Lesson 11

Organizing Data with Tables

In this Lesson

11

SHARE

HTML tables were created to provide a straightforward way to mark up structured tabular data and to display that data in a form that is easy for users to read and digest.

When HTML was being developed, however, CSS was not widely supported in browsers, so tables were the primary means by which websites were built. They were used for positioning content as well as for building the overall layout of a page. This worked at the time, but it was not what table markup was intended for, and it led to many other associated problems.

Fortunately, we have come a long way since then. Today tables are used specifically for organizing data (like they should be), and CSS is free to get on with the jobs of positioning and layout.

Building data tables still has its challenges. How a table should be built in HTML depends largely on the data and how it is to be displayed. Then, once they're marked up in HTML, tables need to be styled with CSS to make the information more legible and understandable to users.

Creating a Table

Tables are made up of data that is contained within columns and rows, and HTML supplies several different elements for defining and structuring these items. At a minimum a table must consist of `<table>`, `<tr>` (table row), and `<td>` (table data) elements. For greater structure and additional semantic value, tables may include the `<th>` (table header) ele- ment and a few other elements as well. When all of these elements are working together, they produce a solid table.

Table

We use the `<table>` element to initialize a table on a page. Using the `<table>` element signifies that the information within this element will be tabular data displayed in the necessary columns and rows.

```
<table>
  ...
</table>
```

Table Row

Once a table has been defined in HTML, table rows may be added using the `<tr>` element. A table can have numerous table rows, or `<tr>` elements. Depending on the amount of information there is to display, the number of table rows may be substantial.

```
<table>
  <tr>
    ...
  </tr>
  <tr>
    ...
  </tr>
</table>
```

Table Data

Once a table is defined and rows within that table have been set up, data cells may be added to the table via the table data, or `<td>`, element. Listing multiple `<td>` elements one after the other will create columns within a table row.

```
<table>
  <tr>
```

```
    <td>Don&#8217;t Make Me Think by Steve Krug</td>
    <td>In Stock</td>
    <td>1</td>
    <td>$30.02</td>
  </tr>
  <tr>
    <td>A Project Guide to UX Design by Russ Unger &#38; Carolyn Chan
    <td>In Stock</td>
    <td>2</td>
    <td>$52.94 ($26.47 &#215; 2)</td>
  </tr>
  <tr>
    <td>Introducing HTML5 by Bruce Lawson &#38; Remy Sharp</td>
    <td>Out of Stock</td>
    <td>1</td>
    <td>$22.23</td>
  </tr>
  <tr>
    <td>Bulletproof Web Design by Dan Cederholm</td>
    <td>In Stock</td>
    <td>1</td>
    <td>$30.17</td>
  </tr>
</table>
```

Table Demo

Table Header

To designate a heading for a column or row of cells, the table header element, `<th>`, should be used. The `<th>` element works just like the `<td>` element in that it creates a cell for data. The value to using the `<th>` element over the `<td>` element is that the table header element provides semantic value by signifying that the data within the cell is a heading, while the `<td>` element only represents a generic piece of data.

The difference between the two elements is similar to the difference between headings (`<h1>` through `<h6>` elements) and paragraphs (`<p>` elements). While a heading's content could be placed within a paragraph, it doesn't make sense to do so. Specifically using a heading adds more semantic value to the content. The same is true for table headers.

Table headers may be used within both columns and rows; the data within a table determines where the headers are appropriate. The `scope` attribute helps to identify exactly what content a table header relates to. The `scope` attribute indicates with the values `col`, `row`, `colgroup`, and `rowgroup` whether a table header applies to a row or column. The most commonly used values are `col` and `row`. The `col` value indicates that every cell within the column relates directly to that table header, and the `row` value indicates that every cell within the row relates directly to that table header.

Using the `<th>` element, along with the `scope` attribute, tremendously helps screen readers and assistive technologies make sense of a table. Therefore, they are also beneficial to those browsing a web page using those technologies.

Additionally, depending on the browser, table headers may receive some default styling, usually bold and centered.

```
<table>
  <tr>
```

```
    <th scope="col">Item</th>
    <th scope="col">Availability</th>
    <th scope="col">Qty</th>
    <th scope="col">Price</th>
  </tr>
  <tr>
    <td>Don&#8217;t Make Me Think by Steve Krug</td>
    <td>In Stock</td>
    <td>1</td>
    <td>$30.02</td>
  </tr>
  <tr>
    <td>A Project Guide to UX Design by Russ Unger &#38; Carolyn Chan
    <td>In Stock</td>
    <td>2</td>
    <td>$52.94 ($26.47 &#215; 2)</td>
  </tr>
  <tr>
    <td>Introducing HTML5 by Bruce Lawson &#38; Remy Sharp</td>
    <td>Out of Stock</td>
    <td>1</td>
    <td>$22.23</td>
  </tr>
  <tr>
    <td>Bulletproof Web Design by Dan Cederholm</td>
    <td>In Stock</td>
    <td>1</td>
    <td>$30.17</td>
  </tr>
</table>
```

Table Header Demo

HTML CSS RESULT

Getting data into a table is only the beginning. While we’ve scratched the surface of how to semantically add data to a table, there is more we can do to define the structure of our tables.

