Basics of Web Design and Overview of HTML 5

4 CHAPTER

The use of the Internet and World Wide Web has drastically increased over the past decade. Many people use the terms Internet and World Wide Web interchangeably, but in fact the two terms are not synonymous. The Internet and the Web are two separate but related things.

What is The Internet?

The Internet is a massive network of networks, a networking infrastructure. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet. Information that travels over the Internet does so via a variety of languages known as protocols.

What is World Wide Web (WWW)?

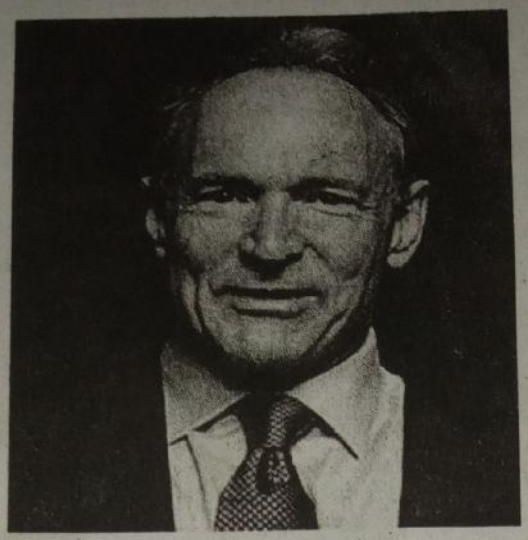
The World Wide Web, or simply Web, is a way of accessing information over the medium of the Internet. It is an information-sharing model that is built on top of the Internet. The Web uses the HTTP protocol, only one of the languages spoken over the Internet, to transmit data. Web services, which use HTTP to allow applications to communicate in order to exchange business logic, use the the Web to share information. The Web also utilizes browsers, such as Internet Explorer or Firefox, to access Web documents called Web pages that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and video.

The Web is just one of the ways that information can be disseminated over the Internet. The Internet, not the Web, is also used for email, which relies on SMTP, Usenet news groups, instant messaging and FTP. So the Web is just a portion of the Internet, albeit a large portion, but the two terms are not synonymous and should not be confused.

Comparison	Internet	World Wide Web
Estimated year of Origin	1969, though opening of the network to commercial interests began only in 1988	1993
Name of the first version	ARPANET	NSFnet
Comprises	Network of Computers, copper wires, fibre optics and wireless networks	Files, folders & documents stored in various computers
Governed by	Internet Protocol	Hyper Text Transfer Protocol
Dependency	This is the base, independent of the World Wide Web	It depends on Internet to work
Nature	Hardware	Software

History of WorldwideWeb (WWW)

The Advanced Research Projects Agency (ARPA) created by led to creation of a department called the Information Processing Technology Office (IPTO) which started



Tim Berners-Lee

W3C

The World Wide Web Consortium (W3C) is an international community where Member organizations, a full-time staff, and the public work together to develop Web standards. Led by Web inventor Tim Berners-Lee and CEO Jeffrey Jaffe, W3C's mission is to lead the Web to its full potential.

The W3C is an industry consortium which seeks to promote standards for the evolution ofthe Web and interoperability between WWW products by producing specifications andreference software. Although W3C is funded by industrial members, it is vendor-neutral,and its products are freely available to all.

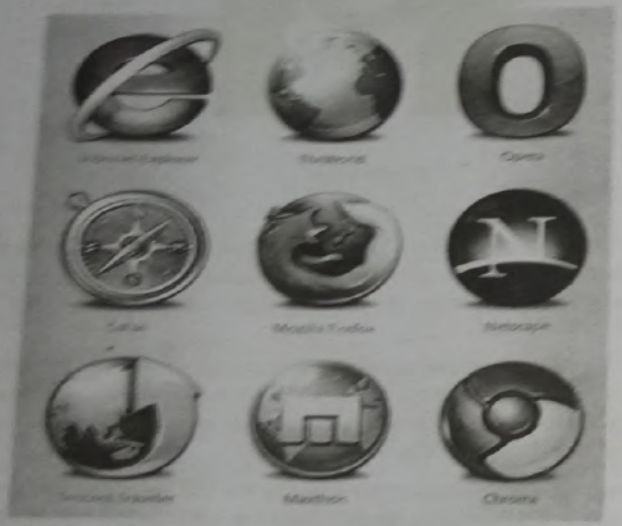
The Consortium is international; jointly hosted by the MIT Laboratory for Computer Science in theUnited States and in Europe by INRIA who provide both local support and performing coredevelopment. The W3C was initially established in collaboration with CERN, where the Web originated,and with support from DARPA and the European Commission.

Browser

A web browser or simply a browser is a software application for retrieving, presenting and traversing information resources on the World Wide Web. An information resource is identified by a Uniform Resource Identifier (URI/URL) that may be a web page, image, video or other piece of content. Hyperlinks present in resources enable users easily to navigate their browsers to related resources.Although browsers are primarily

extended to use the World Wide Web, they can also be used to access information provided by web servers in private networks or files in file systems.

The browser application retrieves (or fetches) code, usually written in HTML (HyperTextMarkup Language) and other computer languages, from a web server Then, it interprets this code and displays it as a web page for you to view. In most cases, user interaction is needed to tell the browser what website or specific web page you want to see. Using the browser's address bar is one way to do this.The web address, or URL (Uniform Resource Locator), that you type into the address bar tells the browser where to obtain a page or pages from. The popular web browsers are given in image below.



Web Server

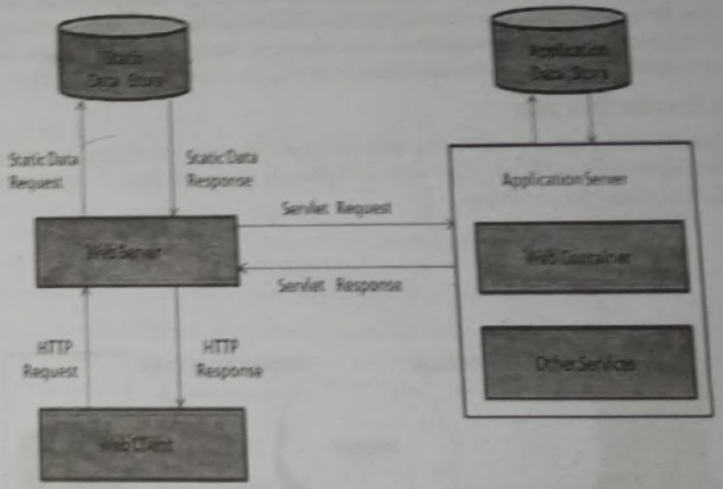
Web server is a computer where the web content is stored. Basically web server is used to host the web sites but there exist other web servers also such as gaming, storage, FTP, email etc. where Web site is collection of web pages whileweb server is a software that respond to the request for web resources.

