

CIS 4004: Web Based Information Technology Spring 2011

Cascading Style Sheets (CSS)

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Cascading Style Sheets (CSS)

- In 1996 the W3C recommended the adoption of a standard set to style sheets, **Cascading Style Sheets** level 1 (CSS1).
- The original purpose of CSS was to provide HTML authors with more formatting support and give them a way to apply uniform styles to multiple documents.
- Cascading Style Sheets level 2 (CSS2), introduced in 1998, included additional features and functionality.
- CSS work with XHTML the same way they work with HTML. Web browser support is widespread with Netscape Navigator 4.5 and above, and Internet Explorer 3.0 and above all supporting CSS.



Why Use Cascading Style Sheets?

- The primary reason for using CSS is to separate a document's content from its presentation. In so doing it provides the document author with much greater control over the document's format.
- Keeping the content and presentation information separate also allows you to change your presentation layout or method without having to modify the documents themselves, and allows you to apply one style sheet to any number of documents.
 - For example, an organization could produce a price list document and then develop different style sheets depending on the type of user who is viewing the content whether they are using a web browser or a palm pilot.



Separating Content From Presentation

- Web development is rapidly heading toward this idea of separating content from presentation. The XML family of technologies already clearly defines the boundaries between content and presentation, as we've already discussed. XHTML Strict does not provide support for many of the strictly presentational elements, such as HTML's `` element.
- The strictly presentational elements that are part of the XHTML Transitional and XHTML Frameset versions of XHTML 1.0, including the `` element, are primarily included for backward compatibility with existing HTML content. Because XHTML Strict does not include many of these presentational elements in its element set, it relies on style sheets to define the presentational styles. XHTML Strict most closely represents the direction XHTML is heading. The W3C recommends that new content development should center around XHTML Strict whenever possible in order to be most compatible with future technologies.



CSS Syntax

- CSS contain rules and declarations that instruct a program, such as a Web browser, how to display certain elements.
- There are many styles that can be applied to XHTML documents. The CSS specification is extremely large, so we will cover only a subset of its styles and declarations in this course. As you get more experience you will add more and more features from CSS to be incorporated into your Web documents.



Defining Styles

- In order to use a style sheet with your XHTML document, you need to tell your document where to locate the style definitions. There are three ways to define styles:
 1. **Linked Style Sheets:** Style definitions in **linked style sheets** are stored in a file separate from the XHTML document.
 2. **Global Style Sheets:** Style definitions in are stored in the XHTML document **global style sheets** itself within the `<style>` element.
 3. **Inline Styles:** Inline styles are applied to a single element within the start tag of the element.



Linked Style Sheets

- **Linked Style Sheets:** Style definitions in **linked style sheets** are stored in a file separate from the XHTML document. Linked style sheets provide style definitions to many documents – each document simply has to reference a single style sheet.
- The syntax for a linked style sheet declaration in an XHTML document is:

```
<link rel="stylesheet" href="mystyles.css" type="text/css" />
```
- The `<link>` element is used to define the style sheet. The `<link>` element is an empty element and **must** be contained within the `<head>` element of an XHTML document.

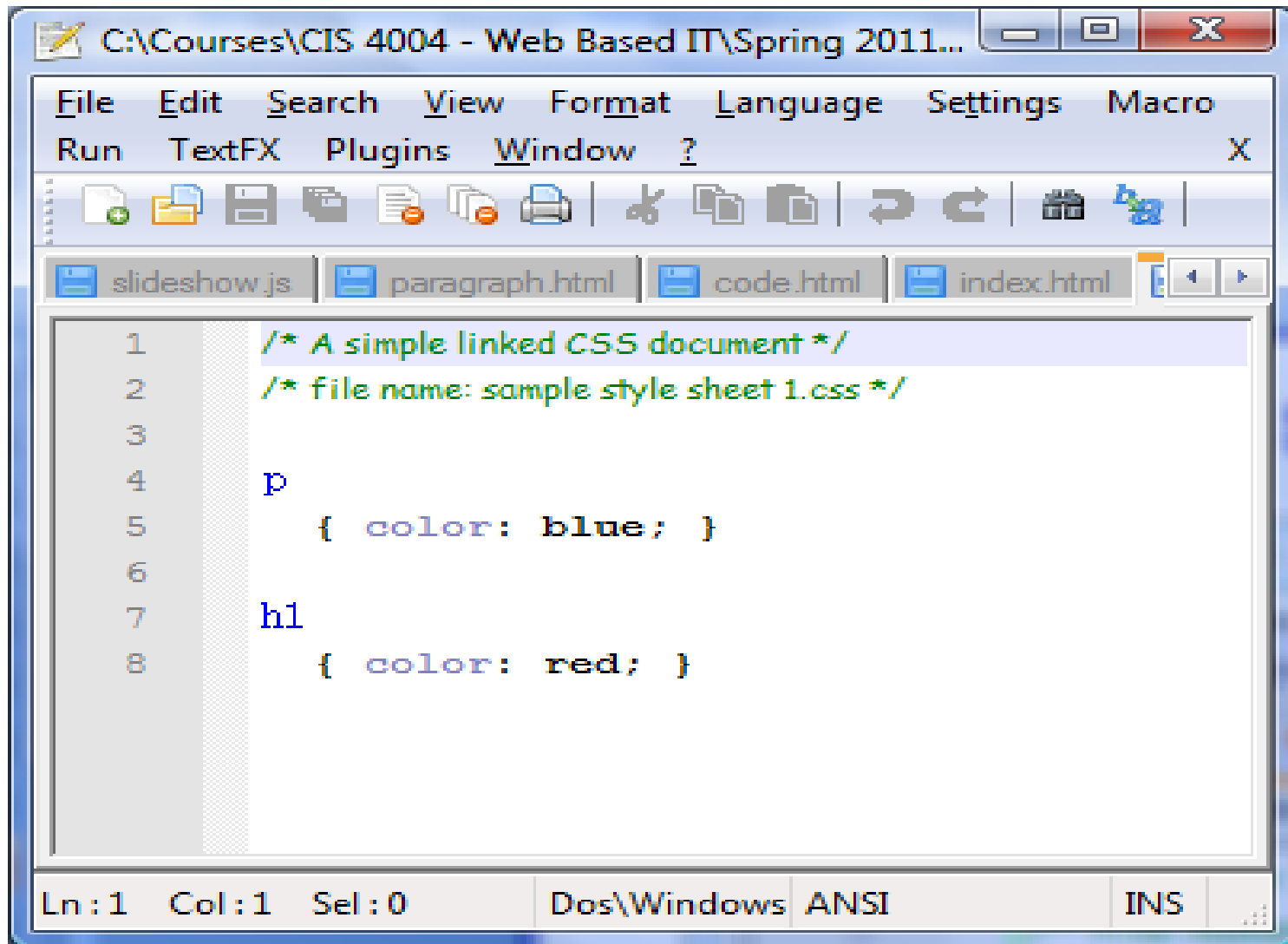


Linked Style Sheets

- The **rel** attribute specifies this `<link>` element to be a link to a style sheet.
- The **href** attribute, like that for the `<a>` (anchor) element, specifies the location of the style sheet file on the system. Both relative and absolute URLs can be used as the value for the `href` attribute.
- The **type** attribute declares this style sheet to be a plain-text file containing CSS styles.



Linked Style Sheet - Example



The image shows a screenshot of a text editor window. The title bar reads "C:\Courses\CIS 4004 - Web Based IT\Spring 2011...". The menu bar includes "File", "Edit", "Search", "View", "Format", "Language", "Settings", "Macro", "Run", "TextFX", "Plugins", "Window", and "?". The toolbar contains icons for file operations like save, print, and copy. The tab bar shows four open files: "slideshow.js", "paragraph.html", "code.html", and "index.html". The main text area contains the following CSS code:

```
1  /* A simple linked CSS document */
2  /* file name: sample style sheet 1.css */
3
4  p
5     { color: blue; }
6
7  h1
8     { color: red; }
```

The status bar at the bottom indicates "Ln : 1 Col : 1 Sel : 0", "Dos\Windows", "ANSI", and "INS".



