Client Side Application Development

HTML, XHTML, CSS, Document Object Model(DOM), JavaScript , DHTML, jQuery, Ajax

1.1 Introduction to HTML

1.1 Introduction to HTML

HTML is short for **H**yper **T**ext **M**arkup **L**anguage. It was officially invented by Tim Berners-Lee in 1990. It is a simple scripting language. HTML is used to create the presentation of a web page. The latest current version of HTML is HTML5. All browsers might not be supporting latest techniques introduced in **HTML5**. How well does your browser support HTML5 can be tested here.

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 script Language, as it has code-words and syntax like any other language and plus the script language specific tags. A browser has the ability to 'open' the HTML file. When that happens, the browser will look for HTML codes in the text and use them to change the layout, insert images, or create links to other pages.

Since HTML documents are just text files they can be written in even the simplest text editor. A more popular choice is to use a special HTML editor - maybe even one that puts focus on the visual result rather than the codes . Microsoft Visual Studio 2012 is one of those tools. Some of the other most popular HTML editors, such as **FrontPage** or **Dreamweaver** will let you create pages more or less as you write documents in Word or whatever text editor you're using.

1.1.1 HTML Tags

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 Internet Explorer or Netscape Navigator.

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 <triangle-brackets>. They allow all the cool stuff like images and tables, 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:

These words will be bold , and these will not.

In the example above, the 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.

1.1.2 How does it work?

These tags are then saved as a html file, and viewed through a browser, like Internet Explorer or Fire Fox. 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.

1.1.3 What does a Web Page Contain?

Web Pages can contain everything that is needed for anyone wanting to create their own web page. Below this a list of 'things' a web page can have. (Figure 1.1-1)

Title		**Graphics**	Putting Images on a page	**Forms**	Contains Controls
			Alternate Text for Images		Form Method/Action
Text	Headings		Animated Graphics		Single or multiple fields
	Paragraphs		Background, text, and link Color		Larger Fields
	Lists		Background Graphics		Checkboxes
	Forced Line Breaks		Linking with graphics		Radio Buttons
	Horizontal Rules		Image Maps		Pull-Down Lists
	Character Formatting				Scroll-Down Lists
					Reset Form
Linking	URLs				Submit Entry
	Links to Specific Sections				
	Mailto			**Frames**	

Figure 1.1-1

•Title

The first thing to put on your web page, is a title. The title is what will show up in the very top of the window. Let's say that your title is going to be "John Doe's Web Page", you would type:

<title>John Doe's Web Page</title>

In HTML, every command is surrounded by **<'s,** and **>'s.** And in most commands, you need to tell the web browser when to end this command. You do this by putting a back slash (/) in front of the ending command, as in above. Since HTML isn't case sensitive, **<title>** is the same as **<TITLE>,** which is the same as **<TiTLe>.** Next, you need to decide what you want to put on your page. Text, links, graphics, and text fields, are just a few ideas. Follow the table of contents above to decide how, and what to put on your page.

▪Text

•Headings <h1>, <h2>, <h3>, <h4>, <h5>, <h6>

HTML has six levels of headings, numbered 1 through 6, with 1 being the largest (They have font sizes 24, 18, 14, 12, 10 and 8 respectively). Headings are displayed in larger, or smaller fonts, and usually bolder. If you wanted to type "Hello", this is what you would type for each heading, and what the outcome is:

<h1>Hello</h1>

Hello

<h2>Hello</h2>

Hello

<h3>Hello</h3>

Hello

<h4>Hello</h4>

Hello

<h5>Hello</h5>

Hello

<h6>Hello</h6>

Hello

•Paragraphs **<p>**

The **<p>** tag defines a paragraph.

