Client Side Technologies

CSS
(Cascade Style Sheets)

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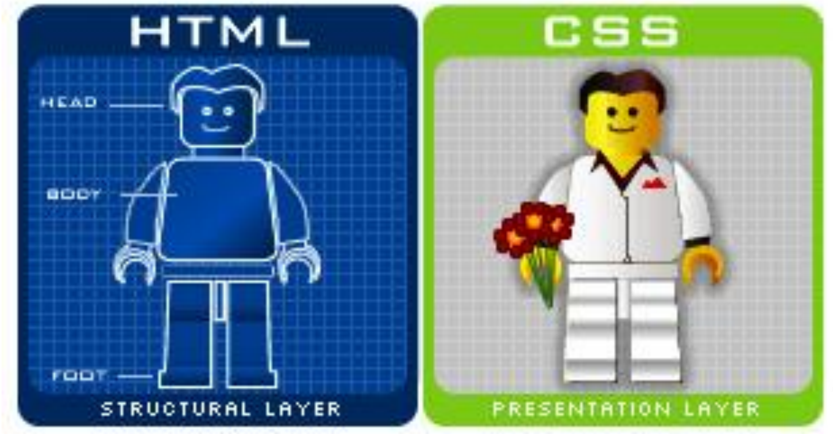
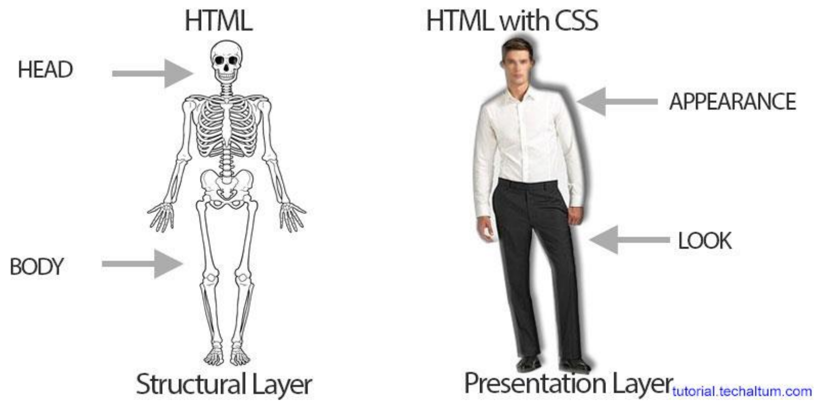
What is CSS?

- ❑ CSS stands for Cascading Style Sheets.
- ❑ CSS was developed by the W3C.
- ❑ CSS is a stylesheet language used to describe the presentation of a document written in a markup language.
- ❑ Its most common application is to style web pages written in HTML, XHTML and any kind of XML document.
- ❑ Styles define how to display HTML elements (font face, size, color, alignment, …etc)
- ❑ Styles are normally stored in Style Sheets
- ❑ The term cascading derives from the fact that multiple style sheets can be applied to the same Web page.

Why use CSS?

- ❑ The Separation of Structure and Presentation
- ❑ Managing Style at Large Sites
- ❑ Improved performance
- ❑ Decreased production work
- ❑ Rich design and layout





CSS Versions

- Cascading Style Sheets 1 (CSS1)
- Cascading Style Sheets 2 (CSS2 & CSS 2.1)
- Cascading Style Sheets 3(CSS3).

How to Link CSS?

- CSS can be linked to an HTML document as:
  - Embedding a style tag <style>
  - Linking to an external stylesheet file
  - Importing a stylesheet
  - Inline style

Inline style

- ❑ Inline style loses many of the advantages of style sheets by mixing content with presentation.
- ❑ Example:

```
<P STYLE="color: red; font-family: ‘Ariel‘ ">
        This paragraph is styled in red with the Ariel font, if available.
</P>
```

Embedding a style tag

- ❑ An internal/embedded style sheet should be used when a single document has a unique style.
- ❑ You define internal styles in the head section by using the <style> tag
- ❑ An embedded (internal) style sheet should be used when a single document has a unique style.

```
<head>
      <style>
            H1 { color: blue }
            H2 { color: red}
      </style>
</head>
```

H1 header with blue color

H2 header with red color

Linking to an external style sheet file

- An external style sheet is ideal when the style is applied to many pages.
- With an external style sheet, you can change the look of an entire Web site by changing one file.
- Each page must link to the style sheet using the <link> tag.
- The <link> tag goes inside the head section:

```
<head>
            <link rel=“stylesheet”  href="style.css"/>
</head>
```

