CSC 337

Cascading Style Sheets

Marty Stepp, Rick Mercer

#pisa-tower {
    font-style: italic;
}

comic.browserling.com

Preview of a styles sheet

```css
/* The good way, with a preview of cascading style sheet that has class mystyle */

body {
    background-color: grey;
}

.mystyle {
    border-style: solid;
    border-width: 2px 20px 10px 30px;
    border-color: red;
    margin: 20px;
    padding: 40px;
    font-family: Arial, Helvetica, sans-serif;
    font-size: 1.5em;
    color: aqua;
}
```

```html
<body>
Default rendering
 <div class="mystyle"> A styled block </div>
</body>
```

Default rendering

A styled block

Styles on W3Schools

- The online tutorials have styles like this (okay)
  - in <head> *add <style> </style> here*   <head>


```
<head>
<style>
  p {
    border: 1px solid powderblue;
  }
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
<p>This is a paragraph.</p>
<p>This is a paragraph.</p>
</body>
</html>
```

Result Size: 352 x 675

Run »

This is a heading

This is a paragraph.

This is a paragraph.

This is a paragraph.

The poor way to produce styles (also on W3)

- W3Schools also showed styles in html tags (not okay)

```
<body>
<h1 style="color: blue;">This is a heading</h1>
<p style="color: red;">This is a paragraph.</p>
</body>
```

This is a heading

This is a paragraph.

- We'll use a 3rd way to include styles in the next project

```
<head>
<title>Store CSS code in a separate file</title>
<link href="mystyles.css" type="text/css" rel="stylesheet" />
</head>
```

Cascading Style Sheets (CSS):

- HTML describes the content of the page
- CSS describes appearance and layout of information on a web page

Basic CSS rule syntax

- A CSS file consists of one or more rules

- Each rule begins with a selector, such as an HTML tag

  - When using a tag like <p>, the style will apply to ALL <p> blocks

- Between { } there are 1 to many style property: value declarations

General Form:

```
selector {
  property: value;
  property: value;
   ...
  property: value;
}
```

Example

```
p {
  font-family: sans-serif;
  color: red;
}
```

CSS Properties for Colors

```
<!DOCTYPE html>
<html>
<head>
<title>Styles</title>
<style>
p {
  color: red;
  background-color: yellow;
}
</style>
</head>
<body>
<p>This paragraph uses the style above</p>
<p>So does this <p></p>
</body>
</html>
```

Property	Description
color	color of an element's text
background-color	color that will appear behind the element

This paragraph uses the style above

So does this

Specifying Colors

```
<!DOCTYPE html>
<html>
<head>
<title>This is a Title</title>
<style>
p { color: red; }
h2 { color: rgb(128, 0, 196); }
h4 { color: #8000ff; }
</style>
</head>

<body>
<p>
This paragraph uses the first style above.
</p>
<h2>
   This h2 uses the second style above
</h2>
<h4>
   This h2 uses the third style above
</h4>

</body>
</html>
```

Show color selector in Eclipse

- Color names: aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, (white), yellow
- RGB codes: red, green, and blue values from 0 (none) to 255 (full)
- Hex codes: RGB values in base-16 from 00 to FF

This paragraph uses the first style above.

This h2 uses the second style above

This h2 uses the third style above

Fonts

- Units: pixels (px), point (pt), or m-size (em) for better resizing of web pages

    16px, 16pt, 1.16em

- Vague font sizes: xx-small, x-small, small, medium, large, x-large, xx-large, smaller, larger

- Percentage font sizes, e.g.: 90%, 120%

- Weights 100 200 300 … 900

CSS Properties for Fonts

```
<!DOCTYPE html>
<html>
<head>
<title>Styles</title>
<style>
p {
    font-family: Courier;
    font-size: 8pt;
    font-style: italic;
}
div {
    font-family: Arial;
    font-size: 2em;
    font-weight: 900;
    color: blue;
}
</style>
</head>
<body>
<p>Arial 8pt italic</p>
<div>2em div bold blue</div>
</body>
</html>
```

property	possible value
font-family	Courier Arial
font-size	8pt 2em
font-style	normal italic or beak
font-weight	normal bold lighter thickness 100 200 300 … 800 900
There are a couple dozen more	