The Headers Attribute

The headers attribute is very similar to the `scope` attribute. By default, the `scope` attribute may only be used on the `<th>` element. In the case that a cell, either a `<td>` or `<th>` element, needs to be associated with a different header, the `headers` attribute comes into play. The value of the `headers` attribute on a `<td>` or `<th>` element needs to match the `id` attribute value of the `<th>` element that cell pertains to.

Table Structure

Knowing how to build a table and arrange data is extremely powerful; however, there are a few additional elements to help us organize the data and structure of a table. These elements include `<caption>`, `<thead>`, `<tbody>`, and `<tfoot>`.

Table Caption

The `<caption>` element provides a caption or title for a table. A caption will help users identify what the table pertains to and what data they can expect to find within it. The `<caption>` element must come immediately after the opening `<table>` tag, and it is positioned at the top of a table by default.

```
<table>
  <caption>Design and Front-End Development Books</caption>

```

```
    ...
  </table>
```

Table Caption Demo

Table Head, Body, & Foot

The content within tables can be broken up into multiple groups, including a head, a body, and a foot. The `<thead>` (table head), `<tbody>` (table body), and `<tfoot>` (table foot) elements help to structurally organize tables.

The table head element, `<thead>`, wraps the heading row or rows of a table to denote the head. The table head should be placed at the top of a table, after any `<caption>` element and before any `<tbody>` element.

After the table head may come either the `<tbody>` or `<tfoot>` elements. Originally the `<tfoot>` element had to come immediately after the `<thead>` element, but HTML5 has provided leeway here. These elements may now occur in any order so long as they are never parent elements of one another. The `<tbody>` element should contain the primary data within a table, while the `<tfoot>` element contains data that outlines the contents of a table.

```
<table>
  <caption>Design and Front-End Development Books</caption>
  <thead>
    <tr>
```

```
      <th scope="col">Item</th>
      <th scope="col">Availability</th>
      <th scope="col">Qty</th>
      <th scope="col">Price</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Don&#8217;t Make Me Think by Steve Krug</td>
      <td>In Stock</td>
      <td>1</td>
      <td>$30.02</td>
    </tr>
    ...
  </tbody>
  <tfoot>
    <tr>
      <td>Subtotal</td>
      <td></td>
      <td></td>
      <td>$135.36</td>
    </tr>
    <tr>
      <td>Tax</td>
      <td></td>
      <td></td>
      <td>$13.54</td>
    </tr>
    <tr>
      <td>Total</td>
      <td></td>
      <td></td>
      <td>$148.90</td>
    </tr>
  </tfoot>
</table>
```

Table Caption Demo

Combining Multiple Cells

Often, two or more cells need to be combined into one without breaking the overall row and column layout. Perhaps two cells next to each other contain the same data, there’s an empty cell, or the cells should be combined for styling purposes. In these cases we can use the `colspan` and `rowspan` attributes. These two attributes work on either the `<td>` or `<th>` elements.

The `colspan` attribute is used to span a single cell across multiple columns within a table, while the `rowspan` attribute is used to span a single cell across multiple rows. Each attribute accepts an integer value that indicates the number of cells to span across, with `1` being the default value.

Using the table of books from before, we can now remove the empty table cells within the table footer as well as clean up the table header.

```
<table>
  <caption>Design and Front-End Development Books</caption>
  <thead>
    <tr>
      <th scope="col" colspan="2">Item</th>
      <th scope="col">Qty</th>
      <th scope="col">Price</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Don&#8217;t Make Me Think by Steve Krug</td>
      <td>In Stock</td>
      <td>1</td>
      <td>$30.02</td>
    </tr>
    ...
  </tbody>
  <tfoot>
    <tr>
      <td colspan="3">Subtotal</td>
      <td>$135.36</td>
    </tr>
    <tr>
      <td colspan="3">Tax</td>
      <td>$13.54</td>
    </tr>
    <tr>
      <td colspan="3">Total</td>
      <td>$148.90</td>
    </tr>
  </tfoot>
</table>
```

Combining Multiple Cells Demo

Table Borders

Effective use of borders can help make tables more comprehensible. Borders around a table or individual cells can make a large impact when a user is trying to interpret data and quickly scan for information. When styling table borders with CSS there are two properties that will quickly come in handy: `border-collapse` and `border-spacing`.

Border Collapse Property

Tables consist of a parent `<table>` element as well as nested `<th>` or `<td>` elements. When we apply borders around these elements those borders will begin to stack up, with the border of one element sitting next to that of another element. For example, if we put a `2`-pixel border around an entire table and then an additional `2`-pixel border around each table cell, there would be a `4`-pixel border around every cell in the table.

The `border-collapse` property determines a table's border model. There are three values for the `border-collapse` property: `collapse`, `separate`, and `inherit`. By default, the `border-collapse` property value is `separate`, meaning that all of the different borders will stack up next to one another, as described above. The `collapse` value, on the other hand, condenses the borders into one, choosing the table cell as the primary border.

```css
table {
  border-collapse: collapse;
}
th,
td {
  border: 1px solid #cecfd5;
  padding: 10px 15px;
}
```

Border Collapse Property Demo

Border Spacing Property

As the `border-collapse` property with the `separate` value allows borders to be stacked up against one another, the `border-spacing` property can determine how much space, if any, appears between the borders.

