EECS1012

Net-centric Introduction to Computing

Lecture 3:
CSS for Styling

2 CSS for Styling

Before CSS

```
<p>
<font face="Arial">Shashdot.</font>
News for <b>nerds!!</b> You will <i>never</i>, <u>EVER</u> be
<font size="+4" color="red">BORED</font> here!
</p>
                                                    HTML
```

Slashdot. News for **nerds!!** You will *never*, <u>EVER</u> be BORED here!

output

- Tags such as b, i, u, and font are discouraged in HTML5

- Why is this bad?

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Cascading Style Sheets (CSS)

- Describes the appearance, layout, and presentation of information on a web page
  - HTML is intended to describes **the content and structure** of the page
  - CSS describes *how* information is to be displayed, not *what* is being displayed
- CSS can be embedded as part of the HTML document, or (preferred) placed into a separate .css file

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The power of CSS
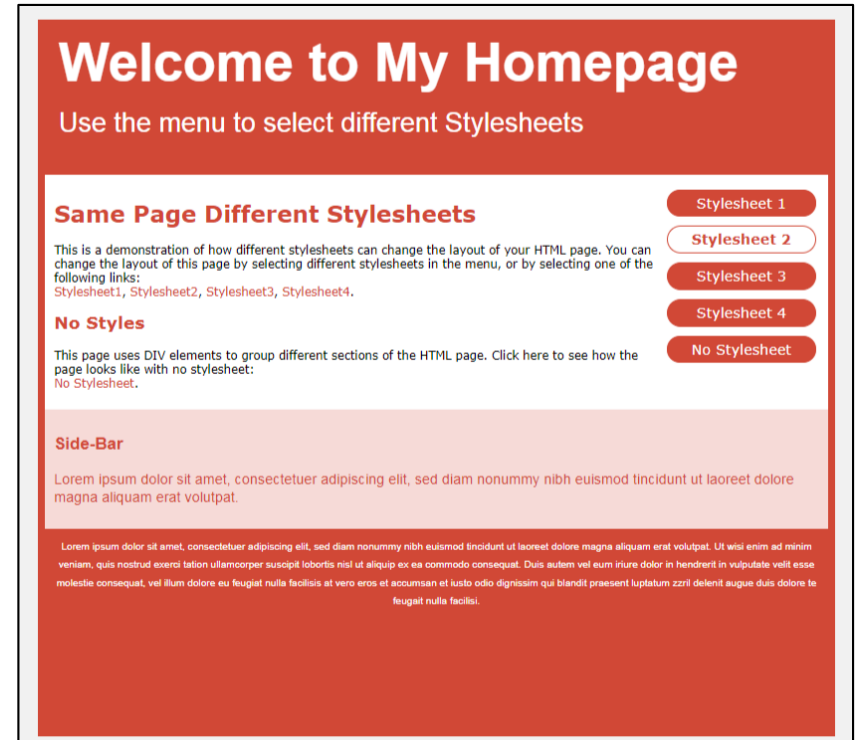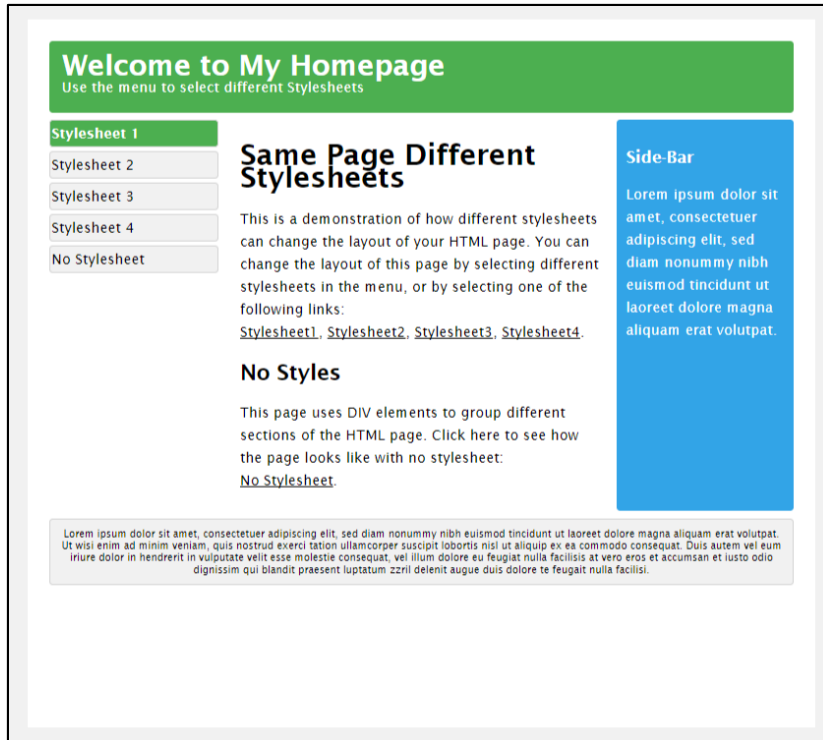
Exact same HTML page . . different CSS files.

