1 Let us Explore - Computer Network

Learning Objectives :

After the completion of this chapter learners will be able to:

❑ understand the concept of computer network,

❑ define Network,

❑ appreciate the need of network and use of various networking devices,

❑ understand the difference between different types of networks.

NEED OF COMMUNICATION

Look at the two images given above. What do they depict?

An army of ants and a swarm of bees.

We actually, don't have to be born as a human being to communicate. All living organisms, be it ants, bees, apes or dolphins communicate with one another thus, forming a network. Communication here means to be able to convey thoughts and ideas, and everything else that needs to be expressed or conveyed.

Communication among individuals is not only face-to-face, but it also involves sharing of lots of information. Devices that we use to talk, or to send message from one person to the other are the different modes of communication that we use in our daily life.

Search internet and prepare a list of different means of communications used since early days. Also find out the century/decade in which these means of communications were used. Write your findings in the space provided.

History of communication started with carrier pigeons, horsemen and then letters and telegrams being used for sending messages. Gradually, with the changing time, telephones came into existence. They were very easy to use and also connected us to far off distant locations within no time. Since, telephones were static so mobile phones were invented and came into existence.

Computers have not only simplified but also made the complex mathematical or scientific calculations possible. As we all know, each computer has its own keyboard, mouse, scanner and printer also called **peripheral devices.** If two or more people wish to share the data or information they have to move around with Pen drives, CD's, DVD's etc. However, the need of sending and receiving more and more information among individuals/organisations on the click of a mouse has given birth to the Computer Networks.
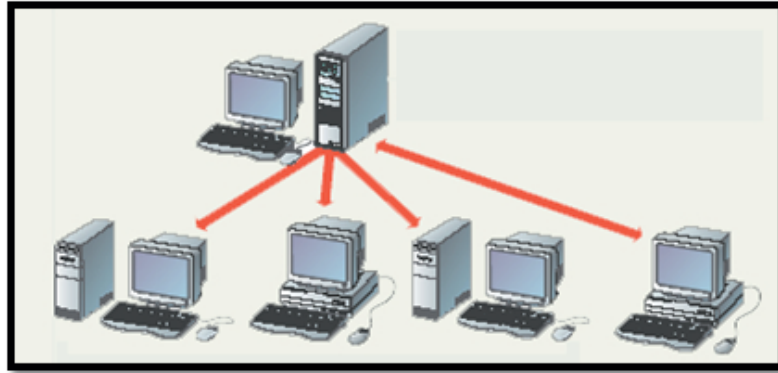
ACTIVITY :

Carefully observe the two images shown below and discuss with your partner which option for sharing information is better and why?

A Computer network is a collection of two or more computers connected together in order to communicate and share the data and information.

ACTIVITY :

1. List down few activities or belongings which you share with your best friend and your family members during a day.

Friend	Family Members

2. Whenever, you are absent from your school, how do you complete your pending work? Choose the correct options from the list of options given below:

   ✦ By sharing a book or a notebook

   ✦ By making a phone call

   ✦ By sending an e-mail message

   ✦ By sending message through Whatsapp

Sharing of resources is very common in our day to day life and we all share some or the other resources almost every day. Similarly, we share computer resources such as **files saved** on the computer, **scanners** and **printers** etc. These resources are shared using **computer networks.**

Wires or cables

Files

Printer
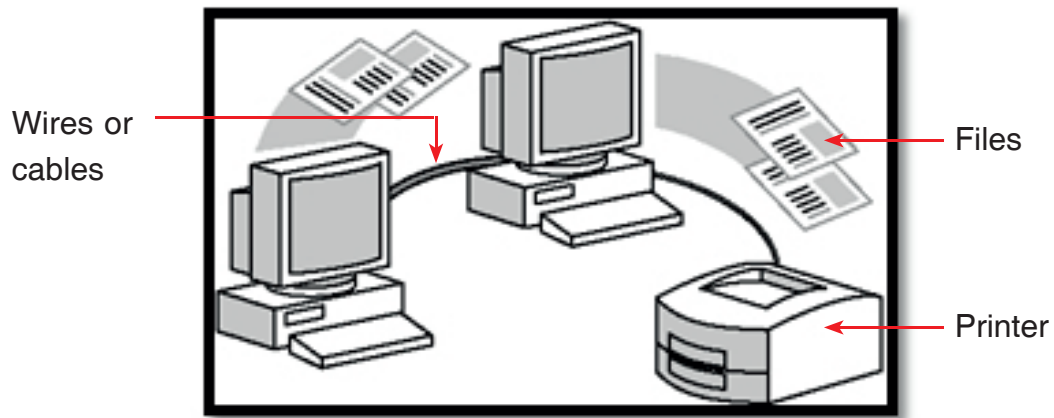
Usually, the connections between computers in a network are made using **physical wires or cables**.


Cable or Wire
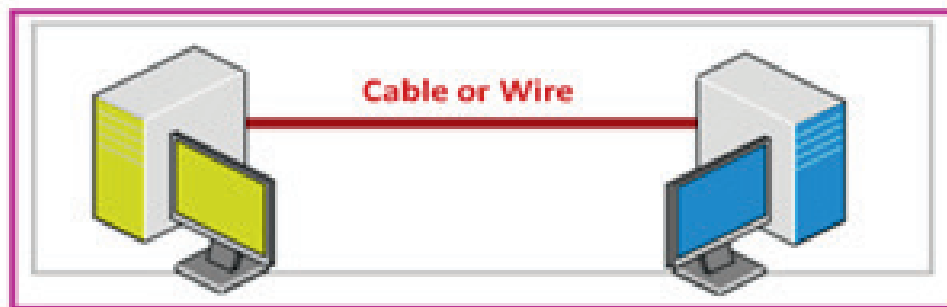
However, some **connections are wireless**, **using radio waves or infrared signals.**

ACTIVITY :

Write the names of some devices using wireless signals which you use in your day to day life.

When we connect two or more computers together we get a Network. On this network a **central computer (server), acts as the storage location for files** and **applications** that are shared on the network.**Servers store and send data to other computers** and also **control the network access** of the other computers which are referred to as the **'client' computers**. **Clients** are computers that receive and use data from servers.
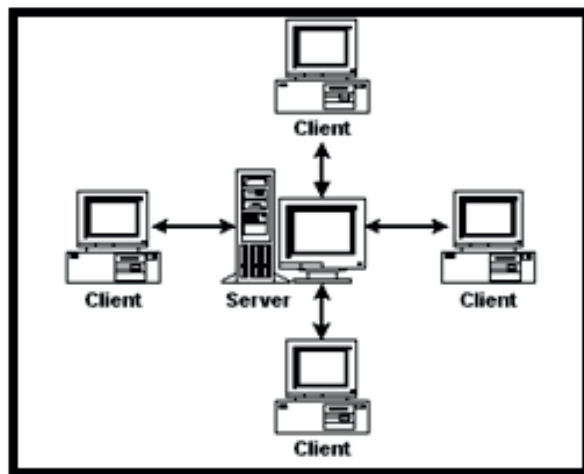
GROUP ACTIVITY :

Form group of 5-6 students. Each group will explore and make a list of at least three different places where client/server model of networking is being used. Discuss the findings in the class?

🖱 Hands On

Find out the details of computer network of your school (if any exists). Count and list the computers or peripheral devices that are connected to this network. Also try to explore the no of networks (if more than one exists) and the devices used for networking (such as cables, switch etc.), which are visible to you. Discuss the findings with your teacher.

Teacher's note: with the help of Network administrator, show Switch, Network cables, Modem etc. to students.

No. of Networks	No. of computers / peripheral devices connected in each network	Name of devices connected through the network	Devices used to create the Network

In order to establish or to connect various devices through network we require,

**1. Cables** to connect the computers and other peripheral devices to each other.

2. Network interface device which is required on each computer, also called a **network interface card or NIC. This card or device connects the computer to the special device called switch, which in turn links all of the computers on the network together.** Each computer on a network must have this network card.

3. A **Switch** is used to connect multiple devices (such as computers, printers, scanners etc.) which need to be connected to each other in a network. A switch can thus connect computers, printers and server, creating a network of shared resources.

