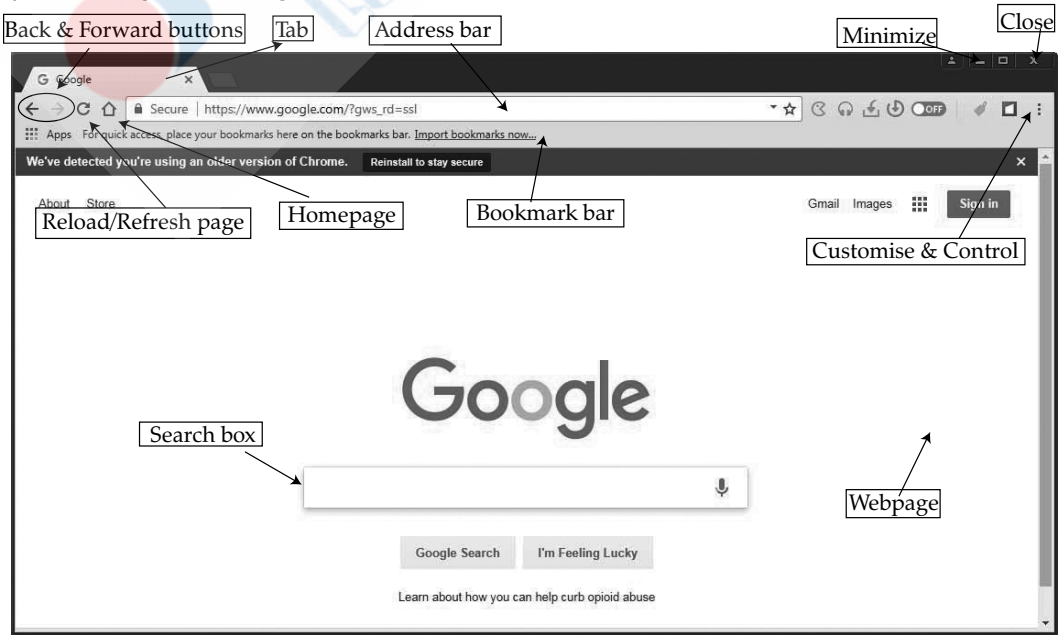
UNIT -I : NETWORKING

CHAPTER-1
Internet Basics

Revision Notes

- A **computer network** consists of two or more autonomous computers that are linked in order to share programs, data, hardware, messages and other resources.
- **WWW :** World Wide Web is a set of programs, standards and protocols that allows the multimedia and hypertext files to be created, displayed and linked on the internet. It was proposed by Tim Berners-Lee in 1991.
- The **Internet** is the physical network of computers all over the world. The World Wide Web is a virtual network of web sites connected by hyperlinks (or "links"). Web sites are stored on servers on the internet, so the World Wide Web is a part of the internet.
  - In 1969, the U.S. Department of Defense, approved a project named ARPANET (Advanced Research Projects Agency NETwork). In 1970, NSF created a common network called CSNET. A more speedy network NSFNET was built. In 1995, a new name was given to the collection of all networks and was called INTERNET.
- **Web Server :** A web server is a computer that stores websites on the Internet and delivers web pages to viewers upon request.
- **Web client:** It refers to the web browser in the user's computer system.
- **Website** : A website is a collection of web pages belonging to a particular person or organisation. The first page is called the homepage. From the homepage, we can visit all pages on the site. **Static** websites have pre-stored information while **dynamic** websites customises themselves frequently.
- **Web browser :** A web browser is a piece of software that enables the user to access web pages and web apps on the internet. There are a range of browsers available, and they are usually free to download and install.
  - **Some popular web browsers are:**

- Layout of Google search engine.



- **Web address**

  The web address allows us to identify a computer on the network. There are two systems used for identification:

  - **Domain Name System (DNS):** Domain name is a readable computer address that identifies the location of a computer on the internet.
  - **Internet Protocol Addressing:** A unique 32-bit address is assigned to each computer that is connected to the internet.

    Example: 5.230.50.50 === www.abc.com
- **HTML** is a computer language devised to allow website creation.
- **Email address:** It is a unique identifier used to send and receive mails in an electronic format.
- **Newsgroups** are similar to e-mails except that instead of sending our message to someone's mailbox, the message is posted on a bulletin board where anyone can read it and respond.
  - Using newsgroup, people can share their views on any topic according to their interest. Blogs are virtual diaries created by individuals and stored on the Internet.
- A **blog** is a type of website usually maintained by an individual with regular entries of news on a particular subject, description of events, graphics or videos.
- **Uploading** is the process of putting web pages, images and files onto a web server.
- **Downloading** is the process of getting web pages, images and files from a web server.

Know the Terms

- **Hypertext** – Text linked together in a complex web of associations in which the user can browse through related topics.
- **Modem** – A device that allows a computer to transmit information over a telephone line.
- **Packet** – A block of data transmitted.
- **Uploading:** Uploading is the transmission of data or file from a local computer to a remote computer.
- **Downloading:** Downloading is transmitting data or file from a remote computer to a local computer.
- **ARPANET** – Advanced Research Projects Agency NETwork
- **NSF** – National Science Foundation
- **ISP** – Internet Service Provider
- **HTML** – Hypertext Markup Language
- **URL** – Uniform Resource Locator
- **DNS** – Domain Name System

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CHAPTER-2
INTERNET PROTOCOLS

Revision Notes

- Protocols establish how two computers send and receive a message. Data packets travel between source and destination from one router to the next. The process of exchanging data packets is known as **packet switching.**
- When two devices send messages to each other it is called **handshaking.** For this the client requests access, the server grants it, and the protocols are agreed. Once the handshaking process is complete, the data transfer can begin.
- Protocols manage key points about a message:
  - speed of transmission
  - size of the message
  - error checking
  - deciding if the transmission is synchronous or asynchronous
- Remote file transfer first requires establishing a connection between the local and remote computer. This is generally done through a file transfer protocol. Once the connection is created, the file can be transferred between both nodes.

- **TCP/IP (Transmission Control Protocol/Internet Protocol):** TCP/IP (also known as the Internet protocol suite) is the set of protocols used over the Internet. It organises how data packets are communicated and makes sure packets have the following information:
  - source - which computer the message came from,
  - destination - where the message should go
  - packet sequence - the order in which the message data should be re-assembled
  - data - the data of the message
  - error check - the check to see that the message has been sent correctly.
- **FTP (File Transfer Protocol) :** FTP is used to transfer large files over the Internet. It is often used for organising files on a web server for a website. You can have private access to an area on an FTP server where you can upload your files. You can then give another user access to download the documents that you have shared.
- **SFTP (Secure File Transfer Protocol) :** It is the secure version of File Transfer Protocol which facilitates data access and data transfer over a secure shell.
- **HTTP (Hypertext Transfer Protocol) :** HTTP transfers web pages from web servers to the client. All web page addresses start with http. An **https** address is a secure web address which has been encrypted. An https address is used for sites holding bank details and secure information.
- HTTP is a communication protocol. It defines mechanism for communication between browser and the web server. It is also called request and response protocol because the communication between browser and server takes place in request and response pairs.
- **SMTP and POP3**
  - **Email** uses these protocols to communicate with mail servers. SMTP (Simple Mail Transfer Protocol) is used to send the email; Post Office Protocol version 3 (POP3) is a standard mail protocol used to receive emails from a remote server to a local email client. POP3 allows you to download email messages on your local computer and read them even when you are offline. Most email clients allow for data transfers up to 10 MB.
  - **SMTP** (Simple Mail Transfer Protocol) is a standard electronic-mail protocol that handles the sending of mail from one SMTP to another SMTP server. To accomplish the transport, the SMTP server has its own MX (Mail Exchanger) record in the DNS database that corresponds to the domain for which it is configured to receive mail.
- A client/server model can create a mechanism that allows a user to establish a session on the remote machine and then run its applications. This application is known as remote login. This can be done by a client/server application program for the desired service. Two remote login protocols are TELNET and SSH.
- **TELNET TELecommunication NETwork :** Telnet is a virtual terminal protocol allowing a user logged on to one TCP/IP host to access other hosts on the network. Many people use remote control applications to access computers at their workplace from outside the network. In remote control, a session appears in which the user is able to manage the files on the remote computer, although the session appears to be functioning locally.
- **SSH (Secure Socket Shell) :** It is a program for logging into and executing commands on a remote machine. It provides secure encrypted communications between two untrusted hosts over an insecure network.
- **SCP (Secure Copy Protocol**) : It is a file transfer protocol, which helps in transferring computer files securely from a local host to a remote host. It works on the Secure Shell (SSH) protocol technique.
- **VoIP (Voice over Internet Protocol) :** VoIP is a set of protocols that enables people to have voice conversations over the internet.

