

INFORMATION TECHNOLOGIY & CYBER LAWS

Computer is an electronic device which stores, reads, and processes data to produce meaningful information as output using a set of instruction called **program**.

- First Mechanical computer **Mark-I** developed by *Howard Ekin* in 1937
- John Presper Eckert and John Mauchly invented world's first electronic computer **ENIAC-I** in 1946
- John Presper Eckert and John Mauchly invented world's first commercial computer **UNIVAC** in 1951.
- **Balaise Pascal** invents the first commercial calculator.
- **Ethernet** computer Networking was developed by Robert Metalfe in 1973.

History of computer and its evolutions through generations:

Generation	Electronic components	Language Used	Example	Features
First Generation (1940-1956)	Vacuum tubes	Machine Language	UNIVAC ENIAC EDVAC EDSAC	<ul style="list-style-type: none"> ▪ Limited to solving one problem at a time ▪ Produced lot of heat ▪ It use magnetic drums for memory ▪ Very expensive, space and electricity consuming ▪ Input was based on punch card system
Second Generation (1956-63)	Transistors	Assembly Language	IBM 7014, IBM 1400 SERIES	<ul style="list-style-type: none"> ▪ Smaller, faster, cheaper, more energy efficient and more reliable than first generation
Third Generation (1964-71)	Integrated Circuit(IC)	Programming language like FORTRAN C, C++, JAVA, Visual Basic	IBM 370, UNIVAC 1108	<ul style="list-style-type: none"> ▪ Computers becomes cheaper Speed increases drastically ▪ Instead of punched cards end users used Keyboard and Monitors and used high level language. ▪ LSI Large Scale Integration
Fourth Generation (1971-2010)	Microprocessor	Data Base Query Language E.g. SQL	Apple Macintosh IBM PC	<ul style="list-style-type: none"> ▪ More powerful and reliable than the previous generations ▪ VLSI Very Large scale Integration
Fifth Generation (2010)	Artificial Intelligence	LISP, Prolog		<ul style="list-style-type: none"> ▪ Can understand human languages ▪ It uses Artificial Intelligence ▪ Can imitate human reasoning ▪ Can respond to surroundings ▪ ULSI Ultra Large Scale Integration

Components of Computer:

Input Unit:

Input unit consists of those devices through which user can enter the data into a computer..Examples of input devices are keyboard, mouse, scanner, MICR, OMR, Barcode Reader, OCR etc.

Some input Devices and their uses

Mouse, Light Pen, Joy stick, Track Ball	Pointing Devices
Digitizer	Converts analogue data into digital data
Magnetic Ink Character Read(MICR)	Used for detection of cheque numbers in banks
Bar Code Reader	For reading bar coded data
Optical Mark Reader(OMR)	An optical scanner Used for checking answer sheets of examinations having multiple choice questions

CPU

CPU is the **brain of the computer**. It is responsible for all the manipulation and processing of the data provided to the computer. It is further categorised into two main components.

Arithmetic Logic Unit (ALU)

ALU performs both arithmetic and logical operations. An arithmetic operation involves addition, subtraction, multiplication, division etc. Logical operation involves AND, OR, NOT, NOR, NAND etc.

Control Unit:

It is an important part that instructs, maintains, and controls the flow of information but does not store the data.

Register:

Temporary high speed memory associated with CPU

Memory Unit

Memory Unit stores the data. And instructions, intermediate results or the processed data. It consists of two types

Primary Memory

It is the main memory of the computer that stores the data which is currently in use by the computer. Types of primary memory (**Internal Memory**) are

(a) **RAM** (Random Access Memory)

RAM is a **volatile memory** which loses the data when the power is switched off. There are two types of RAM: Static RAM (SRAM) and Dynamic RAM (DRAM)

DRAM is based on Capacitor technology

(b) **ROM** (Read Only Memory)

ROM is a **non- volatile memory**, which retains the data even when the power gets switched off. There are basically three types of ROM namely PROM, EPROM , EEPROM.

Cashe:

Cashe is a **high speed memory** located between CPU and RAM.

External Memory can be secondary or Tertiary**Secondary Memory**

The computer system uses the secondary memory to store the data program instruction , information permanently.