For example, a table with a `1`-pixel border around the entire table and a `1`-pixel border around each cell will have a `2`-pixel border all around every cell because the borders stack up next to one another. Adding in a `border-spacing` value of `4` pixels separates the borders by `4` pixels.

```
table {
  border-collapse: separate;
  border-spacing: 4px;
}
table,
th,
td {
  border: 1px solid #cecfd5;
}
th,
td {
  padding: 10px 15px;
}
```

Border Spacing Property Demo

The `border-spacing` property works only when the `border-collapse` property value is `separate`, its default value. If the `border-collapse` property hasn't been previously used, we can use the `border-spacing` property without worry.

Additionally, the `border-spacing` property may accept two length values: the first value for horizontal spacing and the second value for vertical spacing. The declaration `border-spacing: 5px 10px;`, for example, will place `5` pixels of horizontal spacing between borders and `10` pixels of vertical spacing between borders.

Adding Borders to Rows

Adding borders to a table can be tricky at times, particularly when putting borders between rows. Within a table, borders cannot be applied to `<tr>` elements or table structural elements, so when we want to put a border between rows some thought is required.

We'll begin by making sure the table's `border-collapse` property value is set to `collapse`, and then we'll add a bottom `border` to each table cell, regardless of whether it's a `<th>` or `<td>` element. If we wish, we can remove the bottom `border` from the cells within the last row of the table by using the `:last-child` pseudo-class selector to select the last `<tr>` element within the table and target the `<td>` elements within that row. Additionally, if a table is using the structural elements, we'll want to make sure to prequalify the last row of the table as being within the `<tfoot>` element.

```
table {
  border-collapse: collapse;
}
th,
td {
  border-bottom: 1px solid #cecfd5;
  padding: 10px 15px;
}
tfoot tr:last-child td {
  border-bottom: 0;
}
```

Adding Borders to Rows Demo

Table Striping

In the effort to make tables more legible, one common design practice is to “stripe” table rows with alternating background colors. This makes the rows clearer and provides a visual cue for scanning information. One way to do this is to place a class on every other `<tr>` element and set a background color to that class. Another, easier way is to use the `:nth-child` pseudo-class selector with an `even` or `odd` argument to select every other `<tr>` element.

Here, our table of books uses the `:nth-child` pseudo-class selector with an `even` argument to select all even table rows within the table and apply a gray `background`. Consequently, every other row within the table body is gray.

```
table {
  border-collapse: separate;
  border-spacing: 0;
}
th,
td {
  padding: 10px 15px;
}
thead {
  background: #395870;
  color: #fff;
}
tbody tr:nth-child(even) {
  background: #f0f0f2;
}
td {
  border-bottom: 1px solid #cecfd5;
  border-right: 1px solid #cecfd5;
}
td:first-child {
  border-left: 1px solid #cecfd5;
}
```

Table Striping Demo

Within this code there are a few intricacies worth mentioning. To begin, the `<table>` element has an explicit `border-collapse` property set to separate and a `border-spacing` property set to `0`. The reason for this is that the `<td>` elements include borders, while the `<th>` elements do not. Without the `border-collapse` property set to `separate` the borders of the `<td>` elements would make the body and foot of the table wider than the head.

Since the `border-collapse` property is set to `separate` we need to be careful as to how borders are applied to `<td>` elements. Here borders are set to the right and bottom of all `<td>` elements. Then, the very first `<td>` element within a `<tr>` element will receive a left `border`. As all of the `<td>` elements stack together so do their borders, providing the appearance of a solid border around each element.

Lastly, all `<th>` elements receive a blue `background`, and every even `<tr>` element receives a gray `background` by way of the `:nth-child` pseudo-class selector.

Aligning Text

In addition to table borders and striping, the alignment of text within cells, both horizontal and vertical, plays an integral role in table formatting. Names, descriptions, and so forth are commonly flush left, while numbers and other figures are flush right. Other information, depending on its context, may be centered. We can move text horizontally using the `text-align` property in CSS, as we covered in Lesson 6, "Working with Typography."

To align text vertically, however, the `vertical-align` property is used. The `vertical-align` property works only with inline and table-cell elements—it won't work for block, inline-block, or any other element levels.

The `vertical-align` property accepts a handful of different values; the most popular values are `top`, `middle`, and `bottom`. These values vertically position text in relation to the table cell, for table-cell elements, or to the closest parent element, for inline-level elements.

By revising the HTML and CSS to include the `text-align` and `vertical-align` properties, we can clean up the layout of our table of books. Note that the data within the table becomes much clearer and more digestible.