Know the Terms

- **TCP/IP –** Transmission Control Protocol / Internet Protocol
- **SMTP** – Simple Mail Transfer Protocol
- **POP3** – Post Office Protocol 3 version
- **HTTP** – Hyper Text Transfer Protocol
- **HTTPS** – Hyper Text Transfer Protocol Secure
- **FTP** – File Transfer Protocol
- **TELNET** – TELecommunication NETwork
- **SFTP** – Secure File Transfer Protocol
- **PPP** – Point to Point Protocol

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CHAPTER-3

INTERNET AND WEB SERVICES

Revision Notes

- The Internet offers a lot of services and this is the reason it is growing so fast.
- **Accessing information on the Internet :** One of the important advantages of the internet is that it allows to easily access information anywhere and anytime. The search engines on the internet help us search and find information on any subject that the user needs.
- A search engine is a software that navigate the webpages for information on a particular topic. Some popular search engines are Google, Yahoo!, Chrome, Bing, etc.
- **Email :** Email is a service which allows us to send the message in electronic mode over the internet. It offers an efficient, inexpensive and real time mean of distributing information among people.
- **e-Mail Address :** Each user of email is assigned a unique name for the email account. This name is known as e-mail address. Different users can send and receive messages according to the e-mail address.
- E-mail is generally in the form of username@domainname. For example, webmaster@tutorialspoint.com is an e-mail address where webmaster is username and tutorialspoint.com is domain name.
  - The username and the domain name are separated by @ (at) symbol.
  - e-mail addresses are not case sensitive.
  - Spaces are not allowed in e-mail address.
- **e-mail Message Components :** e-mail message comprises of different components: e-mail Header, Greeting, Text, and Signature.
- **e-mail Header:** The first five lines of an E-mail message form the E-mail header. The header part comprises of following fields:
- **From :** The From field indicates the sender's address i.e. who sent the e-mail.
- **Date :** The Date field indicates the date when the e-mail was sent.
- **To:** The To field indicates the recipient's address i.e. to whom the e-mail is sent.
- **Subject :** The Subject field indicates the purpose of e-mail. It should be precise and to the point.
- **Cc :** Cc stands for Carbon copy. It includes those recipient addresses whom we want to keep informed but not exactly the intended recipient.
- **Bcc:** Bcc stands for Blind Carbon Copy. It is used when we do not want one or more of the recipients to know that someone else was copied on the message.
- **Greeting:** Greeting is the opening of the actual message. Eg. Hi Sir or Hi Guys, etc.
- **Text:** It represents the actual content of the message.
- **Signature:** This is the final part of an e-mail message. It includes Name of Sender, Address, and Contact Number.
- **Advantages of e-mail**
  - Reliable
  - Convenience
  - Fast
  - Inexpensive
  - Printable
  - Globally access
  - Generality
- **Disadvantages of e-mail**
  - Forgery
  - Overload
  - Misdirection
  - Junk
  - No response
- **Chat:** Real time textual communication between two users through computers is called chat. Instant messengers like Yahoo Messenger and Google Hangout let us chat with people in our friends' list.
- **WhatsApp:** Whatsapp instant messenger is a popular messenger used to share text, images, audio and

video files.

- Skype and WhatsApp also allow video chat facility.
- **Video Conferencing:** Video conferencing allows people at two or more locations to communicate and interact with one another via audio and video transmission. It makes use of computer networks to send audio and video data from one place to another. People at geographically separated locations can see and hear each other using microphones, cameras, speakers and a TV or a computer screen.
- **Blogs:** The word blog is a short form for the word weblog. A blog is a website or part of a website that contains personal diary-type entries in the reverse chronological order. The activity of updating a blog is referred to as blogging and someone who maintains a blog is called a blogger.

  Examples: www.blogger.com, www.wordpress.com
- **Social Networking sites:** A social networking site is used to build online communities of people who share common interests. People use these sites almost everyday for chatting, playing games and connecting with friends and family members. There are a number of social networking sites available such as Twitter, Facebook, LinkedIn, etc.
- **e-Commerce** means buying and selling products online. People find it convenient to compare different products and buy them from the comforts of their home.
- **e-Governance** involves applications which are used by government agencies/ organisations to provide better governance. http://india.gov.in is the national portal of India. A number of services have been launched by the government of India under the Digital India initiative to transform India into a digitally empowered society.

  Digilocker, Swachh Bharat Mission App, MyGov.in are some of these services
- **e-Business** applications use technology to effectively access and deliver business related services and perform various kinds of business transactions.
- **e-Learning** applications use technology to effectively deliver and monitor learning and teaching processes. They help the trainer to organise and manage his/her lesson plans, present them to students/learners, evaluate and take the feedback to enhance & fine-tune this process in future.

  Examples: www.w3schools.com, www.khanacademy.com offer free tutorials .
- **e-Banking:** It is a method of banking in which the customer conducts transactions electronically via the internet.
- **e-Shopping:** It is the action or activity of buying goods or services over the internet.
- **e-Reservation:** It is a reservation made online either by an email or through a website/app.
- **e-Groups:** e-groups are a free email group service that allows us to easily create and join email groups. e-mail groups offer a convenient way to connect with others who share the same interests and ideas.
- **Cloud Computing:** Cloud Computing is a type of Internet-based computing, and it consists of every situation where the use of IT resources can be made by an entity, including a person or an organisation.
- Use uniform style of sub-bullets
  - We pay only for the services (as and when needed) and not for the hardware and software
  - We have online access to a broad range of applications, services and hardware that otherwise may be very expensive
  - We can cut costs by renting software and applications

    Examples: Dropbox , Microsoft SkyDrive , Google Drive, etc.
- **Web services** are XML-based information exchange systems that use the Internet for direct application-to-application interaction. These systems can include programs, objects, messages, or documents. A web service is a collection of open protocols and standards used for exchanging data between applications or systems.
- The basic web services platform is XML + HTTP. All the standard web services work using the following components −
  - SOAP (Simple Object Access Protocol)
  - UDDI (Universal Description, Discovery and Integration)
  - WSDL (Web Services Description Language)

Know the Terms

- **e-mail** – electronic Mail
- **Cc** – Carbon Copy
- **Bcc** – Blind Carbon Copy