The **p** element automatically creates some space before and after itself. The space is automatically applied by the browser, or you can specify it in a style sheet.

```
<html>
<body>

<p>
This paragraph
contains a lot of lines
in the source code,
but the browser
ignores it.
</p>

<p>
This paragraph
contains      a lot of spaces
in the source     code,
but the    browser
ignores it.
</p>

<p>
The number of lines in a paragraph depends on the size of your browser window. If you resize the
browser window, the number of lines in this paragraph will change.
</p>
</body>
</html>
```

Example 1.1-1

Appearance on the browser

This paragraph contains a lot of lines in the source code, but the browser ignores it.
This paragraph contains a lot of spaces in the source code, but the browser ignores it.
The number of lines in a paragraph depends on the size of your browser window. If you resize the browser window, the number of lines in this paragraph will change.

Figure 1.1-2

•Lists <ul> , and

There are two types of lists that you can make in HTML:

- Dotted (**U**nordered **L**ist) **<ul>**
- Numbered (**O**rdered **L**ist). **<ol>**

In both cases, **<li>** is used to describe a **l**ist **i**tem.

To make a dotted list of: coffee, tea and milk type:

Browser Support 

```
<html>
<body>

<p>An ordered list:</p>
<ol>
 <li>Coffee</li>
 <li>Tea</li>
 <li>Milk</li>
</ol>

<p>An unordered list:</p>
<ul>
 <li>Coffee</li>
 <li>Tea</li>
 <li>Milk</li>
</ul>
</body>
</html>
```

Example 1.1-2

Appearance on the browser

An ordered list:

1. Coffee
2. Tea
3. Milk

An unordered list:

- Coffee
- Tea
- Milk

Figure 1.1-3

•Forced Line Brakes

The **
** tag inserts a single line break. It is an empty tag meaning it has no end tag.

The
 tag is supported in all major browsers.
There are many cases in which you want to end typing on one line, and start on the next. To do this, you can use a simple HTML command. Thi
Browser Support
the few commands that you don't have to put an ending command on. Let's say that you wanted to say "Hello, how are you?", but with each word on a separate line. All you have to type is:

```
<html>
<body>

Hello,<BR>how<BR>are<BR>you?

</body>
</html>
```

Example 1.1-3

Hello,
how
are
you?

Appearance on the browser

Figure 1.1-4

•Horizontal Rules <hr>

Every now and then, you might want to have a horizontal rule, or line in your page. Horizontal rules can be many different sizes and lengths. You can also have the line be solid black, by typing NOSHADE. Several examples of sizes and widths, and the outcomes are shown below.

```
<hr size=1 width=100%>
<hr size=5 width=50%>
<hr size=25 width=75%>
<hr size=3 width=100%>
<hr noshade size=1 width=100%>
<hr noshade size=3 width=100%>
<hr noshade size=10 width=20%>
```

(noshade = no three D look

Browser Support

Appearance on the browser

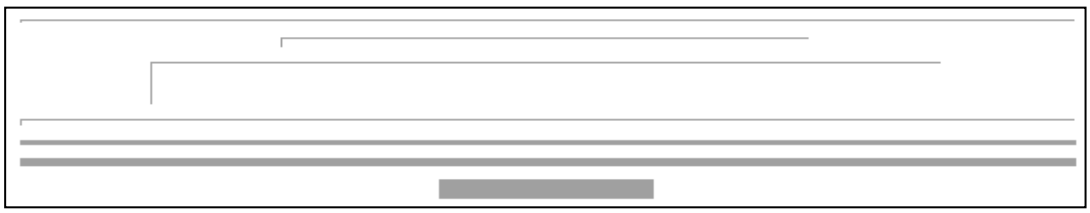

Figure 1.1-5

• Character Formatting

You may want to format some of your text differently than others using text styles. There are several types of styles of text that you can use: bold, italic, underline, strikeout, superscript, subscript, teletype, and blinking text are examples. To do these styles, surround your text with the following commands. Results are shown in Figure 1..1-6

```
<b> Bold Characters </b>
<i> Italic Characters </i>
<u> Underlined Characters </u>
<strike> Stricked out Characters </strike>
<sup> Superscripts </sup>
<sub> Subscripts </sub>
<tt> Teletype Characters </tt>
<blink> Blink Characters </blink>
```

