

# **Tutorial 5**

# **Working with Tables and Columns**

## HTML, CSS, and Dynamic HTML

5<sup>TH</sup> EDITION



# Objectives

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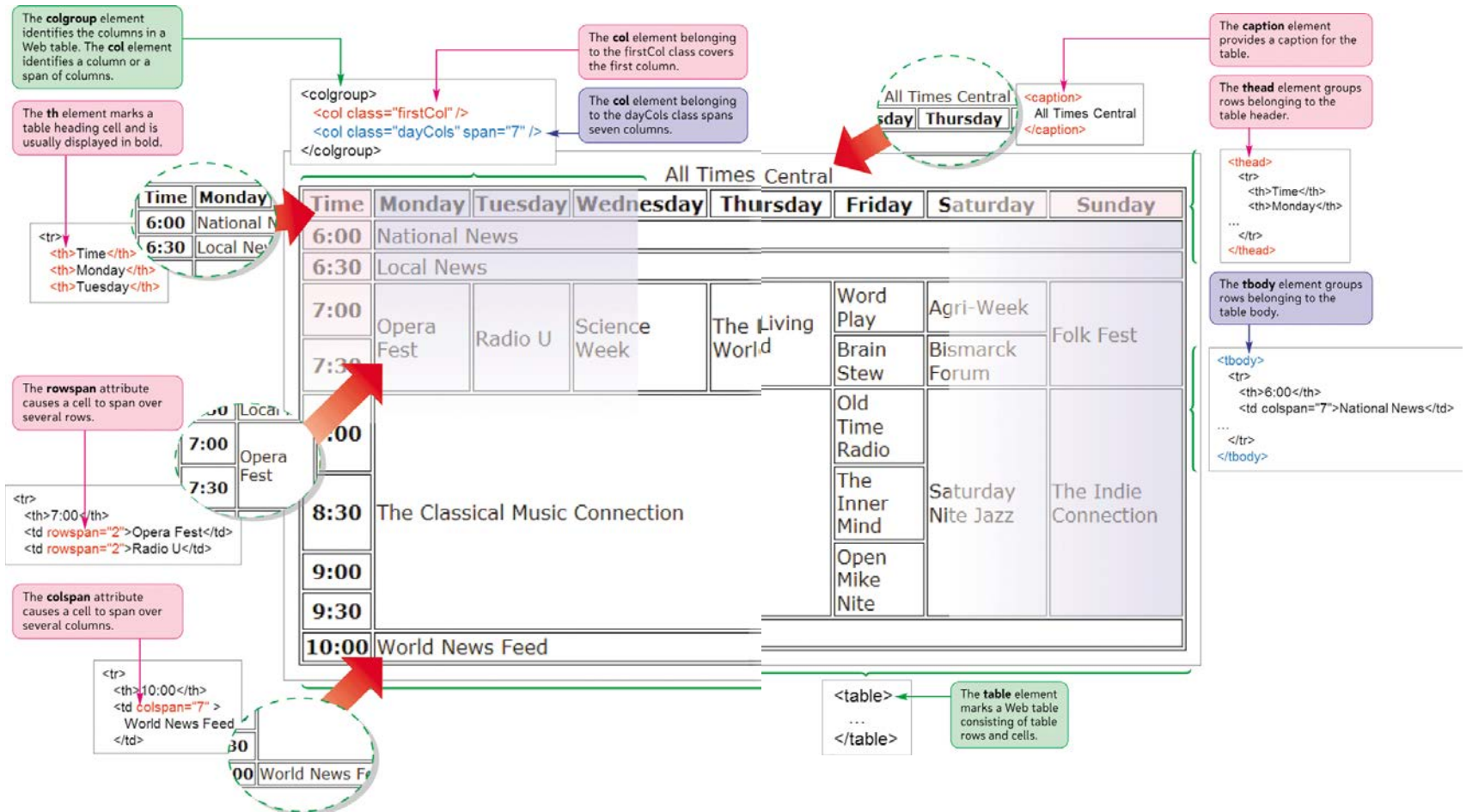
- Explore the structure of a Web table
- Create headings and cells in a table
- Create cells that span multiple rows and columns
- Create row and column groups
- Add a summary to a table