Eg: Magnetic Tape, Magnetic Disk (Floppy Disk, Hard Disk), Optical Disk(CD, DVD, Blue-ray Disk) and solid state drive,Flash Drive(Pen Drive, memory cards)

Tertiary Memory is used to store information needed occasionally for review purpose

E.g : Magnetic Tape

Clip Board is a temporary data used for data processing application like copy, paste etc

Buffer is a temporary memory associated with Input Output operation

4 bits	1 Nibble
8 bits	1 byte
1024 bytes	1 KB
1024 KB	1 Mega Byte
1024 MB	1 Giga Byte
1024 GB	1 Terabyte
1024 TB	1Peta Byte
1024 PB	1Exabyte
1024 EB	1 Zeta Byte
1024 ZB	1 Yota Byte

Output Unit

This unit contains those devices that provide the desired results or output in the human acceptable format.

E.g : Monitor, Printer, Speakers, etc

Hardware:

Hard ware is defined as the physical components of the of a computer i.e. the parts that can be seen and touched.

E.g: Storage Devices like Hard Disk, Floppy, Flash Drive etc

Software:

The term software can be defined as **the set of programs** and procedures that enables a computer to perform a specific task or to process the information. The software can be classified into three types

System Software:

It is a set of one or more programs designed to control the operations of a computer system including the hardware components and implementations of application software

E.g: Operating System, Device driver, Language Translator etc.

Examples of Operating systems are **Windows, VMS, Linux, Ubuntu**

Windows:

- Windows is a **Graphical User Interface (GUI)** designed to allow you to use the computer for various tasks.
- It is developed, marketed, and sold by Microsoft.
- First GUI based Windows was **Windows 98**
- Latest Version of Windows is **Windows 10**

UNIX:

- UNIX is a multitasking, multiuser computer operating system that exists in many variants.
- UNIX operating systems are widely used in servers, workstations, and mobile devices.
- The original UNIX was developed at AT & T's Bell Labs research centre by Ken Thompson, Dennis Ritchie and others.
- Both UNIX and the C programming language were developed by AT & T.
- The C programming language was designed by **Dennis Ritchie** as a systems programming language for UNIX.
- UNIX was one of the first operating systems to be written in a high-level programming language, namely C. This meant that it could be installed on virtually any computer for which a C compiler existed.

Linux:

- Linux is an open source, **free software**.
- Linux was developed by **Linux Torvalds**.
- Mascot of Linux – Tux the Penguin.
- It was initially released on 5 October 1991.
- Latest version is Linux Kernel 3.19 released on February 2015.

Operating System of Apple is Mac, Lion Series, leopard, Snow Leopard etc.

Mobile OS

OS of Apple Mobile is IOS.

Android is the OS of Google.

Symbian is the OS of Nokia .

- **Bootling:** Process of loading the operating system in the memory when the computer is switched on
- **Cold Bootling :** starting the computer after it has been switched off
- **Warm bootling:** Operating system alone is restarted

Bootsraplaoder is the program that helps bootling

POST Power On Self Test is the initial hardware component checking Process

Data Base Management

- **Data Base** is a collection of data that can be easily accessed, managed and updated in any desired manner. The software that manages data base is DBMS (Data Base Management System). Popular DBMS are infomix, Ingres, Integra, Oracle, Sybase, Unify etc.

Hard Disk:

- A hard Disk Drive (HDD) is a non-volatile storage device for digital data.

Optical Disk:

- Optical disk is a storage medium from which data is read and to which it is written by lasers.

Utility Software:

It is a type of system software which is used to support, secure, and enhance the existing programs and data in the computer system.

Utility programs include copy, delete, paste, cut, file searching.

E.g : Antivirus software, Back up software.

Application Software:

It is a set of one or more programs designed to carry out operations for a specific applications. It cannot run on itself but it is dependent on the system software to get executed.

Eg: Word processors, Spreadsheets, accounting programs .

Translator Software:

Programs that are used to translate content from one language to another on a computer. Some of translator programs are Compiler, Interpreter, and Assembler

Compiler: The translator that scans and translate the entire program into machine language.

Interpreter: Another type of program translator for translating high level language into machine language and executes a source program line by line.

Assembler: A program that converts an assembly language program into machine language program.

Binary Number System

Binary number system consist of two digit **0** and **1**.It is formed using combination od 0 and 1.

Base of binary number system is **2**.

Important Inventions

Vacuum Tubes	John A Fleming, William Shockely
Transistor	John Bardein, Walter H Brattain
IC	Jack Kilby, Robert Noyce
Microprocessor	Marcian E Ted Hoff, Stanely Mazor

Micro processor:

A microprocessor is an integrated circuit that contains all the functions of a CPU of a computer

Microprocessor is known as **Miracle Chip and Brain** of the modern computer.

Types of Computer: Micro processor

The first Microprocessor is **INTEL 4004**.

