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Web Technologies and Programming

Lecture 12

Introduction to Cascading Style-sheets (CSS)

Summary of previous lecture

- **New attributes to existing form elements**
  - **The required attribute**
  - **The placeholder attribute**
  - **The pattern attribute (Writing Regular Expression)**
  - **The disabled attribute**
  - **The read only attribute**
  - **The autocomplete attribute**
  - **New form elements in HTML5**

Summary of previous lecture

- New form elements in HTML5
  - The datalist element
  - Email element
  - Date element
  - Number element
  - Color element

- XHTML is the strict form of HTML

Outline

- **Understand the basics of CSS (Cascading Style Sheets)**
- **Understand the differences among inline, internal and external style sheets**
- **Understand the difference between ids and classes.**
- **Understand how to declare a style.**

1. Cascading style sheets

- CSS is a stylesheet language that describes the presentation of an HTML (or XML) document.

- CSS describes how elements must be rendered on screen, on paper, or in other media.

1. Cascading style sheets

- Created by Hakon Lie of MIT in 1994
- Has become the W3C standard for controlling visual presentation of web pages
- Cascading style-sheets are powerful mechanism to add style to web document
- Enforce standards and uniformity
- Create dynamic effects
- Works by allowing you to specify rules

1. Cascading Style Sheet

- All web pages can be broken down into bucketed content areas
- We can change the presentation styles of these areas.
- We can update these areas by changing the code on every page

- or -

- We can use cascading style sheets!

1. Cascading Style Sheet

- CSS (Cascading Style Sheets) is a style sheet language that describes the presentation style of an HTML Page.
- It describes how HTML elements must be rendered/displayed on screen.

1.1 Versions of CSS

- **CSS 1 - Released in 1996**
  - Spotty Netscape 4.x support
    - Netscape pushed their own style sheet language
  - IE 4.x was fully CSS1 compliant
  - Result: if you have users using Netscape 4.x then use CSSes with care!
    - Always test with both browsers!
  - Limitations of CSS1
    - Has almost no support for tables
    - Makes no provision for downloadable fonts
    - Lack of media types

1.1 Versions of CSS

- **CSS 2**
  - **Released in 1998**
  - Extends CSS1
  - **IE 5.x+** supports most, but not all CSS2 features
  - **Netscape 6.x** claims “unsurpassed support” for CSS1 and CSS2
  - **Mozilla 1.x** is generally considered to have the best CSS support

1.1 Versions of CSS

- CSS 3
  - **Draft Published in 1999,** Released in 2012.
  - **Backward Compatible** with CSS2 and CSS1.
  - **CSS3 has been split into different modules.**
  - **It also contains Old CSS** Specification. But some old CSS tags has been removed in this version.
  - **Fully Supported** in only modern browsers like Google Chrome, Internet Explorer 11 etc.

1.2 Why use CSS ?

- **Separation of document from presentation.**
- **Saves time.**
- **Consistency**
- **Easy to change.**
- **Keep consistency.**
- **Rich Design and Layout**
- **Give you more control over layout.**
- **Accessibility.**
- **Use styles with JavaScript.**
- **Make it easy to create a common format for all the Web pages.**

1.2 Disadvantages of CSS ?

- The only disadvantage that can be assigned to CSS is non-compatibility with all internet browsers
- Surveys says that today 85% of users are able to see pages that use CSS, while the others are not

2. CSS Syntax

- **The general syntax is:**
  - **selector {property: value}**
  - **or**
  - **selector, ..., selector {**

    ```
    selector, ..., selector {
        property: value;
        . . .
        property: value
    }
    ```
- **where**
- **selector is the tag to be affected (the selector is case-sensitive if and only if the document language is case-sensitive)**
- **property and value describe the appearance of that tag**
- **spaces after colons and semicolons are optional**
- **a semicolon must be used between property:value pairs, but a semicolon after the last pair is optional**
- **if the value is multiple words, put quotes around the value**

2. CSS Syntax

- CSS syntax is very simple -- it’s just a file containing a list of selectors (to choose tags) and descriptors (to tell what to do with them):
  - Example: h1 {color: green; font-family: Verdana} says that everything included in h1 (HTML heading level 1) tags should be in the Verdana font and colored green
- A CSS file is just a list of these selector/descriptor pairs
  - Selectors may be simple HTML tags or XML tags, but CSS also defines some ways to combine tags
  - Descriptors are defined in CSS itself, and there is quite a long list of them

2. CSS Syntax (Examples)

- /* This is a comment */
- h1,h2,h3 {font-family: Arial, sans-serif;}   /* use 1st available font */
- p, table, li, address {   /* apply to all these tags */
  font-family: "Courier New";   /* quote values containing spaces
  */
  margin-left: 15pt;   /* specify indentation */
  }
- p, li, th, td {font-size: 80%;}   /* 80% of size in containing element */
- th {background-color:#FAEBD7}   /* colors can be specified in hex */
- body { background-color: #ffffff;}
- h1,h2,h3,hr {color:brown;}   /* adds to what we said before */
- a:link   {color:darkred}   /* an unvisited link */
- a:visited {color:darkred}   /* a link that has been visited */
- a:active {color:red}   /* a link now being visited */
- a:hover   {color:red}   /* when the mouse hovers over it */