Web server respond to the client request in either of the following two ways:

- Sending the file to the client associated with the requested URL.

- Generating response by invoking a script and communicating with database

When client sends request for a web page, the web server search for the requested page if requested page is found then it will send it to client with an HTTP response. If the requested web page is not found, web server will the send an HTTP response: *Error 404 Not found*. If client has requested for some other resources then the web server will contact to the application server and data store to construct the HTTP response. Webserver – client architecture is given below.



Web Hosting

When you make a website and want other people to see it, you will need to publish it with a web hosting service. Web hosting is a service that allows organizations and individuals to post a website or web page onto the Internet. A web host, or web hosting service provider, is a business that provides the technologies and services needed for the website or webpage to be viewed in the Internet.

Web Pages

web page is a document available on world wide web. Web Pages are stored on web server and can be viewed using a web browser. A web page can contain huge information

including text, graphics, audio, video and hyper links. These hyper links are the link to other web pages.Collection of linked web pages on a web server is known as website. There is unique Uniform Resource Locator (URL) is associated with each web page. Web pages can be classified in to the following categories

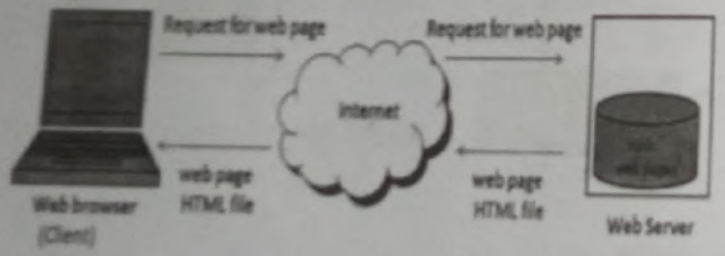
- Static Web page
- Dynamic Web page

1. Static Web page

Static web pages are also known as flat or stationary web page. They are loaded on the client's browser as exactly they are stored on the web server. Such web pages contain only static information. User can only read the information but can't do any modification or interact with the information.Static web pages are created using only HTML. Static web pages are only used when the information is no more required to be modified.

2. Dynamic Web page

Dynamic web page shows different information at different point of time. It is possible to change a portion of a web page without loading the entire web page. It has been made possible using Ajax technology.



The Domain Name System (DNS)

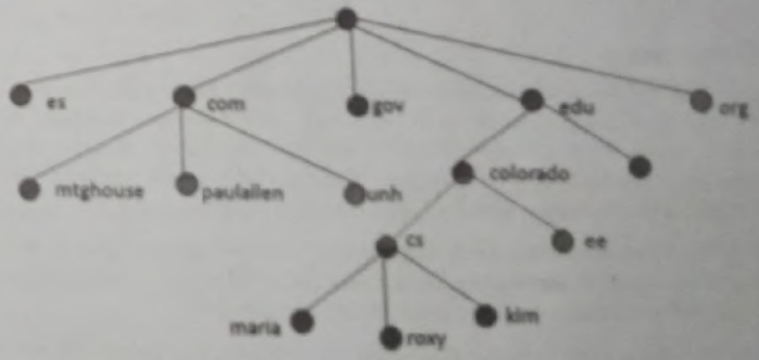
The domain name system (DNS) is the way that internet domain names are located and translated into internet protocol (IP) addresses. The domain name system maps the name people use to locate a website to the IP address that a computer uses to locate a website.

The Domain Name System delegates the responsibility of assigning domain names and mapping those names to Internet resources by designating authoritative name servers for each domain. Network administrators may delegate authority over sub-domains of their allocated name space to other name servers. This mechanism provides distributed and fault tolerant service and was designed to avoid a single large central database.

DNS servers answer questions from both inside and outside their own domains. When a server receives a request from outside the domain for information about a name or address inside the domain, it provides the authoritative answer. When a server receives a request from inside its own domain for information about a name or address outside that domain, it passes the request out to another server, usually one managed by its internet service provider. If that server does not know the answer or the authoritative source for the answer, it will reach out to the DNS servers for the top-level domain, e.g., for all of .com or .edu. Then, it will pass the request down to the authoritative server for the specific domain.

To promote efficiency, servers can cache the answers they receive for a set amount of time. This allows them to respond more quickly the next time a request for the same lookup comes in. For example, if everyone in an office needs to access the same training video on a particular website on the same day, the local DNS server will ordinarily only have to resolve the name once, and then it can serve all the other requests out of its cache. The length of time the record is held, the time to live is configurable; longer values decrease the load on servers, shorter values ensure the most accurate responses.

The domain name space refers a hierarchy in the internet naming structure. This hierarchy has multiple levels (from 0 to 127), with a root at the top. The following diagram shows the domain name space hierarchy:

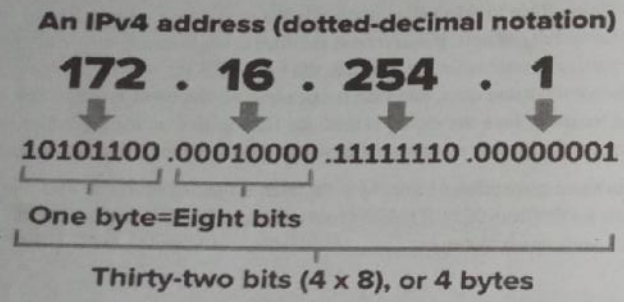


Domain Name Resolution is the process of getting corresponding IP address from a domain name.

IP Address

IP address is a unique logical address assigned to a machine over the network. An IP address serves two principal functions: host or network interface identification and location addressing. An IP address exhibits the following properties:

- IP address is the unique address assigned to each host present on Internet.
- IP address is 32 bits (4 bytes) long.
- IP address consists of two components: network component and host component.
- Each of the 4 bytes is represented by a number from 0 to 255, separated with dots. For example 137.170.4.124



Domain Name

it is practically impossible for a person to remember the IP addresses of all the computers one may have to communicate with. Therefore, a system has been developed which assigns names to some computers (web servers) and maintains a database of these names and corresponding IP addresses. These names are called Domain Names. Examples of some domain names are www.google.com, kerala.gov.in

A domain name usually has more than one parts: top level domain name or primary domain name and sub-domain name(s). For example, in the domain name kerala.gov.in, in is the primary domain name and gov is the sub-domain of in.