HTML

```
<table>
  <thead>
    <tr>
      <th scope="col" colspan="2">Item</th>
      <th scope="col">Qty</th>
      <th scope="col">Price</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>
        <strong class="book-title">Don&#8217;t Make Me Think</strong>
      </td>
      <td class="item-stock">In Stock</td>
      <td class="item-qty">1</td>
      <td class="item-price">$30.02</td>
    </tr>
    <tr>
      <td>
        <strong class="book-title">A Project Guide to UX Design</stro
      </td>
      <td class="item-stock">In Stock</td>
      <td class="item-qty">2</td>
```

```
          <td class="item-price">$52.94 <span class="item-multiple">$26.4
        </tr>
        <tr>
          <td>
            <strong class="book-title">Introducing HTML5</strong> by Bruc
          </td>
          <td class="item-stock">Out of Stock</td>
          <td class="item-qty">1</td>
          <td class="item-price">$22.23</td>
        </tr>
        <tr>
          <td>
            <strong class="book-title">Bulletproof Web Design</strong> by
          </td>
          <td class="item-stock">In Stock</td>
          <td class="item-qty">1</td>
          <td class="item-price">$30.17</td>
        </tr>
      </tbody>
      <tfoot>
        <tr>
          <td colspan="3">Subtotal</td>
          <td>$135.36</td>
        </tr>
        <tr>
          <td colspan="3">Tax</td>
          <td>$13.54</td>
        </tr>
        <tr>
          <td colspan="3">Total</td>
          <td>$148.90</td>
        </tr>
      </tfoot>
    </table>
```

CSS

```
table {
  border-collapse: separate;
  border-spacing: 0;
  color: #4a4a4d;
  font: 14px/1.4 "Helvetica Neue", Helvetica, Arial, sans-serif;
}
th,
td {
  padding: 10px 15px;
  vertical-align: middle;
}
thead {
  background: #395870;
  color: #fff;
}
th:first-child {
  text-align: left;
}
tbody tr:nth-child(even) {
  background: #f0f0f2;
}
td {
  border-bottom: 1px solid #cecfd5;
  border-right: 1px solid #cecfd5;
}
td:first-child {
  border-left: 1px solid #cecfd5;
}
.book-title {
  color: #395870;
  display: block;
}
.item-stock,
.item-qty {
  text-align: center;
}
.item-price {
  text-align: right;
}
.item-multiple {
  display: block;
}
tfoot {
  text-align: right;
}
```

```
tfoot tr:last-child {
  background: #f0f0f2;
}
```

Aligning Text Demo

Completely Styled Table

So far our table of books is looking pretty good. Let’s take it one step further by rounding some corners and styling some of the text just a little more.

HTML

```
<table>
  <thead>
    <tr>
      <th scope="col" colspan="2">Item</th>
      <th scope="col">Qty</th>
      <th scope="col">Price</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>
        <strong class="book-title">Don&#8217;t Make Me Think</strong>
        <span class="text-offset">by Steve Krug</span>
```

```html
          </td>
          <td class="item-stock">In Stock</td>
          <td class="item-qty">1</td>
          <td class="item-price">$30.02</td>
        </tr>
        <tr>
          <td>
            <strong class="book-title">A Project Guide to UX Design</stro
            <span class="text-offset">by Russ Unger &#38; Carolyn Chandle
          </td>
          <td class="item-stock">In Stock</td>
          <td class="item-qty">2</td>
          <td class="item-price">$52.94 <span class="text-offset item-mul
        </tr>
        <tr>
          <td>
            <strong class="book-title">Introducing HTML5</strong>
            <span class="text-offset">by Bruce Lawson &#38; Remy Sharp</s
          </td>
          <td class="item-stock">Out of Stock</td>
          <td class="item-qty">1</td>
          <td class="item-price">$22.23</td>
        </tr>
        <tr>
          <td>
            <strong class="book-title">Bulletproof Web Design</strong>
            <span class="text-offset">by Dan Cederholm</span>
          </td>
          <td class="item-stock">In Stock</td>
          <td class="item-qty">1</td>
          <td class="item-price">$30.17</td>
        </tr>
      </tbody>
      <tfoot>
        <tr class="text-offset">
          <td colspan="3">Subtotal</td>
          <td>$135.36</td>
        </tr>
        <tr class="text-offset">
          <td colspan="3">Tax</td>
          <td>$13.54</td>
        </tr>
        <tr>
          <td colspan="3">Total</td>
          <td>$148.90</td>
        </tr>
      </tfoot>
    </table>
```

CSS

```
table {
  border-collapse: separate;
  border-spacing: 0;
  color: #4a4a4d;
  font: 14px/1.4 "Helvetica Neue", Helvetica, Arial, sans-serif;
}
th,
td {
  padding: 10px 15px;
  vertical-align: middle;
}
thead {
  background: #395870;
  background: linear-gradient(#49708f, #293f50);
  color: #fff;
  font-size: 11px;
  text-transform: uppercase;
}
th:first-child {
  border-top-left-radius: 5px;
  text-align: left;
}
th:last-child {
  border-top-right-radius: 5px;
}
tbody tr:nth-child(even) {
  background: #f0f0f2;
}
td {
  border-bottom: 1px solid #cecfd5;
  border-right: 1px solid #cecfd5;
}
td:first-child {
  border-left: 1px solid #cecfd5;
}
.book-title {
  color: #395870;
  display: block;
}
.text-offset {
  color: #7c7c80;
  font-size: 12px;
}
.item-stock,
.item-qty {
  text-align: center;
}
.item-price {
  text-align: right;
}
.item-multiple {
  display: block;
}
tfoot {
  text-align: right;
}
tfoot tr:last-child {
  background: #f0f0f2;
  color: #395870;
  font-weight: bold;
}
tfoot tr:last-child td:first-child {
  border-bottom-left-radius: 5px;
}
tfoot tr:last-child td:last-child {
  border-bottom-right-radius: 5px;
}
```

Completely Styled Table

In Practice

Now that we know how to create and style tables, let's wrap up the last remaining page of our Styles Conference website, the schedule.

