

CIS 4004: Web Based Information Technology Fall 2013

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.
- Cascading Style Sheets level 3 (CSS3), was started in 1998 and like HTML5 is still a standard in progress, but is supported (to some extent) by most current web browsers.
- CSS4 began as a W3C working draft in September 2009 and is not sufficiently developed yet to be supported by any major browser.



Why Use Cascading Style Sheets?

- The primary reason for using CSS is to separate a document's content and structure 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 desktop browser or a mobile device.



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 did not provide support for many of the strictly presentational elements, such as HTML's `` element.
- Like XHTML Strict, HTML5 was designed to specify the content and structure of a document. Though HTML5 contains some attributes that control presentation (as did XHTML Strict), it is best to separate the content and presentation. If a webpage's presentation is determined entirely by a stylesheet, you can simply change the stylesheet to completely change the page's appearance.



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 HTML5 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 HTML5 document, you need to tell your document where to locate the style definitions. There are three ways to define styles:
 1. **Linked (External) Style Sheets:** Style definitions in **linked style sheets** are stored in a file separate from the HTML5 document.
 2. **Global (Embedded or Internal) Style Sheets:** Style definitions in are stored in the HTML5 document **global style sheet** itself within the `<style>` element in the `<head>` of the document.
 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 HTML5 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 HTML5 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 HTML5 document.

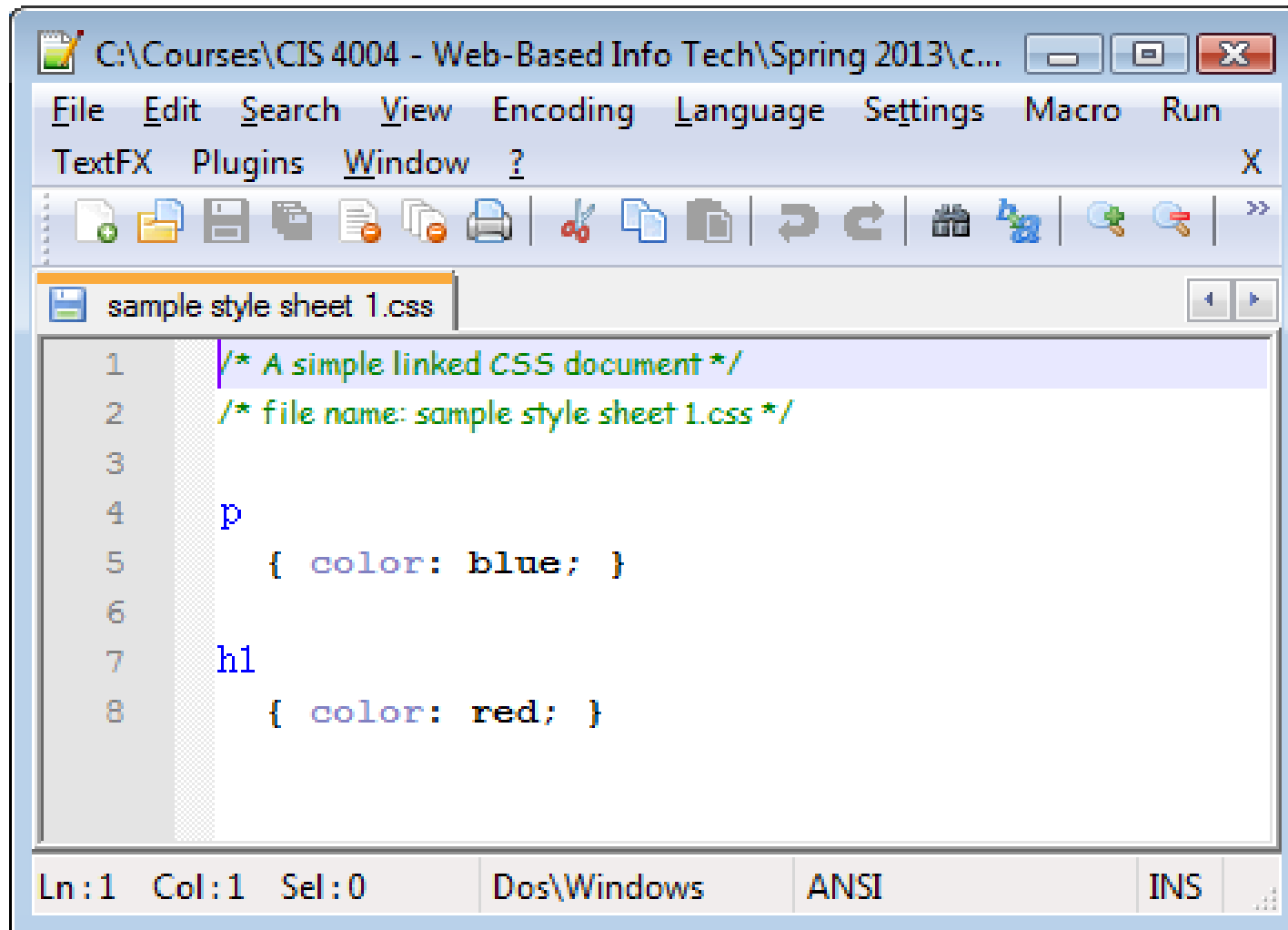


Linked Style Sheets

- 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



```
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; }
```

Ln: 1 Col: 1 Sel: 0 Dos\Windows ANSI INS



Global Style Sheets

- **Global Style Sheets:** Style definitions in global style sheets are stored in the HTML5 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
```

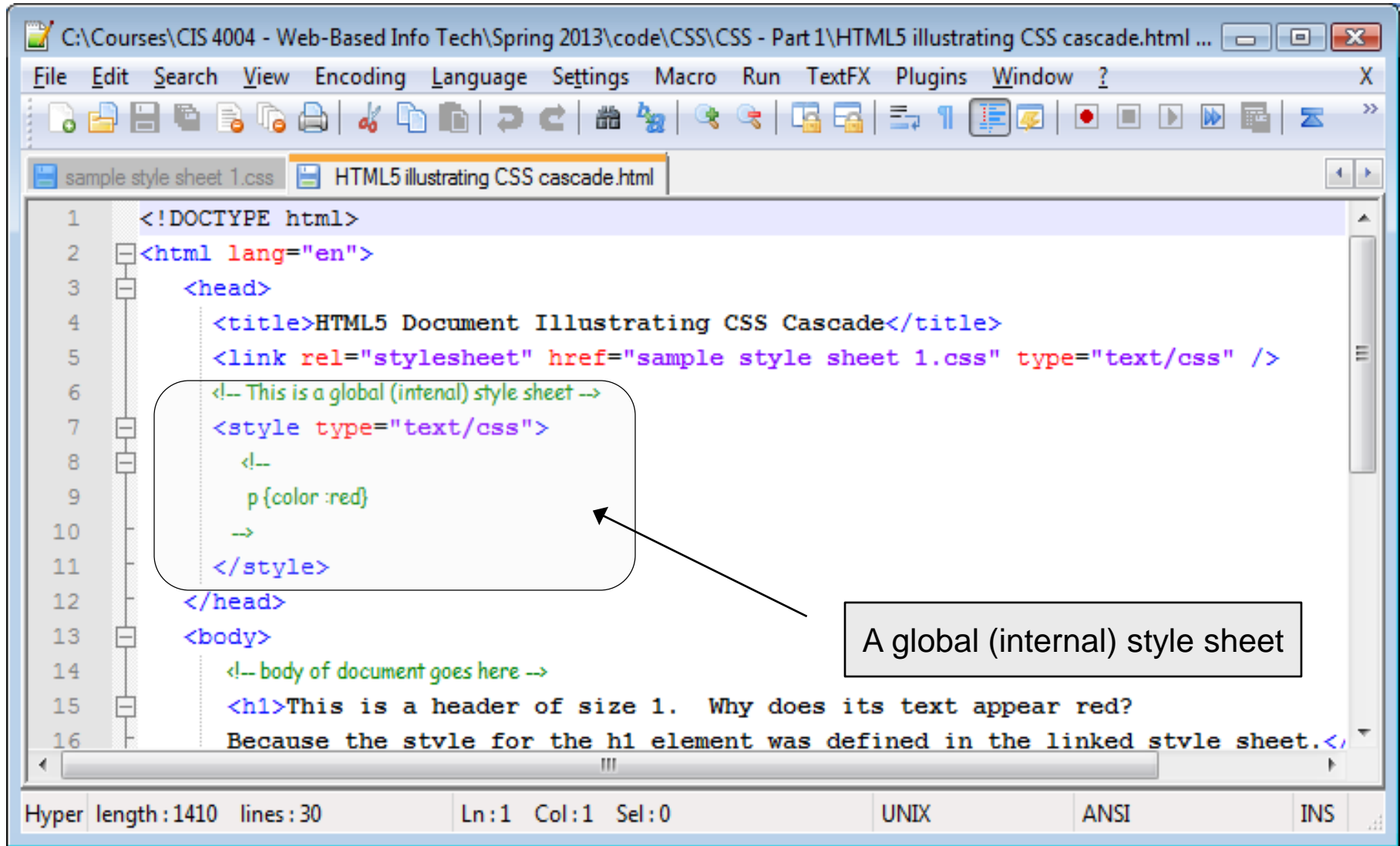
```
-->
```

