



## ■ Lec-3

- Introduction To HTML

# Hypertext Markup Language (HTML)

- **H**yper**T**ext **M**arkup **L**anguage (**HTML**) is the computer language at the heart of the World Wide Web.
- HTML: Describes the content and structure of information on a web page.
- HTML is a text formatting language.
- HTML Page file end with “.htm” or “.html”

# HTML History

<u>Year</u>	<u>Version</u>
1989	Tim Berners-Lee invented www (World Wide Web)
1991	Tim Berners-Lee invented <b>HTML</b>
1993	Dave Raggett drafted <b>HTML+</b>
1995	HTML Working Group defined <b>HTML 2.0</b>
1997	W3C Recommendation: <b>HTML 3.2</b>
1999	W3C Recommendation: <b>HTML 4.01</b>
2000	W3C Recommendation: XHTML 1.0
2008	WHATWG <b>HTML5</b> First Public Draft
2012	WHATWG <b>HTML5</b> Living Standard
2014	W3C Recommendation: <b>HTML5</b>
2016	W3C Candidate Recommendation: <b>HTML 5.1</b>

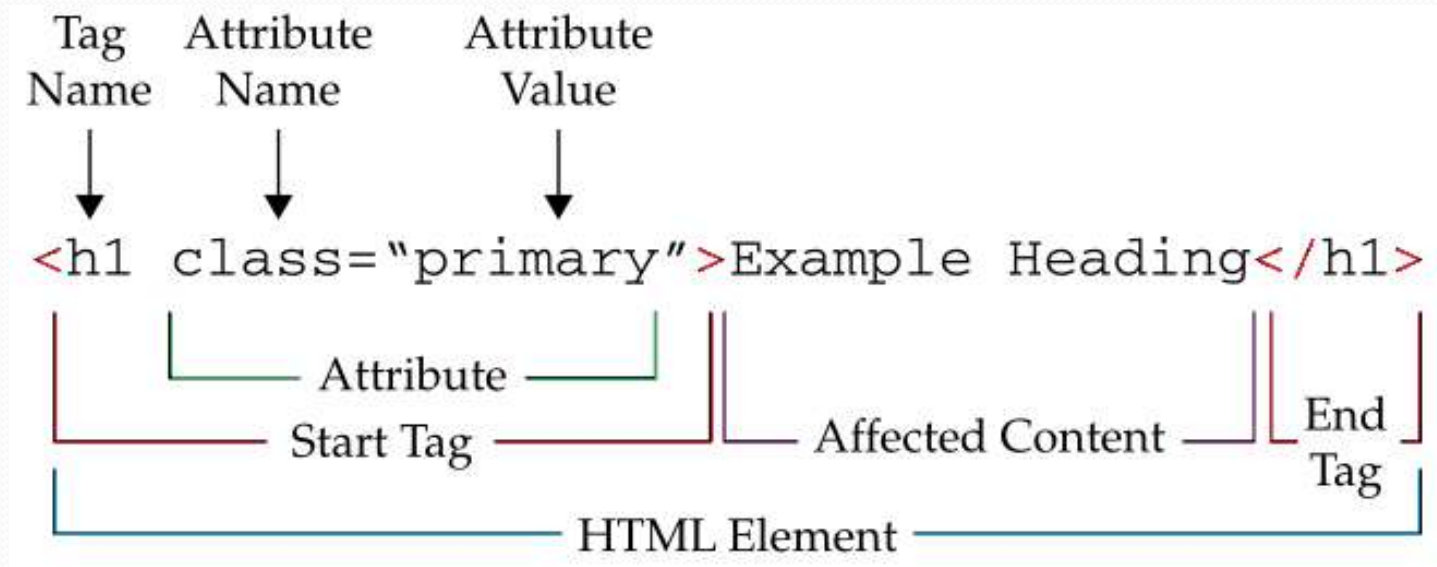
- **W3C : World Wide Web Consortium**
- **WHATWG : The Web Hypertext Application Technology Working Group**

# HTML Basic Structure

- An HTML document is made up of **elements**.
- HTML elements are written with a **start** tag, with an **end** tag, with the **content** in between.
  - syntax: `< > </ >`
  - Example: `< tagname >content</ tagname >`
    - `<p>This is a paragraph</p>`
- Nothing within the brackets `< >` will be displayed by the browser (unless the HTML is incorrectly written and the browser interprets the tags as part of the content).
- most whitespace is insignificant in HTML (ignored or collapsed to a single space).
- Tags are not case sensitive.

# HTML Basic Structure *Cont'd*

- Most of the **HTML tags** have **attributes**.
- An **attribute** is used to define the characteristics of an **HTML element** and is placed inside the **element's** opening **tag**.
- The **element** can be consisted of an **attribute/value** pair.



# Tags in HTML

- There are two types of markup tags:
  - **Container tags** – Define a section of text using a start tag and an end tag. To create an end tag for a start tag, you insert a forward slash (/) in front of the tag's name. Thus, a start tag has the form <tagname [attributes]> and an end tag has the form </tagname>. For example, text placed inside of these tags would appear in bold:
    - <B>Hello</B>
  - **Empty tags** – (or Standalone) represent a single occurrence of an instruction. For example, the <BR> or break tag is used to indicate that you want to include a single space following the text.

# Example of container and empty tags (Standalone)

Container tags

Empty tags (standalone) **<br>**

```
<html>
<head>
<title> The Web Page's Title
</title>
</head>
<body>
Text content and body tags
inserted here
</body>
</html>
```

```
<html>
<head>
<title> Example of the line break
tag </title>
</head>
<body>
This text is displayed on line one
<br>This text is displayed on line
two </body>
</html>
```

# Comments in HTML

- It's often useful to embed comments in your documents.
- The comments are not displayed in a browser, but they can be read when viewing the source markup.
- Comments in HTML use a specialized tags `<!-- -->` as the following:
  - `<!-- comments .. comments .. comments -->`
- Web browsers will not render any content or elements that occur between those markers.
- Comments can also be useful to temporarily “hide” portions of markup for testing your web pages.



# HTML Documents

- The **DOCTYPE** declaration defines the document type to be HTML.
- The HTML document itself begins with **<html>** and ends with **</html>**.
- There are two sections in the document: **HEAD** and **BODY**, marked by **<head>...</head>** and **<body>...</body>** tags, respectively.
- The head section contains information about the HTML document.
- The visible part of the HTML document is between **<body>** and **</body>**.

