



Introduction to Internet Technology and Web Programming

Computer Science 103
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These notes are based on the lecture notes provided by [Professor Susan Worst](#).




Lecture 4-2

BU CS 103, Spring 2019



Today's Topics!

- ❖ More about Hyperlink tag
- ❖ Introduction to Cascading Style Sheets (CSS)



Assignments

- ❖ Deadlines
 - ✓ **Lab 2 Assignment:** due was today at 6 pm
 - ✓ **Lab 3 Challenge:** due tomorrow at midnight.
 - ✓ **Lab 3 Assignment:** due Wednesday Feb. 20 at 6pm.
- ❖ Let me know by email (vranjbar@bu.edu) if you have any problem with BlackBoard homework submission.



More about Hyperlink tag

1. Opening a Link in a New Tab or Window
2. In-Page Links
3. Mailto Links



1. Opening a Link in a New Tab or Window

- ❖ Using a new attribute called "**target**" **attribute** in the <a> tag

```
<a href="https://google.com" target="_blank">Google</a>
```

- ❖ What determines whether the link will open in a new tab vs. a new window?
 - ✓ It depends on the web browser
- ❖ What are advantages of opening a link in a new tab or window?
 - ✓ Your page stays open.
 - ✓ Some links are intended to be used as references.

2. In-Page Links

- ❖ A link can also send users to another part of the same page they are on.

- ❖ You can do it in two steps

- ✓ Mark the place on the page that you want to jump to by adding an id attribute "#id" to the tag.

- ✓ Add "#id" to the end of the href attribute of the link,

```
<h2 id="aboutme"> about me </h2>
```

.

.

.

```
<a href="name_of_the_HTML_page#aboutme"> Go to about me </a>
```

In-Page Links & Accessibility

- ❖ Many sites use in-page links to help screen reader users jump past the navigation menu to get to the main content.
- ❖ Usually the link text for such pages reads "Skip navigation" or "Skip to main content".
- ❖ Often these links are visible only to screen readers (or in the HTML code not in the browser).
 - ✓ hiding the content permanently with CSS
 - ✓ making the link the same color as the background
 - ✓ sizing the link to 0 pixels



3. Mailto Links

- ❖ When you want to send an electronic mail, you can use a "mailto" link tag.

`Email the CS 103 instructor`

- ❖ This only works if the user has a default email program, such as Apple Mail or Microsoft Outlook on the computer.



Time to experience!



Cascading Style Sheets

<http://www.csszengarden.com/>



A Cascading Style Sheet is ...

- ❖ a way to control the appearance of your web page
- ❖ a text file with a filename that ends in .css
- ❖ a file with a URL, just like an HTML web page
- ❖ a file that can be viewed in a web browser

Style sheets allow ...

- ❖ separation of design(form) and content
- ❖ to style many pages with one file
- ❖ easier updating of a website's design
- ❖ designers and content providers to work separately
- ❖ to optimize styles for different devices (mobile, tablet)

CSS Terminology

❖ HTML:

- ✓ **Tags** (elements) such as <a>, <p>, <html>, ...
 - **Attribute** such as href, src, height, alt, width, ...
- ✓ **Content** such as images and texts and videos, ...

❖ CSS:

- ✓ **Selector** – the object on the web page that you want to style
- ✓ **Property** – the visual characteristic (color, size, font) that you are setting
- ✓ **Value** – the specific value of that design characteristic
- ✓ **Unit** – for numerical values, the unit of measurement

A Sample CSS Syntax

- ❖ Lets style the top-level heading

✓ Selector
✓ Property
✓ Value
✓ Unit

h1 { margin: 1em; font-size: 64px; color: blue; }

↑ selector ↑ property ↑ value ↑ unit ↑ Separator between property and value ↑ Separator between two property-value pair ↑ Curly bracket

Selectors

- ❖ For Lab 3, we are focusing on using **HTML tags**(elements) as selectors
- ❖ In Lab 4, we will use the HTML **class and ID attributes** as selectors
- ❖ In Lab 6, we will learn about **pseudo-class selectors**, which are usually used to style hyperlinks

Connecting CSS and HTML

- ❖ There are **3** ways to style an HTML page:
 - 1. External style sheet (.css file)**
 - 2. Internal styling**
 - I. <style> tag in <head> of document
 - II. style attribute in individual HTML tags
- ❖ Method 1 is used in the vast majority of cases.
- ❖ In CS 103, we are going to use **external** style sheet

Method 1: External CSS

- ❖ This method allows you to apply the same styles to multiple web pages.
- ❖ Add a **link tag** to the <head> of the HTML file:
`<link rel="stylesheet" type="text/css" href="my-stylesheet.css">`
- ❖ Change "my-stylesheet.css" to the name of your file.
- ❖ Everything else stays the same from document to document.
- ❖ **rel="stylesheet"** shows the relation between the linked file and the current file which is for styling the page.
- ❖ **type="text/css"** shows the format of the linked file which is a text or css file.



