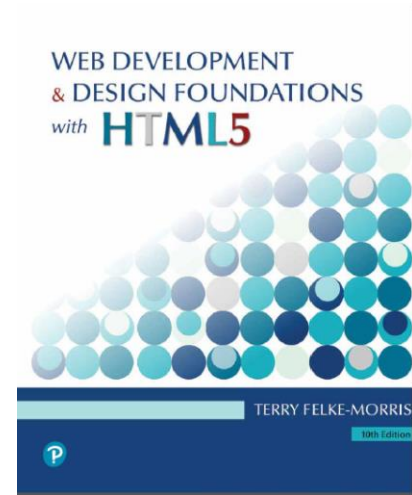


Web Development & Design Foundations with HTML5 10th Edition



CHAPTER 8 TABLES

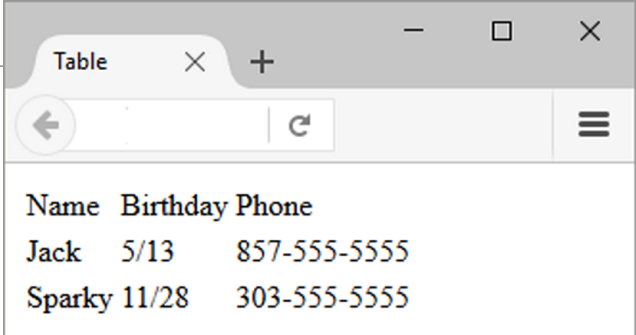
Learning Outcomes

In this chapter, you will learn how to ...

- Create a basic table with the table, table row, table header, and table cell elements
- Configure table sections with the thead, tbody, and tfoot elements
- Increase the accessibility of a table
- Style an HTML table with CSS
- Describe the purpose of CSS structural pseudo-classes

HTML Table

Tables are used on web pages to organize tabular information



Name	Birthday	Phone
Jack	5/13	857-555-5555
Sparky	11/28	303-555-5555

Figure 8.1

Composed of rows and columns – similar to a spreadsheet.

Each individual table cell is at the intersection of a specific row and column.

Configured with table, tr, and td elements

HTML Table Elements

- `<table>`
Contains the table
- `<tr>`
Contains a table row
- `<td>`
Contains a table cell
- `<caption>`
Configures a description of the table

Bird Sightings

Name	Date
Bobolink	5/25/20
Upland Sandpiper	6/03/20

Figure 8.1

Table Example

```
<table>
  <caption>Bird Sightings</caption>
  <tr>
    <td>Name</td>
    <td>Date</td>
  </tr>
  <tr>
    <td>Bobolink</td>
    <td>5/25/20</td>
  </tr>
  <tr>
    <td>Upland Sandpiper</td>
    <td>6/03/20</td>
  </tr>
</table>
```

Bird Sightings

Name	Date
Bobolink	5/25/20
Upland Sandpiper	6/03/20

Figure 8.2

Table Borders

Obsolete Method: HTML border attribute

Modern Method: CSS border Property

table, td, th { border: 1px solid #000; }

Bird Sightings

Name	Date
Bobolink	5/25/20
Upland Sandpiper	6/03/20

Figure 8.2

```
<table>
```

```
<tr>
```

```
<th>Name</th>
```

```
<th>Birthday</th>
```

```
</tr>
```

```
<tr>
```

```
<td>James</td>
```

```
<td>11/08</td>
```

```
</tr>
```

```
<tr>
```

```
<td>Karen</td>
```

```
<td>4/17</td>
```

```
</tr>
```

```
<tr>
```

```
<td>Sparky</td>
```

```
<td>11/28</td>
```

```
</tr>
```

```
</table>
```

HTML

Table Example 2

Using the <th> Element

Name	Birthday
James	11/08
Karen	4/17
Sparky	11/28

HTML Table Attributes

- align (obsolete)
- bgcolor (obsolete)
- border (obsolete)
- cellpadding (obsolete)
- cellspacing (obsolete)
- summary (obsolete)
- width (obsolete)

Use CSS to configure table characteristics instead of HTML attributes

HTML Common Table Cell Attributes

- align (obsolete)
- bgcolor (obsolete)
- colspan
- rowspan
- valign (obsolete)
- height (deprecated)
- width (deprecated)

Use CSS to configure most table cell characteristics instead of HTML attributes

Also see Table 8.3

<table>

<tr>

<td colspan="2">
Birthday List</td>

</tr>

<tr>

<td>James</td>

<td>11/08</td>

</tr>

<tr>

<td>Karen</td>

<td>4/17</td>

</tr>

</table>

HTML colspan Attribute

Birthday List	
James	11/08
Karen	4/17

HTML rowspan Attribute

```
<table>  
  <tr>  
    <td rowspan="2">This spans two rows</td>  
    <td>Row 1 Column 2</td>  
  </tr>  
  <tr>  
    <td>Row 2 Column 2</td>  
  </tr>  
</table>
```

This spans two rows	Row 1 Column 2
	Row 2 Column 2

Figure 8.6

Accessibility and Tables

Use table header elements (<th> tags) to indicate column or row headings.

Use the caption element to provide a text title or caption for the table.

- Complex tables:
 - Associate table cell values with their corresponding headers
 - <th> tag id attribute
 - <td> tag headers attribute

```

<table>
<caption>Bird Sightings</caption>
<tr>
  <th id="name">Name</th>
  <th id="date">Date</th>
</tr>
<tr>
  <td headers="name">Bobolink</td>
  <td headers="date">5/25/20</td>
</tr>
<tr>
  <td headers="name">Upland Sandpiper</td>
  <td headers="date">6/03/20</td>
</tr>
</table>

```

Name	Date
Bobolink	5/25/20
Upland Sandpiper	6/03/20

Figure 8.8

Checkpoint

1. Describe the purpose of using a table on a web page.
2. How is the text contained in a th element displayed by the browser?
3. Describe one coding technique that increases the accessibility of an HTML table.

