

# CSS

## Cascading Style Sheets

### Introduction

- CSS makes HTML pretty
- Three ways to attach style to HTML
  1. Use the `style` attribute: `<p style="color: blue">...`
  2. Use an *internal* style sheet defined in the HTML `<HEAD>` element: 

```
<style type="text/css">
p { color: blue; }
</style>
```
  3. Use an *external* style sheet: `<link rel="stylesheet" type="text/css" href="someURL" />`

### CSS Syntax



The selector is normally the HTML element you want to style.

Each declaration consists of a property and a value.

The property is the style attribute you want to change. Each property has a value.

## CSS Format

- A *stylesheet* is a collection of styles
- A style is a *selector* followed by a list of properties inside curly braces separated with semicolons
- Uses C-style comments
- Simple case: selector is the name of an HTML element

```
/* Style for the body */
body { font-size: 0.8em; color: green; }
```

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## What does “Cascading” mean?

- If multiple style specification approaches are used (inside HTML element, inline in <head> or external CSS file) all styles cascade into one.
- Cascading order:
  1. Browser default
  2. External style sheet
  3. Internal style sheet (in head)
  4. Inline style (in HTML element)

Increasing  
Priority!




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## CSS class vs. id

- In addition to using HTML elements as selectors, we can also use class and id.
- Id: use to specify a style for a unique element.
  - Uses the id attribute of the HTML element and defined with a #.
- Class: use to specify a style for a group of elements.
  - Uses the class attribute of the HTML element and is defined with a “.”

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### Class Selectors Example

- A *class* defines a style that can be applied to all elements with a matching `class` attribute
- Define a class selector:  

```
.important { color: red; font-weight: bold; }
```
- Use it:  

```
<p class="important">this is important</p>
```

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### Id Selector Example

- An *id* refers to exactly one element that has the matching `id` attribute
- Define an id selector:  

```
#myheader { font-size: 24pt; font-style: italic; }
```
- Then use it:  

```
<h1 id="myheader">Welcome!</h1>
```

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### Selector Specificity Weights

- Each CSS selector has a specificity weight which along with its placement in the cascade identifies how styles will be rendered:
  - Type Selectors:
    - (low) weight: 0-0-1
  - Class Selectors:
    - (medium) weight: 0-1-0
  - ID Selectors:
    - (high) weight: 1-0-0
- Specificity weights are used to resolve styling conflicts.

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## Example

HTML

```
1 <p id="food">...</p>
```

CSS

```
1 #food {
2   background: green;
3 }
4 p {
5   background: orange;
6 }
```

ID selector (food) has higher weight than type selector, so text in paragraph will be green, not orange.

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## Example

HTML

```
1 <div class="hotdog">
2   <p>...</p>
3   <p>...</p>
4   <p class="mustard">...</p>
5 </div>
```

CSS

```
1 .hotdog p {
2   background: brown;
3 }
4 .hotdog p.mustard {
5   background: yellow;
6 }
```

.hotdog p:  
0-1-1  
.hotdog p.mustard:  
0-2-1  
(first two paragraphs brown, the third yellow)

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## CSS Units

- em = units are relative to the current font size (1em)
- px = pixels
- pt = points
- % = percentage of its container/parent element

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## Colors

- Many ways to specify a color
  - 1.name, e.g., blue
  - 2.rgb(red, green, blue), e.g., rgb(0%,0%,100%)
  - 3.rgba(red,green,blue,alpha)  
e.g., rgba(120,200,45,.25)
  - 4.hexidecimal (two digits for red, green, and blue),  
e.g., #0000ff

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## Common Properties

- background-color
- background-image
- background-position
- background-repeat
- color
- font-family
- font-size
- font-style
- font-weight
- letter-spacing
- line-height
- text-align
- text-decoration
- text-indent
- text-transform
- word-spacing

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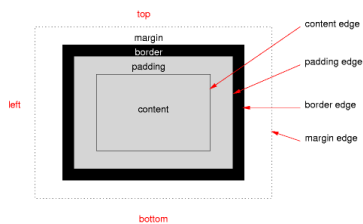
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## Borders, Margins, and Padding



From W3C

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## Borders

- `border-style`
- `border-width`
- `border-color`
- `border`

```
border: 1px blue solid;
```

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## Padding and Margins

- `margin` - sets all four margins (top, right, bottom, left)
- `padding` - sets all four padding lengths
- Can also use individual properties like `margin-left`

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## Width and Height of an Element

```
div.ex
```

```
{  
    width:320px;  
    padding:10px;  
    border:5px solid gray;  
    margin:2px;  
}
```

- Any div element of class ex will be 354px wide!
  - $320\text{px} + 20\text{px}$  (left and right padding) +  $10\text{px}$  (left and right margin) +  $4\text{px}$  (left + right margin).

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## Combining Styles

- The following style would only apply to important paragraphs:
 

```
p.important { ... }
```
- Apply common style to several selectors by separating them with commas
 

```
h2, h3, p { color: blue; }
```
- Apply style to nested elements by separating them with spaces
 

```
.important { color: red; }
.important p { font-size: 12pt; }
.important p b { font-style: italic; }
```

## Position

- `position`
  - `absolute` - uses the top, bottom, left, and right properties to place the element in an absolute position
  - `relative` - offsets the element by a given amount. Again, using the properties top, bottom, left, right. (relative to normal)
  - `static` - default positioning style, normal flow
  - `fixed` - fixes the element in a position relative to the browser window, not the web page

```
#footer { position: fixed; bottom: 0; left: 0; }
```

## Float

- `float` - "left" or "right"
- Moves the element to either the left or the right end of the line and flows content around it
- Use the `clear` ("left", "right", or "both") property to stop wrapping content from the given side(s)

```
#sidebar { float: right; }
```

### Reading Assignment

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- Complete a CSS Tutorial (as needed):
  - <https://www.w3schools.com/css/default.asp>
  - <https://learn.shayhowe.com>

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