

**Client/Server Programming
for Internet Applications**

TCSS460
Summer 2020

Lecture 3
Cascading Style Sheets

UWTACOMA

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What is CSS?

Cascading Style Sheets (CSS)

- CSS is a W3C standard for describing the appearance of HTML elements
- with CSS, we can assign font properties, colors, sizes, borders, background images, and even position elements on the page
- CSS can be added directly to any HTML element (via the style attribute), within the <head> element, or, most commonly, in a separate text file that contains only CSS.

benefits of CSS

- improved control over formatting;
- improved site maintainability;
- improved accessibility;
- improved page-download speed.
- improved output flexibility (responsive design)

limitations

- different browser implementation differences
- difficulty of dealing with floating elements and relative positions

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CSS Syntax

- a CSS document consists of one or more **style rules**
- a **rule** consists of
 - a **selector** that identifies the HTML element or elements that will be affected, followed by
- a series of **property:value** pairs (each pair is also called a **declaration**)
 - each declaration must contain a property

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CSS Syntax

Property Type	Property
Fonts	font font-family font-size font-style font-weight @font-face
Text	letter-spacing line-height text-align text-decoration* text-indent
Color and Background	color background-color background-image background-position background-repeat box-shadow filter opacity
Borders	border* border-color border-width border-style border-top, border-left, ...* border-image border-radius

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CSS Syntax

Property Type	Property
Spacing	padding padding-bottom, padding-left... margin margin-bottom, margin-left... margin-top, margin-right...
Sizing	height max-height max-width min-height min-width width
Layout	bottom, left, right, top clear display float overflow position visibility z-index
Lists	list-style* list-style-image list-style-type
Effects	animation* filter perspective transform* transition*

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Types of Style Sheets

Inline Styles

- **inline styles** are style rules placed within an HTML element via the style attribute

```
<h1>Share Your Travels</h1>
<h2 style="font-size: 24pt">Description</h2>
...

```

- using inline styles is generally discouraged
 - handy for quickly testing out a style change

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Types of Style Sheets (cont'd)

Embedded Style Sheet

- **internal style** sheets (also called **embedded styles**) are style rules placed within the `<style>` element (inside the `<head>` element of an HTML document)

```

<head>
  <meta charset="utf-8">
  <title>Share Your Travels -- New York - Central Park</title>
  <style>
    h1 { font-size: 24pt; }
    h2 {
      font-size: 18pt;
      font-weight: bold;
    }
  </style>
</head>
<body>
  ...

```

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Types of Style Sheets (cont'd)

External Style Sheet

- **external style** sheets are style rules placed within a external text file with the `.css` extension

```

<head>
  <meta charset="utf-8">
  <title>Share Your Travels -- New York - Central Park</title>
  <link rel="stylesheet" href="styles.css" />
</head>

```

- Style sheets by priority

1. **inline has the highest priority**
2. **internal style sheet**
3. **external style sheet**
4. **browser style sheet**

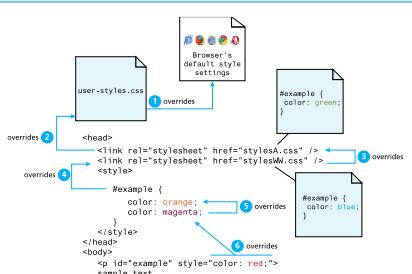


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The Cascade: How Styles Interact

Location



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Selectors

Element Selectors & Class Selector

- element selectors** select all instances of a given HTML element selector


```
em { color: red; }  
      property value  
  
p {  
  margin: 0 10px 0;  
  font-weight: bold;  
  font-family: Arial, Helvetica, sans-serif;  
}
```
- a **class selector** allows you to simultaneously target different HTML elements regardless of their position in the document tree using the same class attribute value

see an example of a class selector on the next slide ➔

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Selectors

Class Selector

```
<head>  
  <title>Share Your Travels </title>  
  <style>  
    .first {  
      font-style: italic;  
      color: red;  
    }  
  </style>  
</head>  
<body>  
  <h2 class="first">Reviews</h2>  
  <div>  
    <p class="first">By Ricardo on <time>2016-05-23</time></p>  
    <p>Easy on the HDR buddy.</p>  
    <hr/>  
    <div>  
      <p class="first">By Susan on <time>2016-11-18</time></p>  
      <p>I love Central Park.</p>  
    </div>  
  </div>  
</body>
```

.first {
 font-style: italic;
 color: red;
}

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Selectors

ID Selectors

- an **id selector** allows you to target a specific element by its id attribute regardless of its type or position

```
<head>  
  <title>Share Your Travels </title>  
  <style>  
    #latestComment {  
      font-style: italic;  
      color: red;  
    }  
  </style>  
</head>  
<body>  
  <h2 class="first">Reviews</h2>  
  <div id="latestComment">  
    <p class="first">By Ricardo on <time>2020-05-23</time></p>  
    <p>Easy on the HDR buddy.</p>  
    <hr/>  
    <div>  
      <p class="first">By Susan on <time>2020-06-18</time></p>  
      <p>I love Central Park.</p>  
    </div>  
  </div>  
</body>
```

#latestComment {
 font-style: italic;
 color: red;
}

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Selectors

Attribute Selectors

- an **attribute selector** provides a way to select HTML elements either by the presence of an element attribute or by the value of an attribute

```
<meta charset="utf-8">
<title>Share Your Travels</title>
<style>
[title] {
    cursor: help;
    padding-bottom: 3px;
    border-bottom: 2px dotted blue;
    text-decoration: none;
}
</style>
</head>
<body>
<div>

<h2><a href="countries.php?l=CA" title="see posts from Canada"> Canada </a></h2>
<p>Canada is a North American country consisting of ... </p>
<div>



</div>
</div>
</body>
```



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Selectors

Attribute Selectors (cont'd)

Selector	Matches
[]	A specific attribute.
[=]	A specific attribute with a specific value.
[~=]	A specific attribute whose value matches at least one of the words in a space delimited list of words.
[^=]	A specific attribute whose value begins with a specified value.
[*=]	A specific attribute whose value contains a substring.
[\$/=]	A specific attribute whose value ends with a specified value.