The first Microprocessor used in personal computer is **INTEL 8080**

Largest Manufacturer of microprocessors : **INTEL**

E.g : **Pentium** from INTEL and **Athalon** from AMD.

Computers are categorised into three based on the principles of operations

1) Analogue 2) Digital 3) Hybrid

Analogue Computer:

➤ Analogue Computer generally deals with physical variables such as voltage, pressure, temperature, speed etc.

Digital Computer :

➤ Digital computers operate on digital data such as numbers. It uses binary system

➤ Digital computer is well suited for solving complex problems in engineering and technology

➤ Hybrid Computers: Hybrid Computers is a combination of both Analogue and Digital computers.E.g In hospitals a Hybrid computer is used .

Based on Configuration Computers are classified into four categories

1. Super Computers

➤ The most powerful, expensive, faster computers with more capacity, able to process most complex jobs.

➤ Father of super computers is Seymour Cray.

➤ First super computer in the world is **Cray**

➤ Mainly used for whether forecasting, nuclear science research, seismology

➤ The companies which produces super computers are **Cray**, IBM and **Hewlett- Packard**.

➤ Super computers of India are **EKA, PARAM, SAGA220, Aaditya** etc. And the first super computer developed in India is **PARAM 8000**

➤ Father of Indian Super Computer is **Vijay Bhatkar**.

➤ The super computer developed by ISRO is **Saga220**

➤ The fastest super computer in India is PARAM YUVA II

➤ The fastest super computer in the world is **Tianche II** developed by China.

2. Main Frame computers:

➤ Mainframe computers are high speed computers and highly expensive

➤ They are used in Banking, Airline, railway etc.

Mini Computers: Lower to main frame computers in terms of speed and storage capacity

Micro Computers: Smallest type of computers E.g: Personal Computer

Microcomputers are further classified into 1.Desktop Computers 2.Laptop Computers 3.Hand-led Computers

GPRS (General Packet Radio Service) is a wireless communication used for receiving and sending small data such as e-mail

Blue Tooth is a short range wireless interconnection of mobile phones, computers

Internet:

- Father of Internet is **Vinter Surf**
- **Internet** is a global network connecting millions of computers.
- Each computer in internet is called a **host**.
- Father of Worldwide Web (www) is **Tim Berners Lee**.
- First Browser **Nexus** was invented by **Tim Berners Lee**.
- **Mozilla Firefox** is the successor of Nexus.
- **Edge** is the default browser of Windows 10.
- **Safari** is the browser of Apple.
- '**Internet Explorer**' is internet browsing software of Microsoft.
- **The Intranet** is a restricted version of the Internet within a group of users.
- **The Extranet** is a closed online connecting two or more organisations.
- The largest computer Network in the world is **Internet**.

Computer Languages

- Computer Language is a means of communication to exchange information between the user and the computer. Computer languages are of two types :**High level languages** and **Low level languages**.
- Low level language is of two types Machine Language and Assembly language.
- **A machine language** uses binary numbers **0 and 1** .
- In **assembly language** letters and symbols called mnemonic codes are used to develop programs
- High level languages are used to create application programs which are not dependent upon machines.
- The high level language includes
- Fortran, Basic, Cobol, C, C++, Visual C++, Visual Basic, Java, Pascal, etc.
- **COBOL(Common Business Oriented Business Language)**is the language for business purpose.

Search Engines

A search Engine is a searchable online data base of internet resources .

Eg. Google, yahoo, Ask.com, and Bing, Forestle .

Bing is the Search Engine of Microsoft

Fathers

✓ Computer	Charles Babbage
✓ Computer Science	Alan Turing
✓ Internet	Vinton Cerf
✓ Information Technology	Claud Shawn
✓ Indian IT	Rajeev Gandhi
✓ Super Computers	Seymour Cray
✓ Video Game	Ralph Baer
✓ Indian Super Computer	Vijay Bhatia
✓ Free Software	Richard Stalman
✓ Linux	Linus Torwalds
✓ Mobile Phone	Martin Cooper
✓ Wikipedia	Jimmy Wales
✓ World wide web	Tim Bernes Lee
✓ HTML	Tim Bernes Lee
✓ E- mail	Ray Thomilson
✓ Mouse	Douglas Engelbart
✓ Floppy	Allan Shulgart

