive, OneDrive

6. E-Accessible Options

E-accessibility ensures that computers are usable by **people with disabilities**.

Feature	Purpose
Screen Reader	Reads text aloud for visually impaired users.
Speech Recognition	Converts speech to text.
On-Screen Keyboard	For users who cannot use physical keyboards.
Magnifier Tool	Enlarges on-screen text or images.
Braille Display	Converts digital text into Braille characters.

✓ Summary of Unit 2

- Input devices feed data into the computer.
- Output devices display or print processed results.
- Audio-video devices enable multimedia interaction.
- GPU and ports improve performance and connectivity.
- Storage devices keep data secure and retrievable.
- Accessibility tools make technology inclusive for all.

UNIT – 3: OPERATING SYSTEM, APPLICATION SOFTWARE, AND COMPUTER SECURITY

1. OPERATING SYSTEM (OS)

1.1 Definition

An **Operating System (OS)** is the **system software** that manages computer hardware, software resources, and provides services for computer programs.

It acts as an **interface between the user and the hardware**.

Example: Windows, Linux, macOS, Android, iOS, etc.

1.2 Functions of Operating System

The OS performs several critical functions that ensure smooth and efficient operation of the computer system:

Function	Description
1. Process Management	Handles execution of programs, allocates CPU time, and manages multitasking.
2. Memory Management	Allocates and deallocates memory space to processes efficiently.
3. File Management	Organizes and controls reading/writing of data on storage devices.
4. Device Management	Controls and coordinates input/output devices via device drivers.
5. Security Management	Protects data and resources through authentication and access control.

6. User Interface Management	Provides a way for users to interact (CLI or GUI).
7. Error Detection & Handling	Detects hardware/software errors and alerts the user.

1.3 Types of Operating Systems

Type	Description	Examples
Single User, Single Tasking	Supports one user and one task at a time.	MS-DOS
Single User, Multitasking	One user can run multiple tasks.	Windows, macOS
Multi-User OS	Multiple users can access the computer simultaneously.	Unix, Linux
Multiprocessing OS	Uses two or more CPUs for parallel processing.	Windows Server, Unix
Real-Time OS (RTOS)	Executes tasks in real-time for critical applications.	VxWorks, QNX
Distributed OS	Manages a group of computers working together as one system.	Amoeba, Mach
Embedded OS	Designed for embedded systems with limited hardware.	Android Auto, iOS Embedded

1.4 User Interfaces

1. Command Line Interface (CLI):

- User types text-based commands.
- Example: MS-DOS, Linux Terminal.

2. Graphical User Interface (GUI):

- User interacts via icons, menus, and windows.
 - Example: Windows, macOS.
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1.5 Booting Process

The **booting process** is the sequence of operations the computer performs when it is powered on.

Steps:

1. **Power On Self Test (POST):** Hardware check.
 2. **Loading BIOS/UEFI:** Loads firmware instructions.
 3. **OS Loader:** Loads operating system files.
 4. **Kernel Loading:** Core of OS loads into memory.
 5. **User Login:** User interface appears.
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1.6 Popular Operating Systems

Category	Examples
Desktop OS	Windows, macOS, Linux
Mobile OS	Android, iOS
Server OS	Windows Server, Red Hat Enterprise Linux
Embedded OS	Smartwatch OS, Car OS

2. NETWORKING CONCEPTS

2.1 Definition

Networking refers to the **interconnection of two or more computers** for the purpose of sharing resources like data, printers, or internet connections.

2.2 Components of a Computer Network

Component	Function
Nodes	Computers or devices in the network.
NIC (Network Interface Card)	Hardware that connects a computer to a network.
Cables & Connectors	Physical medium (Ethernet cable, fiber optics).
Switches & Routers	Manage and direct data traffic.
Modem	Converts digital to analog signals for Internet.

2.3 Types of Networks

Network Type	Description	Range
PAN (Personal Area Network)	Small area around one person.	Few meters
LAN (Local Area Network)	Connects computers within a building.	Up to 1 km
MAN (Metropolitan Area Network)	Covers city or campus area.	Up to 50 km
WAN (Wide Area Network)	Connects across countries or globally.	Unlimited
Internet	World's largest WAN.	Global

2.4 Network Topologies

The **topology** defines the physical or logical arrangement of network devices.

Topology	Structure	Advantages	Disadvantages
Bus	Single main cable with nodes attached	Easy setup	Fault in main cable stops network
Star	Central hub connects all nodes	Easy to manage	Hub failure stops all
Ring	Each node connected in a circle	Equal access	One failure affects all
Mesh	Every device connected to all	Highly reliable	Expensive

	others		
Hybrid	Combination of topologies	Flexible	Complex design

2.5 Network Devices

Device	Function
Hub	Broadcasts data to all devices.
Switch	Sends data to specific devices only.
Router	Routes data between networks (like LAN to Internet).
Gateway	Connects different network architectures.
Modem	Converts analog ↔ digital signals.