4. A **Modem** is a hardware device which means Modulator – Demodulator. **Modems are used for data transfer from one computer** network to another computer network through telephone lines. The computer network works in **digital mode**, while **analog technology is used for carrying massages across phone lines**. The Modulator converts information from **digital mode to analog mode at the transmitting end** and demodulator converts the same from **analog to digital at receiving end.**
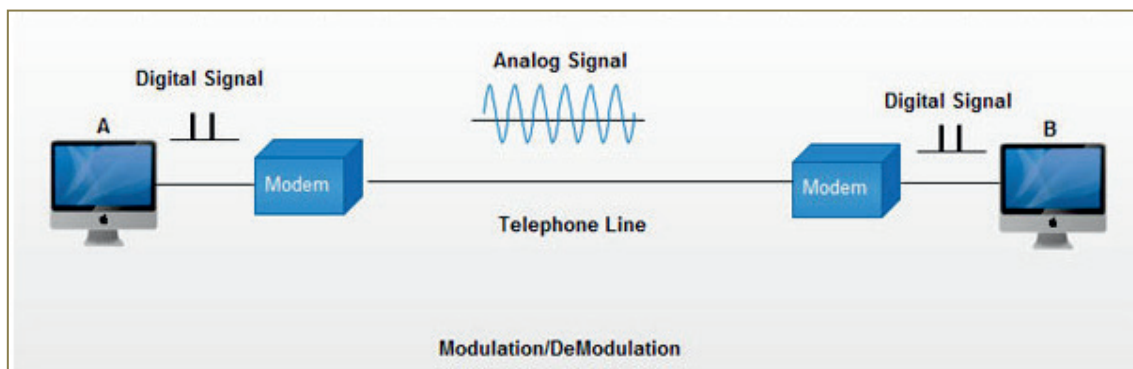
1. You visited an art exhibition with your parents, where you came across an artist from France. You wanted to talk to the young creative guy but, unfortunately he could not understand and speak English or any other Indian language. Suggest some ways in which you can interact with the artist?

2. Go home and make a phone call to your friend from your landline telephone. Now, unplug the wire connected to your telephone and put it in your ear. Can you hear the voice of your friend? Yes/No, Why?

We comprehend that in order to communicate with an individual/device who, cannot understand our language/signal, we need an **interpreter** (a person who translates our language to the other person's language and his language to the language we understand).

5. Another device most commonly used in Networking is a **Router** which is used to **tie or join multiple networks together.** For example, we would use a router to connect our networked computers (computers which are already connected to one another by a network) to the Internet and thereby share an Internet connection among many users. The router will act as a courier, **choosing the best route for your information to travel so that you receive it quickly.**

WIRED NETWORK TECHNOLOGY

Hands On

Make groups of 5 students each. Each student in the group must contribute to an Impress/Power Point presentation by preparing 5 slides on the selected topic.

Groups may select any topic from the topics listed below to prepare an Impress/ Power Point presentation:

(a) Photosynthesis in Plants

(b) Evolution of Computers

(c) The first War of Independence

(d) Natural Resources and Conservation

(e) Freedom Fighters

(f) Energy Conservation

All students in the group must prepare 5 slides on their own on any computer in school or at home.

Discuss and list different ways, using which, this presentation can be carried / copied to the teacher's desktop in the computer lab. Also take out printouts from the server in the computer lab.

Possible ways of copying the presentation on teacher's desktop are:

_____

_____

From the above example, we understand that in order to share files (text, images, audio, videos), resources (printer) amongst two or more computers we need a network. **A wired network is a network which uses networking cables to connect devices (computers, printers, scanners etc.) .**

Similarly, the term **Wireless Network** refers to two or more computers communicating using standard network rules, but **without the use of cables to connect the computers together.** Instead, the **computers use wireless radio signals, microwave signals, satellites to send information from one device to the other.**

ACTIVITY :

1. Divide the class into two groups, one group to make a list of different places where wired network is used and second group to make a list where wireless network is used. Share the findings with complete class.

WIRED NETWORK	WIRELESS NETWORK

2. Using Internet try to find out the names of different types of networking cables available in the market.


This image represents a **Wired Network setup which uses physical cables to transfer data between different devices and computer systems.**

Different types of network cables like **Coaxial cable, Optical fiber cable, Twisted Pair** cables are used depending on the network's requirement.
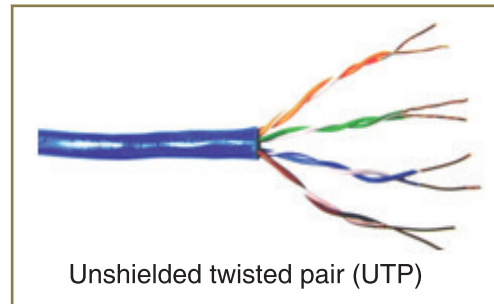
CLIENTS

SWITCH

CABLES

SERVER

NETWORK PRINTER
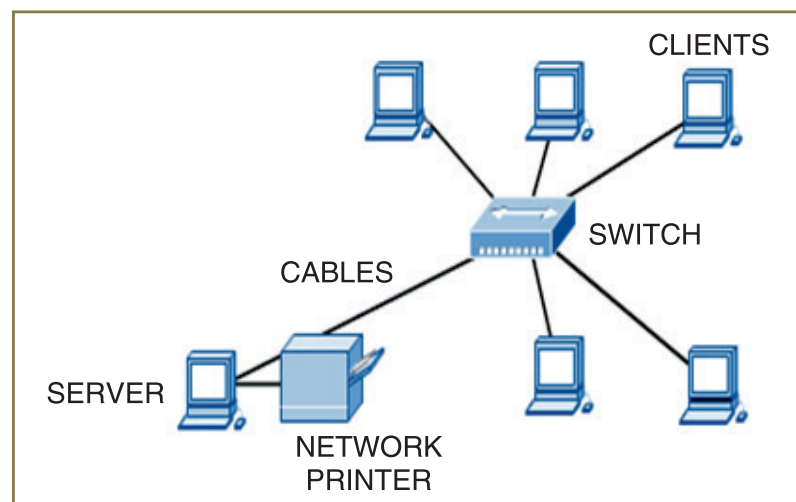
TWISTED PAIR

The twisted pair cable used for networking is of two types: **shielded and unshielded.** An Ethernet cable is a type of twisted pair. **It is used to connect two network devices directly, the device can be a computer, switch etc.**
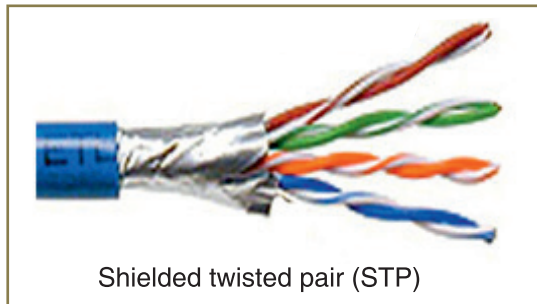
Shielded twisted pair (STP)

Unshielded twisted pair (UTP)

Advantages

❖ Provides **high data transfer speeds** and are not very expensive.

❖ Less **power consumption**.

❖ **Simple** to install.

Disadvantages

❖ Ethernet cables are **difficult to troubleshoot** (diagnose the fault).

❖ **Ethernet card** must be present inside the computer for connecting Ethernet cables.

COAXIAL CABLE

A **Co-axial cable consists of a central copper wire surrounded by an outer jacket.** It is used by cable TV companies to connect television sets to antennas.
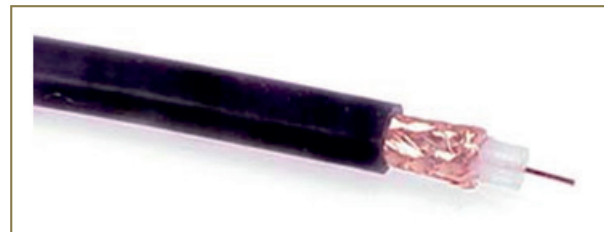
Advantages

❖ Co-axial cables are inexpensive and can **carry data over long distances**.

❖ Co-axial cable has excellent **noise immunity** because of its thick outer covering.

❖ They are **light, flexible**, and easy to work with.

❖ Coaxial cable is more **resistant to interference and attenuation** (the loss of signal strength) than twisted-pair cables.

Disadvantages

❖ Cables that use copper conductors can **easily break**.

❖ Thick coaxial cables do not bend easily and thus, are difficult to install and maintain.

FIBER OPTIC CABLE

An Optical Fiber cable uses **glass threads (fibers)** to transmit data, each of which is capable of transmitting messages in the form of light waves. These network cables are bendable despite being made of glass.

Advantages

❖ **Easy to install** being light in weight.

❖ Provides **very high data transmission speed** and carries enormous information at once.

❖ It provides low error rate and ensures secure transmission.

Disadvantages

❖ **Fragile (can break easily),** needs special care to install them.

❖ **High cost** of installation.

🖱 *Hands On*

Explore the type of a networking cable used in :

1. Computer Lab of the school.

2. At Home by Cable Operator and Internet Service Provider.

11

WIRELESS NETWORK TECHNOLOGY

There are many wireless mediums available which are used to **share or transmit data and resources in a wireless network** for example **Infrared, Bluetooth, Radiolink, Microwave, Sattelite link etc.**

These mediums can, send or transmit data and resources at different speed and distance. Therefore, a medium should be carefully selected depending upon to what distance and at which speed data or resources are to be transmitted.