There are only a limited number of top level domains, and these are divided into two categories: Generic Domain Names and Country-Specific Domain Names. For example:

Generic Domain Names:

- .com - commercial business
- .edu - Educational institutions
- .gov - Government agencies
- .mil – Military
- .net - Network organizations
- .org - Organizations (nonprofit)

Country Specific Domain Names:

- .in - India
- .au - Australia
- .ca - Canada
- .ch - China
- .nz - New Zealand .pk - Pakistan
- .jp - Japan
- .us - United States of America

Suppose you mention a URL in the web-browser to visit a website. The browser first checks your computer to find if the IP address of the server corresponding to the Domain Name (embedded in the URL) is present. If this address is present then with the help of this address, the corresponding server is contacted and then the website opens in your browser. Otherwise the browser sends this domain name to some specific servers (called domain name servers) to find the corresponding IP address. Once the IP address is known, the server is contacted and then the website opens in your browser.

Uniform Resource Locator (URL)

Uniform Resource Locator (URL) refers to a web address which uniquely identifies a document over the internet. It is a hypertext system that operates over the internet. The URL contains the name of the protocol to be used to access the resource and a resource name. The first part of a URL identifies what protocol to use. The second part identifies the IP address or domain name where the resource is located.

There are two forms of URL as listed below:

- Absolute URL
- Relative URL

1. Absolute URL

Absolute URL is a complete address of a resource on the web. This completed address comprises of protocol used, server name, path name and file name.

For example http://www. kerala.gov.in/index.html where:

- http is the protocol.
- www. kerala.gov.in is the server name.
- index.html is the file name.

The protocol part tells the web browser how to handle the file. Similarly we have some other protocols also that can be used to create URL are:

- FTP
- https
- Gopher
- mailto
- news

2. Relative URL

Relative URL is a partial address of a webpage. Unlike absolute URL, the protocol and server part are omitted from relative URL.Relative URLs are used for internal links i.e. to create links to file that are part of same website as the WebPages on which you are placing the link.

Introduction to HTML

HTML stands for Hyper Text Markup Language, which is the most widely used language on Web to develop web pages. HTML was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012.

HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively easy to learn, with the basics being accessible to most people in one sitting; and quite powerful in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction of the » W3C, the organisation charged with designing and maintaining the language.

The definition of HTML is HyperTextMarkup Language.

- HyperText is the method by which you move around on the web — by clicking on special text called hyperlinks which bring you to the next page. The fact that it is hyper just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in.
- Markup is what HTML tags do to the text inside them. They mark it as a certain type of text (italicised text, for example).
- HTML is a Language, as it has code-words and syntax like any other language.

HTML consists of a series of short codes typed into a text-file by the site author — these are the tags. The text is then saved as a html file, and viewed through a browser, like Google Chrome or Mozilla Firefox. This browser reads the file and translates the text into a visible form, hopefully rendering the page as the author had intended. Writing your own HTML entails using tags correctly to create your vision. You can use anything from a rudimentary text-editor to a powerful graphical editor to create HTML pages.

The tags are what separate normal text from HTML code. You might know them as the words between the <angle-brackets>. They allow all the cool stuff like images and tables and stuff, just by telling your browser what to render on the page. Different tags will perform different functions. The tags themselves don't appear when you view your page through a browser, but their effects do. The simplest tags do nothing more than apply formatting to some text, like this:

```
<b>These words will be bold</b>, and these will not.
```

In the example above, the <b> tags were wrapped around some text, and their effect will be that the contained text will be bolded when viewed through an ordinary web browser.

XHTML

XHTML stands for EXtensible Hyper Text Markup Language. XHTML is simply HTML written as XML. XML stands for EXtensibleMarkup Language. XML is a markup language much like HTML and it was designed to describe data. XML tags are not predefined. You must define your own tags according to your needs. It is the next step in the evolution of the internet. The XHTML 1.0 is the first document type in the XHTML family.

- XHTML is almost identical to HTML
- XHTML is stricter than HTML
- XHTML is HTML defined as an XML application
- XHTML is supported by all major browsers

XHTML is almost identical to HTML 4.01 with only few differences. This is a cleaner and stricter version of HTML 4.01. If you already know HTML, then you need to give little attention to learn this latest version of HTML.

XHTML was developed by World Wide Web Consortium (W3C) to help web developers make the transition from HTML to XML. By migrating to XHTML today, web developers can enter the XML world with all of its benefits, while still remaining confident in the backward and future compatibility of the content.

Developers who migrate their content to XHTML 1.0 get the following benefits

- XHTML documents are XML conforming as they are readily viewed, edited, and validated with standard XML tools.
- XHTML documents can be written to operate better than they did before in existing browsers as well as in new browsers.
- XHTML documents can utilize applications such as scripts and applets that rely upon either the HTML Document Object Model or the XML Document Object Model.
- XHTML gives you a more consistent, well-structured format so that your webpages can be easily parsed and processed by present and future web browsers.
- You can easily maintain, edit, convert and format your document in the long run.
- Since XHTML is an official standard of the W3C, your website becomes more compatible with many browsers and it is rendered more accurately.
- XHTML combines strength of HTML and XML. Also, XHTML pages can be rendered by all XML enabled browsers.
- XHTML defines quality standard for your webpages and if you follow that, then your web pages are counted as quality web pages. The W3C certifies those pages with their quality stamp.

XHTML syntax is very similar to HTML syntax and almost all the valid HTML elements are valid in XHTML as well.

DHTML

DHTML stands for Dynamic HTML. The first thing that we need to clear about DHTML is that it is neither a language like HTML, JavaScript etc. nor a web standard. It is just a combination of HTML, JavaScript and CSS. It just uses these languages features to build dynamic web pages. DHTML is a feature of Netscape Communicator 4.0, and Microsoft Internet Explorer 4.0 and 5.0 and is entirely a "client-side" technology.

Features of DHTML:

1. Simplest feature is making the page dynamic.
2. Can be used to create animations, games, applications, provide new ways of navigating through web sites.
3. DHTML use low-bandwidth effect which enhance web page functionality.
4. Dynamic building of web pages is simple as no plug-in is required.
5. Facilitates the usage of events, methods and properties and code reuse.

