LAB 5

HTML TABLES AND FORMS

What You Will Learn

- How to create HTML tables
- How to style tables
- How to create HTML forms

Approximate Time

The exercises in this lab should take approximately 70 minutes to complete.

Fundamentals of Web Development, 3rd Ed

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Preparing Directories

The starting `lab05` folder has been provided for you (within the zip file/folder downloaded from Gumroad).

1 If you haven't done so already, create a folder in your personal drive for all the labs for this book.

2 Copy the folder titled `lab05` from the zip file/folder to your course folder.

Note: these labs use the convention of `blue background` *text to indicate filenames or folder names and* **`bold red`** *for content to be typed in by the student.*

Creating Tables

The `<table>` element in HTML represents information that exists in a two-dimensional grid. Tables can be used to display calendars, financial data, pricing tables, and many other types of data. Just like a real-world table, an HTML table can contain any type of data: not just numbers, but text, images, forms, even other tables.

Exercise 5.1 — Create a Basic Table

1 Open, examine, and test `lab05-ex01.html` in browser.

2 Add the following markup to the document.

```
<body>
   <table>
      <tr>
         <td>The Death of Marat</td>
         <td>Jacques-Louis David</td>
         <td>1793</td>
         <td>162cm</td>
         <td>128cm</td>
      </tr>
      <tr>
         <td>Burial at Ornans</td>
         <td>Gustave Courbet</td>
         <td>1849</td>
         <td>314cm</td>
         <td>663cm</td>
      </tr>
   </table>
</body>
```

The indenting shown here is purely for clarity purposes. It is up to you whether you want to space the table markup in the same fashion.

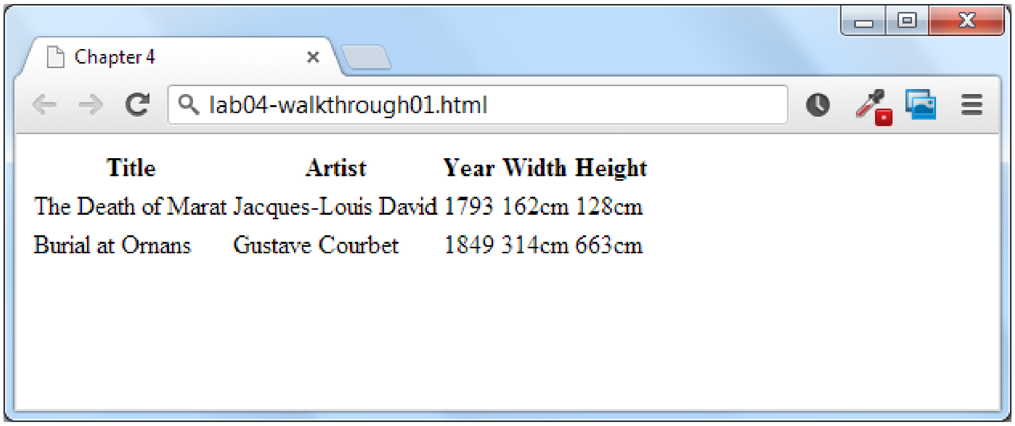
3 Test in browser.

4 Add the following markup.

```
<table>
   <tr>
      <th>Title</th>
      <th>Artist</th>
      <th>Year</th>
      <th>Width</th>
      <th>Height</th>
   </tr>
   <tr>
      <td>The Death of Marat</td>
      ...
```

This adds a heading row to the table.

5 Test in browser. The result should look similar to that shown in Figure 5.1.



Title	Artist	Year	Width	Height
The Death of Marat	Jacques-Louis David	1793	162cm	128cm
Burial at Ornans	Gustave Courbet	1849	314cm	663cm