DO YOU KNOW

The world's first wireless computer communication network, known as ALOHAnet, was created in Hawaii by a university professor in 1971. His system used radios and seven computers located across four islands, they communicated with a central computer without the use of phone lines.

BLUETOOTH

(i) **Bluetooth** is a wireless technology which **uses radio frequencies to transmit information over short distances**.

(ii) It allows communication between **several devices at a time**.

(iii) However, it can work only for **short distances generally 10 meters or less.**

ACTIVITY :

List different games which you have shared using Bluetooth technology. Also mention how and with whom these games were shared.

S.No.	Name of Game	With Whom	How
1.	Candy Crush Saga	Brother	Using Mobile
2.			
3.			
4.			
5.			
6.			

INFRARED WAVES

(i) They are used for communication between devices that are **not very far from each other** such as in remote controls of your TV sets etc.

(ii) This type of transmission uses **infrared light to communicate between two devices**

(iii) It can work only for **short distances** and it cannot **penetrate walls**.

(iv) It is affected by **distance, noise and heat.**

(v) Normally operates between two devices at a time.

DO YOU KNOW

The birth of wireless communications dates back to 1901 when M. G. Marconi successfully established a radio link between a land-based station and a tugboat.

RADIO WAVES

(i) Radio waves are **electromagnetic signals** that are **transmitted by an antenna.**

(ii) They are **Omni-directional waves i.e., they travel in all the directions from the source.**

(iii) "Radio waves" **transmit music, conversations, pictures and data.** *For example,* AM and FM radio, television, cordless telephone, cellular phones, pagers and wireless LAN etc. use radio waves to communicate.

Radio Waves

13
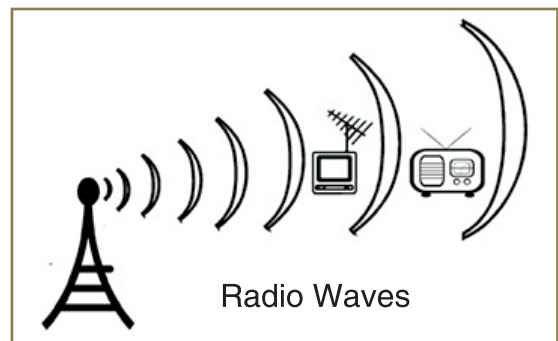
(iv) Radio waves can **travel long distances and can penetrate buildings** easily.

(v) However, these signals get easily affected by **rains, thunder storms etc.**
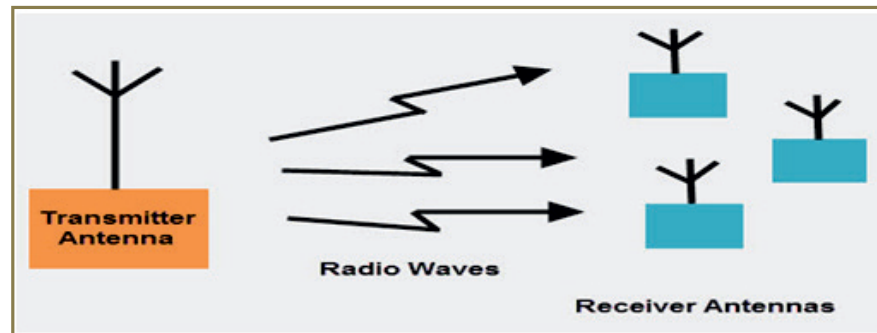
SATELLITE COMMUNICATION

(i) <u>Satellite communication</u> is widely used all over the world, allowing users to transmit (send) a signal to **any part of the earth's surface**.

(ii) When a signal is sent to a satellite, it either reflects it back to the earth or transmits it to another satellite. This way, it can reach anywhere on the earth.

(iii) Now a day, satellite transmission is extensively used by major television broadcasting companies.

3G (THIRD GENERATION)

(i) 3G is the new generation of wireless network technology

(ii) It has **increased the speed of communication**

(iii) The objective of this technology is to provide various **value added services** like video calling, live streaming, mobile internet access, IPTV, etc. on te mobile phones.

4G (FOURTH GENERATION)

(i) 4G is the successor technology of 3G

(ii) It offers more **bandwidth and services** as compared to 3G.

(iii) The bandwidth is approx**..(100 MHz)** and transfers data at much higher rates.

(iv) <u>4G technology</u> is also referred to as **"MAGIC"**.

14

WI-FI

Wi-Fi is the most popular wireless communication technology used within a room or a building for connecting to Internet.

Wi-Fi uses **radio waves (RF)** to allow **two OR more devices to communicate with one another.**

This technology is most commonly used to connect devices like computers, tablets and mobile phones to the internet. It typically provides network access for a few hundred feet with a network speed of approximately 54 Mbps.

Wi-Fi networks need to be **password protected** for security purposes to safeguard it from unauthorised users.

15

WiMAX

(i) WiMAX (Worldwide Interoperability for Microwave Access) is similar to Wi-Fi.

(ii) However, it works on a **much larger scale and at faster speeds.**

(iii) WiMAX covers greater distance and can cover large cities.

(iv) WiMAX also has a **range of up to 50 km**. This wireless technology allows data to be transferred at a rate of **70 Mbps or more.**

TYPES OF NETWORK

Wired or wireless networks can be classified or divided into various types depending upon **the area covered by the network or size of the network**. A network can be established in a small room or a building or it can be as big as covering the whole city or town.

Depending upon the geographical area covered by a network, it is classified as:

Local Area Networks (LANs):

(i) A **Local Area Network (LAN)** is a computer network covering a **small area** like a home, office, or a group of buildings, such as a school or a college.

(ii) A simple LAN can consist of a **Personal Computer and a printer or it can connect several computers together.**

(iii) All the connected devices share information **(text, graphics, video, audio etc.)** with each other.

(iv) A **LAN is limited in size**, typically spanning a few hundred metres.

(v) It is usually fast, with speed from **10 Mbps to 10 Gbps.**

(vi) It requires **little wiring, typically a single cable connected to each device.**

(vii) Its set-up involves **lower cost** as compared to MAN's or WAN's.

(viii) LAN's can be either **wired** or **wireless.**
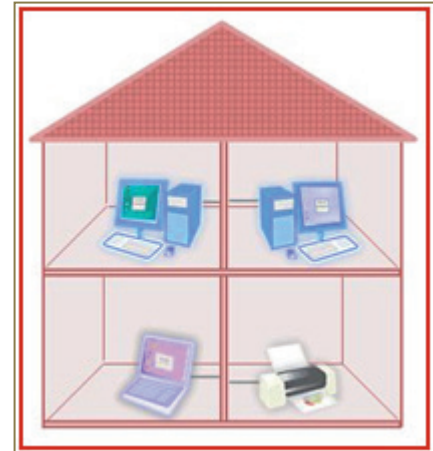
Metropolitan Area Network (MAN):

(i)   A metropolitan area network (MAN) is a computer network covering a **large area** like a campus, corporate offices or a city.

(ii) It is also used as the interconnection of several local area networks.

(iii) A MAN is often a **high speed network** and allows **sharing of multiple resources**.

(iv) Examples of MAN: Telephone company network that provides a high speed DSL to customers and cable TV network, Branches of a Nationalised bank in several cities connected together.

Central office headquarters
20 km
Warehouse
10 km
160 km
Factory
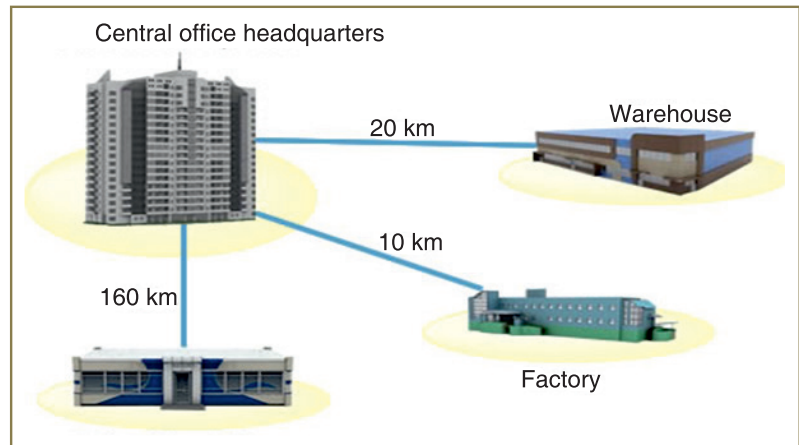
Wide Area Networks (WANs):

(i)   A Wide Area Network **connects LAN and MAN together.**

(ii) It covers a **large geographical area.**

(iii) This network may be located throughout a **country** or **a continent** or even **around the world**.

