CGS 3175: Internet Applications Fall 2009

Cascading Style Sheets – Page Layout

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CSS Page Layout Overview

- As we saw in the introductory notes, CSS is used to separate content from presentation in Web documents.
- CSS can also be used to separate the presentation (fonts, colors, and so on) from the page structure.
- Using CSS results in smaller Web page documents (XHTML files), which saves on bandwidth and eases Web site maintenance.
- Recall that CSS Level 1 (CSS1) was introduced by the W3Cin 1996. CSS Level 2 (CSS2) was released in 1998.
- CSS2 builds on CSS1 and introduces new properties needed for positioning, commonly referred to as CSS-P.



CSS Page Layout Overview

- Even though CSS2 was introduced in the last millennium, commercial Web sites have only recently begun to utilize its features. We saw in the last section of notes that the National Security Agency utilizes CSS for their page layout, so to does TruGreen (lawn care at http://trugreen.com) and Wired at (www.wired.com look at the source code for their home page which DTD are they using?).
- The primary reason for this delay in acceptance of the CSS2 standards has been the lack of browser support for the W3C recommendations. Only very recently have the most current versions of commonly used browsers begun to support CSS2 reliably and consistently.
- Even so, you may expect to encounter differences in rendering when displaying pages coded using CSS-P in various browsers.
- By learning to develop Web pages using CSS-P, you will be on the very leading edge as web developers.
- As newer browsers are introduced, the number of Web visitors who use older browsers is declining all the time. However, be aware that for specific target audiences this may not yet be true and may take longer to occur.

Advantages of Using CSS For Page Layout

- When CSS is used to configure page layout in addition to formatting, all the following advantages of using CSS for formatting are enhanced:
 - Greater typography control. This includes font size, line spacing, letter spacing, indents, margins, and element positioning without using tables.
 - Style is separate from structure. The formatting and page layout can be configured and stored separately from the content section of the Web page document. When the styles are modified, the XHTML remains intact. This means that if your client decides to change something as small as the background color or as potentially huge as the page layout, you may need to only change one file that contains the styles, instead of each Web page document.
 - Potentially smaller documents. Since both the formatting and page layout are separate from the document, the actual XHTML documents should be smaller.
 - Easier site maintenance. Again, if the styles or page layout need to be changed it may be possible to complete the modifications by changing only a single file the style sheet.



Advantages of Using CSS For Page Layout (cont.)

- Increased page layout control. CSS used in conjunction with modern standards-compliant browsers provides a variety of positioning options (even down to the pixel level) along with an ability to overlap elements. This gives the Web developer more control over the layout compared to the traditional use of tables.
- Increased accessibility. Pages designed using tables for layout are easy to view with a traditional browser but can be very tedious when using a screen reader or other assistive technology. By reserving the use of tables for their intended purpose of organizing tabular information and using CSS for page layout the pages become more accessible.
- Ability to define styles for multiple media types. Since presentation is separated from content, CSS can be used to set a separate style for printing, or possible use of a screen reader.
- Support of the Semantic Web. This is the W3C's vision of what the future Internet. In the semantic web information will have well-defined meaning that will better enable computers and humans to work in cooperation. A big step in this direction is using XHTML syntax and using CSS-P to separate styles from structure.

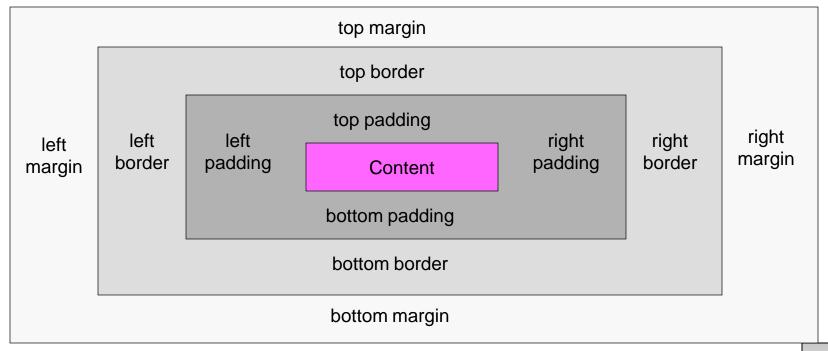


Disadvantages of Using CSS For Page Layout

- There are only a couple of disadvantages of using CSS-P:
 - Lack of support by older browsers. Older browsers do not support CSS-P, so for example, if you are developing an intranet site for a company that has standardized on Netscape 4.7 for their desktop, none of the advantages of CSS-P would be realized and it would be better to design the site using tables for the page layout. Note that as time passes, this will become less and less of a disadvantage to the use of CSS-P.
 - Productivity drop. Developers who are already proficient at developing Web pages using tables for the layout will see productivity drop (temporarily) as they learn about CSS-P techniques and properties.

The CSS Box Model

- The CSS Box Model is a crucial building block of CSS-P.
- Each element in a document is considered to be a rectangular box, as shown below. This box consists of a content area surrounded by padding, a border, and margins.

