



Complex HTML Elements

Session 560529

Dr. William A. Hansen
Manta Technologies Inc.
whansen@mantatech.com



Copyright 2010. Manta Technologies Inc.

1

Complex HTML Elements

- This session will cover:
 - Lists
 - Tables
 - Frames
 - Forms
 - Input fields



Copyright 2010. Manta Technologies Inc.

2

Lists

- A *list* is a collection of formatted items.
- One HTML tag identifies each list element.
- Another tag describes the list as a whole.



Copyright 2010. Manta Technologies Inc.

3

Ordered Lists

- An *ordered list* is simply a list that is numbered automatically by the browser.
- The list as a whole is identified by the `<ol>` (for *ordered list*) element.
- Each item of the list is identified by a `<li>` (*list item*) element.
- The browser automatically numbers and indents each list item.



Copyright 2010. Manta Technologies Inc.

4

1. This is the first list item. This is the first list item.
2. This is the second list item. This is the second list item.
3. This is the third list item. This is the third list item.
4. This is the fourth list item. This is the fourth list item.
5. This is the fifth list item. This is the fifth list item.

```
<ol>  
<li>This is the first list item.  
This is the first list item.</li>  
<li>This is the second list item.  
This is the second list item.</li>  
<li>This is the third list item.  
This is the third list item.</li>  
<li>This is the fourth list item.  
This is the fourth list item.</li>  
<li>This is the fifth list item.  
This is the fifth list item.</li>  
</ol>
```



Copyright 2010. Manta Technologies Inc.

5

Unordered Lists

- By changing the `<ol>` to a `<ul>`, we get an *unordered list*.
- An unordered list is also called a *bulleted* list, because each list item is identified by a bullet.
- The individual list items are still identified using `<li>` tags.



Copyright 2010. Manta Technologies Inc.

6

- This is the first list item. This is the first list item.
- This is the second list item. This is the second list item.
- This is the third list item. This is the third list item.
- This is the fourth list item. This is the fourth list item.
- This is the fifth list item. This is the fifth list item.

```
<ul>
<li>This is the first list item.
This is the first list item.</li>
<li>This is the second list item.
This is the second list item.</li>
<li>This is the third list item.
This is the third list item.</li>
<li>This is the fourth list item.
This is the fourth list item.</li>
<li>This is the fifth list item.
This is the fifth list item.</li>
</ul>
```



1. This is item 1.0.
 1. This is item 1.1.
 2. This is item 1.2.
 3. This is item 1.3.
2. This is item 2.0.
 - o This is item 2.1.
 - o This is item 2.2.
 1. This is item 2.2.1.
 2. This is item 2.2.2.
 3. This is item 2.2.3.
 - o This is item 2.3.
3. This is the item 3.0.
 - o This is item 3.1.
 - o This is item 3.2.
 - This is item 3.2.1.
 - This is item 3.2.2.
 - This is item 3.2.3.
 - o This is item 3.3.

```
<ol>
<li>This is item 1.0.
  <ol>
    <li>This is item 1.1.</li>
    <li>This is item 1.2.</li>
    <li>This is item 1.3.</li>
  </ol>
</li>
<li>This is item 2.0.
  <ul>
    <li>This is item 2.1.</li>
    <li>This is item 2.2.
      <ol>
        <li>This is item 2.2.1.</li>
        <li>This is item 2.2.2.</li>
        <li>This is item 2.2.3.</li>
      </ol>
    </li>
    <li>This is item 2.3.</li>
  </ul>
</li>
<li>This is the item 3.0.
  <ul>
    <li>This is item 3.1.</li>
    <li>This is item 3.2.
      <ul>
        <li>This is item 3.2.1.</li>
        <li>This is item 3.2.2.</li>
        <li>This is item 3.2.3.</li>
      </ul>
    </li>
    <li>This is item 3.3.</li>
  </ul>
</li>
</ol>
```



- Lists can be nested without limit.
- The browser takes care of the indentation with nested lists.
- In the case of an unordered list, the browser automatically changes the bullet style for each level of indentation.



Copyright 2010. Manta Technologies Inc.

9

Controlling the List Style

- Two HTML attributes can be used to change how a list is displayed.
- For an ordered list, you can specify the **type** and **start** attributes.
- The **type** attribute determines the numbering system that is used to order the list.
- The default, **type="1"**, gives the traditional ordering of 1, 2, 3, and so on.