Global Style Sheets

- **Global Style Sheets:** Style definitions in global style sheets are stored in the XHTML document itself within the `<style>` element. They `<style>` element **must** be contained within the `<head>` element.
- The syntax of a global style sheet is:

```
<style type="text/css">
```

```
<!-- style definitions go here
```

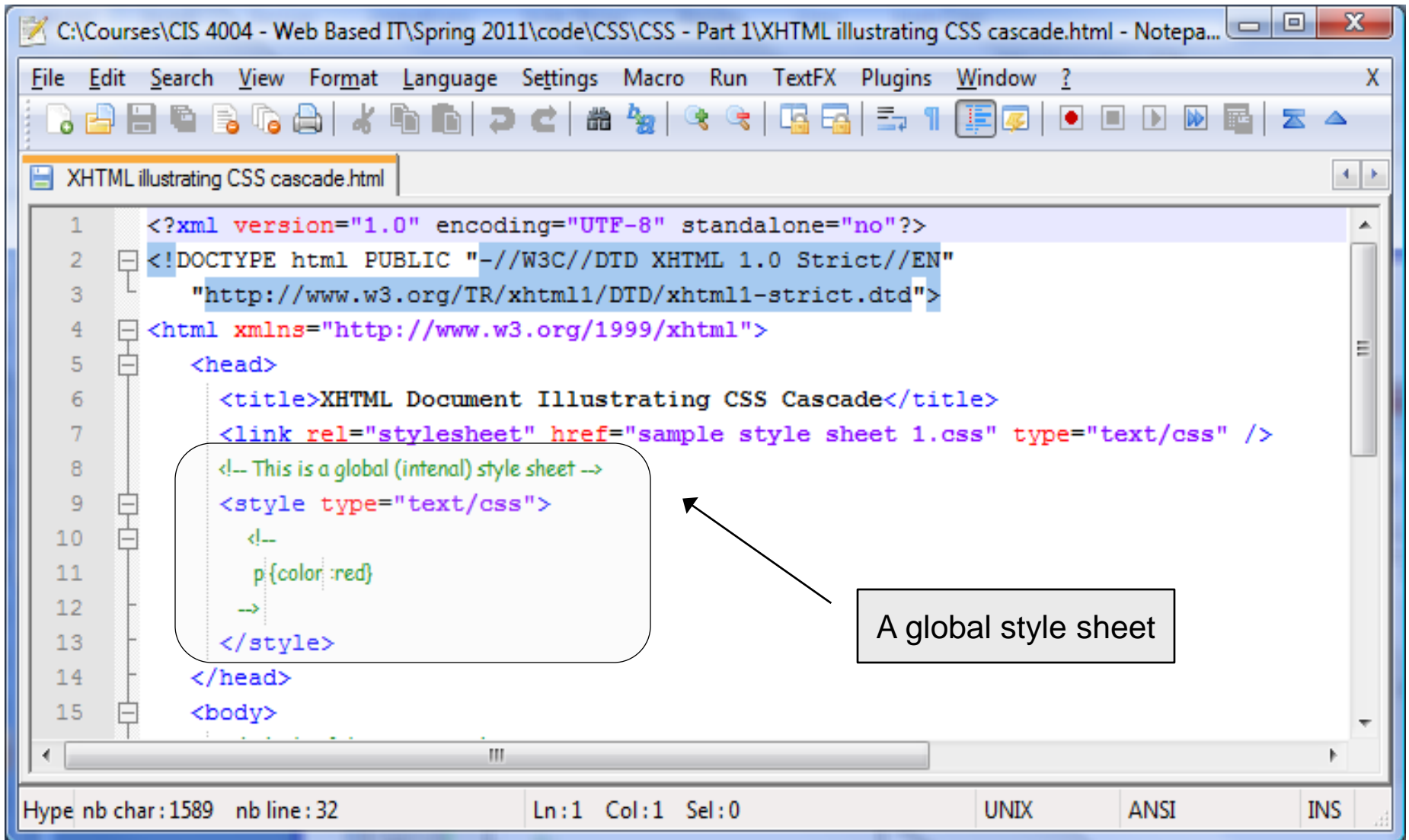
```
-->
```

```
</style>
```

Notice that the section where the global styles are defined is contained within an XHTML comment. This is to hide the actual contents of the style definition from older browsers that don't support CSS. The comment tags are not necessary to make CSS work, but if they are not provided in an XHTML document, older Web browsers may actually display the style property definitions on the Web page!



Global Style Sheet - Example



```
1 <?xml version="1.0" encoding="UTF-8" standalone="no"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4 <html xmlns="http://www.w3.org/1999/xhtml">
5   <head>
6     <title>XHTML Document Illustrating CSS Cascade</title>
7     <link rel="stylesheet" href="sample style sheet 1.css" type="text/css" />
8     <!-- This is a global (intenal) style sheet -->
9     <style type="text/css">
10       <!--
11         p{color:red}
12       -->
13     </style>
14   </head>
15   <body>
```

A global style sheet

Hyper nb char : 1589 nb line : 32 Ln:1 Col:1 Sel:0 UNIX ANSI INS



Inline Styles

- **Inline Styles:** Inline styles are applied to a single element within the start tag of the element.
- For example, if you wanted to assign certain properties to the text within a paragraph, you would include style definitions like the following:

```
<p style="color:red; font-family:arial;">
```

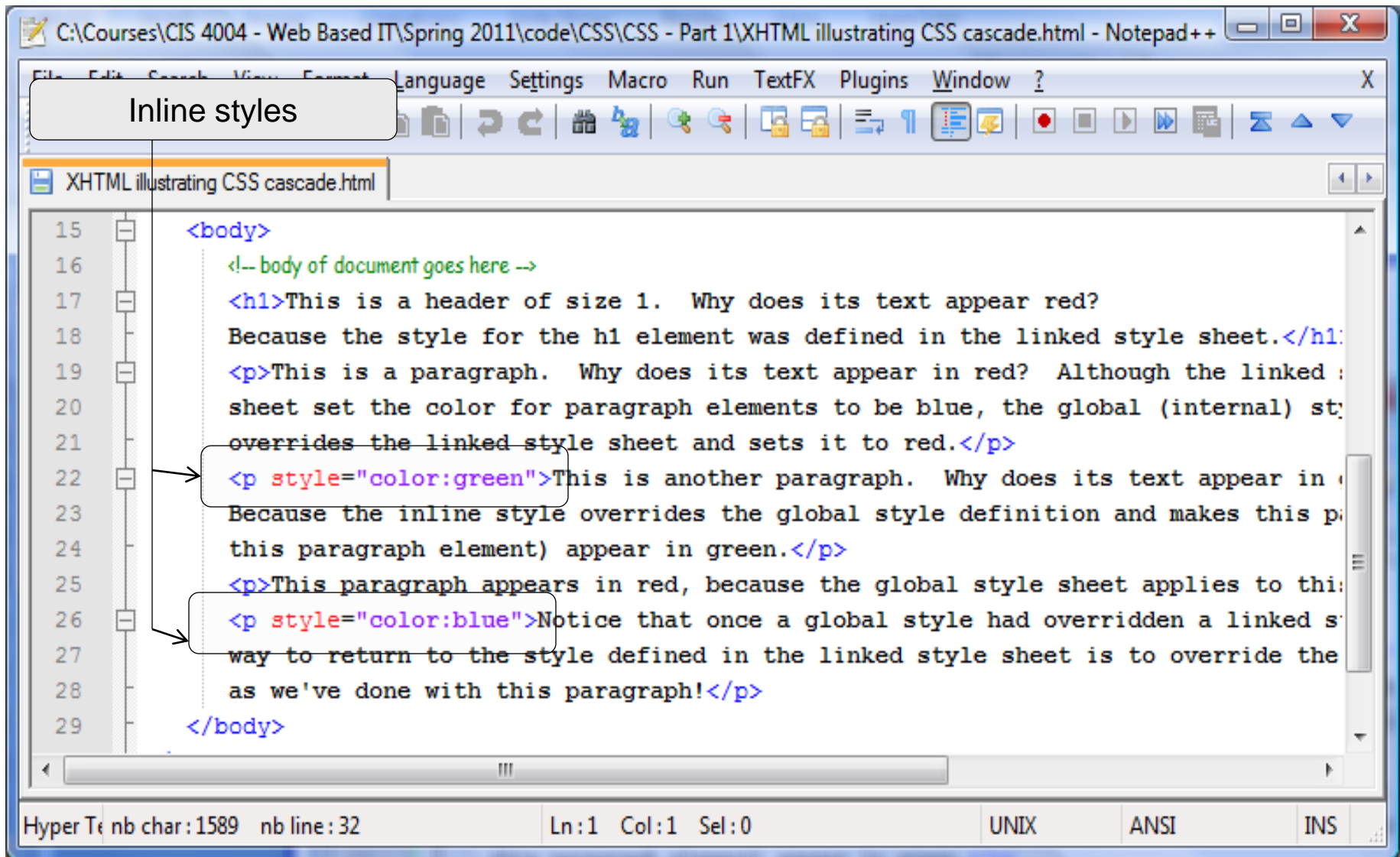
```
    paragraph text
```

```
</p>
```

- We've already used this style of CSS in a couple of our earlier examples.



Inline Style - Example



```
15 <body>
16   <!-- body of document goes here -->
17   <h1>This is a header of size 1. Why does its text appear red?
18   Because the style for the h1 element was defined in the linked style sheet.</h1>
19   <p>This is a paragraph. Why does its text appear in red? Although the linked
20   sheet set the color for paragraph elements to be blue, the global (internal) st
21   overrides the linked style sheet and sets it to red.</p>
22   <p style="color:green">This is another paragraph. Why does its text appear in
23   Because the inline style overrides the global style definition and makes this p
24   this paragraph element) appear in green.</p>
25   <p>This paragraph appears in red, because the global style sheet applies to thi
26   <p style="color:blue">Notice that once a global style had overridden a linked s
27   way to return to the style defined in the linked style sheet is to override the
28   as we've done with this paragraph!</p>
29 </body>
```

HyperText Markup Language (HTML) editor showing code with inline styles. The status bar at the bottom indicates: HyperText Markup Language (HTML) editor showing code with inline styles. The status bar at the bottom indicates: nb char : 1589 nb line : 32 Ln : 1 Col : 1 Sel : 0 UNIX ANSI INS



Style Precedence

- An XHTML document can get its style information from any of the three style definition methods, or from a combination of any or all of them.
- When a style is defined in more than one place for a particular element the definition that is closest to the element itself is used.
 - For example, suppose that an XHTML document references a linked CSS file that defines style properties for the `<h1>` element, setting its font color to blue. The document then defines a global property within its `<style>` element that sets the font color for `<h1>` to red. Finally, a particular `<h1>` element within the document defines its font color to be purple by using the `style` attribute. Which style will be displayed in the browser? Will the font appear in blue, red, or purple? Answer: purple.

