

91.113 Exploring the Internet, Fall 2011

## Lecture 16. A Very Brief Introduction to HTML and XHTML, part V



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### Objectives

- **To create and use forms to get user input.**
- **To make web pages accessible to search engines using `<meta>` tags.**
- **Wrap up.**

## Forms

- XHTML provides forms for collecting information from users
- Forms contain visual components, such as buttons, that users interact with
- Forms may also contain nonvisual components, called hidden inputs, which are used to store any data that needs to be sent to the server, but is not entered by the user

- A form begins with the form element
  - Attribute method specifies how the form's data is sent to the web server
  - The action attribute of the form element specifies the script to which the form data will be sent

- The `input` element provides data to the script that processes the form
  - The `text` input inserts a text box into the form, which allows the user to input data
  - The `label` element provides users with information about the input element's purpose
  - The `size` attribute specifies the number of characters visible in the input element
  - Optional attribute `maxlength` limits the number of characters input into a text box
  - The `submit` input submits the data entered in the form to the web server for processing
    - Most web browsers create a button that submits the form data when clicked
  - The `reset` input allows a user to reset all form elements to their default values

```

1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 4.12: form.html -->
6 <!-- Form with hidden fields and a text box. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Forms</title>
10    </head>
11
12    <body>
13      <h1>Feedback Form</h1>
14
15      <p>Please fill out this form to help
16        us improve our site.</p>
17
18      <!-- this tag starts the form, gives the -->
19      <!-- method of sending information and the -->
20      <!-- location of form script -->
21      <form method = "post" action = -->
22        <p>
23          <!-- hidden inputs contain non-visual -->
24          <!-- information -->
25          <input type = "hidden" name = "realname"
26            value = "John Edward Taylor" />
27          <input type = "hidden" name = "subject"
28            value = "Feedback Form" />
29          <input type = "hidden" name = "realname"
30            value = "math.hen" />
31        </p>

```

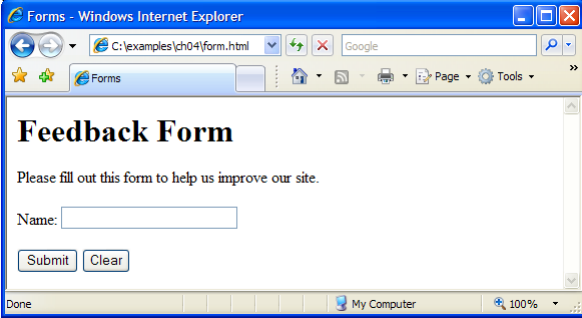
Appends form data to the browser request

No URL is used to process this form's data

Creates hidden inputs not visible to the user

**Fig. 4.12 |** Form with hidden fields and a text box (Part 1 of 2).

32  
33 <!-- <input type = "text"> Inserts a text box  
34 <p><label>Name: ← Creates a label for the text field  
35 <input name = "name" type = "text" size = "25"  
36 maxlength = "30" /> ← Inserts a text box called "name" with 25 characters visible and a 30 character limit  
37 </label></p>  
38  
39 <p>  
40 <!-- Input types "submit" and "reset" insert -->  
41 <!-- buttons for submitting and clearing the -->  
42 <!-- form's contents -->  
43 <input type = "submit" value = "Submit" /> ← Inserts a submit button with "Submit" written on it  
44 <input type = "reset" value = "Clear" /> ← Inserts a reset button with "Clear" written on it  
45 </p>  
46 </form> ← Ends the XHTML form  
47 </body>  
48 </html >



**Fig. 4.12 |** Form with hidden fields and a text box (Part 2 of 2).

- 8
- Include a *label* element for each form element to help users determine the purpose of each form element.
  - Place hidden *input* elements at the beginning of a form, immediately after the opening *form* tag. This placement allows document authors to locate hidden *input* elements quickly.

