

Introduction to Information Technology

Classification of Computer

3. Mini Computers

Mini computers are smaller than mainframes, both in size and other facilities such as speed, storage capacity and other services. They are versatile that they can be fitted where ever they are needed. Their speeds are rated between one and fifty million instructions per second (MIPS). They have primary storage in hundred to three hundred megabytes range with direct access storage device.



4. Micro Computers

These are the smallest range of computers. They were introduced in the early 70's having less storing space and processing speed. Micro computers of today are equivalent to the mini computers of yesterday in terms of performing and processing. They are also called "computer of a chip" because its entire circuitry is contained in one tiny chip. The micro computers have a wide range of applications including uses as portable computer that can be plugged into any wall.



MAIN FRAME COMPUTERS:

Mainframe computers are those computers that offer faster processing and grater storage area.

It is also known as **Father computer**.



3. Hybrid Computers

Various specifically designed computers are with both digital and analog characteristics combining the advantages of analog and digital computers when working as a system. Hybrid computers are being used extensively in process control system where it is necessary to have a close representation with the physical world.



3. The hybrid system provides the good precision that can be attained with analog computers and the greater control that is possible with digital computers, plus the ability to accept the input data in either form.



FEATURES:

- Designed for Multiple user interfaces.
- Different people can operate these computers at the same time.
- Use for Non Stop reliable operations.
- Memory in GB's, storage in TB's
- Use in Large Business, Airlines, Banks, E-Commerce Sites,
Military, Industrial organizations

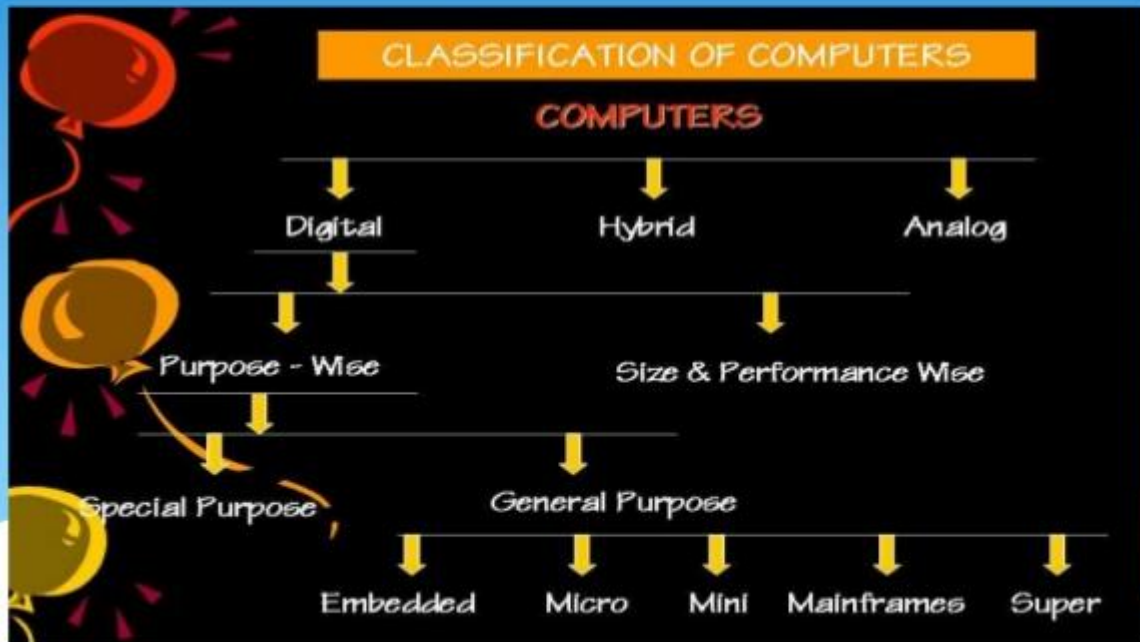
2. Digital Computers

Digital computer represents physical quantities with the help of digits or numbers. These numbers are used to perform Arithmetic calculations and also make logical decision to reach a conclusion, depending on, the data they receive from the user.