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Basic HTML Document Layout</title>
</head>
<body>
  <h1>My First Web Page</h1>
  <hr>
  <p>This is my <strong>first</strong>
web page written in HTML.</p>
  <h3>HTML</h3>
  <p>HTML uses <em>markup tag
</em> to <em>markup</em> a document.</p>
</body>
</html>
```

**Head Section**

**Body Section**

# HTML Documents



```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Basic HTML Document
  Layout</title>
</head>
<body>
  <h1>My First Web Page</h1>
  <hr>
  <p>This is my <strong>first</strong>
  web page written in HTML.</p>
  <h3>HTML</h3>
  <p>HTML uses <em>markup tag
  </em> to <em>markup</em> a
  document.</p>
</body>
</html>
```



# In the Head section

**< head > .... </ head >**

# In the HEAD section: <head>

- The following elements can be used inside the <head> element:
  - <meta> <title> <style> <base> <link> <script> <noscript>
- The <meta> tag provides metadata about the HTML document such as:
  - <meta charset="utf-8"> element specifies the character encoding scheme of the document.
  - It helps the browser determine how to render the content.
  - Today, virtually all (English) HTML documents are encoded using the UTF-8 character encoding scheme, which is compatible with ASCII code for English alphabets and allows you to include other Unicode characters (such as Chinese, Japanese and Korean) efficiently.

# In the HEAD section: <head>

2. `<meta name="keywords" content="HTML, CSS, XML, XHTML, JavaScript">`  
defines  
keywords for search engines.
3. `<meta name="description" content="Free Web tutorials on HTML and CSS">`  
defines  
a description of your web page.

```
<head>
<meta charset="UTF-8">
<meta name="description" content="Free Web tutorials">
<meta name="keywords" content="HTML,CSS,XML,JavaScript">
<meta name="author" content="Hege Refsnes">
</head>
```

4. `<meta http-equiv="refresh" content="30">`, Refresh document every 30 seconds.

# In the HEAD section: <head> Cont'd

- The <title>...</title> element provides a descriptive title to the page. The browser displays the title on the title-bar of the tab/window.
  - The title identifying a page when users add the page to their list of **Favorites** or **Bookmarks**, enabling them to return to their favorite sites.
  - Search engines use the title for indexing purposes and when displaying results.
- The <base> specify a default URL and a default target for all links on a page.

```
<head>
<base href="http://www.w3schools.com/images/" target="_blank">
</head>

<body>

</body>
```

➤ How about the other elements <style> <link> <script> <noscript>????



**In the BODY section**

**<body> .... </body>**

# HTML Headings

- HTML provides six **heading elements** (h1 through h6) for specifying the *relative importance* of information.

## Headings Are Important??

- HTML uses headings for **headings only**. Don't use headings to make text BIG or bold.
- Search engines use your headings to index the structure and content of your web pages.
- Users browse your pages by its headings. It is important to use headings to show the document structure.
- h1 headings should be main headings, followed by h2 headings, then the less important h3, and so on.



```
<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 Paragraphs

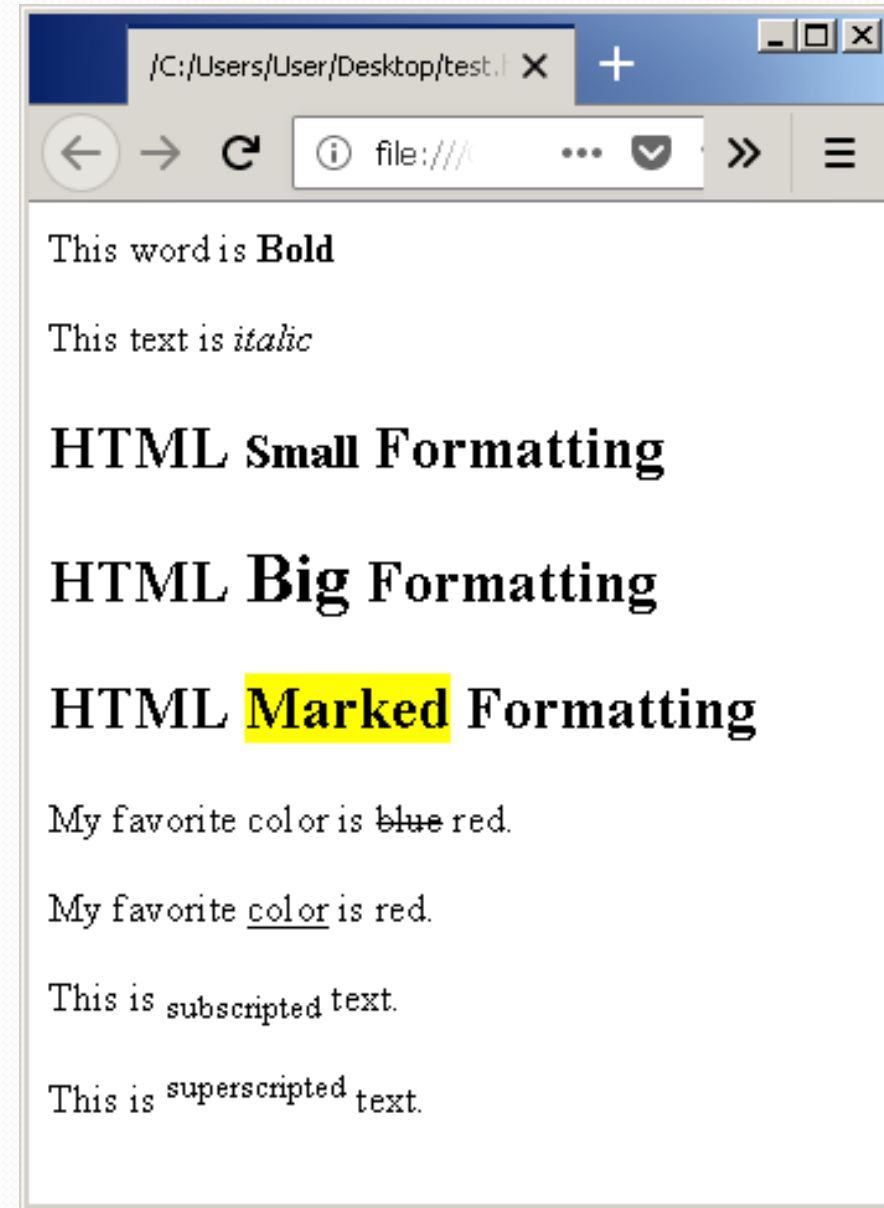
- **Paragraph Element** (<p>...</p>)
  - All the text placed between the <p> and </p> tags forms one paragraph.
  - When a browser renders a paragraph, it places extra space above and below the paragraph text.
- **Line Break** <br>: Instruct the browser to break to a new line.
- **Horizontal Rule** <hr> : is a standalone element, draws a horizontal rule (or line). The rule is full width (100%) across the screen.
- **Pre-Formatted Text** <pre>...</pre>
  - Container tags are treated as pre-formatted, i.e., white space, tabs, new-line will be preserved and not ignored.
  - The text is usually displayed in a fixed-width font.<pre>...</pre> is mainly used to display program codes or Poem.



```
<body>
  <p>This is a paragraph1.</p>
  <hr>
  <p>This is a paragraph2.</p>
  <p>This is a paragraph3.
    <br>This is a
    paragraph4.</p>
  <p>This is a paragraph5.</p>
</body>
```