HTTP

HTTP means HyperText Transfer Protocol. HTTP is the underlying protocol used by the World Wide Web and this protocol defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands.

For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page. The other main standard that controls how the World Wide Web works is HTML, which covers how Web pages are formatted and displayed.

HTTP is called a stateless protocol because each command is executed independently, without any knowledge of the commands that came before it. This is the main reason that it is difficult to implement Web sites that react intelligently to user input. This shortcoming of HTTP is being addressed in a number of new technologies, including ActiveX, Java, JavaScript and cookies.

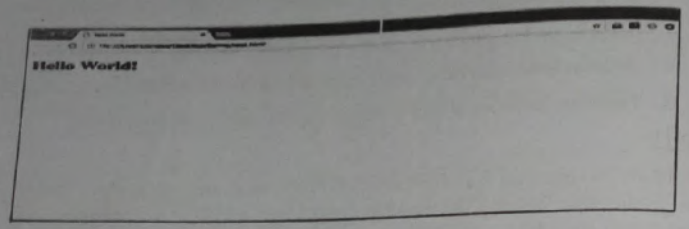
HTTPS means Hyper Text Transfer Protocol Secure. Basically, it is the secure version of HTTP. Communications between the browser and website are encrypted by Transport Layer Security (TLS), or its predecessor, Secure Sockets Layer (SSL).

Overview of HTML5

HTML5 is the latest and most enhanced version of HTML. Technically, HTML is not a programming language, but rather a mark up language.A Simple HTML Document is given below.

```
<!DOCTYPE html>
<html>
    <body>
        <h1>My First Heading</h1>
    </body>
</html>
```

The page looks like



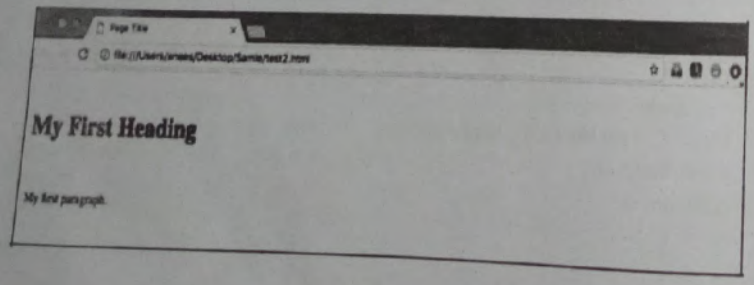
Another example is given below.

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

The output of the html code is given below.



- The <!DOCTYPE html> declaration defines this document to be HTML5
- The <html> element is the root element of an HTML page
- The <head> element contains meta information about the document
- The <title> element specifies a title for the document
- The <body> element contains the visible page content
- The <h1> element defines a large heading
- The <p> element defines a paragraph

HTML Document Structure

A typical HTML document will have the following structure.

```
<html>
<head>
      Document header related tags
</head>
<body>
      Document body related tags
</body>
</html>
```

Write HTML Using Notepad or TextEdit

Web pages can be created and modified by using professional HTML editors.However, for learning HTML we recommend a simple text editor like Notepad (PC) or TextEdit (Mac). Use a simple text editor is a good way to learn HTML.Follow the four steps below to create your first web page with Notepad or TextEdit.

Step 1: Open Notepad (PC)

Windows 8 or later:

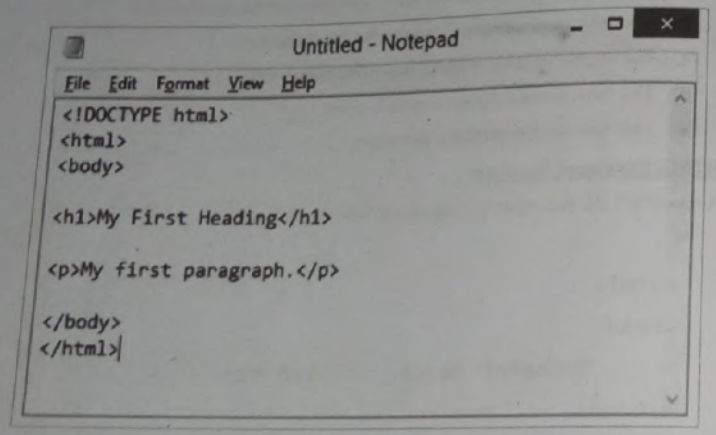
Open the Start Screen (the window symbol at the bottom left on your screen). Type Notepad.

Windows 7 or earlier:

Open Start > Programs > Accessories > Notepad

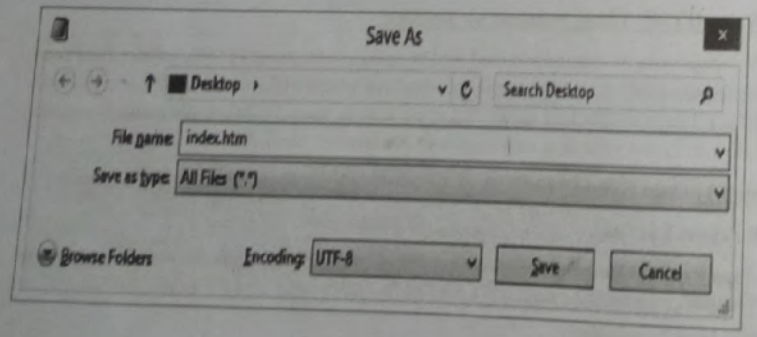
Step 2: Write Some HTML

Write or copy some HTML into Notepad.



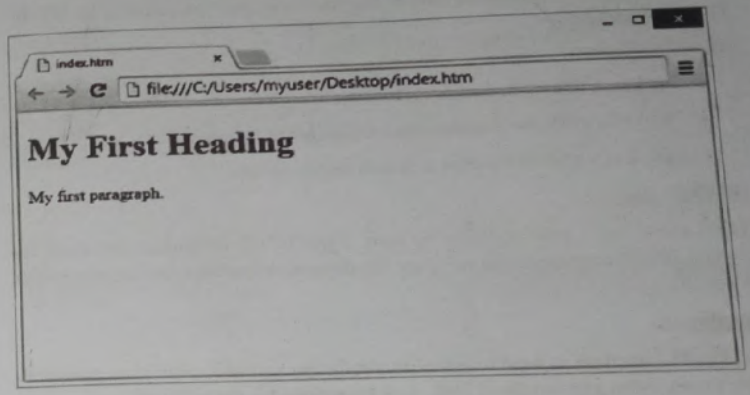
Step 3: Save the HTML Page

Save the file on your computer. Select File > Save as in the Notepad menu.Name the file "index.htm" and set the encoding to UTF-8 (which is the preferred encoding for HTML files).



