# CIS 4004: Web Based Information Technology Fall 2012

Cascading Style Sheets – Page Layout – Part 1

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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 (HTML5 files), which saves on bandwidth and eases Web site maintenance.



## 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 HTML 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 HTML 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 HTML5 syntax and using CSS3 to separate styles from structure.



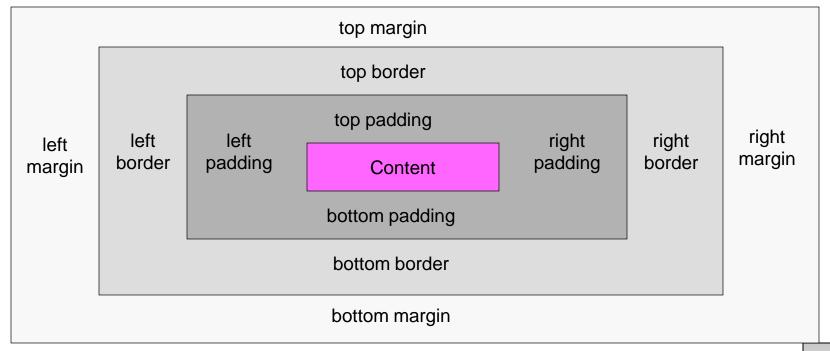
## Disadvantages of Using CSS For Page Layout

- There are only a couple of disadvantages of using CSS3:
  - Lack of support by older browsers. Older browsers do not support CSS3, 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 CSS3 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 CSS3.
  - 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 CSS3 techniques and properties.



#### The CSS Box Model

- The CSS Box Model is a crucial building block of CSS.
- 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.

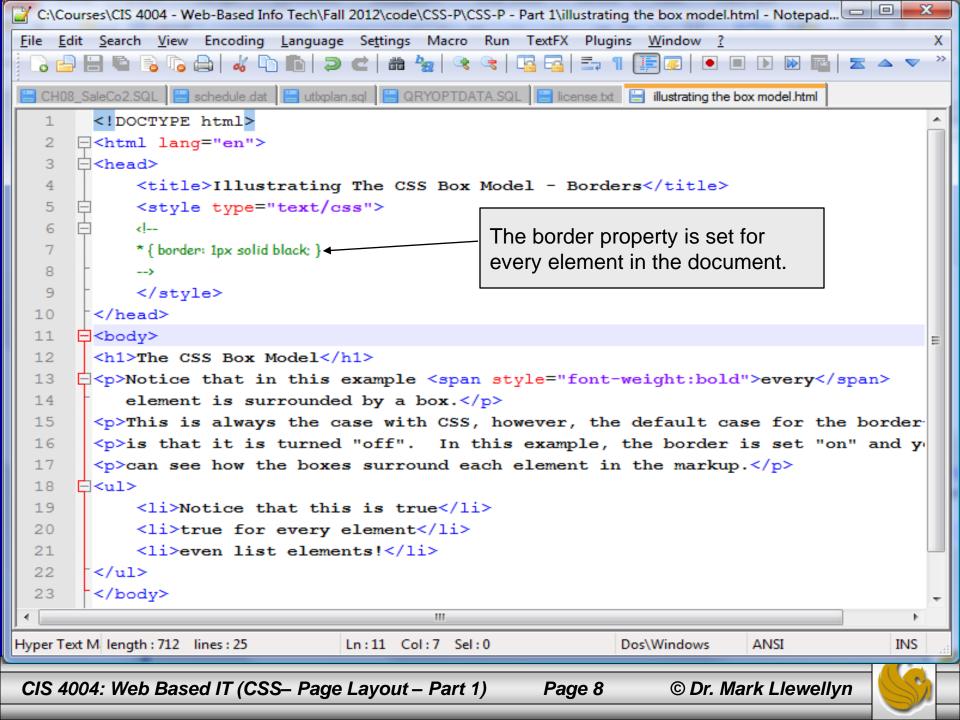


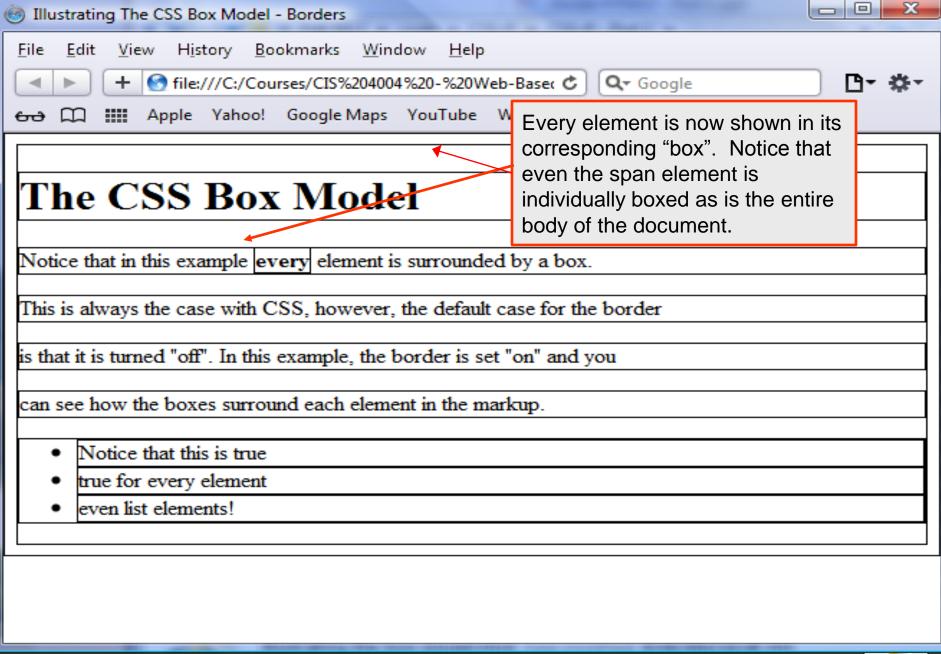


#### The CSS Box Model

- 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.