Using CSS to Style a Table

HTML Attribute	CSS Property
align	Center align a table: table { width: 75%; margin: auto; } Center align within a table cell: text-align: center;
bgcolor	background-color
cellpadding	padding
cellspacing	border-spacing or border-collapse
height	height
valign	vertical-align
width	width
border	border, border-style, or border-spacing
--	background-image

Excerpted from Table 8.4

CSS Structural Pseudo-classes

Table 8.5

Pseudo-class	Purpose
:first-of-type	Applies to the first element of the specified type
:first-child	Applies to the first child of an element (CSS2 selector)
:last-of-type	Applies to the last element of the specified type
:last-child	Applies to the last child of an element
:nth-of-type(n)	Applies to the “nth” element of the specified type Values: a number, odd, or even

Zebra Stripe a Table

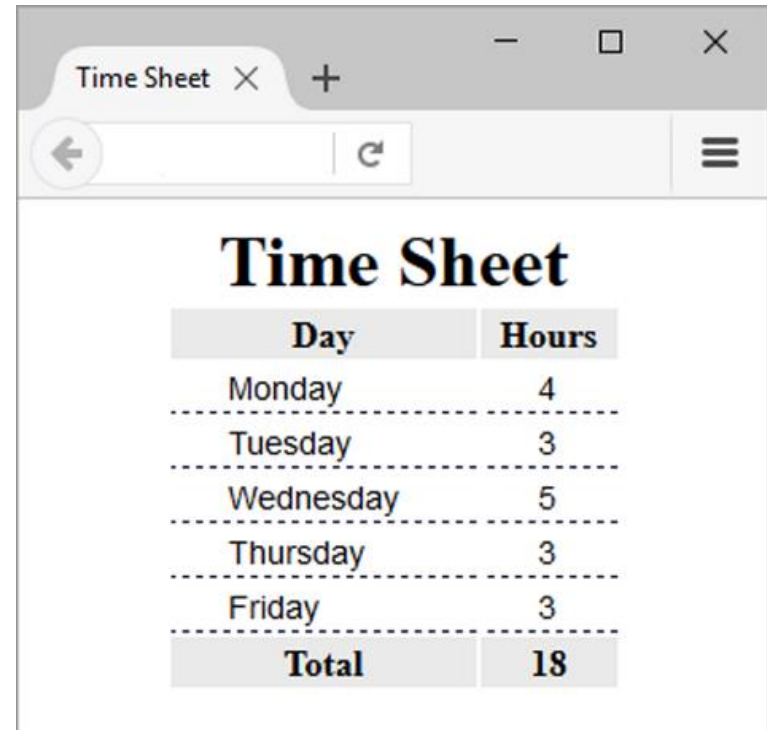
```
tr:nth-of-type(even) { background-color: #eaeaea; }
```


Table Row Groups

<thead>
table head rows

<tbody>
table body rows

<tfoot>
table footer rows



Day	Hours
Monday	4
Tuesday	3
Wednesday	5
Thursday	3
Friday	3
Total	18

Figure 8.12

```
<table> <caption>Time Sheet</caption>
<thead>
  <tr>
    <th id="day">Day</th>
    <th id="hours">Hours</th>
  </tr>
</thead>
<tbody>
  <tr>
    <td headers="day">Monday</td>
    <td headers="hours">4</td>
  </tr>
  ...
  <tr>
    <td headers="day">Friday</td>
    <td headers="hours">3</td>
  </tr>
</tbody>
<tfoot>
  <tr>
    <td headers="day">Total</td>
    <td headers="hours">18</td>
  </tr>
</tfoot> </table>
```

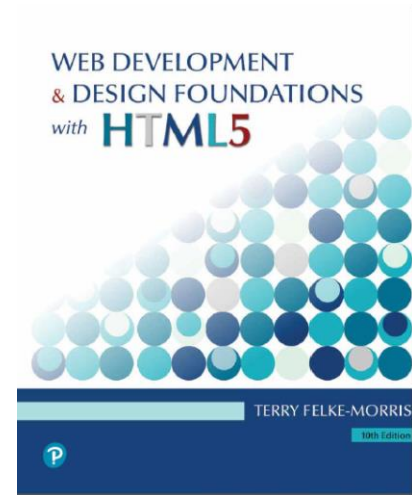
Checkpoint

1. Describe a reason to configure a table with CSS properties instead of HTML attributes.
2. List three elements that are used to group table rows.

Summary

This chapter introduced the HTML and CSS techniques used to create and configure tables on web pages.

Web Development & Design Foundations with HTML5 10th Edition



CHAPTER 9 FORMS

Learning Outcomes

In this chapter, you will learn how to ...

- Describe common uses of forms on web pages
- Create forms on web pages using the form, input, textarea, and select elements
- Create forms that provide additional accessibility features using the accesskey and tabindex attributes
- Associate form controls and groups using the label, fieldset, and legend elements
- Create custom image buttons and use the button element
- Use CSS float to style a form
- Use CSS Grid Layout to style a form
- Configure HTML5 form controls including the email, URL, datalist, range, spinner, calendar date-picker, and color controls
- Describe the features and common uses of server-side processing
- Invoke server-side processing to handle form data
- Find free server-side processing resources on the Web

Overview of Forms

Forms are used all over the Web to

- Accept information
- Provide interactivity



Shipping Address

Name:

Address Line 1:

Address Line 2:

City:

State: Zip:

Country:

Figure 9.1

Types of forms:

- Search form, Order form, Newsletter sign-up form, Survey form, Add to Cart form, and so on...

Overview of Forms (2)

Form

- An HTML element that contains and organizes
- **form controls** such as text boxes, check boxes, and buttons

that can accept information from website visitors.



Shipping Address

Name:

Address Line 1:

Address Line 2:

City:

State: Zip:

Country:

Figure 9.1

Two Components of Using Forms

1. The HTML form
the web page user interface

and

2. The server-side processing

Server-side processing works with the form data and sends e-mail, writes to a text file, updates a database, or performs some other type of processing on the server.

HTML Using Forms

<form>

- Contains the form elements on a web page
- Container tag

<input>

- Configures a variety of form elements including text boxes, radio buttons, check boxes, and buttons
- Stand alone tag