Figure 5.1 – Exercise 5.1 Complete

Exercise 5.2 — Complex Content in Tables

1 Open, examine, and test `lab05-ex02.html` in browser.

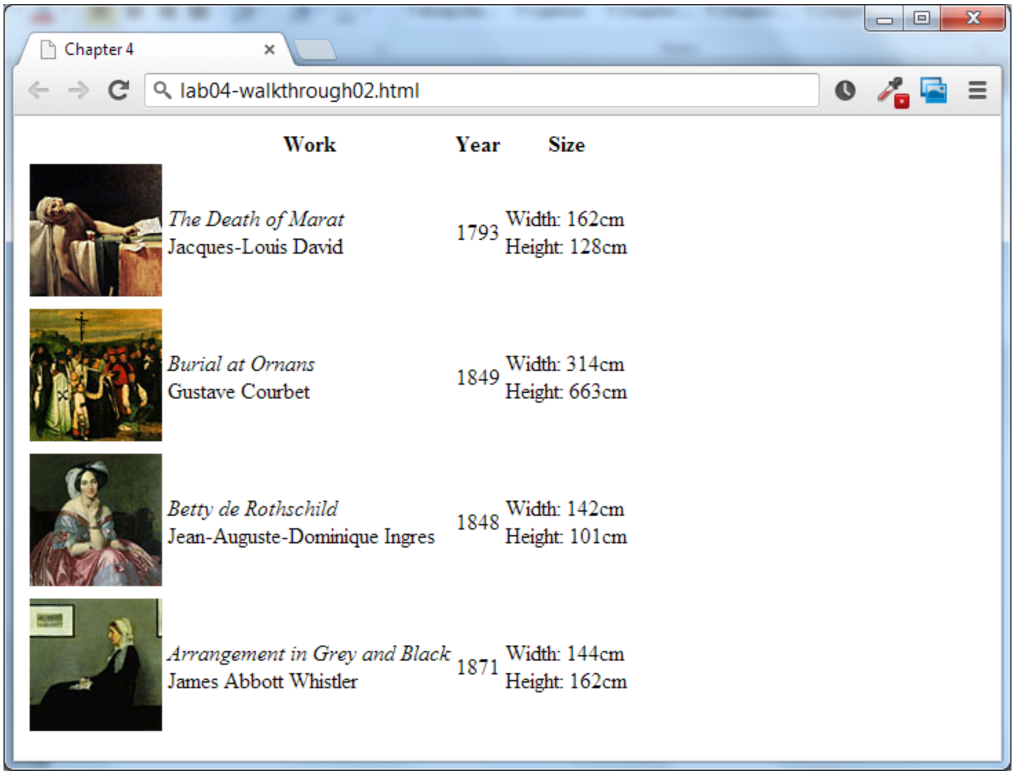
2 Add the following content to the table.

```
<table>
   <tr>
      <th></th>
      <th>Work</th>
      <th>Year</th>
      <th>Size</th>
   </tr>
   <tr>
      <td><img src="images/art/05030.jpg" alt="The Death of
Marat" /></td>
      <td><em>The Death of Marat</em><br/>Jacques-Louis
David</td>
```

```
      <td>1793</td>
      <td>Width: 162cm<br/>Height: 128cm</td>
   </tr>
   <tr>
      <td><img src="images/art/10020.jpg" alt="Burial at 
Ornans" /></td>
      <td><em>Burial at Ornans</em><br/>Gustave Courbet</td>
      <td>1849</td>
      <td>Width: 314cm<br/>Height: 663cm</td>
   </tr>
   <tr>
      <td><img src="images/art/06020.jpg" alt="Betty de 
Rothschild" /></td>
      <td><em>Betty de Rothschild</em><br/>Jean-Auguste 
Ingres</td>
      <td>1848</td>
      <td>Width: 142cm<br/>Height: 101cm</td>
   </tr>
   <tr>
      <td><img src="images/art/13030.jpg" alt="Arrangement in 
Grey and Black" /></td>
      <td><em>Arrangement in Grey and Black</em><br/>James 
Abbott Whistler</td>
      <td>1871</td>
      <td>Width: 144cm<br/>Height: 162cm</td>
   </tr>
</table>
```

Here we are adding content to an existing table structure. Notice that some cells contain multiple HTML elements.

3 Test in browser. The result should look similar to that shown in Figure 5.2.



Work	Year	Size
The Death of Marat Jacques-Louis David	1793	Width: 162cm Height: 128cm
Burial at Ornans Gustave Courbet	1849	Width: 314cm Height: 663cm
Betty de Rothschild Jean-Auguste-Dominique Ingres	1848	Width: 142cm Height: 101cm
Arrangement in Grey and Black James Abbott Whistler	1871	Width: 144cm Height: 162cm

Figure 5.2 – Exercise 5.2 complete

Exercise 5.3 — Spanning Rows and Columns

1 Open, examine, and test `lab05-ex03.html` in browser.

2 Add the following style to the `<head>` of the document and test.

```
<style>
   td, th { border: solid 1pt black; }
</style>
```

This will make the structure of the table more obvious.

