Chapter - 1 : 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 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-
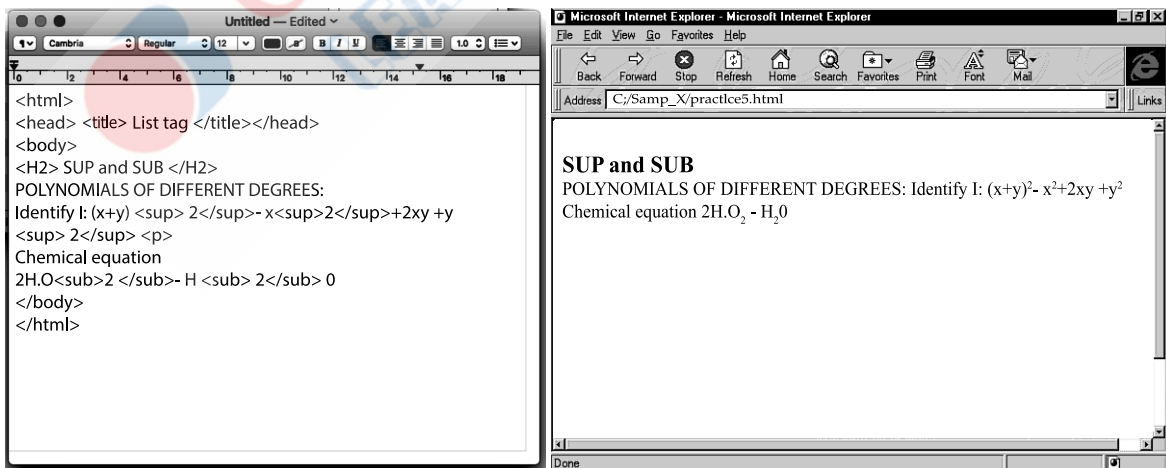
HTML Backgrounds

➢ 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:

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). You can also define 147 color names and hexadecimal values , in HTML 5.0, out of which 17 colors are standard colors. The 17 standard colors are: aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, orange, 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 links/anchors

➢ Container tag – An HTML element requiring start as well as end tag

❑❑

Unit - 3 Cyber Ethics

Chapter - 2 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.

➢ **Ethical Issues**

Information forms the intellectual capital for a person or body, and is also the means to acquire knowledge. But, there are some ethical issues involved with the usage and availability of information:

1. Intellectual property rights

2. Plagiarism

3. Digital property rights
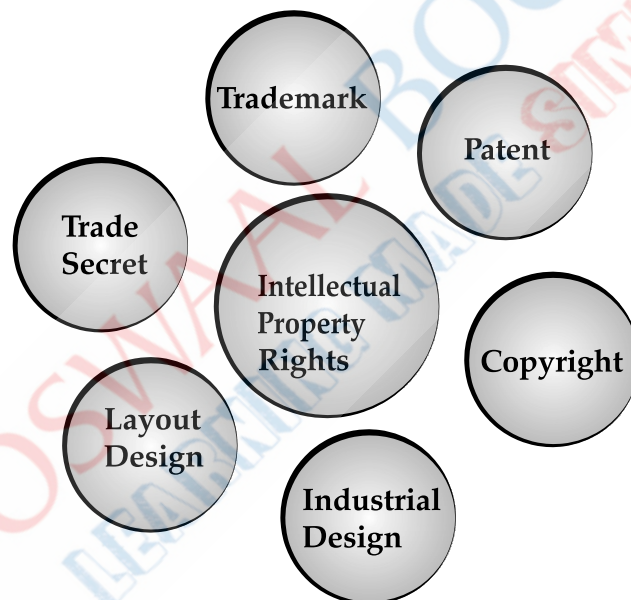
➢ **Intellectual Property Rights**

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

➢ Digital Property refers to digital information such as database, internet accounts, cloud storage etc.

➢ Digital Property Rights refers to rights that grant access and control of digital information.

➢ Threats to Digital Properties

1. Digital software penetration tools

- Software penetration tools such as cracks and keygens are used to penetrate software registration system and enable unauthorized users to freely access software without actually paying for it.

2. Stealing and plagiarizing codes of your digital properties

- People can steal your software's source code and use it to build their own versions of it, and then sell it under their own company name.

➢ **Digital Property Rights Protection measures**

1. Anti-Temper Solutions: There are many anti-temper solution which use a host of sdvanced technologies to prevent hackers from hacking, reverse engineering or manipulating your digital properties.

2. Legal Clauses: A transparent clause must be included in software's terms of service that prohibits the scraping of software's source code for reuse.

3. Limit the sharing of software code: The software's sourcecode should be shared with trusted individuals who are the part of development team. DRM (Digital Rights Management) should be used to protect software from being scraped for source code using decompilers.

➢ 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

➢ **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.

Secure Data Transmission is the transfer of data over a secure channel using encryptingprotocols such as SSL, SSH etc. It mainly depends on data encryption which makes the datauseless even if it is stolen.

- ➢ **Following data-security techniques that are designed to protect data in motion:**
  - • SSL secure data transmission
  - • Asymmetric key cryptography, better known as public/private key encryption
  - • Symmetric key encryption, better known as shared secret encryption

- ➢ SSL (Secure Sockets Layer) encryption, and it's more modern and secure replacement, TLS (Transport Layer Security) encryption, protect data sent over the internet or a computer network. SSL/TLS uses both asymmetric and symmetric encryption to protect the confidentiality and integrity of data-in-transit. Asymmetric encryption is used to establish a secure session between a client and a server, and symmetric encryption is used to exchange data within the secured session.

- ➢ A website must have an SSL/TLS certificate for their web server/domain name to use SSL/TLS encryption.

- ➢ Cryptography is the practice of the encoding and decoding of hidden messages.

- ➢ Asymmetric keys are the foundation of Public Key Infrastructure (PKI) a cryptographic scheme requiring two different keys, one to lock or encrypt the plaintext, and one to unlock or decrypt the cyphertext. Neither key will do both functions. One key is published (public key) and the other is kept private (private key). If the lock/encryption key is the one published, the system private communication from the public to the unlocking key's owner. If the unlock/decryption key is the one published, then the system serves as a signature verifier of documents locked by the owner of the private key. This system also is called asymmetric key cryptography.

- ➢ Asymmetric key is one that is used both to encrypt and decrypt information. This means that to decrypt information, one must have the same key that was used to encrypt it. The keys, in practice, represent a shared secret between two or more parties that can be used to maintain a private information link. This requirement that both parties have access to the secret key is one of the main drawbacks of symmetric key encryption, in comparison to public-key encryption.

Know the Terms

- ➢ LAMP – Linux , Apache , MySQL , PHP
- ➢ FLOSS – Free/Libre Open Source Software
- ➢ GNU – Generally Not Unix
- ➢ IPR –Intellectual Property Rights
- ➢ WIPO – World Intellectual Property Organization
- ➢ SSL – Secure Sockets Layer
- ➢ TSL – Transport Layer Security
- ➢ PKI – Public Key Infrastructure

❏❏