<textarea>

- Configures a scrolling text box
- Container tag

<select>

- Configures a select box (drop down list)
- Container tag

<option>

- Configures an option in the select box
- Container tag

Sample Form HTML

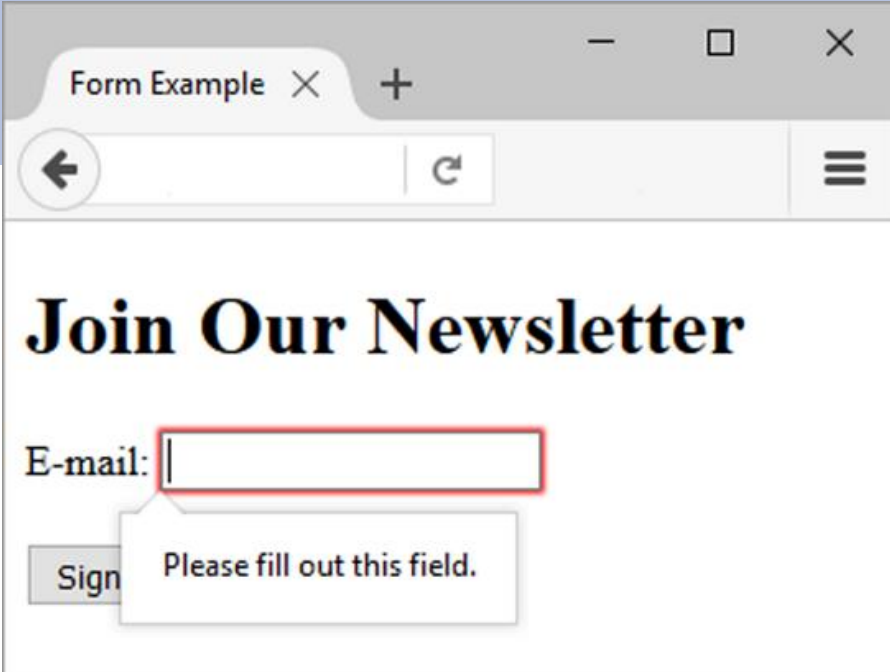
<form>

**E-mail: <input type="text" name="email" id="email" required>
**

<input type="submit">

<input type="reset">

</form>



The image shows a web browser window with a single tab titled 'Form Example'. The browser's address bar is empty. The page content features a heading 'Join Our Newsletter' in a large, bold, black serif font. Below the heading is the text 'E-mail:' followed by a text input field. The input field has a red border, indicating it is required. A tooltip message 'Please fill out this field.' is displayed over the input field. To the left of the input field is a 'Sign' button, which is partially obscured by the tooltip. The browser window has standard navigation buttons (back, forward, refresh) and window controls (minimize, maximize, close).

Figure 9.3

HTML form element

- The form element attributes:
 - action
 - Specifies the server-side program or script that will process your form data
 - method
 - get – default value,
form data passed in URL
 - post – more secure,
form data passed in HTTP Entity Body
 - name
 - Identifies the form
 - id
 - Identifies the form

Input Text box

`<input>`

Accepts text information

- Attributes:
 - `type="text"`
 - `name`
 - `id`
 - `size`
 - `maxlength`
 - `value`

Sample Text Box

E-mail:

Figure 9.2

textarea Scrolling Text Box

`<textarea> </textarea>`

Configures a scrolling text box

Attributes:

- name
- id
- cols
- rows

Sample Scrolling Text Box

Comments:

Enter comments




Figure 9.9

input Submit Button

`<input>`

Submits the form information

When clicked:

- Triggers the **action** method on the `<form>` tag
- Sends the form data (the name=value pair for each form element) to the web server.

Attributes:

- `type="submit"`
- `name`
- `id`
- `value`

Sample Submit Button

A rectangular button with a light gray gradient and a thin black border. The text "Submit Query" is centered on the button in a dark gray, sans-serif font.

input Reset Button

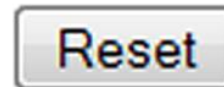
`<input>`

Resets the form fields to their initial values

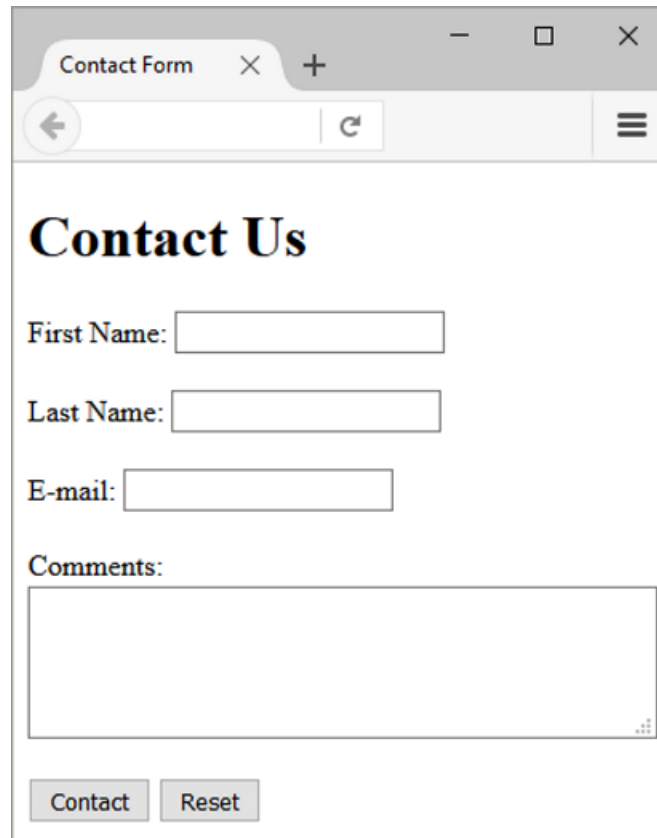
Attributes:

- `type="reset"`
- `name`
- `id`
- `value`

Sample Reset Button



Hands-On Practice



A screenshot of a web browser window displaying a contact form. The browser's address bar shows the page title "Contact Form". The form itself is titled "Contact Us" in a large, bold, serif font. Below the title are three input fields: "First Name:", "Last Name:", and "E-mail:", each followed by a rectangular text box. Below these is a "Comments:" label followed by a large, empty text area. At the bottom of the form are two buttons: "Contact" and "Reset".

Figure 9.10

input File Upload Control

<input>

Accepts a file upload when the form is submitted

Requires the form element to be configured with method="post", enctype="multipart/form-data", and the action attribute.

- Attributes:
 - type="file"
 - name
 - id
 - accepts
 - capture
 - multiple

Sample File Upload Control

File Upload: No file selected.

input Password box

<input>

Accepts text information that needs to be hidden as it is entered

- Attributes:
 - type="password"
 - name
 - id
 - size
 - maxlength
 - value



Figure 9.8

input Check box

`<input>`

Allows the user to select one or more of a group of predetermined items

- Attributes:
 - `type="checkbox"`
 - `name`
 - `id`
 - `checked`
 - `value`

Sample Check Box

Choose the browsers you use:

- ☐ Google Chrome
- ☐ Firefox
- ☐ Microsoft Edge

Figure 9.6

input Radio Button

`<input>`

Allows the user to select exactly one from a group of predetermined items

Each radio button in a group is given the same name and a unique value

- Attributes:
 - `type="radio"`
 - `name`
 - `id`
 - `checked`
 - `value`

Sample Radio Button

Select your favorite browser:

- ☐ Google Chrome
- ☐ Firefox
- ☐ Microsoft Edge

Figure 9.7

input Hidden form data

<input>

This form control is *not* displayed on the web page.

Hidden form fields

- Can be accessed by both client-side and server-side scripting
- Sometimes used to contain information needed as the visitor moves from page to page.

Attributes:

- type="hidden"
- name
- id
- value

Select List

`<select></select>`

Configures a select list (along with option elements)

Also known as: Select Box, Drop-Down List, Drop-Down Box, and Option Box.

Allows the user to select one or more items from a list of predetermined choices.