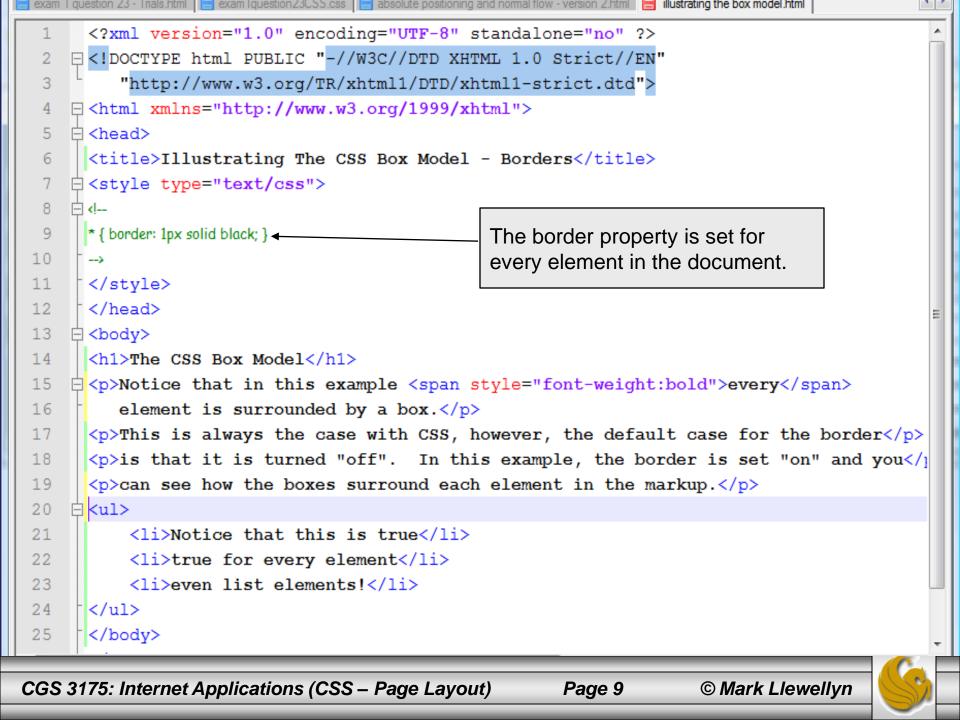


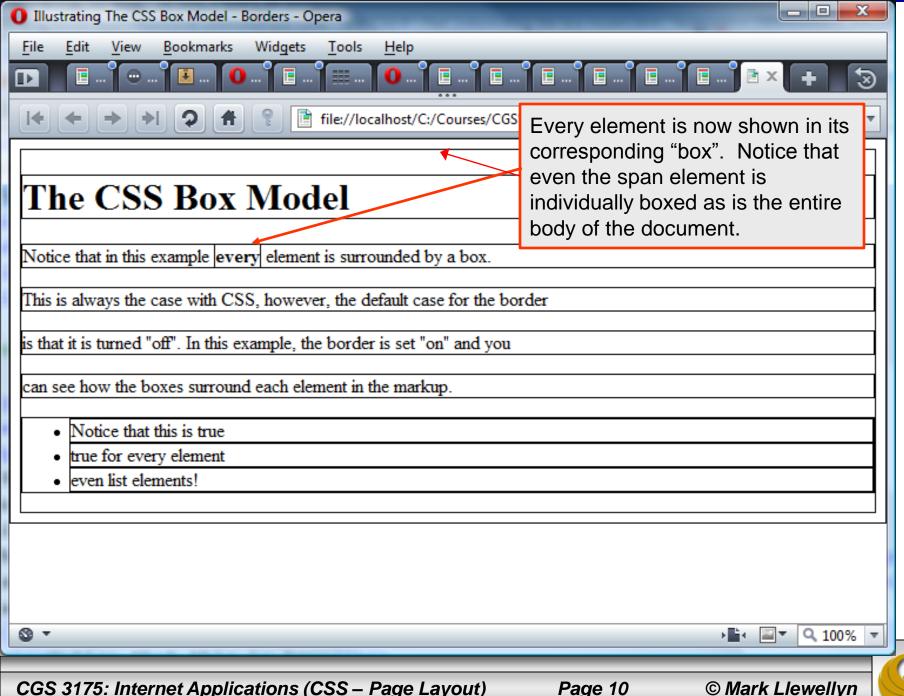


The CSS Box Model

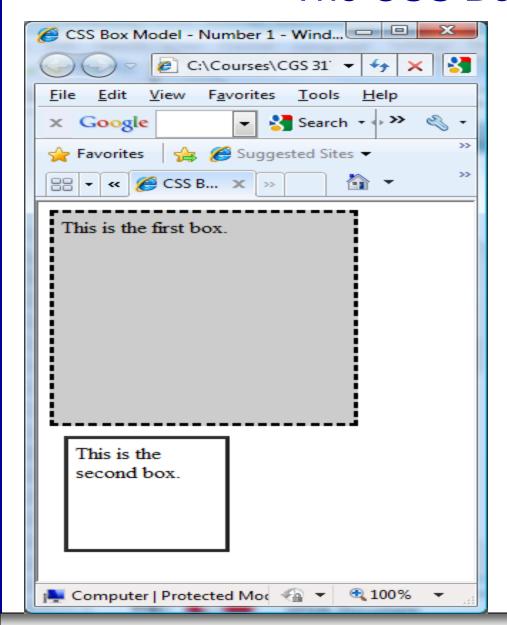
- Content. The content area can consist of a combination of text and Web page elements such as images, paragraphs, headings, lists, and so on. The screen shots on the next page show <div> elements containing text content. The visible width of the element on a Web page is the total of the content width, the padding width, and the border width.
- Padding. Padding is an area that is between the content and the border. The default padding value is 0. When configuring the background of an element, the background is applied to both the padding and the content area.
- Border. The border area is between the padding and the margin. The default border has a value of 0 and does not display.
- Margin. The margin determines the empty space between the element and any adjacent elements. The margin is always transparent. The solid line shown on the previous page that contains the margin area does not display on a Web page. Keep in mind that browsers often have default margin values set of the Web page document and for certain elements such as paragraphs, headings, forms, and so on. Use the margin property to override the default browser values.

