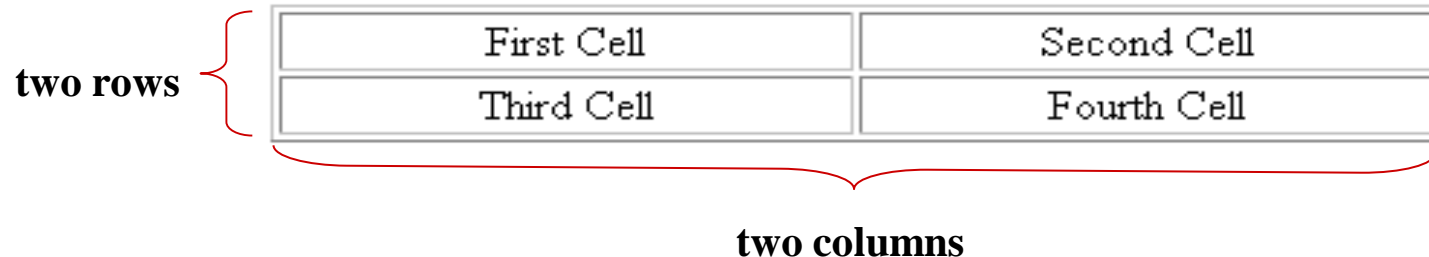# Using HTML Tables

Defining a Table Structure

- The first step to creating a table is to specify the table structure:
  - the number of rows and columns
  - the location of column headings
  - the placement of a table caption
- Once the table structure is in place, you can start entering data into the table.

Using the `<table>`, `<tr>`, and `<td>` Tags

- Graphical tables are enclosed within a two-sided **`<table>`** tag that identifies the start and ending of the table structure.

- Each row of the table is indicated using a two-sided **`<tr>`** (for table row).

- Within each table row, a two-sided **`<td>`** (for table data) tag indicates the presence of individual table cells.

The General Table Syntax

```
<table>
  <tr>
   <td> First Cell </td>
   <td> Second Cell </td>
  </tr>
  <tr>
   <td> Third Cell </td>
   <td> Fourth Cell </td>
  </tr>
</table>
```

| First Cell | Second Cell |
| Third Cell | Fourth Cell |

two rows

two columns

Columns within a Table

- HTML does not provide a tag for table columns.
- In the original HTML specifications, the number of columns is determined by how many cells are inserted within each row.
  - for example, if you have four `<td>` tags in each table row, that table has four columns
- Later versions of HTML provide increased support for controlling the appearance of table columns.

HTML Structure of a Table

beginning of the table structure ——————

```
<TABLE>
<TR>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
</TR>
<TR>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
</TR>
<TR>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
        <TD></TD>
</TR>
</TABLE>
```

table cells

first row of six in the table

end of the table structure

You do not need to indent the `<td>` tags or place them on separate lines, but you may find it easier to interpret your code if you do so.

After the table structure is in place, you're ready to add the text for each cell.

Creating Headings with the `<th>` Tag

- HTML provides the `<th>` tag for table headings.
- Text formatted with the `<th>` tag is centered within the cell and displayed in a boldface font.
- The `<th>` tag is most often used for column headings, but you can use it for any cell that you want to contain centered boldfaced text.

Adding Table Headings to the Table

Text in cells formatted with the `<th>` tag is bold and centered above each table column.

Group	Runner	Time	Origin
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
Men	2. Kyle Wills	2:13:05	Billings, Montana
Men	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
Women	2. Kathy Lasker	2:30:11	Chicago, Illinois
Women	3. Lisa Peterson	2:31:14	Seattle, Washington

table headings

```
<table>
    <tr>
        <th>Group</th>
        <th>Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
    <tr>
        <td>Men</td>
        <td>1. Peter Teagan</td>
        <td>2:12:34</td>
        <td>San Antonio, Texas</td>
    </tr>
```

Creating a Table Caption

- HTML allows you to specify a caption for a table.
- The syntax for creating a caption is: **`<caption align="alignment">caption text</caption>`**
  - *alignment* indicates the caption placement
  - a value of *"bottom"* centers the caption below the table
  - a value of *"top"* or *"center"* centers the caption above the table
  - a value of *"left"* or *"right"* place the caption above the table to the left or right