- Attributes:

- name
- id
- size
- multiple

Select List: One Initial Visible Item

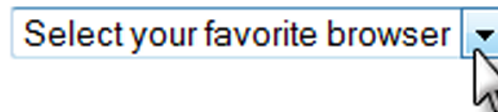


Figure 9.11

Options in a Select List

`<option></option>`

Configures the options in a Select List

Attributes:

- value
- selected

Select List: Four Items Visible

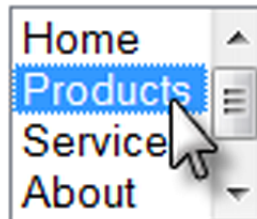


Figure 9.12

Checkpoint

1. You are designing a web site for a client who sells items in a retail store.

They want to create a customer list for e-mail marketing purposes. Your client sells to consumers and needs a form that accepts their customer's name and e-mail address.

Would you recommend using two input boxes (one for the name and one for the e-mail) or three input boxes (for the first name, last name, and email address)? Explain your answer.

Checkpoint

2. You are designing a survey form for a client. One of the questions has 10 possible responses. Only one response can be selected per question.

What type of form control would you use to configure this question on the web page?

3. True or False.

In a radio button group, the value attribute is used by the browser to process the radio buttons as a group.

input Image Button

<input>

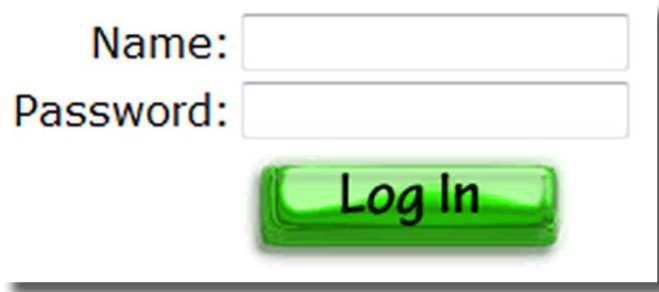
Submits the form

When clicked:

- Triggers the **action** method on the form tag
- Sends the form data (the name=value pair for each form element) to the web server.

- Attributes:

- type="image"
- name
- id
- src



A login form with two text input fields. The first field is labeled 'Name:' and the second is labeled 'Password:'. Below the fields is a green, rounded rectangular button with the text 'Log In' in black.

Figure 9.13

Button Element

`<button></button>`

A container tag

When clicked, its function depends on the value of the type attribute.

Can contain a combination of text, images, and media

- Attributes:

- type="submit", type="reset", type="button"
- name
- id
- alt
- value

A web form interface. It features two text input fields, one labeled 'Name:' and one labeled 'E-mail:'. Below these fields is a prominent green button with the text 'Sign Up' in white. Underneath the button, the text 'Sign up for free newsletter' is displayed. The entire form is enclosed in a light gray border.

Figure 9.14

Accessibility & Forms

Label Element

Fieldset Element

Legend Element

TabIndex Attribute

Accesskey Attribute

Label Element

`<label></label>`

Associates a text label with a form control

Two Different Formats:

`<label>Email: <input type="text" name="email" id="email"></label>`

Or

`<label for="email">Email: </label>
<input type="text" name="CustEmail" id="email">`

Fieldset and Legend Elements

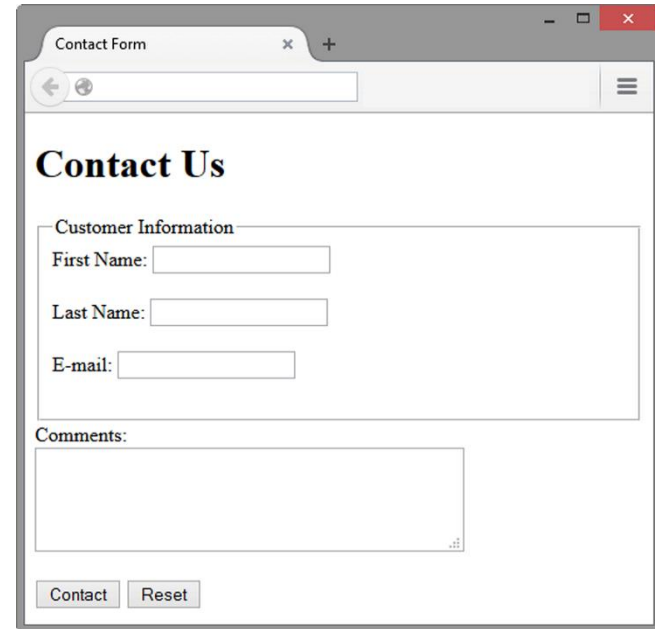
Figure 9.16

The Fieldset Element

- Container tag
- Creates a visual group of form elements on a web page

The Legend Element

- Container tag
- Creates a text label within the fieldset



```
<fieldset><legend>Customer Information</legend>
  <label>Name:
  <input type="text" name="Name" id="Name"></label>
  <br><br>
  <label>Email:
  <input type="text" name="Email" id="Email"></label>
</fieldset>
```

tabindex attribute

Attribute that can be used on form controls and anchor tags

Modifies the default tab order

Assign a numeric value

```
<input type="text" name="CustEmail" id="CustEmail"
tabindex="1">
```

accesskey Attribute

Attribute that can be used on form controls and anchor tags

Create a “hot-key” combination to place the focus on the component

Assign a value of a keyboard letter

On Windows use the CTRL and the “hot-key” to move the cursor

```
<input type="text" name="CustEmail"  
      id="CustEmail" accesskey="E">
```


Checkpoint

1. Describe the purpose of the fieldset and legend elements.
2. Describe the purpose of the accesskey attribute and how it supports accessibility.
3. When designing a form, should you use the standard submit button, an image button, or a button tag? Are these different in the way that they provide for accessibility? Explain your answer.

Using CSS Float to Style a Form

Figure 9.18

```
form { background-color: #EAEAEA;
        font-family: Arial, sans-serif;
        width: 350px;
        padding: 10px;}
label { float: left;
        clear: left;
        display: block;
        width: 100px;
        text-align: right;
        padding-right: 10px;
        margin-top: 10px; }
input, textarea { margin-top: 10px;
                  display: block;}
input[type="submit"] { margin-left: 110px; }
```

