Cascading Style Sheets and XML

July 8th, 2003
CSS History

- Cascading Style Sheets were invented to help reduce the number of tags being added to HTML for formatting.
- They are specifically for formatting elements and can control backgrounds, fonts, type sizes, colors, and placements.
- They are called ‘cascading’ because child elements inherit style from parent elements.
CSS and XML

- CSS support was recently added for XML documents as a way to display their content--finally, no more XML trees!
- By default, XML has no format, so you need a CSS or to use XSLT (next lecture)
Styles

- A CSS document is made up of styles
- For example: book { background: red; }

  - A style is composed of a selector and one or more declarations.
  - The declarations are separated by semi-colons and surrounded by curly-braces.
  - Styles are inherited from parent to child
Selectors

- Selectors allow us to choose which elements and attributes we wish to add style to.
- Use ‘*’ to specify every element: * { font-size: x-small }
- Use tag to apply style to a single element: tag { font: arial; }
More Selectors

- Use *tag1, tag2, ..., tagn* to apply style to tag1 to tagn: book, title {font-size: large}
- Use *parent descendant* to apply the style to a descendant of the parent element.
- Use *parent > child* to apply the style to a direct child of the parent element.
Selecting Attributes

- `tag[attrib]` selects an element named `tag`, with an attribute named ‘attrib’.
- `tag[attrib=val]` selects an element named `tag` with an attribute named ‘attrib’ with the value ‘val’.
  - `picture[filename="skies.jpg"] { background: blue }`
- `tag#name` selects an element named `tag` with the ‘id’ attribute set to ‘name’.
Special Selectors

There are 5 special selectors:
- `tag:link` - an unvisited link element
- `tag:visited` - a visited link element
- `tag:active` - an element being clicked
- `tag:hover` - an element being pointed at
- `tag:focus` - an element that is in focus
Style Declarations

- All elements are enclosed by a box that you control with CSS declarations.
- An element is defines its flow through the ‘display property’.
Display:

title { display: block; }

- You can use block, inline, list-element, or none.
- inline means that your ‘box’ follows immediately after the previous one
- block means that your ‘box’ starts a new paragraph
- none hides the element
Units of measurement

- CSS defines several ways to measure space
  - Relative:
    - em: the size of a capital ‘M’ in the current font
    - ex: the size of a lower-case ‘x’ in the current font
    - percentage: such as 10%
  - Absolute:
    - px: a specific number of pixels
    - in, cm, mm, pt: inches, centimeters, millimeters, points
Borders

- You can add borders around boxes:
  - use `border`, `border-top`, `border-bottom`, `border-left`, `border-right`
  - specify `thin`, `medium`, `thick`, or an absolute value (like 5px)
  - select the type as `none`, `dotted`, `dashed`, `solid`, `double`, `groove`, `ridge`, `inset`, `outset`
  - select the color (using color, rgb, or hex)
Border example

para {
    border: thin solid red;
}

This is a para surrounded by a thin red solid border.
Margins

- The margins are the spaces around the ‘box’ of the element.
- Like borders, you can use margin-top, margin-left, margin-right, margin-bottom, margin to specify which margin to modify.
  - book { margin: 1em; }
Padding

- The padding is the space inside of the ‘box’ but surrounding the contents of the element.

- Use: padding, padding-left, padding-right, padding-top, padding-bottom.
  - book { padding-left: 1ex; }
Colors

- You can change the color of an element
  - color: changes the color of the content
  - background: changes the background color
    of course
  - border-color: changes the border color

```
title { background: blue }
```
Specifying colors

- 16 predefined colors exist: aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, yellow

- You can specify the hex value of the color: title { color: #FF0000 } 

- You can use the rgb function: title { color: rgb(255, 0, 0) }
Font Properties

book { font-family: “Courier new”, serif;
font-size: small;
font-weight: bold;
font-style: oblique;
}

– font-size can be small, x-small, medium, large, x-large, etc, or a specific size, like 12pt
– font-weight can be normal, bold, bolder, lighter...
– font-style can be italic, normal, or oblique (if there is no italic version)
Tables

- You can also set the display value to one of 10 table values, of which the most important are:
  - display: table;
  - display: table-row;
  - display: table-cell;

- These are equivalent to <table>, <tr>, <td> in HTML
Adding a Style Sheet to XML

- You can use the following declaration to have your XML file use a CSS:
  
  ```xml
  <?xml-stylesheet type="text/css" href="style.css"?>
  ```
  
  - of course, style.css is a URL to your cascading style sheet
Problems with CSS?

- You are bound to the layout of the XML document: if one element occurs before another, CSS can’t change the ordering for rendering
- CSS is not in XML format
- Browser support varies
- The solution: XSLT!
Exercise

<?xml version="1.0" encoding="UTF-8"?>
<checkbook>
  <debit>
    <date>7/1/03</date>
    <payee>Taco Time</payee>
    <amount>$9.85</amount>
    <memo>lunch</memo>
  </debit>
  <deposit>
    <date>7/2/03</date>
    <payee>Deposit to checking</payee>
    <amount>$1731.00</amount>
    <memo>weekly paycheck</memo>
  </deposit>
</checkbook>