9

Table Captions

- Only **Internet Explorer** supports all caption values.
- **Netscape** supports only the "**top**" and "**bottom**" values.
- The **`<caption>`** tag works only with tables, the tag must be placed within the table structure.
- Captions are shown as normal text without special formatting.
- Captions can be formatted by embedding the caption text within other HTML tags.
  - for example, place the caption text within a pair of **`<b>`** and **`<i>`** tags causes the caption to display as bold and italic

Result of a Table Caption

caption text

```
<table>
    <caption align="top"><b>Race Results</b></caption>
    <tr>
        <th>Group</th>
        <th>Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
```

caption will be centered above the table

Race Results			
Group	**Runner**	**Time**	**Origin**
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
Men	2. Kyle Wills	2:13:05	Billings, Montana
Men	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
Women	2. Kathy Lasker	2:30:11	Chicago, Illinois
Women	3. Lisa Peterson	2:31:14	Seattle, Washington

Modifying the Appearance of a Table

- You can modify the appearance of a table by adding:
  - gridlines
  - borders
  - background color
- HTML also provides tags and attributes to control the placement and size of a table.
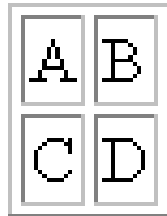
Adding a Table Border

- By default, browsers display tables without table borders.

- A table border can be added using the border attribute to the **`<table>`** tag.

- The syntax for creating a table border is: **`<table border="value">`**

  - *value* is the width of the border in pixels

- The **size** attribute is optional; if you don't specify a size, the browser creates a table border 1 pixel wide.
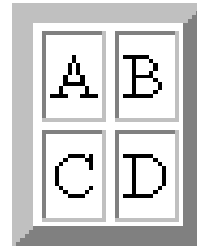
Tables with Different Borders Values

A B
C D

0 pixels

A B
C D

1 pixel

A B
C D

5 pixels

A B
C D

10 pixels

Adding a 5-Pixel Border to a Table

```
<table border="5">
    <caption align="top"><b>Race Results</b></caption>
    <tr>
        <th>Group</th>
        <th>Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
```

Only the outside border is affected by the border attribute; the internal gridlines are not affected.

Race Results

Group	Runner	Time	Origin
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
Men	2. Kyle Wills	2:13:05	Billings, Montana
Men	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
Women	2. Kathy Lasker	2:30:11	Chicago, Illinois
Women	3. Lisa Peterson	2:31:14	Seattle, Washington

Controlling Cell Spacing

- The **cellspacing** attribute controls the amount of space inserted between table cells.

- The syntax for specifying the cell space is:

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

  - *value* is the width of the interior borders in pixels
  - the default cell spacing is 2 pixels

- Cell spacing refers to the space between the cells.

Defining Cell Padding

- To control the space between the table text and the cell borders, add the **cellpadding** attribute to the table tag.

- The syntax for this attribute is:

`<table cellpadding="value">`

  - *value* is the distance from the table text to the cell border, as measured in pixels
  - the default cell padding value is 1 pixel

- Cell padding refers to the space within the cells.

Tables with Different Cell Spacing Values

different cell spacing values

0 pixels   1 pixel   5 pixels   10 pixels

different cell padding values

0 pixels   1 pixel   5 pixels   10 pixels

Table Frames and Rules

- Two additional table attributes introduced in HTML 4.0 are the **frames** and **rules** attributes.

- With the frame and rule attributes you can control how borders and gridlines are applied to the table.

- The **frames** attribute allows you to determine which sides of the table will have borders.

