



# ***Lecture 01: HTML Fundamentals***



# ***Learning Goals***

After this course, trainee will be able to:

- Understand about HTML language
- Understand HTML tags
- Create website by HTML



# ***Table of contents***

- Introduction to HTML
- HTML syntax
- Basic HTML Tags
- Using Table and Frames
- Using Forms



# ***Trainee's missions***

To complete this course and achieve goals, trainees must:

- ▶ **Read Lecture, Reference**
- ▶ **Do Exercises**
- ▶ **Take quiz**
- ▶ **Complete Assignment**



# ***HTML Introduction***

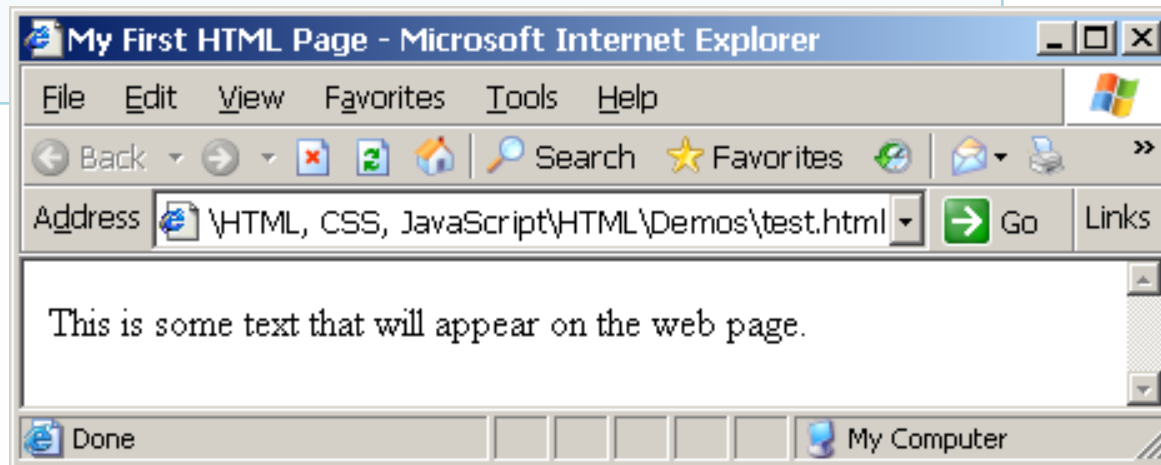
- HTML is a MARKUP language
- Using HTML tags and elements, we can:
  - Control the appearance of the page and the content
  - Publish online documents and retrieve online information using the links inserted in the HTML document
  - Create on-line forms. These forms can be used to collect information about the user, conduct transactions, and so on

# HTML Page Format

(1)

```
<!DOCTYPE HTML>  
<html>  
  <head>  
    <title>My First HTML Page</title>  
  </head>  
  <body>  
    <p>This is some text...</p>  
  </body>  
</html>
```

(2)





# Tags in HTML

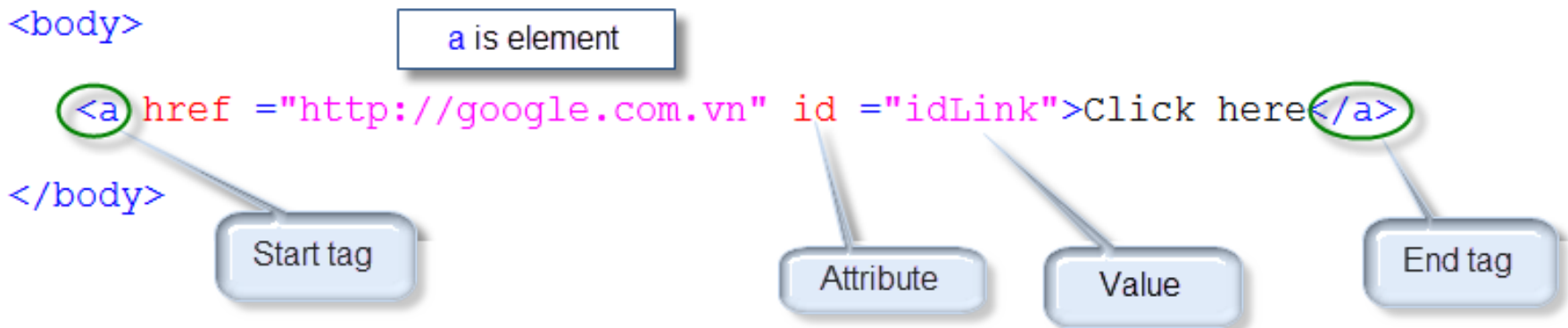
Each tag in HTML start with start tag and finish by close tag

## HTML consist of:

Element - identifies the tag

Attribute - describes the tag

Value - the content that is assigned to the attribute





# *HTML Elements*

- An HTML element is everything from the start tag to the end tag:

start tag *	Element content	End tag *
<p>	This is a paragraph	</p>
<a href="default.htm">	This is a link	</a>