# Objectives

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- Format a table using HTML attributes
- Format a table using CSS styles
- Collapse table borders
- Display page elements in tabular form
- Create a multi-column layout

# Structure of a Web Table



# Introducing Web Tables

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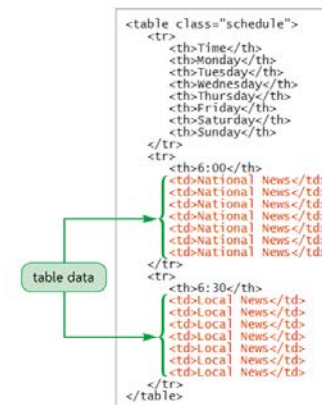
- Each table in a Web page follows a basic structure consisting of the table element and a collection of table rows nested in the table element

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

# Introducing Web Tables

- **Table headings**, the cells that identify the contents of a row or column, are marked using a `th` element
- **Data cells** are marked with the `td` element and are used for any content that is not considered a heading

Figure 5-5 Inserting table data



```
<table class="schedule">
  <tr>
    <th>Time</th>
    <th>Monday</th>
    <th>Tuesday</th>
    <th>Wednesday</th>
    <th>Thursday</th>
    <th>Friday</th>
    <th>Saturday</th>
    <th>Sunday</th>
  </tr>
  <tr>
    <th>6:00</th>
    <td>National News</td>
    <td>National News</td>
    <td>National News</td>
    <td>National News</td>
    <td>National News</td>
    <td>National News</td>
    <td>National News</td>
  </tr>
  <tr>
    <th>6:30</th>
    <td>Local News</td>
    <td>Local News</td>
    <td>Local News</td>
    <td>Local News</td>
    <td>Local News</td>
    <td>Local News</td>
    <td>Local News</td>
  </tr>
</table>
```

The diagram shows the HTML code for a table. A green callout box labeled "table data" has two arrows pointing to the data rows of the table, which are the rows containing `<td>` elements. The first data row is for the 6:00 time slot, and the second is for the 6:30 time slot. Each data row contains seven `<td>` elements, one for each day of the week.

# Introducing Web Tables

Figure 5-6 Viewing the Web table

The diagram illustrates a web table titled "KPAF Nightly Schedule". The table has a header row with days of the week and a data section with time slots. Annotations point to the header row as "table headings" and the data rows as "table data".

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6:00	National News	National News	National News	National News	National News	National News	National News
6:30	Local News	Local News	Local News	Local News	Local News	Local News	Local News

# Introducing Web Tables

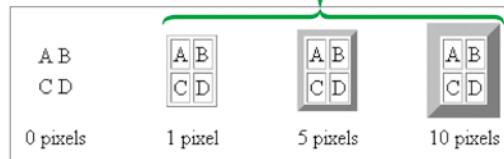
- To add a border to a Web table using HTML, use the border attribute

```
<table border="value"> ... </table>
```

where *value* is the size of the border in pixels

**Figure 5-7** Tables with different border sizes

internal gridlines  
have the same width





# Spanning Rows and Columns

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- A **spanning cell** is a single cell that occupies more than one row or one column in the table
- To create a table cell that spans several columns, add the attribute

`colspan="columns"`

to the cell, where *columns* is the number of columns covered by the cell

- To create a table cell that spans several rows, add the attribute

`rowspan="rows"`

to the cell, where *rows* is the number of rows covered by the cell

# Creating a Table Caption

- To create a table caption, add the caption element directly below the opening <table> tag with the syntax