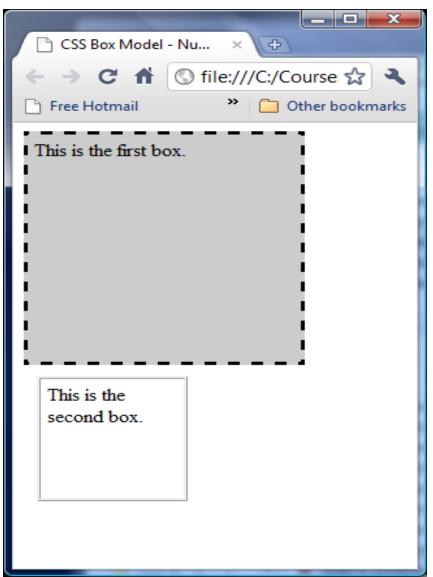


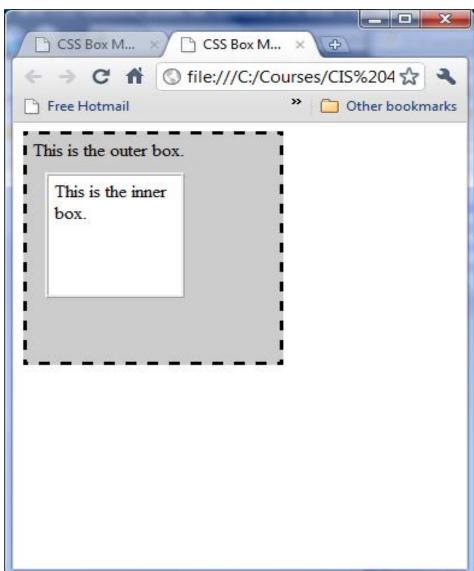




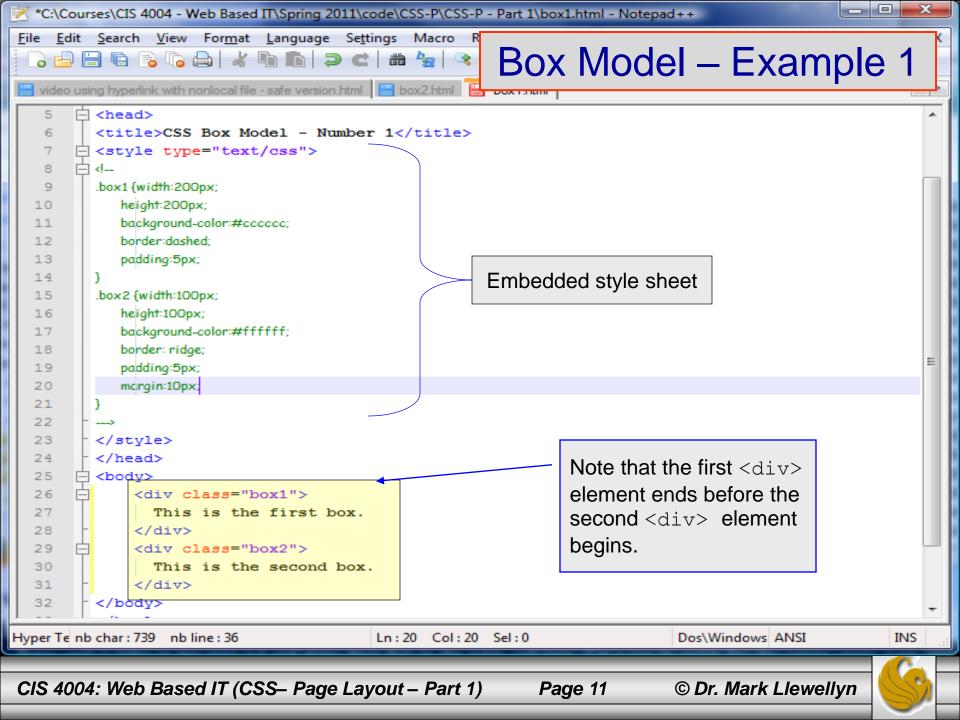


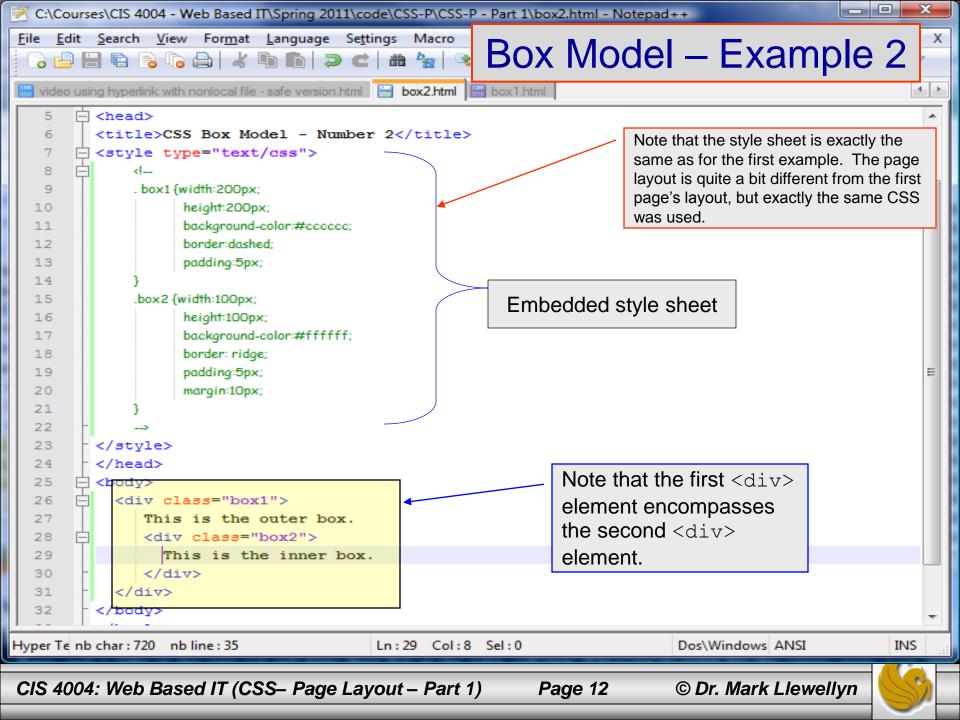
#### The CSS Box Model











## **CSS** Positioning Properties

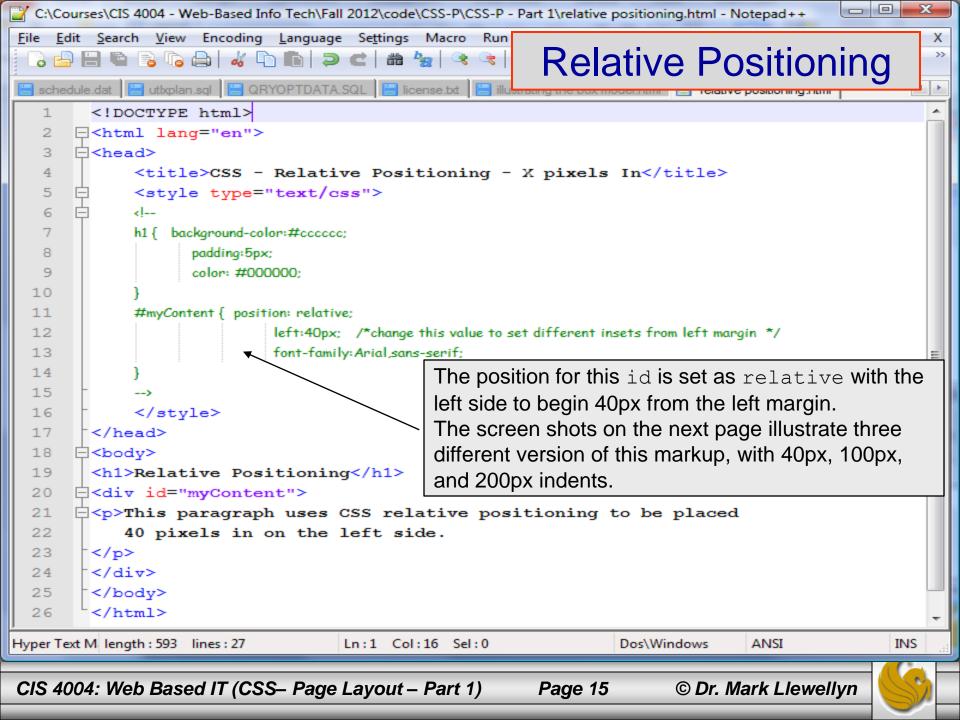
- The box examples on the previous pages illustrate how normal flow causes the browser to render the elements in the order that they appear in the HTML5 source code.
- When using CSS for page layout there are times when you will want to specify the location of an element on the page either the absolute 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.

