COMP 4021
Internet Computing

More on CSS
(Cascading Style Sheets)

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Use of CSS

- CSS can be applied to all xml-compliant (tag-based) languages
- CSS can be used to display:
  - XML
  - Any XML based language, i.e.
    - HTML
    - SVG
    - SMIL (XHTML & Time)
    - MathML
    - ChemML
    - And so on…

Review

- Inline style:

  `<h1 `**`style="font-size:48pt; font-family:Arial; color:red;"`**` >`
  `This is My Report</h1>`
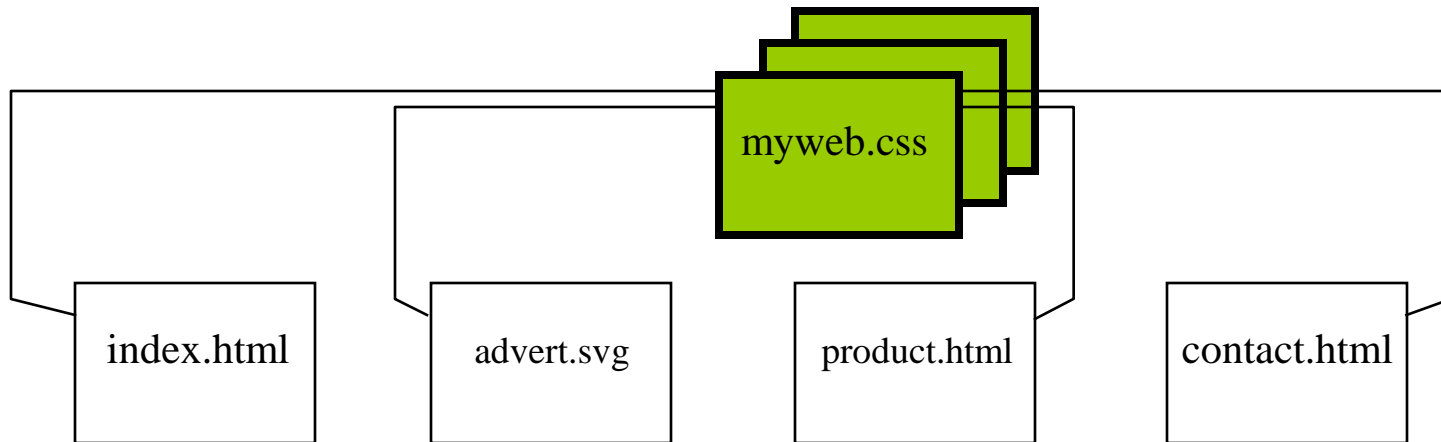
- Internal/Embedded CSS style rules:

  - `<style>…</style>` are directly embedded in the HMTL document; generally put inside the `<head>` element

- External CSS files:

  - Styles are put in a separate "CSS" file
  - HTML files can link to one or more CSS files

Typical Web Site Usage

- ☐ CSS means that a complete set of web pages can be developed which all point to the same CSS files
- ☐ The files can even have different languages (i.e. SVG, XHTML) all pointing to the same style information

myweb.css

index.html   advert.svg   product.html   contact.html

Why is CSS called "Cascading"?