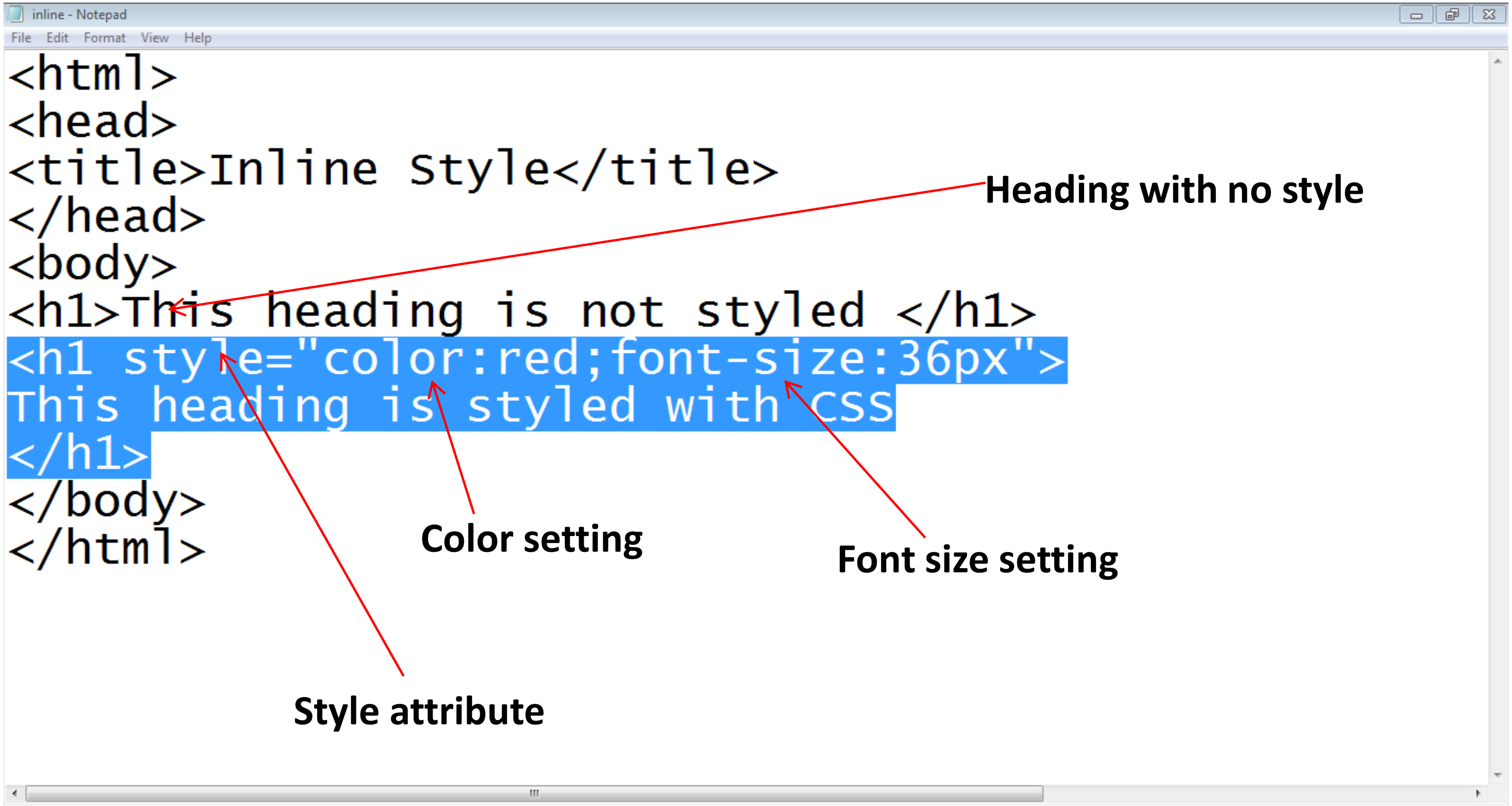
3. Writing Style Sheets

- In-line styles
- Embedded/internal styles
- External style sheet

3.1 In-line Styles

- Inline styles
  - Add styles to each tag within the HTML file
  - Use it when you need to format just a single section in a web page
  - Style attribute is used to add style
- Example
  - <h1 style="color:red; font-family: sans-sarif" > IU </h1>

3.1 In-line Styles…



```
<html>
<head>
<title>Inline Style</title>
</head>
<body>
<h1>This heading is not styled </h1>
<h1 style="color:red;font-size:36px">
This heading is styled with CSS
</h1>
</body>
</html>
```

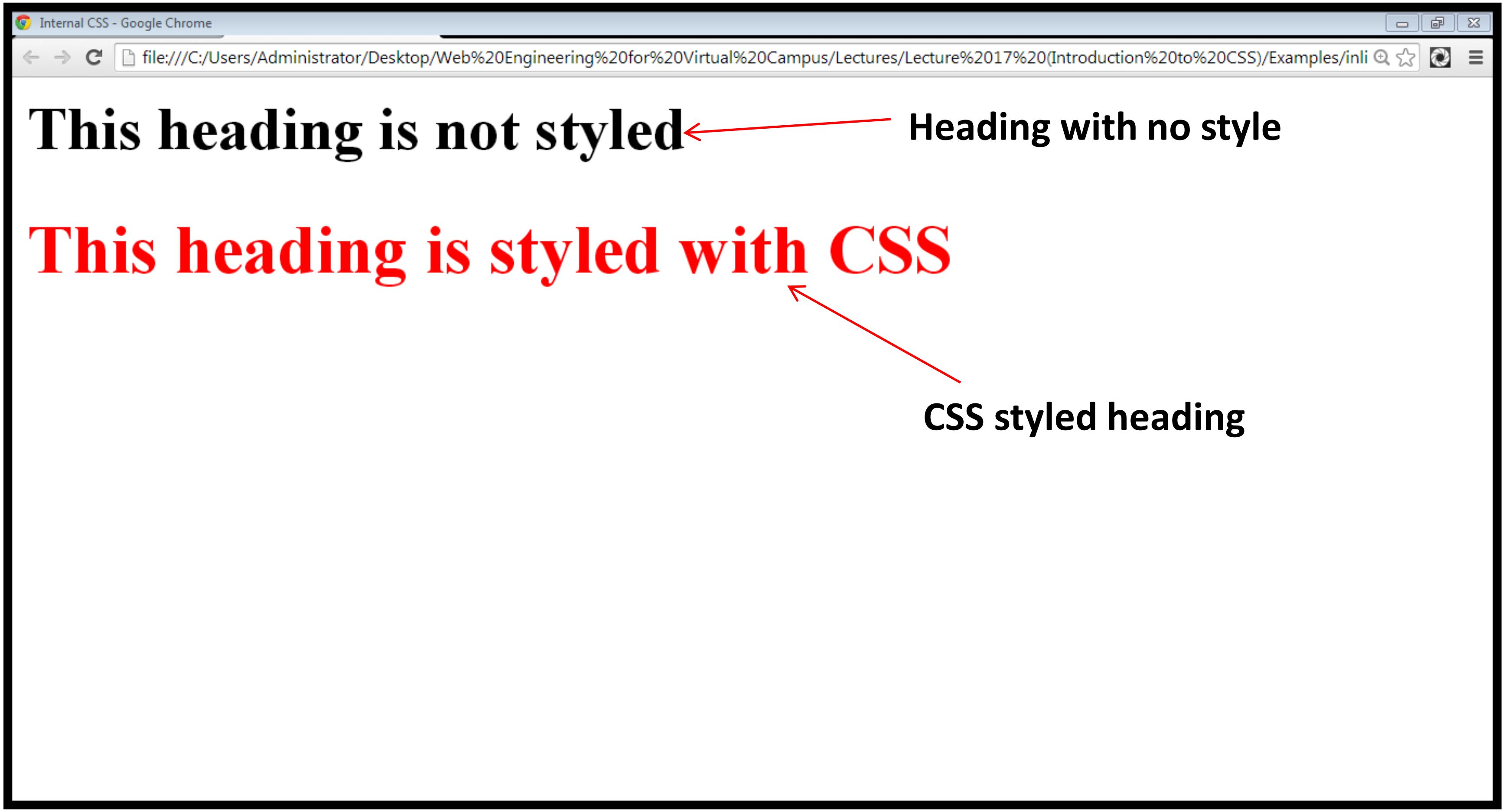
Heading with no style

Color setting

Font size setting

Style attribute

3.1 In-line Styles…



Internal CSS - Google Chrome
file:///C:/Users/Administrator/Desktop/Web%20Engineering%20for%20Virtual%20Campus/Lectures/Lecture%2017%20(Introduction%20to%20CSS)/Examples/inli

This heading is not styled

This heading is styled with CSS

Heading with no style

CSS styled heading

3.1 In-line Styles

- **Advantage:**
  - Useful if you only want a small amount of markup
- **Disadvantages:**
  - Mixes display information into HTML
  - Clutters (mixed) up HTML code
  - Can’t use full range of CSS features since contextual selectors, for example, like lib{color:green} may not be specifiable inline.