OSWAAL BOOKS LEARNING MADE SIMPLE

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CHAPTER-4

MOBILE TECHNOLOGIES

Revision Notes

- Wireless communication involves transmitting signals through air and space using radio waves. Wireless spectrum is allocated by governments and international organisations.
- **GSM :** Global System for Mobile communications (GSM) is world's most widely used cell phone technology having 80% mobile phone users. It is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe protocols for second generation (2G) digital cellular networks for mobile phones.
- The GSM standard was developed as a replacement for first generation (1G) analog cellular networks, and originally described a digital, circuit-switched network for voice telephony. This was expanded to facilitate GPRS (General Packet Radio Services).
- **CDMA :** Code Division Multiple Access (CDMA) is an alternative cell phone technology to GSM. CDMA uses a "broad -spectrum" electromagnetic waves for signaling with wider bandwidth. This allows multiple people on multiple cell phones to be "communicated" over the same channel to share a bandwidth of frequencies. In CDMA technology, data and voice packets are separated using codes and then transmitted using a wide frequency range. CDMA is being used for 3G high-speed internet access on mobile.
- **3G:** 3G is the third generation of Wireless & Mobile technologies. It comes with enhancements over previous wireless technologies, like high-speed transmission, advanced multimedia access and global roaming. 3G is mostly used with mobile phones and handsets as a means to connect the phone to the internet or other IP networks in order to make voice and video calls, to download and upload data and to surf the net.
- **4G:** 4G is fourth-generation of wireless service, which refers to the next wave of high-speed mobile technologies that will be used to replace current 3G networks. 4G wireless network is next step of 3G, which is currently the most widespread, high-speed wireless service. At present, 4G is available in limited countries and areas.
- **WLL (Wireless Local Loop):** In traditional telephone networks, phone was connected to the nearest exchange through a pair of copper wires. Wireless Local Loop technology simply means that the subscriber is connected to the nearest telephone exchange through a radio link instead of copper wires. WLL is basically the use of radio wave to provide a telephone connection to the home. In general, WLL is cheaper and quicker than copper wire connectivity.
- **Wi-Fi (Wireless Fidelity):** Wi-Fi is a very common wireless technology that was developed in the 1990s. It is used to connect machines in a Local Area Network (LAN). So, Wi-Fi is like a wireless version of Ethernet.
- **SMS (Short Message Service) :** SMS is a text messaging service component of phone, web, or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.
- **MMS (Multimedia Message Service) :** MMS is a method of transmitting graphics, short video and audio files from mobile phone networks. Today, they have been replaced by apps like Facebook messenger and WhatsApp.

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UNIT -II : HTML

CHAPTER-5
HTML BASICS

Revision Notes

- HTML was invented in November 1990 by a scientist called Tim Berners Lee. The purpose was to make it easier for scientists at different universities to gain access to each other's research documents.
- HTML is a format that tells a computer how to display a web page. The documents themselves are plain text files with special "tags" or codes that a web browser uses to interpret and display information on your computer screen.

- The World Wide Web Consortium (W3C) has given a set of standards while building the HTML language. The W3C uses some special words to define an action. A tag is a special word enclosed in angle-brackets < >.
- A **tag** tells the browser to perform an action as asked by the special word. The special word may be written either in lower case or upper case. The browser will respond to both the cases equally.
- The characteristics or the features of a tag are defined by an **attribute**. An attribute is used inside a tag. An attribute always takes a value to help the browser perform the specific task in a particular direction. There may be more than one attribute used inside a tag. An element is a combination of a start tag, the text (we also use text to insert graphics) and the end tag.
- The basic structure of HTML document is shown below:

```
<HTML>
<HEAD>
<TITLE> The Structure of HTML Document</
TITLE>
</HEAD>
<BODY>
        The Body of the HTML Document
</BODY>
</HTML>
```

- The basic structure of the HTML document is divided into two sections namely, the head and the body. The browser enters the first section after executing the start tag of HTML (telling the browser to begin interpreting the HTML commands) and start tag of HEAD. The first section helps in changing the heading on the title bar of the HTML document (the webpage). The starting of the heading is shown after the start tag of <TITLE> and the end is shown by </TITLE>.
- The end tag of <HEAD> i.e. </HEAD> tells the browser that the end of first section has come. The second section begins with the start tag of <BODY>. The data on the webpage is displayed through the tags used in this section. The end tag of <BODY> i.e.</BODY> tells the browser that the end of webpage has come.
- A **container tag** has both the start and the end tag. The text or the graphic is inserted inside the beginning and end tag of the container tag. For example:<HEAD> and </HEAD>
- The **empty tag** is a stand-alone tag. This implies that such a tag has beginning but no ending tag. For example:
 The tag is used for adding one line break. Such a tag does not need an end so as to tell the browser, that end of line break has come because there is no need. Such a tag is called empty tag. <HR> is another empty tag. This tag is used to insert a horizontal rule on the web page. Comment tag is also an empty tag. The text inside this tag is ignored by the browser. Comment tag is denoted by <!---...---->. This tag is used to increase the readability of the HTML source code. With this tag, you can insert a description about a command.
- The attributes that are used with BODY tag are listed below in the table:

Attributes of the <body> tag	Description
BGCOLOR	The background of the webpage is displayed with a color that has been taken as value by this attribute.
BACKGROUND	The background of the webpage is displayed with an image whose address is taken as value by this attribute.
TEXT	Specifies the color of the text in the document.
LINK	Defines the color of the link in the document
ALINK	Defines the color of the active link in the document
VLINK	Defines the color of the visited link in the document

- Heading tag is used to display the heading or the main topic on the web page. This tag varies from H1 to H6. This is a container tag. The heading tag shows the heading with the largest font size. As you increase the number in the heading tag, the font size goes down.

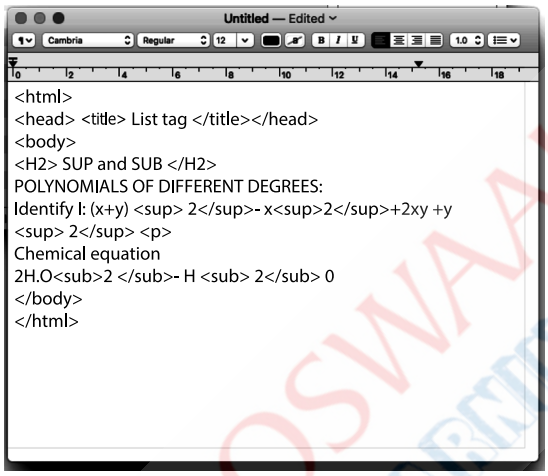
- The FONT tag is a container tag that has a number of attributes listed below in the table

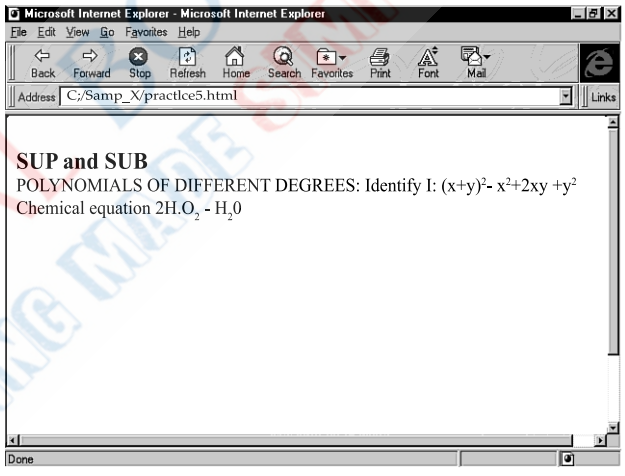
Attributes of the <font> tag	Description
FACE	Sets the text to the name of the font used as its value.
SIZE	Decides the scale of the text. It can range between 1 to 7 and the default size is 3
COLOR	Changes the color of the text written inside the container tag.