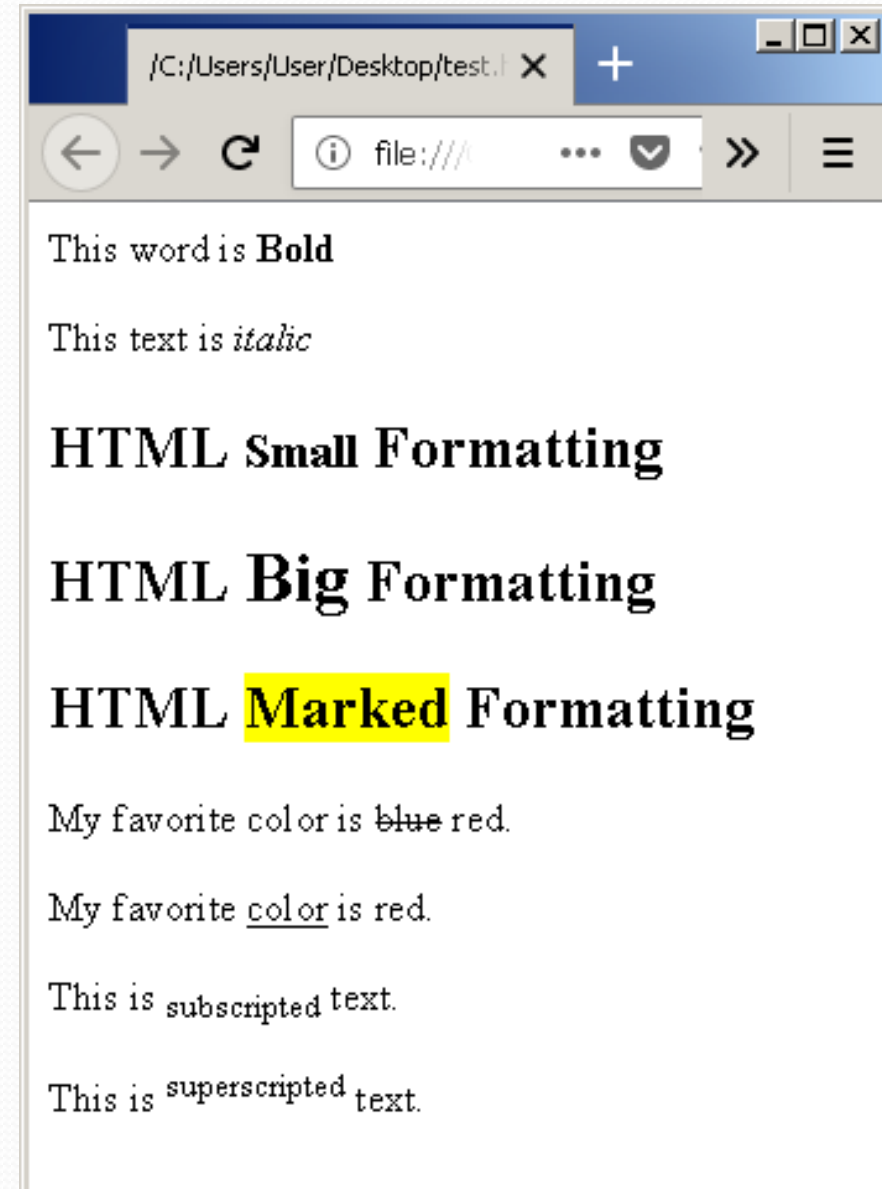
# Text Formatting

- **Bold**: The `<strong>...</strong>` tags specify "strong emphasis" for its content - rendered in bold by the browser. While, `<b> ... </b>` element defines **bold** text, without any extra importance.
- **Italic**: The nested `<em>...</em>` tags specify "emphasis" - rendered in *italic* by the browser. The tags `<i> .. </i>` define *italic* text, without any extra importance.
- **A smaller text**: `<small>...</small>` element defines small text.
- **A Bigger text**: `<big>...</big>` element defines big text.
- **Marked or Highlighted text** : `<mark>...</mark>`.
- **Deleted (removed) text**: `<del>... </del>`.
- **Underline**: `<u>...</u>`.