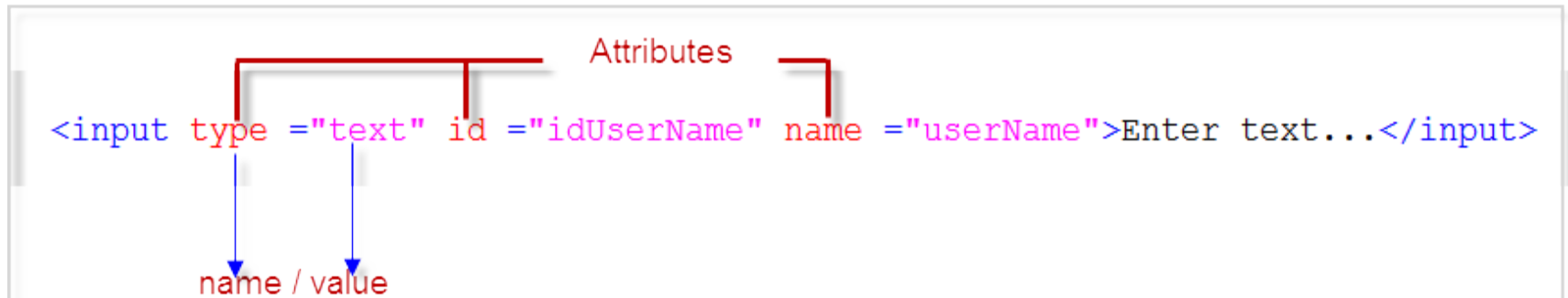
p, a, br are element





# HTML Attributes

- Attributes provide **additional information** about an element
- Attributes are always specified in **the start tag**
- Attributes come in name/value pairs like: **name="value"**



Attribute	Value	Description
class	<i>classname</i>	Specifies a classname for an element
id	<i>id</i>	Specifies a unique id for an element
style	<i>style_definition</i>	Specifies an inline style for an element
title	<i>tooltip_text</i>	Specifies extra information about an element (displayed as a tool tip)



# ***HTML BASIC TAGS***

- Heading
- Paragraph
- Preformatted
- Color & Font
- Order list
- Hyperlink
- Image tag

# Headings tag

Are used to define **HTML headings**, includes six levels of document **headings**:

`<H1 ...> text H1 </H1>` -- largest of the six

`<H2 ...> text H2</H2>`

`<H3 ...> text H3</H3>`

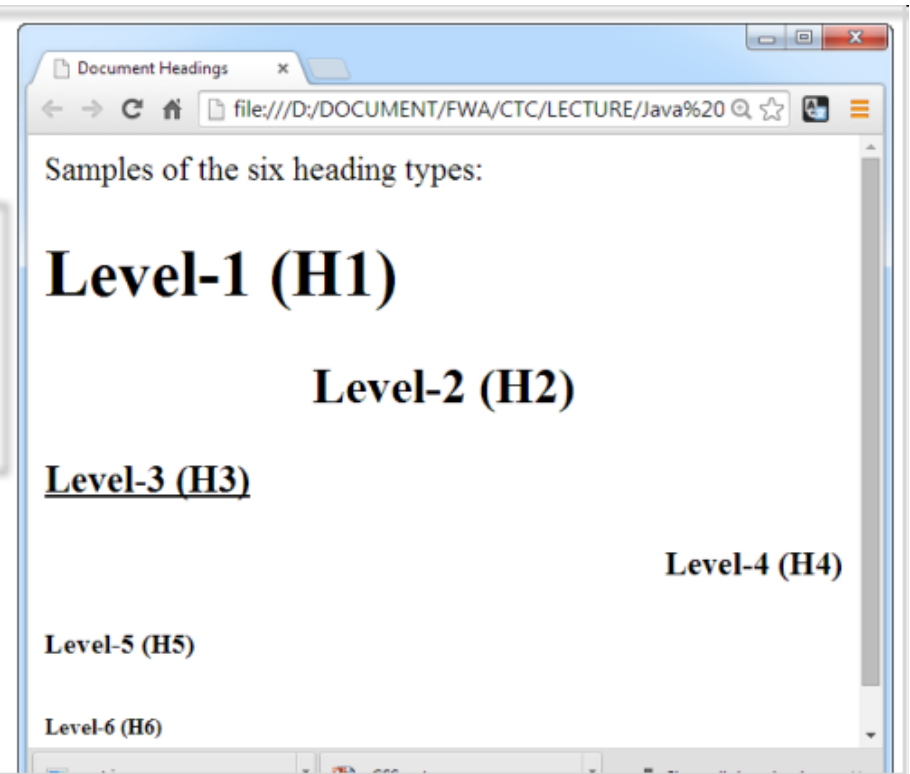
`<H4 ...> text H4</H4>`

`<H5 ...> text H5</H5>`

`<H6 ...> text H6</H6>` -- smallest of the six

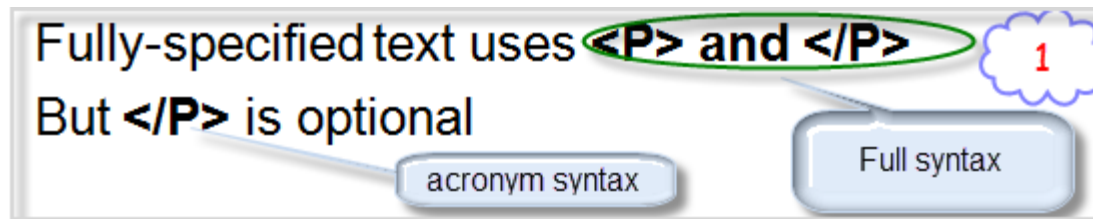
```
<HTML>
<HEAD>
  <TITLE>Document Headings</TITLE>
</HEAD>
<BODY>
  Samples of the six heading types:
  <H1>Level-1 (H1)</H1>
  <H2 ALIGN="center">Level-2 (H2)</H2>
  <H3><U>Level-3 (H3)</U></H3>
  <H4 ALIGN="right">Level-4 (H4)</H4>
  <H5>Level-5 (H5)</H5>
  <H6>Level-6 (H6)</H6>
</BODY>
</HTML>
```

*ALIGN="position" with value: left (default), center or right*



# <P> Paragraph tag

- <P> defines a paragraph
- Add ALIGN="position" (left, center, right)
- Multiple <P>'s do not create blank lines



```
<HTML>
<HEAD>
  <TITLE></TITLE>
</HEAD>
<BODY>
  <P>Here is some text </P>
  <P ALIGN="center"> Centered text </P>
  <P><P><P>
  <P ALIGN="right"> Right-justified text
  <!-- Note: no closing /P tag is not a problem -->
</BODY>
</HTML>
```

2

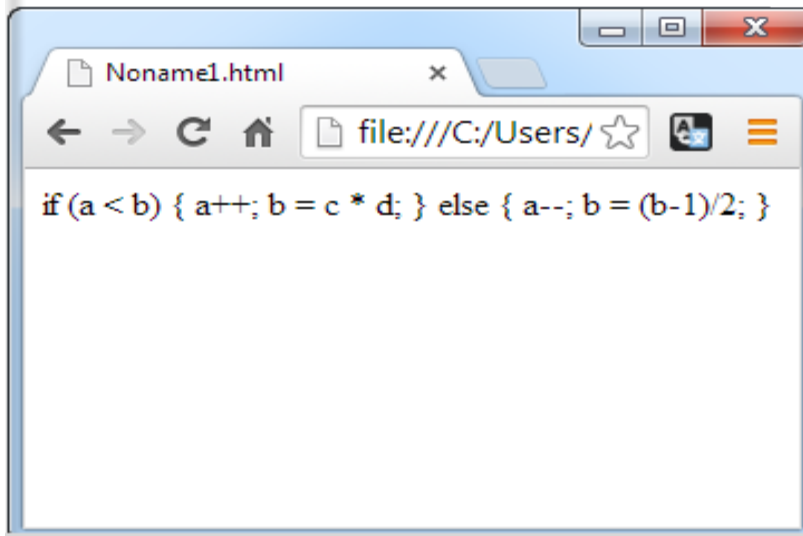


# <PRE> Preformatted Tag

Preformatted text between the start and end PRE tag is rendered using a fixed with font, in addition whitespace characters are treated literally.

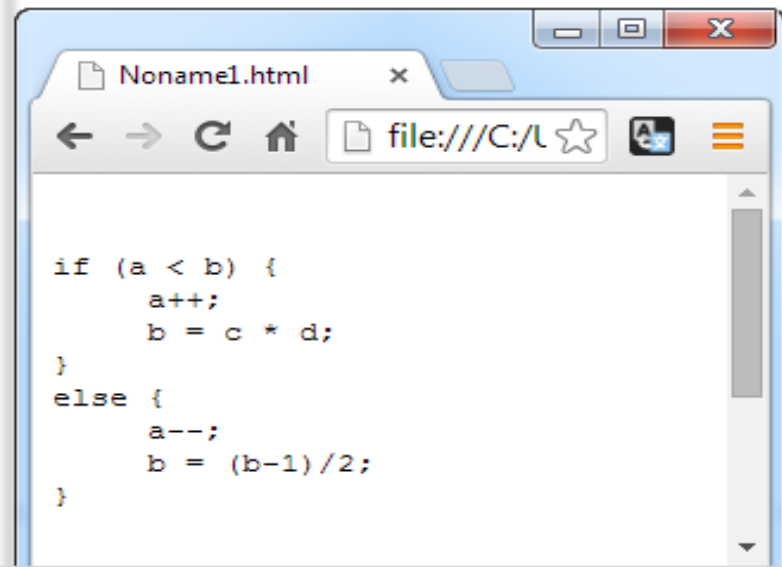
```
<body>
  if (a < b) {
    a++;
    b = c * d;
  }
  else {
    a--;
    b = (b-1)/2;
  }
</body>
```

not using <PRE> tag



```
<PRE>
  if (a < b) {
    a++;
    b = c * d;
  }
  else {
    a--;
    b = (b-1)/2;
  }
</PRE>
```