3.1 In-line Styles

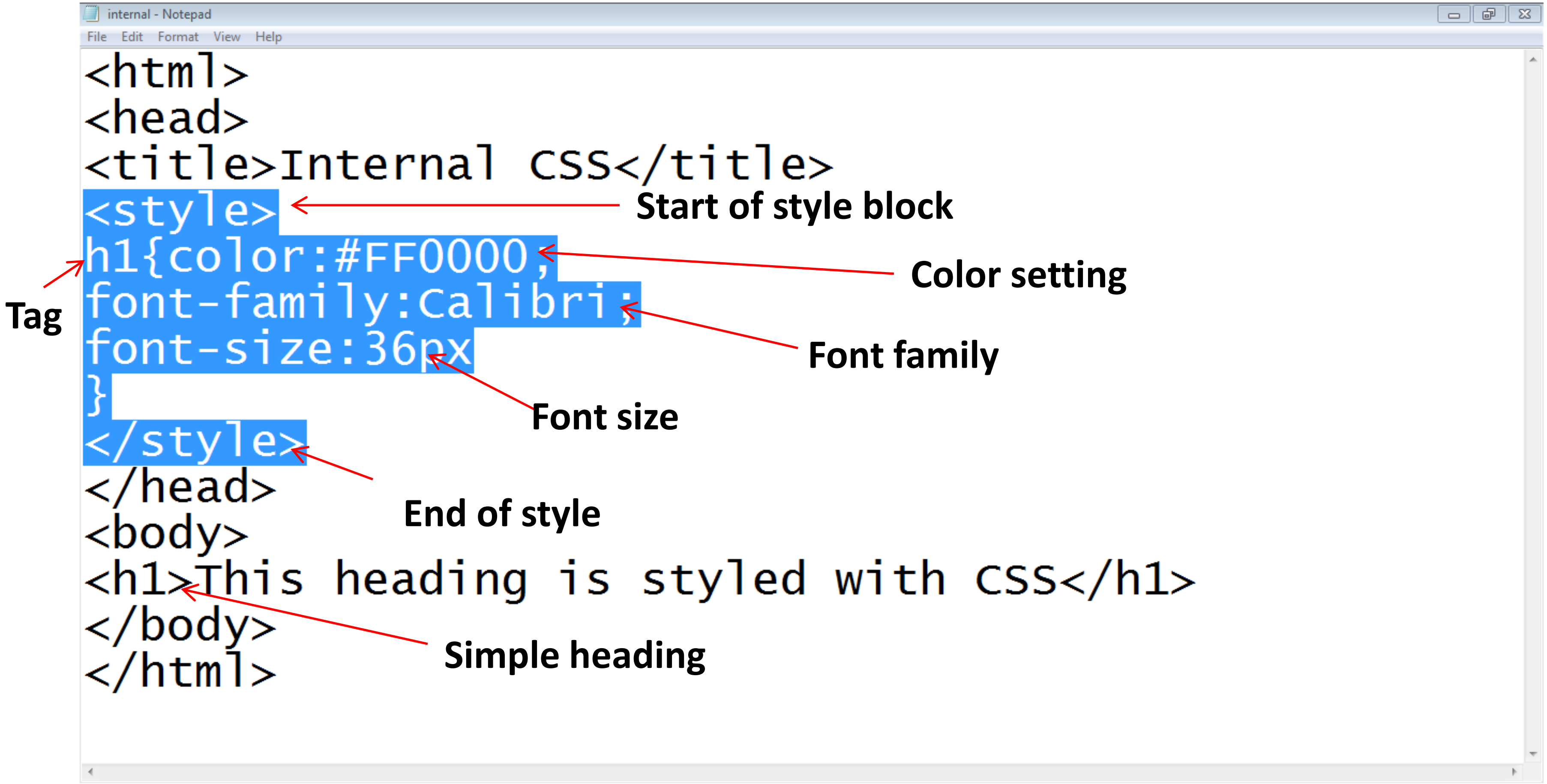
- **Disadvantages:**
  - **Handling multiple attributes**
    - **HTML:** Use one or more spaces or lines to separate attributes in the same tag
    - **CSS:** Separate attributes with a single semicolon (spaces and extra lines optional)
  - **Linking attributes with their values**
    - **HTML:** attribute=“attribute-value”
    - **CSS:** attribute:attribute-value

3.2 Internal Styles

- A style is applied to the entire HTML file
- Use it when you need to modify all instances of particular element (e.g., h1) in a web page
- Example

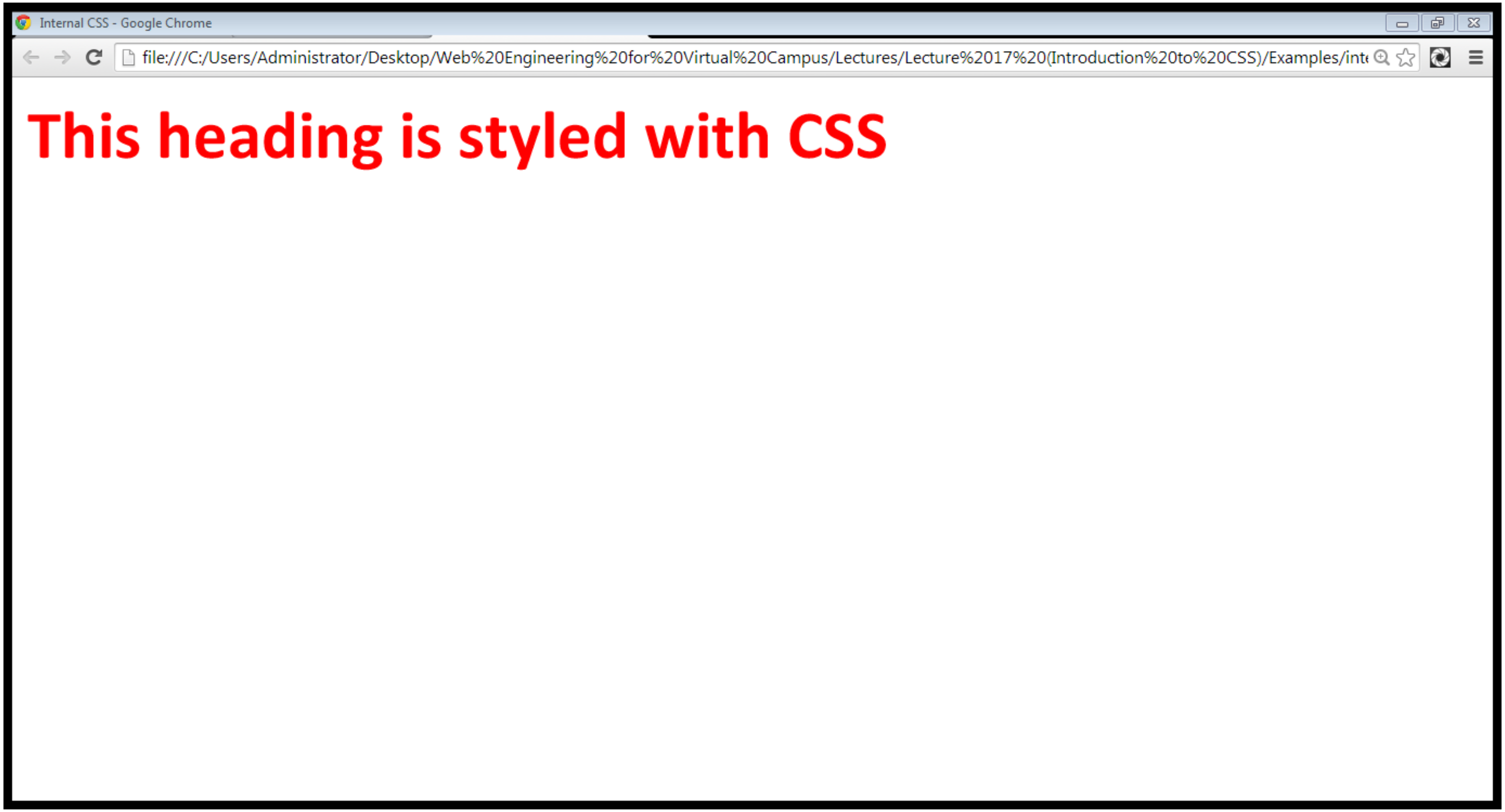
```
<style>
 h1 {color:red; font-family:sans-serif}
</style>
```