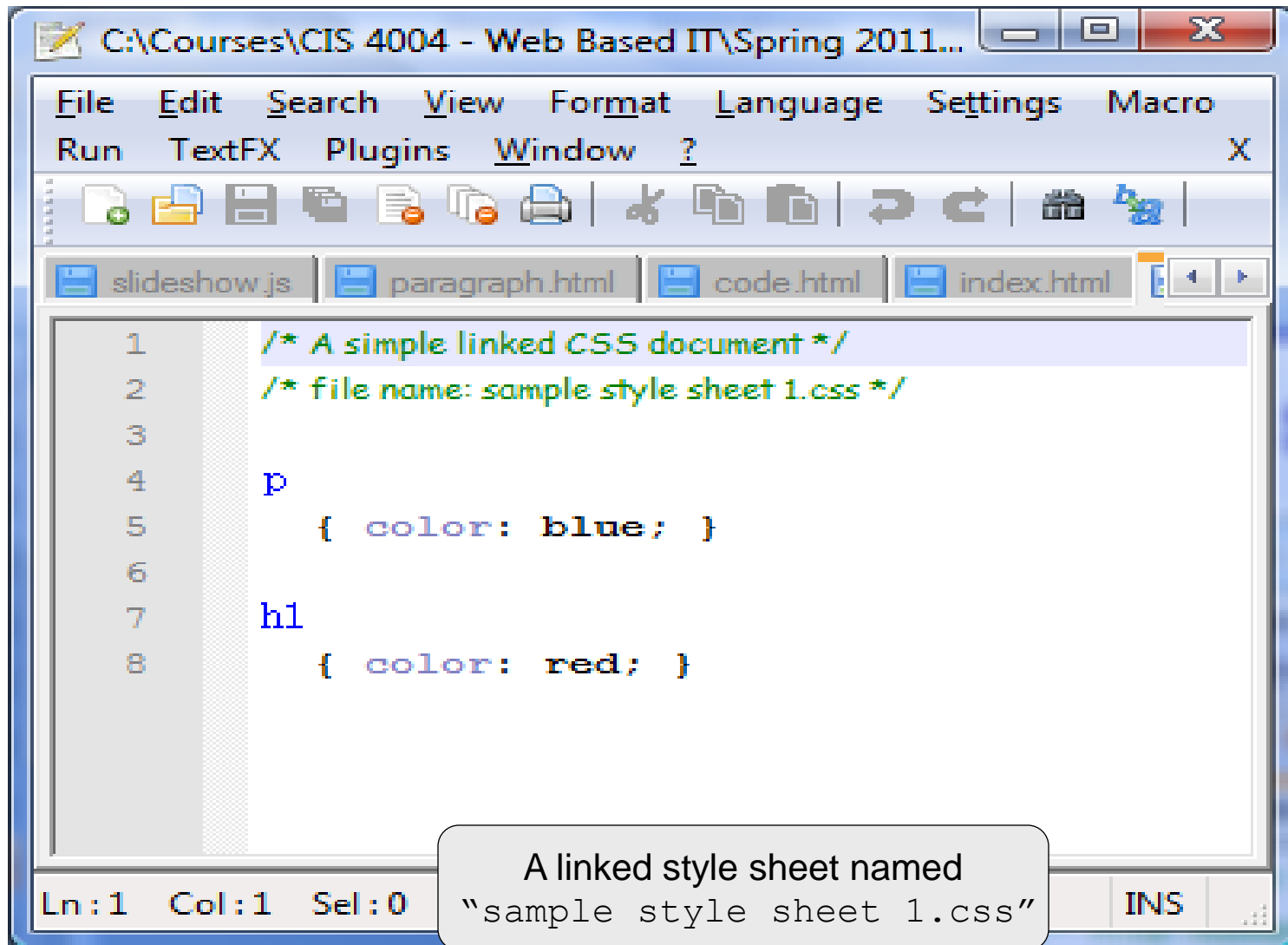


Style Precedence

- Inline styles on particular elements override global styles defined in the `<style>` element or in linked CSS files.
- In turn, global styles defined in the `<style>` element of an XHTML document override style settings from linked CSS files.
- This is the “**cascade**” in CSS!



Style Precedence – Illustration of the Cascade



The screenshot shows a web editor window with the following content:

```
1  /* A simple linked CSS document */
2  /* file name: sample style sheet 1.css */
3
4  p
5     { color: blue; }
6
7  h1
8     { color: red; }
```

A callout box at the bottom of the editor window contains the text: "A linked style sheet named 'sample style sheet 1.css'".



Style Precedence – Illustration of the Cascade

An XHTML document using the linked style sheet named "sample style sheet 1.css", as well as containing a global style definitions and inline styles.

```
C:\Courses\CIS 4004 - Web Based IT\Spring 2011\code\CSS\CSS - Part 1\XHTML illustrating CSS cascade.html - Notepad++
File Edit Search View Format Language Settings
XHTML illustrating CSS cascade.html
1 <?xml version="1.0" encoding="UTF-8" standalone="no"?>
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4 <html xmlns="http://www.w3.org/1999/xhtml">
5 <head>
6 <title>XHTML Document Illustrating CSS Cascade</title>
7 <link rel="stylesheet" href="sample style sheet 1.css" type="text/css" />
8 <!-- This is a global (intenal) style sheet -->
9 <style type="text/css">
10 <!--
11 p{color:red}
12 -->
13 </style>
14 </head>
15 <body>
16 <!-- body of document goes here -->
17 <h1>This is a header of size 1. Why does its text appear red?
18 Because the style for the h1 element was defined in the linked style sheet.</h1>
19 <p>This is a paragraph. Why does its text appear in red? Although the linked
20 sheet set the color for paragraph elements to be blue, the global (internal) st
21 overrides the linked style sheet and sets it to red.</p>
22 <p style="color:green">This is another paragraph. Why does its text appear in
HyperText Markup Language nb char: 1589 nb line: 32 Ln:1 Col:1 Sel:0 UNIX ANSI INS
```



Style
Precedence –
Illustration of
the Cascade

**This is a header of size 1. Why does its text appear red?
Because the style for the h1 element was defined in the
linked style sheet.**

This is a paragraph. Why does its text appear in red? Although the linked style sheet set the color for paragraph elements to be blue, the global (internal) style sheet overrides the linked style sheet and sets it to red.

This is another paragraph. Why does its text appear in green? Because the inline style overrides the global style definition and makes this paragraph element (and only this paragraph element) appear in green.

This paragraph appears in red, because the global style sheet applies to this paragraph.

Notice that once a global style had overridden a linked style for a given element the only way to return to the style defined in the linked style sheet is to override the global style using an inline style as we've done with this paragraph!



Style Precedence

- The ability to override styles gives developers a lot of power.
- For example, a developer could use a linked CSS file for the common formatting properties for all of the documents on a Web site. If one particular document needed special formatting properties, the developer could define global styles within that document without affecting the rest of the documents. The same is true for individual elements. A developer who wanted all of the `<h1>` elements in a document to be blue would define this in the `<style>` Element or in a linked CSS file. If one particular `<h1>` element needed red text, the developer could define the red style on that particular element, which would override the blue setting of the other `<h1>` elements.



CSS Properties

- There are many types of CSS properties:
 1. **Font properties** define font styles such as font family or type, size, weight, and variant.
 2. **Text properties** define the layout of blocks of text, words, or characters, including spacing, alignment, transformation (forced uppercase or lowercase), and decoration (such as underline, overline, strikethrough, and blinking).
 3. **Color and image properties** define the color and background formatting of text and images. These properties can also define the position of a background image and whether the image is repeated (tiled).
 4. **Border properties** define the style of borders for elements like tables and images, as well as for the entire document. Border properties include width, height, style, color, margins, and padding.
 5. **Display properties** define the style for the structure of the document. These properties can define the placement of elements within the document, such as block or inline, and how whitespace is formatted within the document.