Using <PRE> tag



# HyperLinks <a> tag

Is used to link from one page to another

Syntax: **<A HREF =“URL”>Content</A>**

## Link to an absolute URL:

1

If you get spam, contact **<A HREF="http:www.microsoft.com">**  
Microsoft **</A>** to report the problem.

## Link to a relative URL:

2

See these **<A HREF="#references">** references **</A>**  
concerning our fine products.

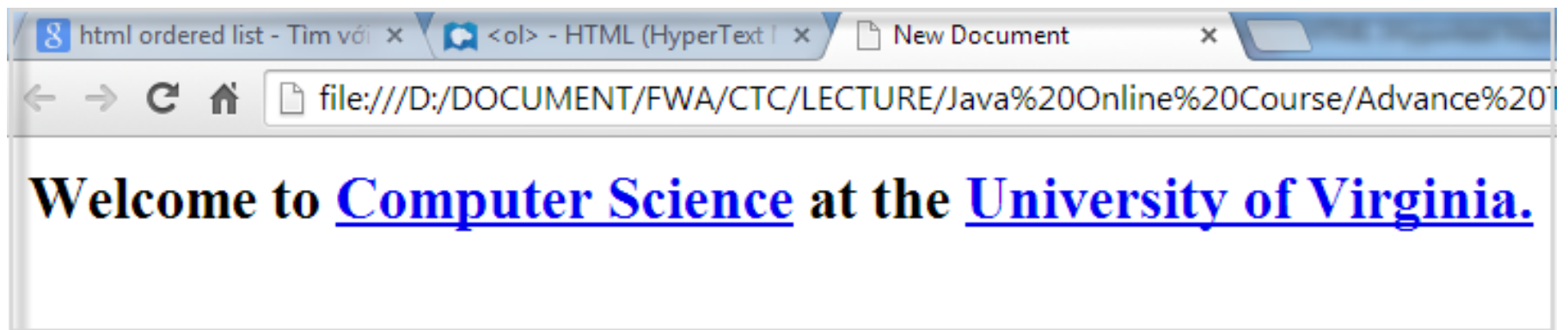
## Link to a section within a URL:

3

Amazon provided a **<A HREF="www.amazon.com/#reference">**  
reference for our company. **</A>**

# Hyperlink Example

```
<html>
  <head>
    <title> New Document </title>
  </head>
  <body>
    <BODY>
      <H3>Welcome to <A HREF="http://www.cs.virginia.edu">
      <STRONG>Computer Science</STRONG></A>
      at the <A HREF="www.virginia.edu">University of Virginia.</A>
      </H3>
    </BODY>
  </body>
</html>
```



# Images tag

- To display image on web page
- Syntax: **<img src =“URL” width =“...” height =“...” align =“...”/>**
  - SRC is required
  - WIDTH, HEIGHT may be in units of pixels or percentage of page or frame
- Images scale to fit the space allowed

Align=position	Image/Text Placement
Left	Image on left edge; text flows to right of image
Right	Image on right edge; text flows to left
Top	Image is left; words align with top of image
Bottom	Image is left; words align with bottom of image
Middle	Words align with middle of image



# Images tag Example

cat - Tim với Google x <ol> - HTML (HyperText | x New Document x

file:///D:/DOCUMENT/FWA/CTC/LECTURE/Java%20Online%20Course/Advance%20Tech%20Java%20Basic/Unit01\_HTML%20&%20CS

```
<html>
<head>
<title> Images Tag </title>
</head>
<body>
<BODY>

  This is a very cute cat on the left!<br>
  This is a very cute cat on the left!<br>
  You can see text wrap around it<br>
</BODY>
</body>
</html>
```

align = "left"

align = "bottom"

align = "right"

Images Tag x

file:///D:/DOCUMENT/FWA/CTC/LECTURE/Jav

This is a very cute cat on the left!  
This is a very cute cat on the left!  
You can see text wrap around it

cat.jpg Show all downloads...

Images Tag x

file:///D:/DOCUMENT/FWA/CTC/LECTURE/Jav

This is a very cute cat on the left!  
This is a very cute cat on the left!  
You can see text wrap around it

cat.jpg Show all downloads...