`<caption>content</caption>`

where *content* is the content of the table caption

**Figure 5-18** Table caption for the KPAF programming schedule

caption

All Times Central

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday			
6:00	National News									
6:30	Local News									
7:00	Opera Fest	Radio U	Science Week	The Living World	Word Play	Agri-Week	Folk Fest			
7:30					Brain Stew	Bismarck Forum				
8:00	The Classical Music Connection				Old Time Radio	Saturday Nite Jazz	The Indie Connection			
8:30					The Inner Mind					
9:00					Open Mike Nite					
9:30										
10:00	World News Feed									

# Marking Row Groups

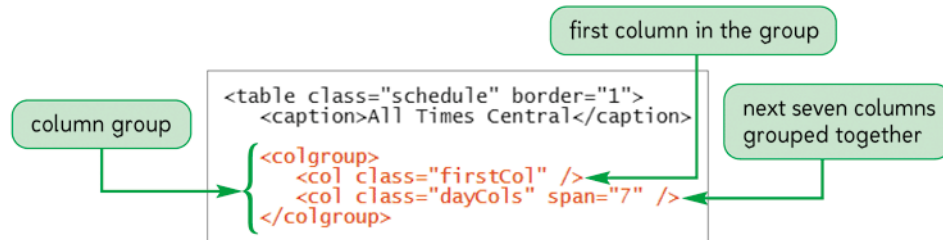
- You can divide a table's rows into **row groups**, in which each group element contains different types of content and can be formatted differently
- A table can have multiple table body row groups

```
<table>
  <thead>
    table rows
  </thead>
  <tfoot>
    table rows
  </tfoot>
  <tbody>
    table rows
  </tbody>
</table>
```

# Marking Column Groups

- Once the table columns have been determined by the browser, you can reference them through the use of **column groups**

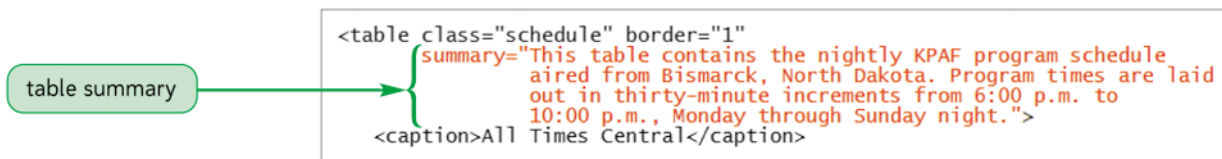
Figure 5-20 Inserting a column group



# Adding a Table Summary

- The summary attribute allows you to include a more detailed description about the table  
`<table summary="description">`  
... `</table>`

Figure 5-21 Inserting a table summary



# Web Table Styles

The diagram illustrates the styling of a radio schedule table using CSS. The main table is titled "KPAF Nightly Schedule" and lists programs for Monday through Sunday. A smaller table below it shows a weekly schedule for "Folk Fest" and "All Times Central".

**Table 1: KPAF Nightly Schedule**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6:00	National News						
	Local News						
7:00	Opera Fest	Radio U	Science Week	The Living World			
7:30							
8:00	The Classical Music Connection						
8:30							
9:00							
9:30							
10:00	World News Feed						

**Table 2: Weekly Schedule**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9:30							
10:00	World News Feed						

**Callouts and CSS Properties:**

- column-count:** The column-count property sets the number of columns.
- column-gap:** The column-gap property sets the space between columns.
- column-rule:** The column-rule property adds a dividing line between columns.
- border-collapse:** The border-collapse property merges adjacent borders into one border.
- thead:** The head selector applies to the table header row group.
- tbody:** The body selector applies to the table body row group.
- tr:** The row selector applies to the table row group.
- td:** The td selector applies to data cells within the tables.
- caption:** The caption selector applies to the table caption.
- caption-side:** The caption-side property sets the location of the table caption (top or bottom).
- text-align:** The text-align property sets the horizontal alignment of the text.
- background-color:** The background-color property sets the background color of the element.
- color:** The color property sets the color of the element.
- border:** The border property sets the border of the element.
- padding:** The padding property sets the padding of the element.
- width:** The width property sets the width of the element.
- col.firstCol:** The col.firstCol selector applies to the first column group.
- col.dayCols:** The col.dayCols selector applies to the days of the week column group.