Value	Numbering System Used
type="1"	1, 2, 3, ...
type="A"	A, B, C...
type="a"	a, b, c, ...
type="I"	I, II, III...
type="i"	i, ii, iii, ...



Copyright 2010. Manta Technologies Inc.

10

- The **start** attribute is used to start on a value other than 1.
- For example, the following ordered list uses capital letters, rather than numbers, and starts on "C", the third list item:

```
<ol type="A" start="3">
  <li>first element</li>
  <li>second element</li>
  <li>third element</li>
</ol>
```

- Following is the result:
 - C. first element
 - D. second element
 - E. third element



Copyright 2010. Manta Technologies Inc.

11

- The **type** attribute can also be used for unordered lists.
- When included on a **** element, it selects the bullet character.

- This item uses **type="circle"**.
- This item uses **type="disc"**.
- This item uses **type="square"**.

- The default depends on the level of the item in a nested list.
- When specified on the **** tag, the **type** attribute applies to the entire list.
- You can also specify a **type** on with a **** element. In this case, the type applies only to that one item.



Copyright 2010. Manta Technologies Inc.

12

Definition Lists

- A *definition list* can be used for glossaries and similar objects that match one element (such as a term), with another object (such as a definition).
- The **<dl>** (*definition list*) element defines the overall list.
- Within the list, you can specify any number of **<dt>** (*definition list term*) and **<dd>** (*definition list definition*) pairs.



Copyright 2010. Manta Technologies Inc.

13

This is a definition list:

term 1
Definition 1 is the definition that corresponds to term 1.

term 2
Definition 2 is the definition that corresponds to term 2.

term 3
Definition 3 is the definition that corresponds to term 3.

term 4
Definition 4 is the definition that corresponds to term 4.

term 5
Definition 5 is the definition that corresponds to term 5.

A CSS rule was used to display the **dt** elements in bold.

```
<dl>
<dt>term 1</dt>
<dd>Definition 1 is the definition
that corresponds to term 1.</dd>
<dt>term 2</dt>
<dd>Definition 2 is the definition
that corresponds to term 2.</dd>
<dt>term 3</dt>
<dd>Definition 3 is the definition
that corresponds to term 3.</dd>
<dt>term 4</dt>
<dd>Definition 4 is the definition
that corresponds to term 4.</dd>
<dt>term 5</dt>
<dd>Definition 5 is the definition
that corresponds to term 5.</dd>
</dl>
```



Copyright 2010. Manta Technologies Inc.

14

Tables

- One of the most powerful HTML elements is **<table>**, which defines a table.
- The **<table>** element identifies the table as a whole.
- Each **<tr>** element identifies one *table row*.
- Within the **<tr>** elements are **<td>** elements, each of which identifies one cell of the table.



Copyright 2010. Manta Technologies Inc.

15

This is a table:

Row 1, column 1. Row 1, column 2.
Row 2, column 1. Row 2, column 2.
Row 3, column 1. Row 3, column 2.

```
<table>
<tr>
  <td>Row 1, column 1.</td>
  <td>Row 1, column 2.</td>
</tr>
<tr>
  <td>Row 2, column 1.</td>
  <td>Row 2, column 2.</td>
</tr>
<tr>
  <td>Row 3, column 1.</td>
  <td>Row 3, column 2.</td>
</tr>
</table>
```



Copyright 2010. Manta Technologies Inc.

16

Table Headings

This is a table with a heading:

Heading for column 1.	Heading for column 2.
Row 1, column 1.	Row 1, column 2.
Row 2, column 1.	Row 2, column 2.
Row 3, column 1.	Row 3, column 2.

```
<table>
<tr>
  <th>Heading for column 1.</th>
  <th>Heading for column 2.</th>
</tr>
<tr>
  <td>Row 1, column 1.</td>
  <td>Row 1, column 2.</td>
</tr>
<tr>
  <td>Row 2, column 1.</td>
  <td>Row 2, column 2.</td>
</tr>
<tr>
  <td>Row 3, column 1.</td>
  <td>Row 3, column 2.</td>
</tr>
</table>
```



Copyright 2010. Manta Technologies Inc.

17

- The optional `<th>` element defines a *table heading*.
- Text within the heading is display in bold and centered.
- Many people do not use a table heading, because a similar result can be achieved using `<td>` and `<b>`.
- Be aware, however, that the default alignment differs between these elements.
 - The default for `<td>` is `align="left"`.
 - The default for `<th>` is `align="center"`.