(iv) WANs may transmit data over high-speed phone lines or wireless links such as satellites

(v)   **Internet** and **ATM facility** are the examples of WANs.

ACTIVITY :

Write the names of any of your friend who lives in any other city or country? _____

Can you send a good wishes message to your friend whose name you have written above without knowing his/her mobile number? Yes/no _____

If, yes how? _____

17

INTERNET

Internet is a global (wide area) <u>network</u> connecting millions of <u>computers</u>.

Internet is often referred to as a **Network of Networks** or the **World Wide Web (WWW).**

We can send **text messages, images, videos** and **audios** to our friends living in any part of the world using WhatsApp or electronic mail. We can also search for any information on the internet and email file attachments. Internet enables even dissimilar computers with different operating systems to communicate with each other using a standard set of protocols (rules) called as **networking protocols.**

How Internet Works?

Watch the video given below to learn about the functioning of the internet and how to connect to Internet and the type of internet services to use.

1. **<u>https://www.youtube.com/watch?v=jKA5hz3dV-g</u>**

2. **<u>https://www.youtube.com/watch?v=hMX6dVa61t0</u>**

Types of Internet Service (Connection)

We are familiar with the names of various service providers in our country like Airtel, Vodafone etc. We can select any type of Internet Service and Service Provider depending upon which **Internet Service Providers (ISPs), serves** the area where services are required and what type of services do they offer.

Some common types of **Internet Services** (connections) are listed below:

Dial-up:	This is generally the **slowest type of Internet connection**, and should probably be avoided unless it is the only service available in the area where Internet service is required. Dial-up Internet **uses the phone line**, thus, landline and the Internet cannot be used at the same time.
DSL:	**DSL service uses a broadband connection**, which makes it much faster than dial-up. DSL connects to the Internet via phone line but unlike dial-up, we can use the Internet and phone line at the same time.
Cable:	Cable service connects to the Internet via cable TV. It uses a **broadband connection** and can be faster than both dial-up and DSL service.

18

Satellite:	A satellite connection also uses **broadband** but does not require cable or phone lines. It connects to the Internet through the man-made satellites orbiting the Earth. It can be used almost anywhere in the world, but the connection may be affected by weather patterns. Satellite connections are also usually slower than DSL or cable.
3G and 4G:	3G and 4G service is most commonly used with mobile phones, and it connects wirelessly through the ISP's network. However, these types of connections are not always as fast as DSL or cable.

ACTIVITY :

Locality Survey:

Visit few homes in your neighbourhood. Find out the names of service providers providing internet connection in these houses and also the type of Internet service (connection) provided by the ISP.

Write the name of "Service provider" or "type of service" that is most popular or commonly used in your locality. Also try to find out which type of service is cheapest and why?

Internet Service Provider	Type of Service	Monthly cost of Service

_____ is the most popular internet service provider. _____ is the most common type of service (connection) used in the locality surveyed. _____ is the cheapest service as it uses _____ _____

Learning Objectives :

After the completion of this chapter learners will be able to:

❑ appreciate the concept of website designing,

❑ realise the importance of a web browser,

❑ learn to use text editors,

❑ understand tags and their types,

❑ appreciate the use of head and body element in HTML program,

❑ design web pages using various HTML tags,

❑ understand the need of attributes and learn to use them.

WWW.FACEBOOK.COM	WWW.FLIPKART.COM	WWW.AMAZON.IN
WWW.GOOGLE.CO.IN	WWW.SNAPDEAL.COM	WWW.TWITTER.COM

Can you guess what are these?

These are the names of the websites which you must have frequently visited.

Life without Internet seems impossible. All of us use internet in our day to day life and in process, visit a number of websites to perform various tasks.

ACTIVITY :

How many times do you access internet in a day or a week and what all websites do you visit and why?

Number of times Internet accessed in a day	Websites Visited	Purpose

Have you ever wondered how these websites are designed? In this segment, we will learn about designing of the websites.

On the webpage of DAV CMC you can find **text, videos, images** etc. Hence, we can define a **WEBSITE** as a collection of **text, images, sounds and videos**.

Example:

DO YOU KNOW

Web pages can either be **static or dynamic**. Static pages show the same content each time they are viewed. Dynamic pages have content that can change each time they are accessed.

www.google.co.in

www.wikipedia.org

21

ACTIVITY :

With the help of your friend search the internet and list down the role/job profile of the following professional working in the field of Medicine and IT Industry.

PROFESSION	JOB PROFILE
CARDIOTHORACIC SURGEONS	Physicians who specialize in cardiac surgery.
NEUROLOGIST	
NEONATALOGIST	
PSYCHIATRIST	
PEDIATRICIAN	
PROGRAMMER	
DATABASE ADMINISTRATOR	
DATA ENTRY OPERATOR	
SECURITY ENGINEER	
WEB DEVELOPER	

From the search above we can comprehend that a Doctor working in a hospital can be a pediatrician, a surgeon or a radiologist. Similarly, professionals working in the field of computers can be **Programmers, Network Administrators or Web Designers.**

ACTIVITY :

Visit the Library of your school and check the different book shelves. What do you find there? You can see books of different types arranged in different sections on different book shelves.

Write down the different sections and types of books available in your library in the space provided below?

Next, go to your computer lab and open different websites. What do you notice?

22

We observe:

❖ As a book is a collection of number of pages on one topic subject, similarly, a **website** is a collection of related **webpages**.

❖ There are a number of books kept in a Library on different shelves. Similarly, we have a number of websites which are available on the internet hosted on different **web servers**.

❖ Every book has its own name, similarly, every website has its own **unique address** called **Uniform Resource Locator** (URL).

❖ All books are written using a language e.g. English, Hindi etc. Similarly, the websites are written (developed) using a special language called **Hyper Text Markup Language (HTML).**

❖ Books cover page, provide us with necessary details like Name of the book, Author, Publisher etc. Similarly, websites begin with a **Home Page**.

❖ Home Page is the first page on every website which gives us basic details about the information the website contains.

ACTIVITY :

Form groups of 4-5 students each and list some similarities and difference between books and the websites. Discuss your findings with other groups:

DESIGNING A WEBSITE

In this chapter, we will learn how to design a website. For designing a website we require a:

1. **Text Editor** to type the HTML program.

2. A **Web Browser** to view the result**.**

We have all used Open Office "Writer" and "MS-Word" the word processing programs. We use "Writer" for typing information, letters paragraphs etc. Similarly,

A **text editor is a word processing program that is used to type and edit an HTML program.**

Example - **Note Pad** for Windows and **Gedit** for Linux.

However, the most commonly used html editor is **Notepad**.

23

A <u>Web browser</u> *is a software which is used to view websites.* The website it displays is according to the HTML program written.

Example: **MOZILLA FIREFOX**

ACTIVITY :

Form three groups, each group to make a list of different text editors, web browsers and WYSIWYG editors. Discuss the findings in the class.

Now, we will learn how to develop an HTML program.

We have already learnt in previous classes that a computer requires instructions to work, which are written by computer programmers using different programming languages.

A program is a collection of instructions that performs a specific task.

An HTML program is written to design webpages, using **tags.** Tags are **simple commands** which are used to instruct a web browser about how the web page should look like.
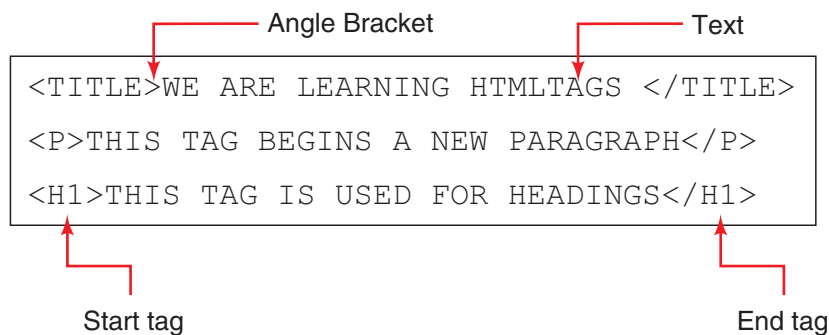
HTML TAGS

An HTML tag is composed of the **name of the element**, surrounded by **angular brackets.**

The HTML tags can be categorised as:

1. Container Tags:

❖ These tags contain **text or other tags**.

❖ They consist of **a Start tag and an End tag**.

❖ Every **Start tag begins using opening angle brackets <> and the End tag closes using </>.**

❖ An **end tag** is always **preceded by a forward slash**.

Example: Title is an HTML ELEMENT and **<Title>…</Title>**is an HTML TAG.

```
              Angle Bracket              Text
<TITLE>WE ARE LEARNING HTMLTAGS </TITLE>
<P>THIS TAG BEGINS A NEW PARAGRAPH</P>
<H1>THIS TAG IS USED FOR HEADINGS</H1>
      Start tag                          End tag
```

2. Empty Tags:

❖ These tags *do not contain* **text or any other tag**.