# Formatting Tables with HTML Attributes

- The amount of space between table cells is known as the **cell spacing**
- The **cell padding** is the space between the cell contents and the cell border

Figure 5-22 Cell spacing values

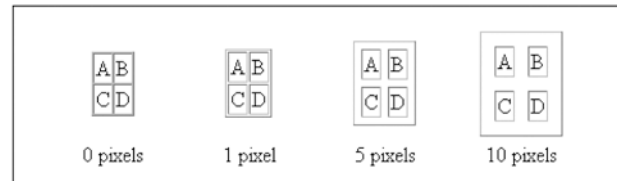
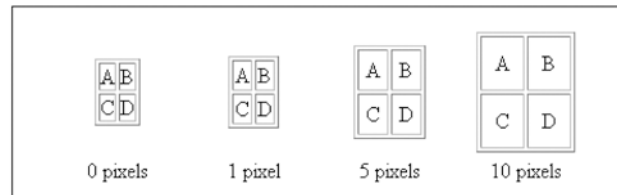


Figure 5-23 Cell padding values



# Formatting Tables

## with HTML Attributes

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- To define the space between table cells, add the cellpadding attribute

```
<table cellpadding="value"> ...  
</table>
```

to the `table` element, where `value` is the space between table cells in pixels

- To define the padding within table cells, add the cellspacing attribute

```
<table cellspacing="value"> ...  
</table>
```

to the `table` element, where `value` is the size of the padding space in pixels



# Formatting Tables

## with HTML Attributes

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- To set the width of the table to a specific value, add the width attribute  
`<table width="value"> ... </table>`
- Many browsers also support the height attribute  
`<table height="value"> ... </table>`
- You can use HTML to set the row heights by applying the height attribute  
`<tr height="value"> ... </tr>`

# Formatting Tables with HTML Attributes

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- A **table frame** specifies which sides of the table (or which sides of the table cells) will have borders

```
<table border="value"  
frame="type"> ... </table>
```

# Formatting Tables with HTML Attributes

**Figure 5-26** Values of the frame attribute

<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="above"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="below"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="border"</p>	A	B	C	D	E	F	G	H	I
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											
<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="box"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="hsides"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="lhs"</p>	A	B	C	D	E	F	G	H	I
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											
<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="rhs"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="vsides"</p>	A	B	C	D	E	F	G	H	I	<table><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td>F</td></tr><tr><td>G</td><td>H</td><td>I</td></tr></table> <p>frame="void"</p>	A	B	C	D	E	F	G	H	I
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											
A	B	C																											
D	E	F																											
G	H	I																											

# Formatting Tables with HTML Attributes

- A **table rule** specifies how the internal gridlines are drawn within the table  
`<table border="value"  
rules="type"> ... </table>`

Figure 5-27 Values of the rules attribute

A	B	C
D	E	F
G	H	I

rules="all"

A	B	C
D	E	F
G	H	I

rules="cols"

A	B	C
D	E	F
G	H	I

rules="groups"

A	B	C
D	E	F
G	H	I

rules="none"

A	B	C
D	E	F
G	H	I

rules="rows"

# Formatting Tables

## with HTML Attributes

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- By default, browsers horizontally center the contents of table header cells and left-align the contents of table data cells
  - To control the horizontal alignment  
`align="position"`
  - To control the vertical alignment  
`valign="position"`

# Formatting Tables with CSS

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- Starting with CSS2, Cascading Style Sheets included support for Web tables
- You can apply one set of borders to the Web table itself and another set of borders to the individual cells within the table

# Formatting Tables with CSS

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- To define the border model used by the table, apply the table style