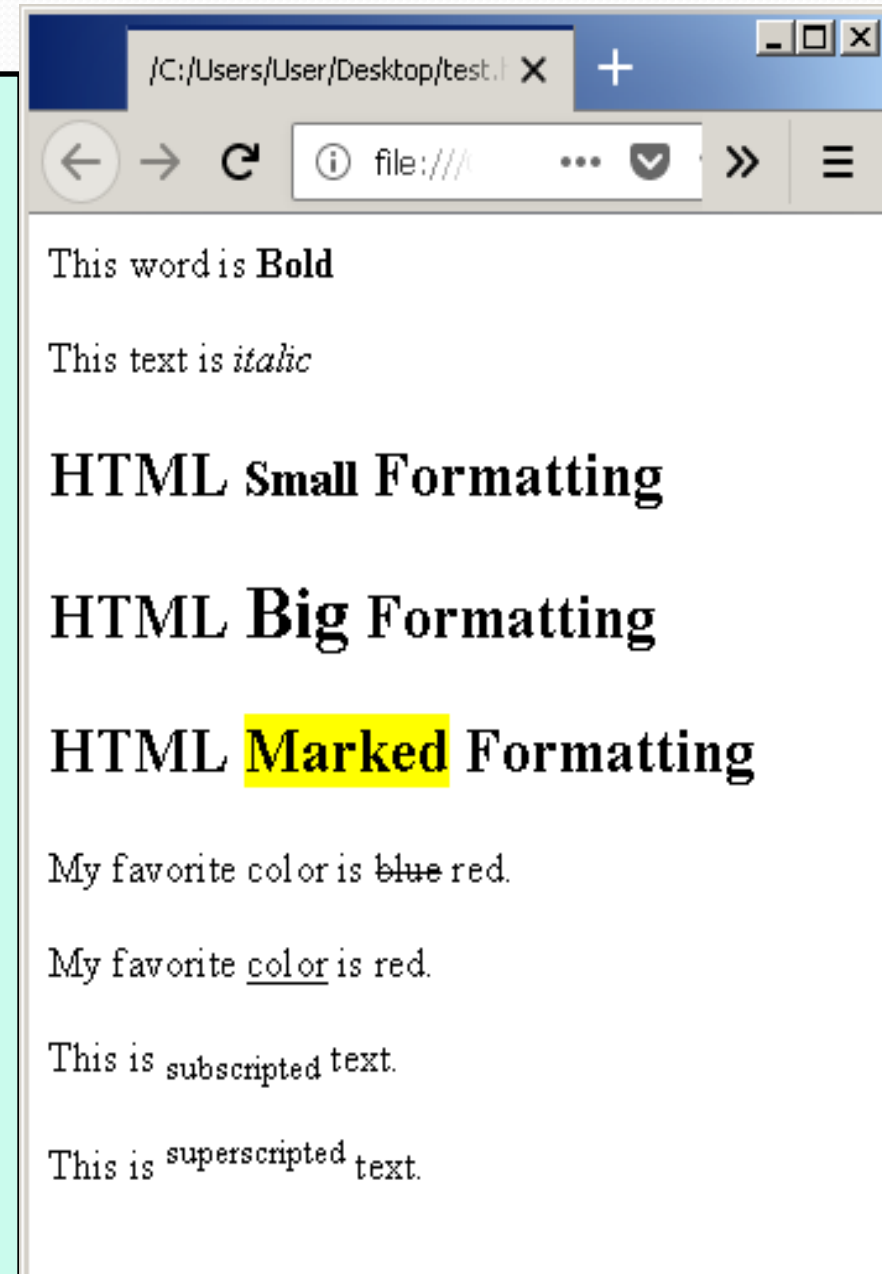
# Text Formatting Cont'd

- A Bigger text: `<big>...</big>` element defines big text.
- Marked or Highlighted text : `<mark>...</mark>`.
- Deleted (removed) text: `<del>... </del>`.
- Underline: `<u>...</u>`.
- Subscripted Text: `<sub>subscripted</sub>`
- Superscripted Text: `<sup>superscripted</sup>`



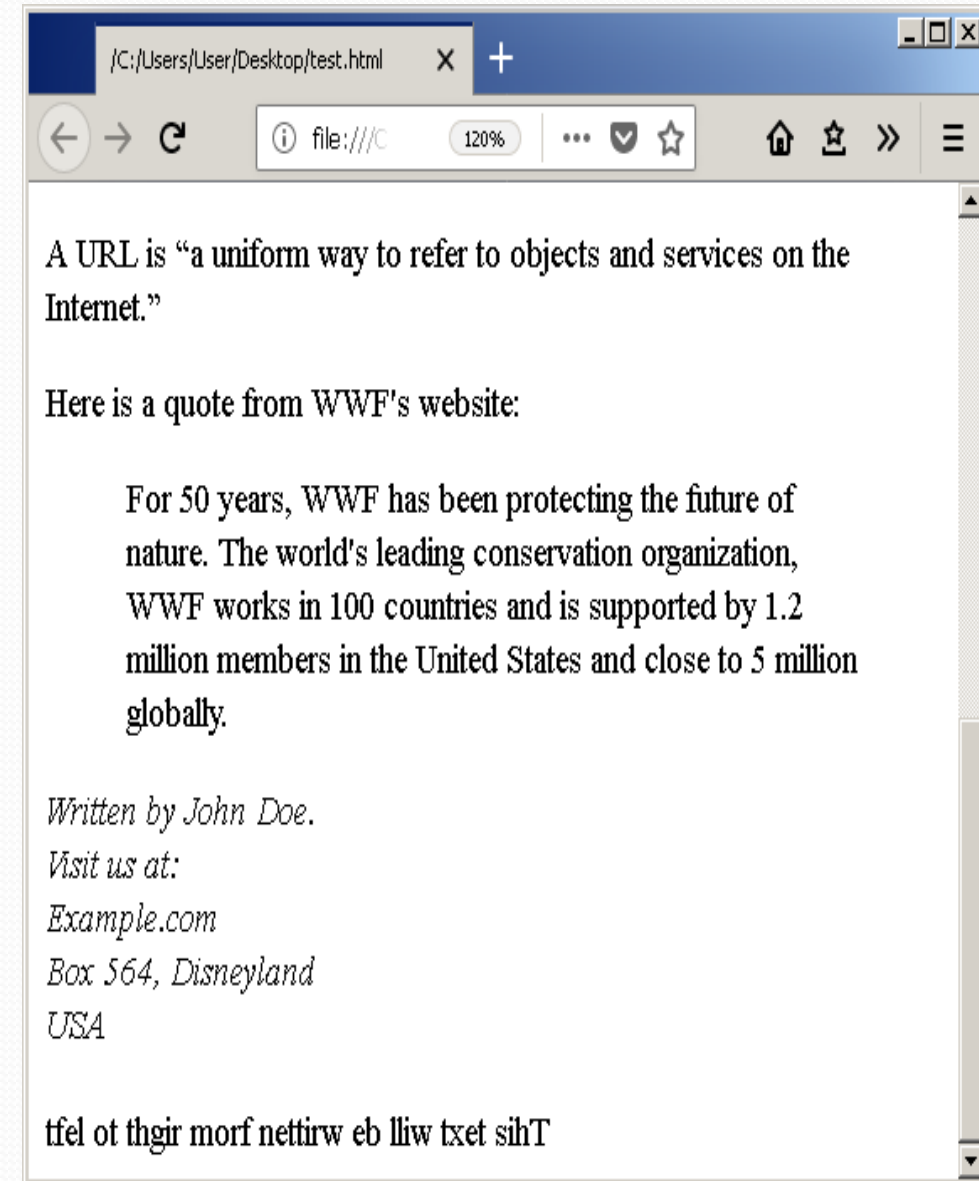
# Text Formatting Cont'd

```
<body>
<p>This word is <strong>Bold</strong></p>
<p>This text is <em>italic</em></p>
< h2 >HTML <small>Small</small> Formatting</h2>
< h2 >HTML <big>Big</big> Formatting</ h2 >
< h2 >HTML <mark>Marked</mark> Formatting</ h2 >
<p>My favorite color is <del>blue</del> red.</p>
<p>My favorite <ins>color</ins> is red.</p>
<p>This is <sub>subscripted</sub> text.</p>
<p>This is <sup>superscripted</sup> text.</p>
</body>
```