- The `textarea` element inserts a multiline text box, called a text area, into a form
  - The number of rows in the text area is specified with the `rows` attribute
  - The number of columns (i.e., characters per line) is specified with the `cols` attribute
- The `password` input inserts a password box into a form
  - Allows users to enter sensitive information, such as credit card numbers and passwords, by “masking” the information input with another character, usually asterisks
  - The actual value input is sent to the web server, not the asterisks that mask the input

- The `checkbox` input allows the user to make a selection
  - When the checkbox is selected, a check mark appears in the checkbox. Otherwise, the checkbox is empty
  - Checkboxes can be used individually and in groups. Checkboxes that are part of the same group have the same name

- A radio button is similar in function and use to a checkbox, except that only one radio button in a group can be selected at any time
  - All radio buttons in a group have the same name attribute but different value attributes.
- The select input provides a drop-down list of items
  - The name attribute identifies the drop-down list
  - The option element adds items to the drop-down list

```

1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 4.13: form2.html -->
6 <!-- Form using a variety of components. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>More Forms</title>
10  </head>
11
12  <body>
13    <h1>Feedback Form</h1>
14    <p>Please fill out this form to help
15      us improve our site.</p>
16
17    <form method = "post" action = "">
18      <p>
19        <input type = "hidden" name = "recipient"
20          value = "del tel@del tel.com" />
21        <input type = "hidden" name = "subject"
22          value = "Feedback Form" />
23        <input type = "hidden" name = "redirect"
24          value = "main.html" />
25      </p>
26
27      <p><label>Name:
28        <input name = "name" type = "text" size = "25" />
29        </label></p>
30

```

**Fig. 4.13** | Form using a variety of components (Part 1 of 5).

```

31 <!-- <textarea> creates a multiline textbox -->
32 <p><label>Comments:<br />
33 <textarea name = "comments"
34 rows = "4" cols = "36">Enter comments here.</textarea>
35 </label></p>
36
37 <!-- <input type = "password"> inserts
38 <!-- textbox whose display is masked
39 <!-- asterisk characters -->
40 <p><label>E-mail Address:
41 <input name = "email" type = "password" size = "20" />
42 </label></p>
43
44 <p>
45 <strong>Things you liked:</strong><br />
46
47 <label>Site design
48 <input name = "thingliked" type = "checkbox"
49 value = "Design" /></label>
50 <label>Links
51 <input name = "thingliked" type = "checkbox"
52 value = "links" /></label>
53 <label>Ease of use
54 <input name = "thingliked" type = "checkbox"
55 value = "Ease" /></label>
56 <label>Images
57 <input name = "thingliked" type = "checkbox"
58 value = "Images" /></label>
59 <label>Source code
60 <input name = "thingliked" type = "checkbox"
61 value = "Code" /></label>
62 </p>

```

Inserts a text area with 4 rows and 36 columns, whose initial text is "Enter comments here."

Inserts an input field that displays entered text as asterisks (or another character)

Inserts several checkboxes with different labels

**Fig. 4.13** | Form using a variety of components (Part 2 of 5).

```

63
64 <!-- <input type = "radio" /> creates a radio
65 <!-- button. The difference between radio buttons
66 <!-- and checkboxes is that only one radio button
67 <!-- in a group can be selected. -->
68 <p>
69 <strong>How did you get to our site?</strong><br />
70
71 <label>Search engine
72 <input name = "howto site" type = "radio"
73 value = "search engine" checked = "checked" /></label>
74 <label>Links from another site
75 <input name = "howto site" type = "radio"
76 value = "link" /></label>
77 <label>Del tel. com Website
78 <input name = "howto site" type = "radio"
79 value = "del tel. com" /></label>
80 <label>Reference in a book
81 <input name = "howto site" type = "radio"
82 value = "book" /></label>
83 <label>Other
84 <input name = "howto site" type = "radio"
85 value = "other" /></label>
86 </p>
87
88 <p>
89 <label>Rate our site:
90

```

Initially sets this radio button as selected

Inserts a group of radio buttons, only one of which can be selected

**Fig. 4.13** | Form using a variety of components (Part 3 of 5).

```

91     <!-- the <select> tag presents a drop-down -->
92     <!-- list with choices indicated by the -->
93     <!-- <option> tags -->
94     <select name = "rating">
95         <option selected = "selected">Amazing</option>
96         <option>10</option>
97         <option>9</option>
98         <option>8</option>
99         <option>7</option>
100        <option>6</option>
101        <option>5</option>
102        <option>4</option>
103        <option>3</option>
104        <option>2</option>
105        <option>1</option>
106        <option>Awful </option>
107    </select>
108    </label >
109    </p>
110
111    <p>
112        <input type = "submit" value = "Submit" />
113        <input type = "reset" value = "Clear" />
114    </p>
115 </form>
116 </body>
117 </html >