Images Tag x

file:///D:/DOCUMENT/FWA/CTC/LECTURE/.

This is a very cute cat on the left!  
This is a very cute cat on the left!  
You can see text wrap around it

cat.jpg Show all downloads...

# Ordered Lists

Use to order list of items by Numbered or Bulleted

The diagram illustrates the relationship between HTML list tags and their rendered output. It is divided into two main sections: '1 Numbered' and '2 Bulleted'.

**Section 1: Numbered**

**HTML Code:**

```
<html>
<head>
  <title> New Document </title>
</head>
<body>
  <OL TYPE="1">
    <LI> Item one </LI>
    <LI> Item two </LI>
    <OL TYPE="I">
      <LI> Sublist item one </LI>
      <LI> Sublist item two </LI>
      <OL TYPE="i">
        <LI> Sub-sublist item one </LI>
        <LI> Sub-sublist item two </LI>
      </OL>
    </OL>
  </OL>
</body>
</html>
```

**Rendered Output:**

- 1. Item one
- 2. Item two
- I. Sublist item one
- II. Sublist item two
- i. Sub-sublist item one
- ii. Sub-sublist item two

**Section 2: Bulleted**

**HTML Code:**

```
<UL TYPE="disc">
  <LI> One </LI>
  <LI> Two </LI>
  <UL TYPE="circle">
    <LI> Three </LI>
    <LI> Four </LI>
    <UL TYPE="square">
      <LI> Five </LI>
      <LI> Six </LI>
    </UL>
  </UL>
</UL>
```

**Rendered Output:**

- One
- Two
- Three
- Four
- Five
- Six

Arrows indicate the mapping from the HTML tags to the rendered list items. Red arrows highlight the main list types (Numbered and Bulleted), while blue arrows show the nesting of sublists.