```
</style>
```

Notice that the section where the global styles are defined is contained within an HTML5 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



The screenshot shows a text editor window with the following code:

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <title>HTML5 Document Illustrating CSS Cascade</title>
5     <link rel="stylesheet" href="sample style sheet 1.css" type="text/css" />
6     <!-- This is a global (internal) style sheet -->
7     <style type="text/css">
8       <!--
9         p {color :red}
10      -->
11    </style>
12  </head>
13  <body>
14    <!-- body of document goes here -->
15    <h1>This is a header of size 1. Why does its text appear red?
16    Because the style for the h1 element was defined in the linked style sheet.</h1>
```

An arrow points from a text box containing the text "A global (internal) style sheet" to the internal style sheet code block (lines 7-11).



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;">
```

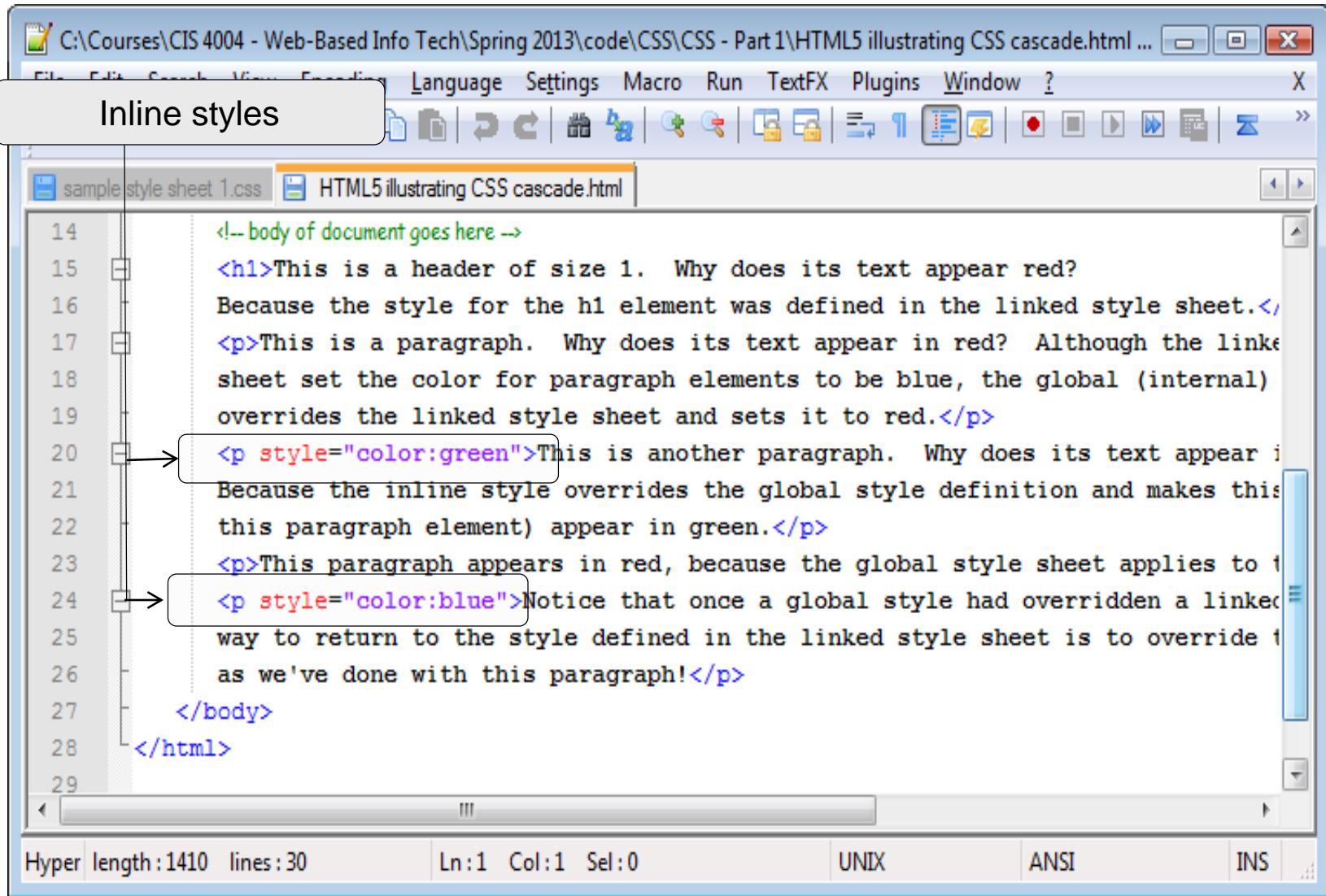
```
    paragraph text
```

```
</p>
```

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



Inline Style - Example



Inline styles