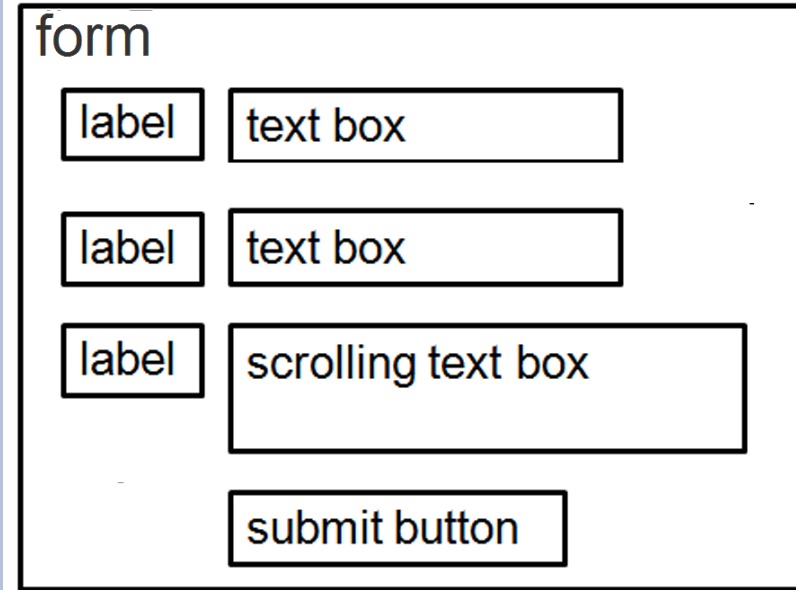
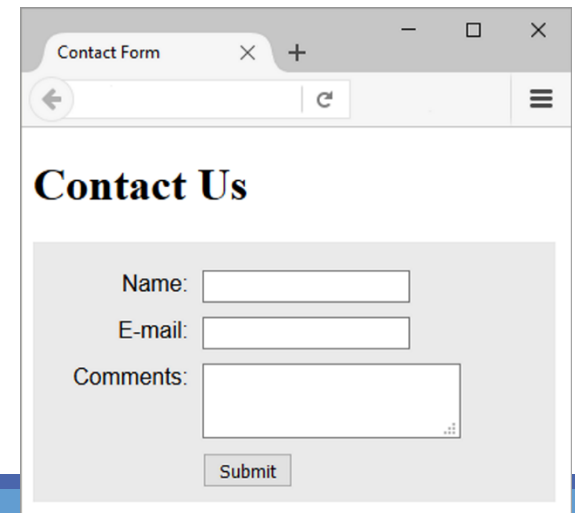


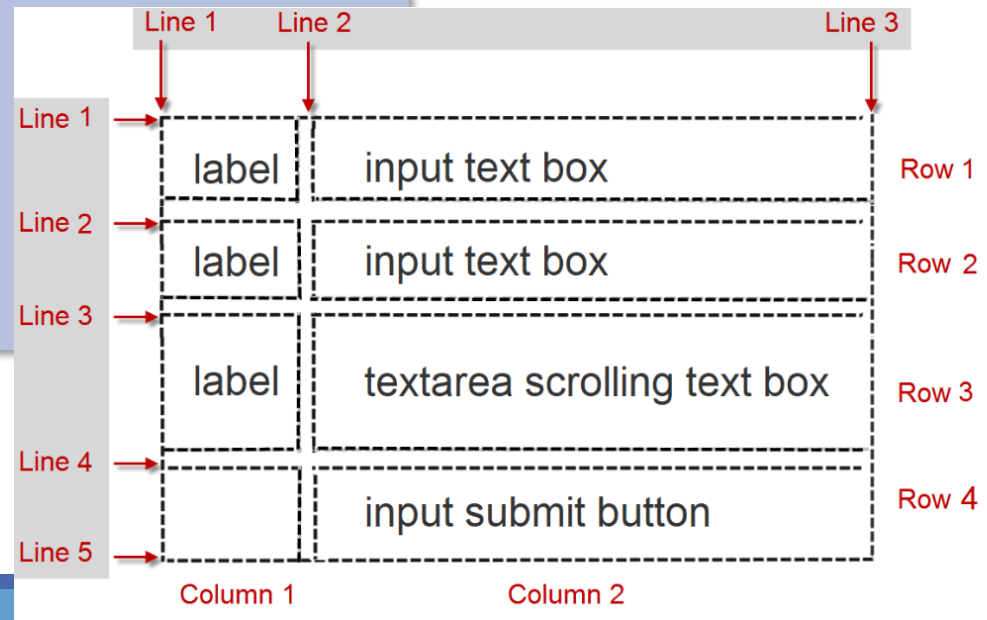
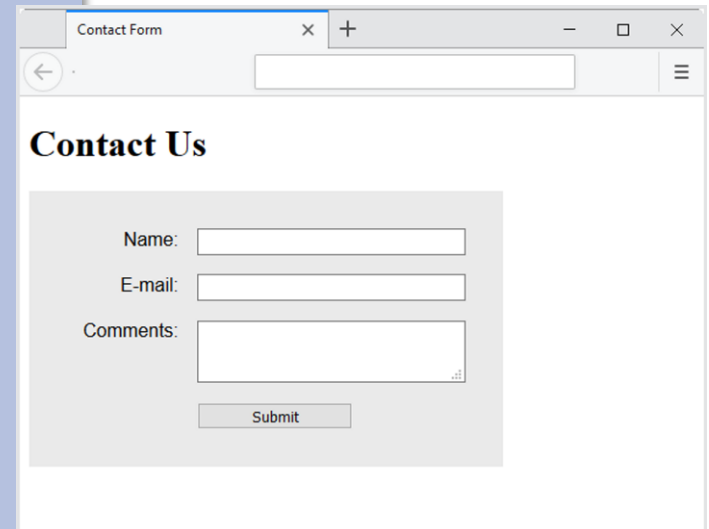
Figure 9.19



Using CSS Grid Layout to Style a Form

Figure 9.21

```
form { display: grid;
       grid-template-rows: auto;
       grid-template-columns: 6em 1fr;
       grid-gap: 1em; gap: 1em;
       background-color: #EAEAEA;
       font-family: Arial, sans-serif;
       min-width: 25em;
       width: 60%;
       padding: 2em; }
input[type="submit"] {
  grid-column: 2 / 3;
  width: 10em; }
```



Server-Side Processing

- Your web browser requests web pages and their related files from a web server.
- The web server locates the files and sends them to your web browser.
- The web browser then renders the returned files and displays the requested web pages for you to use.

CGI

Common Gateway Interface

A protocol for a web server to pass a web page user's request to an application program and accept information to send to the user.

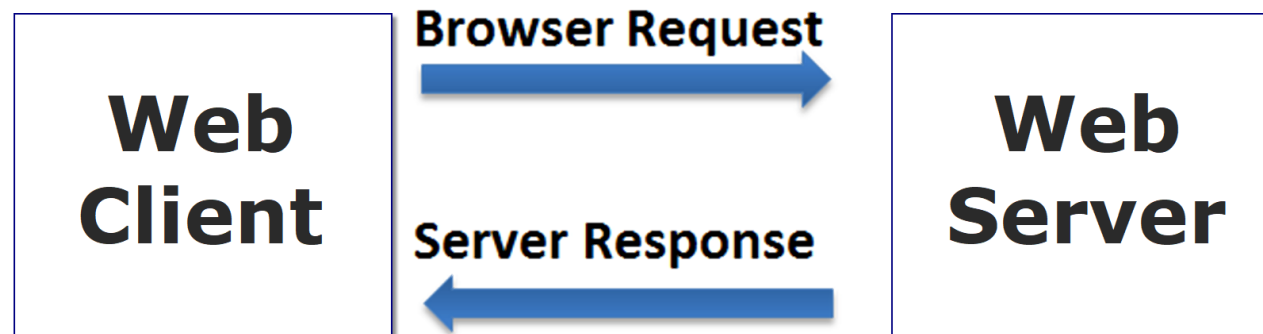


Figure 1.5

Server-Side Scripting

- One of many technologies in which a server-side script is embedded within a Web page document saved with a file extension such as:
 - .php (PHP)
 - .cfm (Adobe ColdFusion)
 - .jsp (Sun JavaServer Pages)
 - .aspx (ASP.Net).
- Uses direct execution — the script is run either by the web server itself or by an extension module to the web server.