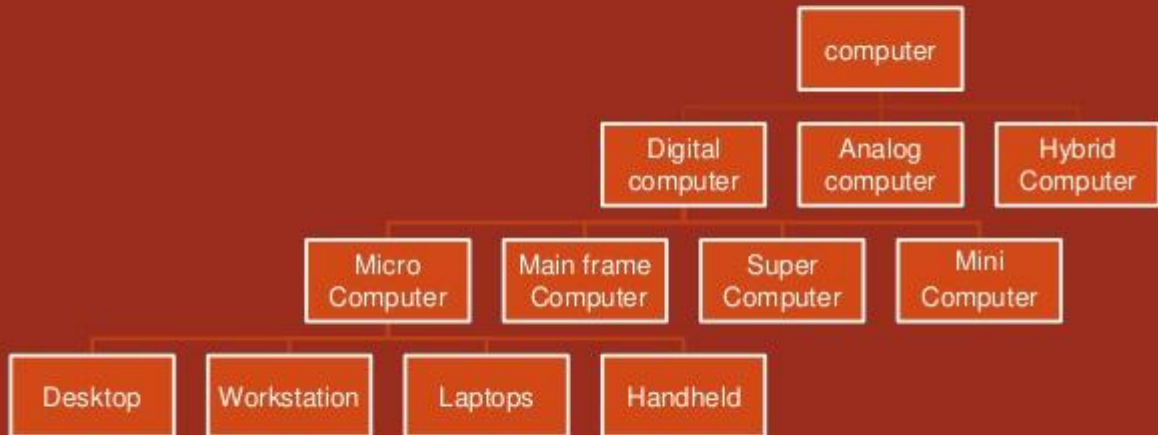


Analog Computer	Digital Computer
Measures continuous physical variations such as pressure, temperature, voltage, etc	Processes discrete data's such as numbers, letters, etc.
Generates analog signals	Generates digital signals
Low accuracy	High accuracy
High cost	Low cost
Used for special purpose	Used for general purpose
Re-programming is not possible	Re-programming is possible

CLASSIFICATION OF COMPUTER



TYPES OF COMPUTERS



Classification of Computers

Types of Computers

1. **Analog Computers**

Analog computers are used to process continuous data. Analog computers represent variables by physical quantities. Thus any computer which solve problem by translating physical conditions such as flow, temperature, pressure, angular position or voltage into related mechanical or electrical related circuits as an analog for the physical phenomenon being investigated in general it is a computer which uses an analog quantity and produces analog values as output.



Classification of Computers

Types of Computers

1. Analog Computers

Thus an analog computer measures continuously. Analog computers are very much speedy. They produce their results very fast. But their results are approximately correct. All the analog computers are special purpose computers.



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1. Super Computers

Large scientific and research laboratories as well as the government organizations have extra ordinary demand for processing data which required tremendous processing speed, memory and other services which may not be provided with any other category to meet their needs. Therefore very large computers used are called Super Computers. These computers are extremely expensive and the speed is measured in billions of instructions per seconds.



Methods of Data Processing

Data processing is the conversion of **data** into usable and desired form. This conversion or “**processing**” is carried out using a predefined sequence of operations either manually or automatically. Most of the **processing** is done by using computers and thus done automatically

collection, manipulation, and processing collected data for the required use is known as data processing. It is a technique normally performed by a computer; the process includes retrieving, transforming, or classification of information.

However, the processing of data largely depends on the following –

- The volume of data that need to be processed
- The complexity of data processing operations
- Capacity and inbuilt technology of respective computer system
- Technical skills
- Time constraints

Data processing may involve various processes, including:

- Validation – Ensuring that supplied data is correct and relevant.
- Sorting – "arranging items in some sequence and/or in different sets."
- Summarization – reducing detailed data to its main points.
- Aggregation – combining multiple pieces of data.
- Analysis – the "collection, organization, analysis, interpretation and presentation of data."
- Reporting – list detail or summary data or computed information.
- Classification – separation of data into various categories.

Methods of Data Processing

Let us now discuss the different methods of data processing.

- Single user programming
- Multiple programming
- Real-time processing
- On-line processing
- Time sharing processing
- Distributed processing

Single User Programming

It is usually done by a single person for his personal use. This technique is suitable even for small offices.

Multiple Programming

This technique provides facility to store and execute more than one program in the Central Processing Unit (CPU) simultaneously. Further, the multiple programming technique increases the overall working efficiency of the respective computer.

Real-time Processing

This technique facilitates the user to have direct contact with the computer system. This technique eases data processing. This technique is also known as the direct mode or the interactive mode technique and is developed exclusively to perform one task. It is a sort of online processing, which always remains under execution.

On-line Processing

This technique facilitates the entry and execution of data directly; so, it does not store or accumulate first and then process. The technique is developed in such a way that reduces the data entry errors, as it validates data at various points and also ensures that only corrected data is entered. This technique is widely used for online applications.

Time-sharing Processing

This is another form of online data processing that facilitates several users to share the resources of an online computer system. This technique is adopted when results are needed swiftly. Moreover, as the name suggests, this system is time based.

Following are some of the major advantages of time-sharing processing –

- Several users can be served simultaneously
- All the users have almost equal amount of processing time
- There is possibility of interaction with the running programs

Distributed Processing

This is a specialized data processing technique in which various computers (which are located remotely) remain interconnected with a single host computer making a network of computer.



All these computer systems remain interconnected with a high speed communication network. This facilitates in the communication between computers. However, the central computer system maintains the master data base and monitors accordingly.