❖ They *do not have* **an end tag.**

**Example :
, <HR>** are empty tags. We never write </BR>.

Let's review the different tags used in HTML program.

SOME CONTAINER TAGS

A. HTML tag

- ✤ The **<html> tag** represents the _root_ **of an HTML document**.
- ✤ The **<html> tag** is the **container** for all other HTML elements.
- ✤ In the code given below **<html> is the opening tag and</html> is the closing tag**.
- ✤ The standard structure of an HTML document has two sections _Head_ and _Body._

```
one.html - Notepad
File  Edit  Format  View  Help
<HTML>



</HTML>|
```

B. HEAD tag

- ✤ The **<head>** tag is a **container tag.**
- ✤ It is the _first element_ inside the HTML tag.
- ✤ The **<head>tag** can include **a title for the document.**
- ✤ It contains _no text_ within itself.

```
TWO.HTML - Notepad
File  Edit  Format  View  Help
<HTML>
  <HEAD>

  </HEAD>

</HTML>
```

C. TITLE tag

- ✤ The **<title>** tag is used inside the<head> tag **to mention the document title.**
- ✤ The title appears on **the top of the webpage** i.e. in the Title Bar and not in the actual viewing area.
- ✤ It is a **container tag.**

```
THREE.HTML - Notepad
File  Edit  Format  View  Help
<HTML>
  <HEAD>
          <TITLE>
          WE ARE LEARNING WEB DESIGNING
          </TITLE>
  </HEAD>

</HTML>
```

D. BODY tag

- ✤ The **<body>** tag defines the **document's body.**
- ✤ The <body>tag contains **all the contents of an HTML document**, such as _text, hyperlinks, images, tables, lists,_ etc.
- ✤ There can be only _one_ <body> element in a document.
- ✤ It is a **container tag.**

```
sample.html - Notepad
File   Edit   Format   View   Help
<html>
<head>
    <title>My first web page</title>
</head>
<body>
    This is my first web page
</body>
</html>|
```

When we save a file in Open Office Writer it is saved with an extension of **.ODT**. Find and list the extensions in which different software(s) save our files.
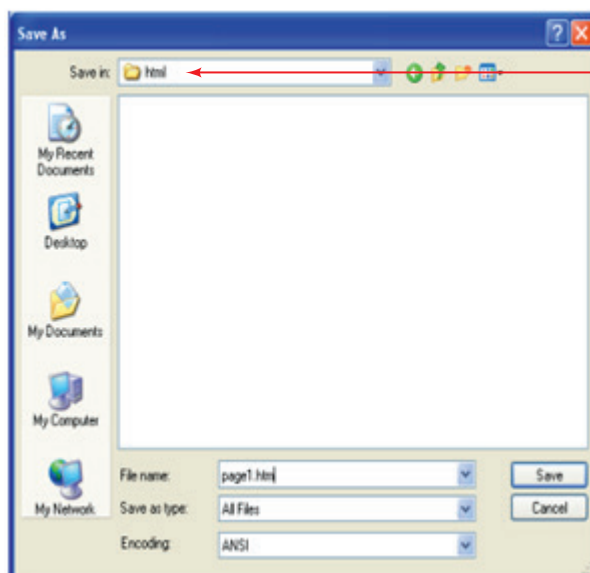
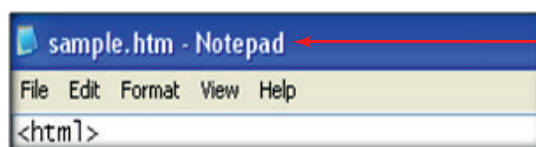|	
OPEN OFFICE IMPRESS	
PAINTBRUSH	
MICROSOFT EXCEL	
WINDOWS MOVIE MAKER	
MICROSOFT POWERPOINT	
OPEN OFFICE CALC	

SAVING A FILE

❖ Click on **File > Save As**.

❖ The **Save As dialog box** will appear.

❖ Choose the **desired location** for saving your file.

❖ Type the file name of your choice with

❖ **.html** as the extension. (Let us use name sample. html.

❖ Click the Save button.

The file is saved and the **given file name appears in the Title Bar of the notepad window.**

⚠ CAUTION

If we do not save the file properly i.e. Filename followed by the Extension .HTML then we will not get the result/output of the program. Remember the file (in NOTEPAD) is always saved with an extension of .TXT by default.

27

VIEWING WEB PAGE

After typing the program code and saving the file we can view the webpage created, in the browser window. In order to view the web page:
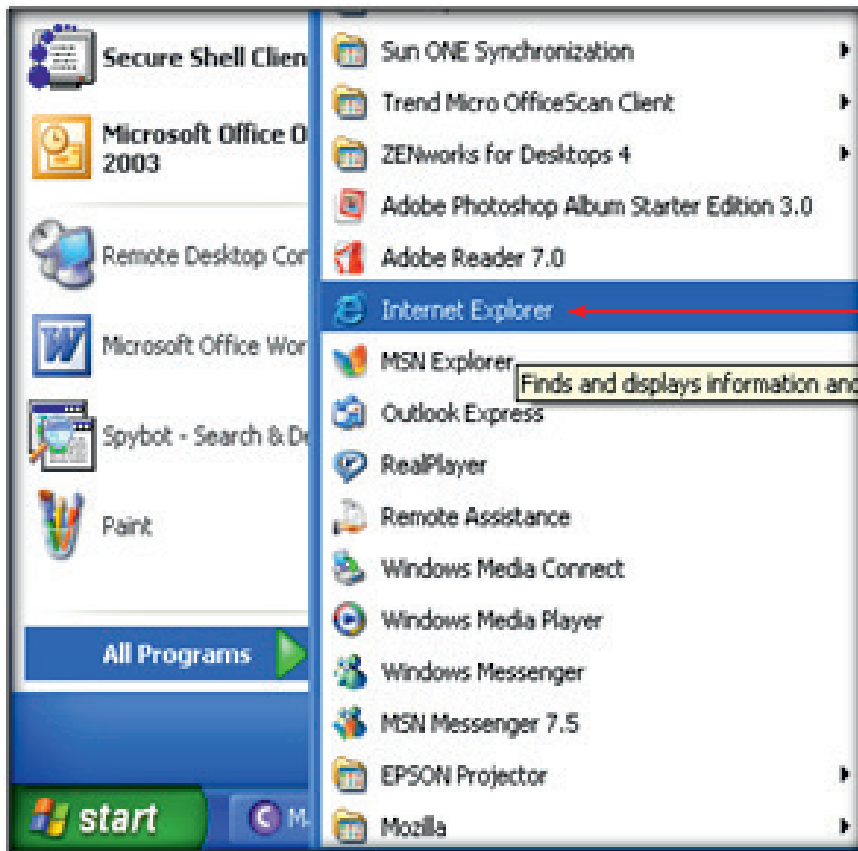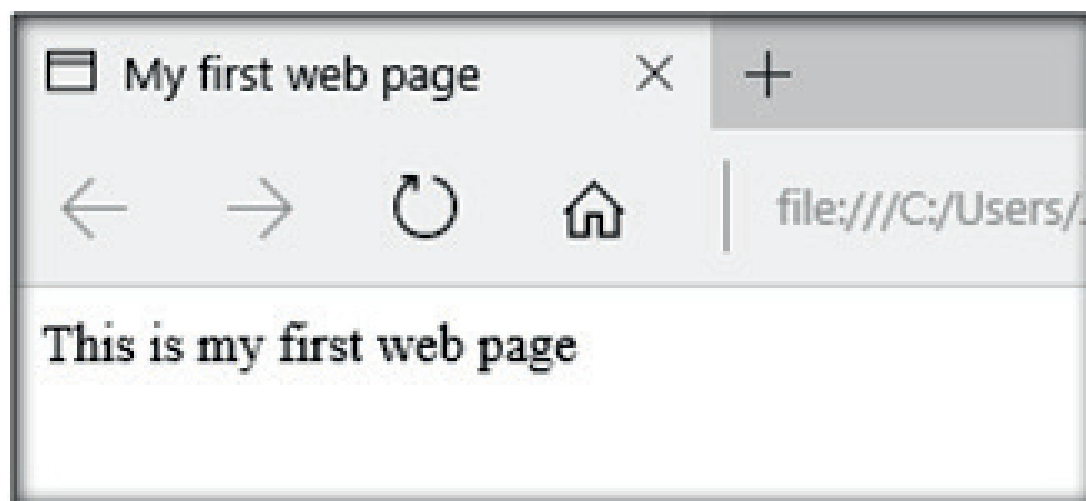

❖ Open Internet Explorer by clicking on

 Start>All Programs>Internet Explorer

❖ **Click on the File Menu** and select the **Open option.**

❖ Choose the **path** where you have saved your HTML document file.