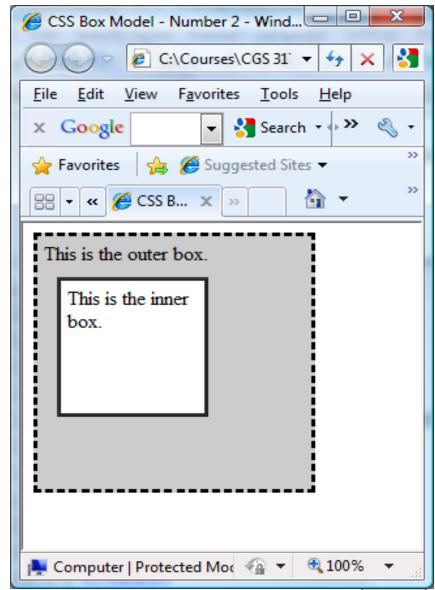




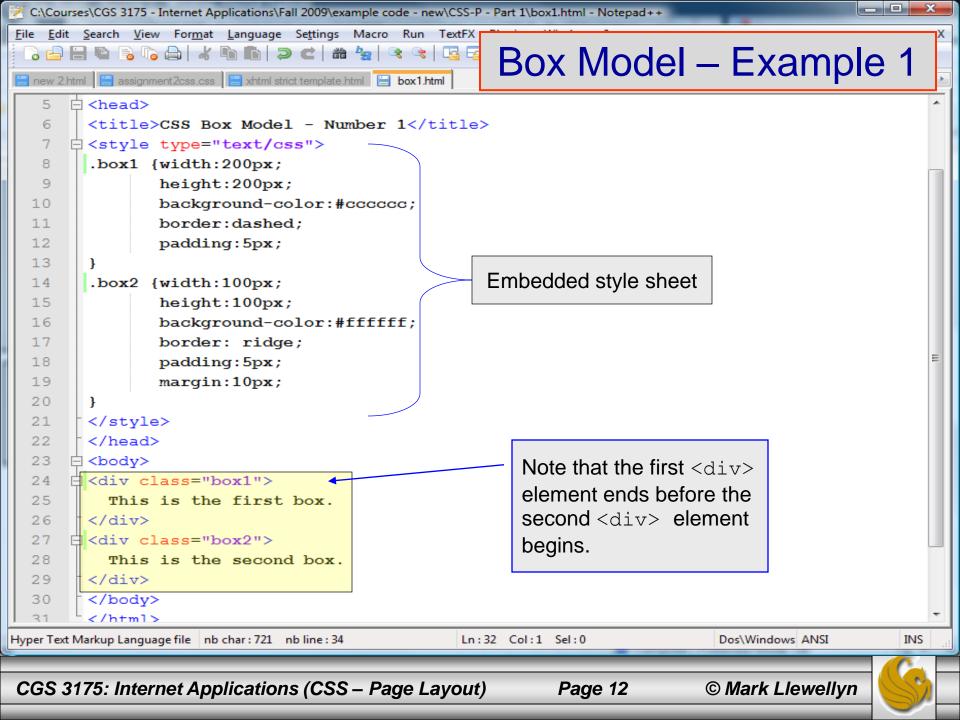


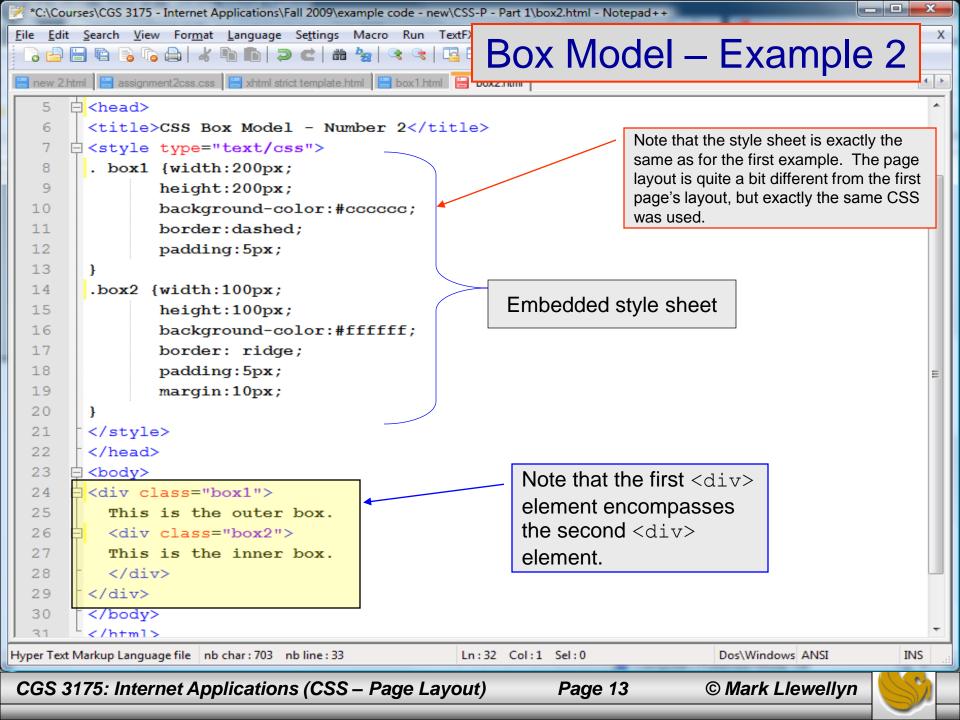
The CSS Box Model











CSS Positioning Properties

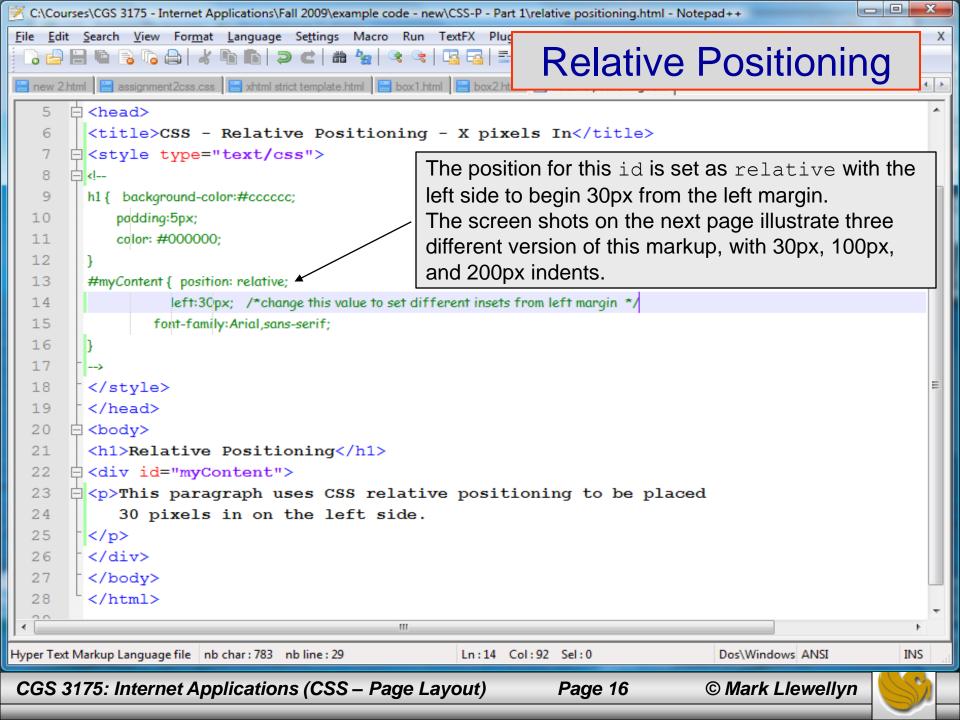
- The box examples on the previous pages illustrate how normal flow causes the browser to render the elements in the order that they appear in the XHTML source code.
- When using CSS for page layout there are times when you will want to specify the location of an element on the page either the absolute pixel location, the location relative to where the element would normally display, or floating on the page.
- There may even be time when you will want to modify the way an element displays or cause an element to appear partially or completely over another element.

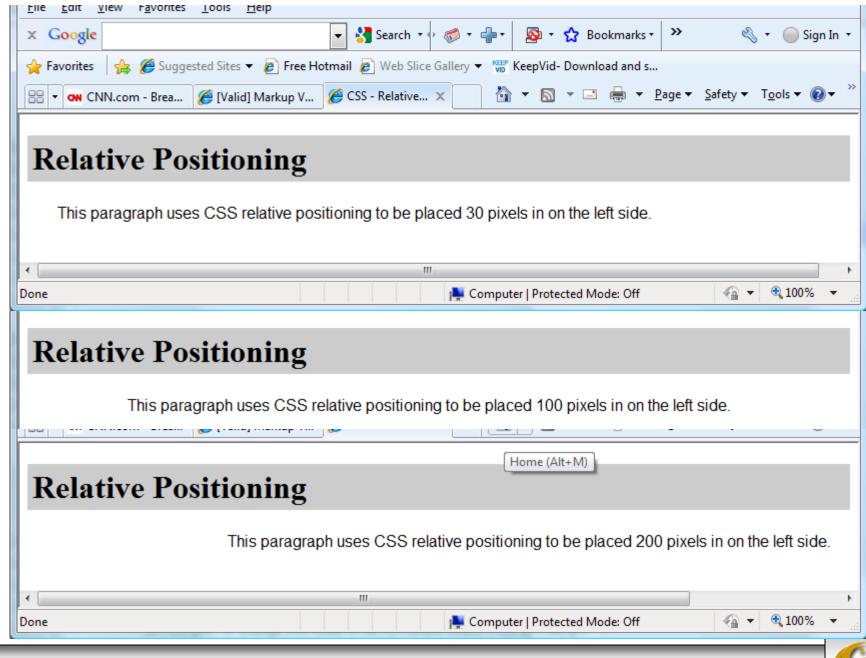


Relative and Absolute Positioning

- Relative positioning is used to change the location of an element slightly, relative to where it would otherwise appear in normal flow.
- Use the position:relative property along with either a left, right, and/or top property.
 - The left property configures the position of the element in relation to the left side of the browser window.
 - The right property configures the position of the element in relation to the right side of the browser window.
 - The top property configures the position of the element in relation to the top of the document area in the browser window.