```
14      <!-- body of document goes here -->
15      <h1>This is a header of size 1. Why does its text appear red?
16      Because the style for the h1 element was defined in the linked style sheet.</
17      <p>This is a paragraph. Why does its text appear in red? Although the linke
18      sheet set the color for paragraph elements to be blue, the global (internal)
19      overrides the linked style sheet and sets it to red.</p>
20      <p style="color:green">This is another paragraph. Why does its text appear i
21      Because the inline style overrides the global style definition and makes this
22      this paragraph element) appear in green.</p>
23      <p>This paragraph appears in red, because the global style sheet applies to t
24      <p style="color:blue">Notice that once a global style had overridden a linke
25      way to return to the style defined in the linked style sheet is to override t
26      as we've done with this paragraph!</p>
27      </body>
28      </html>
29
```

Hyper length:1410 lines:30 Ln:1 Col:1 Sel:0 UNIX ANSI INS



Style Precedence – The Cascade

- An HTML5 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 HTML5 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**.

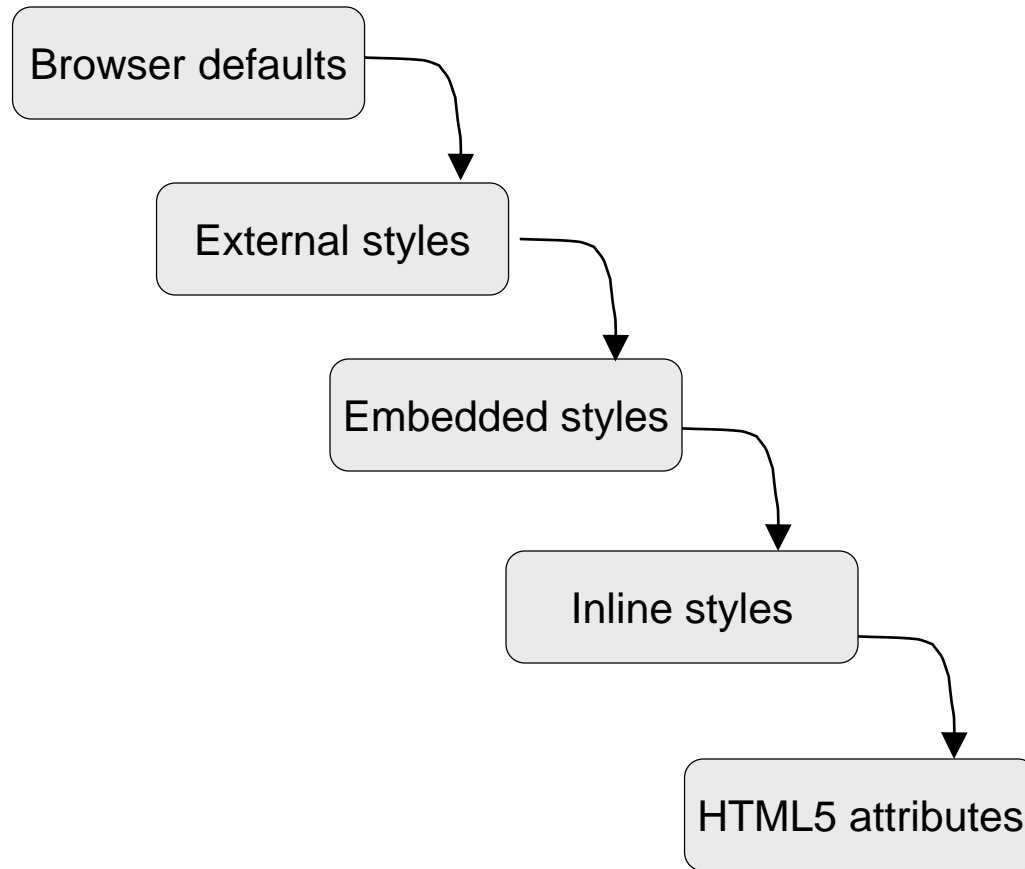


Style Precedence – The Cascade

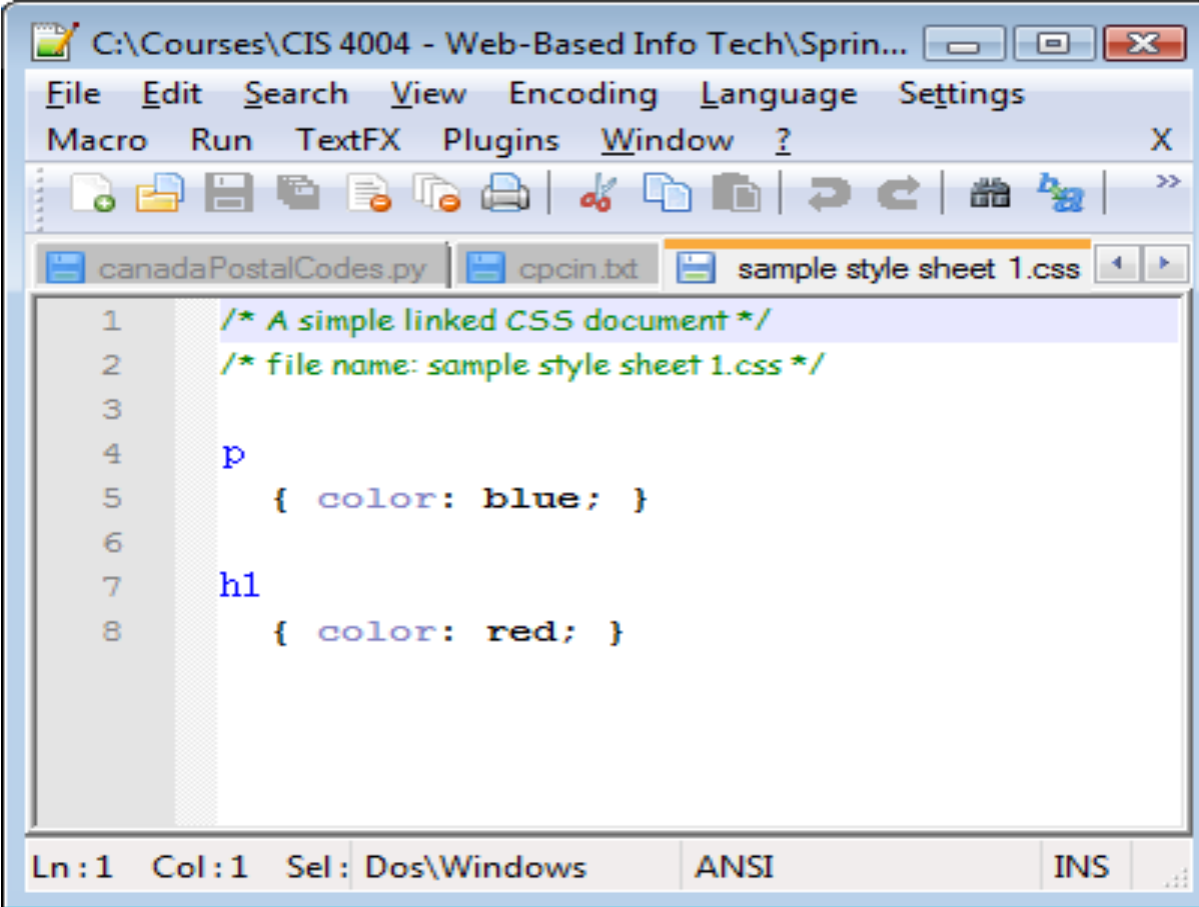
- Inline styles on particular elements override global styles defined in the `<style>` element or in linked CSS files.
- In turn, global styles defined in the `<style>` element of an XHTML document override style settings from linked CSS files.
- This is the “**cascade**” in CSS!



Style Precedence – The Cascade



Style Precedence – Illustration of the Cascade



```
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 linked style sheet named
“sample style sheet 1.css”