C Language was developed by Dennis Ritchie

C ++ was developed by Burgin Strausstrap

JAVA was developed by James Gausling

Computer In India

- Father OF Indian Computer :Dr.Vijay B Bhatkar
- India's first Internet Service Provider: VSNL
- First cyber Crime Police Station In India : Bangalore
- First cyber crime police station in Kerala: Pattom, Thiruvananthapuram
- First fully computerised panchayath: Vellanad
- First paperless govt office in India : IT Mission
- First computer installed in India : HEC-2M (1955)
- The first super computer installed in India is Cray -x -MP-14
- First village in India to have its own website: Hansedhar Village in Haryana
- First bank to introduce online banking in India : HDFC
- National school computerisation programme : VidyaVahini
- IT@school is the project of dept of General Education
- Diivne logic is a software that prevents piracy developed by a Malayali Shaju Chacko
- E governance programme of Kerala Govt : Information Kerala Mission
- The software package known as India 's own PC Operating system : **BOSS**(Bharath Operating System Solutions)

Networking

Networking is the system of interconnecting computers to exchange data

- **Firewalls** are used to protect the network.
- **A router** is component used to connect a network using one technology with another using a different technology
- **Hub:**Hubs connect computers together in a network.
- **Switch** : switches provide a central connection between two or more computers on a network, but with some intelligence. They provide traffic control for packets; rather than forwarding data to all the connected ports, a switch forwards data only to the port on which the destination system is connected.
- **ARPANET (Advanced Resesarch Projects Agency Network)** is the world's first operational packet switching network, **which** was created by research team in Massachusetts Institute of Technology and defence Advanced Research Projects Agency (DARPA) of US Department OF research.
- **Simplex**
- Simplex is one direction. A good example would be your keyboard to your CPU
- **Duplex**
- Half-Duplex is like the dreaded "one lane" road you may have run into at construction sites
- **Full Duplex**
- Full-Duplex is like the ordinary two-lane highway. In some cases, where traffic is heavy enough, a railroad will decide to lay a double track to allow trains to pass in both directions.
- Network can be categorised in several different ways
- 1.**LAN** (Land Area Networking) is a computer network covering a small area
- 2.**WLAN**(The wireless Land Area Network) is wireless computer that links two or more devices using a wireless distribution method
- 3.**CAN(Campus Area Network or Corporate Area Network)** is a computer network made up of interconnection of local area networks (LANs) within a limited geographical area.
- 4.**WAN(Wide Area Network)** covers a wide area that link across international boundaries.
- 5.**PAN(Personal Area Network)** is a computer network used for data transmission such as computers telephones , personal digital assistance.

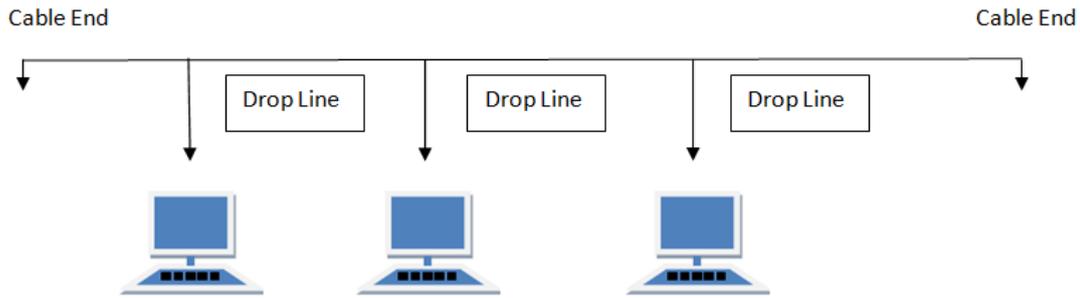
BUS: A bus is a transmission path on which signals are dropped or picked up every device attached to the line.

Network Topology

Network Topology is the schematic description of a network arrangement, connecting various nodes (sender and receiver) through lines of connection.

➤ **BUS Topology**

Bus topology is a network type in which every computer and network device is connected to single cable. When it has exactly two endpoints, then it is called **Linear Bus topology**.



▪ **Features of Bus Topology**

It transmits data only in one direction.

Every device is connected to a single cable

▪ **Advantages of Bus Topology**

It is cost effective.

Cable required is least compared to other network topology.

Used in small networks.

It is easy to understand.

Easy to expand joining two cables together.

▪ **Disadvantages of Bus Topology**

Cables fails then whole network fails.

