Week 12:
Cascading style sheets:
Guest Lecture by Dr. Nelson

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Cascading style sheets

Again: HTML issues of semantic vs. layout

1. Semantic vs. layout tags
   (a) HTML is mixture of tags that express what things are and what they should look like
   (b) Makes maintenance of web pages difficult

2. Maintenance issues: Presentation mixed with content and structure in HTML code
   (a) Change look of entire site
   (b) Repetition of layout tags in page: all need to be updated!

3. What if we could:
   (a) define layout separately from content?
   (b) change style and behavior of certain tags for entire page?
   (c) define now classes of elements and their layout behavior?
   (d) define rules to tell browser how to layout element types?

Solution: Cascading Style Sheets:
http://www.w3.org/Style/CSS/
Cascading style sheets: definition

1. Definition of page style that can be included in or attached to HTML pages
2. Human readable and writable (ASCII)
3. Definition of layout rules and elements
4. Cascading: different style sheets for one page “cascade”: author may define preferred one which may be overruled by reader’s style sheet

Three types:

1. In-line (defined in tag itself): applies only to particular tag
2. Internal style: defined in header for entire page
3. External style: defined separate from page

Precedence:

1. In-line trumps internal
2. Internal trumps external
Rules and styles

A stylesheet is a collection of style rules and definitions.

**Three components**

1. **Selector**
   - (a) specific tag or element rule applies to
   - (b) selector means: selection of what rules applies to
   - (c) example: `<P>`

2. **property**
   - (a) which property of tag must be changed or set
   - (b) example: font face, size, underlined, boxed, etc.

3. **value**
   - (a) the value of the property
   - (b) example: 10pt
Style rule format:

FORMAT:
selector {property: value}

multiple properties and values are possible;
separated by semi-colons,
as well as same property and value for set of HTML tags
separate tags by comma’s

EXAMPLES:

P {font-size: 10pt}

BODY { font-family: Arial;
font-size: 10pt;
}

H1, H2 {font-size: 10pt}
In-Line styles

Change style of particular tag

1. No selector (why?)
2. Use of STYLE attribute
   (a) STYLE is included in tag
   (b) equals property: value pair
3. Example: `<P STYLE="font-style:italic">`

Precedence:

1. Override any other style definition
2. Applies only to specific element

Example: [inlinecss.html](http://www.cs.odu.edu/~jbollen/CS312/inlinecss2.html)
Style rule format:

<html>
  <head>
    <title>In-line styles</title>
  </head>

  <body>
    <H1 STYLE="font-size:12pt">Het verdriet van Belgie</H1>
    Dondeyne had een van de zeven Verboden Boeken onder zijn schort verstopt and Louis meegelokt.
    <P STYLE = "font-family:Helvetica;
        font-style:italic;
        text-align:center">
      Zij zaten onder de slingerplanten van de grot van Bernadette Soubirous.
    </P>
  </body>

</html>
Style rule format:

```html
<html>
  <head>
    <title>In-line styles</title>
  </head>

  <body>
    <H6 STYLE="text-transform:uppercase"> Since, then, the question of legislation has been left unexamined by previous thinkers, presumably we had better investigate it more closely for ourselves...</H6>
    <H6 STYLE="background:gray"> Since, then, the question of legislation has been left unexamined by previous thinkers, presumably we had better investigate it more closely for ourselves...
    </H6>
    <H6 STYLE="color:red"> Since, then, the question of legislation has been left unexamined by previous thinkers, presumably we had better investigate it more closely for ourselves...
    </H6>
  </body>
</html>
```
Properties and values

So how do you know which properties and values exist?