- The frame attribute syntax is: `<table frame="type">`
  - *type* is either "box" (the default), "**above**", "**below**", "**hsides**", "**vsides**", "**lhs**", "**rhs**", or "**void**"

Values of the Frame Attribute

FRAME VALUE	DESCRIPTION
BOX	Draws borders around all four sides
ABOVE	Draws only the top border
BELOW	Draws only the bottom border
HSIDES	Draws both the top and bottom borders (the horizontal sides)
LHS	Draws only the left-hand side
RHS	Draws only the right-hand side
VSIDES	Draws both the left and right borders (the vertical sides)
VOID	Does not draw borders on any of the four sides

Effect of Different Frame Values

This figure shows the effect of each of the frame values on the table grid.

frame="box"   frame="above"   frame="below"   frame="hsides"

frame="lhs"   frame="rhs"   frame="vsides"   frame="void"

Creating Frames and Rules Continued

- The **rules** attribute lets you control how the table gridlines are drawn (not supported by Netscape)

- The syntax of the rules attribute is:

`<table rules="type">`

– *type* is either "**all**", "**rows**", "**cols**", or "**none**"

the effect of each of the rules attribute values on a table

A	B	C
D	E	F
G	H	I

rules="all"

A	B	C
D	E	F
G	H	I

rules="rows"

A	B	C
D	E	F
G	H	I

rules="cols"

A	B	C
D	E	F
G	H	I

rules="none"

Working with Table and Cell Size

- The size of a table is determined by text it contains in its cells.

- By default, HTML places text on a single line.

- As you add text in a cell, the width of the column and table expands to the edge of the page.
  - once the page edge is reached, the browser reduces the size of the remaining columns to keep the text to a single line

- You can insert line break, paragraph, or other tags within a cell.

- When the browser can no longer increase or decrease the size of the column and table it wraps the text to a second line.

- As more text is added, the height of the table expands to accommodate the additional text.

- But, you can manually define the size of the table and its cells.

Defining the Table Size

- The syntax for specifying the table size is:

    `<table width="size" height="size">`

    - *size* is the width and height of the table as measured in pixels or as a percentage of the display area

- To create a table whose height is equal to the entire height of the display area, enter the attribute height="100%".

- If you specify an absolute size for a table in pixels, its size remains constant, regardless of the browser or monitor settings used.

- Remember that some monitors display Web pages at a resolution of 640 by 480 pixels.

Setting the Width of the Table to 500 Pixels

```
<table border="5" cellspacing="0" cellpadding="4" width="500">
    <caption align="top"><b>Race Results</b></caption>
    <tr>
        <th>Group</th>
        <th>Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
```

Park City native, **Laura Blake**, won the 27th Front Range Marathon over an elite field of the best long distance runners in the country. Laura's time of 2 hr. 28 min. 21 sec. was only 2 minutes off the women's course record set last year by Sarah Rawlings. Kathy Lasker and Lisa Peterson finished second and third, respectively. Laura's victory came on the heels of her performance at the NCAA Track and Field Championships, in which she placed second running for Colorado State.

Race Results

Group	Runner	Time	Origin
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
Men	2. Kyle Wills	2:13:05	Billings, Montana
Men	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
Women	2. Kathy Lasker	2:30:11	Chicago, Illinois
Women	3. Lisa Peterson	2:31:14	Seattle, Washington

Defining Cell and Column Sizes

- To set the width of an individual cell, add the **width** attribute to either the **<td>** or **<th>** tags.
- The syntax is: **width="value"**
  - *value* can be expressed in pixels or as a percentage of the table width
  - width value of 30% displays a cell that is 30% of the total width of table.
- The **height** attribute can also be used in the **<td>** or **<th>** tags to set the height of individual cells.
  - The height attribute is expressed either in pixels or as a percentage of the height of the table.
  - If you include more text than can be displayed within that height value you specify, the cell expands to display the additional text.

Defining Cell and Column Sizes

- Specifying a width for an individual cell does not guarantee that the cell will be that width when displayed in the browser.

  – the reason for this is that the cell is part of a column containing other cells.

- Set the width of all the cells in the column to the same value to ensure that the cells do not change in size.

Aligning a Table on the Web Page

- By default, a browser places a table on the left margin of a Web page, with surrounding text placed above and below the table.
- To align a table with the surrounding text, use the **align** attribute as follows: `align="alignment"`
  - *alignment* equals *"left"*, *"right"*, or *"center"*
  - *left* or *right* alignment places the table on the margin of the Web page and wraps surrounding text to the side
  - *center* alignment places the table in the horizontal center of the page, but does not allow text to wrap around it
- The align attribute is similar to the align attribute used with the `<img>` tag.