Step 4: View the HTML Page in Your Browser

Open the saved HTML file in your favorite browser (double click on the file, or right-click - and choose "Open with").The result will look much like this:



HTML Documents

- All HTML documents must start with a document type declaration: **<!DOCTYPE html>.**
- The HTML document itself begins with **<html>** and ends with **</html>.**
- The visible part of the HTML document is between **<body>** and **</body>.**

The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.It must only appear once, at the top of the page (before any HTML tags).The <!DOCTYPE> declaration is not case sensitive.The <!DOCTYPE> declaration for HTML5 is:

```
<!DOCTYPE html>
```

<head>Tag

The <head> element is a container for metadata (data about data) and is placed between the <html> tag and the <body> tag.HTML metadata is data about the HTML document. Metadata is not displayed.Metadata typically define the document title, character set,

styles, links, scripts, and other meta information.The following tags describe metadata: <title>, <style>, <meta>, <link>, <script>, and <base>.

<title>Tag

The <title> element defines the title of the document, and is required in all HTML/XHTML documents.

The <title> element:

- defines a title in the browser tab
- provides a title for the page when it is added to favorites
- displays a title for the page in search engine results

<BODY> Tag

HTML Body Tag is used to define the body of our HTML Document. The Body Tag contains all visible contents of a web page like paragraph, headings, tables, lists, images, videos etc.

Bgcolor

The Bgcolor attribute is used to establish the the background color of an paragraph, table or any other parts of the HTML. It is recommended the moderate usage of this tag. It is also recommended establishing the background colors and the text styles or links, with the help of CSS.<body>bgcolor Attribute is used to Specify a background color for an HTML document.

Example

```
<body bgcolor = "silver">
<p> this page has now a SILVER background!</p>
</body>
```

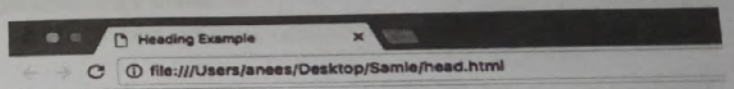
Heading Tags

Any document starts with a heading. You can use different sizes for your headings: HTML also has six levels of headings, which use the elements **<h1>, <h2>, <h3>, <h4>, <h5>, and <h6>.** While displaying any heading, browser adds one line before and one line after that heading.

```
<!DOCTYPE html>
<html>
<head>
<title>Heading Example</title>
```



```
</head>
<body>
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>
</body>
</html>
```



This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

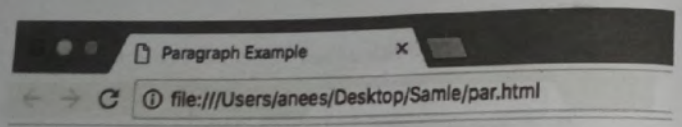
Paragraph Tag

The tag is the way to structure your text into different paragraphs. Each paragraph of text should go in between an opening and a closing tag as shown below in the example.

```
<!DOCTYPE html>
<html>
<head>
<title>ParagraphExample</title>
```

```
</head>
<body>
<p>Here is a first paragraph of text.</p>
<p>Here is a second paragraph of text.</p>
<p>Here is a third paragraph of text.</p>
</body>
</html>
```

The output will be like this.



Here is a first paragraph of text.

Here is a second paragraph of text.

Here is a third paragraph of text.

Line Break Tag

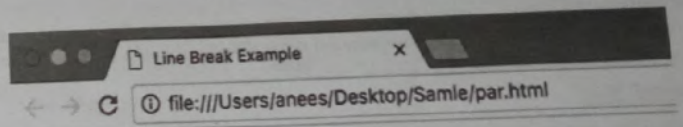
Whenever you use the
 element, anything following it starts from the next line.his tag is an example of an empty element, where you do not need opening and closing tags, as there is nothing to go in between them.

```
<!DOCTYPE html>
<html>
<head>
<title>Line BreakExample</title>
```



```
</head>
<body>
<p>Hello <br/>
This is next line <br/>
Thanks <br/>
Welcome </p>
</body>
</html>
```

The output will be like this



Hello
This is next line
Thanks
Welcome

HTML Formatting

You may be familiar with the texts bold, italicized, or underlined in word processors, these are also available in HTML

Bold Text

Anything that appears within ... element, is displayed in bold

Italic Text

Anything that appears within ... element is displayed in italics

Underlined Text

Any text that appears within <u>...</u> element, is displayed with underline

Strike Text

Anything that appears within <strike>...</strike> element is displayed with strike, which is a thin line through the text.

Monospaced Font

The content of a <tt>...</tt> element is written in monospaced font.In a monospaced font, each letter has the same width.

Superscript Text

The content of a ^{...} element is written in superscript; the font size used is the same size as the characters surrounding it but is displayed half a character's height above the other characters.

Superscript Text

The content of a ^{...} element is written in superscript; the font size used is the same size as the characters surrounding it but is displayed half a character's height above the other characters.

Inserted Text

Anything that appears within <ins>...</ins> element is displayed as inserted text.

Deleted Text

Anything that appears within ~~...~~ element, is displayed as deleted text.

Larger Text

The content of the <big>...</big> element is displayed one font size larger than the rest of the text surrounding.

Smaller Text

The content of the <small>...</small> element is displayed one font size smaller than the rest of the text surrounding.

All the formats are included in the example given below.

```
<!DOCTYPE html>
<html>
<head>
<title>Formatting in HTML</title>
</head>
<body>
```



```
<p>This is an example for <b> bold</b>font.</p>
<p>This is an example for <I> Italics</I>font.</p>
<p>This is an example for <u> underlined</u>font.</p>
<p>This is an example for <strike> strikethrough</strike>font.</p>
<p>This is an example for <tt> monospaced</tt>font.</p>
<p>This is an example for <sup> superscript</sup>text.</p>
<p>This is an example for <sub> subscript</sub>text.</p>
<p>This is an example for <del> delete</del> and <ins>insert.</ins>
<p>This is an example for <big> larger</big>text.</p>
<p>This is an example for <small> small</small>text.</p>
</body>
</html>
```

Font Tag

HTML uses tag to add style, size, and color to the text on your website. The font tag is having three attributes called size, color, and face for customize text in a webpage.The tag is not supported in HTML5. Use CSS instead of in html 5.