Importing a style sheet

- Importing allows you to import one style sheet into another.
- This is slightly different than the link scenario, because you can import style sheets inside a linked style sheet.
- But if you include an @import in the head of your HTML document, it is written:

```
<STYLE>
                        @import url(“styles1.css);
                        @import url(“style2.css”);
                        p {color: yellow }
</STYLE>
```

Cascading Order

- Styles will be applied to HTML in the following order:
  - Browser default
  - External style sheet
  - Internal style sheet
  - Inline style
- When styles conflict, the “nearest” (most recently applied) style wins

Cascading Order - Example

- **External Style sheet**

```
H3
{
        color: red;
        text-align: left;
         font-size: 8pt
 }
```

- **Internal Style sheet**

```
h3
{
        text-align: right;
        font-size: 20pt
}
```

- **Resultant attributes**

```
color: red;
text-align: right;
font-size: 20pt
```

CSS Syntax

- The CSS syntax rule is made up of three parts:
  - selector
  - property
  - value
- selector is the tag to be affected
- property and value describe the appearance of that tag
- Style rules are formed as follows:

selector {property: value}

```
p {font-family: sans serif}
```

CSS Comments

```
<STYLE TYPE="text/css">
 p {
    color: red;
    /* This is a single-line comment */
    text-align: center;
}

/* This is
a multi-line
comment */
 </STYLE>
```

Selector

- **Several types of selectors are defined for use when implementing Style Sheets:**
  - Type Selector
  - Class Selector
  - ID Selector
  - Descendant/Contextual Selector
  - Child Selector
  - Adjacent sibling selectors
  - Attribute selectors

Universal Selector

- ❑ The universal (*) selector selects all elements.

- ❑ Example:

```
* {
    background-color: yellow;
}
```

- ❑ The * selector can also select all elements inside another element

```
div * {
    background-color: yellow;
}
```

Type Selector

- The STYLE attribute can be added to any HTML element.
- Example:

```
H1 {color: blue;}
```

- It selects an element of the HTML document: P, H1, BODY, etc.

Attribute Selector

- Allows you to specify rules that match attributes defined in the source document.
- Syntax :
  - Match when the element sets the "att” attribute, whatever the value of the attribute.

```
element[att] { property:value;}
```

  - Match when the element's "att" attribute value is exactly "val".

```
elemen [att = “val”] {property: value;}
```

Attribute Selector

- Example:
  - Selects “input” element that has the attribute type with value of “button”:

    ```
    Input [type="button"]  {background-color: blue;}
    ```

  - Selects any element that has the attribute type with value of “button”:

    ```
    [type="button"]  {background-color: blue;}
    ```

  - Selects all elements with a name attribute containing the word "flower“

    ```
    [name~=flower]{background-color: blue;}
    ```

  - Selects every <a> element whose href attribute value begins with "https“

    ```
    a[href^=http]{font-size: 12;}
    ```

  - Selects every <a> element whose href attribute value ends with ".pdf"

    ```
    a[href$=.pdf]{font-size: 16;}
    ```

IDs

- The ID attribute is used to define a unique style for an element.
- Example:
  - In the CSS

```
#id1 {color: red}
```

  - In the HTML

```
<div id=id1 >
            This is the div with the id.
</div>
```

Classes

- Classes allow you to define a style which can be applied to multiple elements on your page.
- Example (1):
  - Say that you would like to have two types of paragraphs in your document: one right-aligned paragraph, and one center-aligned paragraph. Here is how you can do it with styles:
    - In the CSS

```
p.righttxt {text-align: right}
p.centertxt {text-align: center}
```

    - In the HTML

```
<p class="righttxt">
        This paragraph will be right-aligned.
</p>
<p class="centertxt">
        This paragraph will be center-aligned.
</p>
```

Classes (Cont.)

- Example (2):
  - To apply more than one class per given element:
    - In the CSS

```
p.boldtxt { font-weight: bold}
p.largetxt { font-size: xx-large}
```

    - In the HTML

```
<p class=“boldtxt largetxt">
```

    - This paragraph will be Bold & very large.</p>

- The paragraph above will be styled by the class “bold" AND the class “large".

Classes (Cont.)

- Example (3):
  - → In the CSS

```
p { font-size: 20} /* apply to all p*/
p.c1{color:red}
p.c2{color:blue}
p.c3{ font-weight: bold}
```

  - → In the HTML

```
<p>
    This paragraph will be font size 20.
</p>
<p class="c1">
    This paragraph will be font size 20, and color red.
</p>
<p class="c1 c3">
    This paragraph will be font size 20, and color red, and Bold
</p>
```

Classes (Cont.)