Results of a Right-Aligned Table

```
<table border="5" cellspacing="0" cellpadding="4" width="500" align="right">
    <caption align="top"><b>Race Results</b></caption>
    <tr>
        <th width="50">Group</th>
        <th>Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
```

Local Woman Wins Marathon

Park City native, **Laura Blake**, won the 27th Front Range Marathon over an elite field of the best long distance runners in the country. Laura's time of 2 hr. 28 min. 21 sec. was only 2 minutes off the women's course record set last year by Sarah Rawlings. Kathy Lasker and Lisa Peterson finished second and third, respectively. Laura's victory came on the heels of her performance at the NCAA Track and Field Championships, in which she placed second running for Colorado State.

In an exciting race, **Peter Teagan** of San Antonio, Texas, used a finishing kick to win the men's marathon for the second straight year, in a time of 2 hr. 12 min. 34 sec. Ahead for much of the race, Kyle Wills of Billings, Montana, finished second, when he could not match Teagan's finishing pace. Jason Wu of Cutler, Colorado, placed third in a very competitive field.

This year's race through downtown Boulder boasted the largest field in the marathon's history, with over 9500 men and 6700 women competing. Race conditions were perfect with low humidity and temperatures that never exceeded 85°.

Race Results

Group	Runner	Time	Origin
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
Men	2. Kyle Wills	2:13:05	Billings, Montana
Men	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
Women	2. Kathy Lasker	2:30:11	Chicago, Illinois
Women	3. Lisa Peterson	2:31:14	Seattle, Washington

29

Aligning the Contents of a Table

- By default, cell text is placed in the middle of the cell, aligned with the cell's left edge.

- By using the **align** and **valign** attributes, you can specify the text's horizontal and vertical placement.

- To align the text for a single column, you must apply the align attribute to every cell in that column.

Values of the Align
and Valign Attributes

align="left" valign="top"	align="left" valign="middle"	align="left" valign="bottom"
align="center" valign="top"	align="center" valign="middle"	align="center" valign="bottom"
align="right" valign="top"	align="right" valign="middle"	align="right" valign="bottom"

31

Spanning Rows and Columns

- To merge several cells into one, you need to create a **spanning cell**.

- A spanning cell is a cell that occupies more than one row or column in a table.

- Spanning cells are created by inserting the **rowspan** and **colspan** attribute in a **`<td>`** or **`<th>`** tag.

- The syntax for these attributes is:
  `rowspan="value" colspan="value"`
  - *value* is the number of rows or columns that the cell spans in the table

Example of Spanning Cells

This cell spans two columns and two rows —

This cell spans three rows —

— **this cell spans three columns**

Today's Opinion Poll Question		Political Party		
		Democrat	Republican	Independent
"Do you favor or oppose increasing the minimum wage?"	Favor	70%	35%	55%
	Oppose	25%	60%	30%
	Unsure	5%	5%	15%

A Table Structure with a Row-Spanning Cell

four table cells in the first row

only three table cells are required for the second and third rows

```html
<table>
    <tr>
        <td rowspan="3">1: This cell spans three rows</td>
        <td>2</td>
        <td>3</td>
        <td>4</td>
    </tr>
    <tr>
        <td>5</td>
        <td>6</td>
        <td>7</td>
    </tr>
    <tr>
        <td>8</td>
        <td>9</td>
        <td>10</td>
    </tr>
</table>
```

HTML code

1: This cell spans three rows	2	3	4
	5	6	7
	8	9	10

resulting table

34

Adding Spanning Cells to a Table

```
<table border="5" cellspacing="0" cellpadding="4" width="500" align="right">
    <caption align="top"><b>Race Results</b></caption>
    <tr>
        <th colspan="2">Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
    <tr>
        <td rowspan="3">Men</td>
        <td>1. Peter Teagan</td>
        <td align="right">2:12:34</td>
        <td>San Antonio, Texas</td>
    </tr>
    <tr>
        <td>2. Kyle Wills</td>
        <td align="right">2:13:05</td>
        <td>Billings, Montana</td>
    </tr>
    <tr>
        <td>3. Jason Wu</td>
        <td align="right">2:14:28</td>
        <td>Cutler, Colorado</td>
    </tr>
    <tr>
        <td rowspan="3">Women</td>
        <td>1. Laura Blake</td>
        <td align="right">2:28:21</td>
        <td>Park City, Colorado</td>
    </tr>
    <tr>
        <td>2. Kathy Lasker</td>
        <td align="right">2:30:11</td>
        <td>Chicago, Illinois</td>
    </tr>
    <tr>
        <td>3. Lisa Peterson</td>
        <td align="right">2:31:14</td>
        <td>Seattle, Washington</td>
    </tr>
</table>
```