See demo: https://www.w3schools.com/css/css_intro.asp

Basic CSS rule syntax

```css
selector {
 property: value;
 property: value;

 ...
 property: value;
}                                                    CSS
```

```css
p {
  font-family: sans-serif;
  color: red;
}                                                    CSS
```

- A CSS file consists of one or more **rules**

- Each rule starts with a **selector**

  - A selector specifies a HTML element(s) and then applies style **properties** to them

- The CSS above changes the style of paragraph to have red text and sans-serif

Attaching a CSS file <link>

```
<head>
...
<link href="filename.css" type="text/css" rel="stylesheet">
...
</head>                                              HTML
```

```
<link href="style.css" type="text/css" rel="stylesheet">
<link href="http://www.google.com/uds/css/gsearch.css"
rel="stylesheet" type="text/css">
                                                    HTML
```

- In the "Head" element content of HTML, we link in the CSS file

- NOTE: A page can link to multiple style sheet files (bottom example)

  - In case of a conflict (two sheets define a style for the same HTML element), the latter sheet's properties will be used

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Embedded style sheets: <style>

```
<head>
 <style>
   p { font-family: sans-serif; color: red; }
   h2 { background-color: yellow; }
 </style>
</head>
                                                    HTML
```

- CSS code can be embedded within the head of an HTML page

- Use of embedded style sheets should be avoided (why?)

  - Even though considered bad style, this is very common and you will see many HTML files with embedded CSS . . . sometimes you have to be Deaner.

  - Many of my examples for class (posted on the webpage) will use this approach

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Inline styles: the style attribute

```
<p style="font-family: sans-serif; color: red;">
This is a paragraph</p>
```
HTML

This is a paragraph

output

- ❑ You can even specify style as part of an element
  - ❑ **This is called inline style . .**
- ❑ Inline style has higher precedence than embedded or linked styles
- ❑ Used for one-time overrides and styling of a particular element
- ❑ B*ad style* and should be avoided when possible (why?)

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CSS properties for colors

```
p {
color: red;
background-color: yellow;
}
```
CSS

This paragraph uses the style above   *output*

property	description
color	color of the element's text*
background-color	color that will appear behind the element

*Sometimes we will call the color of the element's text the foreground color.

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Specifying colors – see link below

```
p  { color: red; }
h2 { color: rgb(128, 0, 196); }
h4 { color: #FF8800; }
```
CSS

This paragraph uses the first style above

This h2 uses the second style above.

This h4 uses the third style above.

output

- ☐ <u>More on color and list of all color names</u>

- ☐ RGB codes: red, green, and blue values from 0 (none) to 255 (full)

- ☐ hex codes: RGB values in base-16 from 00 (0, none) to FF (255, full)

- ☐ Color picker: <u>https://www.w3schools.com/colors/colors_picker.asp</u>

Grouping styles

```css
p, h1, h2 {
 color: green;
}
h2 {
 background-color: yellow;
}                                                    CSS
```

This paragraph uses the above style.

This h2 uses the above styles.

output

☐ A style can select multiple elements separated by commas

☐ The individual elements can also have their own styles

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CSS comments /*…*/

```css
/* This is a comment.
It can span many lines in the CSS file. */
p {
    color: red; background-color: aqua;
}                                                    CSS
```

- CSS (like HTML) is usually not commented as rigorously as programming languages such as Java

- The // single-line comment style is **NOT** supported in CSS

- The <!-- ... --> HTML comment style is also **NOT** supported in CSS .. crazy, but CSS uses a different syntax for comments.