1 We'll begin our Schedule page by opening up the schedule.html file and adding a `<section>` element with a class attribute value of `row`, much like we've done with all of the other subpages. Within this new `<section>` element let's also add a `<div>` element with a class attribute value of `container`.

```
<section class="row">
  <div class="container">
    ...
  </div>
</section>
```

With these elements and classes we've created a new section of the page with a white `background` and vertical `padding`, and we've centered our content on the page. What's different here from all of the other subpages is the `container` class attribute value in place of the `grid` class attribute value on the `<div>` element. Since we're not using any of the `col`-based classes we'll forgo the `grid` class attribute value in favor of the `container` class attribute value.

2 Within the new section we'll add three tables, one for each day of the conference. The tables will display the events of each day using three columns and multiple rows and will include a table head and table body.

To get started let's outline the structure of the first table, including the `<table>`, `<thead>`, and `<tbody>` elements.

```
<section class="row">
  <div class="container">

    <table>
      <thead>
        ...
      </thead>
      <tbody>
        ...
      </tbody>
    </table>

  </div>
</section>
```

3 Currently, even though our first table doesn’t contain any data, it does have some styles applied to it. Specifically, the reset we added back in Lesson 1 to tone down all of the default browser styles has added the `border-collapse` property with a value of `collapse` and the `border-spacing` property with a value of `0` to the table. We want these styles, so we’ll leave them alone; however, let’s create a new section in our `main.css` file to add some additional styles.

In our new section of styles specifically for the Schedule page (which will appear just below the styles for the Speakers page), let’s set our `<table>` elements to have a `width` of `100%` and a bottom `margin` of `44` pixels.

Then, using the `:last-child` pseudo-class selector to identify the last `<table>` element within the section, let’s set its bottom `margin` to `0` pixels. Doing so prevents this table from conflicting with the bottom `padding` belonging to the `<section>` element with a class attribute value of `row`.

So far, the new section within our `main.css` file looks like this:

```
/*
  ========================================
  Schedule
  ========================================
*/

table {
  margin-bottom: 44px;
  width: 100%;
}
```

```
table:last-child {
  margin-bottom: 0;
}
```

4 Now let’s add some data to our table. We’ll begin with the first day of our conference, the workshop day on August 24.

Within the `<thead>` element of the table let’s add a `<tr>` element. The first cell within the row will be a `<th>` element noting the focus of the day: “Workshops” for this specific day. Since the `<th>` element is the heading for the row we’ll also add the `scope` attribute with a value of `row` to it.

After the `<th>` element comes a `<td>` element with the date, “August 24th” in this case. Now, more often than not we’ll have three columns, the first being a table heading that identifies a time of day and the second two columns being regular table cells that identify speakers for that given time. Since this row doesn’t feature two separate speakers we’ll want to add the `colspan` attribute with a value of `2` to the `<td>` element, forcing it to span two columns.

Our code for the table now looks like this:

```
<table>
  <thead>
    <tr>
      <th scope="row">
        Workshops
      </th>
      <td colspan="2">
        August 24th
      </td>
    </tr>
  </thead>
  <tbody>
    ...
  </tbody>
</table>
```

5 Inside the `<tbody>` element let’s fill out the day’s activities. We’ll begin by adding a `<tr>` element with a `<th>` and a `<td>` element directly inside the row.

On the `<th>` element, and all subsequent `<th>` elements, we'll add the `scope` attribute with a value of `row` to semantically identify this element as the header for the row. Then within the `<th>` element let's add a `<time>` element that shows the time of the first activity of the day, "8:30 AM" in this case. We'll also include a `datetime` attribute on the `<time>` element with a value noting the time in hours, minutes, and seconds, `08:30:00`.

In the `<td>` element that follows the `<th>` element we'll include the activity name (since there aren't any speakers at this time), which is "Registration" in this case. Since there is only one activity at this time we'll also include the `colspan` attribute with a value of 2 on the `<td>` element.

In all, the code for our first table looks like this:

```
<table>
  <thead>
    <tr>
      <th scope="row">
        Workshops
      </th>
      <td colspan="2">
        August 24th
      </td>
    </tr>
  </thead>
  <tbody>
    <tr>
      <th scope="row">
        <time datetime="08:30:00">8:30 AM</time>
      </th>
      <td colspan="2">
        Registration
      </td>
    </tr>
  </tbody>
</table>
```

6 For the second row within the `<tbody>` element let's add a `<tr>` element just below our previous row. Then let's add a `<th>` element with the `scope` attribute with a value of `row`, and again add a `<time>` element with the appropriate time and `datetime` attribute value within that `<th>` element.