`border-collapse: type`

where *type* is `separate` (the default) to keep all borders around cells and the table itself apart, or `collapse` to merge all adjacent borders

- To set the space between separated borders, apply the table style

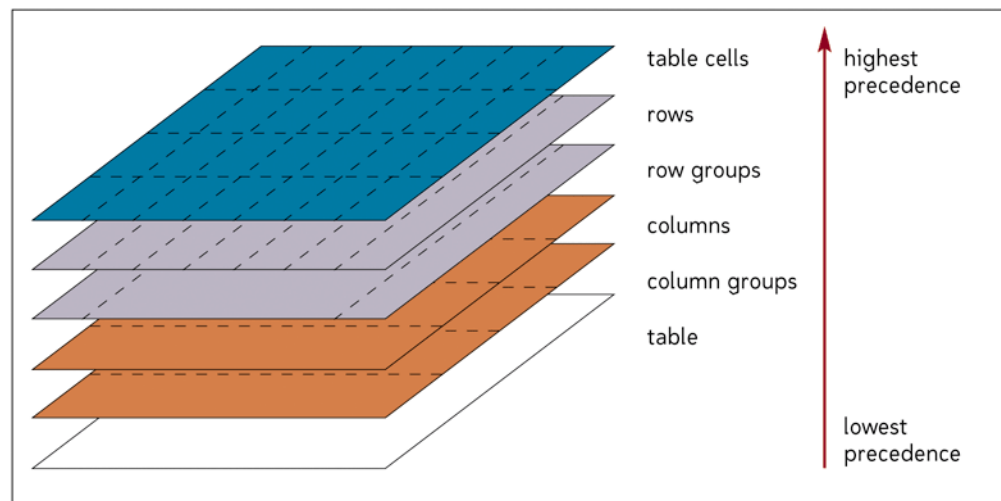
`border-spacing: value`

where *value* is the space between the borders in any of the CSS units of measure

# Formatting Tables with CSS

- The most general styles are those applied to the entire table

Figure 5-37 Levels of precedence in Web table styles





# Formatting Tables with CSS

- To position a table caption, apply the style `caption-side: position` where *position* is top or bottom

Figure 5-47 Setting the caption position

displays the caption  
in the bottom-right  
corner of the table

```
/* Styles for the table caption */  
table.schedule caption {  
  caption-side: bottom;  
  text-align: right;  
}
```

Figure 5-48 Table caption in the bottom-right corner

9:30				
10:00	World News Feed			

All Times Central

# Applying Table Styles to Other Page Elements

**Figure 5-49** Table display styles

Display Style	Equivalent HTML Element
<code>display: table;</code>	table (treated as a block-level element)
<code>display: table-inline;</code>	table (treated as an inline element)
<code>display: table-row;</code>	tr
<code>display: table-row-group;</code>	tbody
<code>display: table-header-group;</code>	thead
<code>display: table-footer-group;</code>	tfoot
<code>display: table-column;</code>	col
<code>display: table-column-group;</code>	colgroup
<code>display: table-cell;</code>	td or th
<code>display: table-caption;</code>	caption

# Applying Table Styles to Other Page Elements

Figure 5-50

Applying table styles to a definition list

```
<dl>
  <div>
    <dt>bandwidth</dt>
    <dd>A measure of data transfer speed over
      a network</dd>
  </div>
  <div>
    <dt>HTTP</dt>
    <dd>The protocol used to communicate with
      web servers</dd>
  </div>
</dl>
```

definition list code

bandwidth	A measure of data transfer speed over a network
HTTP	The protocol used to communicate with Web servers

definition list displayed as table

```
dl {
  display: table;
  border-collapse: collapse;
  width: 300px;
}
dl div {
  display: table-row;
}
dt, dd {
  display: table-cell;
  border: 1px solid black;
  vertical-align: top;
  padding: 5px;
}
```

table styles

# Designing Columnar Layouts with CSS3

---

- To specify the number of columns in the layout, use

`column-count: number;`

where `number` is the number of columns in the layout.