Steps in Utilizing Server-Side Processing

1. Web page invokes server-side processing by a form or hyperlink.
2. Web server executes a server-side script.
3. Server-side script accesses requested database, file, or process.
4. Web server returns web page with requested information or confirmation of action.

Common Uses of Server-Side Scripting

Search a database

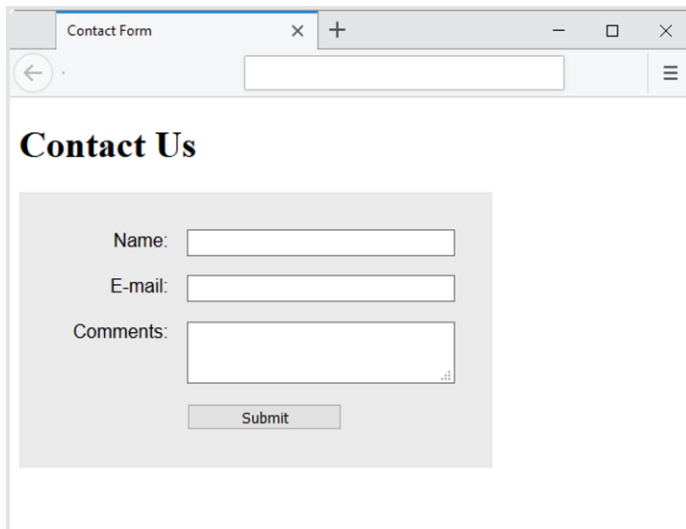
Place an order at an online store

Send a web page to a friend

Subscribe to a newsletter

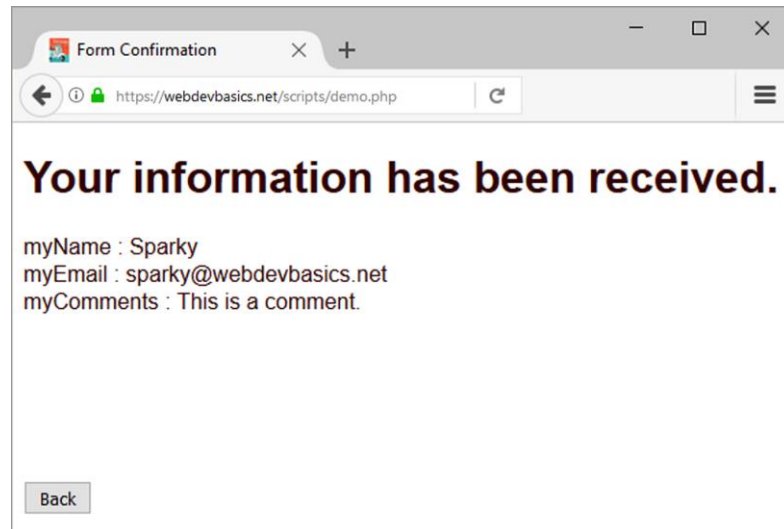
Sending information to a Server-side Script

```
<form method="post"
action="https://webdevbasics.net/scripts/demo.php ">
```



A screenshot of a web browser window titled 'Contact Form'. The page has a header 'Contact Us'. Below it is a form with three input fields: 'Name:', 'E-mail:', and 'Comments:'. The 'Comments:' field is a larger text area. A 'Submit' button is located at the bottom of the form.

Figure 9.21



A screenshot of a web browser window titled 'Form Confirmation'. The address bar shows 'https://webdevbasics.net/scripts/demo.php'. The page displays the message 'Your information has been received.' followed by the submitted data: 'myName : Sparky', 'myEmail : sparky@webdevbasics.net', and 'myComments : This is a comment.' A 'Back' button is at the bottom left.

Figure 9.22

Sources of Free Server-Side Processing

Many web host providers offer free scripts for their clients. Contact their support area or FAQ to learn more about their services.

Some web sites that offer FREE remotely hosted scripts (in return for displaying an ad).

- <http://www.formmail.com>
- <https://formsfree.io>

Server-Side Scripting Technologies

- JavaServer Pages
<http://www.oracle.com/technetwork/java/javaee/jsp>
- ColdFusion
<http://www.adobe.com/products/coldfusion>
- PHP
<http://www.php.net>
- Ruby on Rails
<http://www.rubyonrails.org>
- Microsoft's .NET Framework
<http://www.microsoft.com/net>

Checkpoint

1. Describe server-side processing.
2. Describe why communication is needed between the developer of a server-side script and the web page designer.

HTML5: Email Text Box

`<input>`

Accepts text information in e-mail address format

- Common Attributes:
 - `type="email"`
 - `name`
 - `id`
 - `size`
 - `maxlength`
 - `value`
 - `placeholder`
 - `required`

A screenshot of a web browser window titled 'Form Example'. The page content includes a heading 'Join Our Newsletter' in a large, bold, black serif font. Below the heading is a label 'E-mail:' followed by a text input field containing the text 'Dr.Morris'. The input field has a red border, indicating it is the focus of a validation error. Below the input field is a grey button labeled 'Sign'. A white tooltip box with a grey border points to the input field, containing the text 'Please enter an email address.' in a small, grey font. The browser's address bar and navigation controls are visible at the top.