# Quotation and Citation Elements

- **Short Quotations:** `<q>...</q>`, browsers usually insert quotation marks "..." around the `<q>` element.
- **Long Quotations:** `<blockquote>... </blockquote>`
- **Contact Information:** `<address>... </address>`, it defines contact information (author/owner) of a document or article.
  - The text in the `<address>` element usually renders in *italic*. Most browsers will add a line break before and after the address element.
- **BiDirectional Override:** `<bdo>...</bdo>`, it used to override the current text direction.
  - Required: Specifies the text direction of the text inside the `<bdo>` element
  - `<bdo dir="rtl"> ...</bdo>` (right to left)
  - `<bdo dir="ltr"> ... </bdo>` (left to right)





# Block Elements

- The `<header>...</header>` and `<footer>...</footer>` elements can be used to markup the header and footer of a web page.
- The `<section>...</section>` element can be used to markup each content section in a document (such as each chapter of the book).
  - `<section id = "1">...</section>`
  - `<section id = "2">...</section>`
- The `<article>...</article>` element is used to markup an independent and self-contained article such as a news story, which could have its own header, footer and content sections.
- Main Content `<main>...</main>` it marks the main
  - content of a web page, excluding the header and footer. There shall NOT be more than one `<main>` element in a document.

```
<body>
<header>.....</header>

<main>

  <article>.....</article>

  <section>.....</section>

  <section>.....</section>

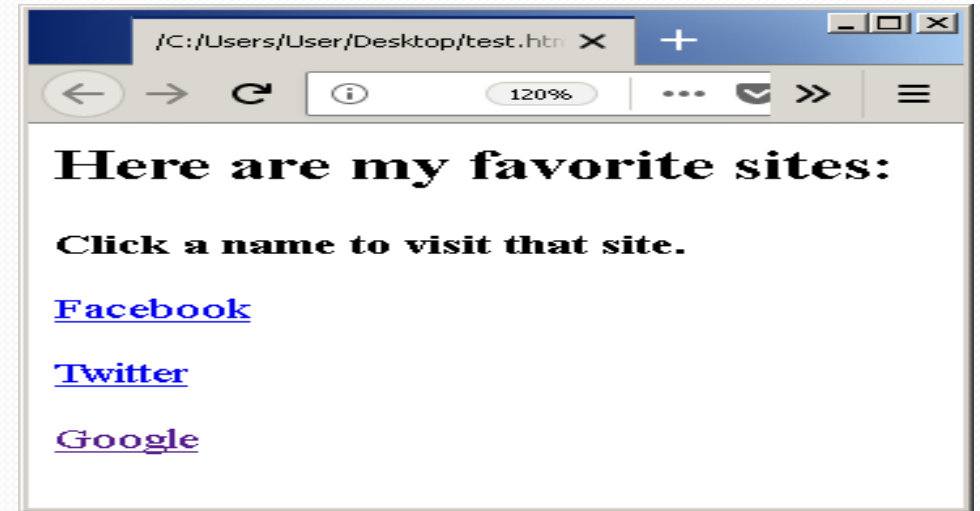
  <article>.....</article>

</main>

<footer>.....</footer>
</body>
```

# Anchors and Hyperlinks

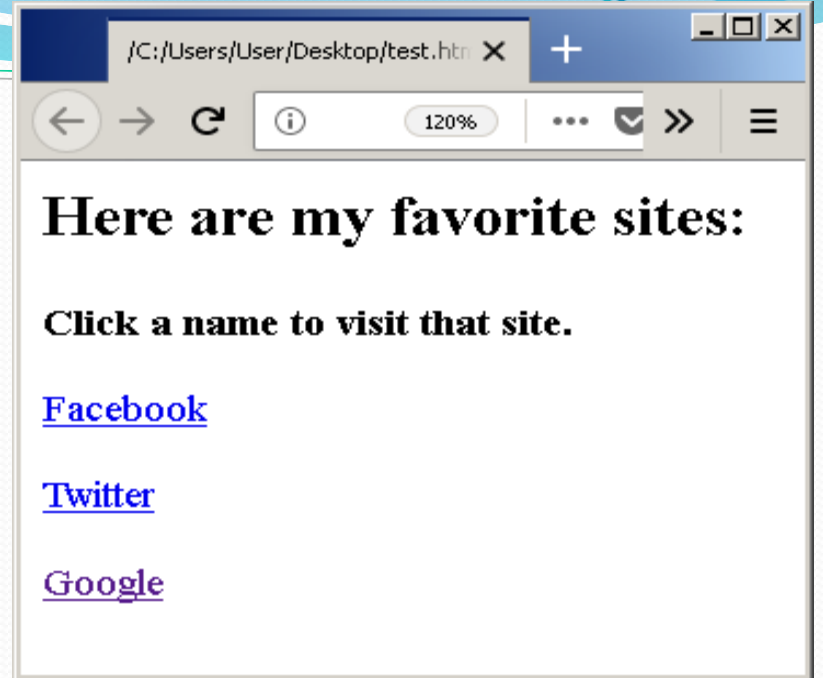
- **hyperlink**, is a reference (or links to) other resources, such as HTML documents and images.
- Web browsers typically underline text hyperlinks and color their text blue by default so that users can distinguish hyperlinks from plain text.
- The browser changes the color of any text link once you've clicked the link.



```
<body>
<h2>Here are my favorite sites:</h2>
<p><strong>Click a name to visit that
site. </strong></p>
<p><a href =
"www.facebook.com">Facebook</a></p>
<p><a href =
"www.twitter.com">Twitter</a></p>
<p><a href =
"www.google.com">Google</a></p>
</body>
```

# Anchors and Hyperlinks Cont'd

- links are defined with the `<a>..</a> tag.
  - <a href="url">link text</a>`
- Example :
  - `<a href="www.google.com">Google</a>`
- The **href** attribute specifies the destination address.
- The *link text* is the visible part (Google).
- *hyperlink* to the URL assigned to attribute **href**, which specifies a location, such as resource's
  - a web page or location within a web page.
  - a file.
  - an e-mail address.



```
<body>
<h2>Here are my favorite sites:</h2>
<p><strong>Click a name to visit that
site. </strong></p>
<p><a href =
"www.facebook.com">Facebook</a></p>
<p><a href =
"www.twitter.com">Twitter</a></p>
<p><a href =
"www.google.com">Google</a></p>
</body>
```