Copyright 2010. Manta Technologies Inc.

18

This is a table with a heading:

Heading for column 1.	Heading for column 2.
Row 1, column 1.	Row 1, column 2.
Row 2, column 1.	Row 2, column 2.
Row 3, column 1.	Row 3, column 2.

Four attributes were added to the **<table>** element.

- **border="1"** causes a 1px border to be added around each table cell and another around the table as a whole. The default, **border="0"** does not include a border.
- **cellpadding="3px"** adds a 3px space around the contents of each cell. This attribute is recommended when a border is used.
- **align="center"** causes the entire table to be centered horizontally.
- **width="70%"** specifies the width of the table as a percentage of the body width.



Copyright 2010. Manta Technologies Inc.

19

This is a table with a heading:

Heading for column 1.	Heading for column 2.
Row 1, column 1.	Row 1, column 2.
Row 2, column 1.	Row 2, column 2.
Row 3, column 1.	Row 3, column 2.

The following additional changes were made to this table.

- **cellspacing="6px"** was added to the **<table>** element. This attribute controls the spacing between cells.
- **width="30%"** was added to the first **<th>** element. This makes the first column narrower. The percentage is relative to the table width.
- **bgcolor="yellow"** was added to the **<tr>** tag for the second and fourth rows. Coloring alternate rows can improve readability, particularly for large tables.
- **align="left"** was added to the first **<th>** element.



Copyright 2010. Manta Technologies Inc.

20

This is a caption.

Heading for column 1.	Heading for column 2.
Row 1, column 1.	Row 1, column 2.
Row 2, column 1.	Row 2, column 2.
Row 3, column 1.	Row 3, column 2.

- I added a table caption with this element:

```
<table>
<caption><b>This is a caption.</b></caption>
</table>
```
- The default caption position is at the top of the table.
- You can use **align="bottom"** to put the caption below the table.



Copyright 2010. Manta Technologies Inc.

21

Additional Table Options

- Other table-formatting capabilities are available.
 - You can embed one table in another.
 - You can use the **rowspan** and/or **colspan** attributes to combine cells.

Row 1, column 1.	Row 1, column 2.	Row 1, column 3.
Row 2, column 1.	Row 2, column 3.	
Row 3, column 1.	Row 3, column 2.	Row 3, column 3.
Row 4, column 1.	Row 4, column 3.	



Copyright 2010. Manta Technologies Inc.

22

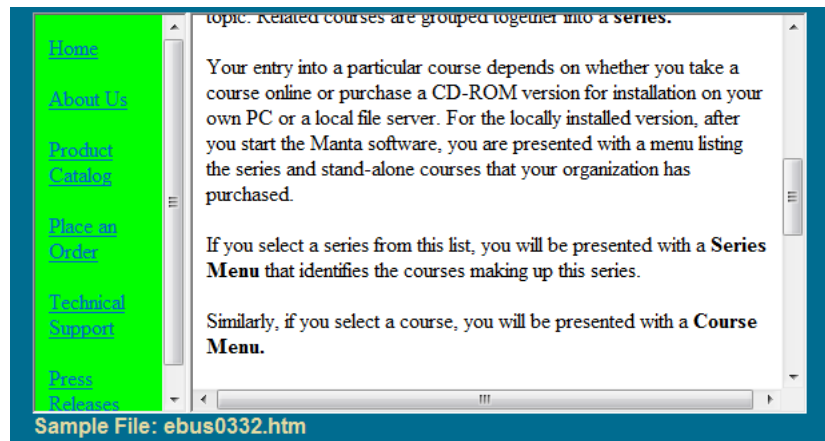
Frames

- You can build extremely complex web pages using multiple tables and tables within tables.
- In fact, tables have historically been the primary method for creating pages with multiple columns.
- Examples
 - www.mantatech.com
 - www.common.org
- A problem exists when the left column is used as the index.
 - Scrolling to see the main web page removes the index from the screen.
 - You have to scroll back up to select a link.
- You can design the parts of the screen to scroll independently using *frames*.



Copyright 2010. Manta Technologies Inc.

23



Copyright 2010. Manta Technologies Inc.