- A paragraph can be written on the web document using the <P> tag. This is a container tag, though the closing tag is optional. It uses one attribute called align that takes the value left, right or center.
- To make the text boldface, italics and underlined,

Tags	Meaning
<B>, </B>	Bold text
<I>,</I>	Italics text
<U>, </U>	Underlined text

- The <HR> element is used for horizontal rules that act as dividers between sections.
- **SUB and SUP Tags:** Subscript <SUB> and Superscript <SUP> tags allow the web author to place specified text either slightly below <SUB> or above <SUP> the rest of the text in a particular line. An example is shown below-





HTML Backgrounds

- The tag has two attributes where you can specify backgrounds. The background can be a color or an image.
  - **Bgcolor:** The bgcolor attribute specifies a background-color for an HTML page. The value of this attribute can be a hexadecimal number, an RGB value, or a color name:

    <body bgcolor="#000000">

    <body bgcolor="rgb(0,0,0)">

    <body bgcolor="black">

    All the above lines set the background-color to black.
  - The background attribute can also specify a background-image for an HTML page. The value of this attribute is the URL of the image you want to use. If the image is smaller than the browser window, the image will repeat itself until it fills the entire browser window.

    <body background="clouds.gif">

    <body background="http://profdevtrain.austincc.edu/html/graphics/clouds.gif">

Color Values

- Colors are defined using a hexadecimal notation for the combination of red, green, and blue color values (RGB). The lowest value that can be given to one light source is 0 (hex #00). The highest value is 255 (hex #FF). This table shows the result of combining red, green, and blue:

Color	Color HEX	Color RGB
	#000000	rgb(0,0,0)
	#FF0000	rgb(255,0,0)
	#00FF00	rgb(0,255,0)
	#0000FF	rgb(0,0,255)
	#FFFF00	rgb(255,255,0)
	#00FFFF	rgb(0,255,255)
	#FF00FF	rgb(255,0,255)
	#C0C0C0	rgb(192,192,192)
	#FFFFFF	rgb(255,255,255)

- **Note:** Only 16 color names are supported by the W3C HTML 4.0 standard (aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, and yellow). For all other colors, we should use the Color HEX value.

Color	Color HEX	Color Name
	#F0F8FF	AliceBlue
	#FAEBD7	AntiqueWhite
	#7FFFD4	Aquamarine
	#000000	Black
	#0000FF	Blue
	#8A2BE2	BlueViolet
	#A52A2A	Brown

IMAGES

- You can insert an image using the <IMG> tag. This tag does not have an end tag.
- The basic syntax of <IMG> tag is given below:

```
<img src = " address or the path to the image file"
 width= " "
 height=" "
 alt= " "
 longdesc= "htmlfilename">
```

The SRC Attribute

- The address or the path to the image is taken as value by SRC attribute.
- Case1: If you have saved "Rain.jpg" in "Documents" folder, then the address would be: "C:\My documents\ My Pictures\ Rain.jpg"
- Case2: If you have saved "Rain.jpg" in the same folder as the HTML document, then the address would be: "Rain.jpg"
- Case3: If "Rain.jpg" is not in your computer but is saved in folder 'images' of the web server of google, then the address would be: "http://www.google.com/images/ Rain.jpg"

The ALT Attribute

- The alt attribute is used to define an alternate text for an image. The value of the alt attribute is author-defined text:
- <img src="graphics/rain.gif" alt="Raining Skies ">
- The alt attribute tells the reader what he or she is missing on a page if the browser can't load images. The browser will then display the alternate text instead of the image. It is a good practice to include the alt attribute for each image on a page, to improve the display and usefulness of your document for people who have text-only browsers or use screen readers.

Image Dimensions

- The width and the height attributes define the boundaries of image. The value can be an absolute number (recognised as pixels) or in percentage (in proportion to the size of web window).

For example:

An image of height 150 pixels and width 200 pixels is inserted on webpage as:

<img src="flower.jpg" width="200" height="150">

Note: The image is made of pixels. When you increase the size of the image, the resolution of the image gets decreased. This makes the image less clearer to view. The width and height aren't strictly necessary but help to speed the display of your web page.

Longdesc

- If the description is too long, you can even attach an html file, in another attribute, called "longdesc". This attribute is complementary to "alt" attribute, as shown:

For example:

<img src="flower.jpg" width="200" height="150" alt="White Roses" longdesc="abc.html">

Align

- You can use the "align" attribute to place the image on left or right side of the webpage. If the align attribute is set to left, the image floats to the left margin. If it is set to right, the image floats to the right margin.

For example :

<P>

<img src="flower.jpg" alt="White Roses" width="32" height="21" align="left">

The image will be flowed to the left side of the webpage and this text will therefore be placed on right side.

</P>

- In the above code, the paragraph tag <p> helps in forming the paragraph to be displayed along with the image on the webpage. "alt" attribute describes the image when the image cannot be displayed by the browser. "height" and "width" attributes decide the area of the image on the web page and the "align" attribute defines the position of the image on the web page. Since the image is set to the left side, the text flows towards the right side.

Know the Terms

- **HTML** – Hyper Text Mark-up Language
- **Hypertext** – The text that contains graphics and text
- **Container tag** – An HTML element requiring start as well as end tag

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CHAPTER-6
HTML ADVANCED-TABLES, LISTS & LINKS

Topic-1 Lists and Links

Revision Notes

- **HTML lists**

Lists provide the information in a structured and easy to read format. The data item on the webpage can be catalogued or indexed. The index that is formed using numbers like 1,2,3,…, letters like a, b, c, ... or symbols like →,circle, square, disc is called a List in HTML. These lists help in formatting the data and put them in a particular order. There are three types of lists that you can use in HTML.

- These are:
  - UL - creates an unordered or bulleted list
  - OL - creates an ordered or numbered list
  - DL - creates a definition or glossary list
- **Unordered list** …. It classifies the data items that have equal importance i.e. none of the data items are ranked. They are identified by a symbol. It may be a □ square, a o circle or a ● disc.
- **Ordered lists** … It classifies the data items that do not have equal importance. All the data items are ranked. The ranking can be done using the numbers, the roman numerals or letters.
- **Definition lists** <dl> …. </dl> These are the list elements that have an array of tags. The list prepared by <dl> tag is similar to a dictionary. The other tags used with this tag are <dt> to defines the definition term and <dd> defines the definition of the list item.
- **Inserting audio or video**

  When you prepare a webpage, an audio or a moving picture makes the page impressive and pleasing. When you want to show the operations of your business, you can do so by inserting a movie. Both the audio and video can be inserted using a plug-in. A plug-in is a small computer program that extends the standard functionality of the browser. You can insert such plug-in using the <embed> tag. The embed tag acts as container to non-HTML resources.

  - The <embed> element is used to insert audio. The <embed> tag defines a container for external (non-HTML) content. The non-HTML contents are the objects other than the text and the graphics used in HTML. They are sound effects, the video clips and moving pictures. If you want to insert a song at the background of the webpage, use the following code to embed a MP3 file in the webpage.

    <embed height=″50″ width=″100″ src=″ roar.mp3″>

- The above code displays an audio player (of the dimensions as specified in the code) on one corner of the web page . The songs begin to play, the moment the webpage gets opened. However, the user can stop or pause the song whenever desired. If you want to place the audio player in the center, you can use the center element since it does not have another attribute to place it in center of the window.
  - The "autoplay" attribute of <audio> specifies that the audio will start playing as soon as it is ready. The song inserted at the background of the webpage, use the following code to embed and auto play a MP3 file in the webpage.

    <audio controls autoplay> <embed height=″50″ width=″100″ src=″roar.mp3″> </audio>

- The above code displays an audio player on one corner of the web page and the songs begin to play automatically, the moment the webpage gets opened.
- **Inserting video**

  A video file is recognized by the extension .mp4 or .avi.

```
<body>  <center>
<embed height=”250” width=”320”
src=”movie.mp4”>
<br> <hr>  </center>
</body>
```

- **Inserting video using "preload" attribute**

  This attribute was formerly known as "autobuffer" and it was a boolean attribute as "controls".