3. APPLICATION SOFTWARE

3.1 Definition

Application software refers to programs designed to **perform specific tasks** for users, built on top of the operating system.

Examples: MS Office, Photoshop, Tally, VLC, Chrome, etc.

3.2 Types of Application Software

Type	Purpose	Examples
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General-Purpose Software	For common user needs.	MS Word, Excel, PowerPoint
Special-Purpose Software	For specific tasks.	Payroll, Billing, Attendance System
Customized Software	Tailored for an organization.	College ERP, Banking Software
Open Source Software	Freely available to use/modify.	LibreOffice, GIMP
Web-Based Applications	Run on browsers.	Google Docs, Gmail

3.3 MS OFFICE SUITE (Overview)

MS Word

- Word processing software for creating and formatting documents.
- Used for reports, resumes, letters, etc.
- Features: Spell check, Styles, Tables, Mail Merge.

MS Excel

- Spreadsheet program for data analysis and calculations.
- Features: Formulas, Charts, Pivot Tables, Graphs.
- Used for: Accounting, data visualization, statistical analysis.

MS PowerPoint

- Presentation software used to create slideshows.
 - Features: Templates, Animations, Transitions.
 - Used for teaching, business meetings, and reports.
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4. BASICS OF ANIMATION

4.1 Definition

Animation is the **illusion of movement** created by displaying a series of still images (frames) in quick succession.

Applications: Movies, advertisements, educational videos, simulations, gaming, web design.

4.2 Types of Animation

Type	Description
2D Animation	Flat characters, simple motion. (e.g., cartoons)
3D Animation	Realistic, 3D models using software like Blender.
Stop Motion	Using photographs of real objects frame by frame.
Motion Graphics	Text and shapes animated for media and presentations.

4.3 Software Used in Animation

- Adobe Animate
 - Blender
 - Maya
 - Synfig Studio
 - Pencil2D
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5. ICT (Information and Communication Technology)

5.1 Definition

ICT refers to all **technologies used to handle communication and information** — combining computers, telecommunication, and digital media.

Examples: Internet, mobile phones, email, video conferencing, cloud computing.

5.2 Importance of ICT

- Enhances **communication** (emails, chat, video calls).
 - Enables **e-learning** (online classes, virtual labs).
 - Improves **administration** and record management.
 - Promotes **digital literacy** and inclusion.
 - Facilitates **data sharing and remote work**.
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5.3 Components of ICT

1. **Hardware** – Computers, routers, phones.
 2. **Software** – Applications and operating systems.
 3. **Network Infrastructure** – Internet, Wi-Fi, LAN.
 4. **Data & Cloud Systems** – Storage and sharing.
 5. **People and Processes** – Human interaction with technology.
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6. COMPUTER SECURITY

6.1 Definition

Computer Security refers to **protecting computer systems and data** from theft, damage, or unauthorized access.

6.2 Types of Computer Security

Type	Purpose
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Network Security	Protects data during transmission.
Information Security	Ensures confidentiality and integrity.
Application Security	Protects software from attacks.
Cybersecurity	Guards against online threats and hacking.

6.3 Common Threats

- **Virus** – Malicious program that replicates and damages files.
 - **Worm** – Self-replicating program that spreads through networks.
 - **Trojan Horse** – Appears harmless but steals information.
 - **Spyware** – Tracks user activity secretly.
 - **Phishing** – Fake emails or websites to steal credentials.
 - **Ransomware** – Locks data until ransom is paid.
 - **Hacking** – Unauthorized system access.
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6.4 Protection Measures

1. Install and update **antivirus software**.
 2. Use **firewalls** to block unauthorized access.
 3. Create **strong passwords** and change them regularly.
 4. Perform **data backup** frequently.
 5. Use **encryption** for confidential information.
 6. Avoid suspicious emails or downloads.
 7. Apply **OS and software updates** regularly.
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6.5 Cyber Ethics

Cyber ethics are the **moral principles** guiding online behavior.

- Respect privacy of others.
 - Do not spread false information.
 - Avoid plagiarism or illegal downloads.
 - Use social media responsibly.
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Summary of Unit 3

- Operating Systems control and coordinate hardware and software.
- Networking connects computers for resource sharing.
- Application Software performs user-specific tasks.
- Animation and ICT enhance learning and communication.
- Computer Security safeguards systems from digital threats.