Font Properties

Property	Description	Value Example(s)
<code>font</code>	Global font declaration. Can define all font properties in one property.	<code>font-family, font-style, font-weight, font-size, font-style</code>
<code>font-family</code>	Font type to display text.	<code>arial, courier</code>
<code>font-size</code>	Size of font in pixels or as a percentage.	<code>small, x-small, medium, large, x-large</code>
<code>font-style</code>	Style of font.	<code>italic, bold, oblique</code>
<code>font-variant</code>	Font rendering.	<code>normal, small-caps</code>
<code>font-weight</code>	Darkness of font. Uses name or number.	<code>normal, light, bold, bolder, 100, 200, 300, 400, etc.</code>



Text Properties

Property	Description	Value Example(s)
word-spacing	Amount of space between words in an element.	normal, number of pixels
letter-spacing	Amount of space between letters.	normal, number of pixels
text-align	Horizontal alignment of text on page.	right, left, center
vertical-align	Vertical alignment of text on page.	baseline, sub, super, top, text-top, middle, bottom, text-bottom, percentage
text-indent	How much first line is indented.	0, number of pixels (i.e. 10 px), percentage (i.e. 10%)
text-transform	Change case of text.	uppercase, lowercase, capitalize, none
line-height	Amount of space between lines of text.	normal, number of pixels
text-decoration	Special controls of text appearance	underline, overline, blink, line-through, none



Color Properties

Property	Description	Value Example(s)
<code>color</code>	Text color	<code>red, blue, color code</code>
<code>background</code>	Global background declaration. Can define all background properties in one property.	<code>background-color, background-image, background-position, background-repeat, background-attachment</code>
<code>background-color</code>	Color of element's background	<code>color name, transparent, inherit</code>
<code>background-image</code>	Image to be used as a background.	URL, name of local file.
<code>background-attachment</code>	Scrolling of background image with the element.	<code>scroll, fixed, inherit</code>
<code>background-position</code>	Position of element's background.	<code>top, center, bottom, left, right, percentage, number of pixels</code>
<code>background-repeat</code>	Repeat pattern for background image (tiling).	<code>repeat, repeat-x, repeat-y, no-repeat</code>



Border Properties

Property	Description	Value Example(s)
<code>border-color</code>	Color of the border element.	red, blue, color code
<code>border-width</code>	Width of the border.	medium, thin, thick, number of pixels.
<code>border-style</code>	Style of the border.	none, solid, double
<code>margin-top</code>	Width of margin at the top of element.	0, number of pixels, percentage.
<code>margin-bottom</code>	Width of margin at the bottom of element.	0, number of pixels, percentage.
<code>margin-left</code>	Width of margin at the left side of element.	0, number of pixels, percentage.
<code>margin-right</code>	Width of margin at the right side of element.	0, number of pixels, percentage.
<code>padding-top</code>	Amount of padding at top of element.	0, number of pixels, percentage.



Border Properties (continued)

Property	Description	Value Example(s)
<code>padding-bottom</code>	Amount of padding at bottom of element.	0, number of pixels, percentage.
<code>padding-left</code>	Amount of padding on left side of element.	0, number of pixels, percentage.
<code>padding-right</code>	Amount of padding on right side of element.	0, number of pixels, percentage.
<code>clear</code>	Whether an element permits other elements on its sides.	<code>none</code> , <code>left</code> , <code>right</code>
<code>float</code>	Floating element.	<code>none</code> , <code>left</code> , <code>right</code>
<code>height</code>	Height of an element.	<code>auto</code> , number of pixels, percentage
<code>width</code>	Width of section	<code>auto</code> , number of pixels, percentage



Display Properties

Property	Description	Value Example(s)
<code>display</code>	Controls display of an element.	<code>block, inline, list-item</code>
<code>white-space</code>	Whitespace formatting.	<code>normal, pre, nowrap</code>
<code>visibility</code>	Controls visibility of element.	<code>inherit, visible, hidden</code>



CSS Rules

- CSS rules have two parts: a **selector** and a set of **property declarations** that define the style or styles that will apply to the selector.
- The selector can contain a single element, a class/id selector, or a list of selectors. Multiple selectors are separated by commas. For styles that have more than one property defined, each property is separated by a semicolon.
- The following page shows two examples of CSS rules, the first is an example of a rule that applies to a single element, in this case, the `<h1>` element, and the second rule applies to three elements, the `<h1>`, `<h2>`, and `<p>` elements.



CSS Rules – Examples

CSS rule applying to a single element.

```
h1 {  
    color: black;  
    font-size: 12pt;  
    font-family: arial;  
}
```

CSS rule applying to a three elements.

```
h1, h2, p {  
    color: red;  
    font-size: 12pt;  
    font-family: arial;  
}
```



CSS Comments

- The syntax for comments in CSS is different than we've seen so far for XHTML documents (recall XHTML comments begin with `<!--` and end with `-->`). Comments in CSS begin with `/*` and end with `*/`. The following is an example of a CSS comments:

```
/* This is a comment in CSS */
```

```
/* Comments can also
```

```
span multiple lines */
```

- Web browsers and other processing applications ignore comments in CSS files.
- As with your XHTML documents, you should comment your CSS files.



CSS Example

- Before we go too much further in examining CSS, let's rework one of our earlier examples to include CSS.
- The very first XHTML document we created was a course description document (see XHTML page 60). Let's create a CSS for this document.
- For this first example of CSS, we'll use a **linked style sheet**. Recall that this means the style definitions are stored in a file separate from the XHTML document. So let's create the CSS file and name it "firstCSS.css".



firstCSS.css

```
/* My first Cascading Style Sheet */

strong
{
    font-weight:bold;
    text-align: left;
    background-color: yellow;
    text-decoration: underline;
}

li
{
    font-style:italic;
    color: purple;
}

ul
{
    list-style-type: square;
    font-size: x-large;
}
```



C:\Courses\CIS 4004 - Web Based IT\Spring 2011\code\CSS\CSS - Part 1\firstCSS.css - Notepa...

File Edit Search View Format Language Settings Macro Run TextFX Plugins Window ? X

XHTML illustrating CSS cascade.html firstCSS.css

```
1 /* My first Cascading Style Sheet */
2
3 strong
4 {
5     font-weight:bold;
6     text-align: left;
7     background-color: yellow;
8     text-decoration: underline;
9 }
10
11 li
12 {
13     font-style:italic;
14     color: purple;
15 }
16
17 ul
18 {
19     list-style-type: square;
20     font-size: x-large;
21 }
```

nb char: 316 nb line: 21 Ln: 1 Col: 1 Sel: 0 Dos\Windows ANSI INS

firstCSS.css



Validating Cascading Style Sheets

- The W3C provides a tool on its Web site that will validate CSS documents, much like the XHTML validator that we discussed in the first part of the XHTML notes.
- The validator is available at:

<http://.www.jigsaw.w3.org/css-validator>.



Validating Cascading Style Sheets

Google Search Share Check AutoFill Sign In

Favorites Suggested Sites Free Hotmail Web Slice Gallery KeepVid- Download and s...

W3C CSS Validator results for firstCSS.css (CSS lev... Page Safety Tools



The W3C CSS Validation Service

W3C CSS Validator results for firstCSS.css (CSS level 2.1)

Jump to: [Validated CSS](#)

W3C CSS Validator results for firstCSS.css (CSS level 2.1)

Congratulations! No Error Found.

This document validates as [CSS level 2.1](#)!

To show your readers that you've taken the care to create an interoperable Web page, you may display this icon on any page that validates. Here is the XHTML you could use to add this icon to your Web page:



```
<p>
<a href="http://jigsaw.w3.org/css-validator/check/referer">
  
</a>
```