Six stages of data processing

1. Data collection

Collecting data is the first step in data processing. Data is pulled from available sources, including data lakes and data warehouses. It is important that the data sources available are trustworthy and well-built so the data collected (and later used as information) is of the highest possible quality.

2. Data preparation

Once the data is collected, it then enters the data preparation stage. Data preparation, often referred to as “pre-processing” is the stage at which raw data is cleaned up and organized for the following stage of data processing. During preparation, raw data is diligently checked for any errors. The purpose of this step is to eliminate bad data (redundant, incomplete, or incorrect data) and begin to create high-quality data for the best business intelligence.

3. Data input

The clean data is then entered into its destination (perhaps a CRM like Salesforce or a data warehouse like Redshift), and translated into a language that it can understand. Data input is the first stage in which raw data begins to take the form of usable information.

4. Processing

During this stage, the data inputted to the computer in the previous stage is actually processed for interpretation. Processing is done using machine learning algorithms, though the process itself may vary slightly depending on the source of data being processed (data lakes, social networks, connected devices etc.) and its intended use (examining advertising patterns, medical diagnosis from connected devices, determining customer needs, etc.).

5. Data output/interpretation

The output/interpretation stage is the stage at which data is finally usable to non-data scientists. It is translated, readable, and often in the form of graphs, videos, images, plain text, etc.). Members of the company or institution can now begin to self-serve the data for their own data analytics projects.

6. Data storage

The final stage of data processing is storage. After all of the data is processed, it is then stored for future use. While some information may be put to use immediately, much of it will serve a purpose later on. Plus, properly stored data is a necessity for compliance with data protection legislation like GDPR. When data is properly stored, it can be quickly and easily accessed by members of the organization when needed.

File organization refers to the way data is stored in a **file**. **File organization** is very important because it determines the methods of access, efficiency, flexibility and storage devices to use. There are four methods of **organizing** files on a storage media.

A **sequential file** contains records **organized** by the order in which they were entered. The order of the records is fixed. Records in **sequential** files can be read or written only **sequentially**. After you place a record into a **sequential file**, you cannot shorten, lengthen, or delete the record.

File organization refers to the way records are physically arranged on a storage device. This topic describes the two main types of file organization.

Related topics describe the following:

- *Record type* refers to whether records in a file are all the same length, are of varying length, or use other conventions to define where one record ends and another begins. For more information on record types, see Record Types.
- *Record access* refers to the method used to read records from or write records to a file, regardless of its organization. The way a file is organized does not necessarily imply the way in which the records within that file will be accessed. For more information on record access, see File Access and File Structure and Record Access.

Types of File Organization

Fortran supports two types of file organizations:

- Sequential
- Relative

The organization of a file is specified by means of the ORGANIZATION keyword in the OPEN statement.

The default file organization is always ORGANIZATION= 'SEQUENTIAL' for an OPEN statement.

You can store sequential files on magnetic tape or disk devices, and can use other peripheral devices, such as terminals, pipes, and line printers as sequential files.

You must store relative files on a disk device.

Sequential File Organization

A sequentially organized file consists of records arranged in the sequence in which they are written to the file (the first record written is the first record in the file, the second record written is the second record in the file, and so on). As a result, records can be added only at the end of the file. Attempting to add records at some place other than the end of the file will result in the file begin truncated at the end of the record just written.

Sequential files are usually read sequentially, starting with the first record in the file. Sequential files with a fixed-length record type that are stored on disk can also be accessed by relative record number (direct access).

Relative File Organization

Within a relative file are numbered positions, called *cells*. These cells are of fixed equal length and are consecutively numbered from 1 to n , where 1 is the first cell, and n is the last available cell in the file. Each cell either contains a single record or is empty. Records in a relative file are accessed according to cell number. A cell number is a record's relative record number; its location relative to the beginning of the file. By specifying relative record numbers, you can directly retrieve, add, or delete records regardless of their locations. (Detecting deleted records is only available if you specified the `-vms` (Linux OS and Mac OS X) or `/vms` (Windows OS) option when the program was compiled.)

Uses of Computer

The first electronic computers were used to perform difficult numerical calculations, but gradually they have come to take on much wider and more complicated roles. They now perform a diverse array of services and functions, and play a major role in most people's personal and professional lives.

20 Uses of Computers

1. Business
2. Education
3. Healthcare
4. Retail and Trade
5. Government
6. Marketing
7. Science
8. Publishing
9. Arts and Entertainment
10. Communication
11. Banking and Finance
12. Transport
13. Navigation

14. Working From Home
15. Military
16. Social
17. Booking Vacations
18. Security and Surveillance
19. Weather Forecasting
20. Robotics

1. Business

Almost every business uses computers nowadays. They can be employed to store and maintain accounts, personnel records, manage projects, track inventory, create presentations and reports. They enable communication with people both within and outside the business, using various technologies, including e-mail. They can be used to promote the business and enable direct interaction with customers.