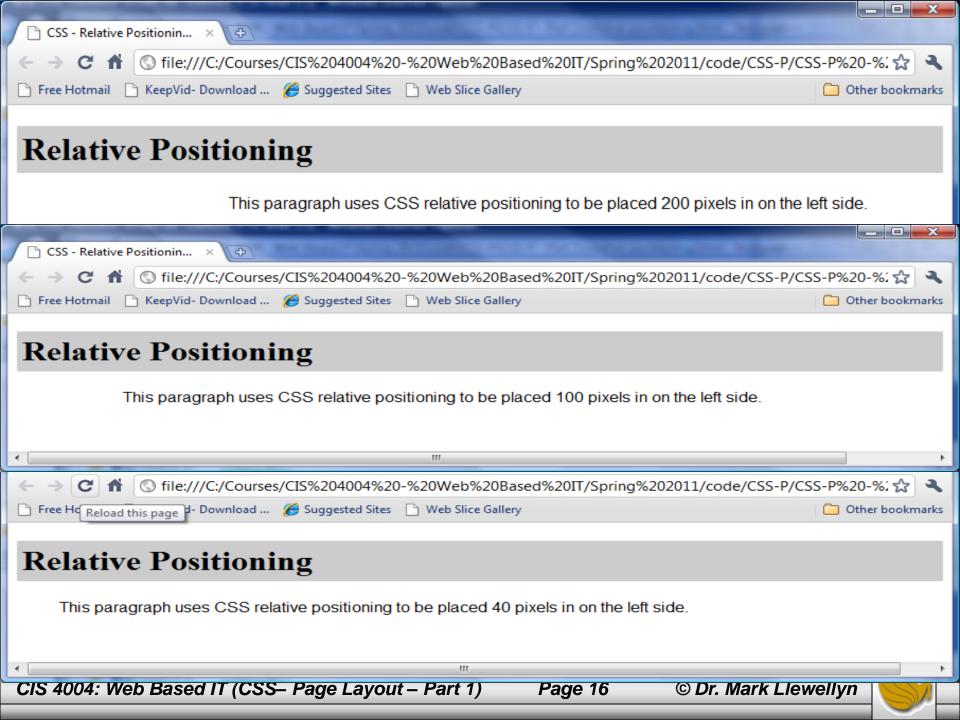


#### Relative and Absolute Positioning

- 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.



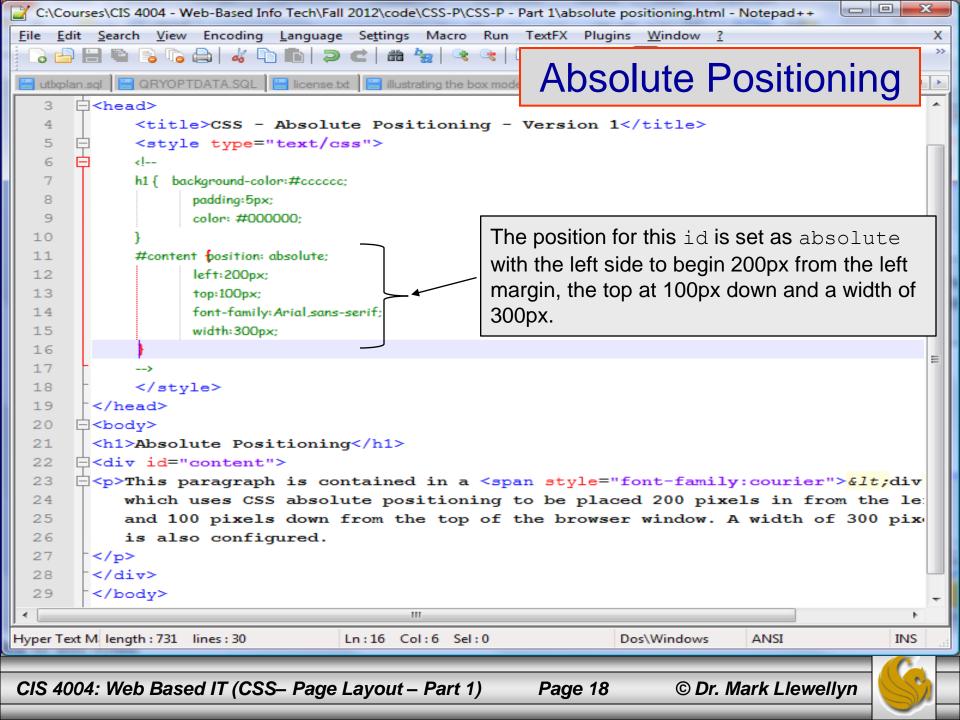


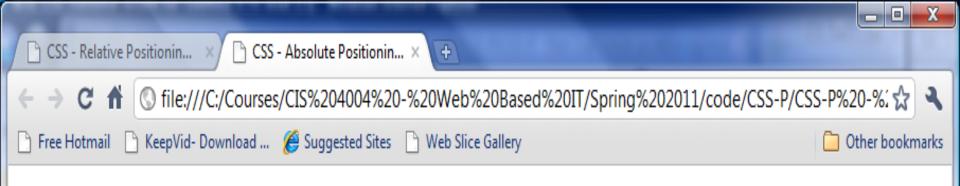


### Relative and Absolute Positioning

- 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.