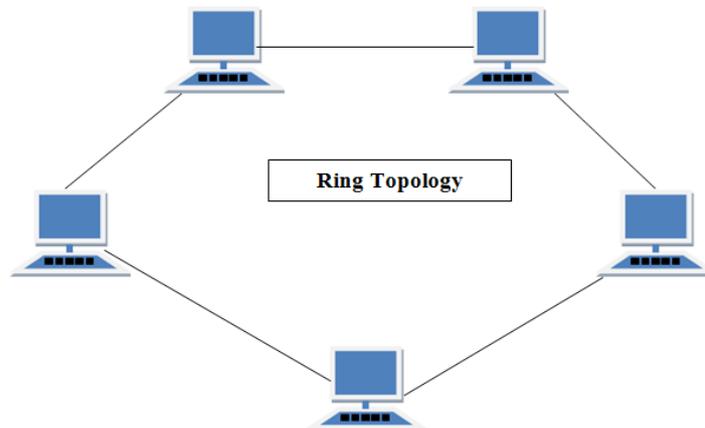
If network traffic is heavy or nodes are more the performance of the network decreases.

Cable has a limited length.

It is slower than the ring topology.

➤ **RING Topology**

It is called ring topology because it forms a ring as each computer is connected to another computer, with the last one connected to the first. Exactly two neighbours for each device.



Features of Ring Topology

➤ A number of repeaters are used for Ring topology with large number of nodes, because if someone wants to send some data to the last node in the ring topology with 100 nodes, then the data will have to pass through 99 nodes to reach the 100th node. Hence to prevent data loss repeaters are used in the network.

➤ The transmission is unidirectional, but it can be made bidirectional by having 2 connections between each Network Node, it is called **Dual Ring Topology**.

➤ In Dual Ring Topology, two ring networks are formed, and data flow is in opposite direction in them. Also, if one ring fails, the second ring can act as a backup, to keep the network up.

➤ Data is transferred in a sequential manner that is bit by bit. Data transmitted, has to pass through each node of the network, till the destination node.

Advantages of Ring Topology

➤ Transmitting network is not affected by high traffic or by adding more nodes, as only the nodes having tokens can transmit data.

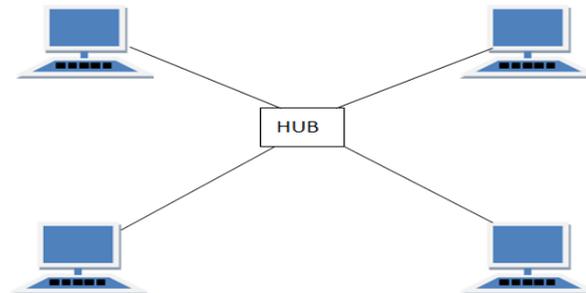
➤ Cheap to install and expand

Disadvantages of Ring Topology

- Troubleshooting is difficult in ring topology.
- Adding or deleting the computers disturbs the network activity.
- Failure of one computer disturbs the whole network.

STAR Topology

In this type of topology all the computers are connected to a single hub through a cable. This hub is the central node and all other nodes are connected to the central node.



Features of Star Topology

- Every node has its own dedicated connection to the hub.
- Hub acts as a repeater for data flow.
- Can be used with twisted pair, Optical Fibre or coaxial cable.

Advantages of Star Topology

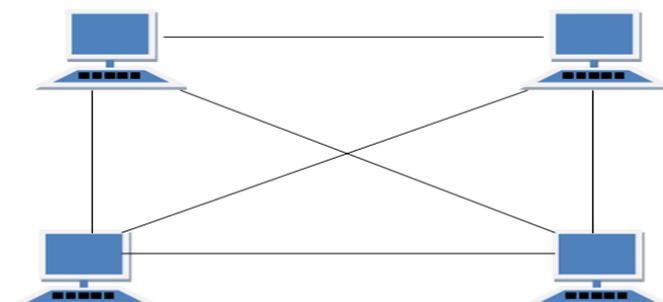
- Fast performance with few nodes and low network traffic.
- Hub can be upgraded easily.
- Easy to troubleshoot.
- Easy to setup and modify.
- Only that node is affected which has failed, rest of the nodes can work smoothly.

Disadvantages of Star Topology

- Cost of installation is high.
- Expensive to use.
- If the hub fails then the whole network is stopped because all the nodes depend on the hub.
- Performance is based on the hub that is it depends on its capacity

MESH Topology

- It is a point-to-point connection to other nodes or devices. All the network nodes are connected to each other. Mesh has $n(n-2)/2$ physical channels to link n devices.
- There are two techniques to transmit data over the Mesh topology, they are:
 - Routing
 - Flooding
- In routing, the nodes have a routing logic, as per the network requirements. Like routing logic to direct the data to reach the destination using the shortest distance. Or, routing logic which has information about the broken links, and it avoids that node etc. We can even have routing logic, to re-configure the failed nodes.
- Flooding
- In flooding, the same data is transmitted to all the network nodes; hence no routing logic is required. The network is robust, and it's very unlikely to lose the data. But it leads to unwanted load over the network.