Done



Internet | Protected Mode: Off



100%



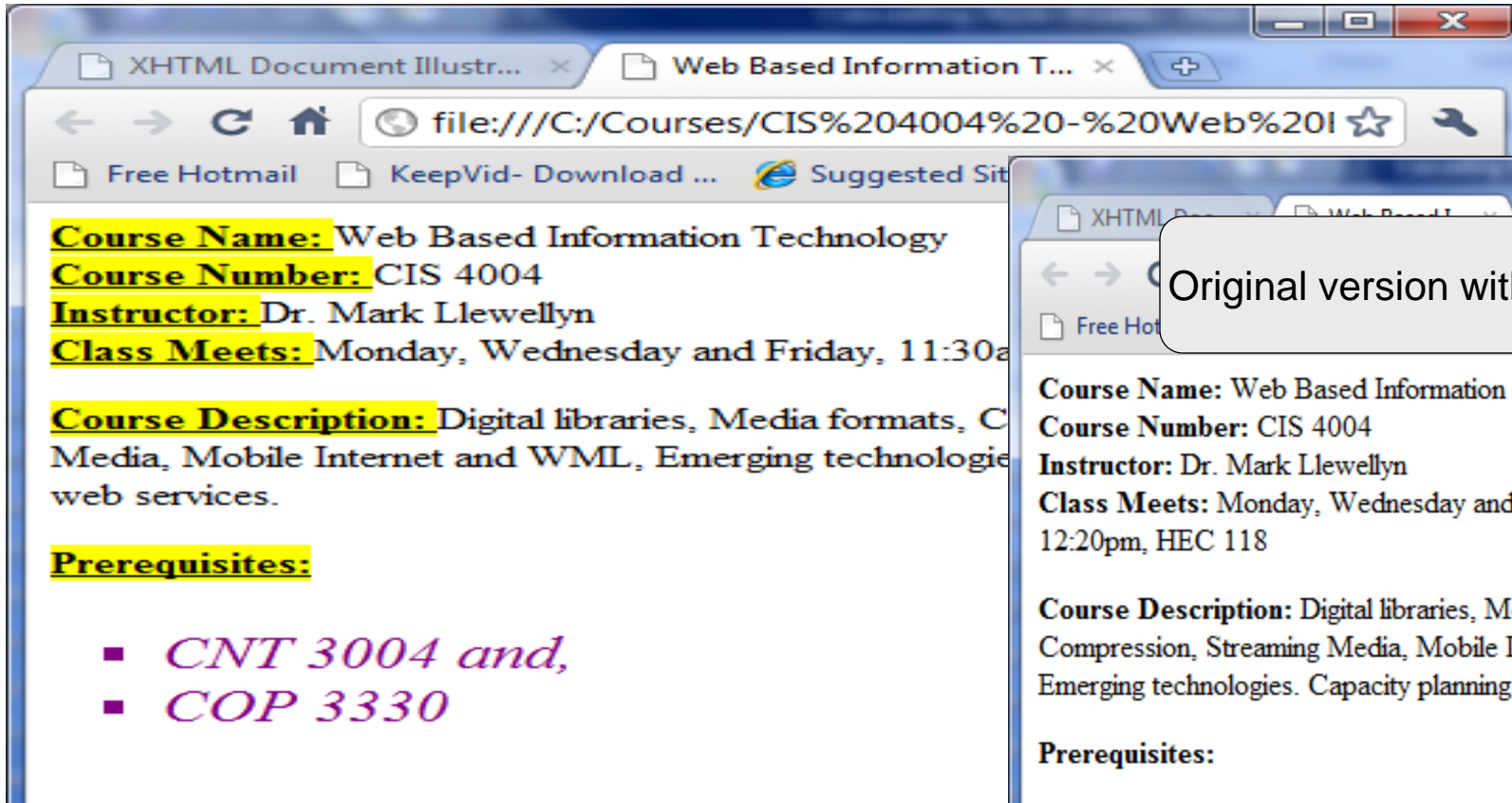
markup with css.html

This is the same file as before with the exception of the highlighted line that we added to link to the stylesheet.

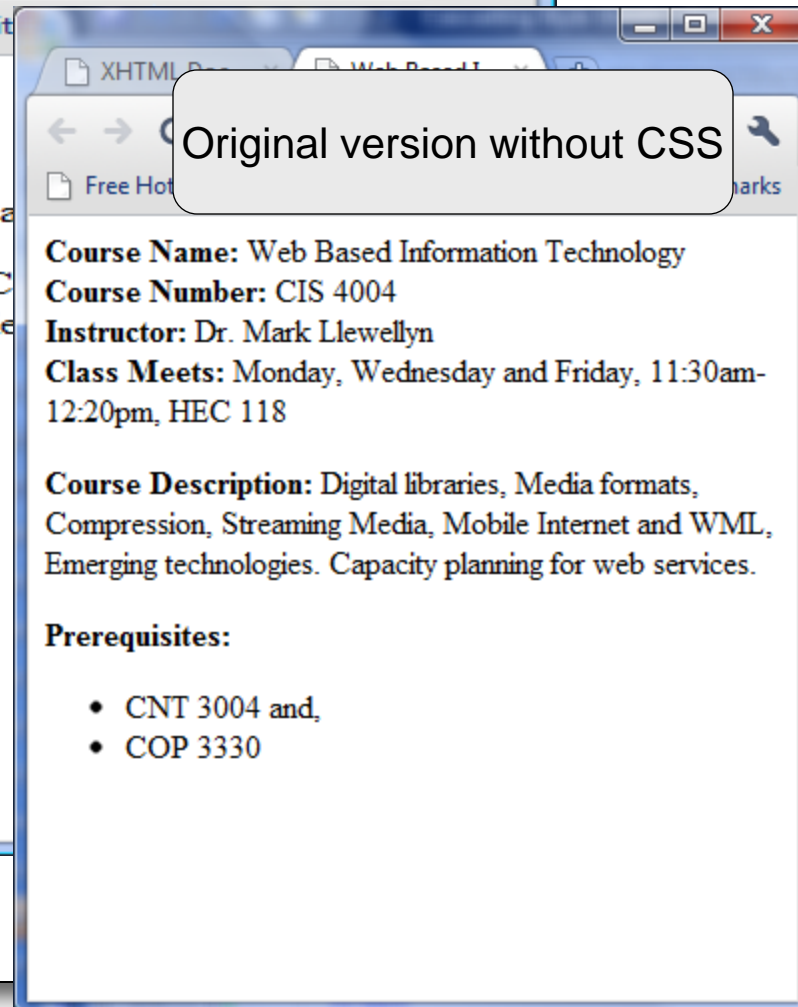
```
4 <html xmlns="http://www.w3.org/1999/xhtml">
5   <head>
6     <title>Web Based Information Technology Spring 2011</title>
7     <link rel="stylesheet" href="firstCSS.css" type="text/css" />
8   </head>
9   <body>
10    <div>
11      <div>
12        <strong>Course Name: </strong> Web Based Information Technology<br />
13        <strong>Course Number: </strong> CIS 4004 <br />
14        <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
15        <strong>Class Meets: </strong> Monday, Wednesday and Friday, 11:30am-12:20pm, HEC 118
16        <p />
17        <strong>Course Description: </strong> Digital libraries, Media formats, Compression, S
18        Mobile Internet and WML, Emerging technologies. Capacity planning for web services.
19        <p />
20        <strong>Prerequisites: </strong>
21        <ul>
22          <li> CNT 3004 and,</li>
23          <li> COP 3330</li>
24        </ul>
25      </div>
```



Viewing the XHTML With CSS



Just as before, load the new "markup with css.html" file in your browser and you should see the course description document with the CSS style applied, as shown.



CSS Example 2

- Before we go any further with learning CSS. I want to illustrate how CSS can be used to modify the presentation of an XHTML document without changing the XHTML markup. Using the same XHTML file from Example 1, we'll make another linked style sheet, this time called `secondCSS.css`. We'll change the way the various XHTML elements that appear in our document are presented by using different CSS rules to style the same document.



secondCSS.css

File Edit Search View Format Language Settings Macro Run TextFX Plu



XHTML illustrating CSS cascade.html firstCSS.css markup with css using firstCSS.html markup-xhtml-strict.html

```
1  /* My second Cascading Style Sheet */
2  /* file name: secondCSS.css */
3  strong
4  {
5      font-weight:bold;
6      text-align: right;
7      text-decoration: underline;
8      color: blue;
9  }
10
11  li
12  {
13      font-style:italic;
14      font-size: 14pt;
15      color: green;
16  }
17
18  ul
19  {
20      list-style-type: circle;
21      font-family: arial;
22      font-variant: normal;
23      text-transform: lowercase;
24  }
```

nb char : 374 nb line : 24 Ln:1 Col:1 Sel:0 Dos\Windows ANSI INS

Modified markup with css.html

This is the same file as before with the exception of the highlighted line that must be changed to link the new stylesheet.

```
2 <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3 "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4 <html xmlns="http://www.w3.org/1999/xhtml">
5 <head>
6 <title>Web Based Information Technology Spring 2011</title>
7 <link rel="stylesheet" href="secondCSS.css" type="text/css" />
8 </head>
9 <body>
10 <div>
11 <strong>Course Name: </strong> Web Based Information Technology<br />
12 <strong>Course Number: </strong> CIS 4004 <br />
13 <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
14 <strong>Class Meets: </strong> Monday, Wednesday and Friday, 11:30am-12:20pm, HEC 11
15 <p />
16 <strong>Course Description: </strong> Digital libraries, Media formats, Compression,
17 Mobile Internet and WML, Emerging technologies. Capacity planning for web services.
18 <p />
19 <strong>Prerequisites: </strong>
20 <ul>
21 <li> CNT 3004 and,</li>
22 <li> COP 3330</li>
23 </ul>
24 </div>
25 </body>
```