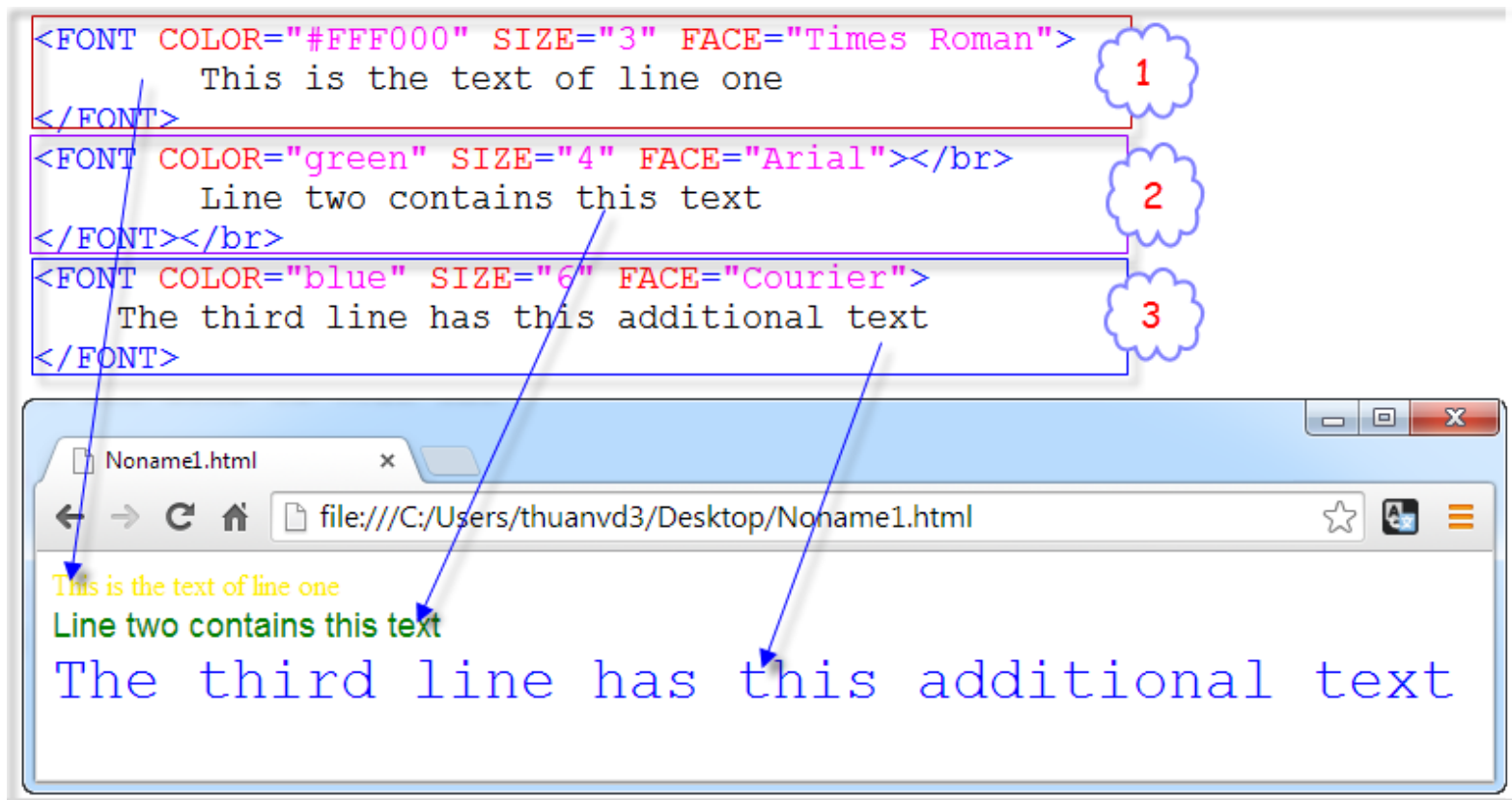
# Fonts

**Fonts:** indicates size of text by SIZE attribute

COLOR attribute: Values for COLOR of text

- All colors can be specified as a six character hexadecimal value: RRGGBB
- Ex: FF0000: **red**, 888888 – **gray**, 004400: **dark green**, FFFF00 – **yellow**

FACE attribute: format for text style



# Special Characters

Help for HTML recognizes and displays special characters

Character	Use
<	&lt;
>	&gt;
&	&amp;
"	&quot;
Space	&nbsp;

The diagram illustrates the rendering of HTML special characters. On the left, a code editor shows the following HTML structure:

```
1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
2 <html>
3 <head>
4   <title> New Document </title>
5 </head>
6
7 <body>
8     &lt; </br>
9     &gt; </br>
10    &amp; </br>
11    &quot; </br>
12    &nbsp; </br>
13 </body>
14 </html>
15
```

A red box highlights the special character entities in the body section. A blue arrow points from this box to a browser window on the right. The browser window shows the rendered output of these entities:

<  
>  
&  
"

A cloud with the number '2' is positioned above the browser window, indicating the final display result.

# Physical Character Styles

To indicate exactly how text is to be formatted. For example Bold, Underline.

The image displays the relationship between HTML code and its visual rendering. On the left, a code editor shows the HTML source for a file named 'table.html'. The code uses various HTML tags to apply physical character styles. On the right, a web browser window shows the rendered output of this code. A red arrow points from the code to the corresponding rendered text.

**HTML Code (Left):**

```
<HTML>
<HEAD>
  <TITLE></TITLE>
</HEAD>
<BODY>
  <H1>Physical Character Styles</H1>
  <B>Bold</B><BR>
  <I>Italic</I><BR>
  <TT>Teletype (Monospaced)</TT><BR>
  <U>Underlined</U><BR>
  Subscripts: f<SUB>0</SUB> + f<SUB>1</SUB><BR>
  Superscripts: x<SUP>2</SUP> + y<SUP>2</SUP><BR>
  <SMALL>Smaller</SMALL><BR>
  <BIG>Bigger</BIG><BR>
  <STRIKE>Strike Through</STRIKE><BR>
  <B><I>Bold Italic</I></B><BR>
  <BIG><TT>Big Monospaced</TT></BIG><BR>
  <SMALL><I>Small Italic</I></SMALL><BR>
  <FONT COLOR="GRAY">Gray</FONT><BR>
  <DEL>Delete</DEL><BR>
  <INS>Insert</INS><BR>
</BODY>
</HTML>
```

**Rendered Output (Right):**

Physical Character Styles

**Bold**  
*Italic*  
Teletype (Monospaced)  
Underlined  
Subscripts:  $f_0 + f_1$   
Superscripts:  $x^2 + y^2$   
Smaller  
Bigger  
~~Strike Through~~  
***Bold Italic***  
Big Monospaced  
*Small Italic*  
Gray  
~~Delete~~

# Logical Character Styles

To indicate the way text is used. For example Emphasis, Citation, Definition.