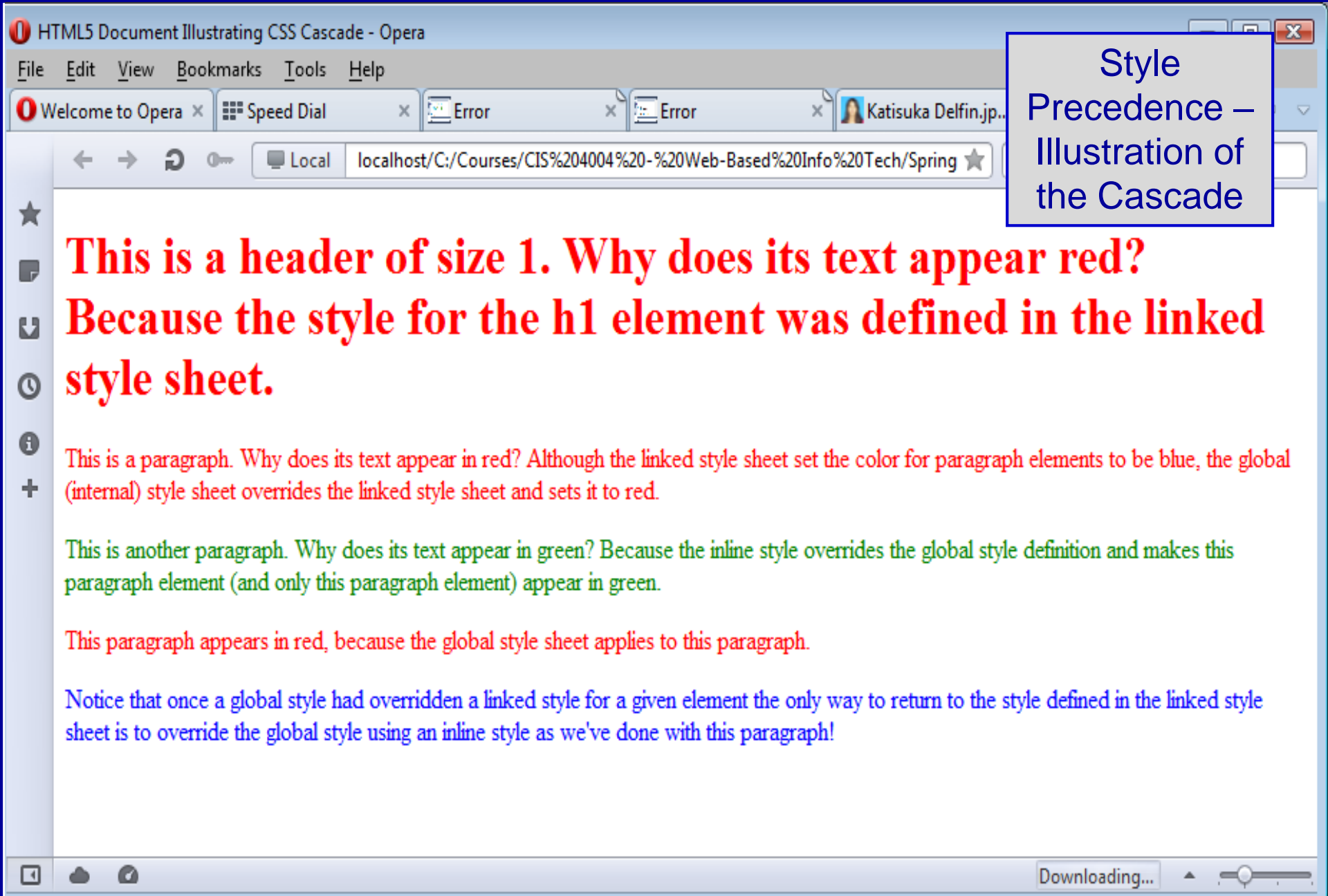


Style Precedence – Illustration of the Cascade

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.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>HTML5 Document Illustrating CSS Cascade</title>
5      <link rel="stylesheet" href="sample style sheet 1.css" type="text/css" />
6      <!-- This is a global (intenal) style sheet -->
7      <style type="text/css">
8          <!--
9              p {color :red}
10             -->
11      </style>
12 </head>
13 <body>
14     <!-- body of document goes here -->
15     <h1>This is a header of size 1.  Why does its text appear red?
16     Because the style for the h1 element was defined in the linked style sheet.</h1>
17     <p>This is a paragraph.  Why does its text appear in red?  Although the linked
18     sheet set the color for paragraph elements to be blue, the global (internal) s
```





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.	<code>URL, name of local file.</code>
<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</code> , <code>inline</code> , <code>list-item</code>
<code>white-space</code>	Whitespace formatting.	<code>normal</code> , <code>pre</code> , <code>nowrap</code>
<code>visibility</code>	Controls visibility of element.	<code>inherit</code> , <code>visible</code> , <code>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 HTML5 documents (recall HTML5 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 HTML5 documents, you should comment your CSS files.

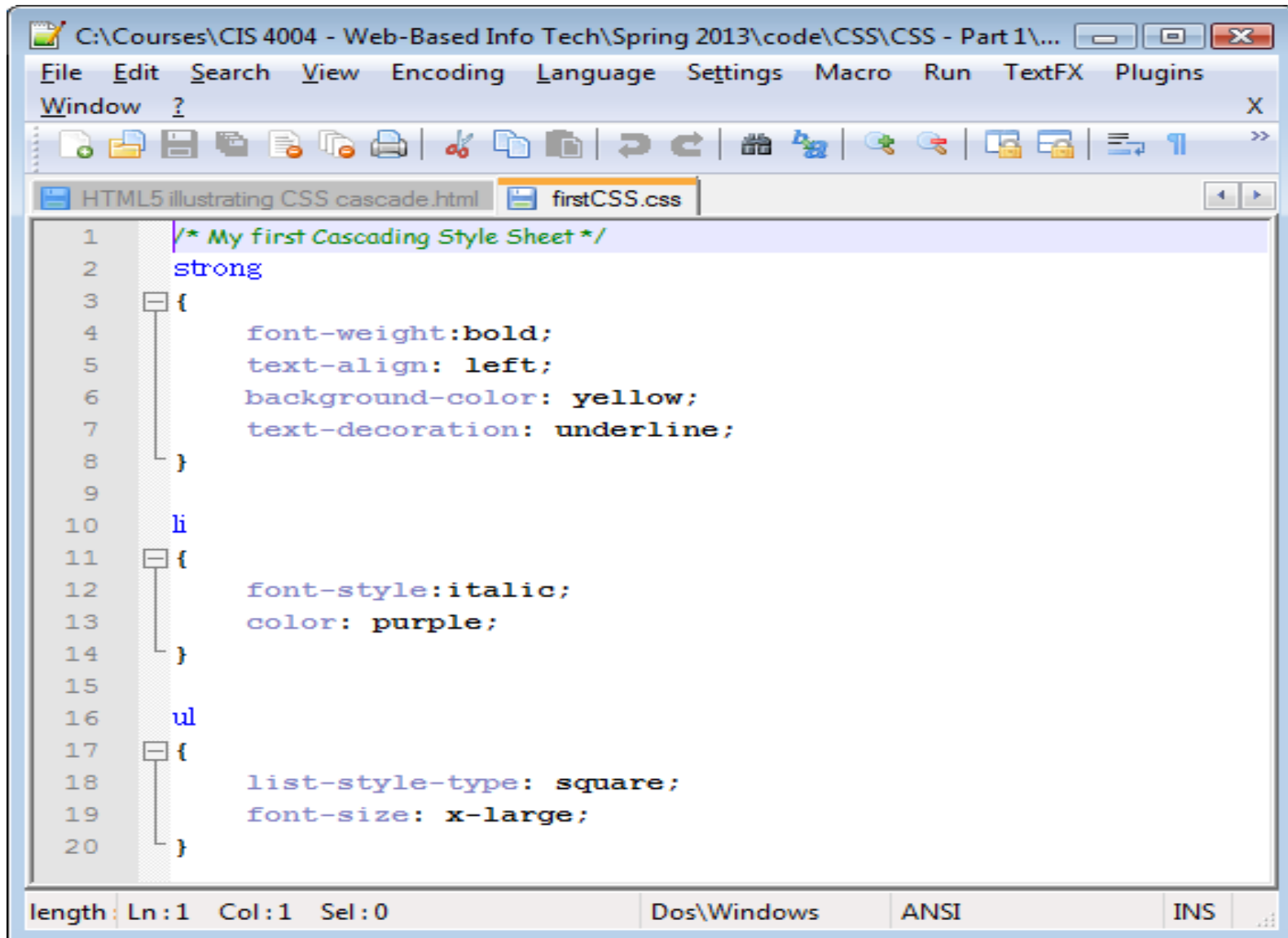


CSS Example

- Before we go too much further in examining CSS, let's include some CSS into a 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



The image shows a screenshot of a text editor window titled "firstCSS.css". The window's title bar includes the path "C:\Courses\CIS 4004 - Web-Based Info Tech\Spring 2013\code\CSS\CSS - Part 1\...". The menu bar contains "File", "Edit", "Search", "View", "Encoding", "Language", "Settings", "Macro", "Run", "TextFX", and "Plugins". The toolbar includes icons for file operations like save, print, copy, paste, and undo. The main editing area shows the following CSS code:

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

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



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.](http://.www.jigsaw.w3.org/css-validator)



Validating Cascading Style Sheets



The W3C CSS Validation Service

W3C CSS Validator results for C:\Courses\CIS 4004 - Web-Based Info Tech\Spring 2013\code\CSS\CSS - Part 1\firstCSS.css (CSS level 3)

Jump to: [Validated CSS](#)

W3C CSS Validator results for C:\Courses\CIS 4004 - Web-Based Info Tech\Spring 2013\code\CSS\CSS - Part 1\firstCSS.css (CSS level 3)

Congratulations! No Error Found.

This document validates as [CSS level 3](#) !

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>  
</p>
```