3.2 Internal Styles…



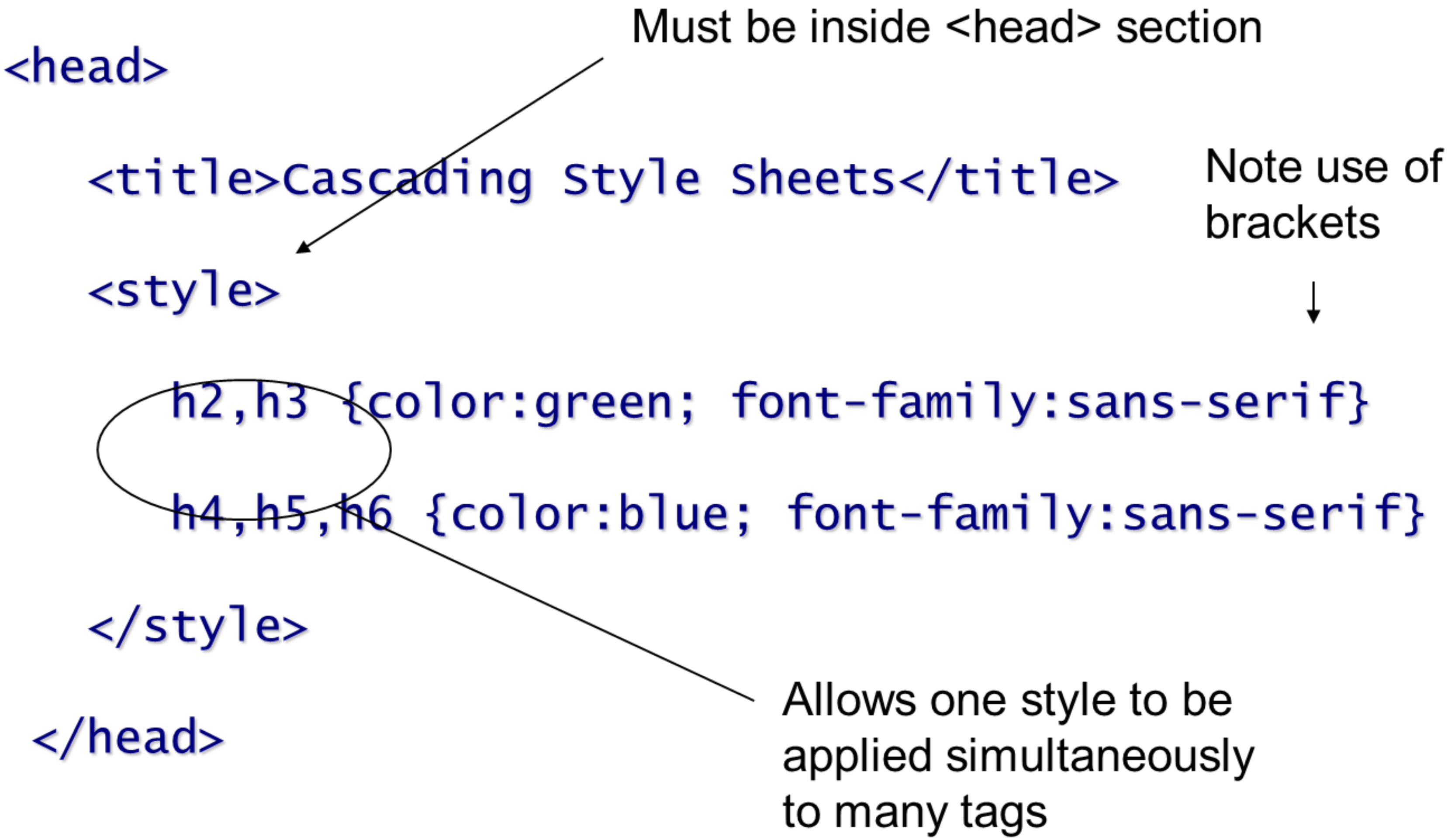
```
<html>
<head>
<title>Internal CSS</title>
<style>
h1{color:#FF0000;
font-family:Calibri;
font-size:36px
}
</style>
</head>
<body>
<h1>This heading is styled with CSS</h1>
</body>
</html>
```

3.2 Internal Styles…


Internal CSS - Google Chrome
file:///C:/Users/Administrator/Desktop/Web%20Engineering%20for%20Virtual%20Campus/Lectures/Lecture%2017%20(Introduction%20to%20CSS)/Examples/inte

This heading is styled with CSS

3.2 Internal Styles…



```
<head>
   <title>Cascading Style Sheets</title>
   <style>
      h2,h3 {color:green; font-family:sans-serif}
      h4,h5,h6 {color:blue; font-family:sans-serif}
   </style>
 </head>
```

Must be inside <head> section

Note use of brackets

Allows one style to be applied simultaneously to many tags

3.3 External Styles

- An external style sheet is a text file containing the style definition (declaration)
- Use it when you need to control the style for an entire web site
- Advantage: allows you to apply the same style easily to multiple HTML files
  - A convenient way to give a site a standard "look and feel"

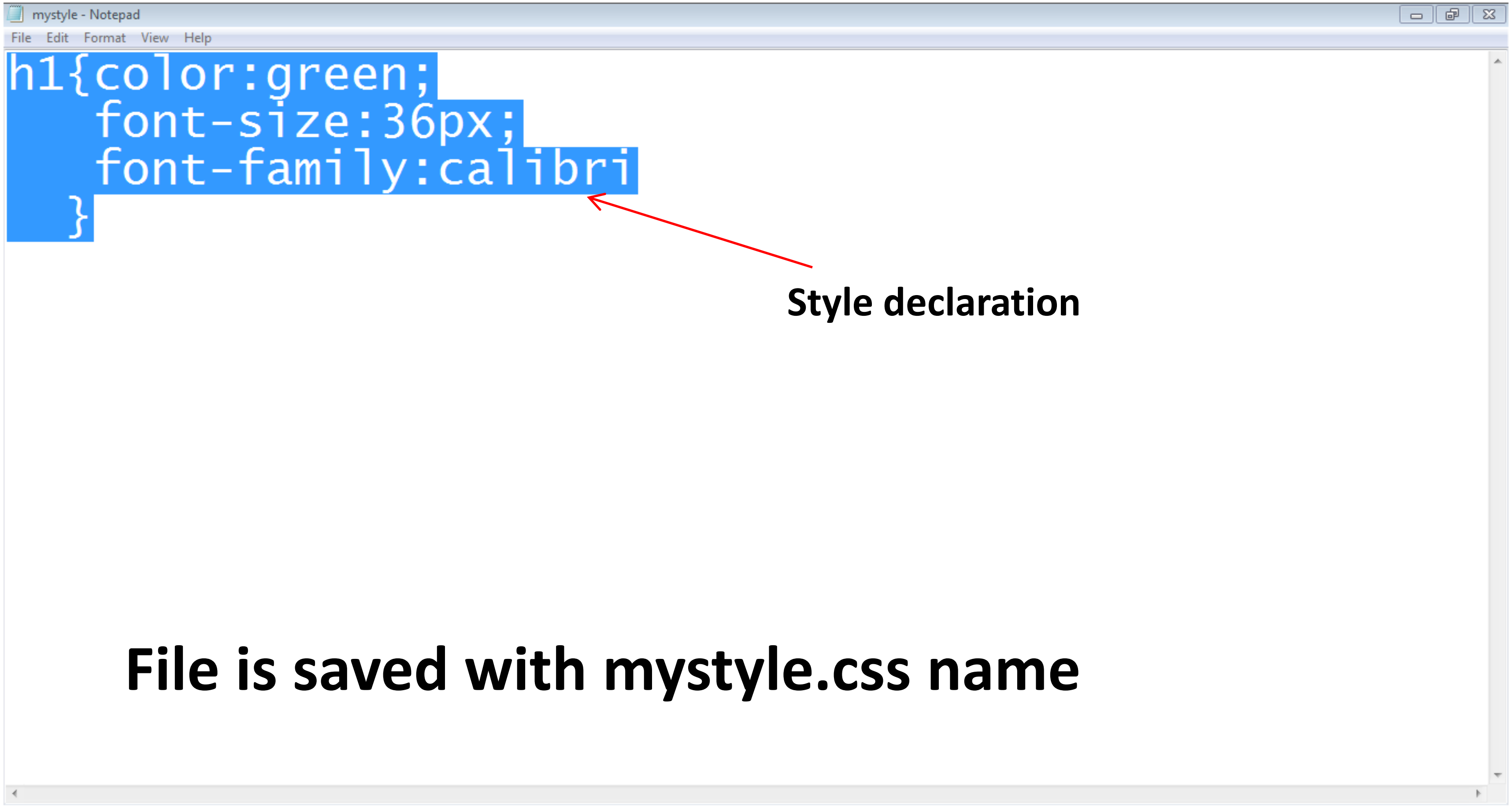
3.3 External Styles…

- Open a new blank document in Notepad
- Type style declarations
  - h1 {color:red; font-family:calibri;}
- Do not include <style> tags
- Save the document as <filename>.css