24

Creating a Frame

- To create this example, I created three HTML documents.
- **ebus0333.htm** contains the links on the left side and **ebus0334.htm** contains the information on the right.
- The page **ebus0332.htm**, which is the page I invoked, contains the following:

```
<html>
<head>
<title>Example ebus0332</title>
</head>
<frameset cols="20%,80%">
    <frame src="ebus0333.htm" />
    <frame src="ebus0334.htm" />
</frameset>
</html>
```



Copyright 2010. Manta Technologies Inc.

25

- In this example, the **cols** attribute divides the screen into two columns using 20% and 80% of the browser window, respectively.
 - Rather than specifying a percentage, you can use an absolute length unit.
 - You can also specify an asterisk (*) for one of the lengths. This tells the browser to give this column whatever space is left after the other columns have been allocated.
- An alternative is to use the **rows** attribute to divide the window into rows.
- Because the attribute of the **<frameset>** element specifies two columns, this element must contain two **<frame>** elements.
- Each **<frame>** element identifies a separate HTML document.
- The **<frameset>** element can contain either a **<frame>** element, which identifies a single frame, or another **<frameset>**.



Copyright 2010. Manta Technologies Inc.

26

Routing HTML to a Frame

- You have seen how you can use an element like the following to display an HTML document in a second window:

```
<a src="filename.htm" target="body">
```
- You can use the same form of the anchor tag to load a new page into a specified frame.
- Consider the following frameset:

```
<frameset cols="50%,50%">  
    <frame src="ebus0336.htm"/>  
    <frame src="ebus0337.htm" name="textWindow"/>  
</frameset>
```
- Notice that the right frame is defined with a name, **textWindow**.
- The left window contains this link:

```
<a src="ebus0338.htm" target="textWindow">here</a>
```
- When this link is selected, the contents of the frame identified as **textWindow** are replaced by the document named **ebus0338.htm**.

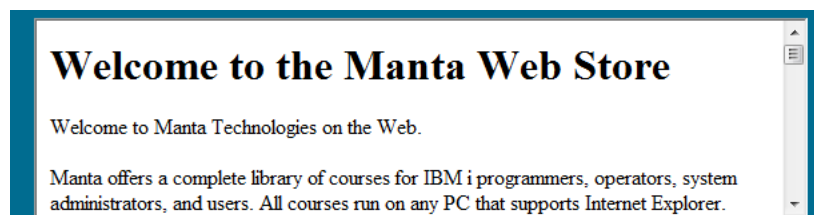


Copyright 2010. Manta Technologies Inc.

27

Inline Frames

- Sometimes all you want is a scrollable area within the body of a document.
- That is the purpose of an *inline frame*, which is defined with the **<iframe>** element.



Copyright 2010. Manta Technologies Inc.

28

- Example:

```
<iframe width="580" height="150" scrolling="auto"
      src="examples/ebus0334.htm"></iframe>
```

- The **height** and **width** attributes specify the size of the inline frame.
 - The default length unit is pixels.
 - You can also specify a percentage of the available height or width.
- The **scrolling** attribute works as it does with the **frame** element.
- The **src** attribute works as in the **<frame>** element to identify the contents of the frame.



Copyright 2010. Manta Technologies Inc.

29

- The contents of the **<iframe>** element are not displayed by browsers that are new enough to understand inline frames (such as Netscape Navigator 5 or Internet Explorer 4 or later).
- A browser that does not understand an element such as **<iframe>** will ignore the tag and display the element's contents.
- To warn people with old browsers that they are missing something, you could code the element as follows:

```
<iframe width="580" height="150" scrolling="auto"
src="examples/ebus0334.htm">Your browser does not
support inline frames. You must upgrade your
browser to see this example.</iframe>
```



Copyright 2010. Manta Technologies Inc.

30

- Additional **<iframe>** attributes work as they do on the **<frame>** element:
 - **frameborder**
 - **marginwidth**
 - **marginheight**
 - **name**



Copyright 2010. Manta Technologies Inc.

31

<object>

- Used for
 - Java applets
 - Audio
 - Video
- Required a browser plug-in
- Attributes
 - Tell the browser where to get the plug-in
 - What version of the plug-in is required
 - Can control the plug-in



Copyright 2010. Manta Technologies Inc.

32

Forms

- The **<form>** element can be used to ask the user for information and pass it to a CGI program or servlet that is executing on the server machine.
- The **<form>** element can contain one or more child elements that prompt the user for input.
- When the user “submits” the form, the browser collects the input data and sends it to the server for processing by a specified program.
- The program can dynamically create an HTML document that it returns to the browser for display.



Copyright 2010. Manta Technologies Inc.