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.

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <title>Web Based Information Technology Spring 2013</title>
5     <link rel="stylesheet" href="firstCSSX.css" type="text/css" />
6   </head>
7   <body>
8     <div>
9       <div>
10        <strong>Course Name: </strong> Web Based Information Technology<br />
11        <strong>Course Number: </strong> CIS 4004 <br />
12        <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
13        <strong>Class Meets: </strong> Tuesday and Thursday, 12:00-1:15pm, MAP 359 <br />
14        <p />
15        <strong>Course Description: </strong> Digital libraries, Media formats, Compression:
16        Mobile Internet and WML, Emerging technologies. Capacity planning for web service:
17        <p />
18        <strong>Prerequisites: </strong>
19        <ul>
20          <li> CNT 3004 and,</li>
21          <li> COP 3330</li>
22        </ul>
23      </div>
24    </body>
```

Hyper Text Mar length : 871 lines : 27

Ln:13 Col:81 Sel:0

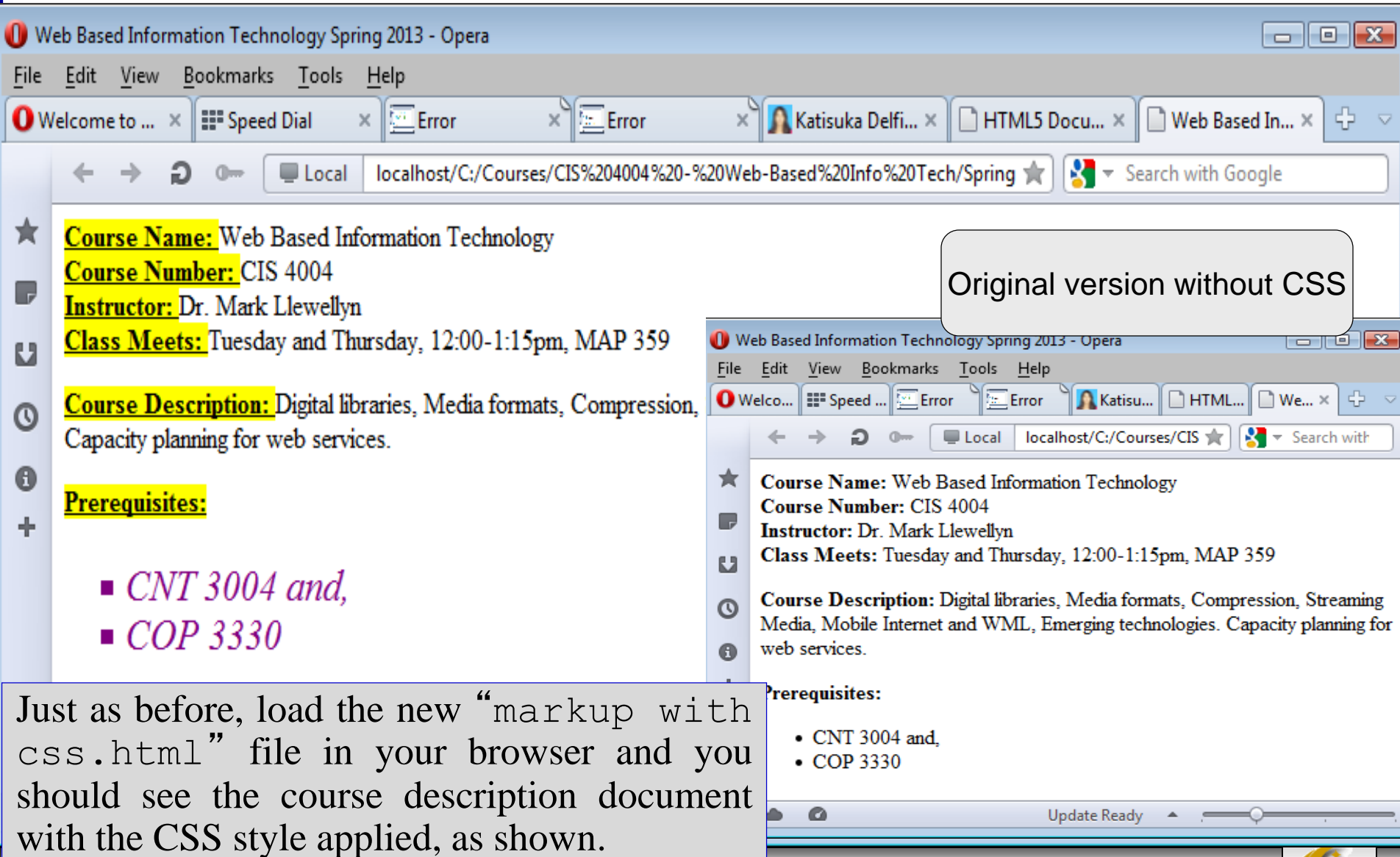
UNIX

ANSI

INS



Viewing the XHTML With CSS



The screenshot shows the Opera browser displaying a course page. The page content is as follows:

Course Name: Web Based Information Technology
Course Number: CIS 4004
Instructor: Dr. Mark Llewellyn
Class Meets: Tuesday and Thursday, 12:00-1:15pm, MAP 359

Course Description: Digital libraries, Media formats, Compression, Capacity planning for web services.

Prerequisites:

- *CNT 3004 and,*
- *COP 3330*

A callout box on the right side of the page contains the text: "Original version without CSS".

Below the main screenshot, a smaller screenshot shows the same page without CSS styling. The text is plain and unformatted:

Course Name: Web Based Information Technology
Course Number: CIS 4004
Instructor: Dr. Mark Llewellyn
Class Meets: Tuesday and Thursday, 12:00-1:15pm, MAP 359

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

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 HTML5 document without changing the HTML5 markup. Using the same HTML5 file from Example 1, we'll make another linked style sheet, this time called `secondCSS.css`. We'll change the way the various HTML5 elements that appear in our document are presented by using different CSS rules to style the same document.



secondCSS.css

```
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  }
```



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.