```

Create a drop-down list named "rating"

Sets "Amazing" as the initially selected option

**Fig. 4.13** | Form using a variety of components (Part 4 of 5).

More Forms - Windows Internet Explorer

C:\examples\ch04\form2.html

Feedback Form

Please fill out this form to help us improve our site.

Name:

Comments:  
Enter comments here.

E-mail Address:

Things you liked:  
Site design  Links  Ease of use  Images  Source code

How did you get to our site?:  
Search engine  Links from another site  Deitel.com Website  Reference in a book  Other

Rate our site:

Submit

Done

**Fig. 4.13** | Form using a variety of components (Part 5 of 5).



- When your form has several checkboxes with the same name, you must make sure that they have different values, or the scripts running on the web server will not be able to distinguish them.
- Not setting the name attributes of the radio buttons in a form to the same name is a logic error because it lets the user select all of them at the same time.

## meta Elements

- One way that search engines catalog pages is by reading the meta element's contents.
  - The name attribute identifies the type of meta element
  - The content attribute
    - Of a keywords meta element: provides search engines with a list of words that describe a page, which are compared with words in search requests
    - Of a description meta element: provides a three- to four-line description of a site in sentence form, used by search engines to catalog your site. This text is sometimes displayed as part of the search result

```

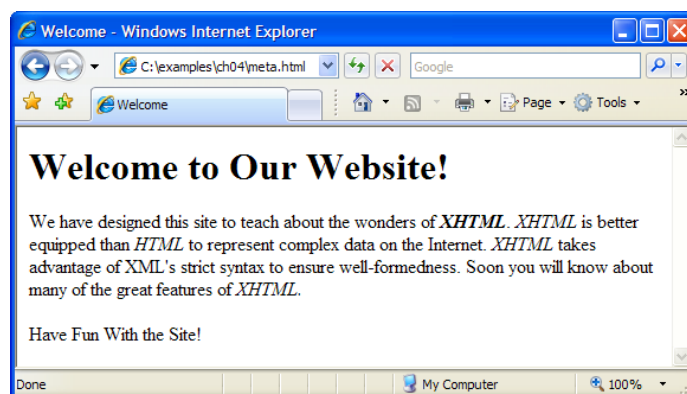
1 <?xml version = "1.0" encoding = "utf-8"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4
5 <!-- Fig. 4.15: meta.html -->
6 <!-- meta elements provide keywords and a description of a page. -->
7 <html xmlns = "http://www.w3.org/1999/xhtml">
8   <head>
9     <title>Welcome</title>
10
11     <!-- <meta> tags provide search engines with -->
12     <!-- information used to catalog a site -->
13     <meta name = "keywords" content = "web page design" />
14     <meta name = "description" content = "XML's strict syntax" />
15     <meta name = "robots" content = "index, follow" />
16     <meta name = "author" content = "John Doe" />
17     <meta name = "copyright" content = "© 2000-2001 John Doe" />
18     <meta name = "generator" content = "XMLMind XML Editor" />
19     <meta name = "viewport" content = "width=device-width, height=device-height, initial-scale=1.0" />
20   </head>
21   <body>
22     <h1>Welcome to Our Website! </h1>
23
24     <p>We have designed this site to teach about the wonders
25     of <strong><em>XHTML</em></strong>. <em>XHTML</em> is
26     better equipped than <em>HTML</em> to represent complex
27     data on the Internet. <em>XHTML</em> takes advantage of
28     XML's strict syntax to ensure well-formedness. Soon you
29     will know about many of the great features of
30     <em>XHTML</em></p>
31
32     <p>Have Fun With the Site! </p>
33   </body>
34 </html >

```

Provides keywords describing the page for a search engine

Provides the site's description in sentence form for a search engine

**Fig. 4.15 | meta** elements provide keywords and a description of a page (Part 1 of 2).



**Fig. 4.15 | meta** elements provide keywords and a description of a page (Part 2 of 2).

meta elements are not visible to users and must be placed inside the head section of your XHTML document. If meta elements are not placed in this section, they will not be read by search engines.