After the `<th>` element let's add two `<td>` elements for the two speakers presenting at that time. Directly inside each `<td>` element we'll add an `<a>`

element, which will link back to where that speaker is positioned on the Speakers page. Remember, we added `id` attributes with each speaker's name to the parent elements for each speaker. Using that `id` attribute value preceded by the `speakers.html` filename and a pound/hash sign, `#`, we can link directly to that speaker's talk description and biography on the Speakers page.

Within the `<a>` element we'll include an `<h4>` element with the speaker's name followed by the talk title.

The code for the first two workshops looks like this:

```html
<table>
  <thead>
    <tr>
      <th scope="row">
        Workshops
      </th>
      <td colspan="2">
        August 24th
      </td>
    </tr>
  </thead>
  <tbody>
    <tr>
      <th scope="row">
        <time datetime="08:30:00">8:30 AM</time>
      </th>
      <td colspan="2">
        Registration
      </td>
    </tr>
    <tr>
      <th scope="row">
        <time datetime="09:00:00">9:00 AM</time>
      </th>
      <td>
        <a href="speakers.html#adam-connor">
          <h4>Adam Connor</h4>
          Lights! Camera! Interaction! Design Inspiration from Filmma
        </a>
      </td>
      <td>
        <a href="speakers.html#jennifer-jones">
```

```
            <h4>Jennifer Jones</h4>
            What Designers Can Learn from Parenting
          </a>
        </td>
      </tr>
    </tbody>
  </table>
```

7 From here, we can repeat this pattern for each activity and speaker to finish our first table and then add the next two tables for the second two days of the conference.

While doing this, keep in mind that the table head will always include a table heading noting the events of the day and a table cell spanning two columns showing the date.

Then, within the body of each table, every row will have a table heading that shows the time of day. After the table heading will be an activity, a speaker, or multiple speakers. Activities without speakers will reside within a single `<td>` element that spans two columns. If only one speaker is presenting at a certain time, that speaker will reside within a single `<td>` element that spans two columns as well, `<a>` and `<h4>` elements and all.

If there are two speakers for a given time then each speaker will reside within his or her own `<td>` element, just as before.

The full code for all three tables can be found at at the end of this exercise. For reference, the table for the first day, which includes lunch and two more speakers, looks like this:

```
  <table>
    <thead>
      <tr>
        <th scope="row">
          Workshops
        </th>
        <td colspan="2">
          August 24th
        </td>
      </tr>
    </thead>
    <tbody>
      <tr>
        <th scope="row">
          <time datetime="08:30:00">8:30 AM</time>
        </th>
        <td colspan="2">
          Registration
        </td>
      </tr>
      <tr>
        <th scope="row">
          <time datetime="09:00:00">9:00 AM</time>
        </th>
        <td>
          <a href="speakers.html#adam-connor">
            <h4>Adam Connor</h4>
            Lights! Camera! Interaction! Design Inspiration from Filmma
          </a>
        </td>
        <td>
          <a href="speakers.html#jennifer-jones">
            <h4>Jennifer Jones</h4>
            What Designers Can Learn from Parenting
          </a>
        </td>
      </tr>
      <tr>
        <th scope="row">
          <time datetime="12:30:00">12:30 PM</time>
        </th>
        <td colspan="2">
          Lunch
        </td>
      </tr>
      <tr>
        <th scope="row">
          <time datetime="14:00">2:00 PM</time>
        </th>
        <td>
          <a href="speakers.html#tessa-harmon">
            <h4>Tessa Harmon</h4>
            Crafty Coding: Generating Knitting Patterns
          </a>
        </td>
        <td>
          <a href="speakers.html#russ-unger">
            <h4>Russ Unger</h4>
            From Muppets to Mastery: Core UX Principles from Mr. Jim He
          </a>
        </td>
      </tr>
    </tbody>
  </table>
```

8 Now that our tables are taking shape, it's time to add a little style to them. Let's begin by adding some general styles to the `<th>` and `<td>` elements. For both the `<th>` and `<td>` elements let's add a bottom `padding` of `22` pixels and a vertical alignment of `top`. For `<th>` elements specifically let's add a right `padding` of `45` pixels, a text alignment of `right`, and a `width` of `20%`. Then, for `<td>` elements let's add a `width` of `40%`.