```
1 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <title>Web Based Information Technology Spring 2013</title>
5     <link rel="stylesheet" href="secondCSS.css" type="text/css" />
6   </head>
7   <body>
8     <div>
9       <strong>Course Name: </strong> Web Based Information Technology<br />
10      <strong>Course Number: </strong> CIS 4004 <br />
11      <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
12      <strong>Class Meets: </strong> Tuesday and Thursday, 12:00-1:15pm, MAP 359 <br />
13      <p />
14      <strong>Course Description: </strong> Digital libraries, Media formats, Compression:
15      Mobile Internet and WML, Emerging technologies. Capacity planning for web service:
16      <p />
17      <strong>Prerequisites: </strong>
18      <ul>
19        <li> CNT 3004 and,</li>
20        <li> COP 3330</li>
21      </ul>
22    </div>
23  </body>
24 </html>
```

Hyper Text Mar length : 860 lines : 26

Ln : 24 Col : 8 Sel : 0

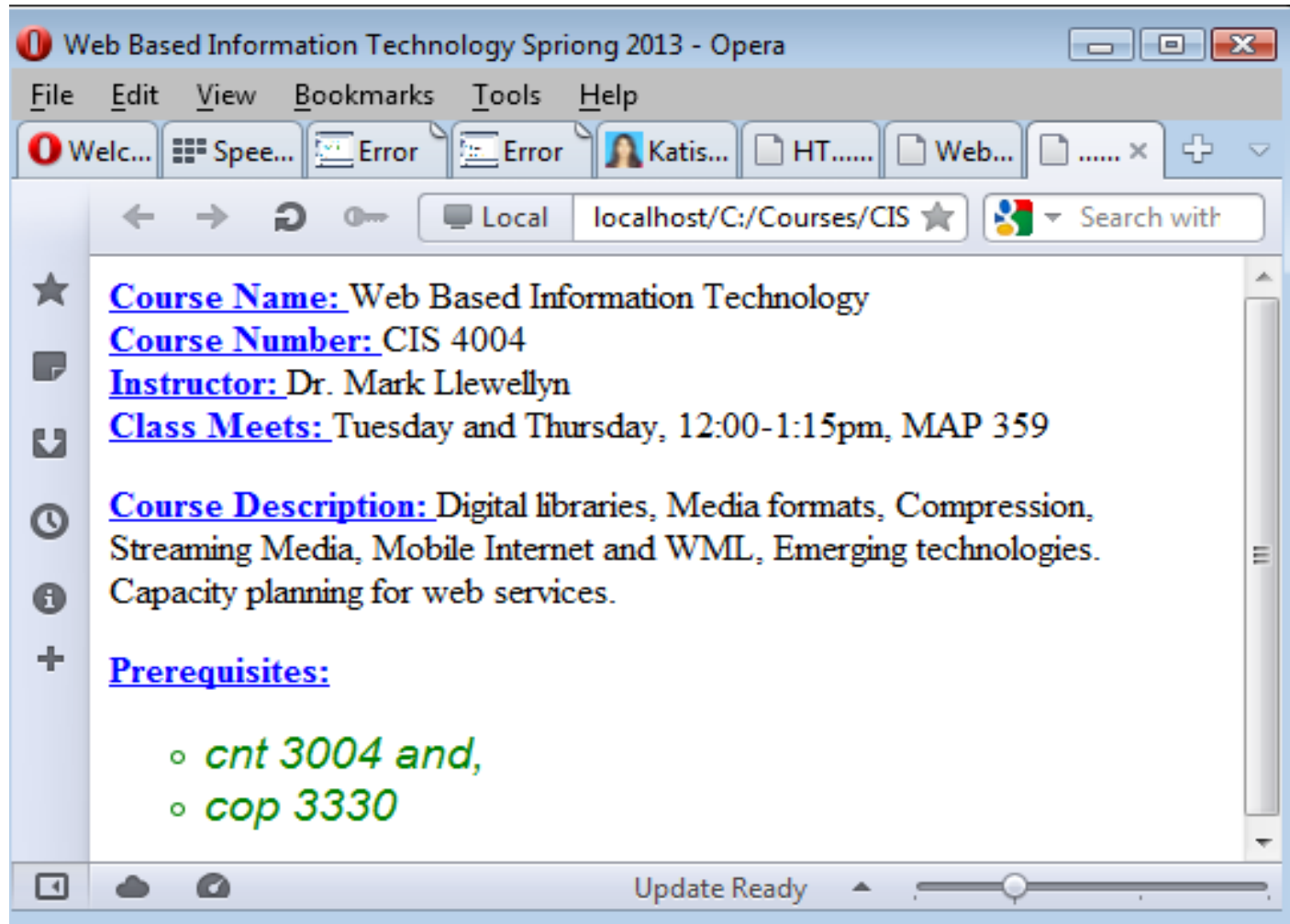
UNIX

ANSI

INS



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



CSS Example 3

- Using the same HTML5 file from Example 2, this time we'll use the global style sheet form, in which the style definitions are contained within the HTML5 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 <head>
4 <title>Web Based Information Technology Spring 2013</title>
5 <style type="text/css">
6 <!--
7     strong {
8         font-weight:bold;
9         text-align:right;
10        text-decoration:underline;
11        color:blue;
12    }
13    li {
14        font-style:italic;
15        font-size:14pt;
16        color:green;
17    }
18    ul {
19        list-style-type:circle;
20        font-family:arial;
21        font-variant:normal;
22        text-transform:lowercase;
23    }
24    -->
25 </style>
26 </head>
```

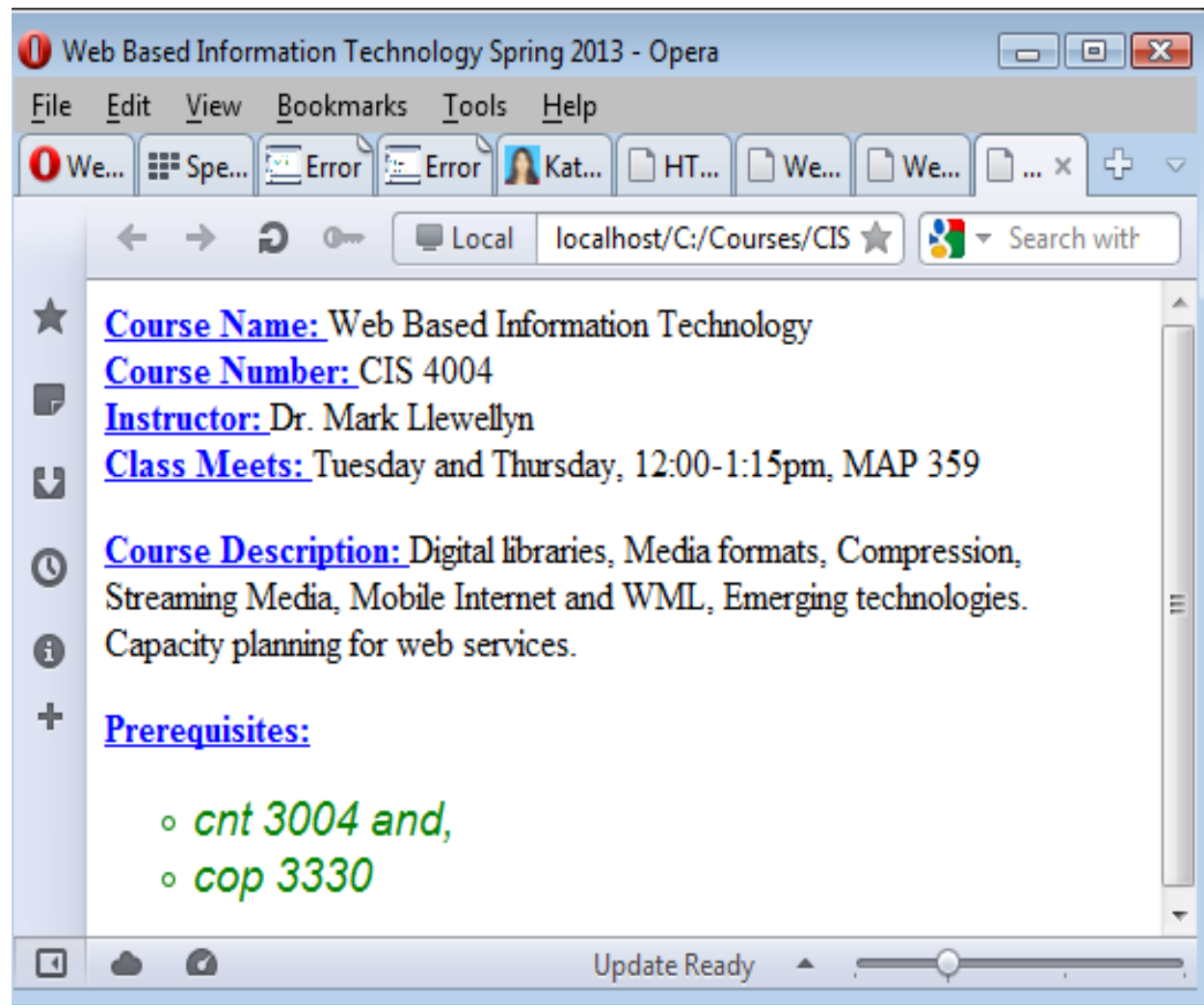
Global style sheet format – embedded in HTML5 document.