Race Results

	Runner	Time	Origin
Men	1. Peter Teagan	2:12:34	San Antonio, Texas
	2. Kyle Wills	2:13:05	Billings, Montana
	3. Jason Wu	2:14:28	Cutler, Colorado
Women	1. Laura Blake	2:28:21	Park City, Colorado
	2. Kathy Lasker	2:30:11	Chicago, Illinois
	3. Lisa Peterson	2:31:14	Seattle, Washington

Another Example of Spanning Cells

```
<TR>
    <TD BGCOLOR=YELLOW ROWSPAN=2>Gargoyle Judge</TD>
    <TD WIDTH=60>48222</TD>
    <TD>Bust</TD>
    <TD>Interior Plaster</TD>
    <TD ALIGN=RIGHT WIDTH=50>$140</TD>
</TR>
<TR>
    <TD WIDTH=60>48223</TD>
    <TD>Bust</TD>
    <TD>Gothic Stone</TD>
    <TD ALIGN=RIGHT WIDTH=50>$155</TD>
</TR>
</TABLE>
```

Here is a sample of our products

Name	Item #	Type	Finish	Price
Bacchus	48059	Wall Mount	Interior Plaster	$95
Praying Gargoyle	48159	Garden Figure	Gothic Stone	$125
Gargoyle Judge	48222	Bust	Interior Plaster	$140
	48223	Bust	Gothic Stone	$155

Another Example of Spanning Cells

```
<TABLE BORDER=10 CELLSPACING=0 CELLPADDING=4 ALIGN=CENTER WIDTH=550
 BGCOLOR=WHITE>
<CAPTION ALIGN=TOP>Here is a sample of our products</CAPTION>
<TR BGCOLOR="#33CC66">
    <TH>Name</TH>
    <TH WIDTH=60>Item #</TH>
    <TH COLSPAN=2>Type and Finish</TH>
    <TH WIDTH=50>Price</TH>
</TR>
```

Here is a sample of our products

Name	Item #	Type and Finish		Price
Bacchus	48059	Wall Mount	Interior Plaster	$95
Praying Gargoyle	48159	Garden Figure	Gothic Stone	$125
Gargoyle Judge	48222	Bust	Interior Plaster	$140
	48223	Bust	Gothic Stone	$155

Applying a Background Color

- Table elements support the **bgcolor** attribute.
- To specify a background color for all of the cells in a table, all of the cells in a row, or for individual cells, by adding the bgcolor attribute to either the **\<table\>**, **\<tr\>**, **\<td\>**, or **\<th\>** tags as follows:

  ```
  <table bgcolor="color">
  <tr bgcolor="color">
  <td bgcolor="color">
  <th bgcolor="color">
  ```