Types of Mesh Topology

- **Partial Mesh Topology:** In this topology some of the systems are connected in the same fashion as mesh topology but some devices are only connected to two or three devices.
- **Full Mesh Topology:** Each and every nodes or devices are connected to each other.

Features of Mesh Topology

- Fully connected.
- Robust.
- Not flexible.

Advantages of Mesh Topology

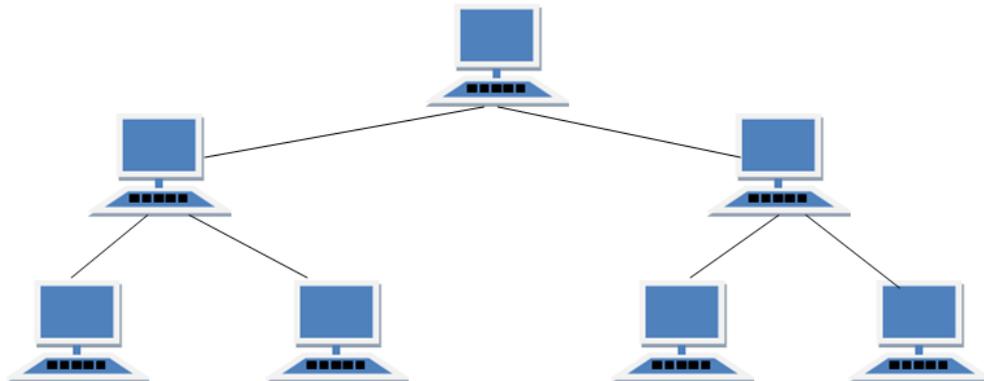
- Each connection can carry its own data load.
- It is robust.
- Fault is diagnosed easily.
- Provides security and privacy.

Disadvantages of Mesh Topology

- Installation and configuration is difficult.
- Cabling cost is more.
- Bulk wiring is required.

TREE Topology

It has a root node and all other nodes are connected to it forming a hierarchy. It is also called hierarchical topology. It should at least have three levels to the hierarchy.



Features of Tree Topology

- Ideal if workstations are located in groups.
- Used in Wide Area Network.

Advantages of Tree Topology

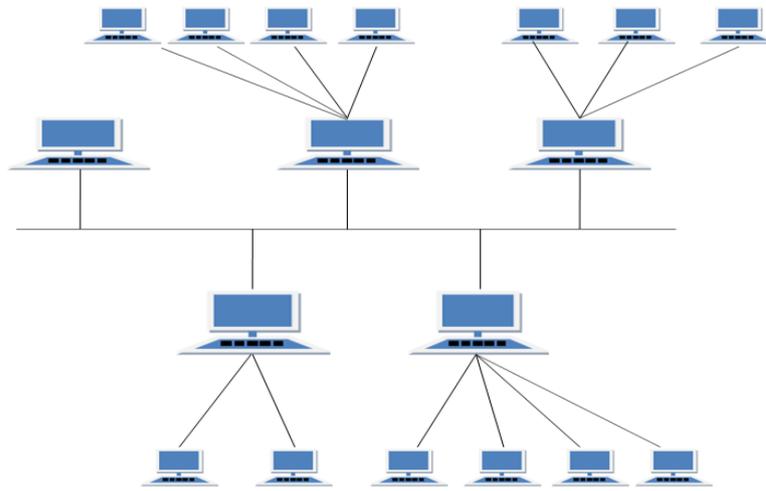
- Extension of bus and star topologies.
- Expansion of nodes is possible and easy.
- Easily managed and maintained.
- Error detection is easily done.

Disadvantages of Tree Topology

- Heavily cabled.
- Costly.
- If more nodes are added maintenance is difficult.
- Central hub fails, network fails.

HYBRID Topology

It is two different types of topologies which is a mixture of two or more topologies. For example if in an office in one department ring topology is used and in another star topology is used, connecting these topologies will result in Hybrid Topology (ring topology and star topology).



Features of Hybrid Topology

- It is a combination of two or topologies
- Inherits the advantages and disadvantages of the topologies included

Advantages of Hybrid Topology

- Reliable as Error detecting and trouble shooting is easy.
- Effective.
- Scalable as size can be increased easily.
- Flexible.