## Wrap Up

1. Things to Remember
2. Important Concepts
3. Where Can I Learn More?

## Things to Remember (1)

- An HTML editor saves you time if you need to create many web pages. But be aware that Composer has its own little quirks, and it is a fairly limited HTML editor.
- Different Web browsers can display the same Web page differently.
- Keep your image files small (~40KB) for fast downloads.
- Use graphical elements with restraint.

## Things to Remember (2)

- Check to see that your pages look good in different-sized browser windows.
- Check all hyperlinks on your pages to make sure they work correctly.
- Do not violate copyright laws when you add materials to your Website.
- View files after you have uploaded them to the server to ensure that everything has transferred correctly.

## Important Concepts (1)

- **Absolute URL** a hyperlink to a Web page on a different Web server
- **Relative URL** a hyperlink to a Web page on the same Web server

## Important Concepts (2)

- **.GIF** an image file in a format especially well suited for line art.
- **.JPEG/.JPG** file an image file in a format especially well suited for photographs.
- **.PNG** file portable network graphics, an image file format designed to replace the old GIF format.

## Important Concepts (3)

- **.html .htm** valid extensions for a text file that corresponds to a Web page.
- **Hypertext markup language (HTML)** the markup language used to format Web pages.
- **Hyperlink (link)** a clickable element on a Web page
- **Inline image** an image positioned inside a text file as if it were a single oversized character.
- **Internal page** link/named anchor a hyperlink to another location on the current Web page.

## Exercises

1. Which two file extensions tell a Web browser to display a file as a Web page?
2. Explain why you should always include HEIGHT and WIDTH attributes for an image file even if you don't need to scale the original image.
3. Why you should never specify a bitmap (.bmp) file as an image to be placed on a Web page?
4. What happens if you reverse the values in the HEIGHT and WIDTH attributes of an IMG element? (You can try it to see for yourself.)
5. When you resize an image on a Web page by changing its HEIGHT and WIDTH attributes, do you change the bandwidth required to download that image? Explain why or why not.

## Answer to Problem 1

- Which two file extensions tell a Web browser to display a file as a Web page?

**Answer:**

*.html and .htm*

## Answer to Problem 2

- Explain why you should always include HEIGHT and WIDTH attributes for an image file even if you don't need to scale the original image.

**Answer:**

*Browsers can display more of your Web page faster if they know right away how much space to allocate to an image. When you don't tell the browser the dimensions of an IMG element, the browser has to wait until the whole image file has downloaded before it can continue its page layout and display elements that follow the IMG element. This can leave user with nothing much to look until the image is completely downloaded. It is always better to set up a Web page so users can at least see all the text on the page even if they can't see all the images.*

## Answer to Problem 3

- Why you should never specify a bitmap (.bmp) file as an image to be placed on a Web page?

**Answer:**

*Bitmap images tend to be about 10 times bigger than .jpg or .gif images. Plus, in the earlier years, the only Web browser that displays .bmp files is IE, and Netscape Navigator and other Web browser didn't display .bmp files. Even nowadays, some popular browsers may still not support .bmp files.*

## Answer to Problem 4

- What happens if you reverse the values in the HEIGHT and WIDTH attributes of an IMG element? (You can try it to see for yourself.)

**Answer:**

*(This is an easy little lab exercise if you want to make the point memorable). The image will display in the space allocated for it, but it will be distorted.*



## Answer to Problem 5

- When you resize an image on a Web page by changing its HEIGHT and WIDTH attributes, do you change the bandwidth required to download that image? Explain why or why not.

**Answer:**

*No. Changing the display size of an image has no effect on the image file or its bandwidth requirements. The same file is downloaded regardless of its HEIGHT and WIDTH attributes. Students who understand the client-server model should be able to reason it out – a Web browser (client software) displaying a Web page cannot alter the properties of files on a Web server).*