2. Education

Computers can be used to give learners audio-visual packages, interactive exercises, and remote learning, including tutoring over the internet. They can be used to access educational information from intranet and internet sources, or via e-books. They can be used to maintain and monitor student performance, including through the use of online examinations, as well as to create projects and assignments.

3. Healthcare

Healthcare continues to be revolutionized by computers. As well as digitized medical information making it easier to store and access patient data, complex information can also be analyzed by software to aid discovery of diagnoses, as well as search for risks of diseases. Computers control lab equipment, heart rate monitors, and blood pressure monitors. They enable doctors to have greater access to information on the latest drugs, as well as the ability to share information on diseases with other medical specialists.

4. Retail and Trade

Computers can be used to buy and sell products online - this enables sellers to reach a wider market with low overheads, and buyers to compare prices, read reviews, and choose delivery preferences. They can be used for direct trading and advertising too, using sites such as eBay, Craigslist, or local listings on social media or independent websites.

5. Government

Various government departments use computers to improve the quality and efficiency of their services. Examples include city planning, law enforcement, traffic, and tourism. Computers can be used to store information, promote services, communicate internally and externally, as well as for routine administrative purposes.

6. Marketing

Computers enable marketing campaigns to be more precise through the analysis and manipulation of data. They facilitate the creation of websites and promotional materials. They can be used to generate social media campaigns. They enable direct communication with customers through email and online chat.

7. Science

Scientists were one of the first groups to adopt computers as a work tool. In science, computers can be used for research, sharing information with other specialists both locally and internationally, as well as collecting, categorizing, analyzing, and storing data. Computers also play a vital role in launching, controlling, and maintaining space craft, as well as operating other advanced technology.

8. Publishing

Computers can be used to design pretty much any type of publication. These might include newsletters, marketing materials, fashion magazines, novels, or newspapers. Computers are used in the publishing of both hard-copy and e-books. They are also used to market publications and track sales.

9. Arts and Entertainment

Computers are now used in virtually every branch of the arts, as well as in the wider entertainment industry. Computers can be used to create drawings, graphic designs, and paintings. They can be used to edit, copy, send, and print photographs. They can be used by writers to create and edit. They can be used to make, record, edit, play, and listen to music. They can be used to capture, edit and watch videos. They can be used for playing games.

10. Communication

Computers have made real-time communication over the internet easy, thanks to software and videoconferencing services such as Skype. Families can connect with audio and video, businesses can hold meetings between remote participants, and news organizations can interview people without the need for a film crew. Modern computers usually have microphones and webcams built-in nowadays to facilitate software like Skype. Older communications technologies such as email are also still used widely.

11. Banking and Finance

Most banking in advanced countries now takes place online. You can use computers to check your account balance, transfer money, or pay off credit cards. You can also use computer technology to access information on stock markets, trade stocks, and manage investments. Banks store customer account data, as well as detailed information on customer behavior which is used to streamline marketing.

12. Transport

Road vehicles, trains, planes, and boats are increasingly automated with computers being used to maintain safety and navigation systems, and increasingly to drive, fly, or steer. They can also highlight problems that require attention, such as low fuel levels, oil changes, or a failing mechanical part. Computers can be used to customize settings for individuals, for example, seat setup, air-conditioning temperatures.

13. Navigation

Navigation has become increasingly computerized, especially since computer technology has been combined with GPS technology. Computers combined with satellites mean that it's now

easy to pinpoint your exact location, know which way that you are moving on a map, and have a good idea of amenities and places of interest around you.

14. Working From Home

Computers have made working from home and other forms of remote working increasingly common. Workers can access necessary data, communicate, and share information without commuting to a traditional office. Managers are able to monitor workers' productivity remotely.

15. Military

Computers are used extensively by the military. They are used for training purposes. They are used for analyzing intelligence data. They are used to control smart technology, such as guided missiles and drones, as well as for tracking incoming missiles and destroying them. They work with other technologies such as satellites to provide geospatial information and analysis. They aid communications. They help tanks and planes to target enemy forces.

16. Social and Romance

Computers have opened up many ways of socializing that didn't previously exist. Social media enables people to chat in text or audio in real time across large distances, as well as exchange photographs, videos, and memes. Dating sites and apps help people to find romance. Online groups help people to connect with others who have similar interests. Blogs enable people to post a variety of views, updates, and experiences. Online forums enable discussions between people on specialist or general topics.

17. Booking Vacations

Computers can be used by travelers to study timetables, examine route options, and buy plane, train, or bus tickets. They can be used to explore and book accommodation, whether traditional hotels, or through newer services, such as Air BnB. Guided tours, excursions, events, and trips can also be explored and booked online using computers.