1. Basic Computer Terms

Abbreviation	Full Form
CPU	Central Processing Unit
ALU	Arithmetic Logic Unit
CU	Control Unit
MU	Memory Unit
PC	Personal Computer
VDU	Visual Display Unit
GUI	Graphical User Interface
CLI	Command Line Interface
OS	Operating System
BIOS	Basic Input/Output System
ICT	Information and Communication Technology
IT	Information Technology
AI	Artificial Intelligence
ML	Machine Learning

2. Memory and Storage

Abbreviation	Full Form
RAM	Random Access Memory
ROM	Read Only Memory
PROM	Programmable Read Only Memory
EPROM	Erasable Programmable Read Only Memory
EEPROM	Electrically Erasable Programmable Read Only Memory
SRAM	Static Random Access Memory
DRAM	Dynamic Random Access Memory
HDD	Hard Disk Drive
SSD	Solid State Drive
CD	Compact Disc
DVD	Digital Versatile Disc
BD	Blu-ray Disc

Memory Units

Unit	Meaning
Bit	Binary Digit
B	Byte
KB	Kilobyte
MB	Megabyte
GB	Gigabyte
TB	Terabyte
PB	Petabyte
EB	Exabyte

3. Input and Output Devices

Abbreviation	Full Form
OCR	Optical Character Recognition
OMR	Optical Mark Recognition
MICR	Magnetic Ink Character Recognition
BCR	Bar Code Reader
LCD	Liquid Crystal Display
LED	Light Emitting Diode

4. Networking

Abbreviation	Full Form
LAN	Local Area Network
MAN	Metropolitan Area Network
WAN	Wide Area Network
PAN	Personal Area Network
WLAN	Wireless Local Area Network
CAN	Campus Area Network
NIC	Network Interface Card
IP	Internet Protocol
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
FTP	File Transfer Protocol
SMTP	Simple Mail Transfer Protocol

5. Internet and Web

Abbreviation	Full Form
WWW	World Wide Web

6. Software and Operating System

Abbreviation	Full Form
OS	Operating System
DOS	Disk Operating System
GUI	Graphical User Interface
CLI	Command Line Interface
CUI	Character User Interface
MS-DOS	Microsoft Disk Operating System
API	Application Programming Interface

SHORTCUT KEYS

1. **Ctrl + A**: Select all contents of the page
2. **Ctrl + B**: Bold highlighted selection
3. **Ctrl + C**: Copy selected text
4. **Ctrl + X**: Cut selected text
5. **Ctrl + N**: Open new/blank document
6. **Ctrl + O**: Open options
7. **Ctrl + P**: Open the print window
8. **Ctrl + F**: Open find box
9. **Ctrl + I**: Italicize highlighted selection
10. **Ctrl + K**: Insert link
11. **Ctrl + U**: Underline highlighted selection
12. **Ctrl + V**: Paste
13. **Ctrl + Y**: Redo the last action performed
14. **Ctrl + Z**: Undo last action
15. **Ctrl + G**: Find and replace options
16. **Ctrl + H**: Find and replace options
17. **Ctrl + J**: Justify paragraph alignment
18. **Ctrl + L**: Align selected text or line to the left
19. **Ctrl + Q**: Align selected paragraph to the left
20. **Ctrl + E**: Align selected text or line to the center
21. **Ctrl + R**: Align selected text or line to the right
22. **Ctrl + M**: Indent the paragraph
23. **Ctrl + T**: Hanging indent
24. **Ctrl + D**: Font options
25. **Ctrl + Shift + F**: Change the font
26. **Ctrl + Shift + >**: Increase selected font +1
27. **Ctrl +]**: Increase selected font +1
28. **Ctrl + Shift + <**: Decrease selected font -1
29. **Ctrl + [**: Decrease selected font -1
30. **Ctrl + f**: Move one word to the left
31. **Ctrl + g**: Move one word to the right
32. **Ctrl + h**: Move to beginning of the line or paragraph
33. **Ctrl + I**: Move to the end of the paragraph
34. **Ctrl + Del**: Delete word to right of cursor
35. **Ctrl + Backspace**: Delete word to left of cursor
36. **Ctrl + End**: Move cursor to end of document
37. **Ctrl + Home**: Move cursor to beginning of document
38. **Ctrl + Space**: Reset highlighted text to default font
39. **Ctrl + 1**: Single-space lines
40. **Ctrl + 2**: Double-space lines
41. **Ctrl + 5**: 1.5-line spacing
42. **Ctrl + Alt + 1**: Change text to heading 1
43. **Ctrl + Alt + 2**: Change text to heading 2
44. **Ctrl + Alt + 3**: Change text to heading 3
45. **F1**: Open help