3 Add the following two tags to the beginning of the table and test in browser.

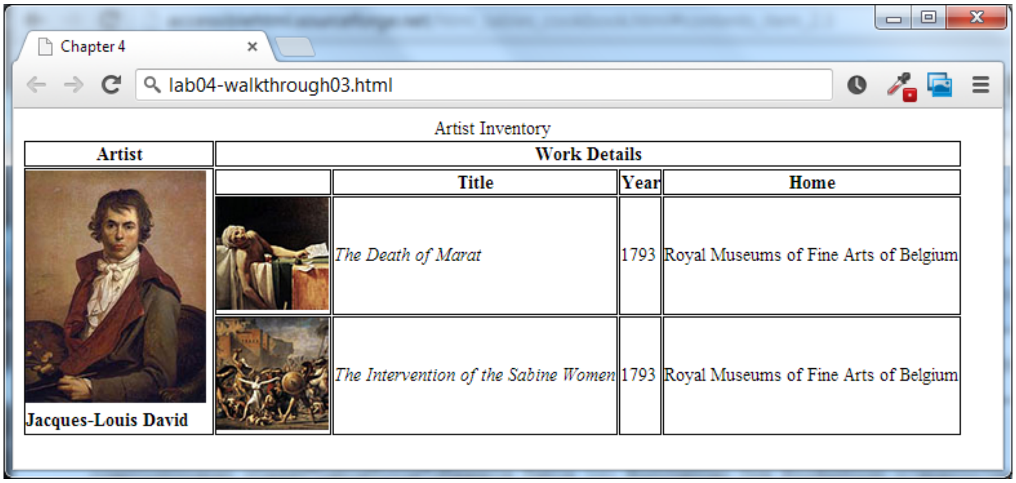
```
<tr>
   <th>Artist</th>
   <th colspan="4">Work Details</th>
</tr>
<tr>
   <td rowspan="4">
      <img src="images/art/5.jpg" alt="Jacques-Louis David" />
      <br/><strong>Jacques-Louis David</strong>
   </td>
</tr>
```

4 Add the following element at the beginning of the table.

```
<table>
   <caption>Artist Inventory</caption>
   <tr>
      <th>Artist</th>
```

The caption is used to provide a title for the table, which improves accessibility.

5 Test in browser. The result should be similar to that shown in Figure 5.3.



Artist Inventory

Artist	Work Details			
Jacques-Louis David		Title	Year	Home
		The Death of Marat	1793	Royal Museums of Fine Arts of Belgium
		The Intervention of the Sabine Women	1793	Royal Museums of Fine Arts of Belgium

Figure 5.3 – Exercise 5.3 complete

Exercise 5.4 — Alternate Table Structure Elements

1 Open, examine, and test `lab05-ex04.html` in browser.

Notice that the <td> element can be used in rows and columns.

2 Add the following attributes to the table headings.

```
<table>
   <caption>Pricing Table</caption>
   <tr>
     <th></th>
     <th scope="col">Free</th>
     <th scope="col">Basic</th>
     <th scope="col">Premium</th>
   </tr>
   <tr>
     <th scope="row">Upload Space</th>
     <td>50MB</td>
     <td>200MB</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Daily Uploads</th>
     <td>1</td>
     <td>10</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Total Uploads</th>
     <td>20</td>
     <td>100</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Social Sharing</th>
     <td></td>
     <td></td>
     <td></td>
   </tr>
   <tr>
     <th scope="row">Analytics</th>
     <td></td>
     <td></td>
     <td></td>
   </tr>
</table>
```

This improves the accessibility of the table.

3 Add the following around the first row.

```
<thead>
   <tr>
     <th></th>
     <th scope="col">Free</th>
     <th scope="col">Basic</th>
     <th scope="col">Premium</th>
   </tr>
</thead>
```

4 Test in browser. There is no special formatting for this element; instead we can apply special styling to it.

5 Add the following element around the other table rows.

```
<tbody>
   <tr>
     <th scope="row">Upload Space</th>
     <td>50MB</td>
     <td>200MB</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Daily Uploads</th>
     <td>1</td>
     <td>10</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Total Uploads</th>
     <td>20</td>
     <td>100</td>
     <td>Unlimited</td>
   </tr>
   <tr>
     <th scope="row">Social Sharing</th>
     <td></td>
     <td></td>
     <td></td>
   </tr>
   <tr>
     <th scope="row">Analytics</th>
     <td></td>
     <td></td>
     <td></td>
   </tr>
</tbody>
```

Like with the <thead> element, there is no preset-browser formatting associated with the <tbody> element.