18. Security and Surveillance

Computers are increasingly being combined with other technologies to monitor people and goods. Computers combined with biometric passports make it harder for people to fraudulently enter a country or gain access to a passenger airplane. Face-recognition technology makes it easier to identify terrorists or criminals in public places. Driver plates can be auto-scanned by speed cameras or police cars. Private security systems have also become much more sophisticated with the introduction of computer technology and internet technology.

19. Weather Forecasting

The world's weather is complex and depends upon a multitude of factors that are constantly changing. It's impossible for human beings to monitor and process all the information coming in from satellite and other technologies, never mind perform the complex calculations that are needed to predict what is likely to happen in the future. Computers can process the large amounts of meteorological information.

20. Robotics

Robotics is an expanding area of technology which combines computers with science and engineering to produce machines that can either replace humans, or do specific jobs that humans are unable to do. One of the first use of robotics was in manufacturing to build cars. Since then, robots have been developed to explore areas where conditions are too harsh for humans, to help law enforcement, to help the military, and to assist healthcare professionals.

INTRODUCTION TO COMPUTER SOFTWARE

Software is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

There are two types of software –

- System Software
- Application Software

System Software

The system software is a collection of programs designed to operate, control, and extend the processing capabilities of the computer itself. System software is generally prepared by the computer manufacturers. These software products comprise of programs written in low-level languages, which interact with the hardware at a very basic level. System software serves as the interface between the hardware and the end users.

Some examples of system software are Operating System, Compilers, Interpreter, Assemblers, etc. Here is a list of some of the most prominent features of a system software –

- Close to the system
- Fast in speed
- Difficult to design
- Difficult to understand
- Less interactive
- Smaller in size
- Difficult to manipulate
- Generally written in low-level language

Application Software

Application software products are designed to satisfy a particular need of a particular environment. All software applications prepared in the computer lab can come under the category of Application software.

Application software may consist of a single program, such as Microsoft's notepad for writing and editing a simple text. It may also consist of a collection of programs, often called a software package, which work together to accomplish a task, such as a spreadsheet package.

Examples of Application software are the following –

- Payroll Software
- Student Record Software
- Inventory Management Software

- Income Tax Software
- Railways Reservation Software
- Microsoft Office Suite Software
- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint

Features of application software are as follows –

- Close to the user
- Easy to design
- More interactive
- Slow in speed
- Generally written in high-level language
- Easy to understand
- Easy to manipulate and use
- Bigger in size and requires large storage space

Hardware

Hardware represents the physical and tangible components of a computer, i.e. the components that can be seen and touched.

Examples of Hardware are the following –

- **Input devices** – keyboard, mouse, etc.
- **Output devices** – printer, monitor, etc.
- **Secondary storage devices** – Hard disk, CD, DVD, etc.
- **Internal components** – CPU, motherboard, RAM, etc.



Relationship between Hardware and Software

- Hardware and software are mutually dependent on each other. Both of them must work together to make a computer produce a useful output.
- Software cannot be utilized without supporting hardware.
- Hardware without a set of programs to operate upon cannot be utilized and is useless.
- To get a particular job done on the computer, relevant software should be loaded into the hardware.
- Hardware is a one-time expense.
- Software development is very expensive and is a continuing expense.
- Different software applications can be loaded on a hardware to run different jobs.
- A software acts as an interface between the user and the hardware.
- If the hardware is the 'heart' of a computer system, then the software is its 'soul'. Both are complementary to each other.

Types of Network

A computer network is a cluster of computers over a shared communication path that works to share resources from one computer to another, provided by or located on the network nodes.

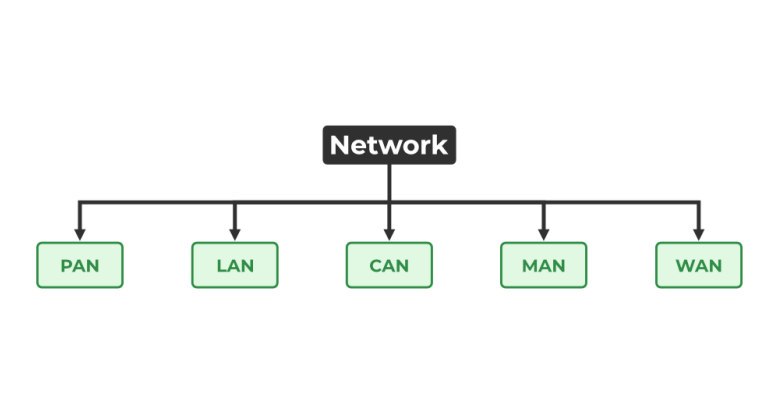
Uses of Computer Networks

- Communicating using email, video, instant messaging, etc.
- Sharing devices such as printers, scanners, etc.
- Sharing files.
- Sharing software and operating programs on remote systems.
- Allowing network users to easily access and maintain information.