Disadvantages of Hybrid Topology

- Complex in design.
- Costly.

Network Protocol

- A set of rules that governs the communication between computers on a network is called **Network Protocol**
- Communication protocol used to connect hosts on the internet **TCP/IP**
- **TCP/IP**: Transmission Control Protocol /Internet Protocol
- **IMAP(Internet Message Access Protocol)**:
- **FTP(File Transfer Protocol)**: Protocol used to transfer computer files from one host to another host in internet.
- **SMTP(Simple Mail Transfer Protocol)**: Protocol used for E- MAIL transmission
- **Telnet**:The protocol that allows to connect to remote computers over the internet
- **HTTP**:The application level protocol used to transfer data over the world wide web
- **ASCII (American Standard Code for Information Interchange) :** when a key is pressed on the keyboard ASCII standard is used for converting the keystroke into corresponding bits
- **BCD (Binary Code Decimal)**
- **EBCDIC Extended Binary Coded Decimal Interchange Code**
- **UNICODE is** a character encoding which can encode all the languages.

- **The world Wide Web (www) ,** generally known as web is a vast collection of information bearing documents resident on the computers connected by the internet.
- **A Web Portal** is a website that serves as a gateway to the internet. Web portal will have hyperlinks to other websites.Eg.Google.com
- **A Web server** is a software which remains in that computer so called as server .
- **ISP (Internet Service provider)**are the authorities to sell internet connections in a country.
- **HTML** is a web browser can read web pages written in **Hyper Text Mark Up Languages**
- India's first indigenously built web browser is **Epic**
- **Surfing** is the process **of visiting a number of websites in rapid succession**

- **Uniform Resource Locator(URL)** is an electronic address that identifies a websites.

Computer Languages & Developers

Basic	-	Thomas Kurtz
PASCAL	-	Nikalaus Wirth
C		Dennis Ritchie
C++		Bjarne Stroustrup
JAVA		James Gosling
COBOL		Grace Murray Hopper
FORTRAN		James Backus
LOGO		Seymour Pappert

Operating System developed by APPLE : Mac OS

Versions of Mac OS : Leopard, Snow Leopard, Mountain Lion, Mavericks.

Cyber Laws:

- **Cyber crime** refers to all criminal activities done using the medium of computers, the internet and the world wide web.
- **Cyber laws** prevent or reduce large scale damage from cyber criminal activities.
- In India the information Technology Act, 2000 is the **mother legislation** that deals with issues related to use of computers, computer systems, computer networks and the Internet.
- Cyber offences in India is investigated by a Police Officer not below the rank of the **Inspector** (now) Deputy Superintendent of Police (earlier)

Information Technology Act 2000:

- Date enacted 9th June 2000
- Came into force on 17th October 2000
- IT Act 2000 provides
 - Legal recognition of electronic documents.
 - Legal recognition of electronic data evidence in a court of law.
 - Legal acceptance of digital signatures.
 - Punishment for cyber obscenity and crimes.
 - Establishment of cyber regulations advisory committee and cyber regulations appellate tribunal.
 - Facilitation of electronic filing maintenance of electronic records.
- According to the India Act, 2000 the various offences are
 - Tampering with computer source documents hacking with computer system.
 - Publishing of information which is obscene in electronic form.
 - E-mail bombing
 - Data diddling
 - Salami attacks
 - Web jacking
 - Pornography
 - E-mail spoofing
 - Trafficking
 - Online gambling
 - Forgery etc.
- **Email bombing**: Refers to sending large number of mail to the victim, which may be an individual or a company or even mail servers there by ultimately resulting into crashing.
- **Data diddling**: Involves altering raw data just before a computer processes it and then changing it back after the processing is completed.
- **Salami attacks**: This type of offence is done for the purpose of committing financial crimes.
- **Web Jacking**: The hacker gains access and control over the website of another. He may even mutilate or change the information on the site. This may be done for fulfilling political objectives or for money.