❖ Click the **Open Button** and click "OK" in the open dialog box.

Now, we will get the output as shown below in the browser window.

Hands On

1. With the help of your friend find out two different ways of opening an HTML program file.

2. In order to create an HTML document in Notepad follow these steps:
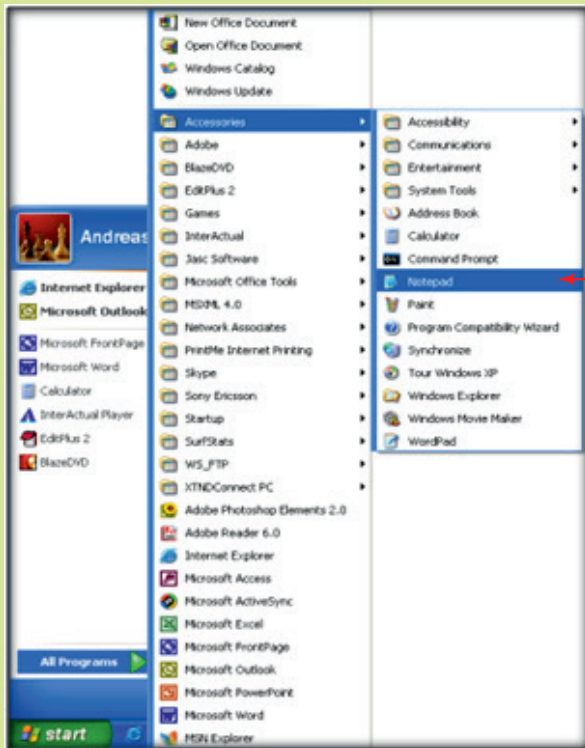
Start > Programs > Accessories > Notepad.

❖ Open notepad and the notepad window will appear.

Type the HTML code given below in the Notepad Text Editor

```
<html>
<head>
    <title>My first web page</title>
</head>
<body>
    This is my first web page
</body>
</html>
```

Program written in the text editor must be saved with a file name, hence give any file name of your choice and extension **.html or .htm** will be added to the name.

❖ Open the Internet Explorer or any other web browser available on your computer and view your web page.

PARAGRAPH TAG

ACTIVITY :

Read the two stories and answer the questions that follow:-

The Missing Goat

It had started one lazy Sunday afternoon for a small town near Toronto in Canada. Two school going friends decided to play a prank and had a funny idea. They picked up three goats from the neighborhood and painted the numbers **1, 2 & 4** on their sides. That night they let the goats loose inside their school premises. The next morning when the authorities entered the school, they could smell something wrong. They soon saw goat droppings on the stairs and near the entrance and realized that some goats had entered the school building. A search was immediately launched and very soon the three goats were found. But the authorities were worried, where was goat number 3? They spent the rest of the day looking for goat no. 3. As the goats they found had number 1, 2 & 4 painted on their sides. They assumed that there will be some goat number 3 with number 3 painted at its sides which they were not able to locate in the school. The school declared classes off for the students for the rest of the day. The teachers, helpers, guards, canteen staff and all other school employees were busy looking for the goat number 3, which, of course, was never found. Can you guess why? Simply, because goat number 3 did not exist which only those two children knew. Those among us who, in spite of having a good life, that is with all comforts of life still feel a "lack of fulfillment" are actually looking for elusive, missing, non existent goat number 3. Whenever the areas of complaint or dissatisfaction, in terms of materialistic things or joys is larger than the presence of many other things, gives us a feeling to run and to search for goat number 3, we should stop worrying or thinking about the non existent goat number 3 and instead, count our blessings and thank to God Almighty for all his blessings showered upon us. Remember, one can never get everything and anything in life. All desires can never be fulfilled as desires never end.

The Missing Goat

It had started one lazy Sunday afternoon for a small town near Toronto in Canada. Two school going friends decided to play a prank and had a funny idea. They picked up three goats from the neighborhood and painted the numbers 1, 2 & 4 on their sides. That night they let the goats loose inside their school premises.

The next morning when the authorities entered the school, they could smell something wrong. They soon saw goat droppings on the stairs and near the entrance and realized that some goats had entered the school building.

A search was immediately launched and very soon the three goats were found. But the authorities were worried, where was goat number 3? They spent the rest of the day looking for goat number 3. As the goats they found had number 1, 2 & 4 painted on their sides. They assumed that there will be some goat number 3 with number 3 painted at its sides which they were not able to locate in the school. The school declared classes off for the students for the rest of the day.

The teachers, helpers, guards, canteen staff and all other school employees were busy looking for the goat number 3, which, of course, was never found. Can you guess why?

Simply, because goat number 3 did not exist which only those two children knew. Those among us who, in spite of having a good life, that is with all comforts of life still feel a "lack of fulfillment" are actually looking for elusive, missing, non existent goat number 3.

Whenever the areas of complaint or dissatisfaction, in terms of materialistic things or joys is larger than the presence of many other things, gives us a feeling to run and to search for goat number 3.

We should stop worrying or thinking about the non existent goat number 3 and instead, count our blessings and thank to God Almighty for all his blessings showered upon us. Remember, one can never get everything and anything in life. All desires can never be fulfilled as desires never end.

Q1. Did you find any difference in the two stories?   (Yes/No)

Q2. Did you find any difference in the presentation/appearance of the two stories?
                                                                      (Yes/No)

Q3. Which story looks more presentable?   (First/Second)

Q4. Do you prefer reading a story which appears presentable?   (Yes/No)

Through this example we can comprehend that, any text which contains more than one line should be written in a new paragraph.

In HTML we use *<p> tag* to **start a new paragraph.**

It is a container tag i.e. it must begin with **<p>** and end with **</p>.**

31

Type the HTML code given below by using the paragraph tag and view the output.

```
sample.html - Notepad
File   Edit   Format   View   Help
<html>
<head>
            <title>My first web page</title>

</head>
<body>

       This is my first web page
       How exciting

       <p>
       HTML is a markup language for describing web documents (web pages).
       HTML stands for Hyper Text Markup Language.
       A markup language is a set of markup tags
       HTML documents are described by HTML tags
       Each HTML tag describes different document content
       </p>

       <p>
       This is my first web page. How exciting.
       This tag is probably the handiest and most
       commonly used of all tags.
       </p>

</body>
</html>
```

ATTRIBUTES

ACTIVITY :

In the table given below write down the name of your best friend and describe him/her with some attributes such as long hair, very thin, short, fair etc.

NAME	ATTRIBUTES

Attributes in the above example, **provides additional information** about your friend. Similarly, **attributes in HTML are properties of the tags**

(Example: Align attribute is used to move the text to left) which provides additional information about an element (e.g.: The element P which is used to start a new paragraph).

32

Attributes always appear inside the opening tag and their values inside quotation marks. A tag can have more than one attribute also.

All attributes are made up of two parts: a **name** and a **value**:

❖ **The name is the property we want to set.** For example, the paragraph <p> element in the previous example carries an attribute whose name is align, which we can use to indicate the alignment of paragraph on the page.

❖ **The value is what we want the value of the property to be set and is always placed within double quotes.** The example given below shows three possible values of align attribute of <p> tag **left, right and center.**

Attribute Name

```
<html>
<head>
<title>Align Attribute</title>
</head>
<body>
<p align="left">This paragraph is left aligned</p>
<p align="right">This paragraph is right aligned</p>
<p align="center">This paragraph is center aligned</p>
</body>
</html>
```

Attribute Value

Most word processing programs like Writer, MS-Word etc. give us the facility to change the text alignment. This setting determines how the text is displayed on the page.

ACTIVITY :

Draw the icons and write the shortcut keys used for defining various alignment options in Writer and MS Word.

Writer	MS Word

33

ATTRIBUTES OF THE P TAG:

Attribute	Value	Description
Align	Left	Specifies the alignment of the text in the paragraph.
	Right	
	Center	
	justify	

Hands On

Write a program to display your name at the bottom of right corner of the page and 'HTML' at the centre of the page.

ATTRIBUTES OF THE BODY TAG:

Attribute	Description
bgcolor	Specifies the background color of a document
text	Specifies the color of the text in a document

Example :<BODY BGCOLOR="GREEN" TEXT="RED">

ACTIVITY :

Name different software(s) which you have used that provide us with an option to change the background color and the text color.