Hyper Text Mar nb char : 1049 nb line : 28

Ln : 24 Col : 11 Sel : 0

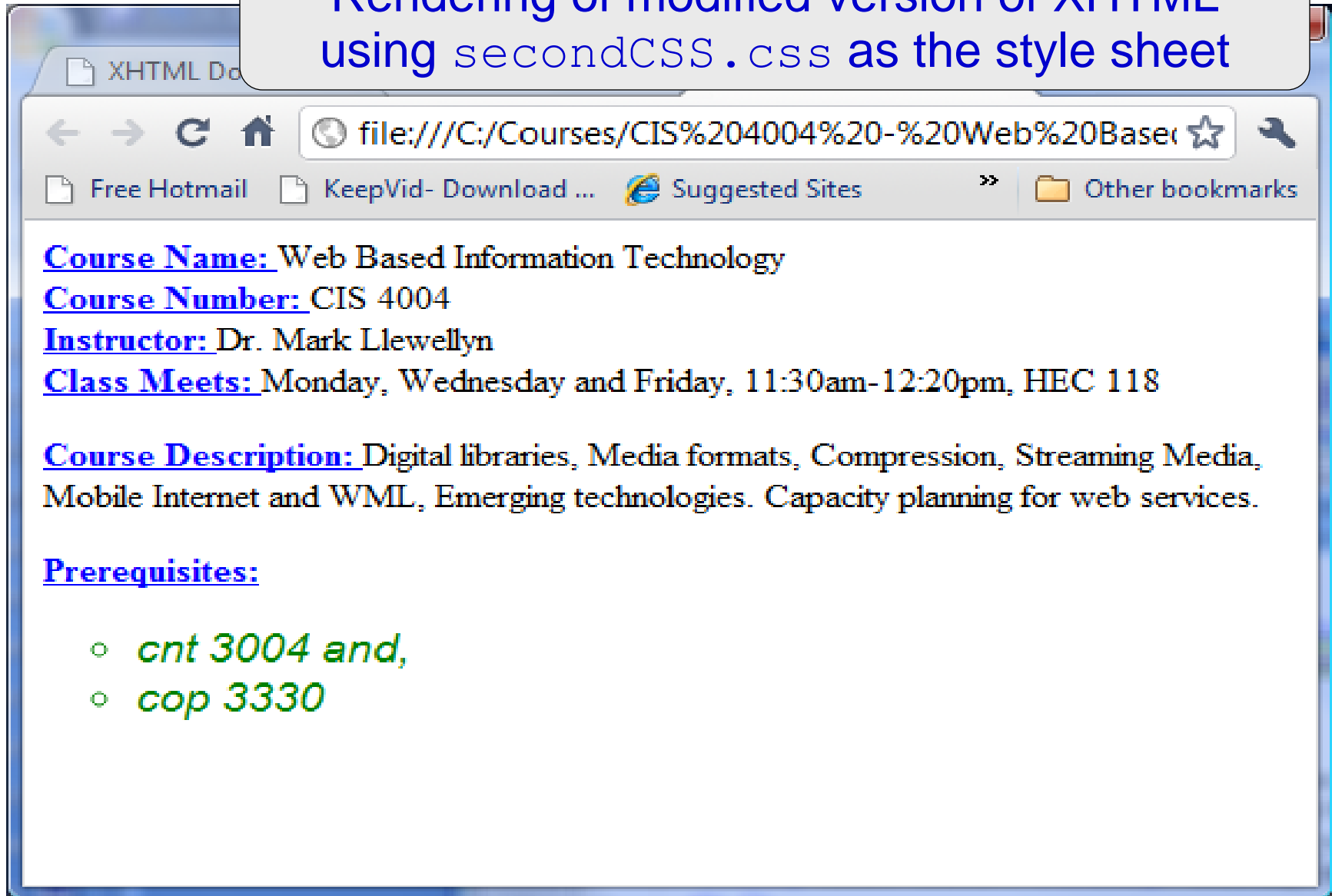
UNIX

ANSI

INS



Rendering of modified version of XHTML using `secondCSS.css` as the style sheet



The screenshot shows a web browser window with the following content:

- Course Name:** Web Based Information Technology
- Course Number:** CIS 4004
- Instructor:** Dr. Mark Llewellyn
- Class Meets:** Monday, Wednesday and Friday, 11:30am-12:20pm, HEC 118
- Course Description:** Digital libraries, Media formats, Compression, Streaming Media, Mobile Internet and WML, Emerging technologies. Capacity planning for web services.
- Prerequisites:**
 - *cnt 3004 and,*
 - *cop 3330*



CSS Example 3

- Using the same XHTML file from Example 2, this time we'll use the global style sheet form, in which the style definitions are contained within the XHTML document.
- Notice that the output when viewed from a browser is no different than that when a linked style sheet was used.



markup using global style css.html

```
3  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4  <html xmlns="http://www.w3.org/1999/xhtml">
5  <head>
6  <title>Web Based Information Technology Spring 2011</title>
7  <style type="text/css">
8  <!--
9  strong {
10  font-weight:bold;
11  text-align:right;
12  text-decoration:underline;
13  color:blue;
14  }
15  li {
16  font-style:italic;
17  font-size:14pt;
18  color:green;
19  }
20  ul {
21  list-style-type:circle;
22  font-family:arial;
23  font-variant:normal;
24  text-transform:lowercase;
25  }
26  -->
27  </style>
28  </head>
```

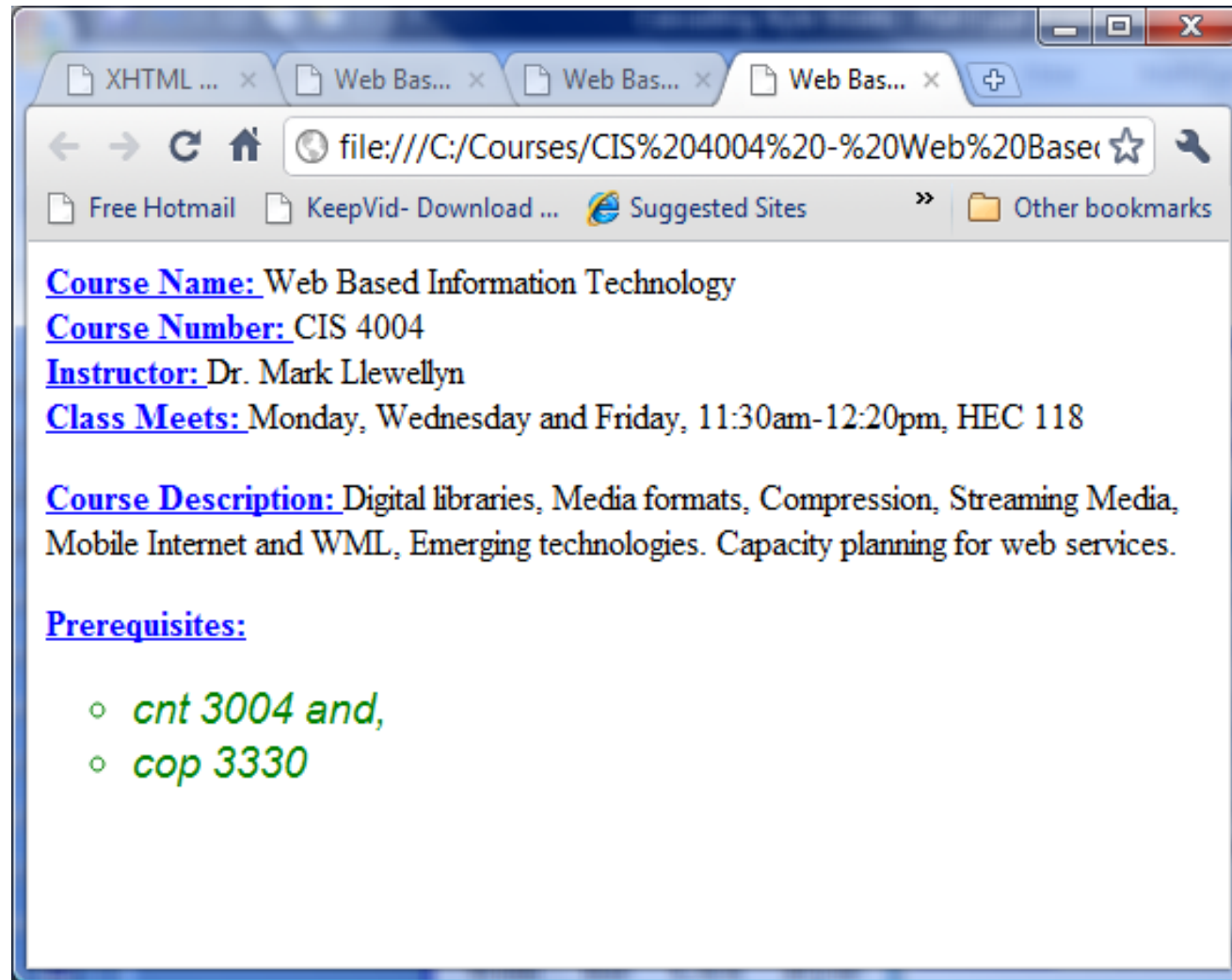
Global style sheet format – embedded in XHTML document.



Viewing the XHTML With Global Style Format

Just as before, load the new "markup using global style.html" file in your browser and you should see the course description document with the CSS style applied, as shown.

Note that it is displayed exactly the same as was the case for the linked style sheet.