Types of Computer Networks

There are mainly five types of Computer Networks

1. Personal Area Network (PAN)
2. Local Area Network (LAN)
3. Campus Area Network (CAN)
4. Metropolitan Area Network (MAN)
5. Wide Area Network (WAN)

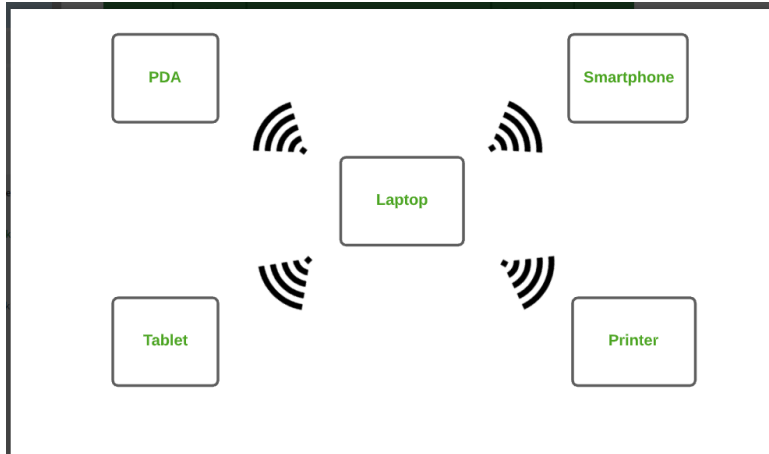


Personal Area Network (PAN)

PAN is the most basic type of computer network. This network is restrained to a single person, that is, communication between the computer devices is centered only on an individual's workspace. PAN offers a network range of 1 to 100 meters from person to device providing communication. Its transmission speed is very high with very easy maintenance and very low cost.

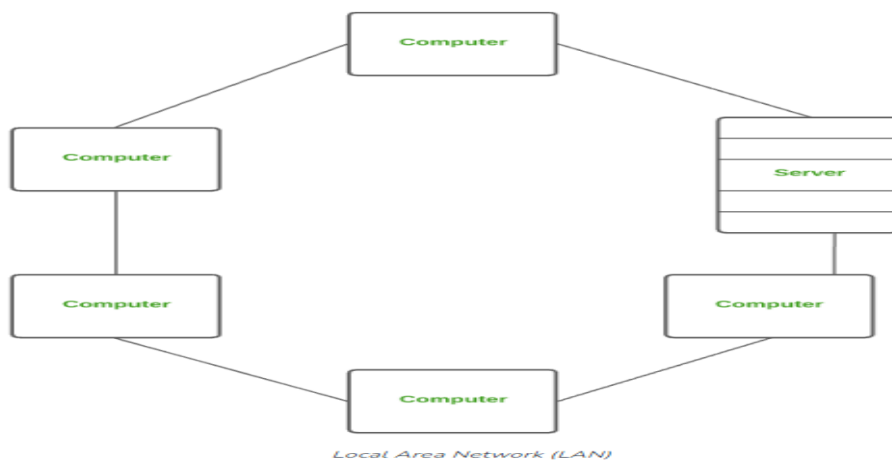
This uses Bluetooth, IrDA, and Zigbee as technology.

Examples of PAN are USB, computer, phone, tablet, printer, PDA, etc.



Local Area Network (LAN)

LAN is the most frequently used network. A LAN is a computer network that connects computers through a common communication path, contained within a limited area, that is, locally. A LAN encompasses two or more computers connected over a server. The two important technologies involved in this network are Ethernet and Wi-fi. It ranges up to 2km & transmission speed is very high with easy maintenance and low cost. Examples of LAN are networking in a home, school, library, laboratory, college, office, etc.