1. Complete the program code given below, type the program and check the output.

```
<HTML>
<HEAD>
<TITLE>Learning Html</TITLE>
_____
<BODY _____="green" text="orange">
Hypertext Markup Language (HTML) is the
most common language used to create
documents on the World Wide Web.
_____
</HTML>
```

HEADING TAGS

ACTIVITY :

Type these lines in Open Office Writer as per the instructions given:

☞ Heading : 20 point , Bold

☞ First Line: 18 point size

☞ Second Line : 16 point size

☞ Third Line : 14 point size

☞ Fourth Line : 12 point size

☞ Fifth Line : 10 point size

WORK IS WORSHIP

"Without ambition one starts nothing.

Without work one finishes nothing.

The prize will not be sent to you.

You have to win it."   – Ralph Waldo Emerson

For similar output in a webpage, as seen in Writer we use **Hn tags (where n can be from n=1 to 6)**.

❖ This tag is used to **define different heading levels.**

❖ There are **six heading levels** defined with the **<h1>** to **<h6>** tags.

❖ **<h1>** displays the text in the largest size and **<h6>** in the **smallest size.**

❖ We may use align attribute in Hn tags to specify the alignment.

👆 *Hands On*

1. Type the HTML code using Hn Tag (where n=1 to 6).

```
<HTML>
   <HEAD>
        <TITLE>LEARNING HEADINGS</TITLE>
   </HEAD>
   <BODY>
        <P ALIGN="CENTER">
        <H1>WORK IS WORSHIP</H1>
        </P>
   <H2>"Without ambition one starts nothing.</H2>
  <H3>Without work one finishes nothing. </H3>
  <H4>The prize will not be sent to you. </H4>
  <H5>You have to win it." </H5>
  <H6> Ralph Waldo Emerson</H6>
   </BODY>
</HTML>
```

2. Write the HTML program to create a Web page using the following instructions:

❖ Title of the Webpage   -   Secrets of Success

❖ Background Color   -   Orange

❖ Text Color   -   White

❖ Level1 Heading   -   Secrets of Success

3. Heading alignment:

❖ 1st Paragraph   -   Center of the page

❖ 2nd Paragraph   -   Right Aligned

❖ Content   -   Left Aligned

We are all born to succeed. We must achieve something great in the limited time that we call life. This is our duty- a duty that every man or woman should bear. But, what should we do in order to achieve success?

Faith in your abilities, determination to prove something to yourself and the world and the willingness to work hard can do wonders for you in your quest for success.

LINE BREAK

ACTIVITY :

Look at the HTML code given below, observe the output and answer the questions:

```
<HTML>
<HEAD>
<TITLE>LEARNING LINE BREAK</TITLE>
</HEAD>
<BODY>
       Hyper Text Transfer Protocol Secure (HTTPS) is the secure
       version of HTTP.
       The protocol over which data is sent between your browser
       and the website.
       The 'S' at the end of HTTPS stands for 'Secure'.
       HTTPS is often used to protect highly confidential online
       transactions.
</BODY>
</HTML>
```
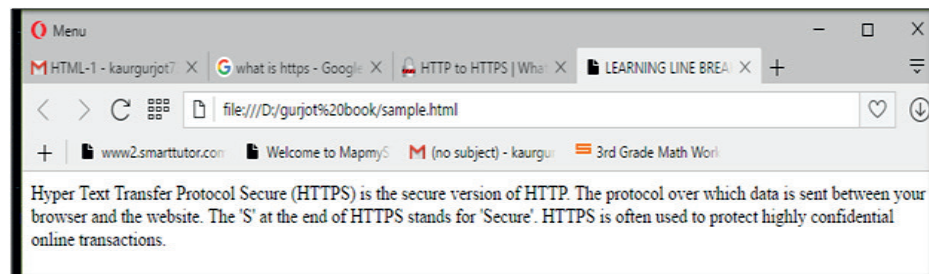
Q1. How many lines of text is displayed in the output in the web browser? _____

Q2. How many lines of text we typed in the body tag in notepad? _____

Q3. Which key is used in Writer and Impress to move to the next line?_____

Q4. What is the function of Enter/Return key?

_____

_____

In HTML the web browser does not recognize the Enter key.

❖ In place of enter key we use **
** tag.

❖ **This tag breaks the line and displays the remaining text from the next line, without leaving any space.**

❖ It can also be used to **insert blank lines**.

❖ It is an **empty tag** i.e. it does not require </br>.

ACTIVITY :

Look at the output given:

1. The 'plant of immortality', as it was called by Egyptians, is also known as '**Ghritkumari**' in Hindi, '**Kalabanda**' in Telugu, '**Kumari**' in Malayalam, '**Ko-raphada**' in Marathi, and '**Ghrtakumari**' in Bengali.

2.

3.

4.

5. This plant can perform miracles not just for your skin, but for your hair and health as well.

How many times do you think the return/enter key was pressed while typing the above paragraph? _____

If, we want the similar output on a webpage. How many times do we have to use the **
 tag**? _____

Hands On

Type the HTML program given below and view the output.

```
<HTML>

<HEAD>

<TITLE>LEARNING LINE BREAK</TITLE>

</HEAD>

<BODY>

        Hyper Text Transfer Protocol Secure (HTTPS)<BR> is the
        secure version of HTTP.<BR>

        The protocol over which data is sent between your browser
        and the website.<BR>

        The 'S' at the end of HTTPS stands for 'Secure'.<BR><BR><BR>

        HTTPS is often used to protect highly confidential online
        transactions.<BR>

</BODY>

</HTML>
```

HORIZONTAL RULE

ACTIVITY :

Write the story given below on an A4 size sheet with the help of your partner. Draw lines on the sheet according to the instructions given:

SMALL THINGS DO BIG JOBS

It was a hot summer day. Sun was shining bright up in the sky.

A lion was sitting under the shade of a big tree and got asleep.

Nearby that tree, there was a hole, in which there lived a mouse.

When the lion was sleeping, the mouse came out of its hole and saw him asleep.

Unaware of the lion's strength, it got tickled by an idea. It thought of waking up the lion by running over his body just for fun.

Unfortunately, the lion seized it in his strong paw. He was going to kill it when it begged, "Spare me, sir, someday I may repay your mercy." Remember, mercy never goes unrewarded.

INSTRUCTIONS :

❖ First line from the center of the paper in orange color.

❖ Second line from left corner to the center of the paper in green color.

❖ Third line from the center of the paper to the right corner in blue color.

❖ Fourth line from left corner of the paper to the right corner in grey color.

❖ Fifth line at the end of the page of thickness 2 cm from left corner of the paper to the right corner in grey color.

As we have drawn lines in the story above, similarly, in HTML <HR> tag is used to draw the lines.

❖ The **<hr>** tag is used **to draw a horizontal line** between the block of text.

❖ It is an **empty tag**.

❖ We do not write </hr>

Type the HTML code given below using HR tag and draw the output obtained.

	Output
sample.html - Notepad File Edit Format View Help \<html\> \<head\> \<title\> Learning hr Tag \</title\> \</head\> \<body\> This text will be followed by a horizontal line \<hr \> \</body\> \</html\>	

ATTRIBUTES OF HR TAG:

Attribute	Value	Description
align	Left, center,right	Specifies the alignment of the horizontal rule on the web page.
noshade		Specifies a grey solid rule with no color.
size	Number (As pixels or percentage)	Specifies the height of a \<hr\> element
width	Number (As pixels or percentage)	Specifies the width of a \<hr\> element
color	Color name	Specifies the color of the line

COMMENTS:

ACTIVITY :

Look at the 3 images given below and write the purpose for which these notebooks are used.

Science CW

Science HW

Science NOTES
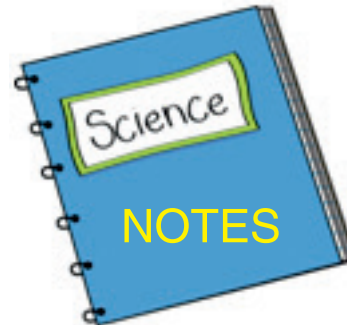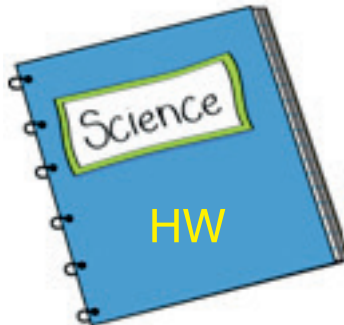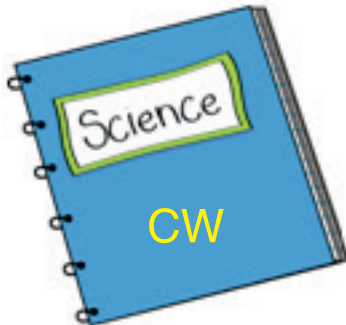
1. _____

2. _____

3. _____

We know that we have to get the class work and home work copies checked from our subject teachers, but the notes copy is for our own reference, we usually take notes while teacher is teaching.