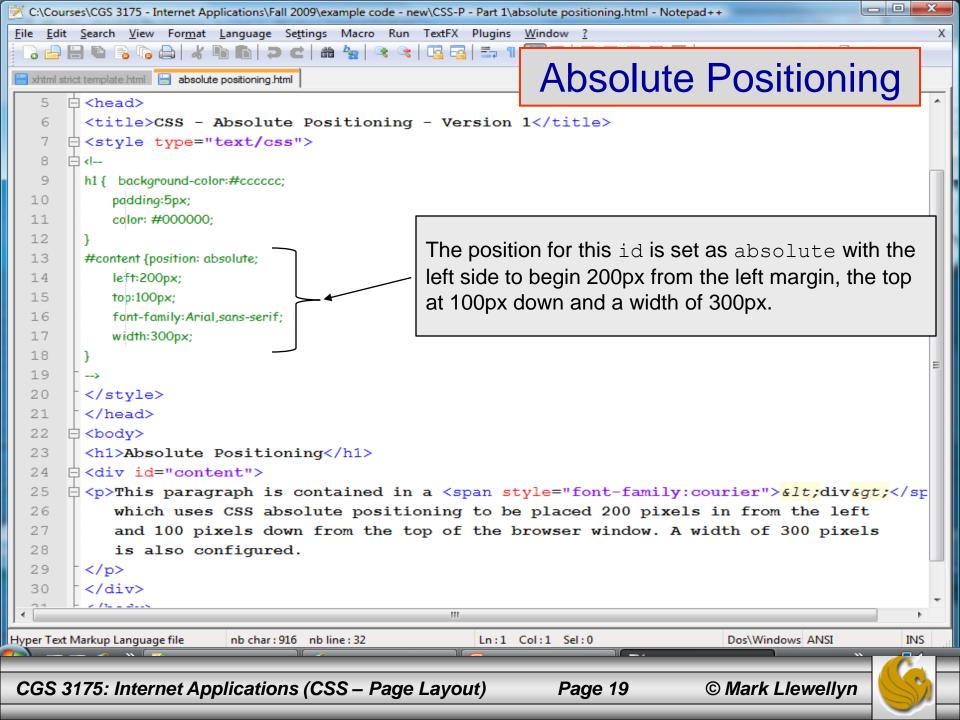




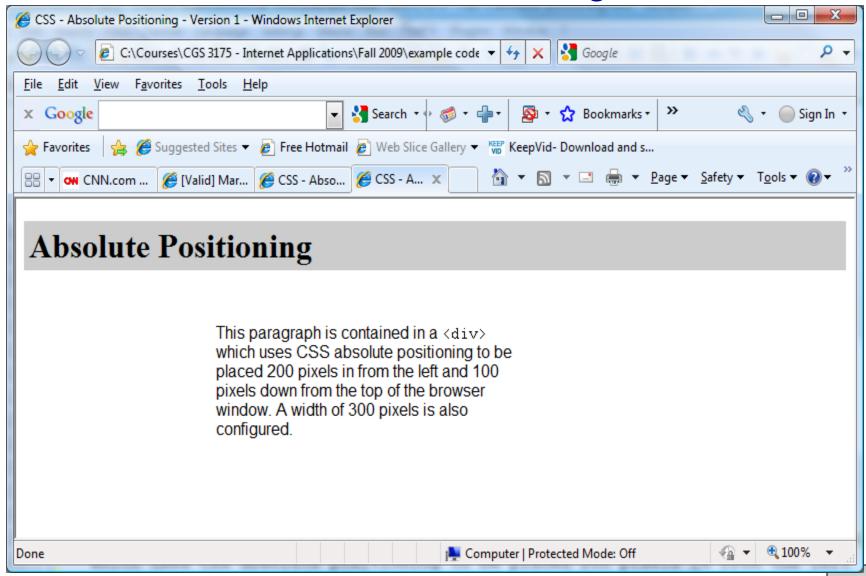
Relative and Absolute Positioning

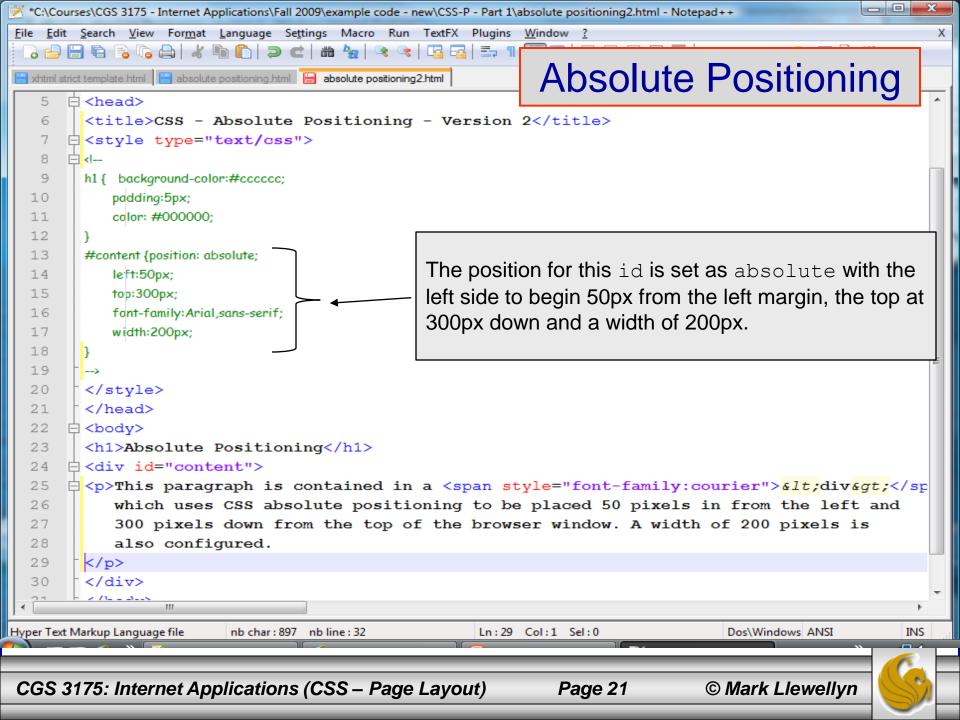
- Absolute positioning is used to specify the location of an element precisely in a browser window.
- Use the position:absolute property along with either a left, right, and/or top property need to configure the placement.
 - The left property configures the position of the element in relation to the left side of the browser window.
 - The right property configures the position of the element in relation to the right side of the browser window.
 - The top property configures the position of the element in relation to the top of the document area in the browser window.