- Example (4):
  - To apply one class over more than one different HTML element:
    - → In the CSS

```
.bold { font-weight: bold }
```

    - → In the HTML

```
<p class=“bold">
    This paragraph will be Bold.
</p>
<SPAN class=“bold">
    This SPAN will be Bold too.
</SPAN>
```

- Both the paragraph & the span elements will be styled by the class “bold".

Descendant/Contextual Selector

- Used when we want selectors to match an element that is the descendant (inside) of another element in the document tree (In any lev

```
. <H1>
            This headline is
                    <span>very</span>
                    important
</H1>
```

- Example:

```
span { color: blue;}
H1 { color: red ;}
```

This headline is very important

  - Although the intention of these rules is to add emphasis to text by changing its color, the effect will be lost .

- To solve this:

```
H1 { color: red; }
span { color: green;}
H1 span{ color: blue;}
```

This headline is **very** important

Child Selector

- Matches when an element is the child of some element.
- A child selector is made up of two or more selectors separated by ">“.
- Example:
  - The following rule sets the style of all P elements that are children of BODY[that the body is their parent] (Applies only to direct children):

```
BODY > P {text-align: right }
```

```
<body>
        <div>
                this is my Div
                        <p>The style rule will not apply to this paragraph, coz
                            it is not direct child</p>
        </div>
        <p>But will be applied to this paragraph</p>
</body>
```

Adjacent Sibling Selector

- Adjacent sibling selectors have the following syntax: E1 + E2, where E2 is the subject of the selector.
- The selector matches if E1 and E2 share the same parent in the document tree and E1 immediately precedes E2.
- Example:
  - The following rule changes the color of an H2 that there's an H2 immediately follows it:

```
H1+H2{color:red ;}
```

```
<body>
        <h1>text</h1>
        <h2> text</h2> will appear in red
</body>
```

element1~element2 Selector

- The element1~element2 selector matches occurrences of element2 that are preceded by element1
- Both elements must have the same parent, but element2 does not have to be immediately preceded by element1.
- Example:
    - The following rule changes the color of all H2 that preceded by H2 with the same parent :

```
H1 ~ H2 {color:red }
```

```
<body>
        <h1>text</h1>
        <p>paragraph</p>
        <h2> text</h2> will appear in red
</body>
```

Grouping selector

- Grouping selectors is done by separating each selector with a comma:

```
H1 { font-family: sans-serif }
H2 { font-family: sans-serif }
H3 { font-family: sans-serif }
```

  - is equivalent to:

```
H1, H2, H3 { font-family: sans-serif }
```

Pseudo Classes selector

- CSS pseudo-classes are used to add special effects to some selectors.
- A pseudo-class is similar to a class in HTML, but it's not specified explicitly in the markup.
- Syntax:

```
selector:pseudo-class {property:value;}
```

```
selector.class:pseudo-class {property:value;}
```

- Example:

Anchor Pseudo-classes:

```
a:link {color:#FF0000;}      /* unvisited link */
a:visited {color:#00FF00;}  /* visited link */
a:hover {color:#FF00FF;}  /* mouse over link */
a:active {color:#0000FF;}  /* selected link */
a.menu:active {color:#0000FF;}  /* selected link */
```

CSS Pseudo Classes (cont.)

- More Example:

Selector	example	Description
:first-child	p:first-child	Selects every <p> element that is the first child of its parent
:last-child	p:last-child	Selects every <p> element that is the last child of its parent
:nth-child(n)	p:nth-child(2)	Selects every <p> element that is the second child of its parent
:only-child	p:only-child	Selects every <p> element that is the only child of its parent
:not()	:not(p)	Selects every element that is not a <p> element
:empty	p:empty	Selects every <p> element that has no children (including text nodes)
:focus	input: focus	Selects the input element which has focus.

Pseudo Elements selector

- Pseudo-elements match virtual elements that don’t exist explicitly in the document tree.

- In CSS1 and CSS2, pseudo-elements start with a colon (:) In CSS3, pseudo-elements start with a double colon (::), which differentiates them from pseudo-classes.

- A CSS pseudo-element is used to style specified parts of an element.

Pseudo elements selector (cont.)