Font Face

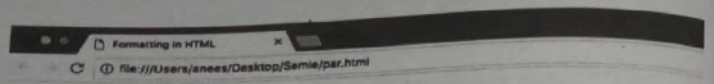
The Font Face attribute specifies the font name of the text inside a Font tag.

** Arial Font **

When you specify a Font Face, the typeface you specify must be installed on the computer of the person viewing the web page.The value of the face attribute can hold several font names separated by a comma.

****

A visitor will only be able to see your font if they have that font installed on their computer.When your page is loaded, browser will display the first font face that it has available, otherwise second one and so on. If the specified fonts are not installed on your computer, then it will load default font face of web browser. Always use double quotes around the font names.



This is an example for bold font.

This is an example for *italics* font.

This is an example for underlinedfont.

This is an example for ~~strikethrough~~ over text.

This is an example for monospaced font.

This is an example for ^{superscript} text.

This is an example for $_{subscript}$ text.

This is an example for ~~delete~~ and insert

This is an example for Larger/big> text.

This is an example for small text.

Font Size

You can set the size of the font by changing the size attribute of < font > tag.The range of accepted values is from 1(smallest) to 7(largest). The default size of a font is 3.

Text here

Font Color

The Color attribute specifies the color of the text inside a Font tag. You can specify the color that you want by either the color name or hexadecimal code for that color.

Text here

Specify hexcolor #008000

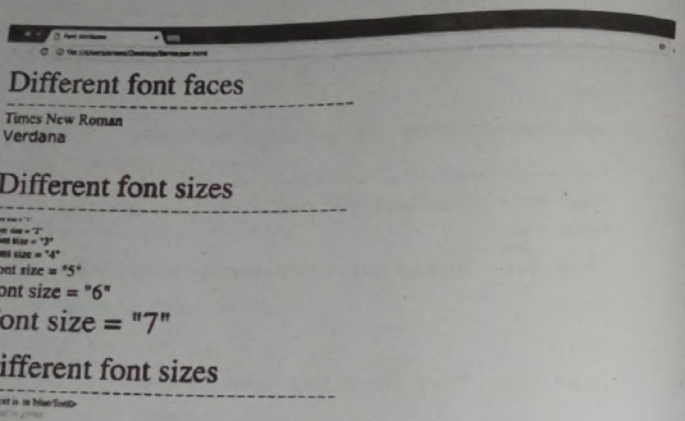
You can use Face, Size and Color attributes together one < Font > tag.

All those attributes related font tag is given below.

```
<!DOCTYPE html>
<html>
```



```
<head>
<title>Font attributes</title>
</head>
<body>
<font size = "7"> Different font faces</font><br/>
<br/>
<font face= "Times New Roman" size = "5"> Times New Roman </
font><br/>
<font face = "Verdana" size = "5"> Verdana </font><br/>
<br/>
<br/>
<font size = "7"> Different font faces</font><br/>
<br/>
<font size = "1"> font size= "1" </font><br/>
<font size = "2"> font size= "2" </font><br/>
<font size = "3"> font size= "3" </font><br/>
<font size = "4"> font size= "4" </font><br/>
<font size = "5"> font size= "5" </font><br/>
<font size = "6"> font size= "6" </font><br/>
<font size = "7"> font size= "7" </font><br/>
<br/>
<br/>
<font size = "7"> Different font faces</font><br/>
<br/>
<font color = "#0000FF">This text is in blue </font><br/>
<font color = "green">This text is in green </font>
</body>
</html>
```



The <basefont> Element

The <basefont> element is supposed to set a default font size, color, and typeface for any parts of the document that are not otherwise contained within a <font> tag. You can use the <font> elements to override the <basefont> settings.

<img> Tag

The <img> tag is used to insert an image into a document.The <img> tag is empty, it contains attributes only and does not have a closing tag.The src attribute specifies the URL (web address) of the image. Following is the simple syntax to use this tag.

```
<imgsrc = "Image URL" ... attributes-list/>
```

The alt Attribute

The alt attribute provides an alternate text for an image, if the user for some reason cannot view it. If a browser cannot find an image, it will display the value of the alt attribute.

```
<imgsrc = "image.jpg" alt = "image cannot displayed" >
```

Image Size - Width and Height

You can use the style attribute to specify the width and height of an image.The values are specified in pixels


```
<imgsrc = "image.jpg" alt = "image cannot displayed"
style="width:128px;height:128px;">
```

Image Border

By default, image will have a border around it, you can specify border thickness in terms of pixels using border attribute. A thickness of 0 means, no border around the picture.

```
<imgsrc = "image.jpg" alt = "image cannot displayed"
style="width:128px;height:128px;"border = "3">
```

Image Alignment

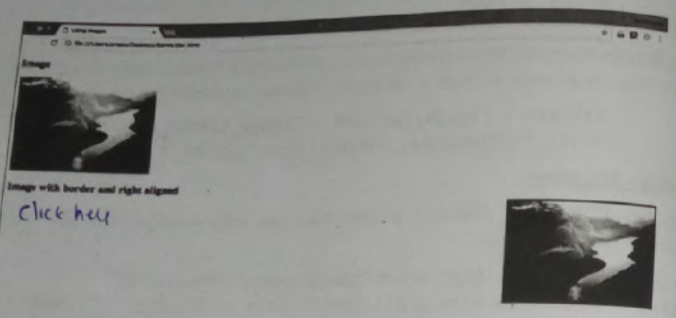
By default, image will align at the left side of the page, but you can use align attribute to set it in the center or right.

```
<imgsrc = "image.jpg" alt = "image cannot displayed"
style="width:128px;height:128px;"border = "3"align = "right">
```

An example describing image tag and image attributes is given below.

```
<!DOCTYPE html>
<html>
<head>
<title>Using images</title>
</head>
<body>
<h2> Image </h2>
<imagesrc = "image.jpg" alt = "image not displayed" style = "width:
304px; height: 228px;">
<h2> image with border and right alligned</h2>
<imagesrc = "image.jpg" alt = "image not displayed" border = "3" allign =
"right" " style width: 304px; height: 228px;">
</body>
</html>
```

The page looks like



ANCHORS AND LINKS

The anchor element is used to create hyperlinks between a source anchor and a destination anchor. The source is the text, image, or button that links to another resource and the destination is the resource that the source anchor links to.