33

Please supply the following information.

Dr. ☐ Mr. ☐ Mrs. ☐ Ms. ☐

First Name:

Last Name:

Phone:

Address:

City: State: ZIP:

E-Mail address:

Company:

How did you find out about our services?

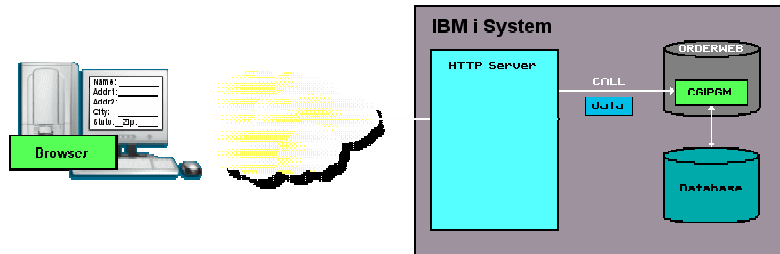
Select:



Copyright 2010. Manta Technologies Inc.

34

Calling a CGI Program



Copyright 2010. Manta Technologies Inc.

35

Sample Input Field

- The input fields in which the user is expected to type data are created by the browser in response to **HTML <input>** elements.

```
<input type="text" name="firstname" size="40" />
```

- Here, **type="text"** indicates that the input field is a text field. Because **text** is the default **type** value, this attribute is not required.
- The **name** attribute assigns a name to this field.
- The **size="40"** attribute tells the browser to make the input box 40 characters long.
 - This is computed using the average character width for the font associated with this element.
 - The **size** attribute does not limit the size of the user's response, but only the width of the input field.
 - If the user types more input than will fit into this width, the browser scrolls the input as needed.
- If you want to limit the number of characters that the user is allowed to enter, include the **maxlength** attribute.



Copyright 2010. Manta Technologies Inc.

36

Priming the Input Field

- By default, input fields are initially blank.
- You can define a default value for a field using the **value** attribute.
- Following is an example:

```
<input name="state" size="2" value="IL" />
```
- Here, the state field will initially contain the value **IL**.



Copyright 2010. Manta Technologies Inc.

37

<form> Elements

- To serve their role in an ebusiness application, the input fields must be coded within a **<form>** element, as follows:

```
<form ... >
<table>
:
<tr>
<td>First name:</td>
<td><input type="text" name="firstname" size="40" /></td>
</tr><tr>
<td>Last name:</td>
<td><input type="text" name="lastname" size="40" /></td>
</tr><tr>
<td>Phone:</td>
<td><input type="text" name="phone" size="15" /></td>
</tr>
:
</table>
</form>
```
- The **<form>** element is a special-purpose element that can contain most of the other HTML body elements.
- You can think of the fields in a form as making up a single data record.



Copyright 2010. Manta Technologies Inc.

38

Form Buttons

- Most forms contain one or more buttons.
- The previous example contains this line:

```
<input type="button" value="Send" />
```
- Using HTML attributes and CSS properties, the web designer can change the name shown, the value, and the text displayed on the button. For example, the following code changes the button's name to "Select" and its value to "Send" and "Reset" as well as its size, color, and border.
- In addition, the button itself can be replaced with an image that operates like a button.



Copyright 2010. Manta Technologies Inc.

39

- This line was coded as follows:

```
<p><center>
Select: <input type="submit" value="Send"
       style="display:inline;color:black;background-color:gray;" />&nbsp;
<input type="reset" value="Reset"
       style="display:inline;color:black;background-color:gray;" />
</center></p>
```
- The **value** attribute specifies the name that will appear on the button.
- If the user clicks a button identified as **type="reset"**, the browser will reset all input fields in the form to their initial values.
 - A reset button is optional within any HTML form.
- In contrast to the reset button, a submit button is always required.
 - When the user clicks the submit button, the browser collects the data from all input fields within the form.
 - It packages this information and sends it to the server, where a program is invoked to process the data.



Copyright 2010. Manta Technologies Inc.

40

Graphic Buttons

- You can supply an image to be used in place of the submit button
- with an element like the following:

```
<input type="image" src="sbmfig.gif" height="50" width="50" />
```

- Clicking a **type="image"** graphic causes the form contents to be submitted just like a **type="submit"** button.



Copyright 2010. Manta Technologies Inc.