Using A Universal Value - thirdCSS.css

```
1  /* My third Cascading Style Sheet */
2  /* Illustrates a universal value */
3  /* file name: thirdCSS.css */
4
5  strong {
6      font-weight:bold;
7      color: red;
8  }
9  li {
10     font-style:normal;
11     color: purple;
12 }
13 /* Note: * is a universal value and applies to all elements in a document
14 unless it is specifically overridden by an element. In this case,
15 everything will be green. Note, however, that the <li> element will
16 override this case by making list element text appear in purple. */
17
18 * {
19     color: green;
20 }
```



markup with css.html

This is the same file as before with the exception of using the third CSS file we just created with the universal value.

```

1  <?xml version="1.0" encoding="UTF-8" standalone="no"?>
2  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4  <html xmlns="http://www.w3.org/1999/xhtml">
5     <head>
6         <title>Web Based Information Technology Spring 2011</title>
7         <link rel="stylesheet" href="thirdCSS.css" type="text/css" />
8     </head>
9     <body>
10        <div>
11            <strong>Course Name: </strong> Web Based Information Technology<br />
12            <strong>Course Number: </strong> CIS 4004 <br />
13            <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
14            <strong>Class Meets: </strong> Monday, Wednesday and Friday, 11:30am-12
15            <p />
16            <strong>Course Description: </strong> Digital libraries, Media formats,
17            Mobile Internet and WML, Emerging technologies. Capacity planning for
18            <p />
19            <strong>Prerequisites: </strong>
20            <ul>
21                <li> CNT 3004 and,</li>
22                <li> COP 3330</li>

```

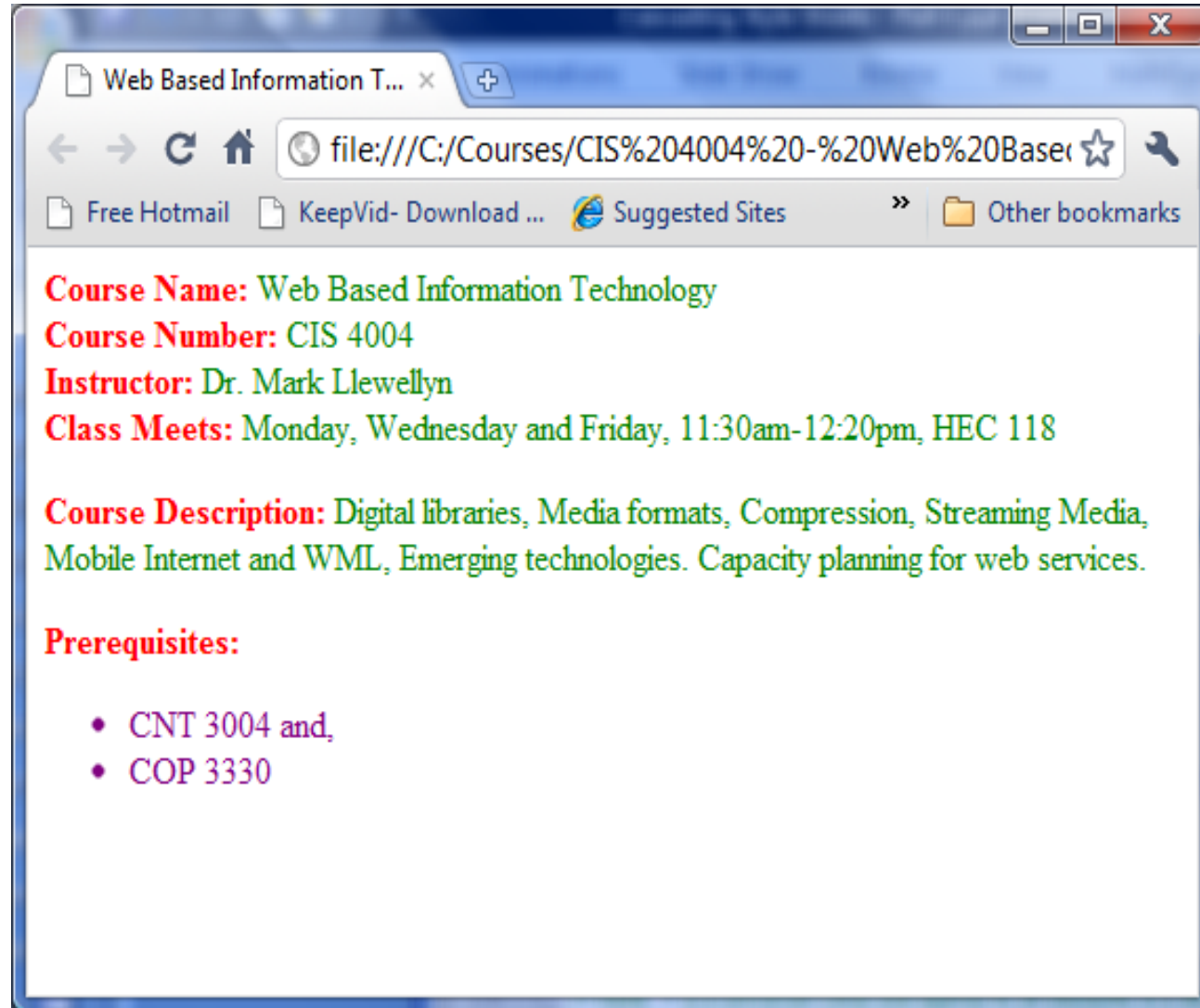


Viewing the XHTML With CSS

Just as before except using the style sheet “secondCSS.css:.

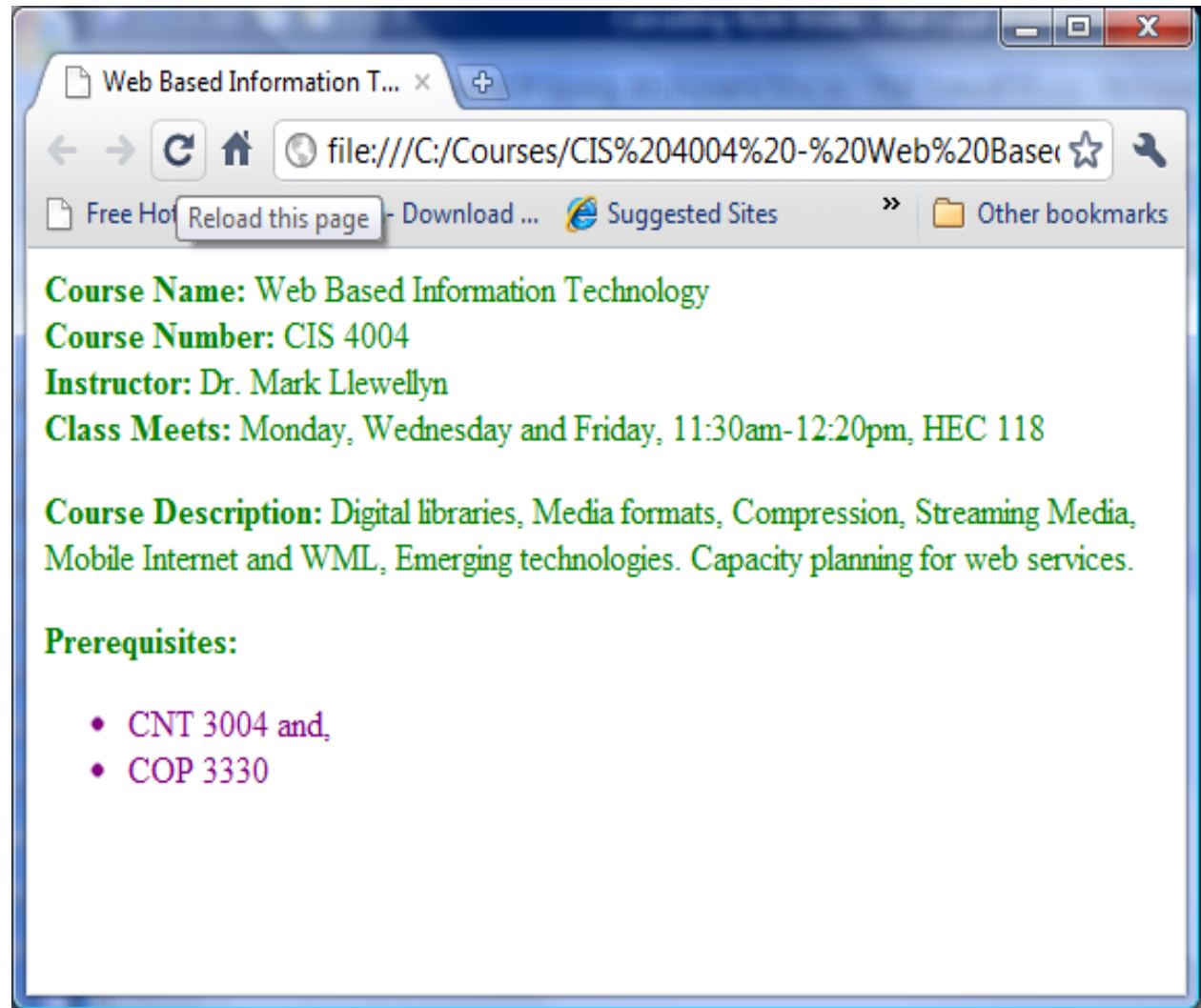
Note that all the text is green except for that in the list elements which was overridden by the `` declarations and the strong elements which were overridden by the `` declarations in `thirdCSS.css`.

What would happen if you removed the color: red rule from `thirdCSS.css`? (see next page for answer.)



Viewing the XHTML With CSS

Since the strong element no longer styles the color to be red, it no longer overrides the universal value and thus the color of all strong elements will be the same as specified by the universal element – green! Only the list element which still styles the color to be purple will override the universal value.