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CSS properties for fonts

property	description
font-family	which font will be used
font-size	how large the letters will be drawn
font-style	used to enable/disable italic style
font-weight	used to enable/disable bold style

Complete list of font properties
(https://www.w3schools.com/cssref/pr_font_font.asp)

font-family

```css
p {
 font-family: Georgia;
}
h2 {
 font-family: "Courier New";
}
                                    CSS
```

This paragraph uses the first style above.

This h2 uses the second style above.

output

- □ NOTE: **Enclose multi-word font names in quotes**
  - ◘ Georgia didn't need quotes (one word), but "Courier New" does.

Serif vs Sans-serif font

F F F

Sans-serif   Serif   Serif
(red serifs)

Generic family	Font family	Description
Serif	Times New Roman Georgia	Serif fonts have small lines at the ends on some characters
Sans-serif	Arial Verdana	"Sans" means without - these fonts do not have the lines at the ends of characters
Monospace	Courier New Lucida Console	All monospace characters have the same width

Nice video on fonts: https://www.youtube.com/watch?v=yIVPuSyepX0

More about font-family

```
p {
  font-family: Garamond, "Times New Roman", serif;
}                                                  CSS
```

This paragraph uses the above style.

output

- We can specify multiple fonts from highest to lowest priority
  - Why? Because not all computers have all fonts installed . .
- **Generic font names:**

  - serif, sans-serif, cursive, monospace
- If the first font is not found on the user's computer, the next is tried
- Placing a generic font name at the end of your font-family value, ensures that every computer will use a valid font

font-size

```
p {
        font-size: 24pt;
}
```
CSS

This paragraph uses the style above.

output

- □ units: pixels (px) vs. point (pt) vs. m-size (em)

16px, 16pt, 1.16em

- □ vague font sizes: xx-small, x-small, small, medium, large, x-large, xx-large, smaller, larger

- □ percentage font sizes, e.g.: 90%, 120%

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Units: pt, px, em

```
p {
        font-size: 24pt;
}                                                        CSS
```

This paragraph uses the style above.

output

- **pt** specifies number of point, where a point is 1/72 of an inch onscreen

- **px** specifies a number of pixels on the screen

- **em** specifies number of **m-widths**, where 1 em is equal to the *font's current size*

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font-weight, font-style

```
p {
        font-weight: bold;
        font-style: italic;
}
```
CSS

This paragraph uses the style above.

output

- Either of the above can be set to normal to turn them off (e.g. headings)
- List of styles

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Why use <strong> and <em> (and not <b> and <i>) ?

```
strong { font-weight: normal; color: red; }
em { font-style: normal; background-color: #DDDDDD; }
```
CSS

Now if I want to strongly emphasize something or just emphasize it, it doesn't necessarily have to be bold or italic.

output

- `strong` and `em` describe attributes of the content ("This is something important in the document.")

- `b` and `i` describe formatting and presentation ("I want this to be bold.")

CSS properties for text

property	description
text-align	alignment of text within its element
text-decoration	decorations such as underlining
line-height, word-spacing, letter-spacing	gaps between the various portions of the text
text-indent	indents the first letter of each paragraph

Complete list of text properties (https://www.w3schools.com/css/css_text.asp)

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text-align

```
blockquote { text-align: justify; }
h2 { text-align: center; }
```
CSS

The Gollum's Quote

We wants it, we needs it. Must have the precious. They stole it from us. Sneaky little hobbitses. Wicked, tricksy, false!

output

- **text-align can be** `left, right, center, or justify`

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text-decoration

```css
p {
        text-decoration: underline;
}                                                              CSS
```

This paragraph uses the style above.

output

- **can also be** overline, ~~line-through~~, blink, or none

- **effects can be combined:**

text-decoration: overline underline;

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The list-style-type property

```
ol { list-style-type: lower-roman; }
```
CSS

☐ Possible values:

    i. `none` : No marker

    ii. `disc` (default), `circle, square`

    iii. `Decimal`: 1, 2, 3, etc.

    iv. `decimal-leading-zero`: 01, 02, 03, etc.