  - **none** - does not buffer video file automatically.
  - **metadata** - only buffers the metadata of video
  - **auto** - buffer video file before it gets played. Use the following code to insert the video movie in the webpage, you can use the "preload" attribute with embed tag as shown below:

```
<body> <center>
<video controls preload=”none”> <embed height=”250” width=”320” src=”movie.
mp4”> </video> </center> </body>
```

- **LINKS**

  An anchor element is used to create a hyperlink in a webpage. The word anchor has come from the function performed by anchor in a ship. As an anchor supports the ship when it reaches the shore, similarly, the linked document supports the text or the picture on the homepage.

  An anchor element consists of three parts.

  1. The start tag <a> containing the attribute like href (mandatory), target (optional), name (optional)
  2. The text or the image to be hyperlinked
  3. The end tag .

- The basic syntax of anchor tag is:

   text acting as hyperlink

- The attributes of anchor tag are href, name and target.
  - To link to a named anchor, add a hash mark (#) to the end of the Uniform Resource Locator of the webpage followed by the name of the section.
  - We can create an e-mail link on our webpage. The browser will read an e-mail link, using the value starting with "mailto:" rather than http://, with your e-mail address rather than a web address. The syntax is given below: <A HREF="mailto: ABC@oswaalbooks.com">Contact Us </A>

Know the Terms

- **Definition lists –** Lists showing definition and descriptions (like a dictionary)
- **Ordered lists –** Indented lists having numbers or letters in front of every list item
- **Unordered lists –** Bulleted lists

Topic-2 Tables

Revision Notes

- The data on the webpage can be represented in tabular form. In HTML, the format can be defined using <TABLE > tag. The <TABLE > tag arranges the data items on the web page in rows and columns.
- The structure of table is formed using the Table tag. The rows of the table are formed using the TR tag. The data in the cells of the rows are inserted using either the TH tag or the TD tag. The TH tag encloses the Header object and makes the data boldface and center aligned. The TD keeps the data in regular font and left aligned by default. The TH and TD tags are nested inside the TR tag and the TR tag in turn is nested within the TABLE tag.
- **HTML Table Tags**

Tag	Description
<table>	It defines a table.
<tr>	It defines a row in a table.
<th>	It defines a header cell in a table.
<td>	It defines a cell in a table.
<caption>	It defines the table caption.
<colgroup>	It specifies a group of one or more columns in a table for formatting.
<col>	It is used with <colgroup> element to specify column properties for each column.
<tbody>	It is used to group the body content in a table.
<thead>	It is used to group the header content in a table.

<tfooter>	It is used to group the footer content in a table.

S.No.	Description	Tags and Attributes	Values
1.	Define Table	<TABLE ></TABLE>	
2.	Table Border	<TABLE BORDER=?> </TABLE>	
3.	Desired Width	<TABLE WIDTH=?>	(in pixels)
4.	Width Percent	<TABLE WIDTH="%">	(percentage of page)
5.	Table Row	<TR></TR>	
6.	Alignment	<TR ALIGN=LEFT|RIGHT| CENTER|MIDDLE|BOTTOM>	
7.	Table Cell	<TD></TD>	(must appear within table rows)
8.	Table Header	<TH></TH>	(same as data, except bold & centered)
9.	Alignment	<TH or TD ALIGN=LEFT|RIGHT| CENTER|MIDDLE|BOTTOM>	
10.	No Linebreaks	<TH or TD NOWRAP>	
11.	Desired Width	<TH or TD WIDTH=?>	(in pixels)
12.	Width Percent	<TH or TD WIDTH="%">	(percentage of table)
13.	Cell Color	<TH or TD BGCOLOR="#$S$$$$">	
14.	Columns to Span	<TH or TD COLSPAN=?>	
15.	Rows to Span	<TH or TD ROWSPAN=?>	
16.	Table Caption	<CAPTION></CAPTION>	
17.	Alignment	<CAPTION ALIGN=TOP| BOTTOM>	(above/below table)

➢ **ILLUSTRATION**

1. **Border :** This attribute is used to insert the lines on four sides of the table. The inside lines show the rows and columns of the table and the outside lines display the dimensions of the table. This attribute takes the value as a number starting from 1 to any number.

```
<html>
<body>
<h4>Table headers:</h4>
<table border="1">
 <tr>
  <th>Name</th>
  <th>Telephone</th>
 </tr>  <tr>
  <td>Bill Gates</td>
  <td>555 77 854</td></tr>
```

```
</table>
<h4>Vertical headers:</h4>
<table border="4">
  <tr>
    <th>First Name:</th>
    <td>Bill Gates</td>
  </tr>
  <tr>
    <th>Telephone:</th>
    <td>555 77 854</td>
  </tr>
</table>
</body>
</html>
```

2. **Align :** The align attribute helps in placing the table on the webpage. If you want to place it in the center of the webpage, use the "center" value, for right side use "right" and for the left side of the web page, use the value "left".

```
<html>
<body>
<h4>Table headers:</h4>
<table border="1"
align="center">
  <tr>
    <th>Name</th>
    <th>Telephone</th>
  </tr>
  <tr>
    <td>Bill Gates</td>
    <td>555 77 854</td>
  </tr>
</table>
</body>
</html>
```

Table headers :

Name	Telephone
Bill Gates	555 77 854

3. **Width :**The width attribute helps in identifying the breadth of the table in comparison to the webpage. It accepts the value as a number (in pixels) or in percentage (in proportion to the width of the webpage).
4. **Border color:** The colour of the lines inside and outside the table can also be changed using the "Border Color" attribute. It accepts the value as name of the colour. If you omit this attribute, the colour of the table border is set to its default grey.

```
<html>
<body>
<h4>Table Example:</h4>
<table border="1" width="30%"
bordercolor="red">
  <tr>
    <th>Name</th>
    <th>Telephone</th>
  </tr>
  <tr>
    <td>Bill Gates</td>
    <td>555 77 854</td>
  </tr>
</table>
</body>
</html>
```

Table Example :

Name	Telephone
Bill Gates	555 77 854

5. **Bgcolor :** The background color of a table can be set using the attribute bgcolor. This attribute takes the name of the colour or hexadecimal number as value.
6. **Background :** If you want to place an image or a picture at the background of the table, you can do so using the background attribute. This attribute takes the value as the address or the path of the picture. The picture may be a bitmap or a graphic image.
7. **Cellpadding :** It is used to specify the space between the borders of cell and contents of the cell.
8. **Cellpacing :** It is used to set the distance between two cells.

➢ **TD and TH element**

The TH element or <TH> tag helps in identifying a table header. Correspondingly, TD element or <TD> tag identifies the table data cell. The text inserted using the TH element is in boldface and centred by default. Compared to this, TD element or the <TD> tag is aligned to the left and the text is in regular font. The attributes used with <TD> or <TH> tag are: Align, Colspan, Nowrap, Rowspan, Valign.

Align: The align attribute is similar to that of table, except that it aligns the text inside the cell rather than the table. <insert as new bullet point>

Valign : Valign takes the value top, middle, bottom to vertically align the text inside a cell.

Nowrap: The Nowrap attribute does not allow the text to flow to the next line in the cell. If the sentence is wider than the width of the cell, nowrap will show the sentence in one straight line.

Colspan: The colspan attribute helps in merging the columns of a row. This attribute is not used with table tag but with the <TH> or the <TD> tag.

Rowspan : When the table's cells span across more than one row, it is called rowspan If we want to give the table a nice sidebar, this attribute is used. The rowspan appears as merged cells.

Caption The <caption> tag is used to provide a text to the table so as to explain the contents of the table. It is generally in bold, at center with respect to the table.