Appearance on the browser

Bold Characters
Italic Characters
Underlined Characters
~~Stricked out Characters~~
Superscripts
Subscripts
`Teletype Characters`
Blink Characters

Figure 1.1-6

*** <blink> does not support all browsers.*

▪Linking

•Anchoring <a> , <href>

The **<a>** tag defines an anchor. An anchor can be used in two ways:

- To create a link to another document, by using the **href** attribute
- To create a bookmark inside a document, by using the name attribute

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The **a** element is usually referred to as a **link or a hyperlink**. The most important attribute of the **a** element is the **href** (**H**yperlink **Ref**erence) attribute, which indicates the link's destination.

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**

```
<html>
<body>
<a href="http://www.w3schools.com">Visit W3Schools.com!</a>
</body>
</html>
```

Example 1.1-4

Appearance on the browser

Visit W3Schools.com!

Figure 1.1-7

Clicking the link will take you to the W3C Schools website.

**•Linking to Specific Sections **

If you want to have a link that will take you further down a page, or to a certain section of another page you can use the <a> tag. To do this, you need to do two things. The first is to make the link, and the second, is to make where the link will lead to. NOTE: You cannot make links to specific sections within a different documents unless either you have write permission to the coded source of that document or that document already contains in-document named links. To make the actual link, think of a name for the certain spot. Let's say you are going to call it "firstpara". If this certain spot is on the same page that the link is, you would type:

<a href="#firstpara**">what ever the text**

Then you need to make where the link will take you. Go to the spot where you want the link to take you. Usually we use an **id=firstpara** style. See the example below.

```
<html>
<body>
<p  id=firstpara>My first paragraph. </p>
<p  id=secondpara>My second paragraph.</P>
<p>See <a  href="#firstpara">the opening paragraph</A> for more information.</P>
</body>
</html>
```

Example 1.1-5

Th ɔn the browser.

My first paragraph.

My second paragaph.

See the opening paragraph for more information.

Figure 1.1-8

Since it is too large to show an actual example, really the last line "See the opening paragraph for more information" should appear way down on the browser. Clicking the link "the opening paragraph" will scroll up automatically to the first paragraph (internally named as **firstpara**)

•Mail to Links text with CC and BCC and Subject.

Most people like to have a link on their web page that automatically sends e-mail to an address. If you want to do this, and your name is "A Test Mail", and your e-mail address is peeris@uhcl.edu, type:

A Test Mail

CC and BCC (Carbon Copy and Blind Carbon Copy)

You can also **cc** and/or **Bcc** your mail to whoever the party you like including a **subject**.

See example below:

```
<html>
<body>
<p>
This is another mailto link:
<a
href="mailto:someone@example.com?cc=someoneelse@example.com&bcc=andsomeoneelse@example.com&subject=Summer%20Party&body=You%20are%20invited%20to%20a%20big%20summer%20party!">Send mail!</a>
</p>
<p>
<b>Note:</b> Spaces between words should be replaced by %20 to ensure that the browser will display the text properly.
</p>
</body>
</html>
```

Example 1.1-6

In the above example, to create spaces between words you will have to use hex code - for example '%20' between each word, and to create new lines will mean adding '%0D'. See here for a list of encoders.
http://www.zytrax.com/tech/web/entities.html

This is another mailto link: Send mail!

Note: Spaces between words should be replaced by %20 to ensure that the browser will display the text properly.