Viewing the HTML5 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

C:\Courses\CIS 4004 - Web-Based Info Tech\Spring 2013\code\CSS\CSS - Part 1\thirdCSS.css

File Edit Search View Encoding Language Settings Macro Run TextFX



CH08_SaleCo2.SQL schedule.dat utxplan.sql markup with css using thirdCS

```
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 }
```

length: 558 lines: 20 Ln: 1 Col: 1 Sel: 0

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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 <!DOCTYPE html>
2 <html lang="en">
3   <head>
4     <title>Web Based Information Technology Spring 2013</title>
5     <link rel="stylesheet" href="thirdCSS.css" type="text/css" />
6   </head>
7   <body>
8     <div>
9       <strong>Course Name: </strong> Web Based Information Technology<br />
10      <strong>Course Number: </strong> CIS 4004 <br />
11      <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
12      <strong>Class Meets: </strong> Tuesday and Thursday, 12:00-1:15pm, MAP 359 <br />
13      <p />
14      <strong>Course Description: </strong> Digital libraries, Media formats, Compression, Str
15      Mobile Internet and WML, Emerging technologies. Capacity planning for web services.
16      <p />
17      <strong>Prerequisites: </strong>
18      <ul>
19        <li> CNT 3004 and,</li>
20        <li> COP 3330</li>
21      </ul>
```

Hyper Text Markup Lang length : 858 lines : 26

Ln : 12 Col : 81 Sel : 0

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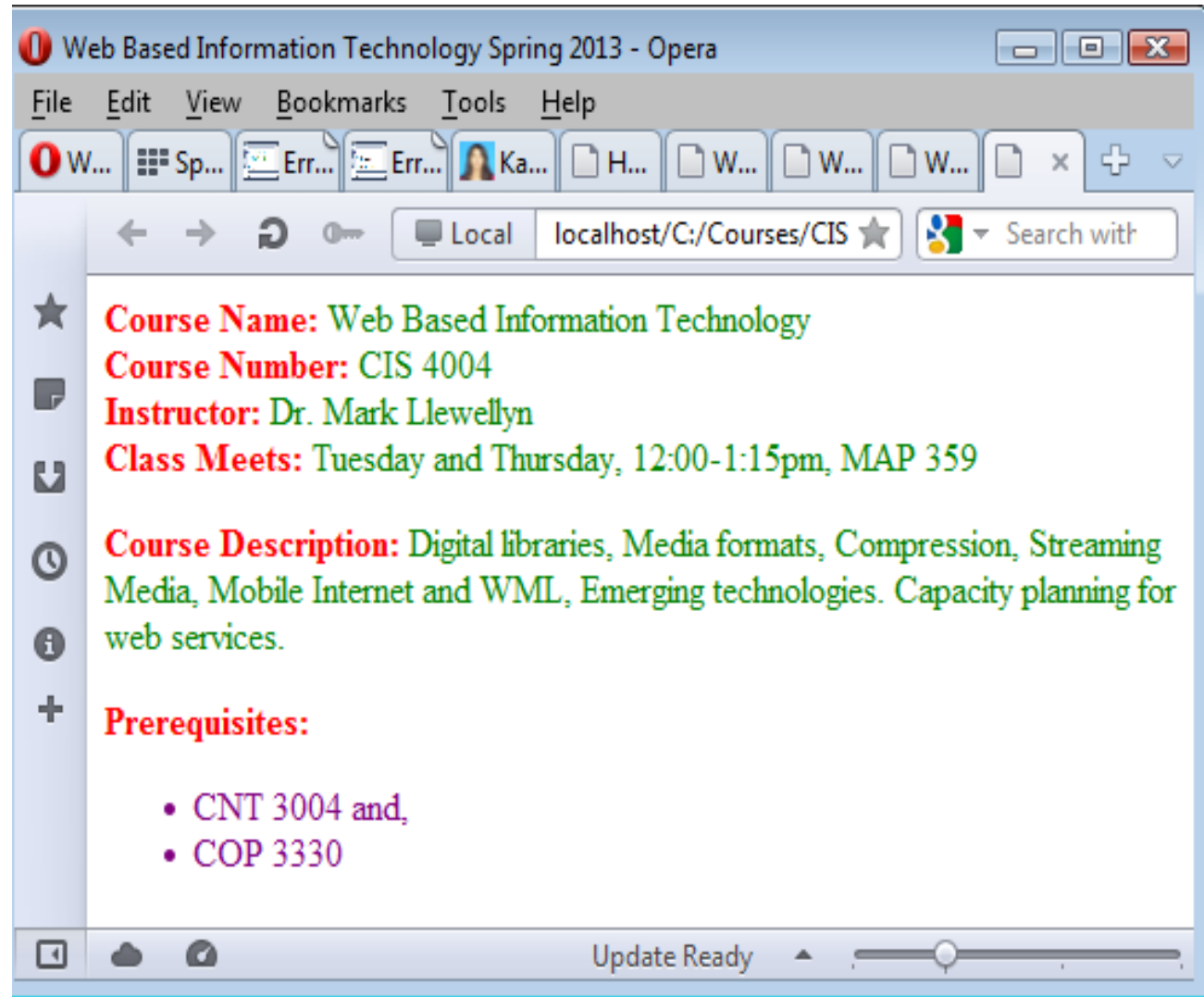


Viewing the HTML5 With CSS

Just as before except using the style sheet "thirdCSS.css:.

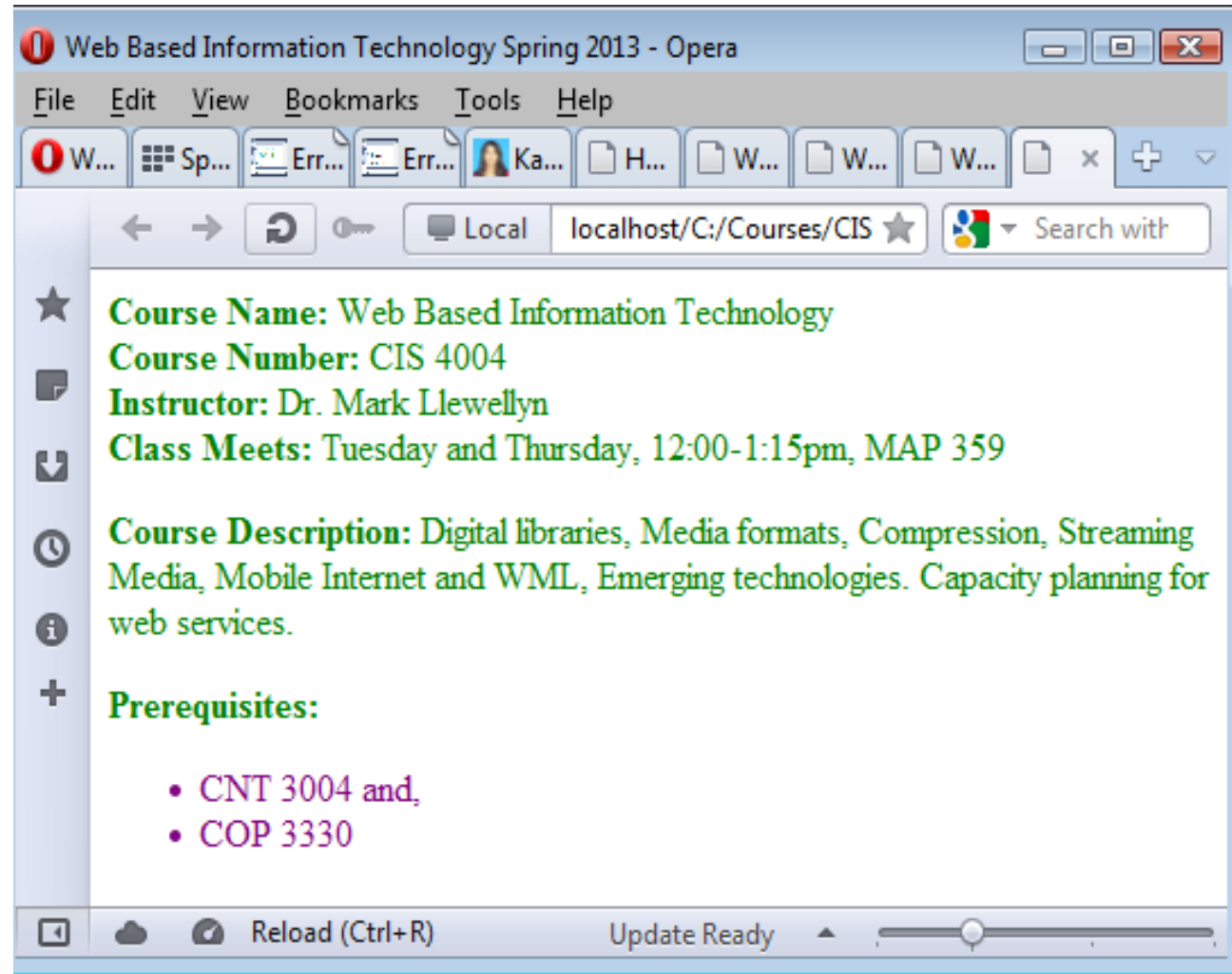
Note that all the text is green except for that in the list elements which was overridden by the `` declarations and the strong elements which were overridden by the `` declarations in `thirdCSS.css`.

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



Viewing the HTML5 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 HTML5 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.html` file for our course description (see page 27, HTML5).
- 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
```