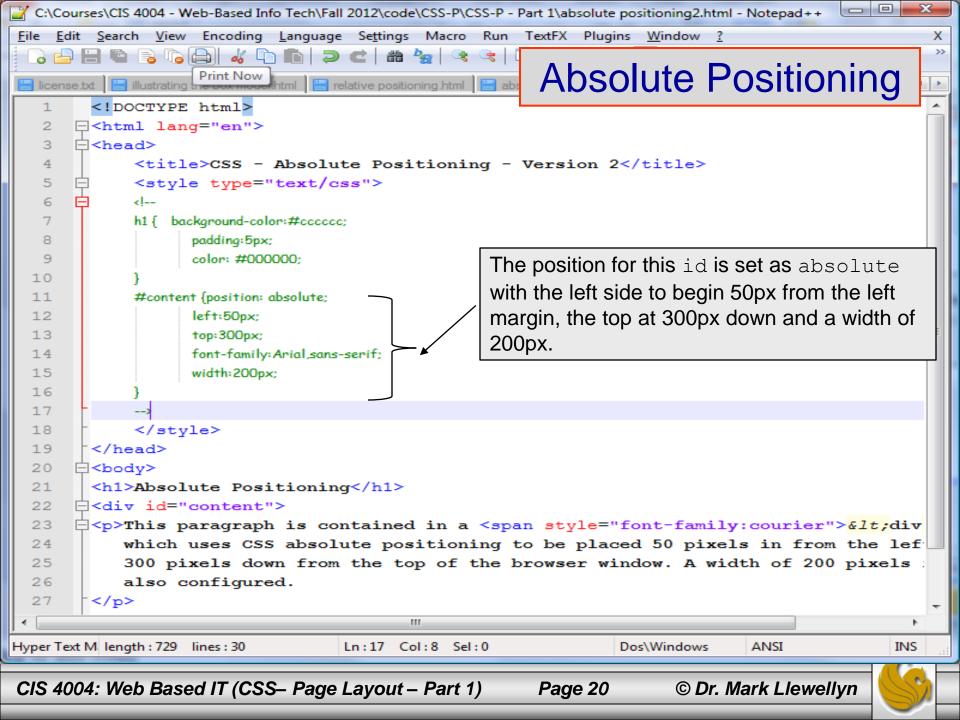


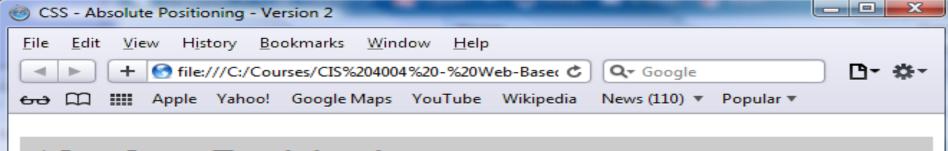


## **Absolute Positioning**

This paragraph is contained in a <div>
which uses CSS absolute positioning to be placed 200 pixels in from the left and 100 pixels down from the top of the browser window. A width of 300 pixels is also configured.



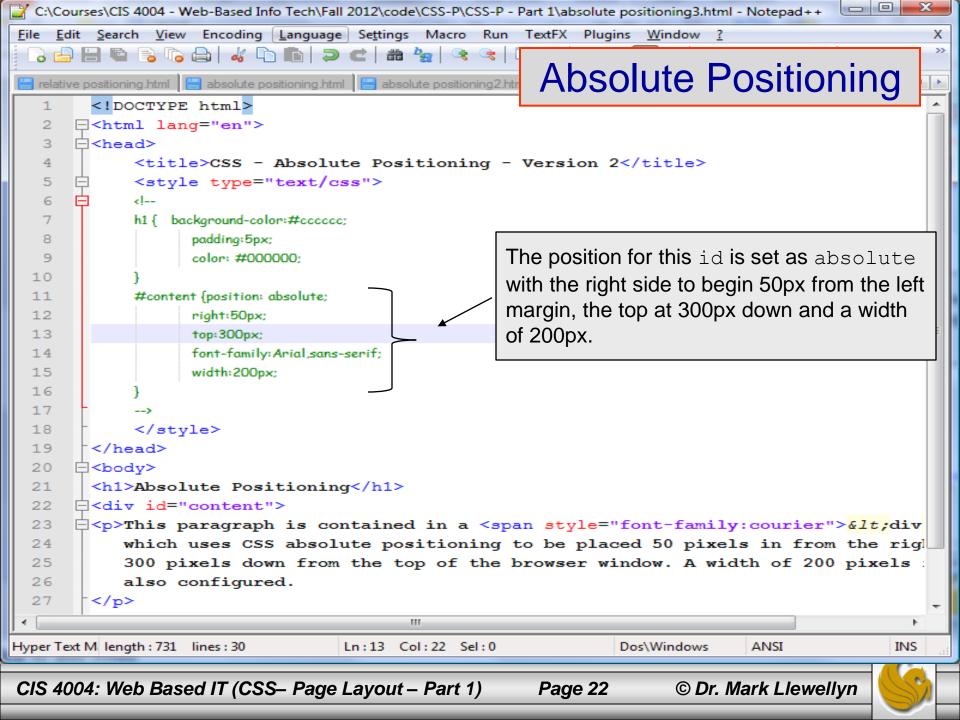


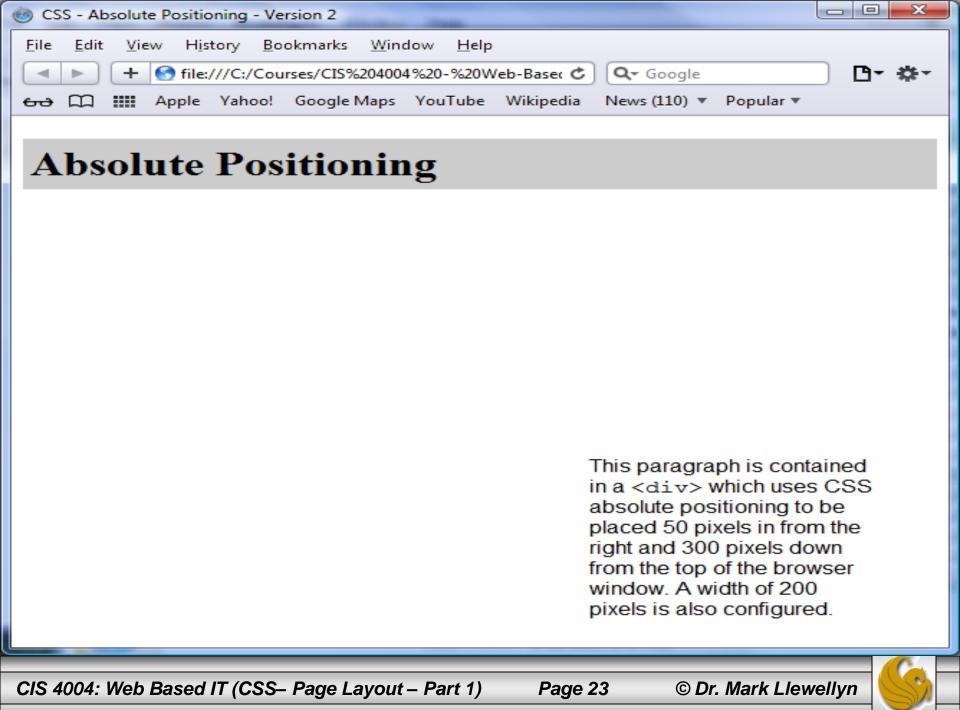


#### Absolute Positioning

This paragraph is contained in a <div> which uses CSS absolute positioning to be placed 50 pixels in from the left and 300 pixels down from the top of the browser window. A width of 200 pixels is also configured.