6 Add the following element between the `<thead>` and `<tbody>` element.

```
<tfoot>
   <tr>
      <th scope="row">Price per year</th>
      <td>Free</td>
      <td>$ 9.99</td>
      <td>$ 19.99</td>
   </tr>
</tfoot>
```

7 Test in browser.

Notice the `<tfoot>` appears at the end of the table but should appear in the markup before the `<tbody>` element.

Styling Tables

Exercise 5.5 — Simple Table Styling

1 Open, examine, and test `lab05-ex05.html` in browser.

2 Add the following style to the <style> element and test.

```
table {
   border: solid 1pt black;
}
```

3 Change the style as follows and test.

```
table, td {
   border: solid 1pt black;
}
```

4 Add the following and test.

```
td, table {
   border: solid 1pt black;
   border-collapse: collapse;
}
```

5 Add the following and test.

```
td, table {
   border: solid 1pt black;
   border-collapse: collapse;
   padding: 0.5em;
}
```

6 Replace the above styles with the following and test.

```
table {
   font-family: "Lucida Sans", Verdana, Arial, sans-serif;
   font-size: 1em;
}
tbody {
   background-color: #F1F1F1;
}
td, th {
   padding: 0.5em;
}
thead, tfoot {
   background-color: #CACACA;
}
```

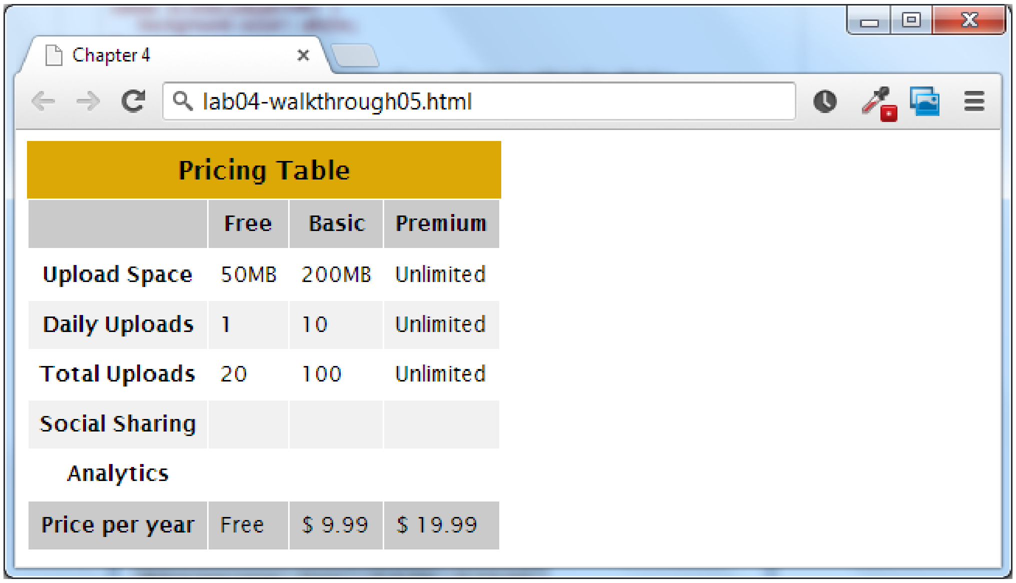
7 Add the following and test.

```
caption {
   font-size: 1.2em;
   font-weight: bold;
   background-color: #DCA806;
   padding: 0.5em;
}
```

8 Add the following styles and test. The final result should look similar to Figure 5.4.

```
tbody tr:nth-child(odd) {
   background-color: white;
}
```

This changes the background color of every other row within the <tbody>



Pricing Table

	Free	Basic	Premium
Upload Space	50MB	200MB	Unlimited
Daily Uploads	1	10	Unlimited
Total Uploads	20	100	Unlimited
Social Sharing			
Analytics			
Price per year	Free	$ 9.99	$ 19.99

Figure 5.4 – Exercise 5.5 complete

Exercise 5.6 — CSS3 Table Styling

1 Open, examine, and test `lab05-ex06.html` in browser.

2 Add the following style and test.

```
caption {
   margin-left: -2000px;
}
```

While we want to keep the caption element for accessibility reasons, we don't, in this case, want it to be visible. Shifting it to the left off screen does that. In Chapter Seven, you will learn how to do this via CSS positioning.