- ❑ Styles in multiple rules defined on the same element are merged
- ❑ When two rules conflict, prioritize them (priority from high to low):
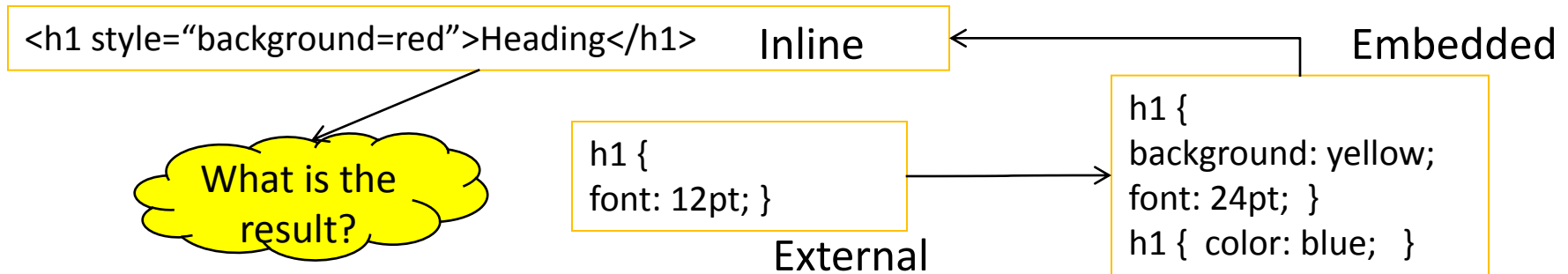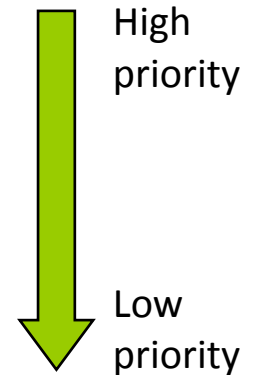 1. Author/Designer-created styles sheets:
     - ❑ Inline styles: style attribute included within a tag
     - ❑ Embedded style: CSS rules inside the HTML itself
     - ❑ External style sheets: CSS files referenced from the HTML itself
  2. User style: Local CSS file specified by the user on the browser
  3. User agent style: browser's default style sheet
- ❑ Given two identical embedded rules, the LAST takes precedence

High priority

Low priority

```
<h1 style="background=red">Heading</h1>
```
Inline

Embedded

What is the result?

```
h1 {
font: 12pt; }
```
External

```
h1 {
background: yellow;
font: 24pt;  }
h1 {  color: blue;  }
```

Website Advantages

- Separation of contents and styles
- Styles can be separately managed by visual designers
  - Facilitate global controls and updates to styles
  - Cascade allows local overwrite of styles
- Every page has a consistent 'look and feel'
- Style sheet can be altered, result is immediately seen across whole web site - for example, web site can have a different look and feel for Chinese New Year, then later change back
- Easier for debugging/ handling (just one set of style files controls everything)

Recall: CSS Sytle Rule

- A style rule:

Selector *Property* *Value*

h1 { color: red }

Declaration

- You can define a rule for:

	Selector Syntax	Examples
Element Type	Element_name	h1, div, p
Class	.class_name	.highlight
Element ID	#ID	#myDiv

CSS For HTML

□ Style parameters that can be controlled with CSS:

- Text font
- Text size
- Text colour
- Background colour
- Background image
- Margins
- Padding (space between element and margins)

- Borders (including colour, style, width)
- Word spacing
- Letter spacing
- Text decoration (such as underline and blink)
- Vertical alignment
- Control over capitals (upper case, lower case)
- Text indentation
- List styles (many parameters)

Setting Multiple Attributes in a Rule

h1 {color: maroon;
     font: italic 1em Times, serif;
     text-decoration: underline;
     background: yellow url(titlebg.png) repeat-x;
     border: 1px solid red; padding: 5px; }

- All h1 in the web page will use dark red, the most commonly used font for paper, is italicized, is underlined, has a background image that is repeated horizontally (not vertically) but will use yellow for the background image if the image cannot be loaded, uses a 1 pixel red border that is separated from the text by 5 pixels

CSS - Large Example 1/4

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
 <html>
 <head>
 <title>Basic CSS Example</title>
<style type="text/css">
body            {background-color: black;}
div.page        {background-color: #FFD040;       // div with class .page
                color: black;
                margin: 50px 10px 50px 10px;
                padding: 10px 10px;
                width: 90%;
                height: 90%;}
```

CSS - Large Example 2/4