- Examples:

Selector	Example	Example description
::after	p::after	Insert content after every <p> element **Example**: p::after {content: " - Remember this";} http://www.w3schools.com/cssref/tryit.asp?filename=trycss_sel_after_style
::before	p::before	Insert content before every <p> element
::first-letter	p::first-letter	Selects the first letter of every <p> element
::first-line	p::first-line	Selects the first line of every <p> element
::selection	p::selection	Selects the portion of an element that is selected by a user http://www.w3schools.com/cssref/tryit.asp?filename=trycss3_selection

Style Precedence in CSS: Specificity, Inheritance, and the Cascade

- **Factors that controls which CSS rule applies to a given html element**:
  - **Specificity Calculations**
    - Calculate selectors in the CSS rule, knowing that some selectors has more priority than others.
    - Importance trumps specificity, When you mark a css property with !important you're overriding specificity rules
  - **Inheritance**
    - Elements inherit styles from their parent container.
    - If you set the body tag to use color: red then the text for all elements inside the body will also be red unless otherwise specified.
    - Not all CSS properties are inherited, though. For example margins and paddings are non-inherited properties.
  - **The Cascade**

Style Precedence in CSS: Specificity, Inheritance, and the Cascade (Cont.)

- **Factors that controls which CSS rule applies to a given html element**:
  - **The Cascade**
    - At the highest level the cascade is what controls all CSS precedence and works as follows:
      1. Find all CSS declarations that apply to the element and property in question.
      2. Sort by origin and weight. Origin refers to the source of the declaration (author styles [website designer], user styles [the user of the website can apply their own style], browser styles [browser default])and weight refers to the importance of the declaration. (author has more weight than user which has more weight than default. !importance has more weight than normal declarations)
      3. Calculate specificity.
      4. If two rules are equal in all of the above, the one declared last wins.

Style Precedence in CSS: Specificity, Inheritance, and the Cascade (Cont.) - !important

- !important statement can be used to add weight to a declaration.
- !important statement is placed at the end of the declaration, just before the semicolon, and after the value, its invalid if it's located anywhere else.
- It's not a good practice, because it's disrupting the normal flow of the CSS rules.
- Use it when it's very necessary to use, and after all other avenues have been exhausted.
- Examples for when you may need to use it:
    1. You have a global CSS file that sets visual aspects of your site globally.
    2. You use inline styles on elements themselves which is a very bad practice

Style Precedence in CSS: Specificity, Inheritance, and the Cascade (Cont.) - !important

- Example:
  - In the below code sample, the element with the id of "example" will have text sized at 14px, due to the addition of !important.
  - Without the use of !important, there are two reasons why the second declaration block should naturally have more weight than the first:
    1. The second block is later in the stylesheet.
    2. Also, the second block has more specificity (#container followed by #example instead of just #example).