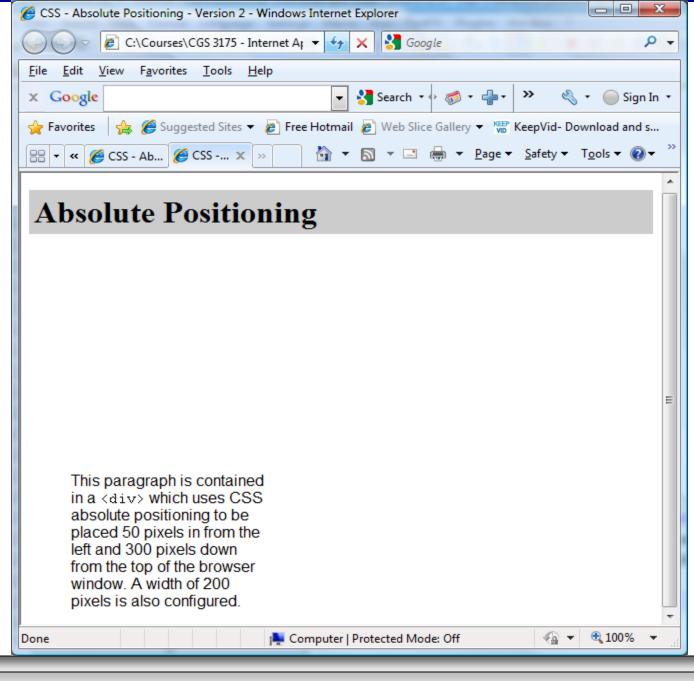




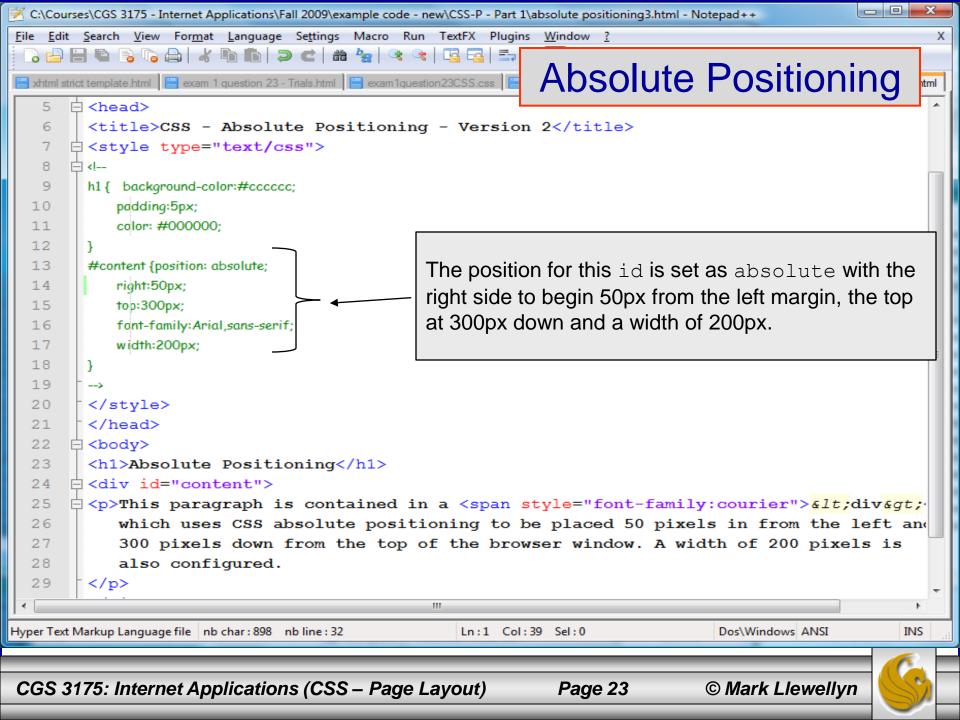
Absolute Positioning

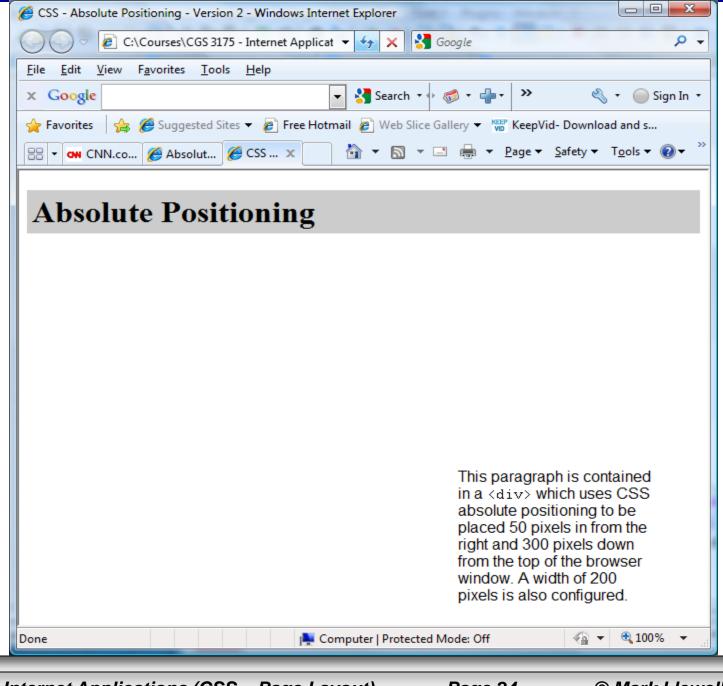






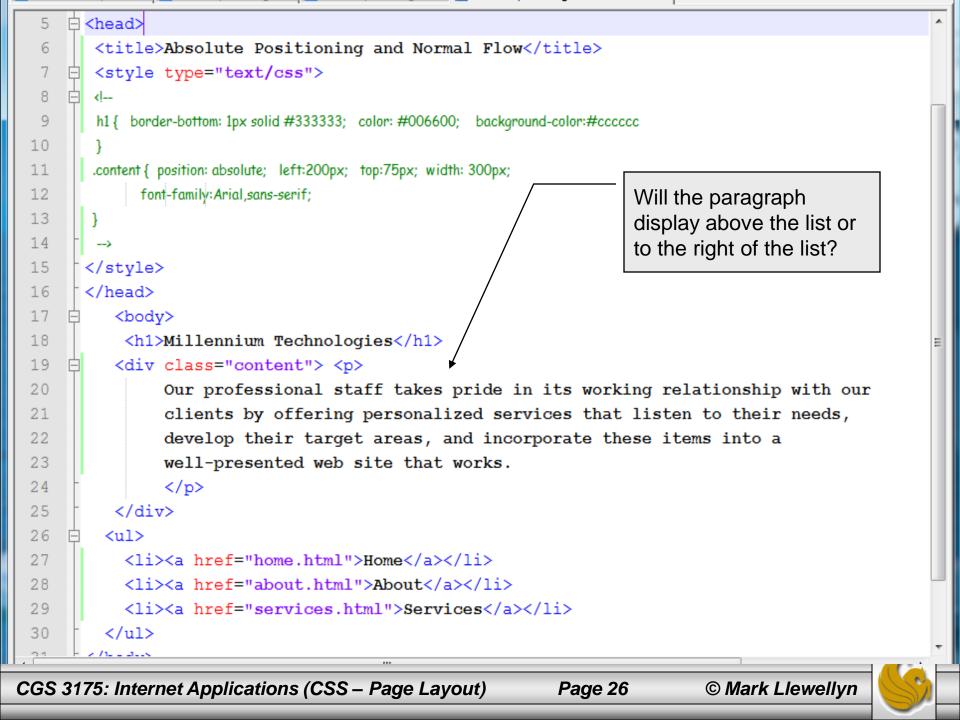


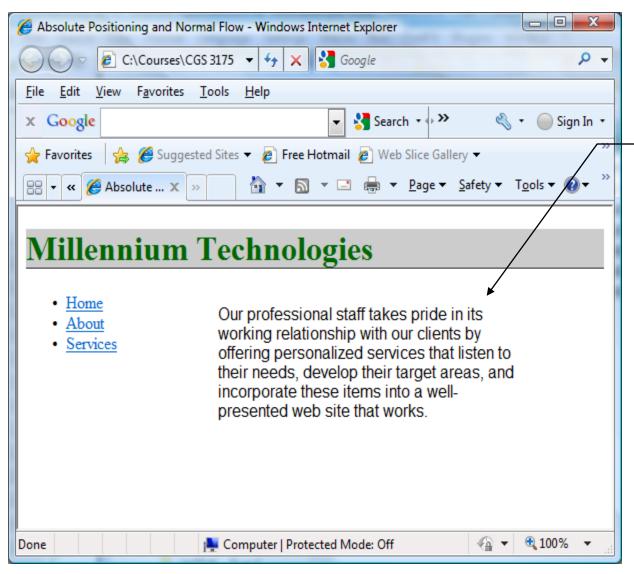




- When working with absolute positioning it is important to be aware that elements not absolutely positioned will be rendered using normal flow by the browser.
- Elements that are absolutely positioned are rendered outside of normal flow.
- Consider the example shown on the next page.

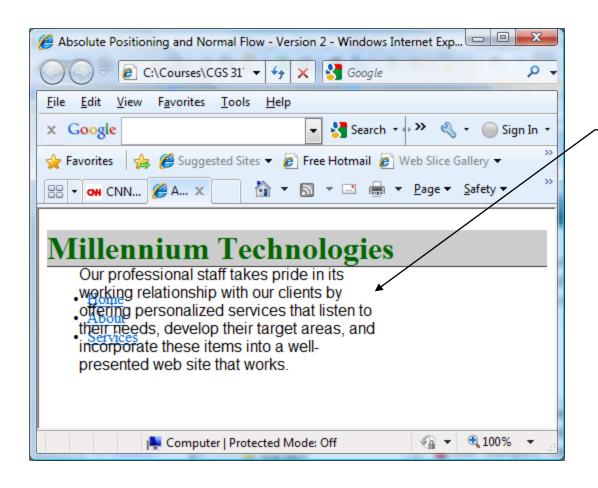






The paragraph was set at an absolute position and thus rendered outside of the normal flow. So, the paragraph will appear to the right of the list. Even though the list was coded in the XHTML after the paragraph.

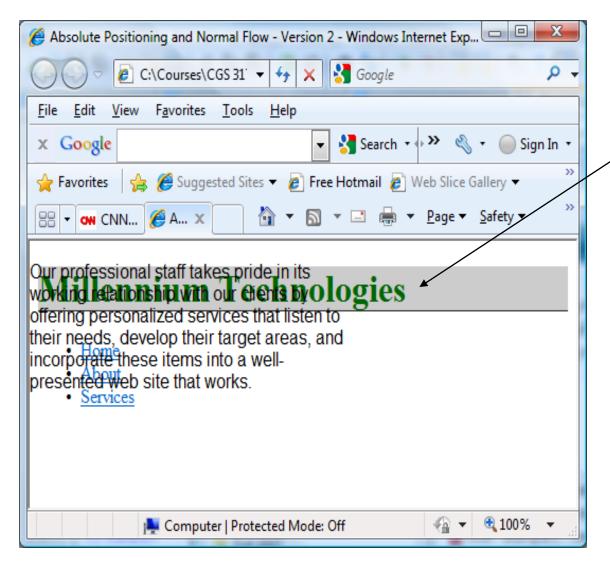




Here's what happens when the class content was set to have a left position set at 40 pixels and a top position set also set at 40 pixels.

As you can see, the absolutely positioned element overlaps the list element which was positioned in normal flow.





Here's what happens when the class content was set to have a left position set at 0 pixels and a top position set also set at 0 pixels.

As you can see, the absolutely positioned element overlaps all of the elements that were positioned using normal flow.



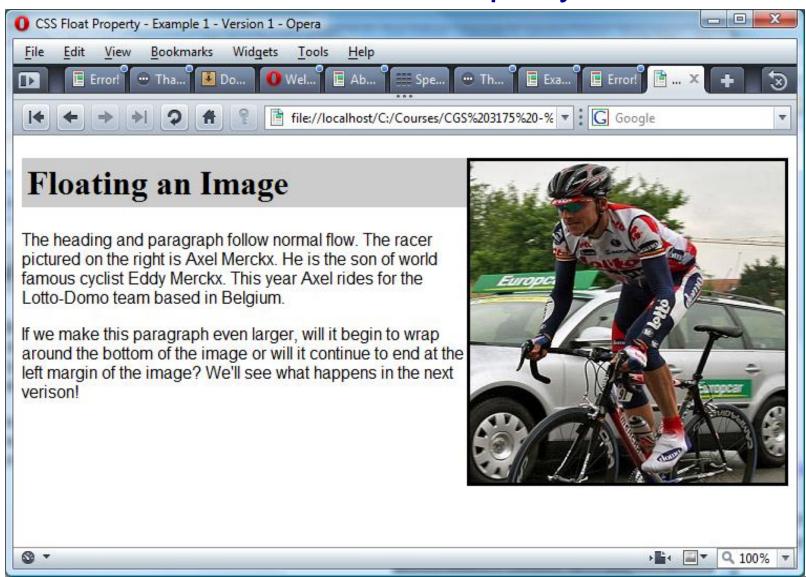
The float Property

- Elements that seem to float on the right or left side of either the browser window or another element are often configured using the float property.
- The browser renders these element using normal flow, and then shifts them as far as possible within their container (usually either the browser window or a <div>) to either the right or left. Other content will flow around the float.
- To stop this flow, use the clear property.