Arial 8pt italic

2em div bold blue

Multiple font choices

- Can specify multiple fonts from highest to lowest priority
- Because some fonts may not exist on the computer
  - If Garamond is not on the computer, try "Times new Roman", then serif

```
p {
    font-family: Garamond, "Times New Roman", serif;
}
```

- A few commonly used font families
  - Georgia, serif
  - "Times New Roman", Times, serif
  - Arial, Helvetica, sans-serif
- Or use generic font names, probably best to use:
  serif, **sans-serif**, *cursive*, `monospace`

Embedding styles in a separate css file

- CSS can be embedded in HTML (previous slide) or placed in a .css file

- Use the code below to include the styles you build in the

  - `rel` attribute means `rel`ationship

  - There must be an `href` present

  - The file name can be anything, but use .css extension

  - If the file is named styles.css, you get them with this in the `<head>`

```
<head>
  <link href="styles.css" type="text/css" rel="stylesheet">
</head>
```

Backgrounds and an External css File

```css
/* styles.css */
body {
  font-size: 1.5em;
  background-image: url("images/moviebg.png");
}
h1 {
  background-color: green;
}
```

Code demo, try a new image that is more clearly repeated

- These are needed in project 2
  - external style sheet
  - background-color
  - background-image

```html
<!DOCTYPE html> <!-- background.html -->
<html>
<head>
<link href="styles.css" type="text/css" rel="stylesheet">
</head>
<body>
Body has a repeating image, looks
like color green
<h1>h1 has green background</h1>
</body>
</html>
```

Body has a repeating image, looks like color green

h1 has green background

Borders and external CSS

```css
/* styles.css */
div {
    border-style: solid;
    color: green;
    width: 160px;
    height: 120px;
}
p {
    border-style: double;
    color: grey;
  width: 100px;
    height: 40px;
}
```

- Project 2 also needs
  - properties border, height, width

Code Demo: Play with height and width and padding sizes

```html
<head>
<link href="styles.css" type="text/css" rel="stylesheet">
</head>
<div>
A div
<p>Inner paragraph </p>
<p>Another </p>
</div>
</body>
</html>
```

A div

Inner paragraph

Another

The CSS Box Model

- Every element is composed of
  - **Content** - The content of the box, where text and images appear
  - **Padding** - Clears an area around the content, inside the element. The padding is transparent.
  - **Border** - A border that goes around the padding and content
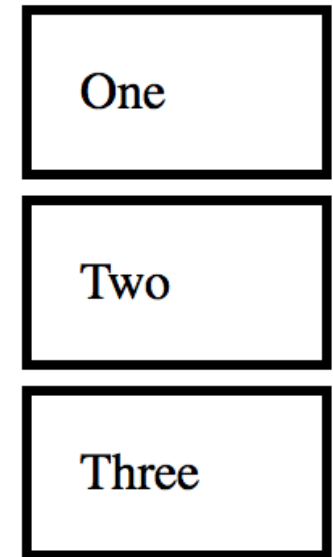 - **Margin** - Clears an area outside the border. The margin is transparent

margin and padding

```css
/* styles.css */
p {
    border-style: solid;
    margin: 5px;
    padding: 15px;
    width: 60px;
}
```

Code Demo, play with margin and padding

- Project 2 also needs
  - margin padding
- Margin is between elements
- Padding is inside the border

```html
<head>
<title>Background</title>
    <link href="styles.css" type="text/css" rel="stylesheet">
</head>
<body>
<p>One</p>
<p>Two</p>
<p>Three</p>
</body>
```