41

Identifying the CGI Program

- The *Common Gateway Interface (CGI)* provides a standard interface from HTML documents to other computer resources.
- Using the CGI standard, a programmer can develop a server-based program that accepts input from a web client and uses it to perform work on the server.
- This program may be written in a traditional language such as RPG or COBOL and invoked directly by the HTTP server.
- It may be a Java program running under the control of an application server.
- It may also be a Net.Data macro or PHP program.



Copyright 2010. Manta Technologies Inc.

42

- The recipient of the data is identified with the **action** attribute of the **<form>** element.

```
<form name="customerData" method="post"
      action="cgi-bin/mycgipgm.pgm">
```
- When the submit button within this form is clicked, the form data is sent to the server where it becomes input to the program named mycgipgm.pgm.
 - Any valid URL can be specified as the object of the action.
 - Here, because the URL does not begin with a slash, the browser assumes the reference is relative to the HTML page containing this tag.
 - This program can be found in the directory named **cgi-bin**, which is a subdirectory of the directory containing the original HTML page.
- On an IBM i system, the HTML page is typically stored as a stream file in a directory of the integrated file system.
- The HTTP server, however, may be directed to look elsewhere for CGI programs, such as in a specified IBM i library.



Copyright 2010. Manta Technologies Inc.

43

HTTP Methods

- The **method** attribute of the HTML **<form>** tag determines the way in which the data entered by the user is passed by the browser through the HTTP server to the CGI program or servlet.
- You have two options.
 - The default value is **method="get"**.
 - The alternative is **method="post"**.



Copyright 2010. Manta Technologies Inc.

44

The GET Method

- If the GET method is used to pass data to the CGI program, the input data
- from the HTML form is appended to the URL when the CGI request is sent to the server.
- For example, the user might notice the following URL appear in the browser's address line:

`http://www.mantatech.com/cgi-bin/mycgipgm.pgm?firstname=Bill&lastname=Hansen&...`

- The first part of the URL identifies the CGI program and the directory and web site where it can be found.
- The input data begins after the program name, **mycgipgm.pgm**.
- A question mark separates the URL of the program from the data.
- Everything after the **?** is called the URL's *query string*.
- Within the query string, each field from the original form is represented by a *name=value* pair.
- In the case of a text field, *name* is the value specified for the **name** attribute of the **<input>** element, and *value* is what the user typed.
- An ampersand separates successive *name-value* pairs.



Copyright 2010. Manta Technologies Inc.

45

The POST Method

- If the **POST** method is used, rather than the **GET** method, the data passed to the server is not visible to the user in the browser's address window.
- The data is passed "under the covers" in the form of a message sent from the browser to the HTTP server.
- The server writes the data to a logical file called **STDIN**, which can be read by the CGI program or servlet.
- As with the query string used by the **GET** method, the data is formatted as a single character string containing *name=value* pairs separated by **&** signs.



Copyright 2010. Manta Technologies Inc.

46

GET versus POST

- There are two important differences between **GET** and **POST**.
 1. Data passed to a CGI program using the **GET** method is visible to the user in the browser's address window. In contrast, data passed using the **POST** method is not visible (although it is still unencrypted unless SSL communication is used).
 2. **POST** allows for longer input fields. This is because the HTTP standard limits the length of any URL to 4096 bytes. This limit is not changed if the URL contains a query string. As a result, it is possible to design forms with many fields or a few long fields for which the **GET** method cannot be used. In contrast, there is no limit to the number or length of fields with the **POST** method.
- Because of these differences, you should use **method="post"** if possible.
- This decision is usually made by the programmer of the CGI program or servlet, rather than by the web developer.



Copyright 2010. Manta Technologies Inc.

47

Radio Buttons

- Radio buttons are useful when you want the user to select one and only one option from a small list.

Dr. ☐ Mr. ☐ Mrs. ☐ Ms. ☐

- Following is how this example was specified:

```
Dr.<input type="radio" name="title" value="DR" />
Mr.<input type="radio" name="title" value="MR" />
Mrs.<input type="radio" name="title" value="MRS" />
Ms.<input type="radio" name="title" value="MS" />
```
- Because **<input>** is an inline element, the four buttons are arranged on a single line.
- More often, a web designer will include them within a table (or use **
** or **<p>** elements) to arrange them vertically.



Copyright 2010. Manta Technologies Inc.

