

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/software, data, hardware, messages and other resources like printer, hard disk, etc.
- **WWW** : World Wide Web (WWW) or simply 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. The World Wide Web was invented by British scientist Tim Berners-Lee in 1989 while working at CERN. It became publicly available on the Internet for the first time in 1991.
- The **Internet** is the physical network of computers all over the world. It is information super highway. The World Wide Web is a virtual network of web sites connected by hyperlinks (or “links”). Web sites are stored on web servers over 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 host computer that stores websites on the Internet and delivers web pages to the viewers upon request. Web server is also called ‘list server’.
- **Web client**: It refers to the web browser in the user’s computer system. A web client is the terminal on the web.
- **Web page**: It is a document commonly written in HTML that is accessible through the Internet or other networks using an Internet browser.
- **Website** : A website is a collection of web pages belonging to a particular person or an organisation. The first page of a website is called the **homepage**. From the homepage, we can visit all pages on the website. **Static** websites have pre-stored information while **dynamic** websites customize themselves frequently.
- **Web browser** : A web browser is a piece of software that enables the user to access web pages and web applications on the internet. There exists a range of browsers that are free to download and install. e.g. Chrome, Internet Explorer, Mozilla, Firefox, etc.
 - **Some popular web browsers are :**



- **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 assigned to each computer connected over the Internet.

Example: 5.230.50.50 as numeric quad or <http://www.abc.com> as English

- **HTML** is a Hypertext markup language devised to create webpages and websites.
- **Email address (Electronic mail):** 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 website that is 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:** It is a specially marked text that acts as a link to a other web page, document or media.
- **Modem:** The full form of Modem is MODulator DEModulator. A device that allows a computer to transmit information over a telephone line and performs modulation and demodulation of data.
- **Packet:** A block of data that is transmitted across the network.
- **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



CHAPTER-2 INTERNET PROTOCOLS

Revision Notes

- A protocol is a standard set of rules that allow electronic devices to communicate with each other.
- These rules include what type of data may be transmitted, what commands are used to send and receive data, and how data transfers are confirmed.
- 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 established, 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 content of the message
 - error checking - 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 access to another user 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 begin 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**
- **e-Mail** 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 of 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)** : Secure Shell (SSH), another remote login protocol, is based on UNIX programs. SSH uses TCP for communications but is more powerful and flexible than TELNET and allows the user to more easily execute a single command on a remote client. 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 version 3
- **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



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 to search and find information on any subject that the user needs. When we access information, it is retrieved from online sources, which is where search engines come in. How do they find the information they provide us? The answer is called “Information Retrieval”. Information retrieval is about making existing knowledge accessible.
- A **search engine** is a software that navigates the webpages for information on a particular topic. Some popular search engines are Google, Yahoo!, Bing, etc.
 - Locating Sites Using Search Engines**
To search web sites, a user can search part of the domain name or other site specific data on search engines like Google (from Google), Bing (from Microsoft) or Yahoo (from Yahoo).
 - Finding People On The Net**
They can be found on internet using social networking sites like facebook.com, linkedin.com; dedicated websites such as peekyou.com; or by using search engine like Google. A user has to first search for the information specific to the person to be found. Based on that, the search result is shown optimally.
- **E-Mail** : 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 means 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 user-name@domain-name. For example, webmaster@oswaal.com is an e-mail address where webmaster is username and oswaal.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 are 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. e.g. 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
 - Convenient
 - Fast
 - Inexpensive
 - Printable
 - Globally accessible
 - 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, WhatsApp 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:** is an online service using which one can check for availability of seats in a bus, train, aircraft, and rooms in hotels, etc. and later book them in advance. For example, one may use Indian railways' official website www.irctc.co.in or IRCTC Rail Connect app for e-reservation in trains. It uses Global Distribution System (GDS) to facilitate the process.
- **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.
- **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

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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 high-speed mobile technology that has replaced 3G networks. 4G wireless network is next step of 3G, which is currently the most widespread, high-speed wireless service.
- **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 devices 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.