Figure 1.1-9

Clicking the "Send mail!" link will start your e-mail application (std. outlook program) as follows:

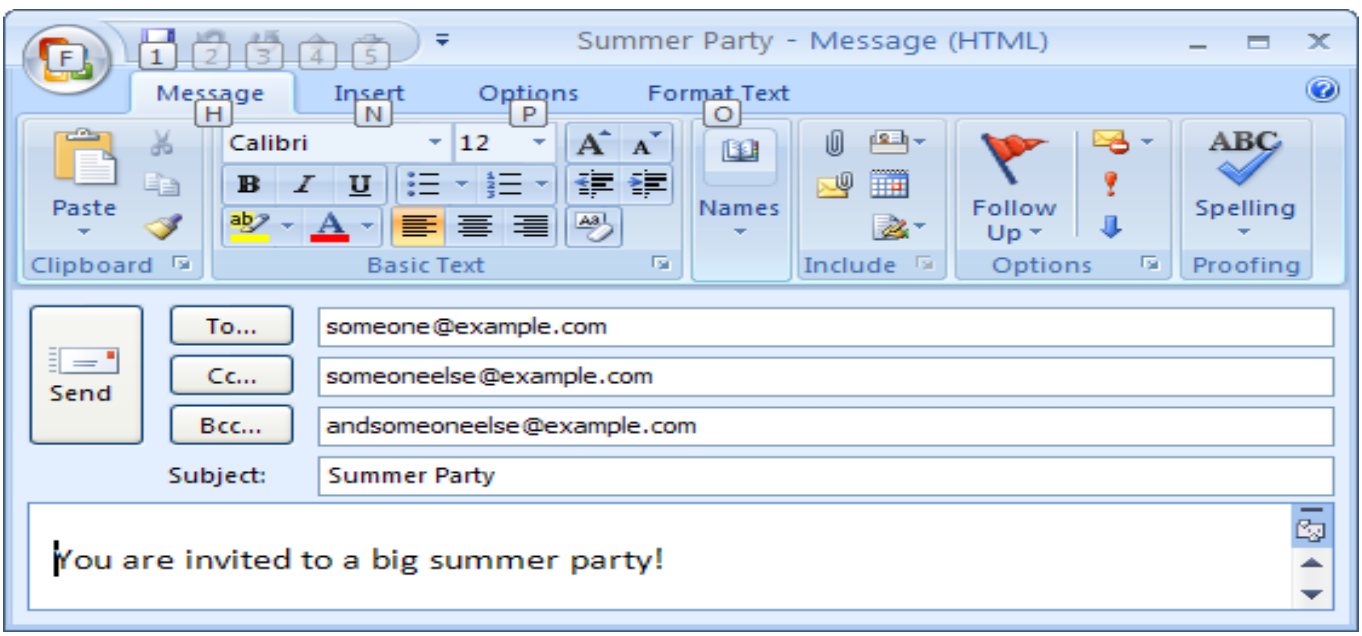

Figure 1.1-10

▪Graphics

•Images <img src="source file name">

In HTML, images are defined with the **<img>** tag.

The **<img>** tag is empty, which means that it contains attributes only, and has no closing tag.

Browser Support

To load and display an image on a page, you need to use the **src** attribute. **src** stands for "source". The value of the **src** attribute is the URL or the absolute path of the image file you want to display.

No Image Found

If the image is not found in the specified URL or the absolute location, you will end up with displaying a symbol like this. This usually happens when the person who made that page decides to delete that graphic.

```
<html>
<body>
<h2>Norwegian Mountain Trip</h2>
<img border="0" src="/images/pulpit.jpg" alt="Pulpit rock" width="304" height="228" />
</body>
</html>
```

Example 1.1-7

Running the above example will display this image.

Norwegian Mountain Trip

Figure 1.1-11

The **alt** attribute provides alternative information for an image if a user for some reason cannot view it (because of slow connection, an error in the src attribute, or if the user uses a screen reader