  – *color* is either a color name or hexadecimal color value

Specifying Table, Row, and Cell Colors

```html
<table border="5" cellspacing="0" cellpadding="4" width="500" align="right" bgcolor="white">
    <caption align="top"><b>Race Results</b></caption>
    <tr bgcolor="yellow">
        <th colspan="2">Runner</th>
        <th>Time</th>
        <th>Origin</th>
    </tr>
    <tr>
        <td rowspan="3" valign="top" bgcolor="lightblue">Men</td>
        <td>1. Peter Teagan</td>
        <td align="right">2:12:34</td>
        <td>San Antonio, Texas</td>
    </tr>
    <tr>
        <td>2. Kyle Wills</td>
        <td align="right">2:13:05</td>
        <td>Billings, Montana</td>
    </tr>
    <tr>
        <td>3. Jason Wu</td>
        <td align="right">2:14:28</td>
        <td>Cutler, Colorado</td>
    </tr>
    <tr>
        <td rowspan="3" valign="top" bgcolor="lightgreen">Women</td>
        <td>1. Laura Blake</td>
        <td align="right">2:28:21</td>
        <td>Park City, Colorado</td>
    </tr>
    <tr>
        <td>2. Kathy Lasker</td>
        <td align="right">2:30:11</td>
        <td>Chicago, Illinois</td>
    </tr>
    <tr>
        <td>3. Lisa Peterson</td>
        <td align="right">2:31:14</td>
        <td>Seattle, Washington</td>
    </tr>
</table>
```
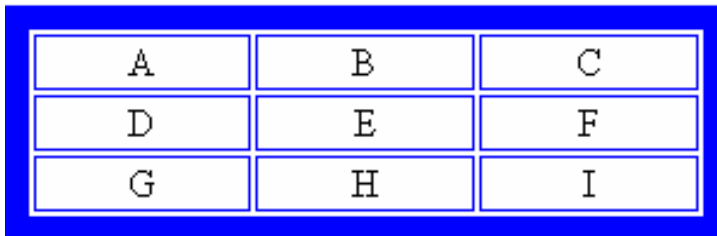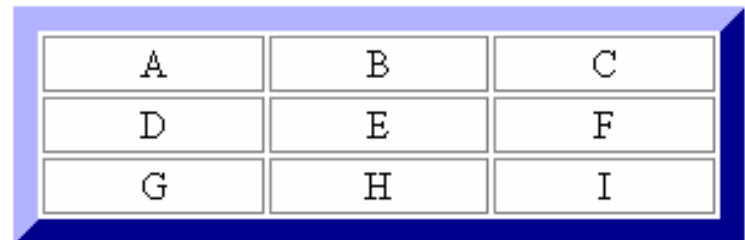
Specifying Table, Row, and Cell Colors

Race Results		
Runner	**Time**	**Origin**
Men 1. Peter Teagan	2:12:34	San Antonio, Texas
2. Kyle Wills	2:13:05	Billings, Montana
3. Jason Wu	2:14:28	Cutler, Colorado
Women 1. Laura Blake	2:28:21	Park City, Colorado
2. Kathy Lasker	2:30:11	Chicago, Illinois
3. Lisa Peterson	2:31:14	Seattle, Washington

The `bordercolor` Attribute

- By default, table borders are displayed in two shades of gray that create a three-dimensional effect.

- The syntax for the bordercolor attribute is:

  `<table bordercolor="color">`

  - *color* is an HTML color name or hexadecimal color value

- Internet Explorer and Netscape apply this attribute differently.

`<table border="10" bordercolor="blue">`

Internet Explorer   **Netscape**

Applying a Table Background

- Add a background image to your tables using the **background** attribute.

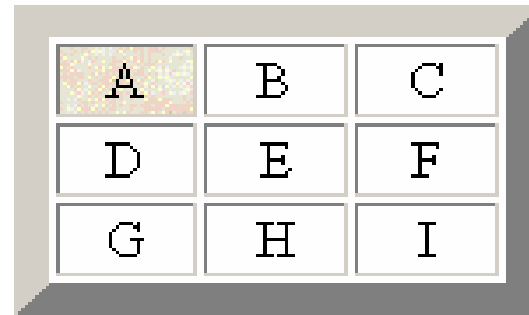- A background can be applied to the entire table or to a cell.