3.3 External Styles…

- Open an HTML file
- Between <head> and </head> add
  - <link href=URL rel="relation_type" type="link_type">
    - URL is the file.css
    - Relation_type="stylesheet"
    - Link_type="text/css"
- Save this file and the .css file in the same web server directory

3.3 External Styles…

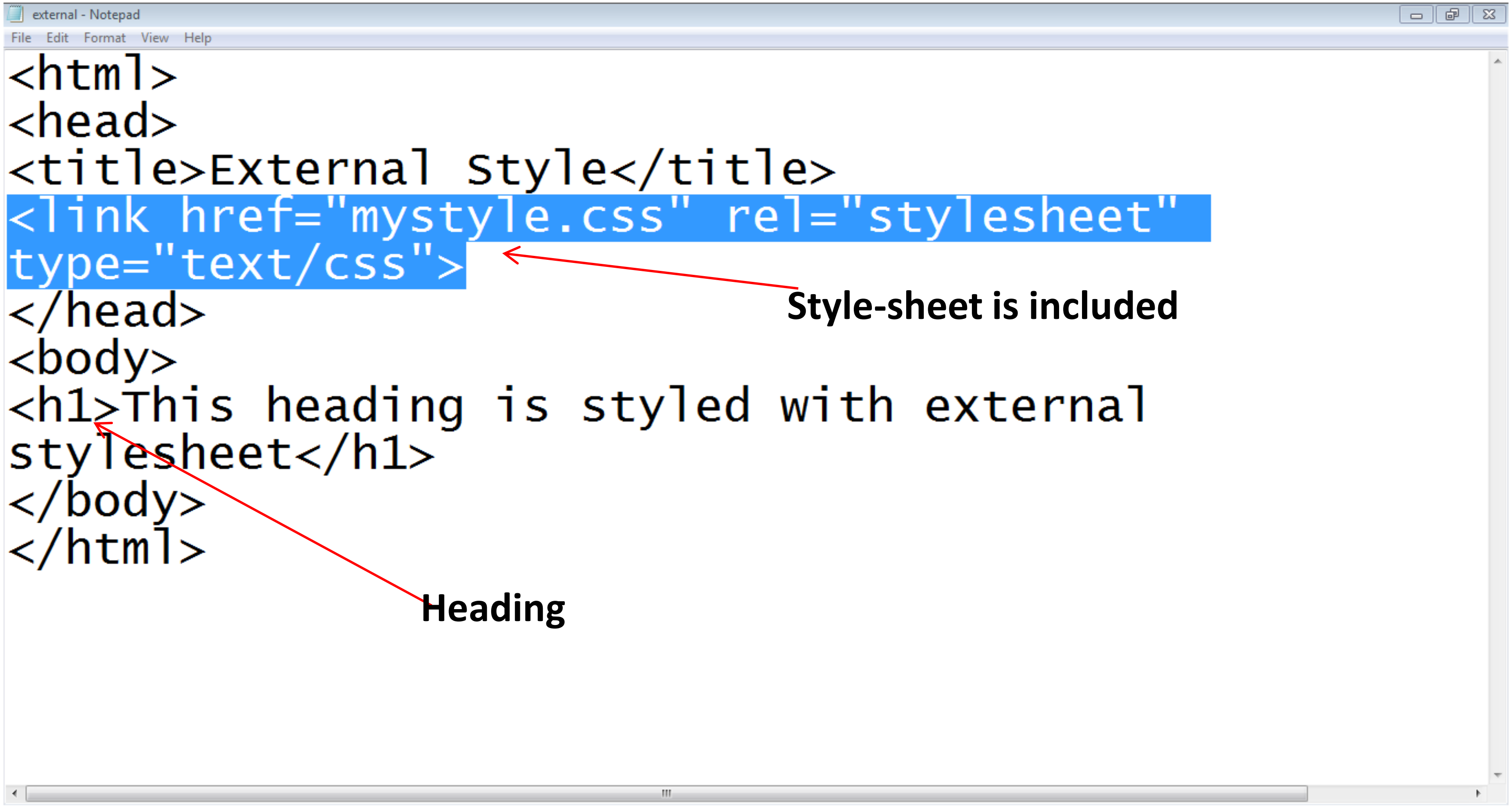


```
h1{color:green;
   font-size:36px;
   font-family:calibri
  }
```

Style declaration

File is saved with mystyle.css name

3.3 External Styles…

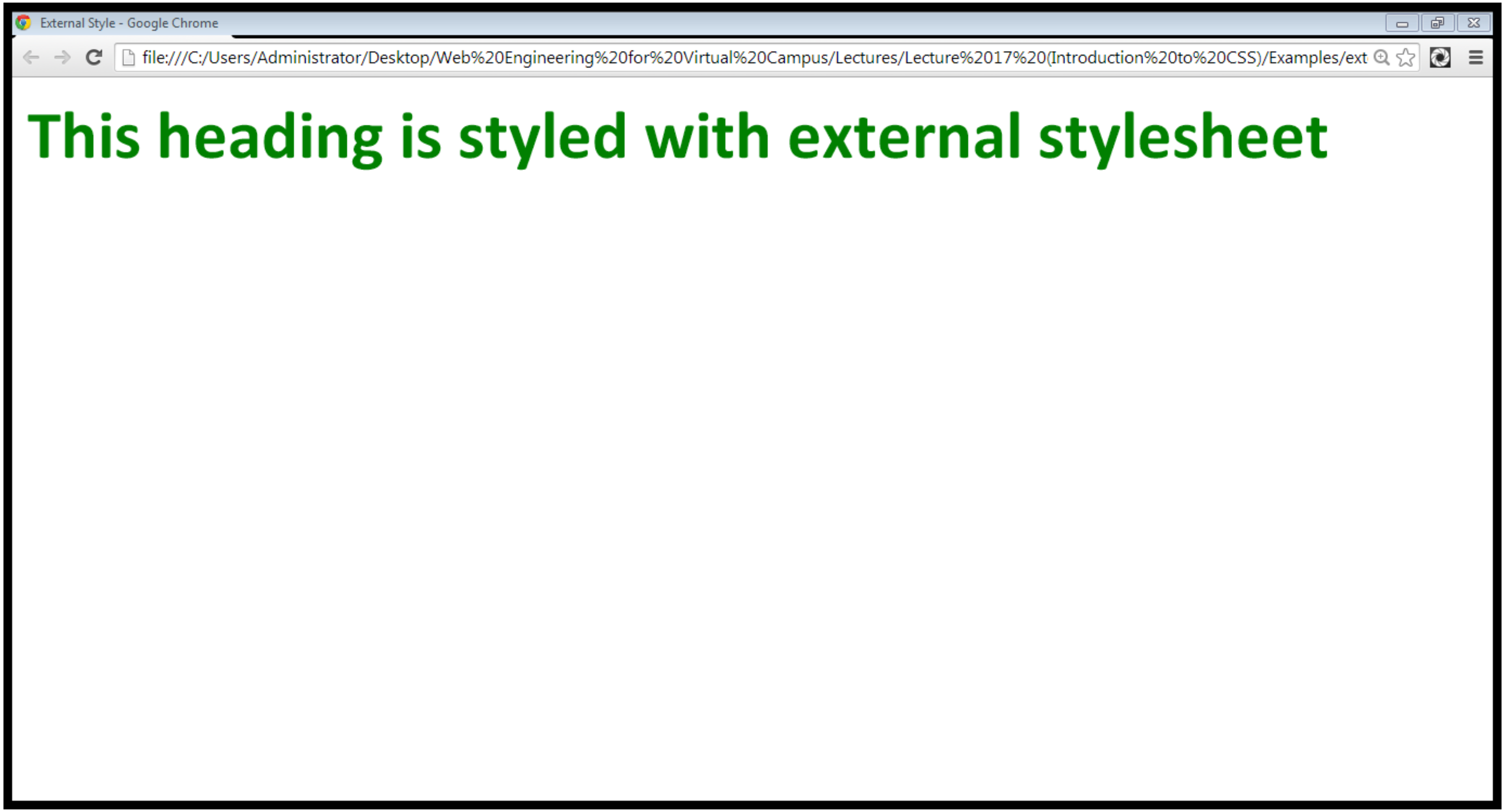


```
<html>
<head>
<title>External Style</title>
<link href="mystyle.css" rel="stylesheet"
type="text/css">
</head>
<body>
<h1>This heading is styled with external
stylesheet</h1>
</body>
</html>
```