One

Two

Three

Active Learning

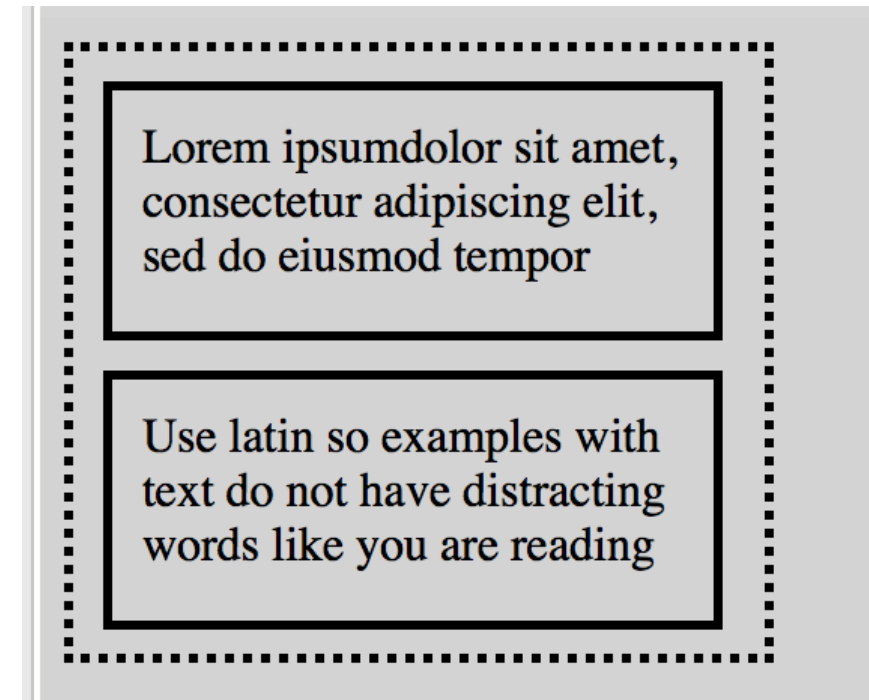Given this HTML file, write the CSS style sheet named styles.css to get the appearance shown to the right

```html
<head>
<title>Box Model</title>
<link href="styles.css" type="text/css" rel="stylesheet">
</head>
<body>
<div>
<p>
Lorem ipsumdolor sit amet, consectetur
adipiscing elit, sed do eiusmod tempor
</p>
<p>
 Use latin so examples with text do not
 have distracting words like you are reading
</p>
</div>
</body>
```

Lorem ipsumdolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor

Use latin so examples with text do not have distracting words like you are reading

More CSS

Content vs. presentation

- HTML is for **content**; *what* is on the page (heading; list; code; etc.)

- CSS is for **presentation**; how to display the page (bold; centered; 20px margin; layouts, etc.)

- Keeping content separate from presentation is an important web design principle

- If the HTML contains no styles, its entire appearance can be changed dramatically by swapping .css files

- See http://csszengarden.com/

Review Basic CSS Rule Syntax / Preview .classes

selector

h1 {

color: red;
property   value

}

- A .css file consists of rules
- Selectors include
  - HTML tags like **p table**
  - classes starting with .
  - About 62 other selectors

```
p {    /* CSS */
    font-family: sans-serif;
    color: red;
}

.review {
    width: 290px;
    background: lightgray;
    border: solid
}
```

```
<!-- HTML -->
<p>The default values of p elements are changed</p>
<div class="review">This div has a border now</div>
```

The default values of p elements are changed

This div has a border now

More Selectors

- So far, we have only used HTML tags as selectors like p and body
  - To style tables, we have seen selectors table, td, tr
- We now need class selectors, which is any identifier preceded by '.'
  - Use in HTML with the class attribute

```css
/* styles.css */
.bordered {
  border-style: solid;
  border-width: 6px;
  padding: 10px;
  color: grey;
  width: 120px;
  height: 20px;
}
```

```html
<head>
<title>class Selector</title>
<link href="styles.css" type="text/css" rel="stylesheet">
</head>
<body>
<p class="bordered">
  Styled with a class
</p>
</body>
```

Styled with a class

text-shadow

- Shadow is specified as an X-offset, a Y-offset, and a color

```css
/* styles.css */

.shadowed {
  font-weight: bold;
  font-size: 1.8em;
  color: blue;
  text-shadow: 2px 6px lightgrey;
}
```

