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!!