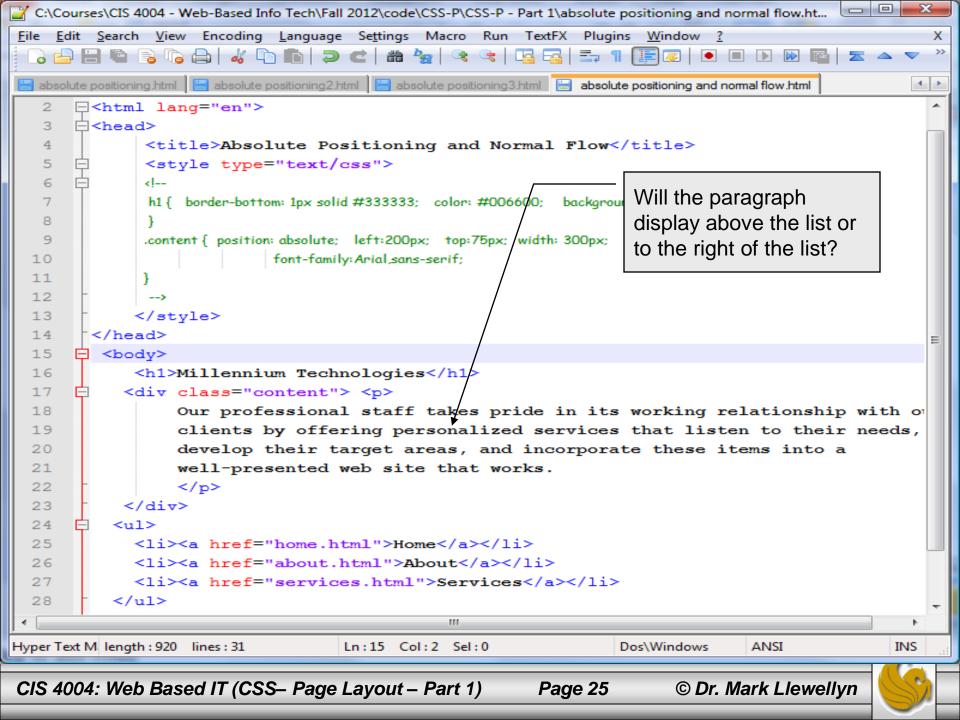


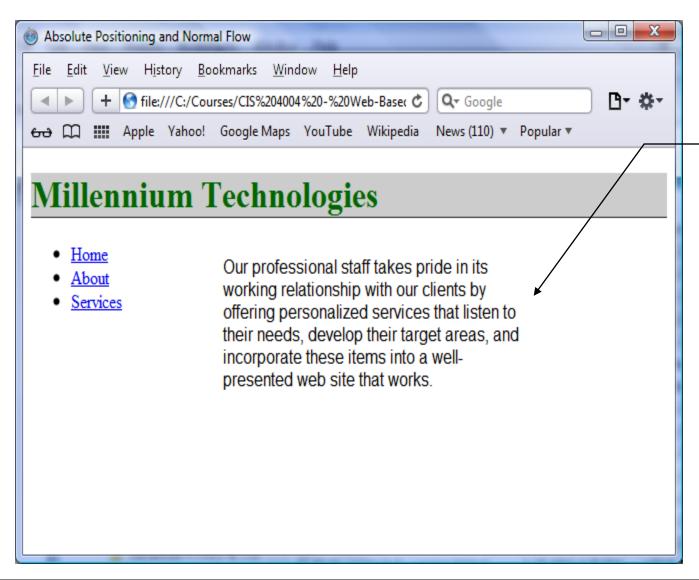


- When working with absolute positioning it is important to be aware that elements not absolutely positioned will be rendered using normal flow by the browser.
- Elements that are absolutely positioned are rendered outside of normal flow.
- Consider the example shown on the next page.



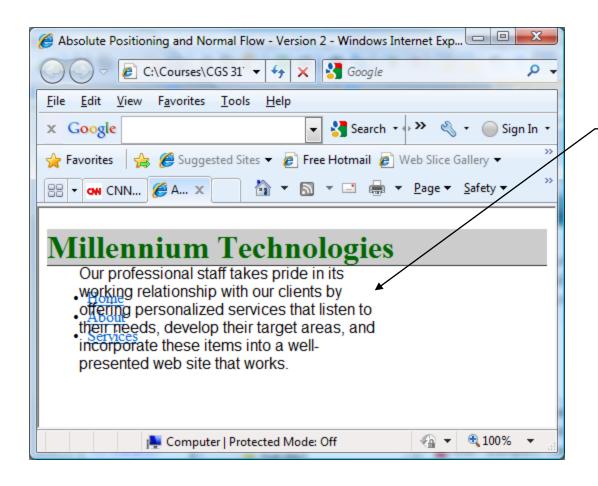
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The paragraph was set at an absolute position and thus rendered outside of the normal flow. So, the paragraph will appear to the right of the list. Even though the list was coded in the XHTML after the paragraph.

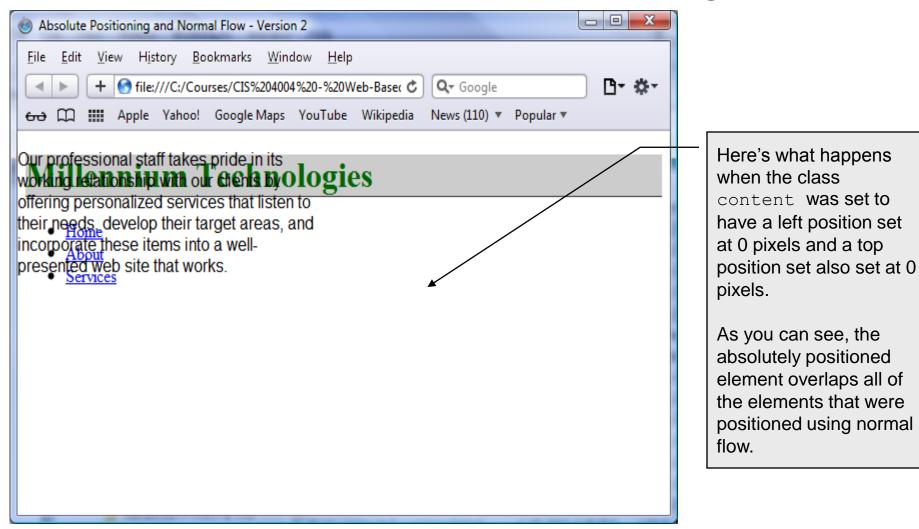




Here's what happens when the class content was set to have a left position set at 40 pixels and a top position set also set at 40 pixels.

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

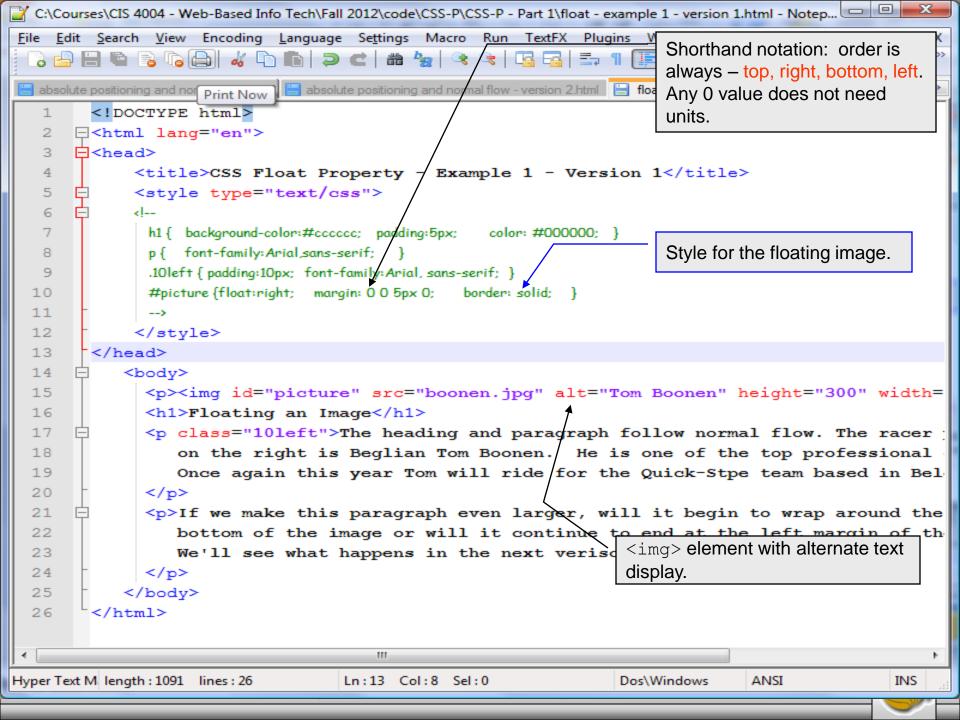




## The float Property

- 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.