    v. `lower-roman`: i, ii, iii, iv, v, etc.

    vi. `upper-roman`: I, II, III, IV, V, etc.

    vii. `lower-alpha`: a, b, c, d, e, etc.

    viii. `upper-alpha`: A, B, C, D, E, etc.

    x. `lower-greek`: alpha, beta, gamma, etc.

    others: hebrew, armenian, georgian, cjk-ideographic, hiragana…

Body styles

```css
body {
        font-size: 16px;
}
```
CSS

- Applies a style to the entire body of your page
- Saves you from manually applying a style to each element
- **This is very useful, especially for changing the overall font on a page.**

Cascading Style Sheets

- ****Memorize this! –** order of application for a CSS****

- Properties of an element *cascade* together in this order:
  - browser's default styles
  - external style sheet files (in a $<link>$ tag)
  - Internal, aka *embedded,* style sheets (inside a $<style>$ tag in the page's header)
  - inline style (the $style$ attribute of the HTML element)

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What does it mean?

1. If no `style` is defined for an element - use the defaults ([see defaults here](#))

2. If `style` is defined for elements in the <link> file CSS, then use that style (i.e., overrides 1)

3. If `style` is defined inside the page's header (<head>) use that style (i.e., overrides 1, 2)

4. If `style` is defined inside the element **(inline style)** use that (i.e., overrides 1, 2, 3)

Inheriting styles (explanation)

```css
body { font-family: sans-serif; background-color: yellow; }
p { color: red; background-color: aqua; }
a { text-decoration: underline; }
h2 { font-weight: bold; text-align: center; }
```
CSS

This is a heading

A styled paragraph. Previous slides are available on the website.

- A bulleted list   output

- □ In the example above, the **body**'s background color is being "inherited" (passed on to children) by the other elements (p, a, h2)
- □ Inherited styles can be a bit complex, because not all styles are inherited by default.

Styles that conflict

```
p, h1, h2 { color: blue; font-style: italic; }
h2 { color: red; background-color: yellow; }
```
CSS

*This paragraph uses the first style above.*

This heading uses both styles above.

output

- when two style rules are specified with conflicting values for the same property, t**he latter style takes precedence**
  - In this case, h2's color was changed to "red"

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W3C CSS Validator

```
<p>
<a href="http://jigsaw.w3.org/css-
validator/check/referer">
<img src="http://jigsaw.w3.org/css-validator/images/vcss"
alt="Valid CSS!" /></a>
</p>
```
CSS

output

- jigsaw.w3.org/css-validator/

- If your CSS is validated, the W3C will give you a link to HTML code (shown above) that you can place in your file to show your CSS is validated . .

Congratulations! No Error Found.

This document validates as CSS level 3 !

CSS properties for backgrounds

property	description
background-color	color to fill background
background-image	image to place in background
background-position	placement of bg image within element
background-repeat	whether/how bg image should be repeated
background-attachment	whether bg image scrolls with page
background	shorthand to set all background properties

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background-image

```css
body {
  background-image: url("images/draft.jpg");
}
```
CSS

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- background image/color fills the element's content area

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background-repeat

```css
body {
background-image: url("images/draft.jpg");
background-repeat: repeat-x;
}
                                                          CSS
```

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- can be repeat (default), repeat-x, repeat-y, or no-repeat
- repeat-x means in the "x" direction (horizontal)
- repeat-y means in the "y" direction (vertical)

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background-position

```css
body {
background-image: url("images/draft.jpg");
background-repeat: no-repeat;
background-position: 370px 20px;
}                                                    CSS
```

This is the first paragraph

This is the second paragraph...
It occupies 2 lines

- value consists of two tokens, each of which can be top, left, right, bottom, center, a percentage, or a length value in px, pt, etc.

- value can be negative to shift left/up by a given amount

Recap – so far

- At this stage you have learned enough HTML and CSS to make a nice webpage

- There is a lot to remember, so generally you will want to keep a link open to www.w3schools.com

- You are *highly encouraged* to click on the links in this PPT and try out the various CSS styles

- On the in-lab exam, we will provide you a "cheat sheet".   However, on the lab exam and moodle quizzes, we will expect you to know the basic syntax and how HTML/CSS works