Style-sheet is included

Heading

3.3 External Styles…



External Style - Google Chrome

file:///C:/Users/Administrator/Desktop/Web%20Engineering%20for%20Virtual%20Campus/Lectures/Lecture%2017%20(Introduction%20to%20CSS)/Examples/ext

This heading is styled with external stylesheet

3.4 External Styles Referencing…

- **Reference in your HTML**
  - `<link>` : HTML Tag
  - `@import : A Command`

3.4.1 Reference With <Link>

- **<link> can be used to reference external files other than a CSS**
- **Link syntax:**
  - <link href="url" rel="relation_type" type="link_type"> … </link>
- **Link attributes**
  - href: location of the external file
  - rel: must be "stylesheet" to tell HTML the link is for a stylesheet
  - type: usually "text/css", the MIME type needed to download the file

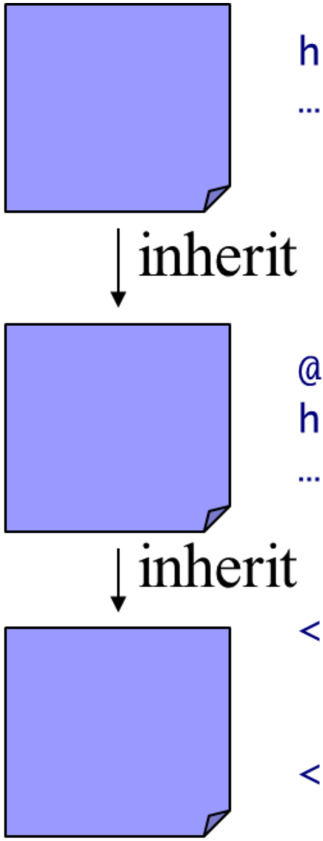
3.4.1 Reference With <Link>

```
<head>
        <title>Cascading Style Sheets</title>
        <link href="css-2.css" rel="stylesheet"
        type="text/css" />
</head>
```

3.4.2 Reference With @import

- Can be used in the <style> tag, or used in a .css file by itself as a CSS command
- **Essentially allows for multiple inheritance of style sheets attributes**
  - **For example**, a subside style sheet may override a general site style sheet
  - An HTML page may override the sub site's style sheet
- **Can’t be used with Netscape 4.x**
  - Supported by HTML 4.0 browsers only

3.4.2 Reference With @import



Site.css

```
h1 {color:brown; font-family:sans-serif}
… other styles ...
```

Subsite.css
(Inherits styles
and overrides
some styles)

```
@import url(Site.css)
h1 {color:green; font-family:Monotype}
… other styles ...
```

MyHTML.htm
(Inherits Subsite.css
styles and overrides
some styles)

```
<style>
   @import url(Subsite.css)
   h1 {color:red; font-family:cursive}
</style>
```

4. CSS Precedence Order.

- What style will be used when there is more than one style specified for an HTML element?
  - styles will "cascade" into a new "virtual" Style Sheet by the following rules (number four has the highest priority):
    - Browser default
    - External Style Sheet
    - Internal Style Sheet
    - Inline Style

5. Using Ides

- Use an id to distinguish something, like a paragraph, from the others in a document

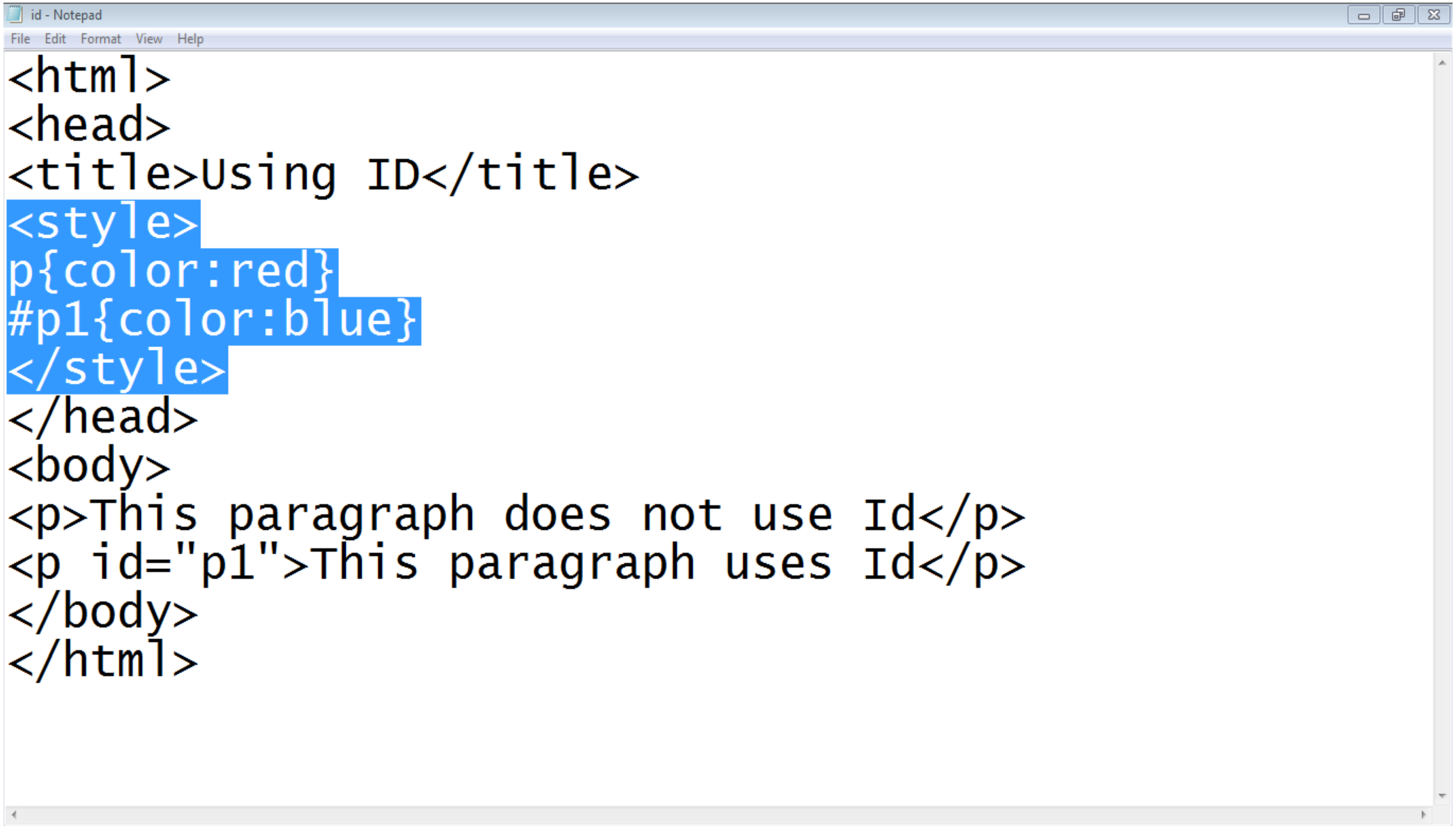
- The id selector is used to specify a style for a single, unique element