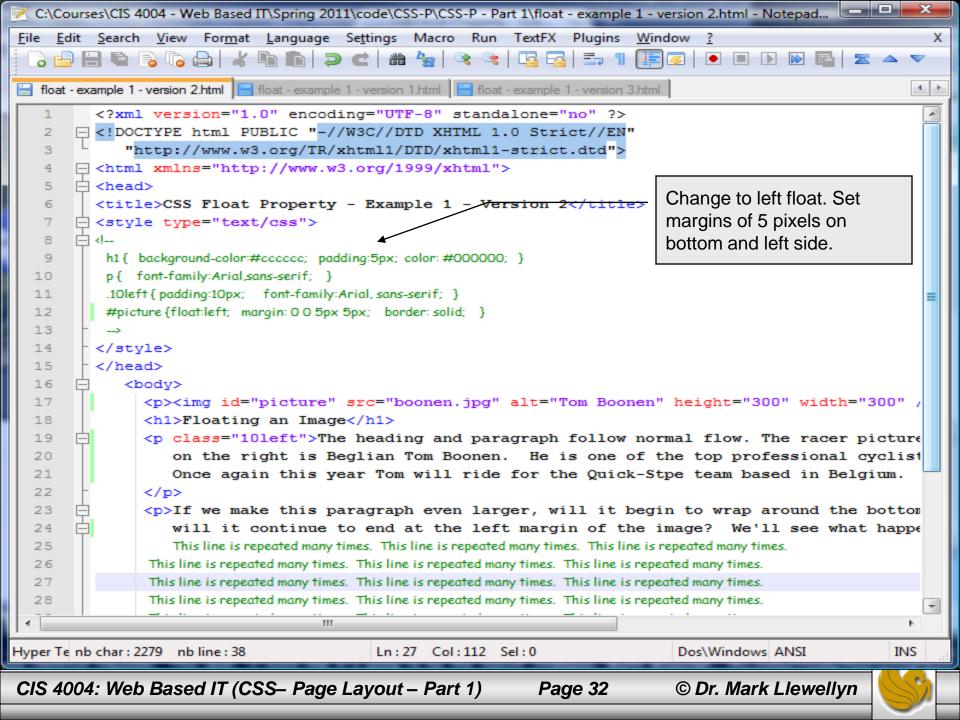


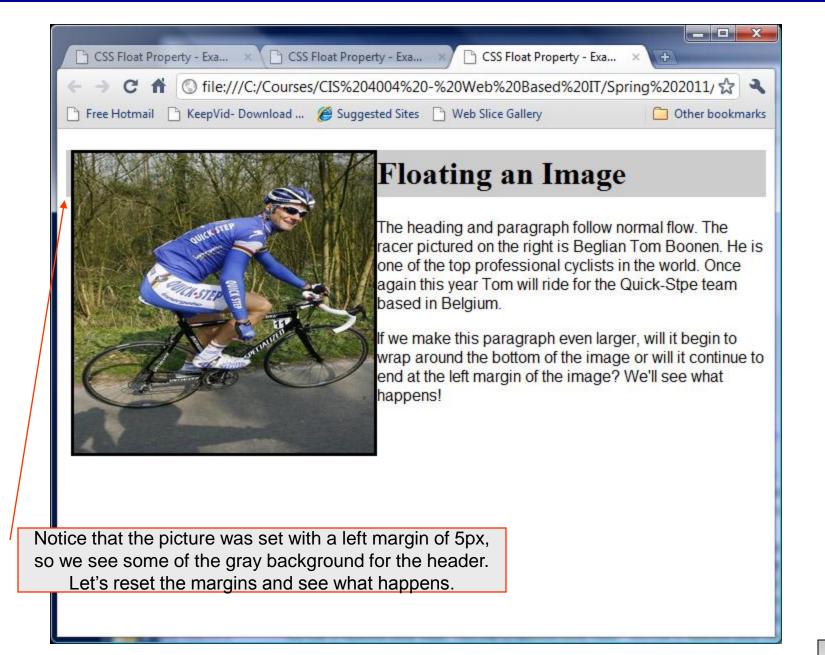


### The float Property

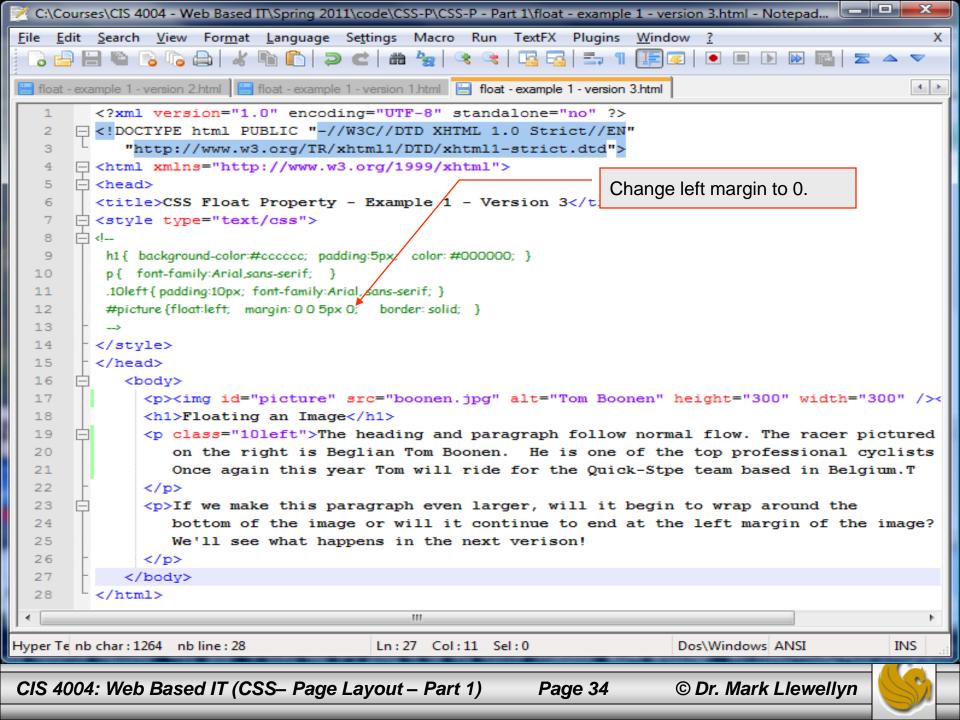


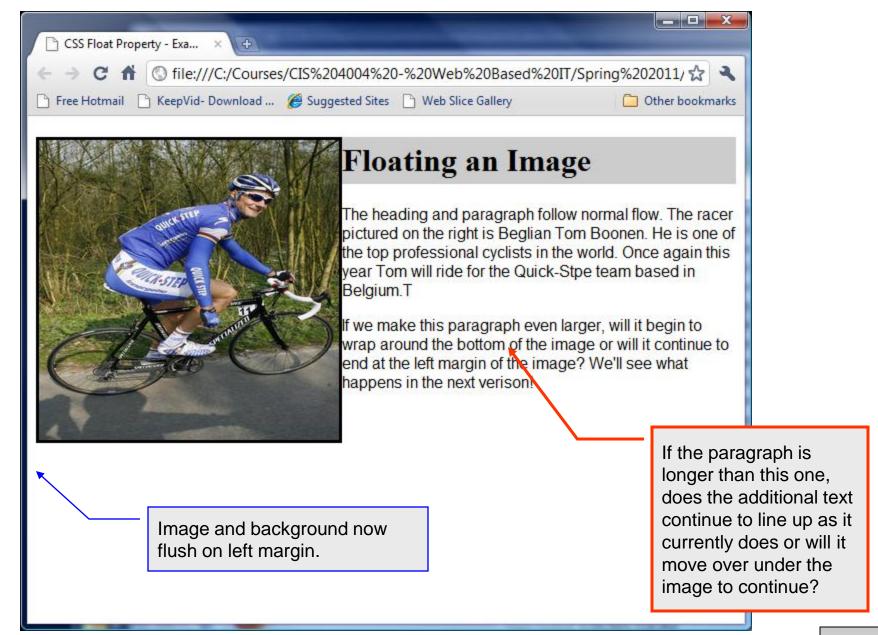


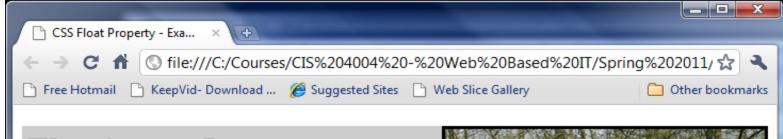












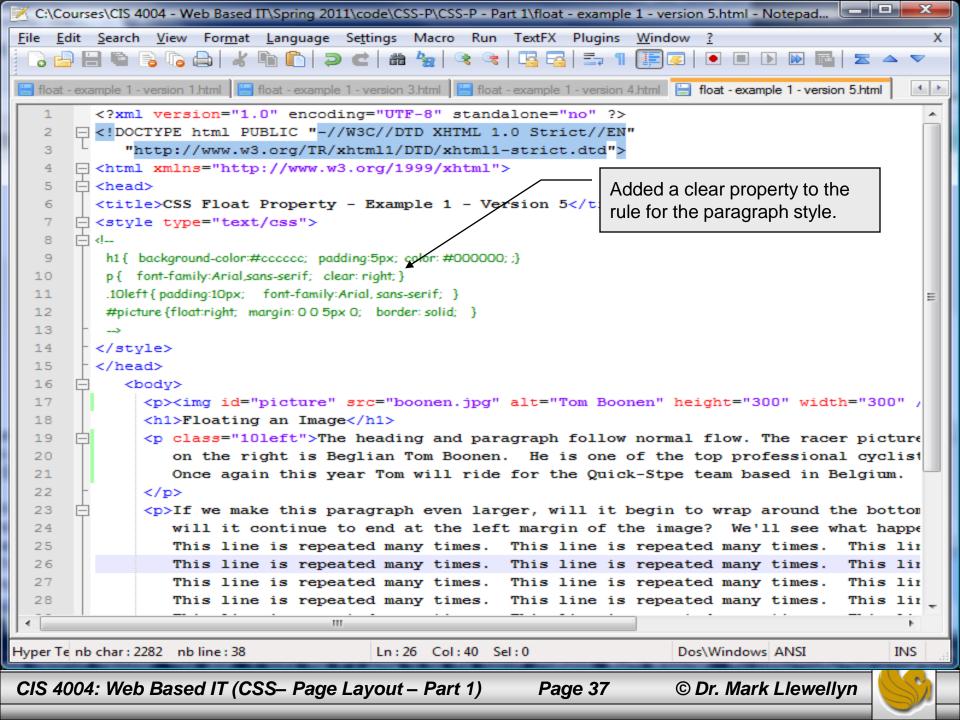
#### Floating an Image

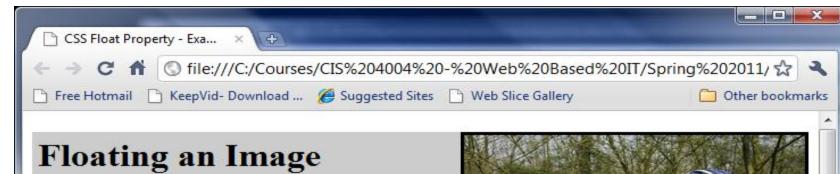
The heading and paragraph follow normal flow. The racer pictured on the right is Beglian Tom Boonen. He is one of the top professional cyclists in the world. Once again this year Tom will ride for the Quick-Stpe team based in Belgium.

If we make this paragraph even larger, will it begin to wrap around the bottom of the image or will it continue to end at the left margin of the image? We'll see what happens! This line is repeated many times. This line is

repeated many times. This line is repeated many times.







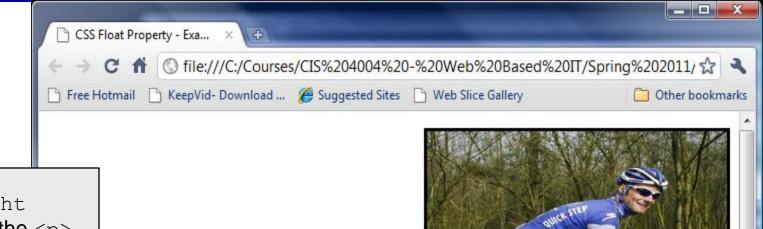
The paragraph has cleared the element on its right side. Notice that no clear property was associated with the <h1> element and it does not clear the image.



The heading and paragraph follow normal flow. The racer pictured on the right is Beglian Tom Boonen. He is one of the top professional cyclists in the world. Once again this year Tom will ride for the Quick-Stpe team based in Belgium.

If we make this paragraph even larger, will it begin to wrap around the bottom of the image or will it continue to end at the left margin of the image? We'll see what happens! This line is repeated many times. This line is repeated many times.





With clear:right property on both the and <h1> styles, both of these elements now clear the image, even though it appeared first in the markup.