```
h1              {font-size: 24pt;
                 font-family: Comic Sans Ms, Cursive;
                 text-align: center;}
p               {font-family: Arial, Sans-serif;
                 font-size: 16pt;
                 line-height: 200%;
                 text-align: justify;
                 text-indent: 20px;}
.blackonwhite   {color: black;
                 background-color: white;}
.whiteonblack   {color: white;
                 background-color: black;}
.style          {color: blue; font-family: Arial; font-style: oblique;}
```

CSS – Large Example 3/4

.size   { font-size: xx-large ;}

#letterspace   { LETTER-SPACING: 15pt }
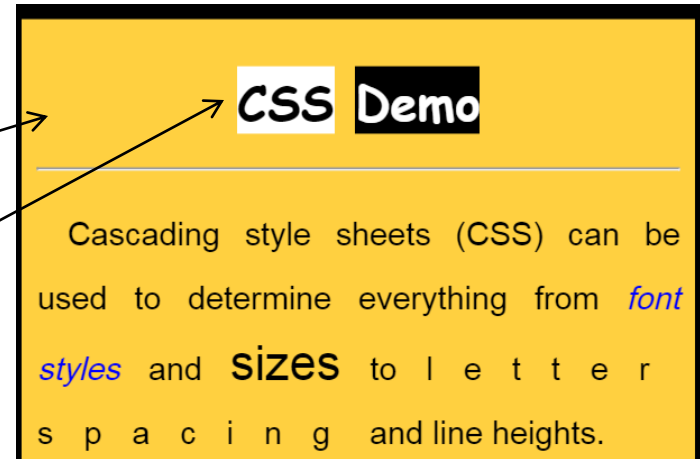
 </style>

 </head>

 <body>

 <div class="page">

 <h1>

    CSS

    Demo

 </h1>

CSS Demo

Cascading style sheets (CSS) can be used to determine everything from *font styles* and **sizes** to l e t t e r s p a c i n g and line heights.

CSS – Large Example 4/4
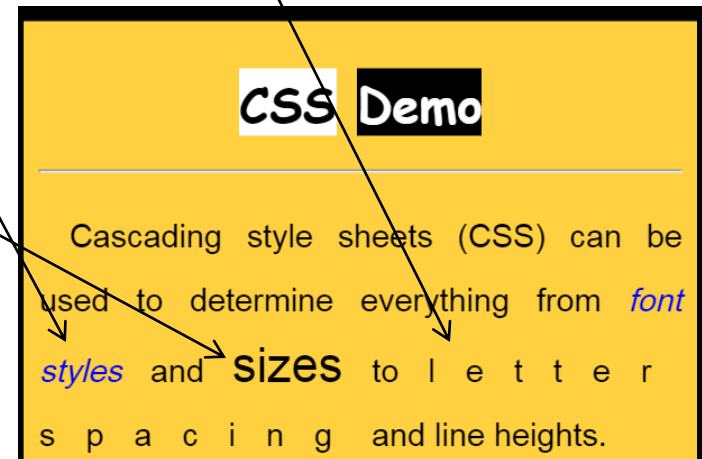
<hr/>

<p>Cascading style sheets (CSS) can be used to determine
everything from font styles and
sizesto letter
spacing and line heights.</p>

</div>

</body>
</html>

Applying a Rule to Multiple Tags

h1 { background: yellow; color: blue }

h2 { background: yellow; color: blue }

h3 { background: yellow; color: blue }

□ The above can be more efficiently written as

h1, h2, h3 { background: yellow; color: blue }

Applying a Rule to Multiple Tags

h1 { background: yellow; color: blue; font: 24pt; }

h2 { background: yellow; color: blue; font: 20pt; }

h3 { background: yellow; color: blue; font: 16pt; }

- The above can be more efficiently written as

  h1, h2, h3 { background: yellow; color: blue}

  h1 { font: 24pt; }

  h2 { font: 20pt; }

  h3 { font: 16pt; }

- One rule sets the common properties for all three tags
- An individual rule tailors the font size of each tag
- Two rules are defined for the same tag

CSS in HTML5

- CSS is already a powerful language, HTML5 makes it more powerful to meet the imagination of all users

- Standardization of separation of CSS into modules

- More selectors: E::nth-child(n), E::not(s)

- Color: saturation, lightness, alpha-channel

- Background and Borders: stretch a background image, box shadow, rounded box corners

- Multi-column layout

- @media rules: display size, color depth, aspect ratio

Take Home Message

- Separation of content from styling is a major idea in content management

- Major problem is to identify which subset of elements a rule applies to
  - Lead to very complicated "pattern matching" or "addressing" schemes

- CSS has become more and more powerful, from CSS1 to CSS2 and to CSS3 …
  - CSS goes beyond styling to include animation, 2D/3D transformation