48

- Be sure to assign the same name to all radio buttons in the same group.
- This is how the browser knows which buttons are related, in order to allow the user to pick only one.
- Suppose the user picks the third choice in the example (**Mrs.**).
 - When the submit button is pressed, the CGI program or applet will receive **title=MRS** for this group in the data string.
 - This is the value of the **name** of the group followed by the **value** of the element that was selected.
- You can direct the browser to "pre-select" one of the elements in the group by specifying the attribute **checked="checked"** on the corresponding **<input>** element.



Copyright 2010. Manta Technologies Inc.

49

Check Boxes

- Check boxes are similar to radio buttons, except that the user can select any number of the boxes in a group (including none).



Copyright 2010. Manta Technologies Inc.

50

Checkbox Example

Select any of the following options.

- ☐ Overnight delivery
- ☐ Insurance
- ☐ Fancy wrapping

Select:

```
<table>
<tr><td>
<input type="checkbox" name="delivery"
value="fast" />Overnight delivery
</td></tr><tr><td>
<input type="checkbox" name="insurance"
value="yes" />Insurance
</td></tr><tr><td>
<input type="checkbox" name="wrapping"
value="fancy" />Fancy wrapping
</td></tr>
</table>
```

- Here, the `<input>` elements were put in a table.
- Alternatively, multiple `<p>` elements could have been used to put each option on a separate line.



Copyright 2010. Manta Technologies Inc.

51

- In the previous example, a different name was specified for each input field.
- When different names are used, the CGI program or servlet will receive a `name=value` pair for each item selected.
- If all three items were selected in the example, that means the program will receive the following:

```
delivery=fast&insurance=yes&wrapping=fancy
```



Copyright 2010. Manta Technologies Inc.

52

- Alternatively, suppose the **<input>** elements were defined like this:

```
<table>
<tr><td>
<input type="checkbox" name="options"
value="fast" />Overnight delivery
</td></tr><tr><td>
<input type="checkbox" name="options"
value="insurance" />Insurance
</td></tr><tr><td>
<input type="checkbox" name="options"
value="fancy" />Fancy wrapping
</td></tr>
</table>
```

- This time, we specified the same name for each input field.
- When the submit button is selected, the CGI program or servlet will receive this string:
options=fast&options=insurance&options=fancy
- It will be up to the server program to figure out what this means.
- Once again, which method you should choose as a web developer depends on how the CGI program or servlet expects to receive the data.



Copyright 2010. Manta Technologies Inc.

53

- As with radio buttons, you can specify **checked="checked"** to pre-check a checkbox.
- Unlike radio buttons, any number of checkboxes can be pre-selected.



Copyright 2010. Manta Technologies Inc.

54

Pull-Down Lists

- A pull-down list is an alternative to a checkbox.
- With a pull-down list, the available selections are not displayed until the user takes an action to view them.
- Pull-down lists are typically used when the user needs to select one or more related items from a list.
- The **<select>** element identifies the list as a whole.
- Each item in the list is identified with an **<option>** element.



Copyright 2010. Manta Technologies Inc.

55

Pull-Down List Example

Select a color:

A screenshot of a web form element. It consists of a small rectangular box with a downward-pointing arrow on the right side. The box is currently open, displaying a list of color names: blue, green, red, white, black, cyan, magenta, gray, yellow, orange, brown, pink, and lime. The word "blue" is highlighted in blue, indicating it is the selected option.

```
<select name="color" size="1">
<option value="c1">blue</option>
<option value="c2">green</option>
<option value="c3">red</option>
<option value="c4">white</option>
<option value="c5">black</option>
<option value="c6">cyan</option>
<option value="c7">magenta</option>
<option value="c8">gray</option>
<option value="c9">yellow</option>
<option value="c10">orange</option>
<option value="c11">brown</option>
<option value="c12">pink</option>
<option value="c13">brown</option>
<option value="c14">lime</option>
</select>
```



Copyright 2010. Manta Technologies Inc.

56

- The **name** attribute of the **<select>** element identifies the list.
- This is the name that will identify the selection to the CGI program or applet.
- If magenta is selected, for example, the server program will receive **color=c7**.
- The **size** attribute specifies the number of options to be displayed in the pull-down list before it is opened.
- In the previous example, the user was allowed to select only one item, as with a group of radio buttons.
- If you include the **<select>** attribute **multiple="multiple"**, the user can select more than one element from the list.
- In this case, the server program receives a string like the following:
`color=c3&color=c5&color=c8`



Copyright 2010. Manta Technologies Inc.

