Introduction to Web Engineering SENG2050/6050

Lecture 1c
Introduction to CSS

Review

➢ HTML

   ➢ Tables

   ➢ Forms

Lecture 1c: Introduction

➢Cascading Style Sheets

Cascading Stylesheets

➢ Stylesheets are a way of adding visual formatting to HTML tags

  ✓ As with the visual formatting of HTML tags, the formatting of CSS is only a suggestion to the browser

  ✓ The benefit is that CSS is independent of the semantic meaning of the HTML tags – you can change the (suggested) formatting without affecting the semantics!

Cascading Stylesheets

- ➤ **The** `style` **attribute**
  - ✓ `<em style="color:red">emphasised in red</em>`
  - ✓ `<strong style="font-style:italic"> strong emphasis and italic</strong>`
  - ✓ `<div style="text-align:right">`
    `<!-- lots of stuff, right aligned -->`
    `</div>`

Cascading Stylesheets

➢ The syntax for a `style` attribute is …
property1:*value1*; *property2*:*value2*; …

➢ While `style` is an attribute of every tag …
  ✓ Not every property applies to every tag
  ✓ Not every browser supports every property, or the entire set of values for some properties

➢ The current standard for CSS is CSS3
  ✓ Most modern browsers support at least CSS2

CSS Properties

➢ Here are some of the most common CSS properties and their values. There are many, many more.

- ✓ `font-style:`
  - `normal | italic | oblique`
- ✓ `font-weight:`
  - `normal | bold | 100 | … | 900`
  - `lighter | bolder`
- ✓ `font-variant:`
  - `normal | small-caps`

CSS Properties

➢ `font-family:`
- ✓ A comma-separated list of fonts, in order of preference
  - ✓ Because not all computers have the fonts you want.
- ✓ Names with spaces must be in double- or single-quotes

➢ `font-size:`
- ✓ Absolute: `xx-small | x-small | small | medium | large | x-large | xx-large`
- ✓ Relative: `smaller | larger`
- ✓ Absolute: a number followed immediately by units – `cm | mm | in | pt | pc | em | ex | px`
- ✓ Percentage: relative to the enclosing tag

CSS Properties

➢ `text-decoration:`
  ✓ `none | overline | underline | line-through`

➢ `text-align:`
  ✓ Horizontal alignment of text
  ✓ `left | right | center | justify`

➢ `text-indent:`
  ✓ Indent (+ or -) for the first line
  ✓ A length or percentage

CSS Properties

➢ `vertical-align:`

    ✓ `baseline` – align the baseline of the content with the baseline of the enclosing content

    ✓ `middle` – align the middle of the content with "middle" of the enclosing content

    ✓ `text-top/text-bottom` – align top/bottom of the content with top/bottom of the enclosing content

    ✓ `sub/super` – align as a subscript/superscript (but doesn't change the size)

    ✓ `top/bottom` – align top/bottom of the content with top/bottom of the *entire line*

CSS Properties

➤`text-transform:`
  ✓`capitalize | uppercase | lowercase | none`
➤`white-space:`
  ✓`normal | pre | nowrap`
➤`list-style-type:`
  ✓change the behavior of list markers
  ✓`disc | square | circle` – **unordered markers**
  ✓`decimal | lower-roman | upper-roman | lower-alpha | upper-alpha | …`
➤`list-style-image:url`

CSS Properties

➢ `color:`
- ✓ The foreground/text colour
- ✓ *name* – named colour: `red`, `green`, `white`, `cyan`, …
- ✓ `#`*rgb* – one hexadecimal digit per red-green-blue
- ✓ `#`*rrggbb* – two hexadecimal digits per red-green-blue
- ✓ `rgb(`*r*`,`*g*`,`*b*`)` – each component is a decimal (0-255) or a percentage (0.0%-100.0%)

➢ `background-color:`
- ✓ *color* `| transparent`

CSS Properties

➢`background-image:`
  ✓`url(`*uri*`) | none`

➢`background-repeat:`
  ✓`repeat | repeat-x | repeat-y | no-repeat`

➢`background-attachment:`
  ✓`scroll | fixed`

➢`background-position:`
  ✓Has two values…
  ✓`left | center | right |` *length* `|` *percent*
  ✓`top | center | bottom |` *length* `|` *percent*

CSS Properties

➤ `margin-left | margin-right | margin-top | margin-bottom`:
  - ✓ The amount of space outside the "border" of the tag
  - ✓ Always transparent
  - ✓ Shorthand – `margin`: *left right top bottom*

➤ `padding-left | padding-right | padding-top | padding-bottom | padding`:
  - ✓ The amount of space around the content of the tag, inside the "border"

CSS and Images

➢ The default width and height of an image can be overridden

- ✓ `width:` *length* `| auto`
- ✓ `height:` *length* `| auto`
- ✓ The image is "scaled" to the new size
- ✓ If only one is specified (the other is auto) then the aspect ratio is maintained
- ✓ Loading a large image then scaling it to a small icon is very inefficient – generate the small image offline and use it; only load the large version if needed

CSS and Images

➢ `float:`

  ✓ Where to position the image relative to text

  ✓ `left` – align with the left edge of the enclosing box and text flows around to the right

  ✓ `right` – align with the right edge of the enclosing box and text flows around to the left