parch.jpg

<table background="parch.jpg">
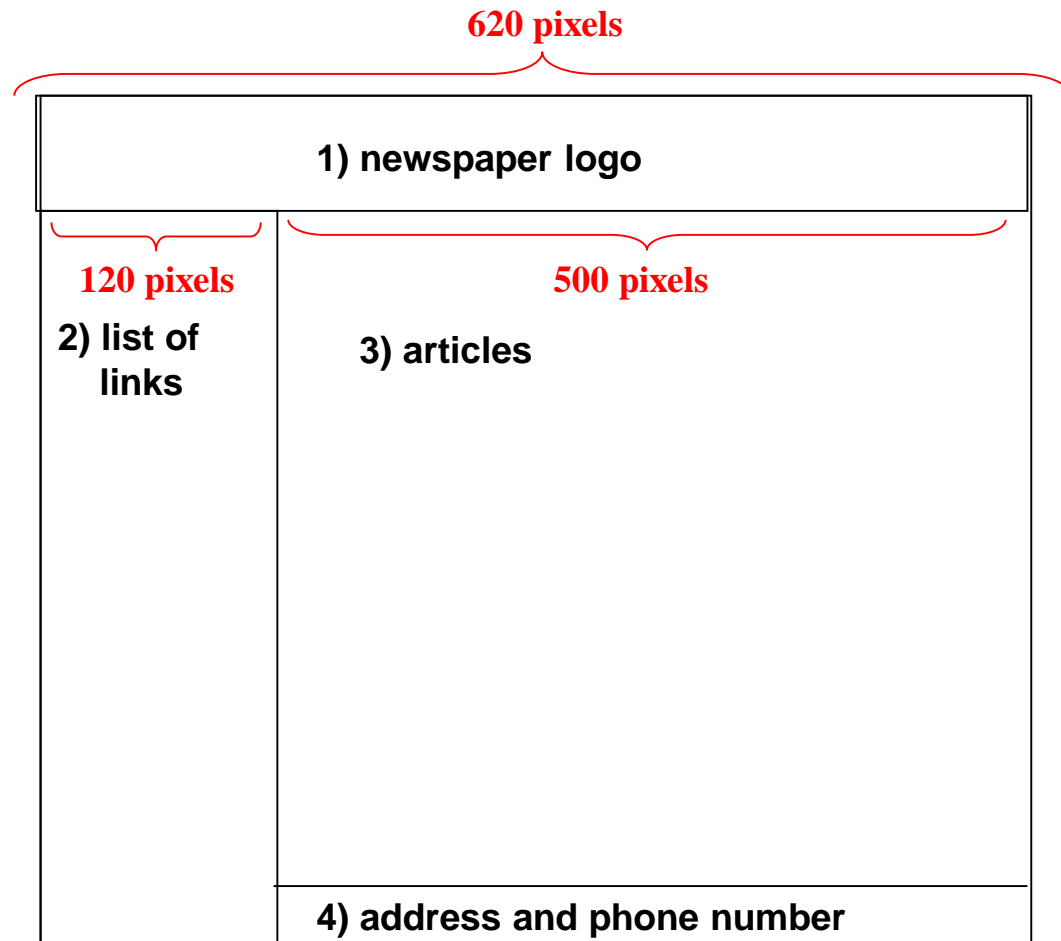
<td background="parch.jpg">

Designing a Page Layout with Tables

- HTML tables are most often used to define the layout of an entire Web page.

- If you want to design a page that displays text in newspaper style columns, or separates the page into distinct sections, you'll find tables an essential and useful tool.
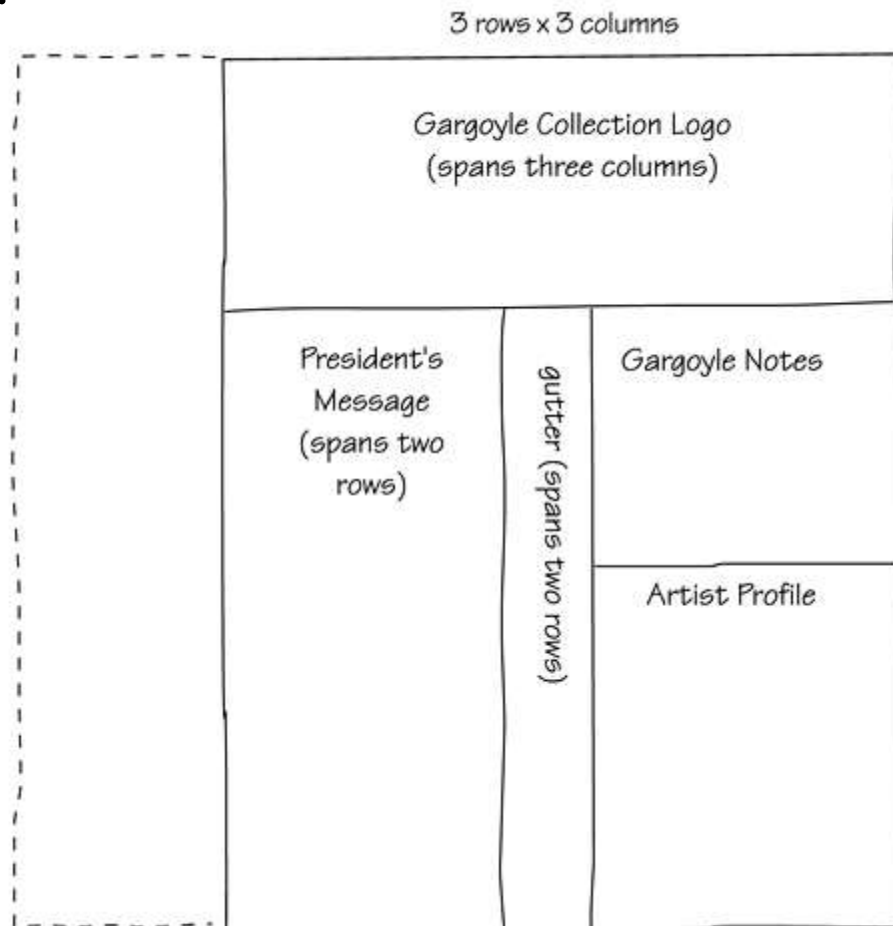
Table Layout of a Web Page