57

Text Areas

- **<input type="text">** fields are limited to one line of data.
- For a multiple-line input field, use the **<textarea>** element.



Copyright 2010. Manta Technologies Inc.

58

A Text Area Example

Enter a product description:

```
<textarea name="desc"
cols="20" rows="4"></textarea>
```

- The **cols** and **rows** attributes specify the dimensions of the text area.
- The resulting size depends on the font that is used and is only approximate.
- Because scroll bars are added automatically, the user can type as much text as desired.
- The end tag, **</textarea>** was specified explicitly.
 - It is always required.
 - The contents of the **<textarea>** become the initial value that is placed in the text area.



Copyright 2010. Manta Technologies Inc.

59

Passwords

- Another variation on a basic text field is the **password** field.
- Except for the input type, a password field is defined exactly like a text field.
- Following is an example:

```
<input type="password" name="userPW" size="25" maxlength="20" />
```

- The difference with a password field is that the browser will not show the actual characters that are typed by the user, but will replace them with an asterisk or a graphic character, such as a dot.



Copyright 2010. Manta Technologies Inc.

60

Buttons

- As you saw, a **type="reset"** button clears all fields in the form, resetting the form to its original condition.
- A **type="submit"** button causes the data in the form to be transmitted to the server in *name=value* pairs.
- If you include the **name** attribute on the **<input>** element defining a submit button, the name value is sent to the server when the button is selected.

```
<input type="submit" name="order" value="Checkout"
/>
<input type="submit" name="order" value="Continue"
/>
```

- In this case, clicking on either button causes the form data to be collected and sent to the specified CGI program or applet.
- In addition, either **order=Checkout** or **order=Continue** will be included in the data string, depending which button is selected.
- The server program can then take whatever action is appropriate.



Copyright 2010. Manta Technologies Inc.

61

Hidden Fields

- The final input field type is the **hidden** field, which is defined as follows:

```
<input type="hidden" name="secret" value="4fhg2fhg"/>
```

- While a hidden field is contained within the HTML document, it is not displayed to the user.
- Because it is part of a form, however, it will be sent to the server along with the other fields when the user selects a submit button.
- In the example, the data string sent to the server will contain **secret=4fhg2fhg**.



Copyright 2010. Manta Technologies Inc.

62

- Hidden fields provide a way to pass parameter values from the CGI program that created this page to the CGI program that will process this form and create the next page.
- If hidden fields are used, you should use **method="post"** to avoid the user seeing this value in the query string.



Other Attributes

- As with other inline elements, you can use various HTML attributes and CSS properties to control how an input field is displayed.
- For example,

```
<input type="text" name="ex1" class="MATCH" />
```

might reference this style rule:

```
input.MATCH {  
    color:yellow;  
    background-color:#005a7d;  
    margin-right:.0in;  
    margin-top:.0in;  
    padding-left:4px;  
    width:26px;  
    font-size:100%;  
    font-family:"Arial, Times New Roman";  
    text-transform:uppercase;  
    font-weight:normal;  
}
```



- In addition to the standard properties and attributes, input fields share a couple special capabilities with links.
- In particular, input fields can receive the focus like a link.
- You can tell that a text input field has the focus, for example, when a cursor is visible within the field.
- Because input fields can receive the focus, they are among the elements contained in the tab sequence for the window.
- This is why you can tab from one input field to another.
- Normally, pressing the **Tab** key moves the cursor to the next field.
- As with a link, you can change the tab order by including the **tabindex** attribute on each **<input>**, **<select>**, or **<textarea>** element.
- Similarly, you can associate an accelerator key with an input element using the **accesskey** attribute. This is most useful for radio buttons, since it lets the user select the button using the keyboard rather than the mouse.



Copyright 2010. Manta Technologies Inc.

65

<input> Type Summary

Input Type	User Action	Other Commonly Used Attributes
text	Enter text	name, size, maxlength, value
reset	Clicking this button resets all input fields in the form to their initial values	value
submit	Clicking this button submits the form data to the server	value, name
image	Clicking this graphic submits the form data to the server	src, name
radio	Click one item in a group to select	name, value, checked
checkbox	Click any number of items in a group	name, value, checked
password	Enter a password or other confidential information	name, size, maxlength, value
hidden	Not visible to the user	name, value



Copyright 2010. Manta Technologies Inc.

66

Questions?

Thank you!

whansen@mantatech.com



Copyright 2010. Manta Technologies Inc.

67