❑❑

CHAPTER-7
HTML FORMS AND CSS

Topic-1 FORMS

Revision Notes

➢ In HTML, a form is a window that consists of the elements of a form called the form fields. These fields may be text field, text area, drop-down box, radio buttons, checkbox and/or a command button. HTML

forms are used to pass data to a server. A form can be inserted in HTML documents using the HTML form element which acts as a container for all the input elements. All the information collected by a form can be submitted to a processing agent (a file containing a script made to process this information) that is usually specified in the "action" attribute of the Form tag.

- The FORM tag has two important attributes: –
  - **ACTION** – A URL specifying where the information is sent
  - **METHOD** – How the data is sent (GET or POST)
  - The basic syntax of a form is:

```
<form method ="get|post" action=" ">
<input>
<input>
</form>
```

Value	Description
Get	Default. Appends the form-data to the URL in name/value pairs: URL?name value&name value
Post	Sends the form-data as an HTTP post transaction

  - Forms should use METHOD="GET" when the form does not modify anything on the server.
  - Forms should use METHOD="POST" when the form changes the state of the server or sends a large amount of data.
  - GET and POST transport the form data in different ways.

- **Controls**

  The devices that allow input of data into a form are called the controls

  These include –
  - Checkboxes and Radio buttons
  - Menus
  - Text inputs
  - File selectors
  - Hidden controls
  - Buttons

- **The INPUT Tag**
  - The INPUT tag is a multipurpose tag that creates many different types of controls
  - The type of input is controlled by the TYPE attribute – It can be TEXT, PASSWORD, CHECKBOX, RADIO, SUBMIT, RESET, FILE, HIDDEN, IMAGE, or BUTTON
  - Almost all of these should have a NAME attribute
  - Their initial state can be set with a VALUE attribute
  - They can all be disabled with DISABLE
  - An INPUT tag is never closed

- **Checkbox**
  - It provides a checkbox on the form. The uses can choose more then one items from the list.
  - <input type="checkbox" ...>
  - The NAME attribute names this checkbox
  - The CHECKED attribute (with no value) is used to indicate a pre-checked checkbox
  - The VALUE attribute specifies the value bound to name if this checkbox is submitted (default = ON)

```
Check all that apply:<br>
<input type="checkbox" name="dogs" checked>I like dogs<br>
<input type="checkbox" name="cats" checked>I like cats<br>
<input type="checkbox" name="pigs">I like pigs
```

Check all that apply:

- ☑ I like dogs
- ☑ I like cats
- ☐ I like pigs

- **Radio Button**
  - It provides a radio button on the form. Only one radio button of a group can be selected at one time.
  - <input type="radio" ...>

- Used when user is to select one of many mutually exclusive options

Select one of the following: 	Select one of the following: I agree completely I agree a little I disagree a little I disagree completely

➢ **Text Boxes**

- <input type="text" ...>
- Allows entry of one line of text
- Attribute SIZE specifies the width (in characters)
- Attribute MAXLENGTH specifies the maximum number of characters

User's full name: 	User's full name: Pavithra Karthik

➢ **Password**

- <input type="password" ...>
- Identical to a text box, but text typed into the box is not readable
- Useful for submitting sensitive information (like passwords)

➢ **Buttons**

- <input type="submit" ...> – Creates a button that submits the form to the server
- <input type="reset" ...> – Creates a button that resets all form fields to their default state
- <input type="button" ...> – Creates a button that does nothing

<input type="submit" value="Submit Form ">	Submit Form

➢ **Image Buttons**

- <input type="image" ...>
- Displays an image that behaves like a submit button
- The SRC attribute specifies the location of an image file
- The ALT attribute specifies some text to render if the image is not display

```
<input type="image" src="button.png" alt="Submit">
```

➢ **Hidden Control**

- <input type="hidden" ...>
- Creates a control similar to a text control
  - – User does not see control
  - – User can not easily change the value
- Useful for keeping track of data as the user traverses a collection of pages

➢ **TEXT AREA tag**

- The TEXTAREA tag provides a multiline text entry area
- The ROWS and COLS attributes are required and they specify the number of rows and number of columns

<textarea rows="10" cols="50" name="bigtext"> The preformatted initial text is sandwiched within the tag. </textarea>	The preformatted initial text is sandwiched within the tag.

➢ **Lists**

- Drop-down lists are created using the SELECT tag
- Attribute SIZE determines how many rows to display at once
- Each option is enclosed in an OPTION tag

```
<select name="country" size="5">
 <option value="A">India</option>
 ...
 <option value="Z">Singapore</option>
</select>
```

- The MULTIPLE attribute of the SELECT tag creates menus that allow multiple selections

➢ **Combo box**

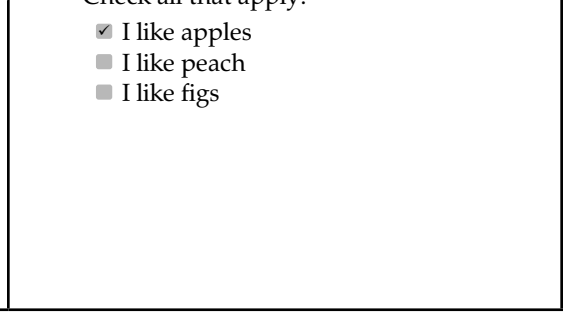
- Combo box in HTML is used to display a drop down list of some options from which one can be selected.
- <OPTION> tag is used inside the <SELECT> tag that displays the options in the list.

```
<select name="drop down">
<option value="India"> India </option>
<option value="London"> London </option>
<option value="Bangkok"> Bangkok </option>
</select>
```

➢ **Labels**

- The LABEL tag specifies that the enclosed item is a label for the named form element
- For example, clicking the label will shift the focus or change the state of the associated form element

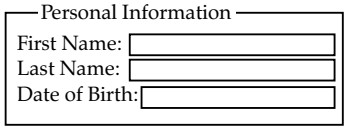
```
Check all that apply:<br>
<input type="checkbox" name="applelover"
id="apple"
checked>
<label for="dogs">I like apples</label>
<br>
<input type="checkbox" name="peachlover"
id="peach">
<label for="cats">I like peach</label>
<br>
<input type="checkbox" name="figlover"
id="figs">
<label for="pigs">I like figs</label>
```



➢ **Fieldsets**

- The FIELDSET tag is used to group together a set of related form elements
- The LEGEND tag assigns a caption to a field set

```
<fieldset>
 <legend>Personal
Information</legend>
 First Name: <input type="text" name="fn"
size="20">
 <br>
 Last Name: <input type="text" name="ln"
size="20">
 <br>
 Date of Birth: <input type="text" name="dob"
size="10">
</fieldset>
```



Topic-2 Cascading style sheets (CSS)

Revision Notes

- Cascading Style Sheet (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. It is a way to provide style to HTML. Whereas the HTML is the meaning or content, the style sheet is the presentation of that document.
- Cascading Style Sheet (CSS) is a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents.
- The **advantages** of using CSS are:
  - It controls layout of many documents from one single style sheet.
  - It has more precise control of layout.
  - It applies different layouts to different media-types.
  - It has numerous advanced and sophisticated techniques to be applied on web pages.
- The **limitations** of CSS are:
  - CSS is very limited in browser compatibility.
  - When you design a web page, you want it to display exactly as you like it.
  - The problem with CSS is that it displays webpages very different in the different browsers.
- **Embedded CSS -The <style> Element**

  You can put your CSS rules into an HTML document using the <style> element. This tag is placed inside the <head>...</head> tags. Rules defined using this syntax will be applied to all the elements available in the document. Here is the generic syntax:

```
<head>
<style type="text/css" media="...">
Style Rules
.....
</style>
</head>
```

- **Inline CSS -The style attribute**

  You can use style attribute of any HTML element to define style rules. These rules will be applied to that element only. Here is the generic syntax:

```
<element style="...style rules....">
```

- **External CSS -The <link> Element**

  The <link> element can be used to include an external stylesheet file in your HTML document. An external style sheet is a separate text file with .css extension. You define all the Style rules within this text file and then you can include this file in any HTML document using <link> element.