Figure 9.23

HTML5: Telephone Number Text Box

`<input>`

Accepts text information in telephone number format

- Common Attributes:

- `type="tel"`
- `name`
- `id`
- `size`
- `maxlength`
- `value`
- `placeholder`
- `required`

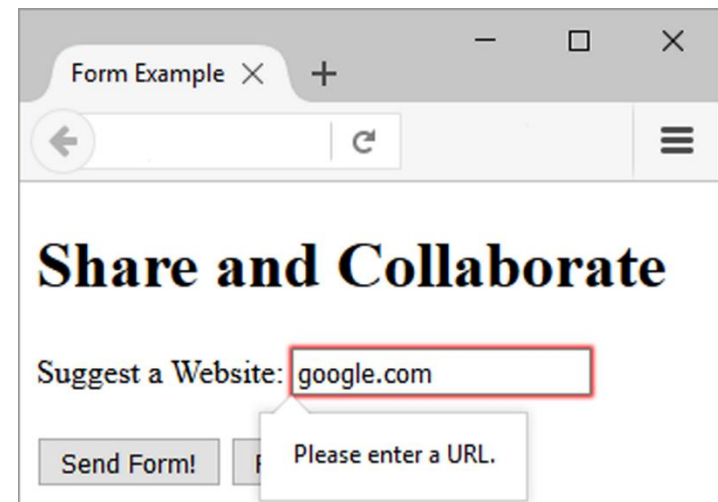


Figure 9.24

HTML5: Search Text Box

`<input>`

Accepts search terms

- Common Attributes:

- `type="search"`
- `name`
- `id`
- `size`
- `maxlength`
- `value`
- `placeholder`
- `required`

HTML5: Datalist Control

```
<label for="color">Favorite Color:</label>
<input type="text" name="color" id="color"
list="colors" >

<datalist id="colors">
  <option value="red" label="Red">
  <option value="green" label="Green">
  <option value="blue" label="Blue">
  <option value="yellow" label="Yellow">
  <option value="pink" label="Pink">
  <option value="black" label="Black">
</datalist>
```

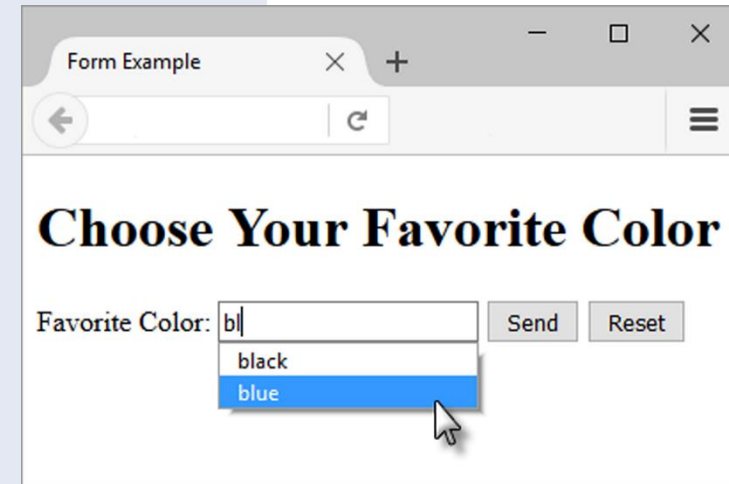


Figure 9.25

HTML5: Slider Control

<label for="myChoice">

Choose a number between 1 and 100:</label>

Low <input type="range"
name="myChoice"
id="myChoice"
min="1"
max="100"> High

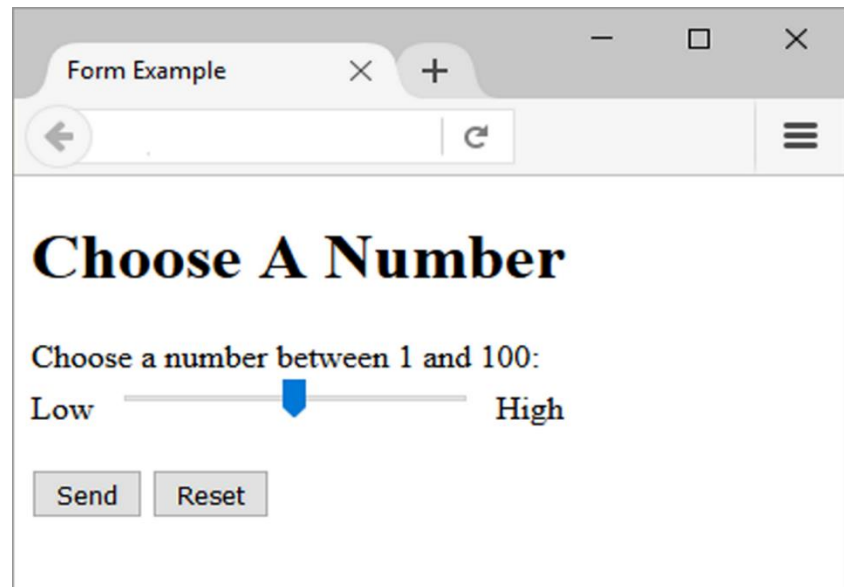


Figure 9.27

HTML5: Spinner Control

```
<label for="myChoice">Choose a number between 1 and 10:</label>  
<input type="number"  
  name="myChoice"  
  id="myChoice"  
  min="1" max="10">
```

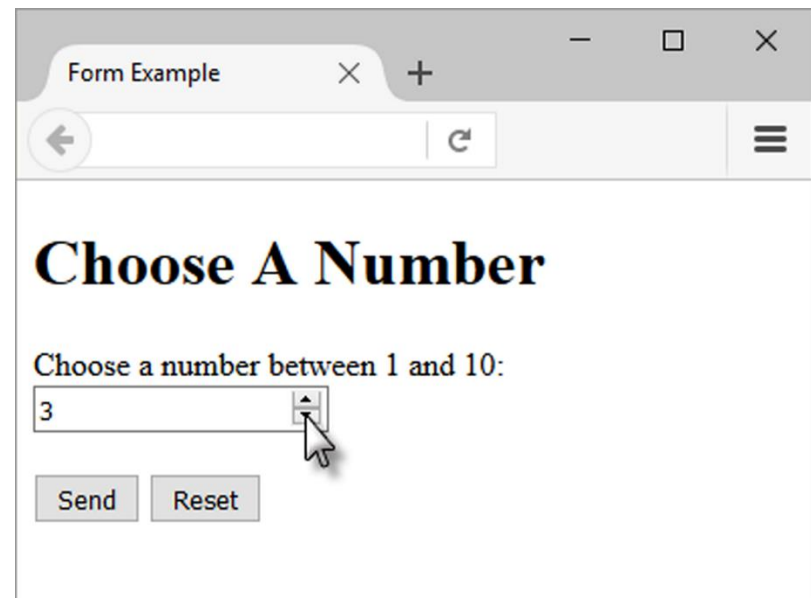


Figure 9.28

HTML5: Calendar Date-Picker Control

```
<label for="myDate">Choose a Date</label>  
<input type="date" name="myDate" id="myDate">
```