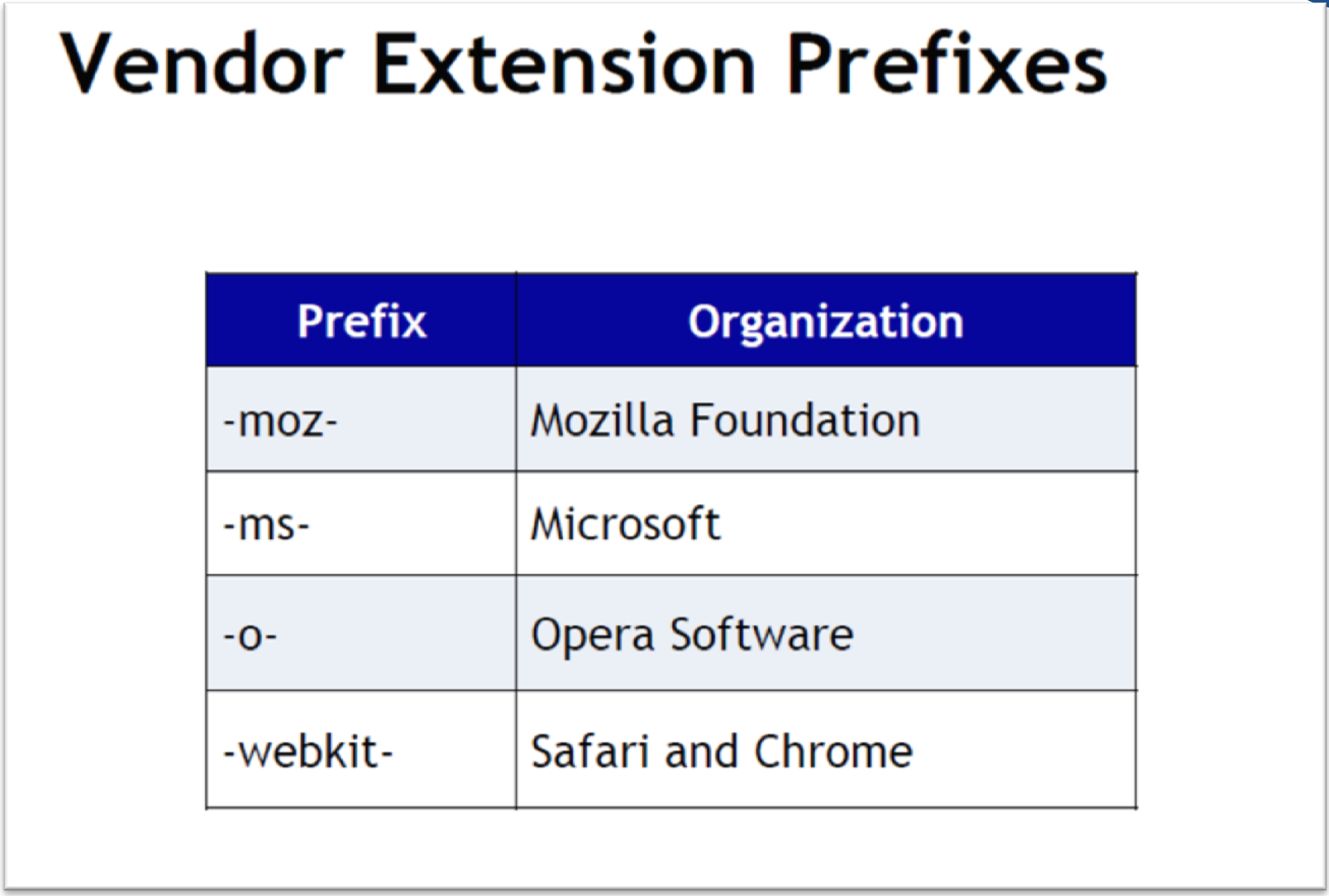
```
#example {
            font-size: 14px !important;}

#container #example {
            font-size: 10px;}
```

Style Precedence in CSS: Specificity, Inheritance, and the Cascade (Cont.)

- More about !important and Style Precedence :
  - http://www.vanseodesign.com/css/css-specificity-inheritance-cascaade/
  - http://www.sitepoint.com/web-foundations/cascade/
  - http://www.w3.org/TR/CSS2/cascade.html/
  - https://developer.mozilla.org/en-US/docs/Web/CSS/Specificity
  - http://css.maxdesign.com.au/selectutorial/advanced_cascade.htm
  - http://css-tricks.com/specifics-on-css-specificity
  - http://www.smashingmagazine.com/2010/11/02/the-important-css-declaration-how-and-when-to-use-it/
  - http://www.sitepoint.com/web-foundations/specificity/

Vendor Extension Prefix



Vendor Extension Prefixes

Prefix	Organization
-moz-	Mozilla Foundation
-ms-	Microsoft
-o-	Opera Software
-webkit-	Safari and Chrome

CSS measurement Units

- ❑ **Physical Measurements**
  - **inches (in)**
  - **points (pt)**
- ❑ **Screen Measurements**
  - **pixels (px)**
- ❑ **Relative Measurements**
  - **%**
  - **em**
- ❑ □**1em = 12pt = 16px = 100%.**

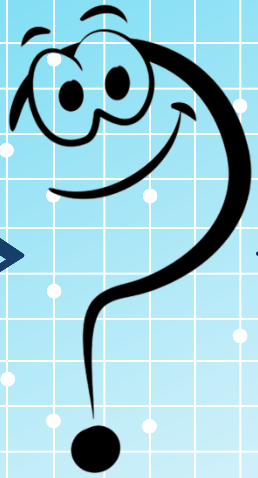
CSS reference

- CSS tutorial:
  - http://www.w3schools.com/css/default.asp
  - http://css-tricks.com
  - http://www.sitepoint.com
  - http://css.maxdesign.com.au/selectutorial
- CSS 3 tutorial:
  - http://www.w3schools.com/css3/default.asp
  - http://www.css3.info/
- CSS Selector reference:
  - http://www.w3schools.com/cssref/css_selectors.asp
- CSS Properties reference:
  - http://www.w3schools.com/cssref/default.asp

Self Study

- ❑ CSS cascading and Specificity.
- ❑ CSS3 New properties.
- ❑ CSS3 new properties for HTML5.
- ❑ CSS3 Transition, transformation, and animation.

<SCRIPT > </SCRIPT>



```
<script>document.writeln("Thank You!")</script>
```