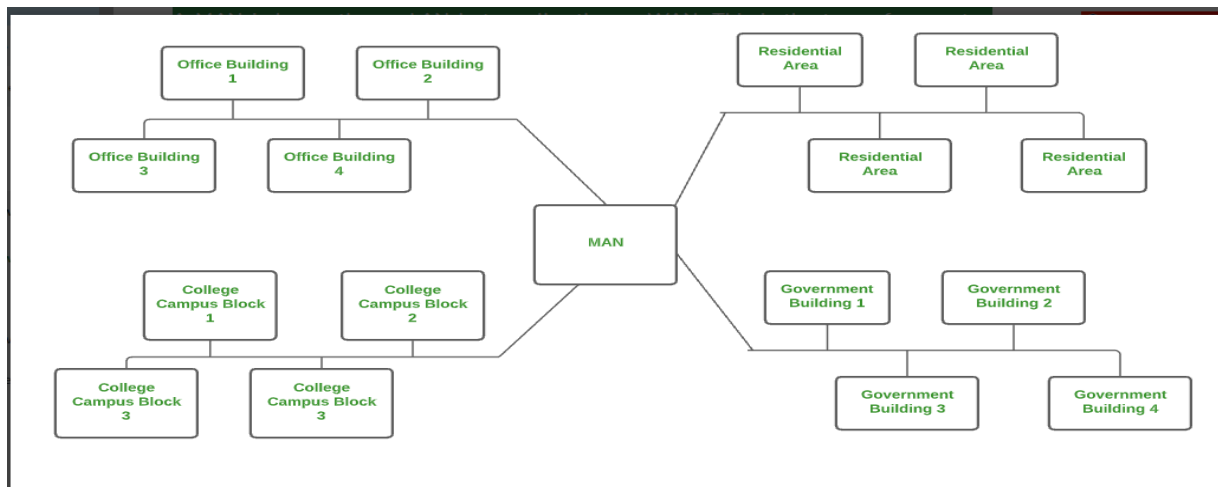


Metropolitan Area Network (MAN)

A [MAN](#) is larger than a LAN but smaller than a WAN. This is the type of computer network that connects computers over a geographical distance through a shared communication path over a city, town, or metropolitan area. This network mainly uses FDDI, CDDI, and ATM as the technology with a range from 5km to 50km. Its transmission speed is average. It is difficult to maintain and it comes with a high cost.

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Examples of MAN are networking in towns, cities, a single large city, a large area within multiple buildings, etc.

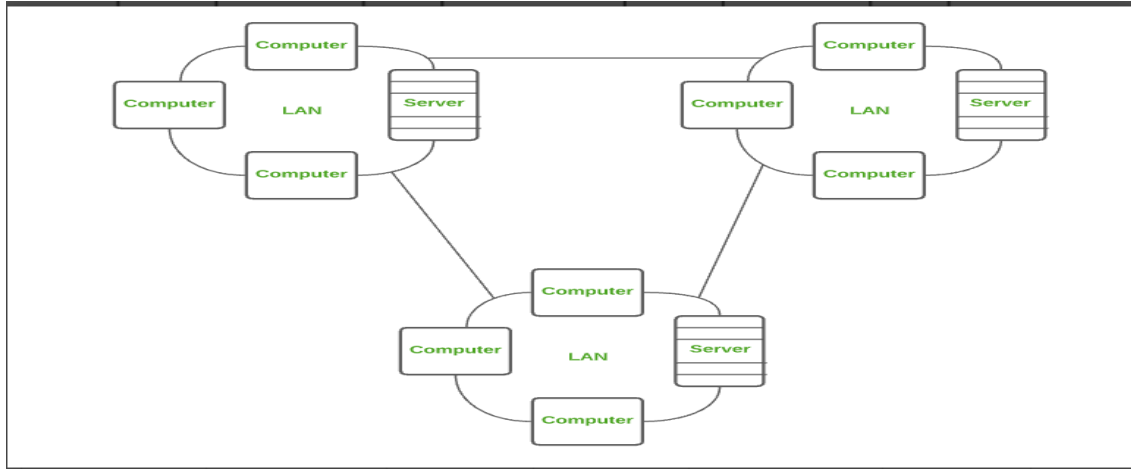


Wide Area Network (WAN)

WAN is a type of computer network that connects computers over a large geographical distance through a shared communication path. It is not restrained to a single location but extends over many locations. [WAN](#) can also be defined as a group of local area networks that communicate with each other with a range above 50km.

Here we use Leased-Line & Dial-up technology. Its transmission speed is very low and it comes with very high maintenance and very high cost.

The most common example of WAN is the Internet.



Question Bank

UNIT I

1. A **Computer** is a machine that performs processes, calculations and operations based on instructions provided by a software or hardware program.
2. Computer can execute a pre-recorded list of instructions called **Program**.
3. The major **Components** of a computer are memory, I/O Devices and CPU.
4. **Hardware** is the collection of physical parts of a computer system.
5. **Software** is a set of instructions and its associated documentations that tells a computer what to do or how to perform a task.
6. The name of the first digital computer is **ENIAC** (Electronic Numerical Integrator and Computer).
7. Expand **FORTTRAN-Formula Translator**.
8. A **Microcomputer** executes millions of instructions per second.
9. A group of **8 bits** is called a byte.
10. The number of bits that a computer processes at a time in parallel is called **Word length**.
11. A digital computer operates on binary digits **0's and 1's**.
12. Computers can be classified by their **size** as personal computers, portable computers, workstation, mainframe and supercomputers.
13. The second generation computers contained **Transistors** in place of vacuum tubes.
14. IBM's system /360 is an example of **Third** generation computer.
15. The first personal computer was introduced by **IBM**.