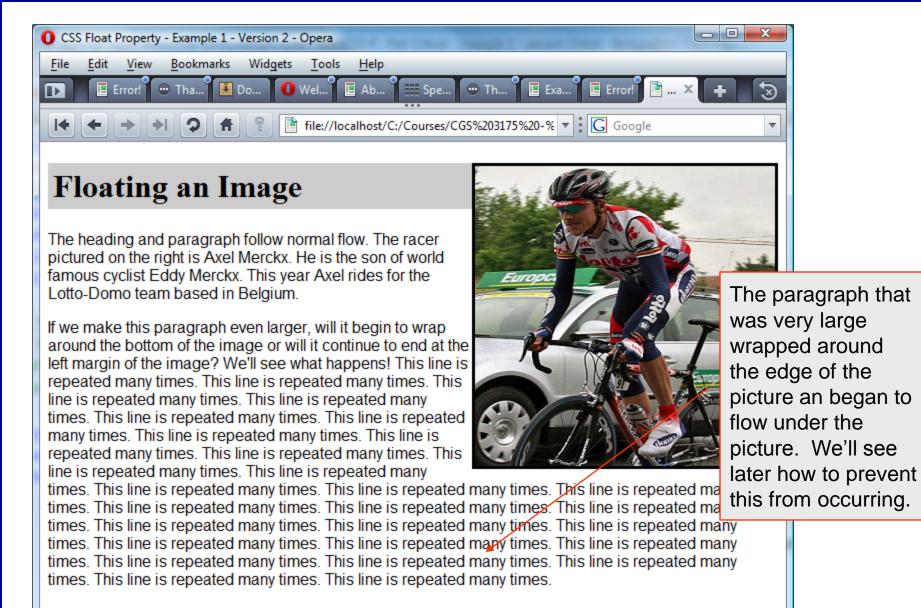


```
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
                                                                      Shorthand notation: order is
     always - top, right, bottom, left.
     ⊟ <head>
                                                                      Any 0 value does not need
      <title>CSS Float Property - Example 1 / Version 1</title>
                                                                      units.
     8
     □ <|--</p>
  9
        h1 { background-color:#cccccc; padding:5px;
                                       color: #000000; }
        p { font-family:Arial,sans-serif;
 10
                                                                     Style for the floating image.
        .10left { padding:10px; font-family:Arial, sans-serif; }
 11
       #picture (float:right; margin: 0 0 5px 0;
 12
                                    border: solid;
 13
        -->
                                                                  <img> element with alternate text
 14
      </style>
                                                                  display.
 15
      </head>
 16
          <body>
           <img id="picture" src="axel.jpg" alt="Axel Merckx" height="300" width="300" />
 17
           <h1>Floating an Image</h1>
 18
 19
            The heading and paragraph follow normal flow. The racer pictured