The image shows a screenshot of an HTML editor window. The editor has a title bar with navigation icons and a file path: `file:///D:/DOCUMENT/FWA/CTC/LECTURE/Java%20C`. The main area contains HTML code for a document titled "New Document". The code defines a series of logical character styles: `<H1>`, `<EM>`, `<STRONG>`, `<CODE>`, `<SAMP>`, `<KBD>`, `<DFN>`, `<VAR>`, `<CITE>`, and `<ACRONYM>`. Some styles are nested, like `<EM><CODE>`. The code ends with `</body>` and `</html>`. A red arrow points from the `<H1>` tag in the code to the rendered output. The rendered output is a preview of the HTML document, showing the title "Logical Character Styles" in a large, bold, black serif font. Below the title, the text is rendered according to the styles defined in the code: "Emphasized" (italic), "Strongly Emphasized" (bold), "Code" (monospace), "Sample Output" (monospace), "Keyboard Text" (monospace), "Definition" (italic), "Variable" (italic), "Citation" (italic), "Emphasized Code" (italic), "Gray Citation" (italic), and "JDK Acronym" (monospace).

```
<html>
<head>
  <title> New Document </title>
</head>

<body>
  <H1>Logical Character Styles</H1>
  <EM>Emphasized</EM><BR>
  <STRONG>Strongly Emphasized</STRONG><BR>
  <CODE>Code</CODE><BR>
  <SAMP>Sample Output</SAMP><BR>
  <KBD>Keyboard Text</KBD><BR>
  <DFN>Definition</DFN><BR>
  <VAR>Variable</VAR><BR>
  <CITE>Citation</CITE><BR>
  <EM><CODE>Emphasized Code</CODE></EM><BR>
  <FONT COLOR="GRAY"><CITE>Gray Citation</CITE></FONT><BR>
  <ACRONYM TITLE="Java Development Kit">JDK Acronym</ACRONYM>

</body>
</html>
```

## Logical Character Styles

*Emphasized*  
**Strongly Emphasized**  
Code  
Sample Output  
Keyboard Text  
*Definition*  
*Variable*  
*Citation*  
*Emphasized Code*  
*Gray Citation*  
JDK Acronym

# Table tag

To draw table on web page, includes tags bellow here:

`<TABLE>`      table tag  
`<CAPTION>`   optional table title  
`<TH>`          table column header  
`<TR>`          table row  
`<TD>`          table data element

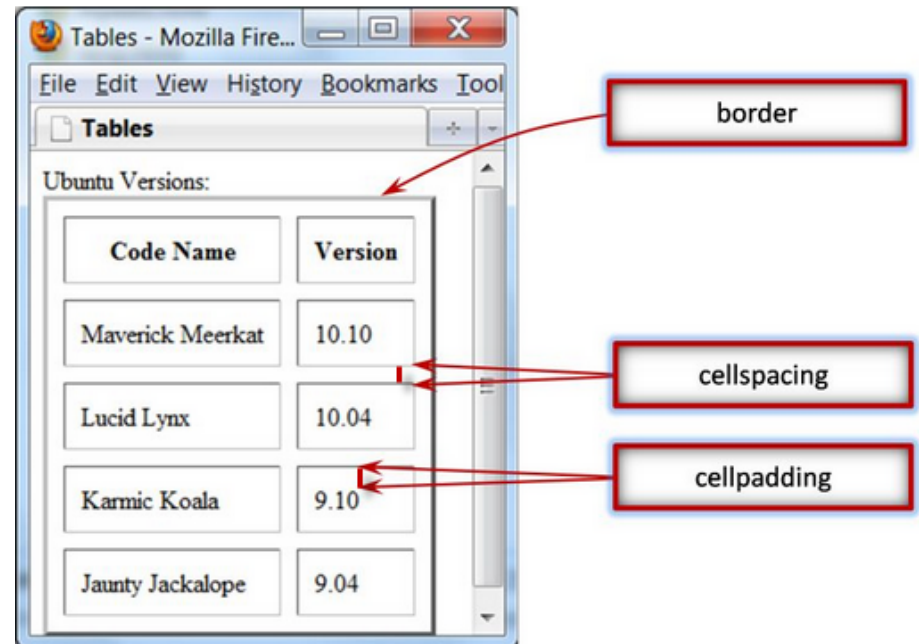
```
<HTML>
<HEAD>
  <TITLE> Images Tag </TITLE>
</HEAD>
<BODY>
  <TABLE BORDER=1>
    <CAPTION>Table Caption</CAPTION>
    <TR><TH>Heading1</TH>      <TH>Heading2</TH></TR>
    <TR><TD>Row1 Col1 Data</TD><TD>Row1 Col2 Data</TD></TR>
    <TR><TD>Row2 Col1 Data</TD><TD>Row2 Col2 Data</TD></TR>
    <TR><TD>Row3 Col1 Data</TD><TD>Row3 Col2 Data</TD></TR>
  </TABLE>
</BODY>
</HTML>
```

Heading1	Heading2
Row1 Col1 Data	Row1 Col2 Data
Row2 Col1 Data	Row2 Col2 Data
Row3 Col1 Data	Row3 Col2 Data

# <TABLE> Element Attributes

- ALIGN=*position* -- left, center, right for table
- BORDER=*number* -- width in pixels of border (including any cell spacing, default 0)
- CELSPACING=*number* -- spacing in pixels between cells, default about 3
- CELLPADDING=*number* -- space in pixels between cell border and table element, default about 1
- WIDTH, HEIGHT=*number*[%]-- width or height in pixels or percentage of page/frame width

```
<TABLE BORDER=1 style  
="cellspacing=10; cellpadding=20 "  
align="center" with ="60%">  
  <TR>  
    <TD></TD>  
  </TR>  
</TABLE>
```





# <TR>, <TD> Attributes

## <TR> Attributes:

- **ALIGN** -- left, center, right
- **VALIGN** -- top, middle, bottom
- **BGCOLOR** -- background color

## <TD> Attributes:

- **colspan**: how many columns this cell occupies
- **rowspan** – how many rows this cell occupies

The diagram illustrates the relationship between HTML code and its visual output in a web browser. It is divided into two main sections, labeled 1 and 2.