Level 1: http://www.w3.org/TR/

Level 2: http://www.w3.org/TR/CSS2/

Overview.html
Internal Styles

Styles that apply for the entire page

1. In-line styles apply only to one tag at a time
   (a) better than font tags and other layout tags (<B>)
   (b) same maintenance problem though

2. Internal styles
   (a) Defined in header and apply to entire document
   (b) Once particular style is defined, applies to all selector tags

(c) Change style: simply change STYLE definition in header

3. Markup:
   (a) <STYLE> rules <STYLE>
   (b) within <HEAD> tags

4. Note:
   (a) selector is required in format (compared to in-line)
   (b) Use comment tags to insulate style code from incompatible browsers
Internal style sheet

<html>
<head>
<title>Internal CSS</title>

<style>
!---
  H3 {font-size:40pt}
-->
</style>
</head>

<body>

<h2>This is an H2</h2>
<h3>This was supposed to be an H3?</h3>
<h3>Again?</h3>
<h3 style="font-size:14pt">However, in-line trumps internal!</h3>

</body>
</html>
External Styles

Same principle as internal style sheet, except style sheet is stored in separate file and linked into HTML document

1. Greater flexibility!
   (a) Many pages, one style sheet
   (b) One page, choose style sheet
   (c) Style sheet may be on different server than page: use URL

2. Leaner HTML code
   (a) CSS voids needs for font tags etc
   (b) All style information is stored externally

Tag in <HEAD>:
<link rel=”stylesheet” type=”text/css” href=”test.css”>
Example:
http://www.cs.odu.edu/~jbollen/CS312/externalcss.html
http://www.cs.odu.edu/~jbollen/CS312/test.css
External style sheet

FILE 1: test.css
H3 {font-size:40pt}

FILE 2: test.html
<html>
<head>
<title>External style sheet example</title>
<link rel='''Stylesheet''' type='''text/css''' href='''test.css'''
</head>
<body>
<h2> This is an H2 </h2>
<h3> This was supposed to be an H3? </h3>
<h3> Again? </h3>
<h3 style="font-size:14pt"> However, in-line trumps external! </h3>
</body>
</html>
Defining classes

**Style sheet class: Same tag, different layouts**

1. define classes: set rules contained within a class tied to specific tag (or not)
2. different classes can be defined for same tag
3. specific tag can specify which class it uses
4. markup:
   (a) Stylesheet: 
   `[TAG].CLASSNAME{property:value;property:value}`
   (b) HTML: tag + attribute: 
   `CLASS="classname"`

5. Uses:
   (a) Control table layout by defining TD and TR classes
   (b) makes code more readable when you choose your classes well

Example: 
- [http://www.cs.odu.edu/~jbollen/CS312/externalcss2.html](http://www.cs.odu.edu/~jbollen/CS312/externalcss2.html)
- [http://www.cs.odu.edu/~jbollen/CS312/test2.css](http://www.cs.odu.edu/~jbollen/CS312/test2.css)
Defining IDs

Classes can be used throughout the document, IDs only once

Why use IDs then?

1. naturally non-recurring items: abstract of text, particular sections (introduction), etc.
2. structural elements of page

Format

1. Stylesheet:
   [TAG].ID{property:value;property:value}
2. HTML: tag + #ID=”classname”

Note:

1. Although many browsers will allow you to use ID more than once this is an error
2. Remember appropriate use: classes for reuse in tags, IDs for single, structural features of your text

Example: http://www.cs.odu.edu/~jbollen/CS312/IDs.html

http://www.cs.odu.edu/~jbollen/CS312/IDs.css
An Example of the use of classes: tables

Classes can be use to structure particular table elements

1. Define classes for table, tr, td and th tags
2. Define headers, specific cell types, background colors, layout
3. Makes table code much more readable and style sheet can be reused!

Example: [http://www.cs.odu.edu/~jbollen/CS312/tablescss.html](http://www.cs.odu.edu/~jbollen/CS312/tablescss.html)
CSS resources

CSS validation: http://www.htmlhelp.com/tools/csscheck/

W3C: http://www.w3.org/Style/CSS/
Properties and Values:
http://webquestpro.com/css.htm
Class schedule

1. Thanksgiving Holiday: Nov, 26-30
2. Nov, 27th class cancelled (holiday)
3. Next classes:
   (a) Tuesday Dec. 2: Search Engines
   (b) Thursday Dec. 4: Review of class projects
4. Projects Deadline: Dec. 3rd
5. Final Exam: Dec. 9th, Tuesday, 8:30-11:30AM