3 Add the following to the bottom two rows of the markup.

```
<tr>
  <th scope="row">Social Sharing</th>
  <td></td>
  <td><span class="check"></span></td>
  <td><span class="check"></span></td>
</tr>
<tr>
  <th scope="row">Analytics</th>
  <td></td>
  <td></td>
  <td><span class="yes"></span></td>
</tr>
```

4 Add the following style and test.

```
tbody span.yes:before {
    content: url(images/yes.png);
}
```

The content property allows you to inject content into an element. The before or after pseudo-elements. In this case we are adding an image into the select cells.

5 Add the following style and test.

```
tbody th {
    text-align:right;
    color: #1D1626;
    background-color: #F2E0BD;
}
```

This will make the first column within the <tbody> element different from the other columns.

6 Add the following style and test.

```
thead th:empty {
   background-color: white;
}
```

This uses the empty pseudo-element to select empty `<th>` elements within the `<thead>`.

7 Add the following style and test.

```
tfoot th {
   background-color: white;
}
```

8 Add the following style and test.

```
tfoot {
   color: #C74223;
   text-shadow:1px 1px 1px black;
   font-weight: bold;
}
```

This changes every element within the <tfoot> element.

9 Change the following style and test.

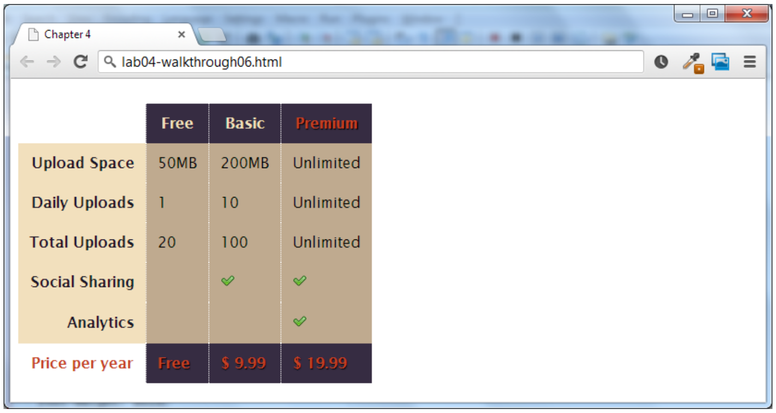
```
tfoot th {
   background-color: white;
   text-shadow: none;
}
```

This removes the text shadow from the first cell of the footer.

10 Modify the following style and test. The result should look like that in Figure 5.5.

```
tfoot, thead th:nth-last-child(1) {
   color: #C74223;
   text-shadow:1px 1px 1px #000;
   font-weight: bold;
}
```

This selects the last cell in the <thead> so that it has the same styling as the footer elements.



	Free	Basic	Premium
Upload Space	50MB	200MB	Unlimited
Daily Uploads	1	10	Unlimited
Total Uploads	20	100	Unlimited
Social Sharing		✓	✓
Analytics			✓
Price per year	Free	$ 9.99	$ 19.99

Figure 5.5 – Exercise 5.6 complete

Test Your Knowledge #1

Modify `lab05-test01.html` by adding the markup to implement the table shown in Figure 5.6. Then add styles as necessary to `lab05-test01.css`.

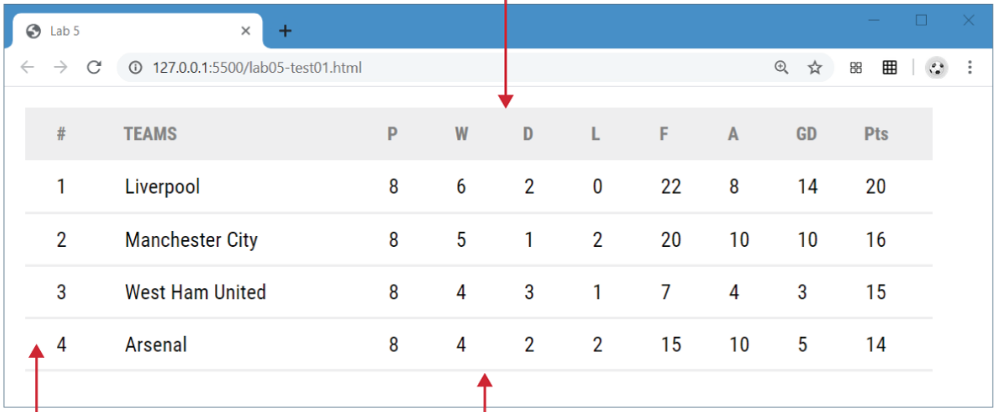
1 In order for borders to appear, the border-collapse property of the table must be set to collapse.