UNIT – 2 : HTML-II

CHAPTER-5

HTML ADVANCED - TABLES & LINKS

Revision Notes

- **Inserting audio or video**

When you prepare a webpage, an audio or a moving picture makes the page impressive and pleasing. 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.

e.g. 

```
<body> <center>
<embed height="250" width="320" src="movie.mp4">

 <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**

The anchor element is used to create a hyperlink in a webpage.

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 </a>.

- 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>

- **Significance of Linking**

- Links on a Web page allow user to jump to another document. It is a very useful feature of HTML as when you click on a hypertext, it carries you to other document.
- It enables the Web page writer to refer to other documents and thus prevent the need of creating large document.

- **Sending e-Mail from a Browser**

- The mailto attribute of anchor <a> tag is used to serve the purpose of sending E-mails through a Website. It enables emailing, which helps visitors to send feedback through the Website.
- The mailto value when used alongwith an E-mail address in href attribute of anchor tag, will create a link. When this link will be clicked, it will open default E-mail client.
- You can also add a header to E-mail sent from a mailto link. Using "ISubject = Subject line", we can add subject line of the E-mail window.

➤ **Tables**

- 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) (number starting from 1 to any number)
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="#\$\$\$\$\$\$" >	
14.	Columns to Span	<TH or TD COLSPAN=? >	(numbers)
15.	Rows to Span	<TH or TD ROWSPAN=? >	(numbers)
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".

<pre> &lt;html&gt; &lt;body&gt; &lt;h4&gt;Table headers:&lt;/h4&gt; &lt;table border="1" align="center"&gt;   &lt;tr&gt;     &lt;th&gt;Name&lt;/th&gt;     &lt;th&gt;Telephone&lt;/th&gt;   &lt;/tr&gt;   &lt;tr&gt;     &lt;td&gt;Bill Gates&lt;/td&gt;     &lt;td&gt;555 77 854&lt;/td&gt;   &lt;/tr&gt; &lt;/table&gt; &lt;/body&gt; &lt;/html&gt; </pre>	<p>Table headers :</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Name</th> <th>Telephone</th> </tr> </thead> <tbody> <tr> <td>Bill Gates</td> <td>555 77 854</td> </tr> </tbody> </table>	Name	Telephone	Bill Gates	555 77 854
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.

<pre> &lt;html &gt; &lt;body&gt; &lt;h4&gt;Table Example:&lt;/h4&gt; &lt;table border="1" width="30%" bordercolor="red"&gt;   &lt;tr&gt;     &lt;th&gt;Name&lt;/th&gt;     &lt;th&gt;Telephone&lt;/th&gt;   &lt;/tr&gt;   &lt;tr&gt;     &lt;td&gt;Bill Gates&lt;/td&gt;     &lt;td&gt;555 77 854&lt;/td&gt;   &lt;/tr&gt; &lt;/table&gt; &lt;/body&gt; &lt;/html&gt; </pre>	<p>Table Example :</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Name</th> <th style="text-align: center;">Telephone</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Bill Gates</td> <td style="text-align: center;">555 77 854</td> </tr> </tbody> </table>	Name	Telephone	Bill Gates	555 77 854
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. **Cellspacing** : 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-6

## CASCADING STYLE SHEET

### Revision Notes

#### Cascading style sheet (CSS)

- 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 on 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 differently 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 (Normal/italic/oblique)
font-variant	Specifies whether or not a text should be displayed in a small-caps font/Normal
font-weight	Specifies the weight of a font Normal/Bold (100-900)

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/writing 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: 30 px;
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: 30 px;
  - 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, 30 px 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 CSS, but millions of colors can be accessed with the other color models.

We applied the value of 30 px 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, CSS 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, to the center of the screen or justified.
- The text-decoration property makes it 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.

## Know the Terms

- **CSS** – Cascading Style Sheet
- **HTML** – Hyper Text Markup Language
- **XML** – extensible Markup Language