 20
               on the right is Axel Merckx. He is the son of world famous cyclist Eddy Merckx.
 21
               This year Axel rides for the Lotto-Domo team based in Belgium.
 22
           23
           If we make this paragraph even larger, will it begin to wrap around the
 24
               bottom of the image or will it continue to end at the left margin of the image?
 25
               We'll see what happens in the next verison!
 26
           27
          </body>
                                                                           © Mark Llewellyn
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The float Property



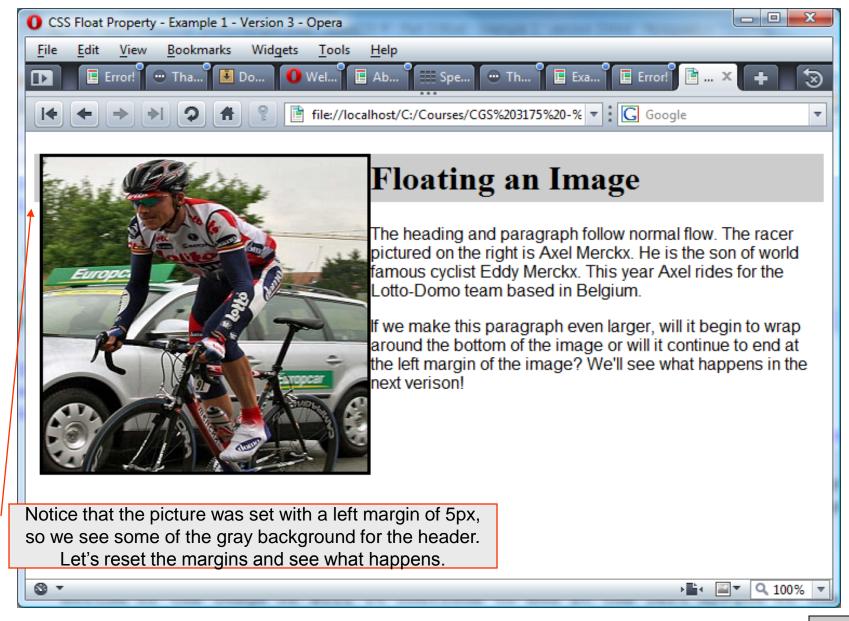




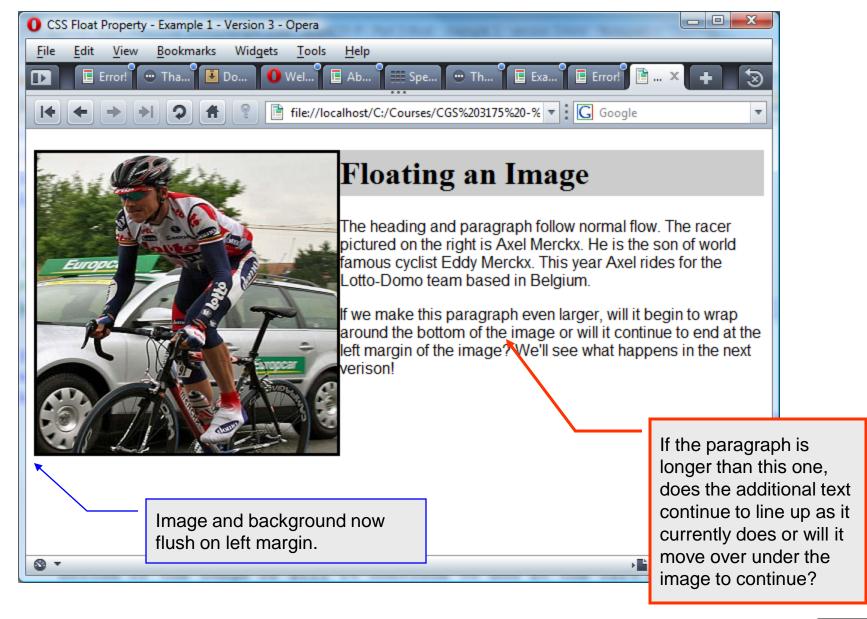


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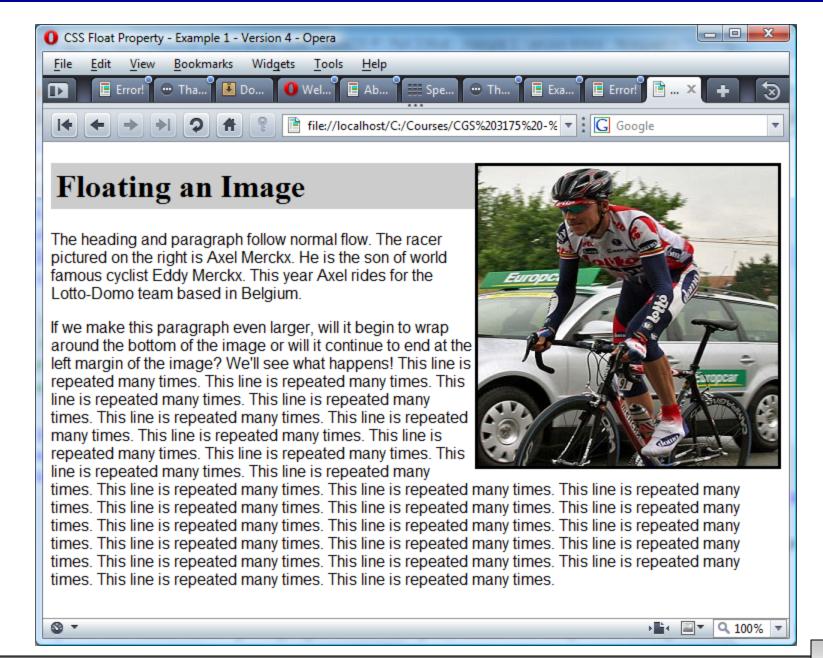
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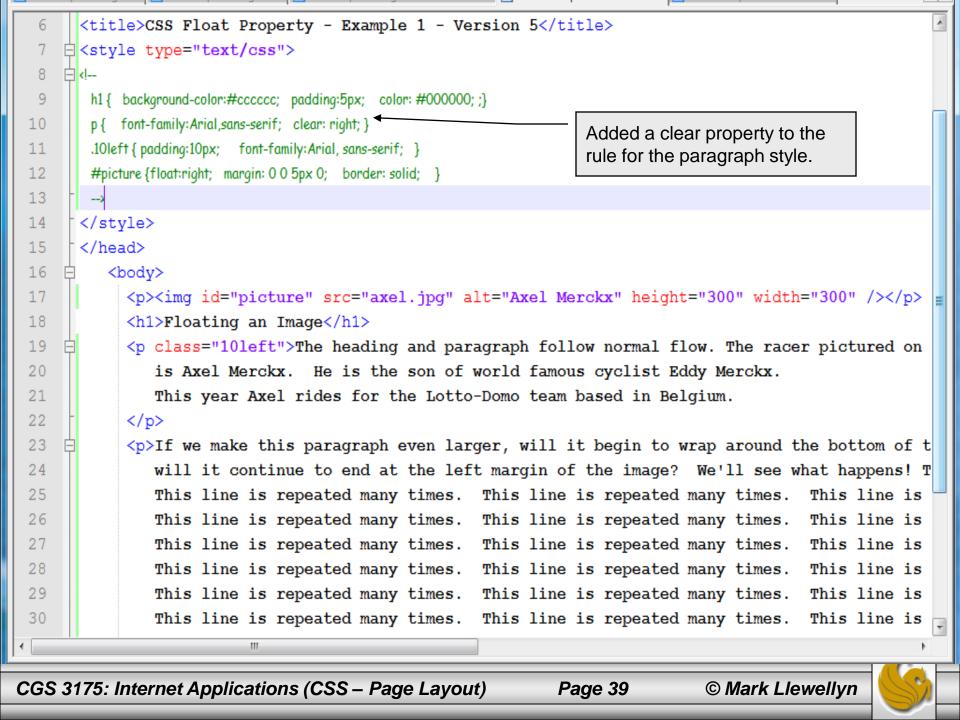
absolute positioning.html 📙 absolute positioning2.html 📋 absolute positioning and normal flow.html 📙 float - example 1 - version 2.html 📋 float - example 1 - version 2.html

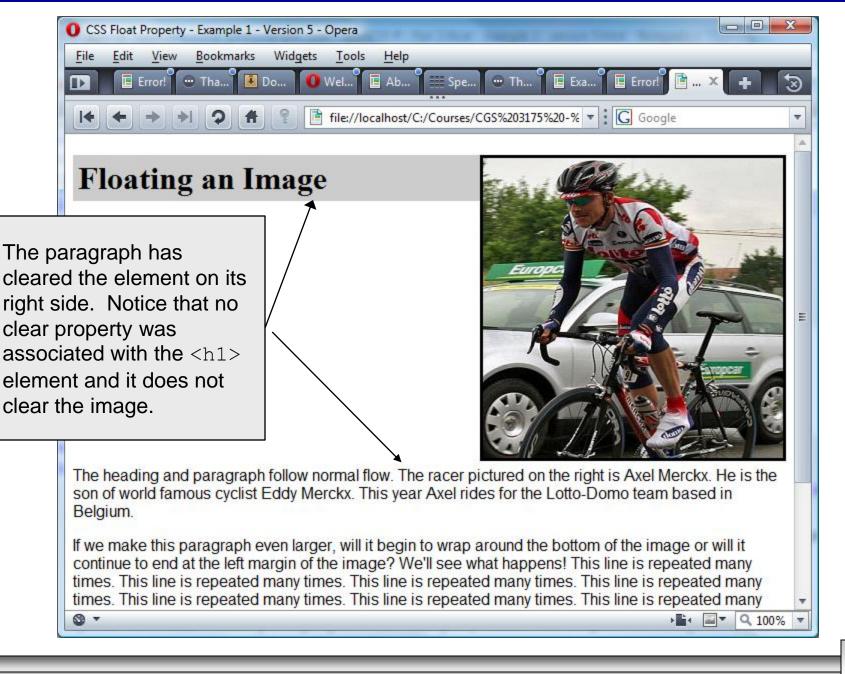




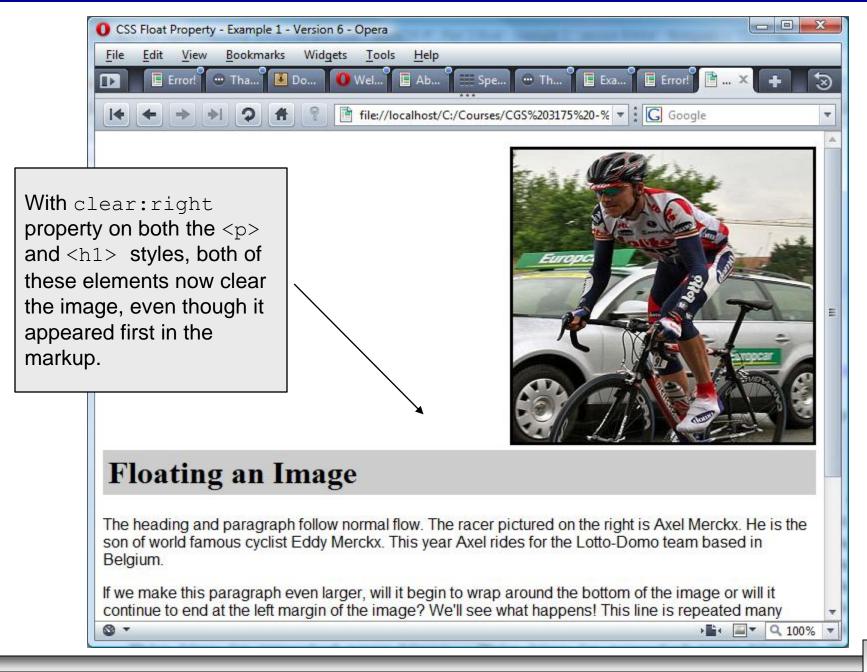


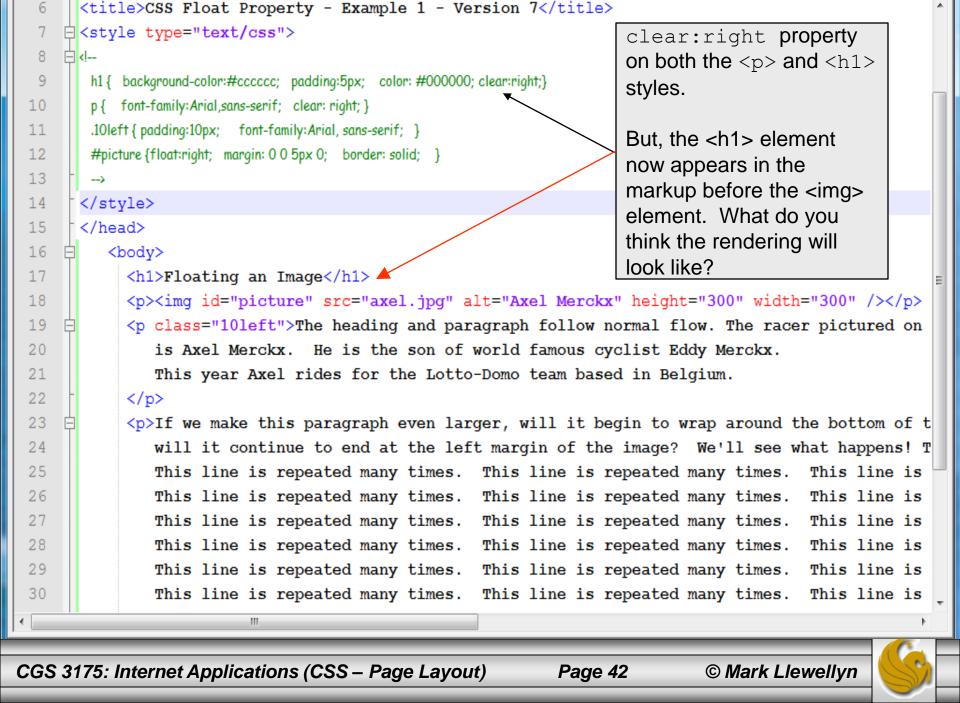


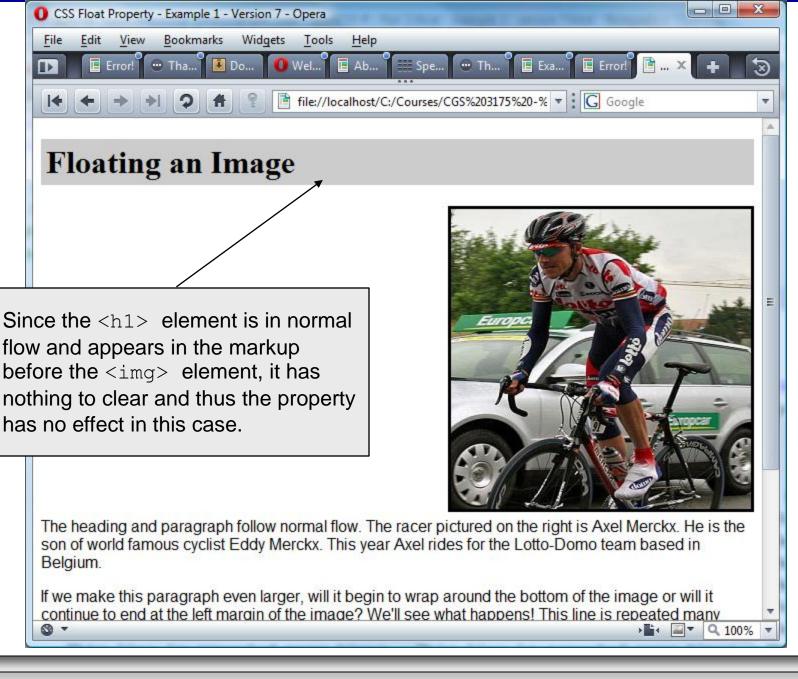










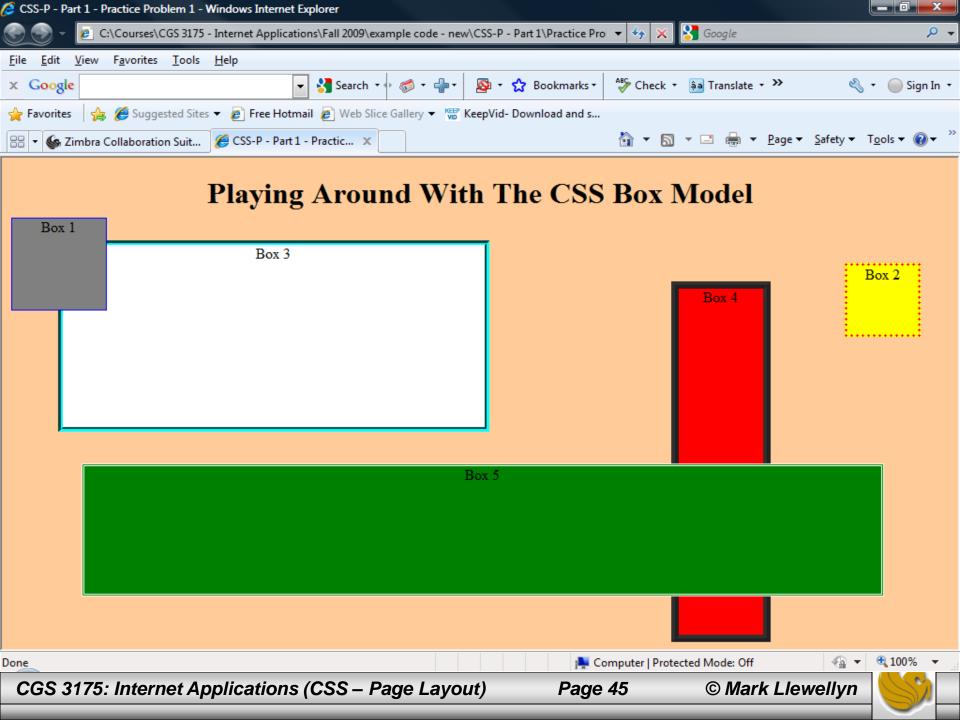




Practice Problems