2 You will need to style the heading row differently than the other rows. It should have a smaller font-size and a background color.

3 The team column is wider than the other columns. The easiest way to achieve this is by adding a class selector to those <td> elements and set the width in that class. Alternately you could use the nth-child pseudo-class selector.

4 The very first column will need to have additional left padding. You can do this via a class or the nth-child pseudo-class selector. If you haven't yet used the pseudo-class, you should try it with this alternate selector approach.

```
background-color: #EDEDED;
padding: 12px 0;
height: 40px
```



#	TEAMS	P	W	D	L	F	A	GD	Pts
1	Liverpool	8	6	2	0	22	8	14	20
2	Manchester City	8	5	1	2	20	10	10	16
3	West Ham United	8	4	3	1	7	4	3	15
4	Arsenal	8	4	2	2	15	10	5	14

```
padding-left: 24px
```

```
border-bottom: solid 2px #EDEDED;
border-collapse: collapse;
```

Figure 5.6 – Test Your Knowledge #1

Creating Forms

Forms provide the user with an alternative way to interact with a web server. Up to now, clicking hyperlinks was the only mechanism available to the user for communicating with the server. Forms provide a much richer mechanism. Using a form, the user can enter text, choose items from lists, and click buttons. Typically programs running on the server will take the input from HTML forms and do something with it, such as save it in a database, interact with an external web service, or customize subsequent HTML based on that input.

A form is constructed in HTML in the same manner as tables or lists: that is, using special HTML elements.

Exercise 5.7 — Creating a Form

1 Open lab05-ex07.html in text editor.

2 Add the following to the <body> of the document.

```
<form method="get" action="">
  <fieldset>
    <legend>Details</legend>
    <p>
      <label>Title: </label>
      <input type="text" name="title" />
    </p>
    <p>
      <label>Country: </label>
      <select name="where">
        <option>Choose a country</option>
        <option>Canada</option>
        <option>Finland</option>
        <option>United States</option>
       </select>
    </p>
    <input type="submit" />
  </fieldset>
</form>
```

3 Test in browser.

Exercise 5.8 — Testing a Form

1 Open lab05-ex08.html in text editor.

2 Modify the <form> element as follows then test.

```
<form method="get"
      action="http://www.randyconnolly.com/tests/process.php">
```

This sample PHP script on the book's web site simply echoes back any form data in the request.

3 Modify the <form> element as follows then test.

```
<form method="post"
      action="http://www.randyconnolly.com/tests/process.php">
```

FORM CONTROLS

Exercise 5.9 — TEXT CONTROLS

1 Open and examine `lab05-ex09.html`.

2 Modify the form as follows and test.

```
<p>
   <label for="title">Title: </label><br/>
   <input type="text" name="title" id="title"/>
</p>
<p>
   <label for="password">Password: </label><br/>
   <input type="password" name="pass" size="8" id="password"/>
</p>
<p>
   <label for="email">Email: </label><br/>
   <input type="email" name="email" size="45" id="email"/>
</p>
<p>
   <label for="website">Website: </label><br/>
   <input type="url" name="website" size="45" id="website"/>
</p>
<p>
   <label for="desc">Description: </label><br/>
   <textarea placeholder="enter a description" rows="5"
      cols="45" id="desc"></textarea>
</p>
```

For accessibility reasons, each label should be associated with a single input element. This is achieved via the `for` *attribute. To test this accessibility feature, trying clicking or tapping on the label text: the connected control will receive the focus.*