16. **Fifth generation** computers aim to solve highly complex problems, ones, which require reasoning, Intelligence and expertise.
17. Integrated circuit (IC) was developed by **Jack Kilby**.
18. Second generation computers replaced machine language with **Assembly** language.
19. **PDA's** is the smallest among the portable computers.
20. **Mainframe** computers process several million program instructions per second.
21. The microcomputer is also known as the **Personal Computer**.
22. **VLSI** stands for **Very Large Scale Integrated Circuit**.

UNIT II

1. **CPU** is the computer component that executes instructions.
2. **Memory** enables a computer to store data and programs temporarily.
3. The complex procedure that transforms raw data into useful information is called **Processing**.
4. The two components of computer are **Processor** and **Memory**.
5. The circuit board to which the microprocessor is connected is called the **Motherboard**.
6. 1024 kilobyte is equal to **1 Megabyte**.
7. Computers receive instructions from the user through **Input devices**.
8. The computer communicates with the user through the **Output devices**.
9. Keyboard and mouse are **Input** device.
10. Hard disk is a **Storage** device
11. The common output devices are **Monitor, Printer and Speaker**.
12. RAM stands for **Random Access Memory**.
13. **A Mouse** is an input device used instead of keyboard.
14. Data consists of letters, numbers, **Sounds and Images**.
15. High-end personal computers have **256 or 512 MB** of RAM.
16. **Touch Screens and Modems** are used as Input and Output device.
17. Printer and monitor are **Output** device.
18. The common storage devices are hard disk, **Floppy disk and Optical disk**.
19. 1 Gigabyte is **1024 Megabyte**.
20. The **CPU** is the brain of the computer.

UNIT-III

1. Program is also called as **Software**.
2. A **Computer** needs both hardware and software for its proper functioning.
3. A combination of software and hardware is called **Firmware**.
4. The **Variables** can represent numeric data, text or graphical images.
5. An **Interrupt** is a single informing a program that an event has occurred.
6. Pcs support **256** types of software interrupts and **15** hardware interrupts.
7. Expand COBOL – **Common Business oriented Language**.
8. Application software is also called as **End - user programs**.
9. Compiler and **Interpreter** transform the high-level language into machine code.
10. **Assembler** transforms the assembly language into machine code.
11. **Compiler** is a program that translates source code into object code.
12. Execution of a program is performed using a **Fetch- decode** execute cycle.
13. Software can be divided into **System software** and **Application software**.
14. **Executable** programs are stored on secondary storage.
15. The storage device and display device is also known as **Hardware**.

UNIT-IV

1. **Operating system** is the most important program that runs a computer.
2. The central module of an operating system is called **Kernel**.
3. The **Job management** software of the operating system manages the job waiting to be processed.
4. In **On-line** processing the data are processed instantaneously.
5. **Multi- user** operating system allows two or more users to run programs at a time.
6. The primary purpose of the operating system is **Productivity maximization**.
7. **Multiprocessing** refers to a computer system ability to support more than one process at a time.
8. **Multithreading** allows different parts of a single program to run concurrently.
9. Multithreading is the ability of an operating system to execute different parts of a program called **Threads**.
10. **DOS** is not a real time operating system.

11. **Real- time** operating systems respond to input immediately.
12. Operating system manages the **Input** and **Output** from a computer.
13. Expand GUI-**Graphical User Interface**.
14. The two types of multitasking is **Preemptive** and **Cooperative**.
15. Dos operating system contains commands like **Copy** and **Rename**.

UNIT V

1. Pascal, COBOL and BASIC are **High level** languages.
2. Assembly languages are also known as **Symbolic Languages**.
3. Procedural –oriented languages are also known as **Third** generation languages
4. Problem –oriented languages are also known as **Fourth** generation languages.
5. Natural languages are known as **Fifth** generation languages.
6. QMF and SQL are the example for **Query language**.
7. TELON and UFO are example of **Application generators**.
8. LISP and PROLOG are two popular **Natural** languages.
9. **MANTIS** is an application generator.
10. **RPG III** is a report generator.
11. **Powerpoint** is personal computer application software.
12. **Machine language** is the lowest level programming language.
13. The computer send messages and requests directly to one another without a server intermediary is called **Peer to Peer** network.
14. A **LAN** device can send and receive signals from all other devices in the **Network**.
15. **Bus Network** is a configuration for a local area network in which all nodes are connected to a main communication line.
16. Expand MAN – **Metropolitan Area Network**.
17. Expand WLAN **Wireless Local Area Network**.
18. **Ring** network is a local area network in which devices are connected in a closed loop.
19. When a network is wired as a star, every node has a **Point to Point** link with a central post server.
20. **Wide Area Network** is used to connect LANs and nodes that are separated by great physical distance.