6. Using Ides…

- Create a style Id:
  - #iDonate {style attributes and values}

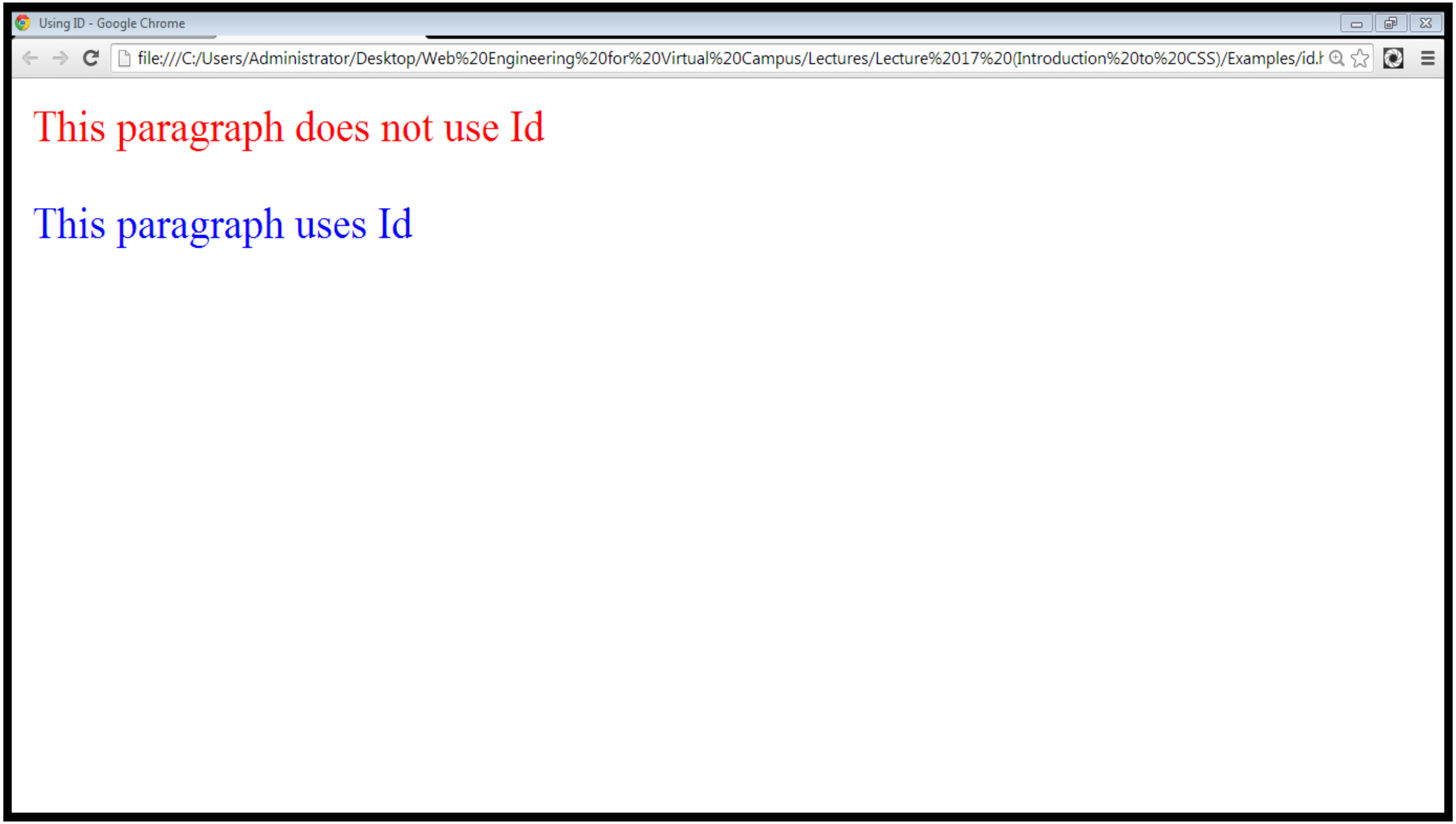
- Use a style Id:
  - <tag ID=id_name>

6. Using Id,s…



```
<html>
<head>
<title>Using ID</title>
<style>
p{color:red}
#p1{color:blue}
</style>
</head>
<body>
<p>This paragraph does not use Id</p>
<p id="p1">This paragraph uses Id</p>
</body>
</html>
```

6. Using Id,s…



file:///C:/Users/Administrator/Desktop/Web%20Engineering%20for%20Virtual%20Campus/Lectures/Lecture%2017%20(Introduction%20to%20CSS)/Examples/id.h