# Hyperlinking to an E-Mail Address

- Anchors can *link to e-mail addresses* using a **mailto:**URL.
- When the user clicks this type of anchored link, most browsers launch the user's default e-mail program (for example, Microsoft Outlook or Apple Mail).
- `<a href="mailto:help@zzz.com">Email Help</a>`



```
<body>  
<a  
href="mailto:help@zzz.com">  
Email Help</a>  
  
</body>
```

# Link to a Specific HTML Element

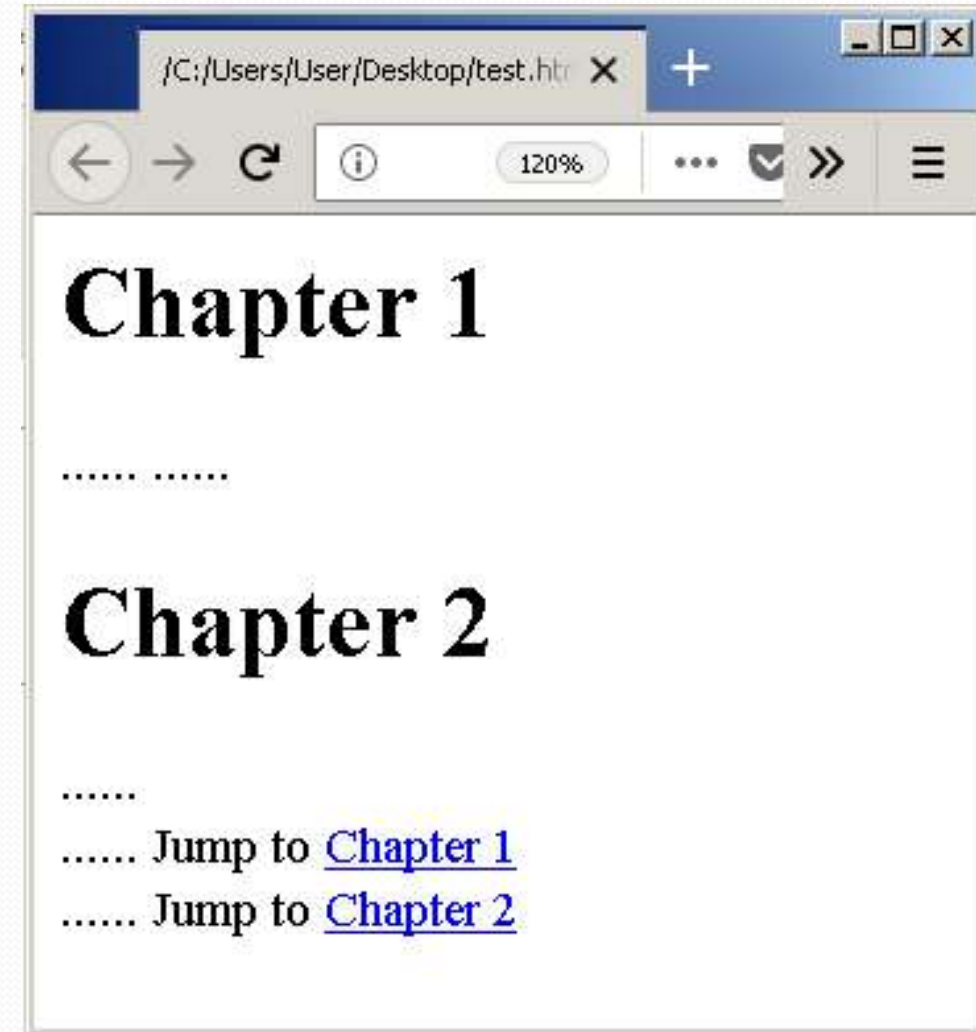
- You can setup a link to target a specific HTML element (typically a heading <h1> to <h6>), similar to bookmark, via:
- Define an **id="idName"** attribute for the targeted element.
- The **id** attribute is applicable to ALL HTML elements, including <h1> to <h6>.
- The **id-value** is supposed to be **unique** in the document (i.e., no two elements shall have the same id-value).

An anchor name (or bookmark) called **idname** will be set up automatically on the element.

- You can refer to the anchor point via **#idName**, by prefixing with a **#** sign.
- Setup a link targeting the anchor point as the following:
  - `<a href="#idName">...</a>` , for the same document.
  - `<a href="url#idName">...</a>` , for the anchor point in another document identified via url.

# Link to a Specific HTML Element Cont'd

```
<body>
<h1 id="ch1">Chapter 1</h1>
.....
.....
<h1 id="ch2">Chapter 2</h1>
.....<br>
.....
Jump to <a href="#ch1">Chapter 1</a><br>
.....
Jump to <a href="#ch2">Chapter 2</a>
</body>
```



# Image

- **Image Tag <img>**

Example: ``

Attributes:

- **src**="imageUrl" (required): gives the URL of the image.
- **alt**="text" (required): alternative text to be displayed if the image cannot be displayed.
- **width**="n|n%", **height**="n|n%": specify the width and height of the image display area (in pixels or percentage).
  - Browsers use these values to reserve space for the image (before the image is downloaded) and continue rendering the rest of the contents.
  - Using of the width and height tags is recommended for images, so that the browser can reserve spaces for the images. This is more efficient and could avoid a jerky display if you page contains many images.
  - You can find out the width and height of an image easily by checking the "Properties" of the image.

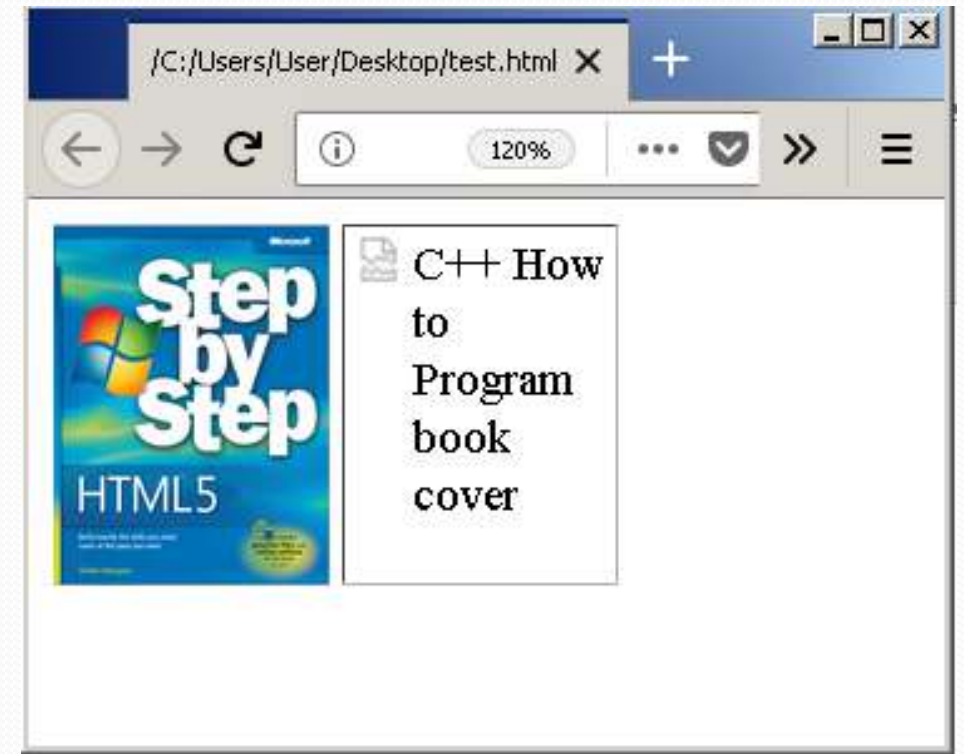
# Image example

```
<body>

<img src = "ebook1.png" width = "92"
height = "120"
alt = "Step by Step HTML5">

<img src =
"www.amazon.com/ebook2.png" width =
"92" height = "120"
alt = "C++ How to Program book cover">

</body>
```