•Animated Graphics

Some people like to put animation on their web pages. It actually is not that hard. Here is some background history. Most GIFs over the years have only one image per file. According to "technical specifications from 1987", a GIF could have had more than one image per file, making it like a slide show presentation and not a single image. However, most programs that work with GIF are designed around the idea of one image per file. So the multi-image aspect of GIFs was forgotten. In 1989, they added **timing** and various other abilities to the GIF format, including **transparency**. Nobody used these new additions either. Then the Web took off. Transparency and interlacing became features people wanted to use and software companies began supporting those features. In order to have animation on your web page, you need to download a program that was made to fit more that one GIF in a file. GifBuilder is one recommended. Windows users can go here to download another program. Click the link below to watch some animations working:

http://www.webdeveloper.com/animations/b.html

•Background Text and Link Color

On most pages, you want to have a specific color for the background, text, unvisited links, visited links, and active links. In order to do this, you need to find the code number for the specific color that you are looking for. Here is a HUGE list of code numbers, and here is how you would display this in your page. NOTE: Type these ONLY right below your title. NOTE: You must have the "#" sign before the actual code.

<body bgcolor="#code">for background color
<body text="#code">for color of text (all non-links)
<body link="#code">for color of unvisited links
<body vlink="#code">for color of visited links
<body alink="#code">for color of active links (while being selected)

You can also string two or more of these commands together:

<body **bgcolor**="#000015" **text**="#000020" **link**="#000050" **vlink**="#7a7777" **alink**="#8f8e8d">

•Background Graphics
Instead of having a solid color as a background, you might want to have one graphic that repeats over and over to create a background. Here are several places that you can go to find background graphics. The text that you would type in for a background called "bk.gif" would be:

<body background="bk.gif">

PS: HTML Color Codes

•Linking with Graphics

Sometimes on your web page, you might want to have a graphic that is a link. This is quite simple, since you just mix the two commands of linking, and displaying graphics. Here is an example of a graphic that leads to Yahoo:

You can also have a text link next to the graphic that leads to the same place.

Figure 1.1-12

Here is what you

Yahoo!

Figure 1.1-13

hic-link, and second, the graphic-link with text:

<**img** src="http://www.infhost.com/members/web/Images/yahoo.gif">

<**img** src="http://www.infhost.com/members/web/Images/yahoo.gif">**Yahoo!**

•Image Maps

An image map is a way of defining "hot spot" links within an image on a Web page. This means that, rather than having the whole image behave as one link, you can have lots of different links within the one image.http://www.image-maps.com/

Definition and Usage

The **<map>** and the **<area>** tags are used to define a client-side image-map. An image-map is an image with clickable areas.

The name attribute is required in the map element. This attribute is associated with the **<img>**'s **usemap** attribute and creates a relationship between the image and the map. The map element contains a number of **<area>** elements, that defines the clickable areas in the image map. The <area> element is always nested inside a <map> tag. Live Example : http://www.elated.com/articles/creating-image-maps/1.1

```
<map name="shapes" id="shapes">

<area       shape="circle"
            coords="58,50,40"
            href="javascript:clicked_on('circle');"
            title="Circle" alt="Circle"/>

<area       shape="rect"
            coords="136,11,227,89"
            href="javascript:clicked_on('rectangle');"
            title="Rectangle" alt="Rectangle"/>

<area       shape="poly"
            coords="309,13,358,89,257,89"
            href="javascript:clicked_on('triangle');"
            title="Triangle" alt="Triangle"/>

<area       shape="default"
            nohref="nohref" title="Default" alt="Default"/>
</map>
```

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Example 1.1-8

Here is an example HTML document with putting together some of the areas just discussed.

```
<!– Example 1.9 – Basic HTML Document -->
<html> <!-- This is a comment ;  HTML Tag starts here -->
 <head>
       <title>
        Hello World Demonstration Document
       </title>
 </head>
 <body>
       <h1>
        Hello, World!
       </h1>
       <p>
        This is a minimal "hello world" HTML document. It demonstrates the
        basic structure of an HTML file and anchors.
       </p>
       <p>
        For more information, see the HTML Station at: <a href=
        "http://www.december.com/html/">http://www.december.com/html/</a>
       </p>
       <hr>   <!-- Horizontal Line -->
        <address>
         &copy; <a href="http://www.december.com/john/"> John December</a> (<a
         href="mailto:author@december.com">author@december.com</a>) / 2009-01-08
        </address>
 </body>
</html>
```

The <address> tag defines the contact information for the author/owner of a document or an article.