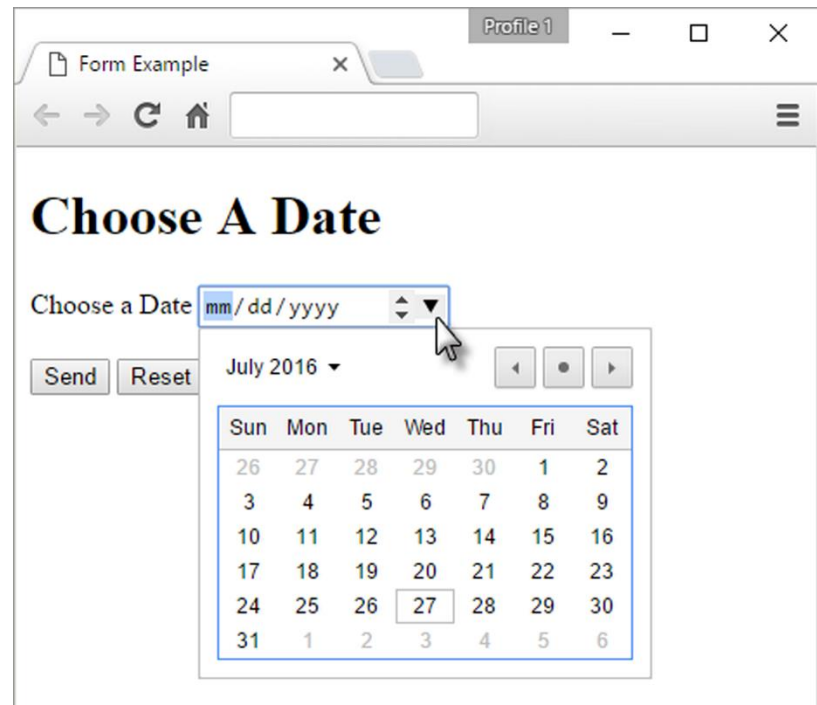


Figure 9.29

HTML5: Color Well Control

`<label for="myColor">Choose a color:</label>`
`<input type="color" name="myColor" id="myColor">`

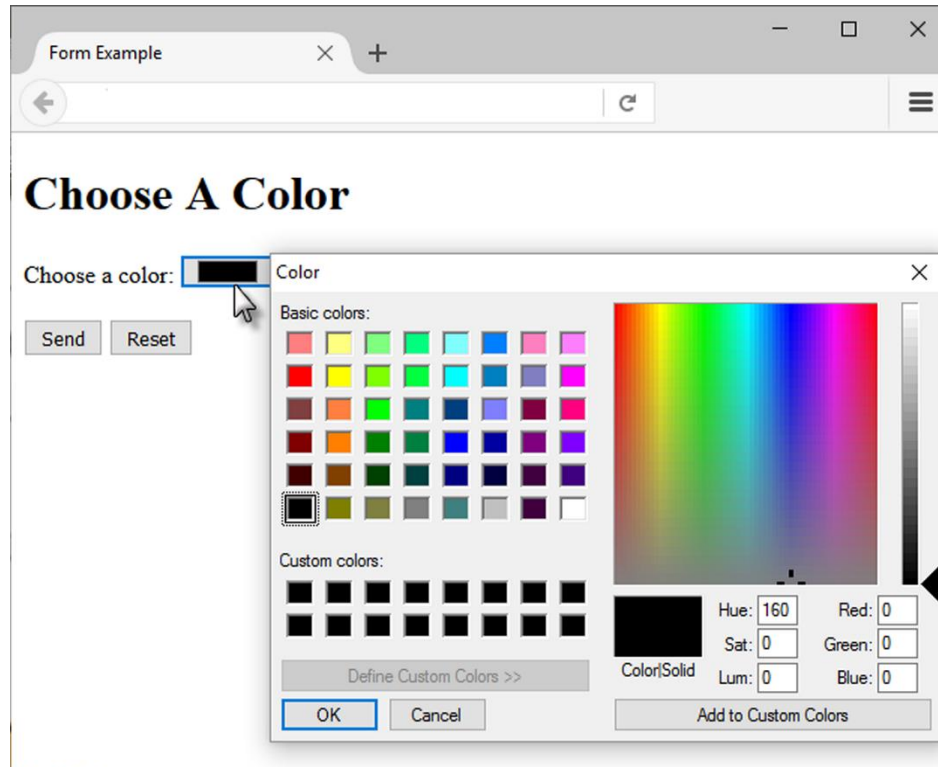
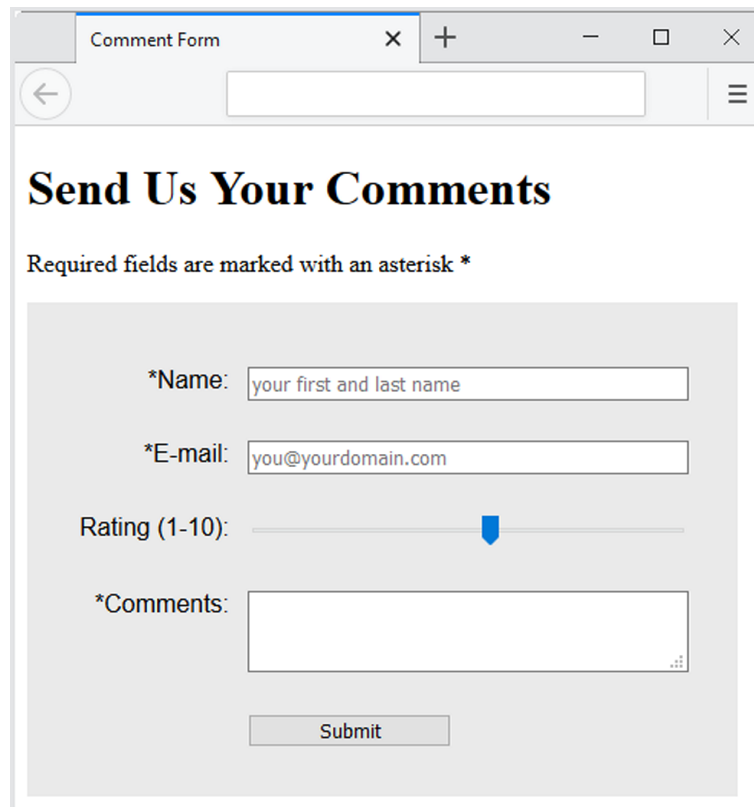


Figure 9.30

Practice with an HTML5 Form

The form display and functioning varies with browser support.



The screenshot shows a web browser window with a single tab titled 'Comment Form'. The browser's address bar is empty. The page content features a heading 'Send Us Your Comments' in a bold, serif font. Below the heading, a note states 'Required fields are marked with an asterisk *'. The form itself is contained within a light gray rectangular box and includes the following elements: a text input field for '*Name:' with the placeholder text 'your first and last name'; a text input field for '*E-mail:' with the placeholder text 'you@yourdomain.com'; a rating control for 'Rating (1-10):' consisting of a horizontal line with a blue downward-pointing triangle marker positioned at the midpoint; a large text area for '*Comments:'; and a 'Submit' button at the bottom center of the form box.

Figure 9.31

Summary

This chapter introduced the use of forms on web pages.

You learned about how to configure form elements and provide for accessibility.

You also learned how to configure a form to access server-side processing.

In addition, you learned about new HTML5 form controls.