Below our existing table and schedule styles, our code should look like this:

```
th,
td {
  padding-bottom: 22px;
  vertical-align: top;
}
th {
  padding-right: 45px;
  text-align: right;
  width: 20%;
}
td {
  width: 40%;
}
```

9 Next, let's style the table head and the elements within the table head. We'll set a `line-height` of `44` pixels on the `<thead>` element only, and a `color` of `#648880` and a `font-size` of `24` pixels on all `<th>` elements nested within a `<thead>` element. Our new styles include the following:

```
thead {
  line-height: 44px;
}
thead th {
  color: #648880;
  font-size: 24px;
}
```

10 The table head is looking good, so let's also add some styles for the table body. We'll begin with `<th>` elements nested within the `<tbody>` element: changing their `color`, adding some `font-` and `text-`based styles, and adding some top `padding`.

```
tbody th {
  color: #a9b2b9;
  font-size: 14px;
  font-weight: 400;
  padding-top: 22px;
  text-transform: uppercase;
}
```

11 We'll also add some styles to `<td>` elements nested within the `<tbody>` element, beginning with a top border and padding. We'll style the `<td>` elements that span only one column by adding 15 pixels of right padding to those that form the left column and 15 pixels of left padding to those that form the right column. Doing so puts a total of 30 pixels of padding between the two columns while keeping each cell the same size. We don't need to apply any left or right padding to the `<td>` elements that span two columns.

We'll add all of these horizontal paddings using the `:first-of-type`, `:last-of-type`, and `:only-of-type` pseudo-class selectors. These pseudo-class selectors work very similarly to the `:last-child` pseudo-class selector we've used before.

The `:first-of-type` pseudo-class selector will select the first element of its type within a parent element. In our case, the `td:first-of-type` selector will select the first `<td>` element within a `<tr>` element. Then, the `:last-of-type` pseudo-class selector will select the last element of its type within a parent element.

Again, in our case, the `td:last-of-type` selector will select the last `<td>` element within a `<tr>` element. Lastly, the `:only-of-type` pseudo-class selector will select an element if it's the only element of its type within a parent element. Here, the `td:only-of-type` selector will only select a `<td>` element if it's the only

`<td>` element within a `<tr>` element, such as when a `<td>` element spans two columns.

Our styles are a little complex, but they're flexible in addressing the needs of our table. These new styles include the following:

```css
tbody td {
  border-top: 1px solid #dfe2e5;
  padding-top: 21px;
}
tbody td:first-of-type {
  padding-right: 15px;
}
tbody td:last-of-type {
  padding-left: 15px;
}
tbody td:only-of-type {
  padding-left: 0;
  padding-right: 0;
}
```

12 Our schedule—and the tables that display it—is coming together. Let's adjust a few of the styles on existing elements to clean up the design. We'll start by making all of the links within the table a medium gray. If we target only the `<a>` elements within a table, our headings with the speaker's name within the links will remain green, while the talk titles will be gray, creating a nice contrast between the two.

While we're adjusting the styles of the entries for the talks, let's also remove the bottom `margin` on the `<h4>` elements within the table, allowing the speaker's name to sit closer to her or his title. We can implement these styles with the following code:

```css
table a {
  color: #888;
}
table h4 {
  margin-bottom: 0;
}
```

13 Lastly, let's create some visual contrast among the different types of activities hap- pening throughout the day. All of the talks look good with our latest changes.

For all of the other activities, such as registration, lunch, and breaks (which are within the table body) as well as for the date (which is within the table header) let's use a subtle gray.

We'll do so by creating a new class, `schedule-offset`, and assigning a `color` of `#a9b2b9` to it.

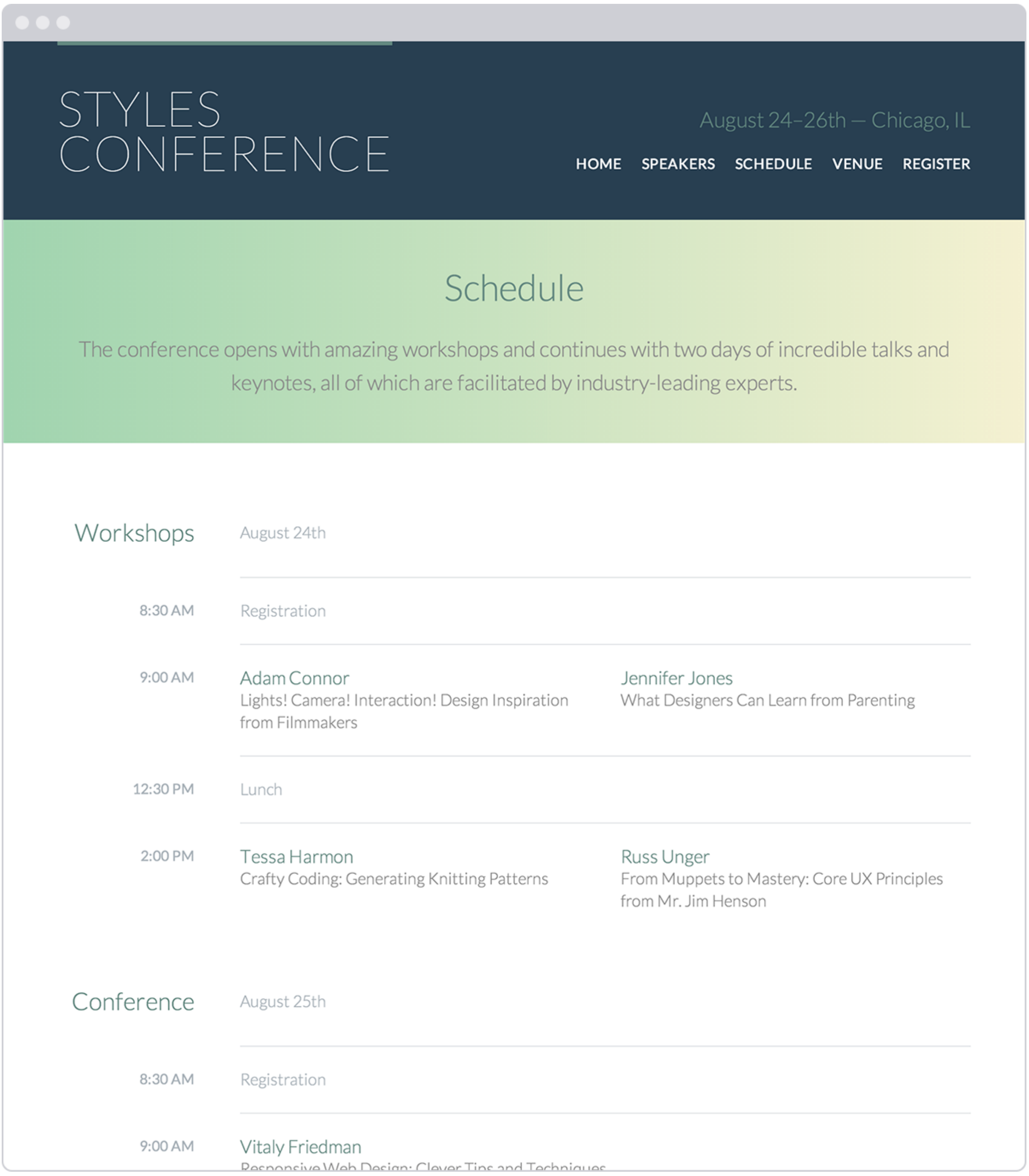
```css
.schedule-offset {
  color: #a9b2b9;
}
```