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Background

Background

- background** (shorthand notation)

- background-attachment**
- background-color**
- background-image**
- background-position**
- background-repeat**
- background-size**



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CSS Text Styling

Font Family

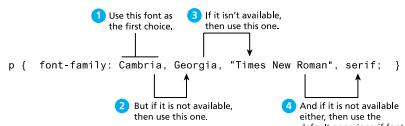
Property	Description
font	A combined shorthand property that allows you to set the family, style, size, variant, and weight in one property. style weight variant size font-family
font-family	Specifies the typeface/font to use. More than one can be specified.
font-size	The size of the font in one of the measurement units
font-style	Specifies whether italic, oblique, or normal
font-variant	Specifies either small-caps text or none
font-weight	Specifies either normal, bold, bolder, lighter, or a value between 100 and 900 in multiples of 100, where larger number represents weightier (i.e., bolder) text.

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CSS Text Styling

Specifying the Font Family

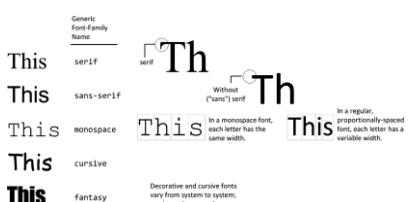


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CSS Text Styling

Different Font Families



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CSS Text Styling

Font Sizes

```
<body>                                Browser's default text size is usually 16 pixels
<p>                                    100% or 1em is 16 pixels
<h3>                                   125% or 1.125em is 18 pixels
<h2>                                   150% or 1.5em is 24 pixels
<h1>                                   200% or 2em is 32 pixels

/* using box scale */
<body>                                Browser's default text size is usually 16 pixels
p { font-size: 1em; }                  /* 1.0 x 16 = 16 */
h3 { font-size: 1.125em; }             /* 1.25 x 16 = 18 */
h2 { font-size: 1.5em; }               /* 1.5 x 16 = 24 */
h1 { font-size: 2em; }                /* 2 x 16 = 32 */

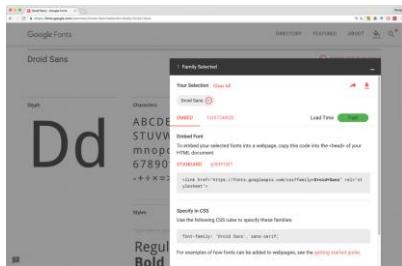

```

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CSS Text Styling

Font Face



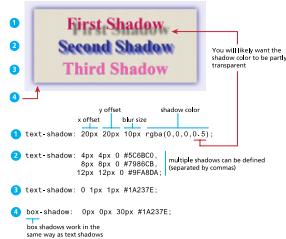
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CSS Text Styling

Paragraph Properties

- there are also a range of CSS properties that affect text independently of the font



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CSS Image Sprites

CSS Sprites

- a styling technique that aims to reduce the number of HTTP requests made for image resources
- **how?**
 - combine all images into a single file
- what is a **sprite**?
 - it is a 2-dimensional image which is made from combining multiple (usually small) images into a larger image
 - you can retrieve images through defined x and y coordinates
 - use `background-position` property in CSS to define exact position of an image

<https://csspritestool.com>

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CSS Front-End Frameworks

- [Bootstrap](#) is an open-source CSS framework
 - responsive
 - mobile-first web development
- contains CSS (and JavaScript) design templates
 - typography,
 - forms,
 - buttons,
 - navigation
 - and much more
- other frameworks
 - [Foundation](#), [Bulma](#), [Semantic UI](#), [Materialize](#), [Skeleton](#), [Milligram](#)



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CSS Reference

<https://developer.mozilla.org/en-US/docs/Web/CSS/Reference>

CSS reference

Web technology for developers > CSS: Cascading style sheets > CSS reference

English *

On This Page

Basic rule syntax
Key selector index
Selectors
Concepts
DOM/CSS / CSSOM
See also

Use the [CSS reference](#) to browse an alphabetical index of all the standard CSS properties, pseudo-elements, pseudo-elements, data types, and at-rules. You can also browse key CSS concepts and a list of selectors organized by type. Also included is a brief DOM/CSS / CSSOM reference.

Basic rule syntax

Style rule syntax

```
style-rule :>
  selector-list {  
    properties-list  
}
```

...where

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Goals of This Lecture

- You should be comfortable with the basic CSS elements
- You should be able to know the difference between the different types of stylesheets that exist (inline, internal and external)
- You should be comfortable with understanding the priorities associated with CSS types
- You should be able to know the types of selectors and when to use them
- You should be able to know the importance of CSS front-end frameworks (e.g. Bootstrap)
- You should know where you can find additional information on CSS on the web
- You should be able to know how to create CSS stylesheets

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Module Topics



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