fourthCSS.css (second part)

```
16 }
17 /* define specific properties for the <p> element with the class name of des
18 p.description {
19     color: #000099;
20     background-color: #cccccc;
21     font-style: italic;
22 }
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
```



```

1  <!DOCTYPE html>
2  <html lang="en">
3    <head>
4      <title>Web Based Information Technology Spring 2013</title>
5      <link rel="stylesheet" href="fourthCSS.css" type="text/css" />
6      <style type="text/css">
7        <!--
8          h1{
9            font-size:30pt;
10           text-align:center;
11           font-style:italic;
12          }
13          h2{
14            font-size:18pt;
15            text-align: left;
16            font-style: italic;
17          }
18          h3{
19            font-size:16pt;
20            text-align: left;
21            font-style: italic;
22          }
23        -->
24      </style>
25    </head>

```

markup with fourthCSS.html
(first part)




```
*C:\Courses\CIS 4004 - Web-Based Info Tech\Spring 2013\code\CSS\CSS - Part 2\markup with fourthCSS.html - Notepad++
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CH08_SaleCo2.SQL schedule.dat utbxplan.sql fourthCSS.css markup with fourthCSS.html
22     }
23     →
24     </style>
25 </head>
26 <body>
27     <h1>Course Description</h1>
28     <div class="box">
29     <div class="right"><strong>Course Name: </strong> <span style="color:red">Web Base<
30         <strong>Course Number: </strong> CIS 4004 <br />
31         <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
32         <strong>Class Meets: </strong>Tuesday and Thursday, 12:00-1:15pm, MAP 359<br />
33     </div>
34     <h2 id="identifier">Course Description: </h2>
35     <p class="description">Digital libraries, Media formats, Compression, Streaming Me
36         Mobile Internet and WML, Emerging technologies. Capacity planning for web serv
37     </p>
38     <h3>Prerequisites: </h3>
39     <ul>
40         <li> CNT 3004 and,</li>
41         <li> COP 3330</li>
42     </ul>
43 </body>
44 </html>
45
46
```

markup with fourthCSS.html
(second part)



Web Based Information Technology Spring 2013 - Opera

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Course Description

Course Name: **Web Based** Information Technology

Course Number: CIS 4004
Instructor: Dr. Mark Llewellyn
Class Meets: Tuesday and Thursday, 12:00-1:15pm, MAP 359

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

Update Ready



Property Inheritance

- We looked at nesting elements in the HTML5 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 HTML5 document.





```
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





```

1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>Web Based Information Technology Spring 2013</title>
5      <link rel="stylesheet" href="inheritance.css" type="text/css" />
6  </head>
7  <body>
8      <div>
9          <strong>Course Name: </strong> Web Based Information Technology<br />
10         <strong>Course Number: </strong> CIS 4004 <br />
11         <strong>Instructor: </strong> Dr. Mark Llewellyn <br />
12         <strong>Class Meets: </strong> Tuesday and Thursday, 12:00-1:15pm, MAP 359 <br />
13         <p />
14         <strong>Course Description: </strong> Digital libraries, Media formats, Compression
15         Mobile Internet and WML, Emerging technologies. Capacity planning for web services
16         <p />
17         <strong>Prerequisites: </strong>
18         <ul>
19             <li> CNT 3004 and,</li>
20             <li> COP 3330</li>
21         </ul>
22     </div>
23 </body>
24 </html>
25

```



Course Name: Web Based Information Technology
Course Number: CIS 4004
Instructor: Dr. Mark Llewellyn
Class Meets: Tuesday and Thursday, 12:00-1:15pm, MAP 559

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.

Course Description: Digital libraries, Metadata Compression, Streaming Media, Mobile In Emerging technologies. Capacity planning for web services.

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

Prerequisites:

- CNT 3004 and,
- COP 3330

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

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