Time to experience!







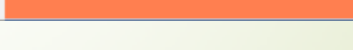
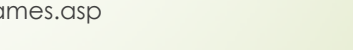


Colors in CSS

- ❖ There are several different ways to specify colors in CSS

Method 1: Color names

- ❖ there are 140 color names recognized by all browsers.

Blue	#0000FF	
BlueViolet	#8A2BE2	
Brown	#A52A2A	
BurlyWood	#DEB887	
CadetBlue	#5F9EA0	
Chartreuse	#7FFF00	
Chocolate	#D2691E	
Coral	#FF7F50	

http://www.w3schools.com/tags/ref_colornames.asp

Method 2: Hex (Hexadecimal) Codes

- ❖ **A hex code** Consists of a pound sign plus 3 consecutive two-digit hexadecimal numbers **#?????**

- ✓ The first number represents the amount of **red** light
- ✓ The second number represents the amount of **green** light
- ✓ The third number represents the amount of **blue** light
- ✓ The numbers range from 00 to FF

Example:

- The code for black (no light) is #000000
- The code for white (maximum light) is #FFFFFF

Method 3: RGB Codes

- ❖ Same idea as hex codes, but written **rgb(n1,n2,n3)**
 - ✓ n1 is a number between 0 and 255, representing the amount of **red** light
 - ✓ n2 is a number between 0 and 255, representing the amount of **green** light
 - ✓ n3 is a number between 0 and 255, representing the amount of **blue** light

Example:

- Value for black is `rgb(0,0,0)`
- Value for white is `rgb(255,255,255)`

Method 4: HSL

- ❖ The newest way to specify color which is written **hsl(n1,n2,n3)**
 - ✓ n1 is the **hue**, representing the shade on the color wheel. A number between 0 and 360. 0 = red; 120 = green; 240 = blue
 - ✓ n2 is the **saturation**, a percent between 0 and 100%. 0 is no color; 100% is full color
 - ✓ n3 is the **lightness**, 0% being the darkest (black) and 100% being the lightest (white)



CSS color property:

Method 1: Color names

h1 {color: red;}

Method 2: Hex (Hexadecimal) Codes

h2 {color: #00ff00;}

Method 3: RGB Codes

h3 {color: rgb(0,0,255);}

Method 4: HSL Codes

p {color: hsl(0,100%,0%);}

CSS background-color property:

Method 1: Color names

h1 {background-color: red;}

Method 2: Hex (Hexadecimal) Codes

h2 {background-color: #00ff00;}

Method 3: RGB Codes

h3 {background-color: rgb(0,0,255);}

Method 4: HSL

p {background-color: hsl(0,100%,0%);}



Time to experience!




In-class activity!


Go to the following url in codepen website:

<https://codepen.io/azadeh83/pen/omPNdZ>


```
h1{ margin: 1em; font-size: 64px; color: blue;}
```




Review from Last Lecture




Which image format does support transparency?

- A. .gif
- B. .tiff
- C. .png
- D. .jpg
- E. B & D
- F. A & D
-  G. A & C



Which file format works for web animation?

- A. .gif
- B. .jpg
- C. .png
- D. .svg
- 😊 E. A & D
- F. B & C
- G. A & C



“.jpeg” image format is _____ when it is compressed, but .svg image format is _____.

- A. Loose Lossless
- B. Lossless Lossy
- 😊 C. Lossy Lossless
- D. Lossless Loose





Image resizing may improve website _____.

- A. accessibility
- 😊 B. performance
- C. usability
- D. security
- E. findability




Which one includes HTML error (bug)?

- A. `<h1><p>About Me</p></h1>`
- B. `<p><h1>About Me</h1></p>`
- C. `<h1>About Me</h1>`
- D. A & C
- 😊 E. A & B
- F. B & C



Which HTML coding is valid?

- A. `<h1><p>...</p></h1>`
- B. `<p><h1>...</h1></p>`
- C. `<h1>...</h1>`
- D. `<h1>...</h1>`
- E. `<p>...</p>`
-  F. `<h1>...</h1>`
- G. `...`



For Next Time

- ❖ Turn in Lab 3 Challenge Tomorrow at midnight.
- ❖ Enjoy the lab tomorrow