Once the class is in place, let's add it to all of the `<td>` elements that span two columns and include either the day's date or a designated activity—registration, lunch, or a break. Looking back to our table for the first day, the workshops day, the HTML will look like this:

```html
<table>
  <thead>
    <tr>
      <th scope="row">
        Workshops
      </th>
      <td class="schedule-offset" colspan="2">
        August 24th
      </td>
    </tr>
  </thead>
  <tbody>
    <tr>
      <th scope="row">
        <time datetime="08:30:00">8:30 AM</time>
      </th>
      <td class="schedule-offset" colspan="2">
        Registration
      </td>
    </tr>
    ...
    <tr>
      <th scope="row">
        <time datetime="12:30:00">12:30 PM</time>
      </th>
```

```
          <td class="schedule-offset" colspan="2">
            Lunch
          </td>
        </tr>
        ...
      </tbody>
    </table>
```

Tables, which may appear simple on the surface, can be quite complex, and that is the case with our Styles Conference schedule. The good news is that our schedule is now complete, and it's looking great.



Schedule

The conference opens with amazing workshops and continues with two days of incredible talks and keynotes, all of which are facilitated by industry-leading experts.

Workshops	August 24th	
8:30 AM	Registration	
9:00 AM	Adam Connor Lights! Camera! Interaction! Design Inspiration from Filmmakers	Jennifer Jones What Designers Can Learn from Parenting
12:30 PM	Lunch	
2:00 PM	Tessa Harmon Crafty Coding: Generating Knitting Patterns	Russ Unger From Muppets to Mastery: Core UX Principles from Mr. Jim Henson
Conference	August 25th	
8:30 AM	Registration	
9:00 AM	Vitaly Friedman Responsive Web Design: Clever Tips and Techniques	

Fig 11.01

The Schedule page, which includes multiple tables, for Styles Conference

Demo & Source Code

Below you may view the Styles Conference website in its current state, as well as download the source code for the website in its current state.

View the Styles Conference Website or Download the Source Code (Zip file)

Summary

All right, we now know how to semantically lay out tabular data within HTML while also making it intuitive with CSS. Discussing tables was our last major hurdle in learning HTML and CSS, and we have now officially finished our Styles Conference website.

To review, within this lesson we covered the following:

- The best ways to semantically create tables
- How to make individual table cells span multiple columns or rows
- The structural elements that make up tables
- Different ways to style borders on a table, and how different border properties affect a table's appearance
- How to vertically align text within a table

We've done a great job at putting all of our new skills to use, and we're miles beyond where we were a few lessons ago. Let's end on a high note, tie up some loose ends, and look at ways to write our best possible code.

Resources & Links

- Bring on the tables via 456 Berra St.

Lesson 10
Building Forms

Lesson 12
Writing Your Best Code

Learn More HTML & CSS or Study Other Topics

Learning how to code HTML & CSS and building successful websites can be challenging, and at times additional help and explanation can go a long way. Fortunately there are plenty of online schools, boot camps, workshops, and the alike, that can help.

Select your topic of interest below and I will recommend a course I believe will provide the best learning opportunity for you.

Select Your Topic of Interest:

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- Front-end Development
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- Mobile Development
- Data & Machine Learning
- Info & Cyber Security

Your Course Recommendations:

Select a topic above to view your course recommendations.

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