- ❖ This first image is located in the *same* directory as the HTML document, so only the image's file name is required.
- ❖ The second image is not available, thus the alternative text was displayed.

# Using Image as Hyperlink

- To use an image as a hyperlink, put the image tag `<img>` between `<a href="url">` and `</a>`.
- For example:

```
<body>  
  
<a href="http://abc.com/">  
    
</a>  
<p>click the above image to visit us</p>  
</body>
```





# Lists

- List-related tags are meant for marking up a list of items.
- HTML supports three types of lists:

- 1) **Ordered list**
- 2) **Unordered list**
- 3) **Definition list.**

1. **Unordered list** is shown with a bullet in front of each item. The `<ul>...</ul>` contains an unordered list. Each of items in the list is enclosed in `<li>...</li>`.

✓ An attribute **type** in `<ul>` tag is used to choose the style of the bullets:

- **type**="disc": a black dot (default).
- **type**="circle": an empty circle.
- **type**="square": a filled square.

```
<body>
<ul>
  <li type="disc" >list-1</li>
  <li type=" circle " >list-
2</li>
  <li type=" square " >list-
3</li>
</ul>
```



# Lists Cont'd

- ✓ A **style** attribute can be also added to an **unordered list**, to define the style of the marker as the following:

`<ul style="list-style-type:disc">`

Style	Description
list-style-type:disc	The list items will be marked with bullets (default)
list-style-type:circle	The list items will be marked with circles
list-style-type:square	The list items will be marked with squares
list-style-type:none	The list items will not be marked



# Lists Cont'd

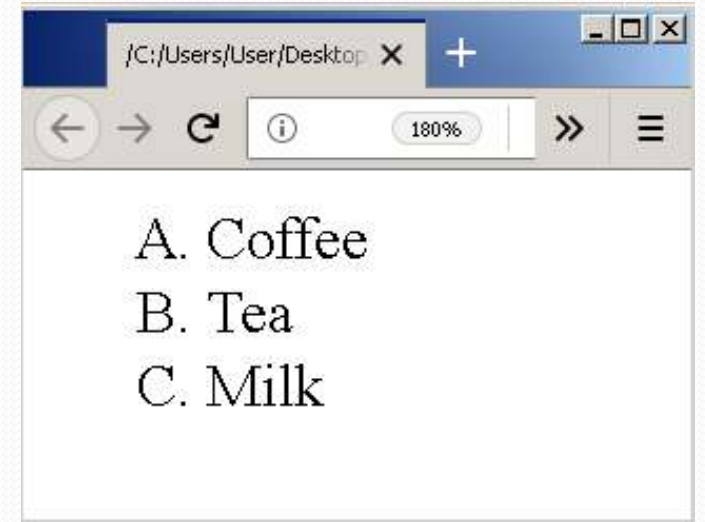
2. **Ordered List** `<ol>...</ol>` Items in an ordered list are numbered automatically by the browser. Each item of the list is contained inside a `<li>...</li>` container tag. The syntax is similar to the unordered list.

The attribute `start="number"` can be used in the `<ol>` tag to specify the starting number (which default to 1).

The type attribute of the `<ol>` tag can be used to choose the numbering style:

- ❑ `type="1"`: numbers 1, 2, 3, ... (default)
- ❑ `type="a"`: lowercase letters a, b, c, ...
- ❑ `type="A"`: uppercase letters A, B, C, ...
- ❑ `type="i"`: lowercase Roman numerals i, ii, iii, iv, ...
- ❑ `type="I"`: uppercase Roman numerals I, II, III, IV, ...

```
<body>
  <ol type="A">
    <li>Coffee</li>
    <li>Tea</li>
    <li>Milk</li>
  </ol>
</body>
```



# Lists Cont'd

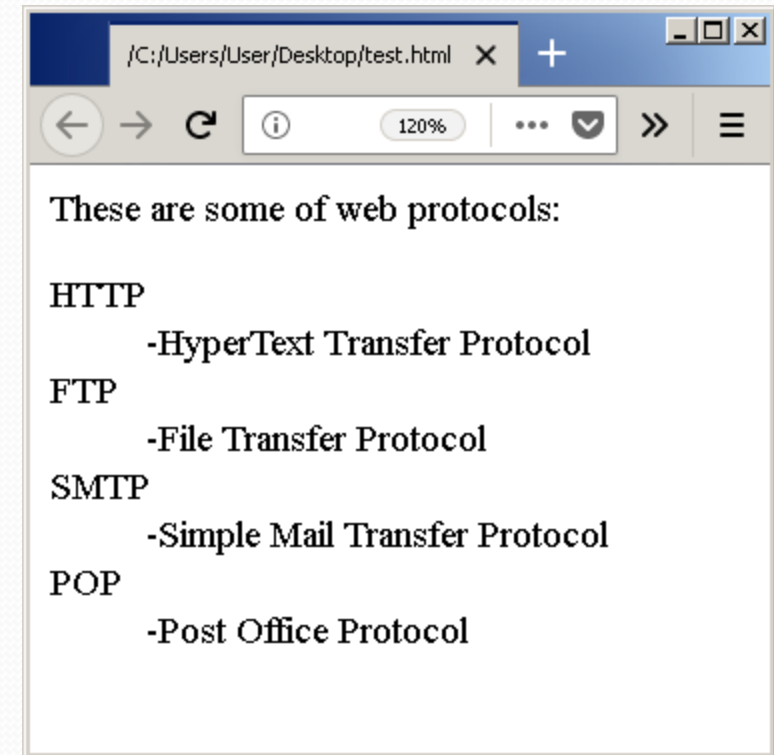
3. **Description Lists** is a list of terms, with a description of each term.