- To specify the width of the columns, use

`column-width: width;`

where `width` is the width of the columns expressed in one of the CSS units of measure or as a percentage of the width of the element

- To set the size of the gap between columns, use

`column-gap: width;`

where `width` is the width of the gap.

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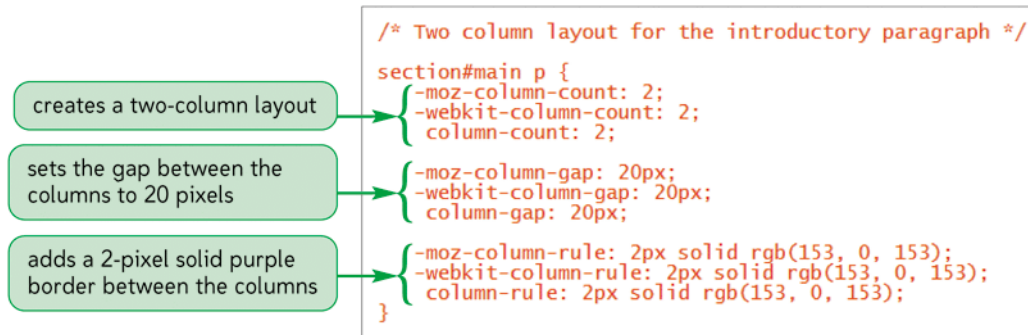
# Designing Columnar Layouts with CSS3

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- To add a border between the columns, use  
`column-rule: border;`  
where *border* is the format of the border.
- To specify the width and number of columns in a single style property, use  
`columns: width count;`  
where *width* is the width of each column and *count* is the total number of columns in the layout.
- For specific browsers, add the `-moz-` vendor prefix for Firefox and the `-webkit-` prefix for Safari and Chrome to these style properties.

# Designing Columnar Layouts with CSS3

Figure 5-51 Applying a two-column style



# Designing Columnar Layouts with CSS3

**Figure 5-52** Final KPAF nightly schedule page

two-column layout  
for the introductory  
paragraph

Listener supported since 1966							
<a href="#">Home</a>	<a href="#">Schedule</a>	<a href="#">Programs</a>	<a href="#">Music</a>	<a href="#">News</a>	<a href="#">Events</a>	<a href="#">Listen Live</a>	<a href="#">Contact Us</a>
KPAF Nightly Schedule							
<p>KPAF airs listener-supported public radio in Bismarck, North Dakota from 5:00 a.m. to 10:30 p.m.</p>				<p>You can <a href="#">Listen Live</a> to streaming audio of our broadcast. Please refer below for our current nightly schedule.</p>			
Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6:00	National News						
6:30	Local News						
7:00	Opera Fest	Radio U	Science Week	The Living World	Word Play	Agri-Week	Folk Fest
7:30					Brain Stew	Bismarck Forum	
8:00	The Classical Music Connection				Old Time Radio	Saturday Nite Jazz	The Indie Connection
8:30					The Inner Mind		
9:00					Open Mike Nite		
9:30							
10:00	World News Feed						

All Times Central

### On the Air Now

**Folk Fest**

Featuring the best of traditional and contemporary folk music

### Coming Up on KPAF

**April 11-14  
The Classical Music Connection**

Peter Thiesen shares his eclectic selection from the world of classical music

**April 11  
Opera Fest**

Excerpts from *Turandot* by Giacomo Puccini

**April 12  
Radio U**

Novelist Karen Graves reads from her latest work, *Hellion of Troy*

**April 13  
Science Week**

Prof. Thomas Glass from UND discusses *String Theory* and *Spooky Action at a Distance*

**April 14  
The Living World**

A panel discussion on the *Return of the Electric Car* and the latest in eco-news

KPAF • 4300 Magnolia Lane • Bismarck, ND 58504 • (701) 555 - 5611