  Here is the generic syntax of including external CSS file:

```
<head>
<link type="text/css" href="..." media="..." />
</head>
```

- **Font**

Property	Description
font	Sets all the font properties in one declaration
font-family	Specifies the font family for text
font-size	Specifies the font size for text
font-style	Specifies the font style for text
font-variant	Specifies whether or not a text should be displayed in a small-caps font
font-weight	Specifies the weight of a font

All the different font properties can be combined in one single property.

For example, to apply different font-properties for <p> tag following code can be used:

```
p {  font-style: italic;
font-weight: bold;
font-size: 30px;
font-family: arial, sans-serif; }
```

- The order of values for font properties is: font-style | font-variant | font-weight | font-size | font-family
- **Text properties**

Property	Description
color	Sets the color of text
direction	Specifies the text direction/wanting direction
letter-spacing	Increases or decreases the space between characters in a text
line-height	Sets the line height
text-align	Specifies the horizontal alignment of text
text-decoration	Specifies the decoration added to text
text-indent	Specifies the indentation of the first line in a text-block
text-shadow	Specifies the shadow effect added to text
text-transform	Controls the capitalization of text
text-overflow	Specifies how overflowed content that is not displayed should be signaled to the user
unicode-bidi	Used together with the direction property to set or return whether the text should be overridden to support multiple languages in the same document
vertical-align	Sets the vertical alignment of an element
white-space	Specifies how white-space inside an element is handled
word-spacing	Increases or decreases the space between words in a text

- **An Example of CSS Syntax**

Let's use a block of CSS to clarify what each of these items is.

```
h1 {
    color: red;
    font-size: 3em;
    text-decoration: underline;
        }
```

In this example, h1 is the selector. The selector is followed by a declaration block that includes three declarations. Each declaration is separated from the next by a semicolon (;). The tabs and line breaks are optional but used by most developers to make the CSS code more human-readable.

- By using h1 as the selector, we are saying that every level 1 heading on the web page should follow the declarations contained in this rule set.

- The rule set contains three declarations:
  - Color: red;
  - Font-size: 3em;
  - Text-decoration: underline;

color, font-size, and text-decoration are all properties. There are literally hundreds of CSS properties you can use, but only a few dozen are commonly used.

We applied the values red, 3em and underline to the properties we used. Each CSS property is defined to accept values formatted in a specific way.

For the color property, we can either use a color keyword or a color formula in Hex, RGB or HSL format. In this case, we used the color keyword red. There are a few dozen color keywords available in CSS3, but millions of colors can be accessed with the other color models.

We applied the value of 3em to the property font-size. There are a wide range of size units we could have used including pixels, percentages and more.

Finally, we added the value underline to the property text-decoration. We could have also used overline or line-through as values for text-decoration. In addition, CSS3 allows for the use of the line-styles solid, double, dotted, dashed, and wavy as well the specification of text-decoration colors. We could have applied all three values at once by using a declaration like this:

text-decoration: blue double underline;

That rule would cause the h1 in our initial example to be underlined with a blue double line. The text itself would remain red as defined in our color property.

- **CSS Comments**

Comments are used to explain the code and may help when you edit the source code at a later date. Comments are ignored by browsers. A CSS comment starts with /* and ends with */. Comments can also span multiple lines:

Example:

```
P {
    color: red;
    /* This is a single-line comment */
    text-align: center;
}
/* This is a multi-line comment */
```

- **CSS Rules**

CSS Rules are the styles that we have to create in order to create style sheets. These rules define appearance of associated HTML element. The general form of CSS syntax is as follows:

- **Selector {property: value;}**

- Selector is HTML element to which CSS rule is applied.
- Property specifies the attribute that you want to change corresponding to the selector.
- Property can take specified value.
- Property and Value are separated by a colon (:).
- Each declaration is separated by semi colon (;).

- **Following are examples of CSS rules:**

```
P { color: red;}
h1 (color: green; font-style: italic;
body { color: cyan; font-family: Arial; font- style: normal;}
```

- The property font-family is used to apply prioritized list of fonts in a web page.
- The property font-style defines the chosen font either in normal, italic or oblique.
- The Font-variant property is used to select normal or small-caps variants of a font.
- The Font-weight property describes how bold or "heavy" a font should be presented. A font can either be normal or bold.
- The font-size property is used to set the size of a font.
- The text-indent property allows you to add effects to text paragraphs by applying an indent to the first line of the paragraph.
- The text-align property gives the same effect as attribute align gives in old versions of HTML. The text can either be aligned to the left, to the right or center of the screen.
- The text-decoration property makes it is possible to add different "decorations" or "effects" to text.
- The Letter-spacing property is used to give the specified spacing between the text characters.
- The text-transform property controls the capitalization of a text. You can choose to capitalize, use uppercase or lowercase effects to be applied on text in the HTML code.
- The color property describes the foreground color of a text to be displayed in browser.

- The background-color property describes the background color of browser window.
- The background-image property is used to insert a background image in a web page.
- The background-repeat property repeats the image set as a background for the web page.

❑❑

CHAPTER-9
CYBER ETHICS

Revision Notes

➢ **e-Commerce and security**

In e-commerce, the transaction takes place over the network . e-Commerce is the ability to do business online via the internet. The privacy in E-commerce means the protection of privacy of the parties involved in trading through E-commerce. Transaction security is vital in e-Commerce.

➢ Fraud is an intentional false representation of a fact.

➢ Fraud comes in many forms like,

- Credit card fraud
- Refund fraud
- Card testing
- Friendly fraud
- Identity theft
- Phishing
- Triangulation fraud

➢ Security is an essential part of any transaction that takes place over the Internet. Customers will lose his / her faith in e-business if its security is compromised. Encryption is a technology which keeps the messages secret from unauthorized access. Digital signature is another security provision provided by the internet which ensures the authenticity of the information. A digital signature is a digital code that can be authenticated through encryption and password attached to an electronically transmitted message to uniquely identify the sender. Digital certificates are electronic files containing user name, user's public key, and name of certification authority such as Verisign, issuing the certificate. Secure Socket Layer [SSL] is a security protocol developed by Netscape Communications to protect communication over the Internet.

➢ **Computer ethics**

Computer ethics are a set of moral standards that govern the use of computers. It is society's views about the use of computers, both hardware and software. Privacy concerns, intellectual property rights and effects on the society are some of the common issues of computer ethics.

➢ **Privacy concerns**

- **Hacking –** It is unlawful intrusion into a computer or network. A hacker can intrude through the security levels of a computer system or network and can acquire unauthorised access to other computers.
- **Malware –** It means malicious software which is created to impair a computer system. Common malware are viruses, spyware, worms, trojan horses etc. A virus can delete files from a hard drive, while a spyware can collect data from a computer.
- **Data Protection –** Also known as information privacy or data privacy, it is the process of safeguarding data which intends to influence a balance between individual privacy rights, while still authorizing data to be used for business purposes.
- **Anonymity –** It is a way of keeping a user's identity masked through various applications.