The <a> tag defines a hyperlink, which is used to link from one page to another. The most important attribute of the <a> element is the href attribute, which indicates the link's destination. This tag is called anchor tag and anything between the opening <a> tag and the

closing tag becomes part of the link and a user can click that part to reach to the linked document. By default, links will appear as follows in all browsers:

- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red

Following is the simple syntax to use <a> tag.

```
<a href = "Document URL" .. attributes-list>Link Text</a>
```

HTML Anchor attributes are given below.

Click here

click here to download

Attribute	Value	Description
charset	char_encoding	Not supported in HTML5. Specifies the character-set of a linked document
coords	coordinates	Not supported in HTML5. Specifies the coordinates of a link
download	filename	Specifies that the target will be downloaded when a user clicks on the hyperlink
href	URL	Specifies the URL of the page the link goes to
hreflang	language_code	Specifies the language of the linked document
media	media_query	Specifies what media/device the linked document is optimized for
name	section_name	Not supported in HTML5. Use the global id attribute instead. Specifies the name of an anchor
rel	alternate author bookmark external help license next nofollow	Specifies the relationship between the current document and the linked document

	noreferrer noopener prev search tag	
rev	text	Not supported in HTML5. Specifies the relationship between the linked document and the current document
shape	default rect circle poly	Not supported in HTML5. Specifies the shape of a link
target	_blank _parent _self _top framename	Specifies where to open the linked document
type	media_type	Specifies the media type of the linked document

The Most Important Anchor Attributes

There are three anchor attributes you need to know to create functional hyperlinks. These attributes are href, target, and download.

The hrefAttribute

The hypertext reference, or href, attribute is used to specify a target or destination for the anchor element. It is most commonly used to define a URL where the anchor element should link to.

In this example, the `<a href="http://example.com">anchored text</a>` links to the URL `<em>www.example.com</em>`.

The Target Attribute

This attribute is used to specify the location where linked document is opened. Following are the possible options

Sr.No	Option & Description
1	**_blank** Opens the linked document in a new window or tab.
2	**_self** Opens the linked document in the same frame.
3	**_parent** Opens the linked document in the parent frame.
4	**_top** Opens the linked document in the full body of the window.
5	**target frame** Opens the linked document in a named *targetframe*.

The following example will show different types options in target attribute.

```
<!DOCTYPE html>
<html>
<head>
<title>Hyperlink Example</title>
</head>
<body>
```

```
<p>Click any of the following links</p>
<a href = "/html/index.htm" target = "_blank">Opens in New</a> |
<a href = "/html/index.htm" target = "_self">Opens in Self</a> |
<a href = "/html/index.htm" target = "_parent">Opens in Parent</
a> |
<a href = "/html/index.htm" target = "_top">Opens in Body</a>
</body>
</html>
```

Download Attribute

Links are also used to tell a browser to start downloading a file. The download attribute is used to identify a link that should initiate a download and the value assigned to the download attribute is the name of the file to be downloaded.

The href attribute also comes into play when setting up an anchor element that initiates a download. While the download attribute names the file, the href attribute points to the location where the file is hosted.

Internal and External Links

There are two types of resources we can link to using the a element: internal and external. Internal links are those that point to other pages of our website. External links point to web pages that aren't part of our website.

Building internal links is important for a few different reasons:

- Internal links are used to create navigation menus that help website visitors navigate our website.
- Internal links are used in the text of website content to help website visitors locate related content.
- Internal links are also used by search engine web crawlers to locate the pages of a website and to share authority (also known as link juice) with the other pages of a website.

External links are also important for a few different reasons:

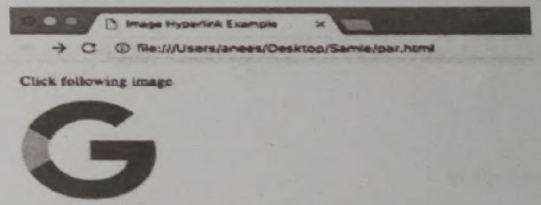
- External links may be recommended, required to provide proper attribution to the source of an idea or a resource.
- External links allow us to refer website visitors to useful related content.
- When other websites post external links that point at our website, these links known as backlinks allow link juice to flow to our website and improve our website's position on search engine results pages (SERP).

Image Links

We can create hyperlinks using images also. It's simple to use an image as hyperlink. We just need to use an image inside hyperlink at the place of text.

```
<!DOCTYPE html>
<html>
<head>
<title>Hyperlink Example</title>
</head>
<body>
<p>Click following image</p>
<a href = "http://www.google.com" target = "_self">
<imgsrc = google.png alt = "Google" border = "0"/>
</a>
</body>
</html>
```

The page looks like



while clicking on the google logo, it redirects to the google homepage

HTML Email Tag

HTML <a> tag provides you option to specify an email address to send an email. While using <a> tag as an email tag, you will use mailto: email address along with href attribute. Following is the syntax of using mailto instead of using http.

```
<a href = "mailto: abc@example.com">Send Email</a>
```

HTML Lists

HTML Lists are used to specify lists of information. All lists may contain one or more list elements. There are three different types of HTML lists:

1. Ordered List or Numbered List (ol)
2. Unordered List or Bulleted List (ul)
3. Description List or Definition List (dl)

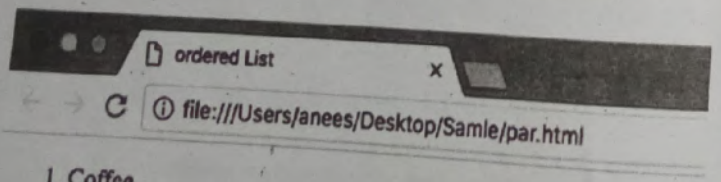
HTML Ordered List or Numbered List

In the ordered HTML lists, all the list items are marked with numbers. It is known as numbered list also. The ordered list starts with <ol> tag and the list items start with <li> tag.The list items will be marked with numbers by default. An example is given below.