- **Pornography:** May include the hosting of website containing obscene materials.
- **Hacking** is unauthorised use of computer and network resources.
- **Spamming** is the act of sending unsolicited e mails or messages to people .
- **Phishing:** is an e mail **fraud** method in which the sender sends out legitimate looking e mail in an attempt to gather personal and financial information from recipients
- **Vishing:** is the illegal access of data via voice over internet protocol
- **Cyber Squatting:** is the act of registering a popular address usually a company name in order to make profits using it
- **Piracy:** is the act of copying or distribution of copyrighted software.
- **E-mail spoofing:** the forgery of an e mail header so that the message appears to have originated from someone other than the original source
- **Malware:** software used to disturb or damage computer operations
E.g : Virus, Worm, Trojan. Virus is vital information Resource under Seize.
- The popular viruses are
Melissa, Elk Cloner, Creeper, Slammer, Sasser, My Doom, Anna Cournicova, GuppyS etc.
- Elk Cloner was the first micro computer virus .
- First computer VIRUS : **Brain**
- First Arpanet Virus was **Creeper**.
- In 1983 Fred Cohen defined the term VIRUS
- **Trojan** is a non self replicating malware program that hide inside another program that inside another program that disguises as a legitimate program.
- **Malware Bot** is a type of malware which allows an attacker to gain complete over the affected computers.
- **Adware:** Software that automatically displays or download.
- **Spyware** is a software that is installed on a computer without the knowledge of the user in order to collect user's private information

Antivirus Software is used to prevent , detect , and remove malware.

E.g. K7 , McAfee, Avast , Kasperasky Lab, AVG, Norton.

- The Information Technology Act deals with the various cyber crimes in **Chapter IX and XI**.
- The important sections are section 43, 65, 66, & 67, 71, 72, 73.
- **Section 43** deals with the **unauthorised access, unauthorised downloading, virus attacks** or any contaminant, cause damage, disruption, denial of access, interference with the service availed by a person. This section provide for a fine upto 1 crore by way of remedy.
- **Section 65** deals with '**tampering with computer source documents**' and provides for imprisonment up to three years or with fine which may extend up to two lakh rupees or with both.
- **Section 66** deals with **hacking the computer** system and provides for imprisonment for a term which may end to three years or with fine which may extend to five lakh rupees or both.
- **Section 66 B:** Receiving stolen Computer or Communication Device.
- **Section 66 C:** Identity Theft
- **Section 66 D** Cheating using computer
- **Section 66 E:** is violation of privacy
- **Section 66F :** deals with **cyber terrorism**
- **Section 67** deals with publication or transmission of an **obscene material** and provides for imprisonment for a term three years and a fine up to ten lakh rupees.
- **Section 67A** deals with pornography
- **Section 67 B deals** with child pornography
- **Section 71** deals with **misrepresentation** and the penalty are an imprisonment upto 2 years and a fine upto one lakh rupee or both.
- **Section 72** deals with **the breach of confidentiality and privacy** and the punishment is upto two years of imprisonment and a fine upto one lakh or both.
- **Section 73** deals with publishing false electronic signature certificate and provides for imprisonment upto two years or with fine upto one lakh rupees or with both.

Section 66 A was declared null or void by Supreme court in Sreya Singal Vs Govt. Of India case. It was related to spreading offensive material or messages through media

- All Cyber crimes do not come under the IT Act .Some crimes come under the Indian Penal Code.
- Web Jacking :Section **373 IPC**

- Bogus Websites, Cyber Frauds- **Section 420 IPC**
- Email Spoofing :**Section 465,419 IPC**
- Forgery of electronic records: **Section 465 IPC**
- Sending defamatory message by Email: **Section 499 IPC**
- Sending threatening message by e mail: **Section 506 IPC**
- Information Technology Amendment Act came into force in 2008.
- The first and only Cyber Appellate Tribunal in India have been established **New Delhi in 2006** which was initially known as **Cyber regulations appellate tribunal (CRAT)**.

World Computer Literacy Day	:December 2
National Internet Safety Day	:February 16
Computer security day	:November 30

ABBREVIATION

- ASCII: American Standard Code for Information Interchange
- BASIC: Beginners All Purpose Symbolic Instruction Code
- BIOS: Basic Input Output system
- CAD: Computer Aided Design
- CDMA: Code Division Multiple Access
- COBOL: Common Business Oriented language
- CPU: Central Processing Unit
- DBMS : Data Base Management System
- ENIAC: Electronic numerical Integrator and Calculator
- UNIVAC: Universal Automatic Computer
- API: Application Program Interface
- HDD: Hard Disk Drive
- ISDN : Integrated service Digital Network
- GUI: Graphical user Interface
- HTTP: Hyper Text Transfer Protocol
- HTML: Hyper Text Markup Language
- JPEG: Joint Photographic Expert Group
- MPEG: Motion Picture Expert Group
- OOP: Object Oriented Programme
- GSM: Global System for Mobile
- GPRS: General Packet Radio Service.
- DNS : Domain Naming System
- POP : Post Office Protocol
- NFC Near Field Communication