  ✓ `none` – place inline, or in a new block with text above and below

  ✓ Works for other content as well

CSS and Tables

- CSS2 adds complex visual formatting to HTML tables
  - http://www.w3.org/TR/CSS2/tables.html
- Properties are passed down from `<table>` to `<colgroup>` to `<col>` to `<tbody>` to `<tr>` to `<td>`
- `width` and `height` give the *minimum* size for a row or column, but not necessarily the maximum

CSS and Tables

➢ `text-align` applies to columns
 ✓ `text-align: "."` aligns text around the `.` in the content
 ✓ Good for aligning columns of floating-point numbers
 ✓ Works with any character (not just `"."`)

➢ `vertical-align` applies to rows
 ✓ `baseline` aligns the baselines of the top lines of content across the row
 ✓ `top`, `bottom` and `middle` align the entire content to the entire row
 ✓ The other values do not apply

CSS and Tables

➢`border-collapse:`
  - ✓`separate` – the borders of adjacent cells are kept separate by the length given by `border-spacing`
  - ✓`collapse` – the borders of adjacent cells are merged; properties are determined by a scheme that keeps the more "eye-catching" `border-style`

➢`border-style:`
  - ✓`none | dotted | dashed | solid | double | groove | ridge | inset | outset`
  - ✓`hidden` = `none` but overrides adjacent styles
  - ✓`inset/outset` = `ridge/groove` if `collapse`

CSS and Tables

➢`empty-cells:`
   ✓`show | hide`

➢`table-layout:`
   ✓`auto` – adjust the width of each column to accommodate the content of all cells
   ✓`fixed` – set the width of each column by the cells of the first row only

➢`overflow:`
   ✓**What to do when** `table-layout: fixed`
   ✓`visible | hidden | scroll | auto`

CSS and Tables

➢For simple tables, setting a style on `<tr>`, `<td>` and `<th>` will be sufficient

➢For more complex tables, use `<col>` and `<colgroup>` to apply styles to columns

➢**Avoid using `<table>` to visually format sections of text/images**

   ✓Use styles with `<div>` or `<section>`

   ✓Save `<table>` for *real* tables of information

CSS Rules

➤ Applying a `style` attribute to every tag soon gets very tedious ☹

   ✓ Fortunately, there is a better way ☺

➤ In the `<head>`, add

```
<style type="text/css">
  /* insert CSS rules here */
</style>
```

   ✓ Called a document-level stylesheet

CSS Rules

➤ CSS rules have the form

  ✓ *selector* { *property1:value1; property2:value2;* … }

  ✓ The property-value pairs inside { … } are the same as those used in the `style` attribute

  ✓ *selector* determines which tags of the document the property-value pairs apply to…

  ✓ Comments can be placed between `/*` and `*/`

CSS Rules

- ➢ A selector can be…
  - ✓ A tag name

    ```
    p { text-align:justify }
    ```
  - ✓ A tag descended from another tag

    ```
    blockquote li {list-style-type:disc}
    ```
  - ✓ A tag that is an immediate child of another tag

    ```
    ol > li {list-style-type:lower-roman}
    ```
  - ✓ A tag that immediately follows another tag

    ```
    hr + p { margin-top: 3cm }
    ```

CSS Rules

- A selector can be…
  - A hyperlink that has already been visited
    `a:visited { color:black }`
  - A hyperlink that has not been visited yet
    `a:link { color:blue }`
  - A tag during a user action
    `a:active { color:red }`
    `em:hover { font-size:120% }`
    `input:focus { border-color:red }`

CSS Rules

➢A selector can be…
- ✓A tag with a given attribute
  ```
  input[checked] { color:red }
  ```
- ✓A tag with a given attribute with a given value
  ```
  a[href="home.html"] { color:green }
  ```
- ✓A tag with a given id
  ```
  div#copyright { font-style:italic }
  ```
- ✓A comma-separated list of selectors
  ```
  h1, h2, h3 { color:white }
  ```

CSS Rules

➢ CSS rules (without the `<style>` tags) can placed in a separate file, then applied by placing inside `<head>`…

```
<link rel="stylesheet" type="text/css" href="uri" />
```

  ✓ Called an external stylesheet
  ✓ Inline styles override document-level styles which override external styles

CSS Classes

➢ There is a special attribute for use when formatting HTML using CSS – `class`

  ➢ It contains a space-separated list of "class names"
  ➢ Classes can be used in CSS selectors...
  `<div class="copyright">`…`</div>` with
  `div.copyright { font-style:italic }`

CSS Priority

- The order that css rules take effect work on a specificity system
  - The more specific the rule the higher a priority it is given.
  - i.e. id selector is more specific than a class selector so the rule that uses an id selector takes precedence.
  - div p{} vs p{}
  - div.className{} vs div{}
  - Style attributes on an element are the most specific a rule can be.
- Internal css has a higher priority than external.
- If multiple rules have the same specificity then the latest rule takes precedence.
  - i.e. 2 css files both contain .className selectors with different css rules. The one that is included last will take effect.

- https://developer.mozilla.org/en-US/docs/Web/CSS/Specificity

CSS Editors and Validators

➢Some modern HTML editors also have support for generating CSS code

✓As with HTML generators, **if you use a WYSIWYG CSS editor for your assignments, then you will get zero marks for the CSS!**

➢You can and **SHOULD** use a CSS validation service (this will be marked in assignments)

✓http://jigsaw.w3.org/css-validator/

CSS Resources

- CSS Spec
  - http://www.w3.org/Style/CSS/
- Tutorials
  - http://www.w3schools.com/css/css_intro.asp

THE END

QUESTIONS??

THANKS!!