This paragraph does not use Id

This paragraph uses Id

7. Using Classes

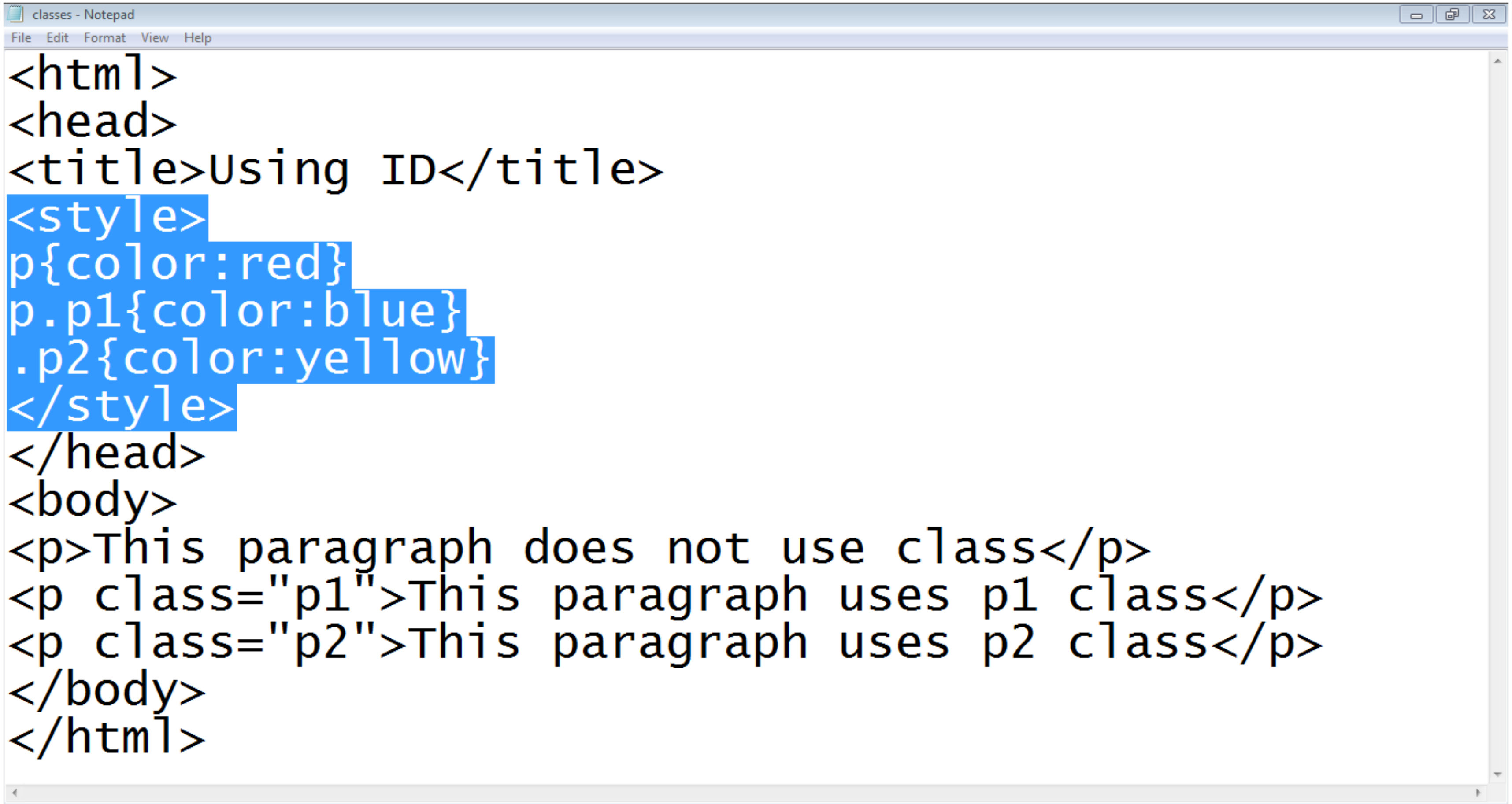
- HTML and XHTML require each id be unique– therefore an id value can only be used once in a document

- You can mark a group of elements with a common identifier using the class attribute

7. Using Classes…

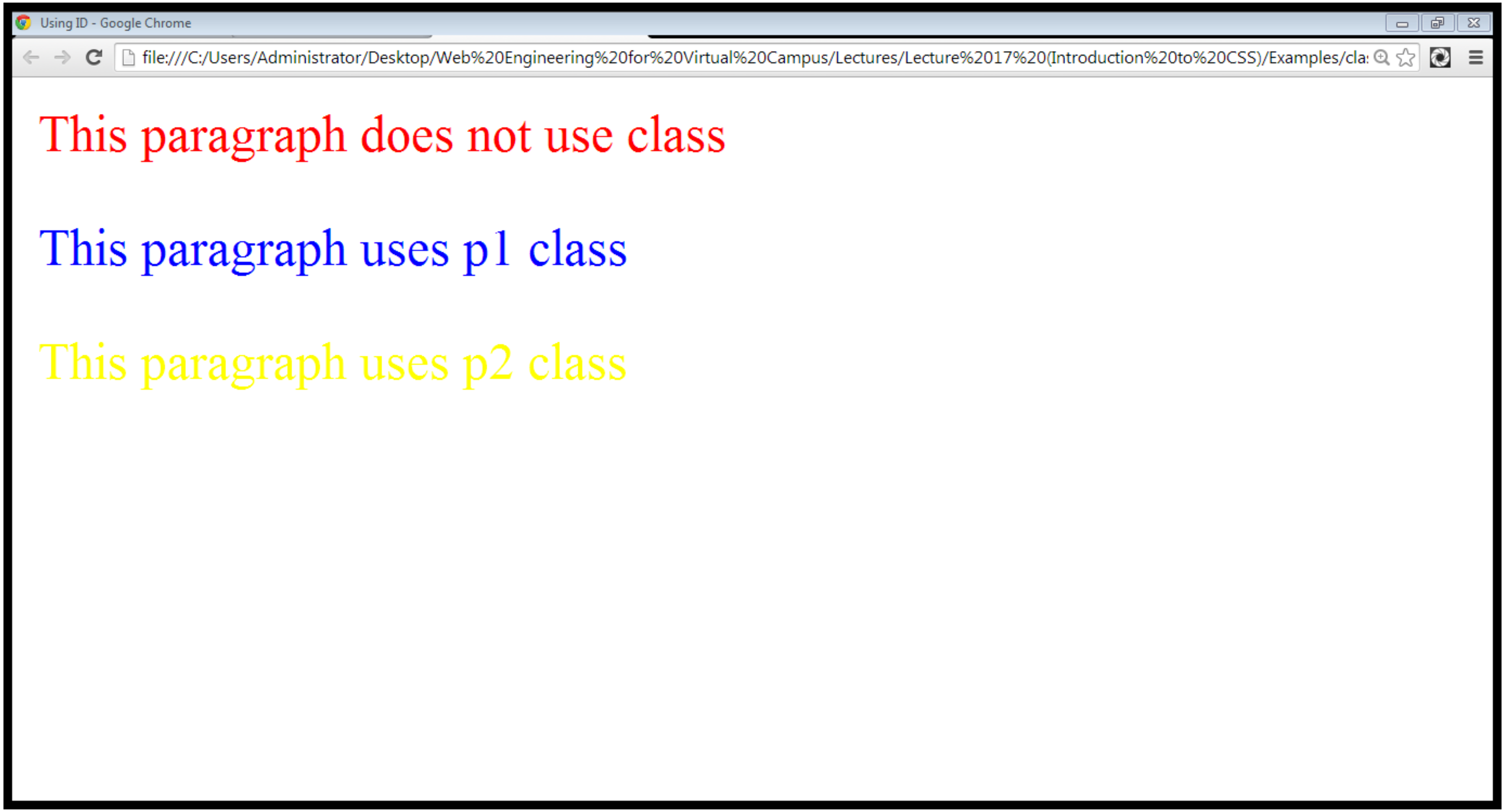
- To create a class
  - tag.class_name {style attributes} or
  - .class_name {style attributes}
- To apply a style
  - <tag CLASS=class_name>
    - <h1 CLASS=FirstHeader>IU</h1>

7. Using Classes…



```
<html>
<head>
<title>Using ID</title>
<style>
p{color:red}
p.p1{color:blue}
.p2{color:yellow}
</style>
</head>
<body>
<p>This paragraph does not use class</p>
<p class="p1">This paragraph uses p1 class</p>
<p class="p2">This paragraph uses p2 class</p>
</body>
</html>
```

7. Using Classes…


Using ID - Google Chrome
file:///C:/Users/Administrator/Desktop/Web%20Engineering%20for%20Virtual%20Campus/Lectures/Lecture%2017%20(Introduction%20to%20CSS)/Examples/cla:

This paragraph does not use class

This paragraph uses p1 class

This paragraph uses p2 class

8. Difference between classes and Id,s

- You can't have more than one tag with the same ID value
- You can apply the same Class value to multiple document tags
- Classes or Id?
  - use ID's for any elements that are simply used once on a page

    OR

  - only use classes to style websites, but, when you have to use an element in JavaScript, use an identifier

Summary

- **CSS stands for Cascading Style Sheets**
- **CSS describes how HTML elements are to be displayed on screen, paper, or in other media**
- **CSS saves a lot of work. It can control the layout of multiple web pages all at once**
- **External stylesheets are stored in CSS files**
- **CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.**

Summary

- **CSS basics**
- **Versions of CSS**
- **Advantages/Disadvantages of CSS**
- **CSS writing option**
    - External style sheet
    - Internal style sheet
    - Inline style
- **CSS rules**
- **Id,s and Classes**

THANK YOU