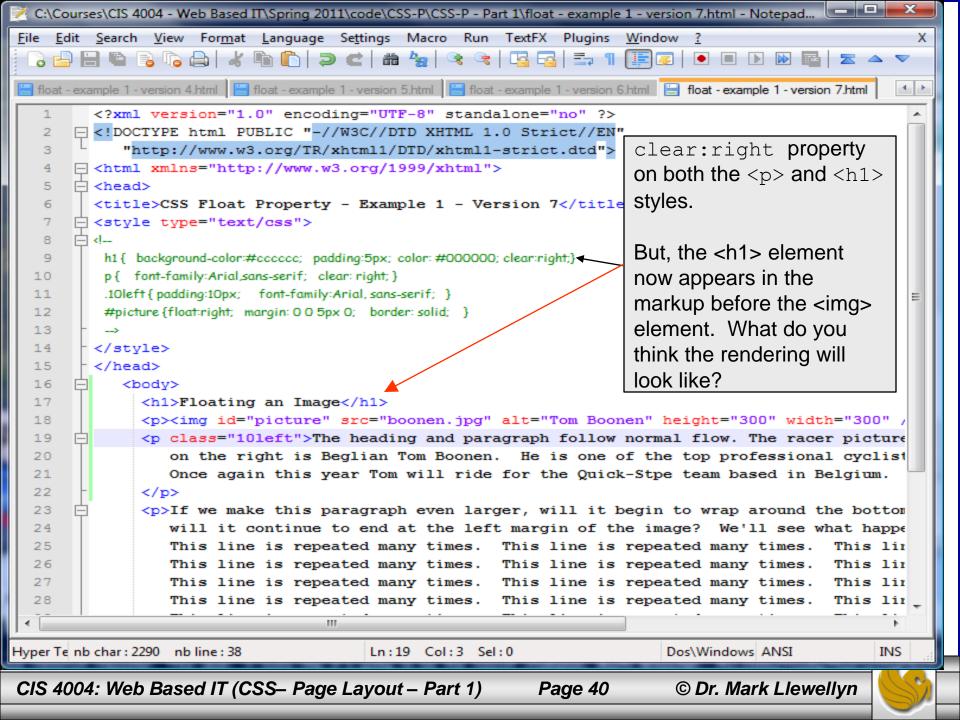


#### Floating an Image

The heading and paragraph follow normal flow. The racer pictured on the right is Beglian Tom Boonen. He is one of the top professional cyclists in the world. Once again this year Tom will ride for the Quick-Stpe team based in Belgium.

If we make this paragraph even larger, will it begin to wrap around the bottom of the image or will it continue to end at the left margin of the image? We'll see what happens! This line is repeated many







Since the <h1> element is in normal flow and appears in the markup before the <img> element, it has nothing to clear and thus the property has no effect in this case.



The heading and paragraph follow normal flow. The racer pictured on the right is Beglian Tom Boonen. He is one of the top professional cyclists in the world. Once again this year Tom will ride for the Quick-Stpe team based in Belgium.

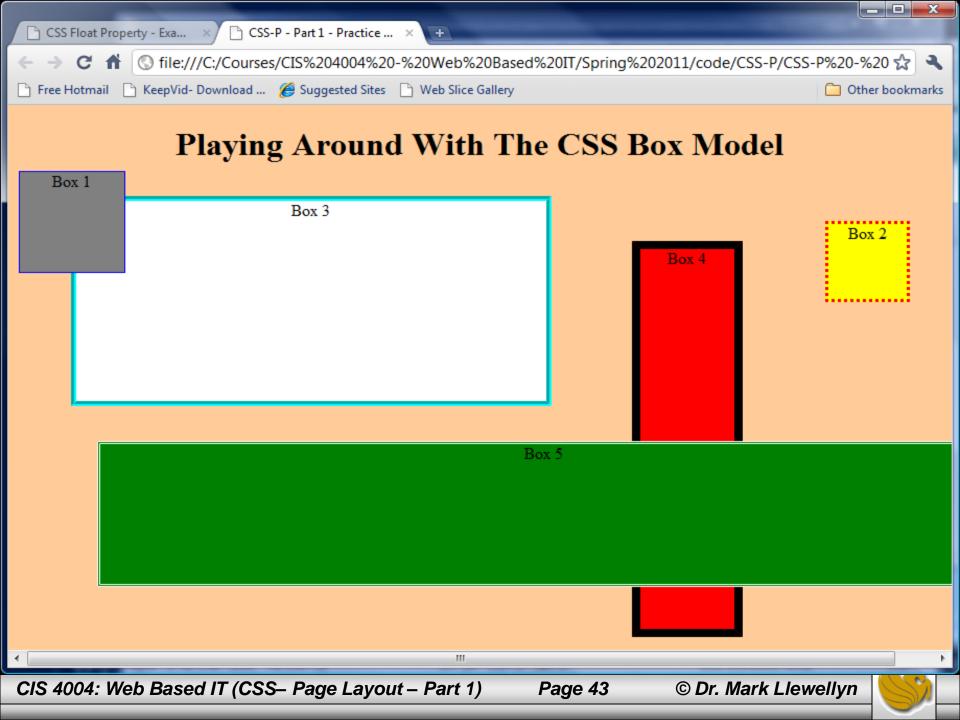
If we make this paragraph even larger, will it begin to wrap around the bottom of the image or will it continue to end at the left margin of the image? We'll see what happens! This line is repeated many



#### **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.



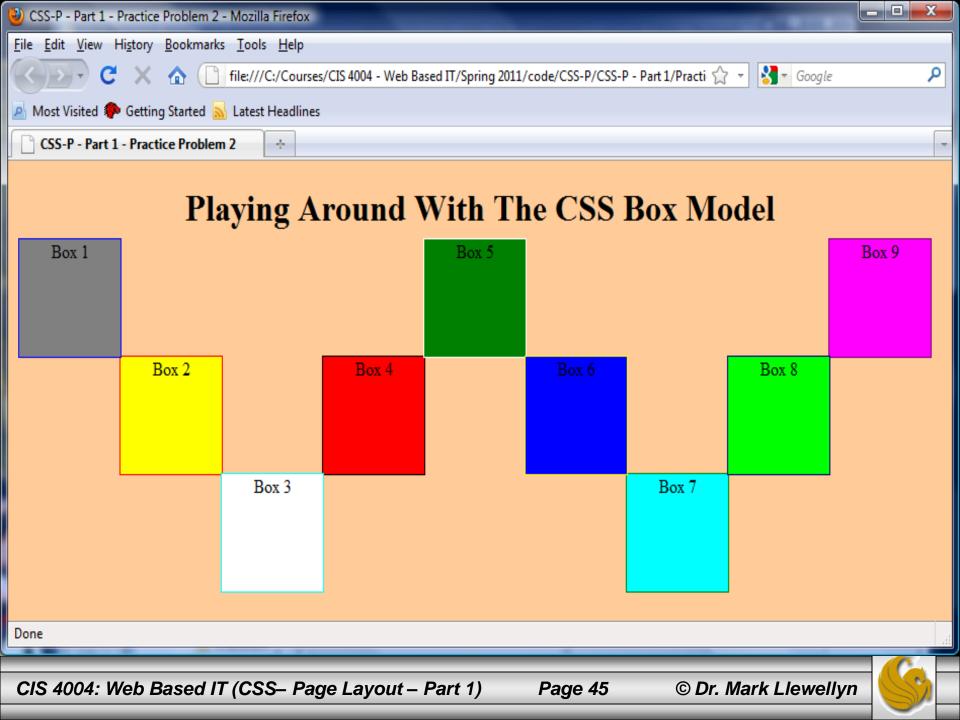


#### **Practice Problems**

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.