Styled with a class

```html
<head>
<title>class Selector</title>
<link href="styles.css"
    type="text/css"
    rel="stylesheet">
</head>
<body>

<div class="shadowed">
  Styled with a class
</div>

</body>
</html>
```

background-image, text-align

- Image repeats to fill all of the HTML block

```css
.woodbg {    /* CSS */
    color: white;
    text-align: center;
    background-image: url("images.jpg");
    width: 300px;
    height: 250px;
}
```

```html
<!-- HTML -->
<div class="woodbg">
    This entire div should have an image
</div>
```

box-shadow

- Put a shadow to the right and bottom of an element

```css
.box {    /* CSS */
  /* 10px down, 10px right, 5px thick */
  box-shadow: 10px 10px 5px black;
  border: solid;
  border-width: 2px;
  width: 400px;
  height: 100px;
}
```

```html
<!-- HTML -->
<link rel="stylesheet" href="styles.css">
</head>
<body>
<div class="box">Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
</div>
</body>
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
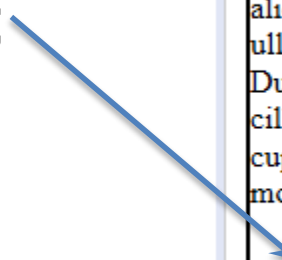
How can we stop this overflow?

A couple of ways

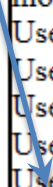- Make the height: value larger, like 200px;
- Or better yet, use min-height: 100px;

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
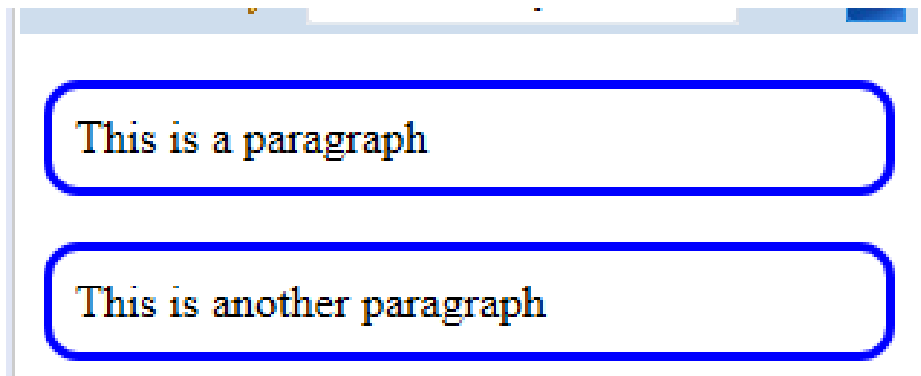
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
Use min-width so just the right height renders
Use min-width so just the right height renders
Use min-width so just the right height renders
Use min-width so just the right height renders
Use min-width so just the right height renders

Rounded corners with border-radius

- Put a shadow to the right and bottom of an element

```css
/* CSS */
.rounded {
  border: 3px solid blue;
  border-radius: 12px;
  padding: 0.5em;
}
```



```html
<head>
<link rel="stylesheet" href="styles.css">
</head>
<body>

<body>
<p class="rounded">
This is a paragraph
</p>

<p class="rounded">
This is another paragraph
</p>

</body>
```

Rounded corners with border-radius

```css
p {
  border: 3px solid blue;
  border-radius: 12px;
  padding: 0.5em;
}
```

This is a paragraph.

This is another paragraph.
It spans multiple lines.

output

- each side's border radius can be set individually, separated by spaces

Vertical Align for an image

span

- Use <span> to apply a style to part of an inline element
  - No new block start

```css
.part {
  font-size: 1.5em;
  font-family: sans-serif, "Arial";
}
```

```html
<p>Using span to <span class="part">a piece</span> of an element</p>
```

Using span to **a piece** of an element

Styles that conflict

- When two styles set conflicting values for the same property, the latter style takes precedence

```
p, h1, h2 {
      color: blue;
      font-style: italic;
}

h2 {
      color: red;
      background-color: yellow;
}
```
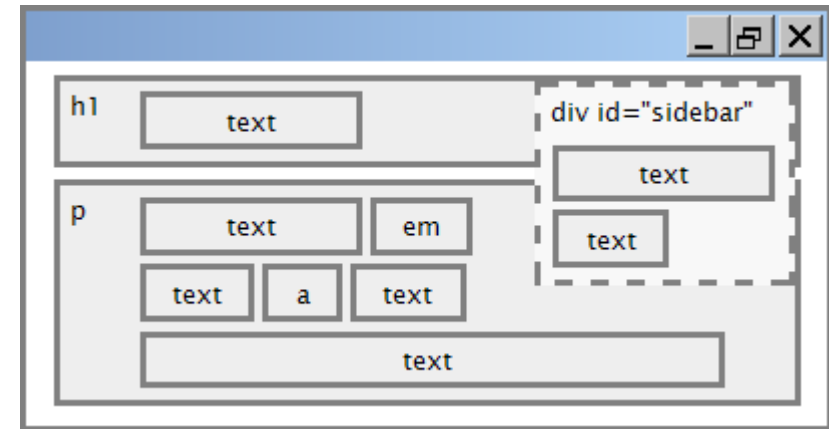
CSS Layout

The CSS float property

property	description
float	side to hover on; can be left, right, or none (default)

- **Floating** elements are removed from normal document flow
- Underlying text wraps around it as necessary

Floating content and width

I am not floating, no width set

I am floating, no width set

I am floating right, no width set, but my text is very long so this paragraph doesn't really seem like it's floating at all, darn