The `<dl> ... </dl>` tag defines the description list.

The `<dt>... </dt>` tag defines the term (name).

The `<dd>... </dd>` tag describes Detail.

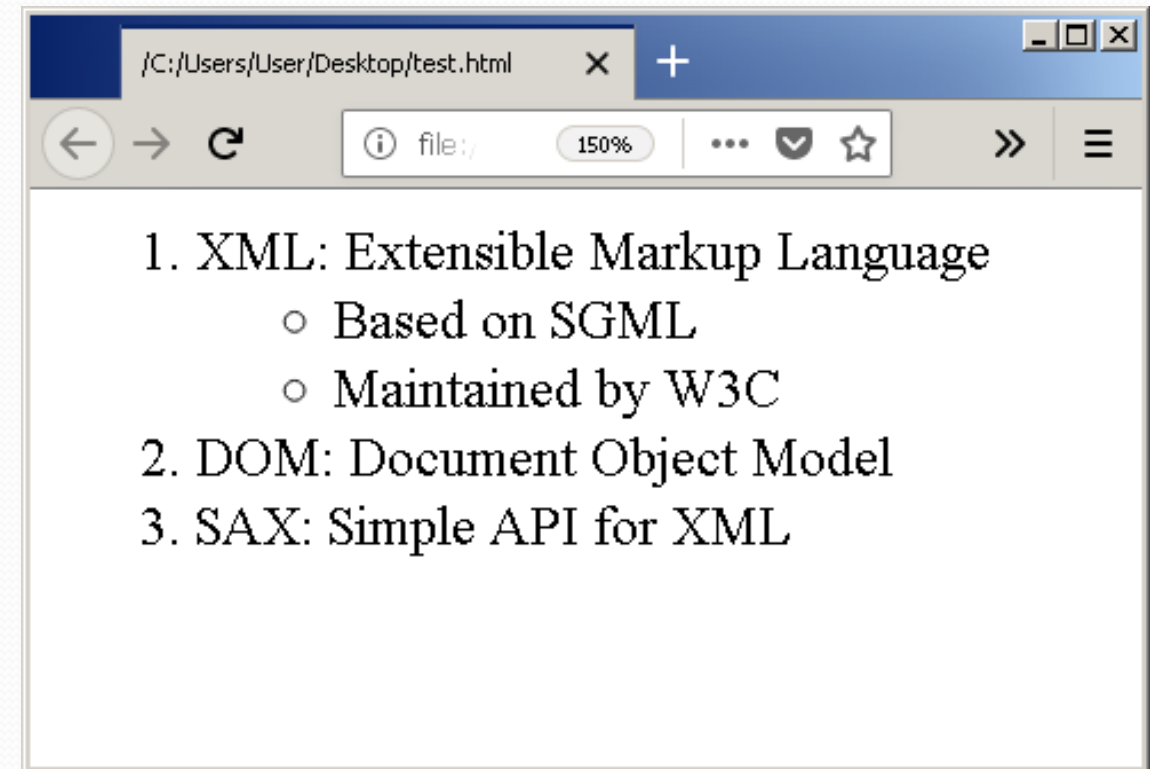
```
<body>
<p>These are some of web protocols:</p>
<dl>
  <dt>HTTP</dt><dd>-HyperText Transfer Protocol</dd>
  <dt>FTP</dt><dd>-File Transfer Protocol</dd>
  <dt>SMTP</dt><dd>-Simple Mail Transfer Protocol</dd>
  <dt>POP</dt><dd>-Post Office Protocol</dd>
</dl>
</body>
```



# Nested Lists

Lists can be *nested* to represent *hierarchical* relationships, as in a multilevel outline (place a list inside another list).

```
<body>
<ol>
  <li>XML: Extensible Markup Language
    <ul>
      <li>Based on SGML</li>
      <li>Maintained by W3C</li>
    </ul>
  </li>
  <li>DOM: Document Object Model</li>
  <li>SAX: Simple API for XML</li>
</ol>
</body>
```



# Reserved & Special Characters

Character	Entity Reference
"	&quot;
<	&lt;
>	&gt;
&	&amp;
non-breaking space	&nbsp;
→ ⇒ ↔ ⇔	&rarr; &rArr; &harr; &hArr;
° (degree)	&deg;
© ® € ¢ ¥	&copy; &reg; &euro; &cent; &yen;
~	&tilde;
× ± ∞	&times; &plusmn; &infin;
π Π σ Σ ω Ω	&pi; &Pi; &sigma; &Sigma; &omega; &Omega;
≥ ≤ ≡ ≈	&ge; &le; &equiv; &asymp;
⊂ ⊃ ⊆ ⊇ ∈	&sub; &sup; &sube; &supe; &isin;

## Lec-4

- Introduction To **C**ascading  
**S**tyl**S**heets (**CSS**)

# Introduction to **C**ascading **S**tyle **S**heets

- A *Style Sheet* is a collection of style rules that can be applied to a selected set of HTML elements.
- A style rule is used to control the appearance of HTML elements such as their **font properties** (e.g., type face, size and weight), **color properties** (e.g., background and foreground colors), **alignment**, **margin**, **border**, **padding**, and **positioning**.
- The word *cascading* means that multiple style rules can be applied to the same HTML element.

# CSS Specifications

- The W<sub>3</sub>C (World-Wide Web Consortium) defines three CSS levels:
  - 1) **CSS Level 1** (December 1996): CSS1 laid the ground work and introduced the selectors and most of the properties.
  - 2) **CSS Level 2** (May 1998) and CSS Level 2.1 (Last revised on June 2011): CSS2 added new features such as targeting devices and printers, and absolute positioning.
  - 3) **CSS Level 3**: **CSS3** is not a single piece of specification. As CSS grows, W<sub>3</sub>C decided to break it into modules, such as the Selectors module, the Values and Units Modules, the Box Alignment module, and so on. Each module is then developed independently. The CSS3 Selectors module (@ <http://www.w3.org/TR/selectors/>) and CSS3 Colors module (@ <http://www.w3.org/TR/css3-color/>).

# First Example

A CSS style sheet provides style rules to HTML documents. The example below shows how to apply **style** attribute to an HTML element `<h1>`.