HTML Code

```
<!DOCTYPE html>
<html>
<head>
<title>Ordered List</title>
</head>
<body>
<ol>  <li>Coffee</li>  <li>Tea</li> <li>Milk</li> </ol>
</body>
</html>
```

Output of the above code is



1. Coffee
2. Tea
3. Milk

The type attribute of the <ol> tag, defines the type of the list item marker:

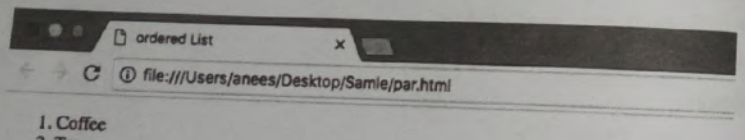
Type	Description
type="1"	The list items will be numbered with numbers (default)
type="A"	The list items will be numbered with uppercase letters
type="a"	The list items will be numbered with lowercase letters
type="I"	The list items will be numbered with uppercase roman numbers
type="i"	The list items will be numbered with lowercase roman numbers

Example HTML Code

```
<!DOCTYPE html>
<html>
<head>
<title>Ordered List</title>
</head>
<body>
      <ol type="1">
            <li>Coffee</li>
            <li>Tea</li>
            <li>Milk</li>
      </ol>
            <ol type="A">
            <li>Coffee</li>
            <li>Tea</li>
            <li>Milk</li>
      </ol>
      <ol type="a">
            <li>Coffee</li>
```

```
            <li>Tea</li>
            <li>Milk</li>
        </ol>
        <ol type="I">
            <li>Coffee</li>
            <li>Tea</li>
            <li>Milk</li>
        </ol>
        <ol type="i">
            <li>Coffee</li>
            <li>Tea</li>
            <li>Milk</li>
        </ol>
</body>
</html>
```

Output of the above code is



1. Coffee
2. Tea
3. Milk

A. Coffee
B. Tea
C. Milk

a. Coffee
b. Tea
c. Milk

I. Coffee
II. Tea
III. Milk

i. Coffee
ii. Tea
iii. Milk

HTML Unordered Lists

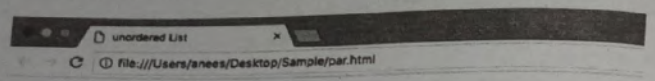
An unordered list is a collection of related items that have no special order or sequence. This list is created by using HTML <ul> tag. Each item in the list is marked with a bullet. You can use type attribute for <ul> tag to specify the type of bullet you like. By default, it is a disc.

```
<ul type = "square">
<ul type = "disc">
<ul type = "circle">
```

The example for the unordered list is given below.

```
<!DOCTYPE html>
<html>
<head>
<title>unordered List</title>
</head>
<body>
    <ul type = "square">
        <li>Coffee</li>
        <li>Tea</li>
        <li>Milk</li>
    </ul>
    <ul type = "disc">
        <li>Coffee</li>
        <li>Tea</li>
        <li>Milk</li>
    </ul>
    <ul type = "circle">
        <li>Coffee</li>
        <li>Tea</li>
        <li>Milk</li>
    </ul>
</body>
</html>
```

This will produce the following result.



- Coffee
- Tea
- Milk

- Coffee
- Tea
- Milk

- Coffee
- Tea
- Milk

The Start Attribute

You can use start attribute for <ol> tag to specify the starting point of numbering you need. Following are the possible options.

```
<ol type = "1" start = "4">    - Numerals starts with 4.
<ol type = "I" start = "4">    - Numerals starts with IV.
<ol type = "i" start = "4">    - Numerals starts with iv.
<ol type = "a" start = "4">    - Letters starts with d.
<ol type = "A" start = "4">    - Letters starts with D.
```

HTML Description List or Definition List

HTML supports a list style which is called definition lists where entries are listed like in a dictionary. The definition list is the ideal way to present a glossary, list of terms, or other name/value list.

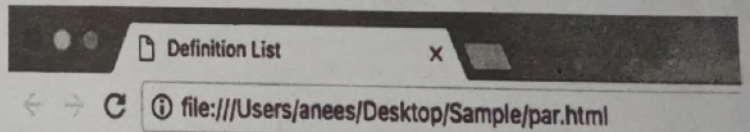
The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term.

dl → D.List
dt → name
dd → ↓

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Defenition List</title>
</head>
<body>
      <dl>
      <dt>Coffee</dt>
      <dd>- black hot drink</dd>
      <dt>Milk</dt>
      <dd>- white cold drink</dd>
      </dl>
</body>
</html>
```

This will produce the following result.



Coffee
- black hot drink

Milk
- white cold drink

Media Tags: Audio and Video

HTML5 has introduced two new multimedia tags, AUDIO and VIDEO, for displaying the audio and video streams on a Web page.

You can play the multimedia files, which are stored in your local computer, on the Web page by specifying their location. The src attribute is used to specify the multimedia file to play it on the Web page.

If the Web browser does not support AUDIO and VIDEO tags, then the text defined between the starting and the closing tags of these tags are displayed on the Web page.

HTML <audio> tag

HTML <audio> tag is used to play an audio file in HTML, use the <audio> tag.

Example

```
<audio controls>
<source src="songs.ogg" type="audio/ogg">
<source src="songs.mp3" type="audio/mpeg">
Your browser does not support the audio tag.
</audio>
```

Attributes of AUDIO Tag

The AUDIO tag of HTML5 supports only three audio file formats i.e. .oog, .mp3, .wav

Following table shows the attributes of the AUDIO tag.

Attribute	Description
autoplay	Plays the audio file as soon as the Web page loads
controls	Displays the controls on the Web page, such as play and pause buttons
loop	Replays the audio file
preload	Specifies whether the audio file is preloaded on the Web page or not
src	Provides the location of the audio file to play

HTML <video> tag

HTML <video> tag is used to show a video in HTML, use the <video> tag.

Example

```
<video width="320" height="240" autoplay>
<source src="songs.mp4" type="video/mp4">
<source src="songs.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>
```

Attribute	Description
audio	Controls the default state of the video's audio channel
autoplay	Plays the audio file as soon as the Web page loads
controls	Displays the controls on a Web page, such as play and pause buttons
height	Specifies the height of the VIDEO tag
loop	Replays the video file
preload	Specifies whether the video file is preloaded on the Web page or not
poster	Provides an image to be displayed when the video file is not available
src	Provides the location of the video file to play
width	Specifies the width of the VIDEO tag

You can also use the SOURCE tag within the opening and the closing tags of the VIDEO tag to provide the source of the video file.The SOURCE tag is used in a situation when the location of the video file is not confirmed. In this case, the VIDEO tag plays the first video file located in the specified path.