Example 1.1-9

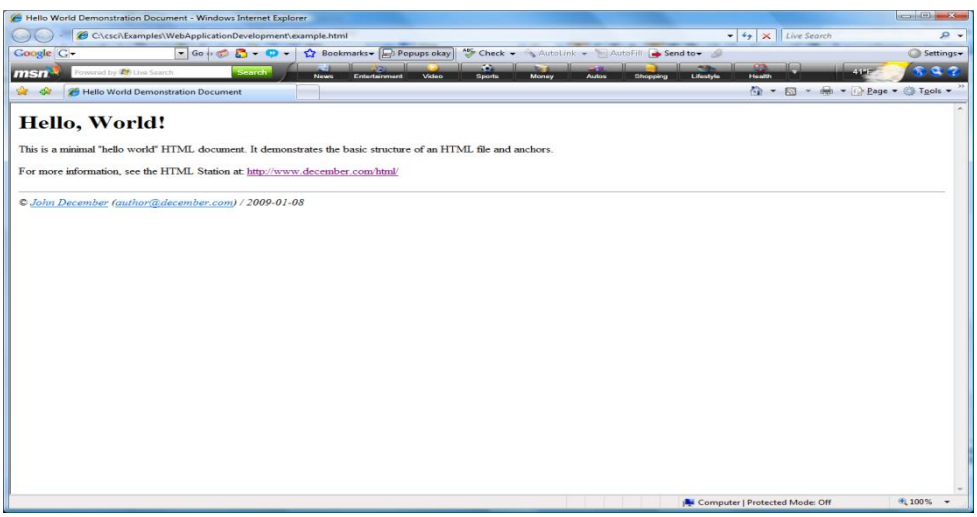

Figure1.1.1-14

•Tables

▪The <table> tag

The **<table>** tag defines an HTML table. Tables are supposed to structure tabular data. A simple HTML table consists of the table element and one or more **tr**, **th**, and **td** elements. The **tr** element **defines a table row**, the **th element defines a table header**, and the **td element defines a table cell**. A more complex HTML table may also include caption, col, colgroup, thead, tfoot, and tbody elements.

```
<table>
<tr>
 <td>1</td>
 <td>2</td>
 <td>3</td>
</tr>
<tr>
 <td>4</td>
 <td>5</td>
 <td>6</td>
</tr>
</table>
```

Example 1.1-10a

1 2 3
4 5 6

Figure1.1-15a

```
<table border="1" >
<tr>
 <td>1</td>
 <td>2</td>
 <td>3</td>
</tr>
<tr>
 <td>4</td>
 <td>5</td>
 <td>6</td>
</tr>
</table>
```

Example 1.1-10b

Figure1.1.1-15b

▪ Empty cells in a table

Table cells with no content in them may be displayed differently on different web browsers. To avoid this issue, add a non-breaking space ( ) to empty data cells, to make the borders visible. The below HTML code makes a table with an empty table cell. Notice that the last <td> tag is empty. See example 1.1-10c

```
<html>
<table border="1">
 <tr>
  <td>1</td>
  <td>2</td>
 </tr>
 <tr>
  <td>3 </td>
  <td></td>
 </tr>
</table>
</html>
```

Replace this line with **<td> </td>** to be on the safe side for all browsers.

Example 1.1-10c

1 2
3

Figure1.1.1-15c

note: remember that some web browsers may display tables with empty cells the same as tables with no empty cells. The reason for adding the non-breaking space ( ) is to ensure that your tables appear the same in all web browsers.