Exercise 5.10 — CHOICE CONTROLS

1 Open and examine `lab05-ex10.html`.

2 Modify the form as follows and test (be sure to submit form).

```
<p>
   <label for="country">Countries: </label><br/>
   <select name="country" id="country">
      <option>Australia</option>
      <option>Canada</option>
      <option>France</option>
      <option>Sweden</option>
      <option>Thailand</option>
      <option>United States</option>
   </select>
```

```
</p>
<p>
   <label for="continent">Continent: </label><br/>
   <select size="4" name="continent" id="continent">
      <option value="NA">North America</option>
      <option value="EU">Europe</option>
      <option value="AS">Asia</option>
      <option value="SA">South America</option>
   </select>
</p>
<p>
   <label for="city">City: </label><br/>
   <select name="city" id="city">
       <optgroup label="North America">
         <option>Calgary</option>
         <option>Los Angeles</option>
       </optgroup>
       <optgroup label="Europe">
         <option>London</option>
         <option>Paris</option>
         <option>Prague</option>
       </optgroup>
   </select>
</p>
<p>
   <label for="gender">Gender of Traveler: </label><br/>
   <input type="radio" name="gender" value="1"
id="gender">Female<br/>
   <input type="radio" name="gender" value="2">Male<br/>
</p>
<p>
   <label for="hear">How did you hear about the site:
   </label><br/>
   <input type="checkbox" name="hear" value="email"
id="hear">Email<br/>
   <input type="checkbox" name="hear"
value="friend">Friend<br/>
   <input type="checkbox" name="hear" value="website">Website
</p>
```

Exercise 5.11 — Button Controls

1 Open and examine `lab05-ex11.html`.

2 Modify the form as follows and test.

```
<p>
   <input type="button" value="Click Me" />
   <input type="image" src="images/yes16.png" />
   <input type="image" src="images/no16.png" />
</p>
<p>
   <button>
      <a href="#">
         <img src="images/yes16.png" alt=""/>
         Yes
      </a>
   </button>
   <button id="nobtn">No</button>
</p>
<p>
   <input type="submit"  />
   <input type="reset"  />
</p>
```

3 Add the following style to the `<style>` element in this file, then test:

```
#nobstn {
   border-radius: 5px;
   border: 0;
   background-color: #D9E2EC;
   background-image: url(images/no16.png);
   background-position: 5px 7px;
   background-repeat: no-repeat;
   text-align: left;
   padding-left: 27px;
   width: 60px;
   height: 30px;
}
```

This illustrates that images can be added to buttons via CSS instead of an <img> tag. This is often the preferable approach.

Exercise 5.12 — Specialized Controls

1 Open and examine `lab05-ex12.html`.

2 Modify the form as follows and test (be sure to submit form).

```
<p>
  <label for="rate">Rate this photo: </label><br/>
  <input type="number" min="1" max="5" name="rate" id="rate" />
</p>
<p>
```

```
  <label for="happy">Happiness Rating:</label> Grumpy
  <input type="range" min="0" max="10" step="1"
         name="happiness" id="happy" />
  Ecstatic
</p>
<p>
   <label for="color">Companion Color: </label><br/>
   <input type="color" name="back" id="color" />
</p>
```

Note: not every browser supports all of these controls. These controls will look different on different browsers and platforms.

Exercise 5.13 — Date and Time Controls

1 Open and examine `lab05-ex13.html`.

2 Modify the form as follows and test (be sure to submit form).

```
<p>
   <label for="date">Date of photo: </label><br/>
   <input type="date" name="photodate" id="date" />
</p>
<p>
   <label for="time">Time of photo: </label><br/>
   <input type="time" name="phototime" id="time" />
</p>
<p>
   <label for="datetime">Date and time of photo: </label><br/>
   <input type="datetime" name="photodatetime" id="datetime"/>
</p>
<p>
   <label for="week">Week of photo: </label><br/>
   <input type="week" name="photoweek" id="week" />
</p>
```

Note: not every browser supports all of these controls. These controls will look different on different browsers and platforms.

Exercise 5.14 — Styling Text and Buttons

1 Open and examine `lab05-ex14.html`.

2 Add the following style to the `<style>` element in this file, then test:

```
.customText {
   border: 0;
   padding: 7px 5px;
   margin: 3px;
}
```

Compare the new style to the default style for the text input element.

3 Add the following style and test:

```
.roundedText {
   border-radius: 4px;
}
.borderedText {
   border-bottom: 1px solid #627D98;
}
```

4 Add the following style and test:

```
.borderedText:focus {
   background-color: #BCCCDC;
}
.customText::placeholder {
   color: #D9E2EC;
}
```

This illustrates how you can style various state settings of forms (in this case, how it looks when the control has focus and how the placeholder text appears).