➢ **Intellectual Property Rights**

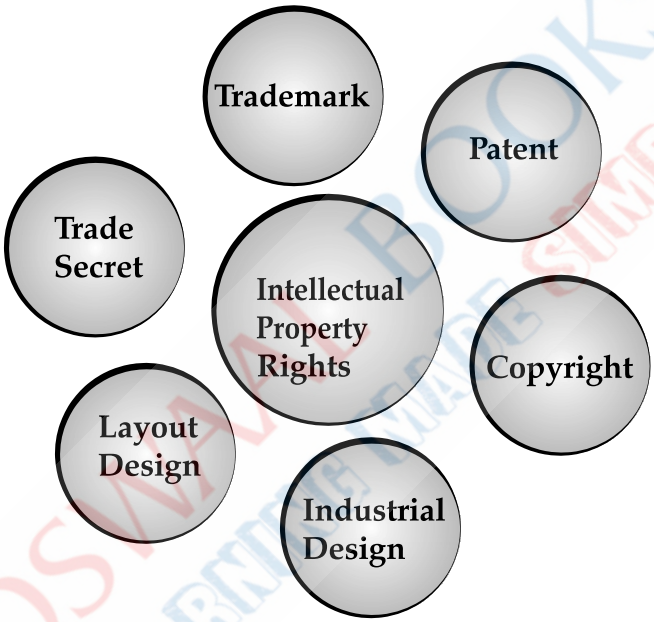
Intellectual property rights are the legal rights that cover the privileges given to individuals who are the owners and inventors of a work, and have created something with their intellectual creativity. Individuals related to areas such as literature, music, invention, etc., can be granted such rights, which can then be used in the business practices by them.

The creator/inventor gets exclusive rights against any misuse or use of work without his/her prior information. However, the rights are granted for a limited period of time to maintain equilibrium.

The following list of activities which are covered by the intellectual property rights are laid down by the World Intellectual Property Organisation (WIPO) as following :

- Industrial designs
- Scientific discoveries
- Protection against unfair competition
- Literary, artistic, and scientific works
- Inventions in all fields of human endeavor
- Performances of performing artists, phonograms, and broadcasts
- Trademarks, service marks, commercial names, and designations
- All other rights resulting from intellectual activity in the industrial, scientific, literary, or artistic fields

➢ Intellectual Property Rights can be further classified into the following categories



➢ **Software Licence :** A software license agreement is a contract between the licensor or the author and the purchaser of a piece of software which establishes the purchaser's rights. It defines how that software can be used and what happens in the event of breach.

➢ **Proprietary software:** Proprietary software (sometimes referred to as **closed source software**) is a software that **legally remains the property of the organisation, group, or individual** who created it. The organisation that owns the rights to the product usually does not release the source code, and may insist that only those who have purchased a special licence key can use it.

➢ **Free software:** Free software (also called **freeware**) is licensed at no cost, or for an optional fee. It is usually closed source.

➢ A program is free software when the user has

- the freedom to run the program for any purpose
- the freedom to access the source code and study how the program works
- the freedom to adapt it to user's needs
- the freedom to redistribute copies
- the freedom to improve the program and release the improvements to the public, so that the whole community benefits

➢ **Open source software:** It is a free and an openly available to everyone. People who create open source products publish the code and allow others to use and modify it. Communities of programmers often work together to develop the software and to support users. Open source products are usually tested in public by online contributors.

Large companies such as Twitter, Facebook and the BBC make use of open source technology. For example, the BBC makes use of MySQL and it creates open source software, such as the program to improve the compatibility of iPlayer on smart TVs.

FOSSM: ***The Free Open Source Software Movement (FOSSM) or Free/Libre Open Source Software (FLOSS)*** is a social movement with the goal of obtaining and guaranteeing certain freedoms for software users, to use, study, modify and redistribute.

The Free Software movement and the open source movement are two separate movements. The term "open source" has different approach and philosophy. For the open source movement, the issue of whether software should be open source is a practical rather than an ethical question.

GNU General Public License, is intended to guarantee our freedom to share and change free software, and to make sure the software will remain free for all the users.

- **Freedom of Information:** In India, **Freedom of Information Act** was implemented in **2002**. The main principle behind Freedom of Information legislation is that people have a right to know about the activities of public authorities held by governments and government institutions. According to the Act, this information is in principle public and may only be withheld for legitimate reasons.

  According to this Act,

  - Everybody has a right to access official information. Non-disclosure of information should be the default.
  - An applicant does not need to give you a reason for wanting the information. On the contrary, the department must justify refusing them information.
  - All the requests have to be treated equally.

  Right to Information Act, 2005 (RTI) It is a revolutionary Act under which, a common man can demand any government agency to furnish information. The organisation is bound to provide the information, that too within 30 days, failing which the officer concerned is slapped with a monetary fine.

- **Digital Divide:** The Digital Divide, or the Digital Split, is a social issue referring to the differing amount of information between those who have access to the Internet and those who do not have access. The term became popular among concerned parties, such as scholars, policy makers, and advocacy groups, in the late 1990s.

  Broadly speaking, the difference is not necessarily determined by the access to the Internet, but by access to ICT (Information and Communication Technologies) and to media that the different segments of society can use. With regards to the Internet, the access is only one aspect, other factors such as the quality of connection and related services should be considered. Today, the most discussed issue is the availability of the access at an affordable cost and quality.

  The problem is often discussed in an international context, indicating certain countries are far more equipped than other developing countries to exploit the benefits from the rapidly expanding Internet. The digital divide is not indeed a clear single gap which divides a society into two groups. Researchers report that disadvantage can take such forms as lower-performance computers, lower-quality or high price connections (i.e. narrowband or dialup connection), difficulty of obtaining technical assistance, and lower access to subscription-based contents.

  - The idea that some information and communication technologies are vital to quality civic life is not new. Some suggest that the internet and other ICTs are somehow transforming society, improving our mutual understanding, eliminating power differentials, realising a truly free and democratic world society, and other benefits.

- **Why is there a gap?**
  - Lack of infrastructure
  - Limited computer literacy rate
- **Why should we bridge the gap?**
  - For reducing economic inequalities
  - For social mobility
  - For health democracy
  - For overall economic growth.
- **How can we bridge the gap?**
  - Equipping advanced infr-structure in rural areas

- Reducing cost of Internet
- Arranging training centers for IT education

➢ **"Netiquette"** refers to Internet etiquette. This simply means the use of good manners in online communication such as e-mail, forums, blogs, and social networking sites to name a few. It is important to use netiquette because online communication is non-verbal.

(i) **Accuracy of information:** Misleading others is obviously a major breach of online etiquette. This is true even if it's unintentional. Check facts before providing information or giving advice. If you're not an expert on a topic, maybe you shouldn't be acting like you are.

(ii) **Use internet resources ethically:** Online study resources should be used to support learning, not replace it.

(iii) **Promote healthy discussion:** To get the most out of online forums, a useful netiquette guideline is to promote healthy discussion. You can help your online community by posing questions, sharing experiences, providing positive feedback, asking follow-up questions, and referring to information sources. Being a positive contributor is better than being a critic, troll or other negative force.

(iv) **Ignore inflammatory comments by trolls:** It's generally best to ignore trolls. These are Internet users who try to bait other users into a reaction.

(v) **Respect others as equals:** Show a little respect and humility online.

(vi) **Remember, your words are permanent:** Be careful with what you post online. Once it's out there, you may not be able to get it back.

(vii) **Make your point in a nice way:** Write in a way to get the kind of reaction you want. A little thoughtfulness, strategy and netiquette can go a long way in online discussions.

➢ Plagiarism is the wrongful appropriation and stealing the publication of another author's language, thoughts, ideas as one's own original work.

➢ **Types of plagiarism are:**

(i) Collusion
(ii) Complete plagiarism
(iii) Partial plagiarism
(iv) Self-plagiarism
(v) Copying and Pasting
(vi) Word Switch
(vii) Concealing sources
(viii) Inadvertently

Know the Terms

➢ **LAMP –** Linux , Apache , MySQL , PHP
➢ **FLOSS –** Free/Libre Open Source Software
➢ **GNU –** Generally Not Unix

❑❑