620 pixels

1) newspaper logo

120 pixels   **500 pixels**

2) list of links	3) articles
	4) address and phone number

a sample table layout of a Web page.

Using Nested Table

- Tables can be created within another table making the Web page easier to manage.

3 rows x 3 columns

Gargoyle Collection Logo
(spans three columns)

a sketch of a web page using nested tables

President's Message (spans two rows)

gutter (spans two rows)

Gargoyle Notes

Artist Profile

The Result of the Web Page using Nested Tables

a sample web page using nested tables

An Example of the Contents

```
<TR>
    <!--List of Hypertext Links-->
    <TD WIDTH=165 VALIGN=TOP>
        <IMG SRC="MAA2.jpg" WIDTH=144 HEIGHT=25 ALT="Middle Age Arts">
        <H4><FONT COLOR=YELLOW>Middle Age Arts</FONT></H4>
        <FONT COLOR=WHITE>
        <A HREF="Index.htm">Home Page</A><BR>
        <A HREF="Catalog.htm">View the catalog</A><BR>
        <A HREF="Orders.htm">Place an order</A><BR>
        </FONT>
        <H4><FONT COLOR=YELLOW>About Gargoyles</FONT></H4>
        <FONT COLOR=WHITE>
        <A HREF="MAAtable.htm">Gargoyle Products</A><BR>
        <A HREF="MAAtext.htm">Gargoyle Products<BR>(text version)</A><BR>
        </FONT>
        <H4><FONT COLOR=YELLOW>Other Collections</FONT></H4>
        <FONT COLOR=WHITE>
        <A HREF="Vatican.htm">The Vatican Collection</A><BR>
        <A HREF="Rodin.htm">The Rodin Collection</A><BR>
        <A HREF="Masters.htm">Renaissance Masters</A><BR>
        </FONT>
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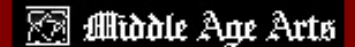

47

An Example of the Gargoyle Notes

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<!--The table gutter-->
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<!--Notes about gargoyles-->
<TD WIDTH=220 VALIGN=TOP BGCOLOR=YELLOW>
    <FONT COLOR="#800000">
    <H4 ALIGN=CENTER>What do I do with a gargoyle?</H4>
    Don't think you need a gargoyle? Think again. Gargoyles are
    useful as:
    <UL>
      <LI>Bird baths
      <LI>Wind chimes
      <LI>Pen holders
      <LI>Paperweights
      <LI>Bookends
    </UL>
    </FONT>
  </TD>
</TR>
```

What do I do with a gargoyle?

Don't think you need a gargoyle? Think again. Gargoyles are useful as:

- Bird baths
- Wind chimes
- Pen holders
- Paperweights
- Bookends

Example from Class Web Site

Sample Template based on Class Web Page

IT 130 Image	Main Logo
Home	
Syllabus	
Announcements	
Schedule	
Assignments	
Exams	
Resources	

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