CSS – Classes and IDs

- You might be wondering after reading the first part of the CSS notes and creating your first style sheets what to do if you need to assign more than one style to the same element.
- For example, suppose that you define the following style for the `<p>` element:

```
p { color: red }
```

- If you define the `<p>` element like this, all paragraphs in your document will be formatted with red text. If you want some paragraphs to have black text, you'll need to override the global styles with an inline style. This however can become quite tedious if many style changes are needed in a single document.
- The better solution is to use a **class** or **id selector**.



CSS – Classes and IDs

- **Class** and **id selectors** are used to define styles in your document that are independent of elements.
- Classes can be used to define styles for any number of elements and for any number of occurrences of elements in a document.
- The **id** attribute occurs only once in a document, so it should not be used to declare styles for a number of elements.
- For example, if you know that a certain element in a document will be used to uniquely identify the document, but you are not sure which element it will be in each document, you can use the **id** selector to generically reference the unique element independent of the document itself.
- The syntax for the class and id attributes are shown on the next two pages.



Class Selector Syntax

Style Sheet

```
.class_example {  
    color : red  
}
```

XHTML document reference

```
<p class="class_example">
```



ID Selector Syntax

Style Sheet

```
#id_example {  
    color : black  
}
```

XHTML document reference

```
<p id="id_example">
```



Using class and id Selectors

- Using class and id selectors for style formatting requires certain changes to the XHTML document because the appropriate attributes must be defined for each element to be formatted.
- Classes can also be assigned to individual elements to allow more control over formatting. This is done by placing the name of an element in front of the period in a class style declaration. For example, the following defines class formatting styles that apply only to the <p> element:

```
p          { color: black }  
p.red_text { color: red   }  
p.cyan_text { color: cyan }
```

- These declarations set font colors for the <p> element depending on which class is defined in the element. If no class attribute is specified, then the declaration for the <p> element of black is applied.



Using `class` and `id` Selectors

- Let's look at a slightly more complex example, using our original `markup.xhtml` file for our course description (see page 60, XHTML).
- We'll modify this original example using `class` and `id` attributes. We'll also define a new linked style sheet (external to the document) as well as using a global style sheet (internal to the document) and also include a few inline styles as well.
- Pages 54 & 55 show the linked style sheet we'll call `fourthCSS.css`.
- Pages 56-57 show the modified XHTML document with global and inline styles.
- Finally page 58 illustrates how the document is rendered in a browser.





fourthCSS.css (first part)

```
1  /* My fourth Cascading Style Sheet */
2  /* file name: fourthCSS.css */
3
4  /* define a class called box */
5  div.box {
6      margin-top: 50px;
7      background-color: yellow;
8      color: #000090;
9      border-style: double;
10     padding: 10px;
11     border-color: #000090;
12 }
13 /* define styles for <p> element */
14 p {
15     font-size: 16pt;
16 }
17 /* define specific properties for the <p> element with the class name of description */
18 p.description {
19     color: #000099;
20     background-color: #cccccc;
21     font-style: italic;
22 }
23
```



C:\Courses\CIS 4004 - Web Based IT\Spring 2011\code\CSS\CSS - Part 2\fourthCSS.css - Notepad++

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markup using global css.html | markup with css using thirdCSS.html | thirdCSS.css

fourthCSS.css (second part)

```
23
24  /* define a unique id selector that will be applied to one element within the document */
25  #identifier {
26      color: red;
27  }
28
29  /* define a class to align text to the right */
30  .right {
31      text-align: right;
32  }
33
34  /* define universal element formatting styles */
35  * {
36      color: #333333;
37      font-family: arial;
38      font-size:10pt;
39  }
40
```

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```

1  <?xml version="1.0" encoding="UTF-8" standalone="no" ?>
2  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
3     "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4  <html xmlns="http://www.w3.org/1999/xhtml">
5     <head>
6         <title>Web Based Information Technology Spring 2011</title>
7         <link rel="stylesheet" href="fourthCSS.css" type="text/css" />
8         <style type="text/css">
9             <!--
10            h1{
11                font-size:30pt;
12                text-align:center;
13                font-style:italic;
14            }
15            h2{
16                font-size:18pt;
17                text-align:left;
18                font-style: italic;
19            }
20            h3{
21                font-size:16pt;
22                text-align:left;
23                font-style: italic;
24            }
25            -->
26         </style>
27     </head>

```

markup with fourthCSS.html
(first part)




```
C:\Courses\CIS 4004 - Web Based IT\Spring 2011\code\CSS\CSS - Part 2\markup with fourthCSS.html - Notep...
File Edit Search View Format Language Settings Macro Run TextFX Plugins Window ?
markup with css using thirdCSS.html fourthCSS.css markup with fourthCSS.html
27 </head>
28 <body>
29   <h1>Course Description</h1>
30   <div class="box">
31     <div class="right"><strong>Course Name: </strong> <span style="color:red
32       <strong>Course Number: </strong> CIS 4004 <br />
33       <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
34       <strong>Class Meets: </strong>Monday, Wednesday and Friday, 11:30am-1
35     </div>
36     <h2 id="identifier">Course Description: </h2>
37     <p class="description">Digital libraries, Media formats, Compression, S
38       Mobile Internet and WML, Emerging technologies. Capacity planning fo
39     </p>
40     <h3>Prerequisites: </h3>
41     <ul>
42       <li> CNT 3004 and,</li>
43       <li> COP 3330</li>
44     </ul>
45   </body>
46 </html>
47
48
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```



Course Description

Course Number: CIS 4004

Instructor: Dr. Mark Llewellyn

Class Meets: Monday, Wednesday and Friday, 11:30am-12:20pm, HEC 118

Course Name: Web Based Information Technology

Course Description:

Digital libraries, Media formats, Compression, Streaming Media, Mobile Internet and WML, Emerging technologies. Capacity planning for web services.

Prerequisites:

- CNT 3004 and,
- COP 3330



Property Inheritance

- We looked at nesting elements in the XHTML notes.
- Elements that are contained within other elements are said to be **children** of the outer elements, and the outer elements are referred to as **parents** of the nested elements.
- This hierarchy of elements is applied to CSS in the form of property inheritance.
- **Property inheritance** means the properties that are defined for parent elements are passed along to child elements, unless the child element overrides the property.



Property Inheritance

- For example, if the parent of an element sets its font to be 18 points, the child elements will also have a font size of 18 points unless they declare their own rules to override the rules defined by the parent.
- Using the course description example from the previous set of notes – the one that used the style sheet named `secondCSS.css`, let's create a new style sheet called `inheritance.css` to demonstrate property inheritance for this XHTML document.



C:\Courses\CIS 4004 - Web Based IT\Spring 2011\code\CSS\CSS - Part 2\inheritance.css - Notepad++

File Edit Search View Format Language Settings Macro Run TextFX Plugins Window ?

markup with css using thirdCSS.html fourthCSS.css markup with fourthCSS.html inheritance.css

```
1  /* Cascading Style Sheet Showing Inheritance*/
2  /* file name: inheritance.css */
3
4  /* define the body style */
5  body {
6      color: green;
7      font-style: normal;
8      font-size:12pt;
9  }
10 /* define strong style */
11 strong {
12     color:white;
13     background-color:blue;
14 }
15 /* define paragraph style */
16 p {
17     margin-top:50px;
18     color: blue;
19     background-color:yellow;
20     font-size:20pt;
21     font-style:italic;
22     border-style: double;
23 }
24
```

inheritance.css

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```
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File Edit Search View Format Language Settings Macro markup with inheritance.html X
markup with css using thirdCSS.html inheritance.css markup with inheritance.html
3      "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
4      <html xmlns="http://www.w3.org/1999/xhtml">
5          <head>
6              <title>Web Based Information Technology Spring 2011</title>
7              <link rel="stylesheet" href="inheritance.css" type="text/css" />
8          </head>
9          <body>
10             <div>
11                 <strong>Course Name: </strong> Web Based Information Technology<br />
12                 <strong>Course Number: </strong> CIS 4004 <br />
13                 <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
14                 <strong>Class Meets: </strong> Monday, Wednesday and Friday, 11:30am-12
15                 <p />
16                 <strong>Course Description: </strong> Digital libraries, Media formats,
17                 Mobile Internet and WML, Emerging technologies. Capacity planning for
18                 <p />
19                 <strong>Prerequisites: </strong>
20                 <ul>
21                     <li> CNT 3004 and,</li>
22                     <li> COP 3330</li>
23                 </ul>
24             </div>
25         </body>
```

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Course Name: Web Based Information Technology
Course Number: CIS 4004
Instructor: Dr. Mark Llewellyn
Class Meets: Monday, Wednesday and Friday, 11:30am-12:20pm, HEC 118

Notice that all text within the `` elements is white which overrides the settings of the `` element's parent, which is `<body>`, since the `<body>` element sets the text color to green.

Since the Course Description is contained within the `<p>` element, this overrides the style defined in the parent element `<body>`.

Course Description: Digital libraries, Media format, Streaming Media, Mobile Internet and WML, Emerging technologies. Capacity planning for web services.

Prerequisites:

Here `` overrides `<p>` which overrides `<body>`.

- CNT 3004 and,
- COP 3330

The list elements are not overridden and appear in the green color as specified by the `<body>` element.