Similarly, if we want to note down some information about our program or web page, which we might require later on for our record, then we use **Comment Tag** in HTML.

❖ A comment tag includes the **text that is written for the purpose of documentation in the program code.**

❖ This text is **not displayed in the browser window.**

❖ It is a **container tag**.

There are two ways of adding comments –

❖ Using **<comment tag>**

❖ Using **<!—and --> tag**

FORMATTING TAGS

ACTIVITY :

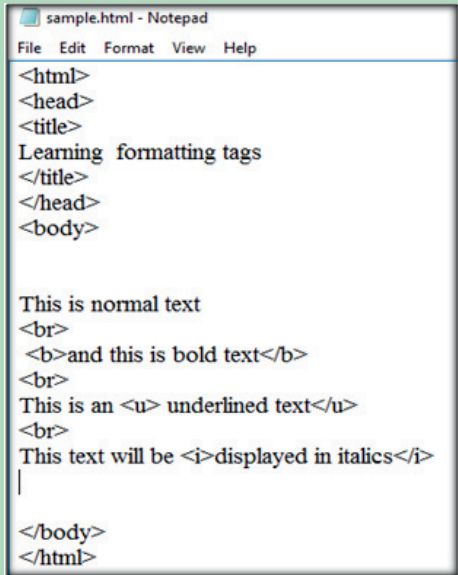List different software(s) in which you have used Bold, Underline and Italics Options.

BOLD, UNDERLINE AND ITALICS

These three tags are used to make the enclosed text **bold face, underline and italic** face. They are all container tags.

🖱 *Hands On*

1. Type the HTML code and draw the output obtained.

```
sample.html - Notepad
File  Edit  Format  View  Help
<html>
<head>
<title>
Learning  formatting tags
</title>
</head>
<body>


This is normal text
<br>
 <b>and this is bold text</b>
<br>
This is an <u> underlined text</u>
<br>
This text will be <i>displayed in italics</i>


</body>
</html>
```

Output

2. Type the code given below and find the errors in the program code. Retype the correct code to get desired output.

```
<html>
<head>
<title>My favorite bookmark title goes here </title>
<body bgcolour="white" text="blue">
<h1> My first heading </h2>

<h2>This is my first web page and I can say anything I want
in here .</h1><br>

I do that by putting text or images in the body section.

<b> where I'm typing right now </b></br>

</head>
</body>
</html>
```

CHANGING FONTS

Teacher's Note: Discuss that different groups in the above example demonstrate the use of Font Tag. Also correlate with formatting option of writer.

FONT TAG

❖ This tag is used to **define the color, size and style** of text in a web document.

❖ It is a **container tag.**

❖ This tag cannot be **used without its attributes**.

❖ It displays the **enclosed text in different styles and different sizes**.

ATTRIBUTES OF FONT TAG

Attribute	Value	Description
Color	Color Name	Specifies the color of the enclosed text
Face	Font Style	Specifies the typeface of the enclosed text
Size	Any Number (1 to 7)	Specifies the size of the enclosed text.

👆 Hands On

1. Type the HTML code given below to use different attributes of Font tag.

```
sample.html - Notepad
File  Edit  Format  View  Help
<html>
<head>
<title>
Learning  formatting tags
</title>
</head>
<body>

<font size="3" color="red">This is some red  text!</font> <br>
<font size="2" color="blue">This is some blue text!</font> <br>
<font face="verdana" color="green">This is some green text!</font> <br>


</body>
</html>
```

2. Write a program to print a paragraph on "Global Warming". Each sentence should be in a different font.

3. Find the errors in the program code and write the correct code:

INCORRECT CODE	CORRECT CODE

`<HTML>`
 	
`<HEAD>`
`<TITTLE>Your Title Here`
`</HEAD>`
`</TITTLE>`
`<BODY BGCOLOR="RED>`
`<HR>`
`<FONT = "VERDANA">`
`<H1>This is a Level 1 Header</H2>`
`This text is in Font Verdana.`
`<H2>This is a Level 2 Header</H1>`
`<P> This is a new paragraph<P>`
`BR>`
`</BR>`
`<HR>`
`</HTML>`
`</BODY>`	

CENTER

This tag is used to **align the enclosed text to the center of the web page.**

It is a **container tag**.

Write an HTML program using the instructions given below:

❖ Horizontal Line   -   Should be displayed at the end of the page.

❖ Font Size   -   5

❖ Font Face   -   Verdana or Comic Sans MS

❖ Font Color   -   Blue (First Paragraph)

❖ Formatting Tags   -   First paragraph to be displayed in italics.

                         -        Second paragraph to be displayed in the center of the web page.

❖ Content   -

    The name and concept of Earth Day was pioneered by John McConnell in 1969 at a UNESCO Conference in San Francisco. However, the genesis of Earth Day is credited to Gaylord Nelson.

    1969 massive oil spill in Santa Barbara, California caused to get attention of the Earth day concept. Gaylord Nelson called for an environmental teach-in, or Earth Day, to be held on April 22, 1970. This Earth Day is now observed on April 22 each year.

Assessment Activity

1. Write the code and segment required for completing the following tasks

1	Print your name on the screen in Tahoma font.	
2	Print your friend's name in green.	
3	Print the numbers 1 - 10 on the screen in italics.	
4	Set the title to "This is a webpage".	
5	Print the message "When was this webpage created?" in Bold.	
6	Print a heading "GO GREEN" followed by a horizontal line whose width is 60% in green color.	

2. Write a program to print a paragraph that contains description of your favorite book in 5-6 lines , include the name of the book as well as its author. In big and bold letters. Names of the characters should be underlined; adjectives in the paragraph should be italicized and bold.

3. Write the HTML program to display the given output?
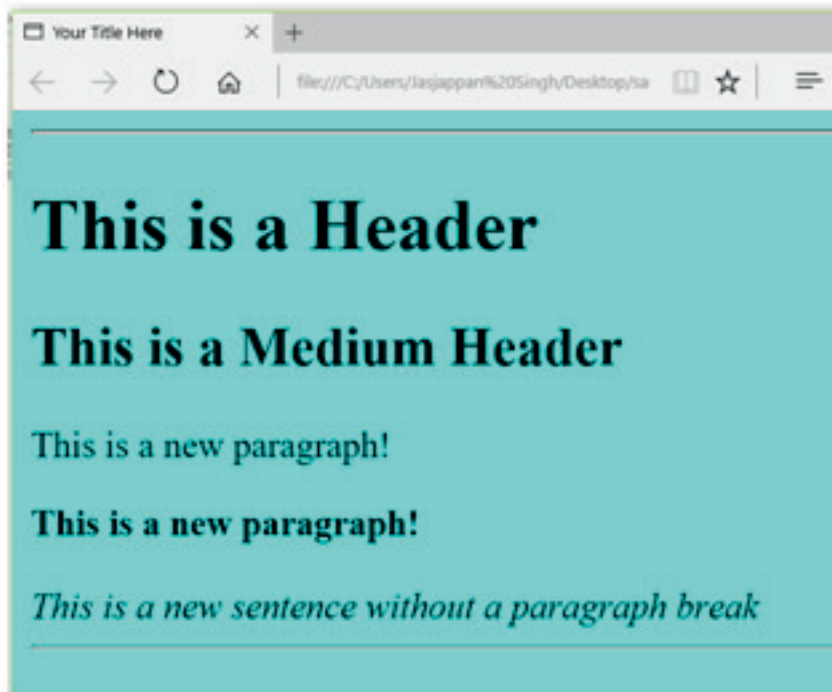
4. Create a web page to display the given information:

Olympic Games 2016

Rio 2016 – Brazil hosts Summer Olympics

The Summer Olympic Games in Rio de Janeiro, Brazil, are from August 5 to 21, 2016. The Paralympics follow on September 7 to 18, 2016.

Flame Relay Starts in Greece

A few months before the games, the Olympic Flame Relay will start in Olympia, Greece, where the inspiration for todays' Olympic games originated.

When is the Opening Ceremony?

The Rio 2016 opening ceremony will be at the world famous football (soccer) Maracanã Stadium in Rio de Janeiro on August 5, 2016.

5. Create a web page with the details given:

   (1) Choose the title for the web page as "PRINTING".

   (2) Set the TEXT color to be Yellow for the entire page.

   (3) Apply Bold and italics on the heading "3D PRINTING".

   (4) Choose font type "Algerian" for the entire page.

   (5) Add Horizontal rule in gray color, below the heading only

   (6) Type the following text

The world is privy on a daily–and often hourly–basis to a host of incredible new innovations being presented by brilliant 3D printing innovators, from the flashiest of items like 3D printed rocket parts to gruesome 3D printed special effects in the film industry. It's also becoming more common to see 3D printing in areas like jewelry and apparel and really, almost everywhere.