▪**The <caption> tag**

The **<caption>** tag is used to have caption in a table. The below HTML code example 1.1-11b shows you how to add a caption to a table.

```
<html>
 <table border="1">
  <caption>
    This is a caption
  </caption>
  <tr>
   <td>1</td>
   <td>2</td>
   <td>3</td>
   <td>4</td>
  </tr>
 </table>
</html>
```

Example 1.1-11a

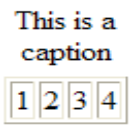

Figure1.1-15a

```
<html>
 <table border="1">
<tr>
 <td>AAAA</td>
 <td colspan="2">BBBB</td>
</tr>
<tr>
 <td>1111</td>
 <td>2222</td>
<td>3333</td>
</tr>
</table>
</html>
```

Example 1.1-11b

AAAA	BBBB	
1111	2222	3333

Figure1.1-15b

▪**Table cells that span more than one row/column**

The **example 1.1-11c** shows you how to make a table with a cell that spans more than one column.

You will learn more about tables in section 1.3 (Cascade Style Sheets)

```
<html>
<body>
 <table border="1">
 <tr>
  <td>AAAA</td>
  <td>BBBB</td>
 </tr>
 <tr>
  <td rowspan="2">1111</td>
  <td>2222</td>
 </tr>
 <tr>
  <td>3333</td>
 </tr>
 </table>
</body>
</html>
```

Example 1.1-11c

AAAA	BBBB
1111	2222
	3333

Figure1.1.15c

▪Text Input

•<input>

The **<input>** tag specifies an input field where the user can enter data. <input> elements are used within a <form> element to declare i

Browser Support

that allow users to input data.

```
<html>
<body>
<form action="demo_form.asp">
  First name: <input type="text" name="fname"><br>
  Last name: <input type="text" name="lname"><br>
  <input type="submit" value="Submit">
</form>
</body>
</html>
```

Example 1.1-12

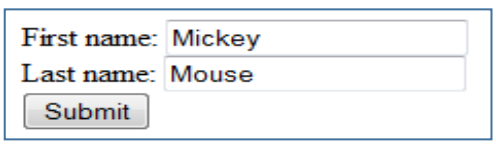

Figure 1.1-16

•<textarea>

The **<textarea>** tag defines a multi-line text input control. A text area can hold an unlimited number of characters, and the text renders in a fixed-width

```
<html>
<body>
<textarea rows="4" cols="50“> Hello there. This is a text area. You can type multiple lines of text as you wish.
</textarea>
</body>
</html>
```

Example 1.1-13

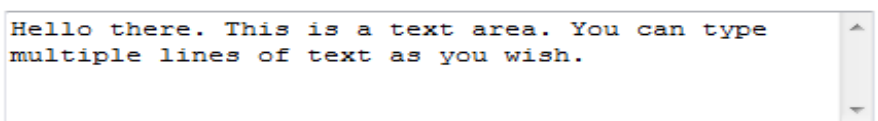

Figure 1.1-17

Complete List of HTML Reference is found in:
http://www.w3schools.com/tags/tag_html.asp

Some Valuable Information……
What is WC3 ?
The **World Wide Web Consortium** (**W3C**) is the main international standards organization for the World Wide Web (abbreviated WWW or W3). Founded and headed by Tim Berners-Lee,[2] the consortium is made up of member organizations which maintain full-time staff for the purpose of working together in the development of standards for the World Wide Web. As of 29 March 2012, the World Wide Web Consortium (W3C) has 351 members.[1]

W3C also engages in education and outreach, develops software and serves as an open forum for discussion about the Web.
[Source : http://en.wikipedia.org/wiki/World_Wide_Web_Consortium]

What is W3Schools?
W3Schools is a web developer's portal, with tutorials and references relating to web development subjects, including HTML, XML, CSS, JavaScript, PHP, and SQL. W3Schools is free of charge, and is funded through text and display advertising.[1] The tutorials and references on the website and the related code are proprietary.[2] The site derives its name from the abbreviation for the World Wide Web; W3 is a numeronym of WWW. W3Schools is not affiliated in any way with the W3C.
[**Source** : http://en.wikipedia.org/wiki/W3Schools]