5 Add the following style and test:

```
.customBtn {
   border: 0;
   padding: 5px;
   margin: 4px;
}
```

6 Add the following styles and test:

```
.btnA {
   border-radius: 2px;
   background-color: #003E6B;
   color: white;
   width: 100px;
   cursor: pointer;
}
.btnA:hover {
   background-color: #486581;
}
```

7 Add the following styles and test:

```
.btnB {
   border-radius: 5px;
   border: solid 1pt #9FB3C8;
   background-color: #F0F4F8;
   color: #003E6B;
   width: 100px;
   cursor: pointer;
}
.shadowed {
   box-shadow: 4px 4px 8px rgba(159, 179, 200, 0.7);
}
```

Exercise 5.15 — Styling Other Controls

1 Open and examine `lab05-ex15.html`.

This exercise illustrates a variety of best practices for form design as illustrated in Figure 5.33 of the book.

2 Add the following style to `lab05-ex15.css`, then test:

```
input, textarea, select {
   border: solid 1px var(--bord-color);
}
input[type=text], input[type=email], textarea {
   padding: var(--control-padding);
   border-radius: 2px;
   width: 80%;
   height: 24px;
}
```

This exercise makes use of CSS variables, which were introduced in Chapter 4.

3 Add the following styles and test:

```
textarea {
   height: 48px;
}
.blockedLabel {
   display: block;
   margin-top: var(--label-space-above);
   margin-bottom: 4px;
}
select {
   display: block;
   appearance: none;
   width: 35%;
   padding: var(--control-padding);
}
```

4 Add the following styles and test:

```
button {
   border: 0;
   margin-top: var(--label-space-above);
   padding: 8px;
   border-radius: 3px;
   width: 35%;
   height: 36px;
   cursor: pointer;
}
.secondBtn {
   background-color: var(--btn-bg-color-secondary);
   color: var(--btn-txt-color);
}
```

5 Add the following styles and test:

```
input[type=checkbox], input[type=radio] {
   display: inline-block;
   margin: 0;
   width: 24px;
   height: 24px;
}
ul {   list-style: none; }
li {   margin: 8px 0;   }
.lineLabel {
   vertical-align: top;
   display: inline-block;
   height: 24px;
   margin: 0px 5px;
}
```

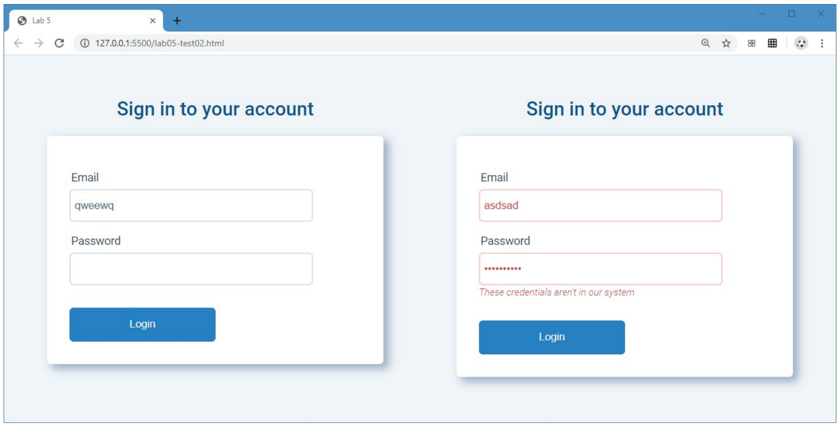
6 Add the following styles and test:

```
.primaryBtn {
   background-color: var(--btn-bg-color-primary);
   color: white;
   margin-top: 15px;
   margin-right: 5px;
   font-weight: 700
}
.optionalBtn {
   background-color: var(--bg-color);
   color: var(--txt-color);
   border: solid 1px var(--bord-color);
   margin-top: 15px;
}
```

Test Your Knowledge #2

Modify `lab05-test02.html` and `lab05-test02.css` to implement the forms shown in Figure 5.7. The second form is the same as the first except it has some additional markup and styling to indicate error states.

1. The form consists of two input elements, a button, and labels. Be sure to set the `type` to `email` and `password` for the two input elements. The second form will be the same as the first, except you will add a `<p>` element for the error message, but some type of error class to the `input` elements.
2. The colors are defined within the provided variables file `variables-palette-2.css`. While you can set margins and widths using pixels or em or % units, you could also make use of the `calc()` function and the supplied `--element-spacing` variable so that your spacing is a factor of that variable. This creates consistency.
3. Try to get your styling to look pretty similar to the examples shown in Figure 5.7.



Sign in to your account

Email: qweewq

Password:

Sign in to your account

Email: asdsad

Password: ••••••••••

These credentials aren't in our system

Figure 5.7 – Test Your Knowledge #2