Experiment with the CSS box model and the absolute positioning property to produce a webpage that looks similar to the one shown on the next page. All of these boxes were rendered using absolute positioning, none were rendered in normal flow. Also experiment with allowing the boxes to be positioned using normal flow and rearrange their order of appearance in the XHTML markup and notice how the rendering differs. Then experiment with a mixture of absolute positioning and normal flow and see what happens to the rendering.



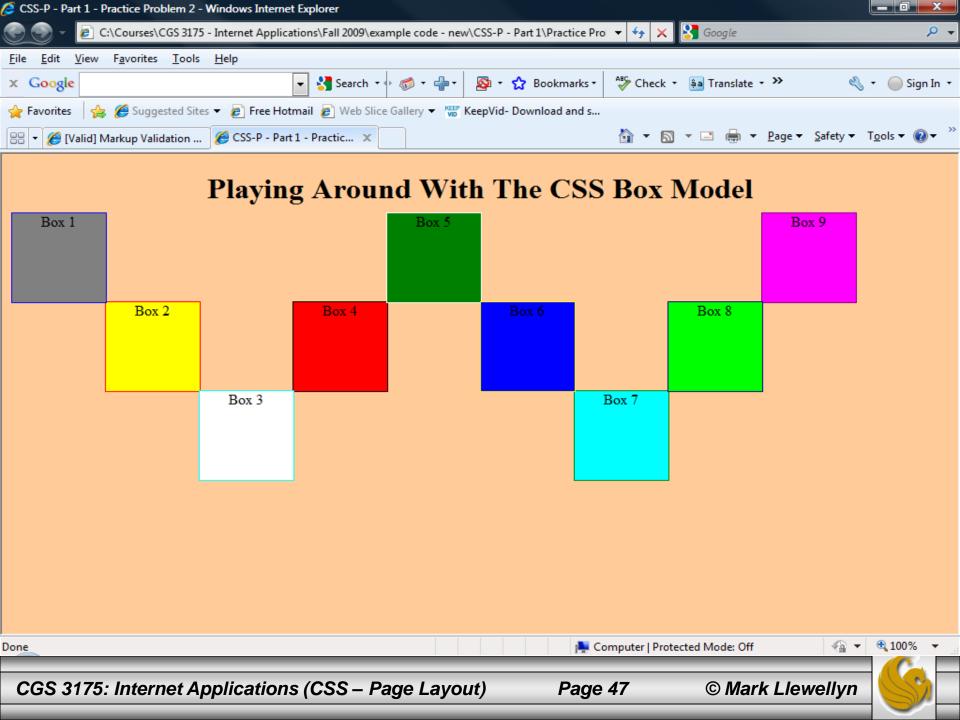


Practice Problems

2. Experiment with the CSS box model and the absolute positioning property to produce a webpage that looks similar to the one shown on the next page. All of these boxes were rendered using absolute positioning, none were rendered in normal flow. Also experiment with allowing the boxes to be positioned using normal flow and rearrange their order of appearance in the XHTML markup and notice how the rendering differs. Then experiment with a mixture of absolute positioning and normal flow and see what happens to the rendering.

In this problem all the boxes are 100 x 100 pixels in size.





Practice Problems

3. Modify your XHTML/CSS from problem 2 so that it looks like that shown on the next page. Box 10 in this case is the exact same width as the sum of all the other boxes.