**Section 1: <TR> Attributes**

This section shows a code editor with the following HTML code:

```
<HTML>
<BODY>
  <TABLE ALIGN="center" WIDTH="300" HEIGHT="200">
    <TR ALIGN="left" VALIGN="top" BGCOLOR="red">
      <TD>One</TD><TD>Two</TD>
    </TR>
    <TR ALIGN="center" VALIGN="middle" BGCOLOR="lightblue">
      <TD>Three</TD><TD>Four</TD>
    </TR>
    <TR ALIGN="right" VALIGN="bottom" BGCOLOR="yellow">
      <TD>Five</TD><TD>Six</TD>
    </TR>
  </TABLE>
</BODY>
</HTML>
```

The browser view on the right shows the rendered table with three rows and two columns. The first row has a red background, the second row has a light blue background, and the third row has a yellow background. The cells contain the text "One", "Two", "Three", "Four", "Five", and "Six".

**Section 2: <TD> Attributes**

This section shows a code editor with the following HTML code:

```
<TABLE ALIGN="center" WIDTH="300" HEIGHT="200" border="1">
  <TR>
    <TD colspan="1" rowspan="2">a</TD>
    <TD colspan="1" rowspan="1">b</TD>
  </TR>
  <TR>
    <TD colspan="1" rowspan="1">c</TD>
  </TR>
</TABLE>
```

The browser view on the right shows the rendered table with two rows and two columns. The first row contains cells "a" and "b". The second row contains cell "c". The cell "a" in the first row is highlighted with a blue box, indicating it spans two rows.

# HTML Frames

- HTML frames are used to divide browser window into multiple sections.
- A collection of frames in the browser window is known as a frameset.
- The window is divided into frames in a similar way the tables are organized: into rows and columns.

```
<HTML>
  <BODY>
    <frameset rows="100,*">
      <frame src="header.html"/>
      <frameset cols="33%,33%,*">Nested frameset
        <frame src="subframe1.html"/>
        <frame src="subframe2.html"/>
        <frame src="subframe3.html"/>
      </frameset>
    </frameset>
  </BODY>
</HTML>
```



The browser window displays a frameset with a header and three subframes. The header is labeled 'Header page'. The subframes are labeled 'Sub frame 1 Content', 'Sub frame 2 Content', and 'Sub frame 3 Content'. The status bar at the bottom shows 'Done' and 'Print'.

# HTML Form

Allows a user to enter data that is sent to a server for processing.

Contain: text fields, textarea, checkboxes, radio-buttons, submit buttons and more...

The diagram illustrates the mapping between HTML code and its rendered form. On the left, code snippets are shown in red boxes, each with a numbered cloud (1-6) pointing to a specific element in the rendered form on the right. The rendered form is displayed in a browser window titled 'table.html' with a file path of 'file:///D:/DOCUI...'. The form elements include text input fields for 'First name' and 'Password', radio buttons for 'sex' (Male/Female), a text area for 'Description', checkboxes for 'vehicle' (Bike/Car), a dropdown menu for 'product\_measuring\_unit\_1' (Units/Pounds/Kilograms/Meter), and a 'Submit' button.

```
<FORM action="Hello.jsp" method="POST">
```

```
First name: <input type="text" name="firstname"><br>
```

```
Password: <input type="password" name="pwd"> </br>
```

```
<input type="radio" name="sex" value="male">Male<br>
```

```
<input type="radio" name="sex" value="female">Female</br>
```

```
<textarea cols="20" rows="3">Description</textarea></br>
```

```
<input type="checkbox" name="vehicle" value="Bike">I have a bike</br>
```

```
<input type="checkbox" name="vehicle" value="Car">I have a car </br>
```

```
<SELECT NAME="product_measuring_unit_1">
```

```
  <OPTION VALUE="U">Units
```

```
  <OPTION VALUE="P">Pounds
```

```
  <OPTION VALUE="K">Kilograms
```

```
  <OPTION VALUE="M" SELECTED>Meter
```

```
</SELECT></br>
```

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

```
</FORM>
```

1: Form action and method attributes

2: First name and Password text input fields

3: sex radio buttons (Male/Female)

4: Description text area

5: vehicle checkboxes (I have a bike/I have a car)

6: product\_measuring\_unit\_1 dropdown menu

7: Submit button



# *Summary*

- Understand HTML Language.
- Practice with HTML Tags.
- Create website with Visual Studio