```css
body {
  font-family: arial, serif
}

.red {
  background: red;
  padding: 5px 10px 15px 20px;
  margin: 5px;
}


.floatright {
  float: right;
  background: olive;
  margin: 5px;
}
```

```html
<div class="red">
  I am not floating, no width set
</div>


<div class="floatright">
  I am floating, no width set
</div>


<div class="floatright">
I am floating right, no width set, but
my text is very long so this paragraph
doesn't really seem like it's floating
at all, darn
</div>
```

- Often floating elements should have a `width` property value
- If no `width` is specified, other content may be unable to wrap around the floating element

Multi-column layouts

```
<div>
  <p>the first paragraph</p>
  <p>the second paragraph</p>
  <p>the third paragraph</p>
  Some other text that is important
</div>
```

```
p {
      float: right;
      width: 20%;
      margin:  0.5em;
      border: 2px solid black;
}

div {
      border: 3px dotted green;
      overflow: hidden;
}
```

Some other text is important | the third paragraph | the second paragraph | the first paragraph
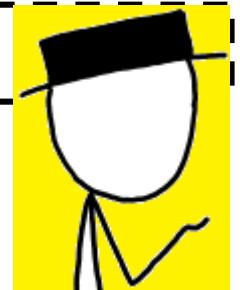
Common error: container too short

```
<p> <img src="images/xkcd.png" alt="the man in the hat" />
  XKCD a webcomic of romance, sarcasm, math, and language... </p>
```

```
p {
 border: 2px dashed black;
}

img {
  float: right;
}
```

XKCD a webcomic of romance, sarcasm, math, and language...

- What if you want the <p> containing the image to extend downward so that its border encloses the entire image

The overflow property

```
p {
    border: 2px dashed black;
    overflow: hidden;
}
```

XKCD a webcomic of romance, sarcasm, math, and language...

property	description
overflow	specifies what to do if an element's content is too large; can be auto, visible, hidden, or scroll

Float Example Needed on Rancid Tomatoes

```css
img.headericon {
        float: left;

}
```

```html
<img src="images/koala.jpg" alt="Koala" class="headericon" />
Lorem ipsum dolor sit amet, consectetur adipiscing elit....
```


Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam scelerisque purus ut dui mollis, sed malesuada leo pretium. Morbi bibendum mi at lacus rutrum convallis. Duis id eros dolor. In id eros blandit lectus viverra facilisis at commodo velit. Cras pretium nunc id nisl elementum, at interdum odio blandit. Donec luctus rutrum iaculis. Praesent luctus ante et cursus suscipit. Nullam congue egestas lorem nec luctus. Donec tincidunt tortor mi, nec ultricies orci bibendum a. Aliquam viverra metus nec ligula varius feugiat. In lacinia ligula accumsan tortor porttitor ornare. Donec interdum mattis purus sit amet ultrices. t

```css
.bigDiv {
    float: right;
    padding: 2.5em;
    margin: 20px;
    border: 2px solid black;
    border: 2px solid black;
    border-radius: 25px;
    box-shadow: 11px 22px 6px gray;
    width: 330px;
    height: 165px;
    background: cyan;
    background-image:
        url("hand.jpeg");
    background-repeat: repeat-y;
    text-align: center;
}

.shadow {
    font-family:
        sans-serif,
        arial;
    font-size: 18px;
    font: italic bold;
    text-shadow:
        -2px -6px pink;
}

img {
    vertical-align: middle;
}
```
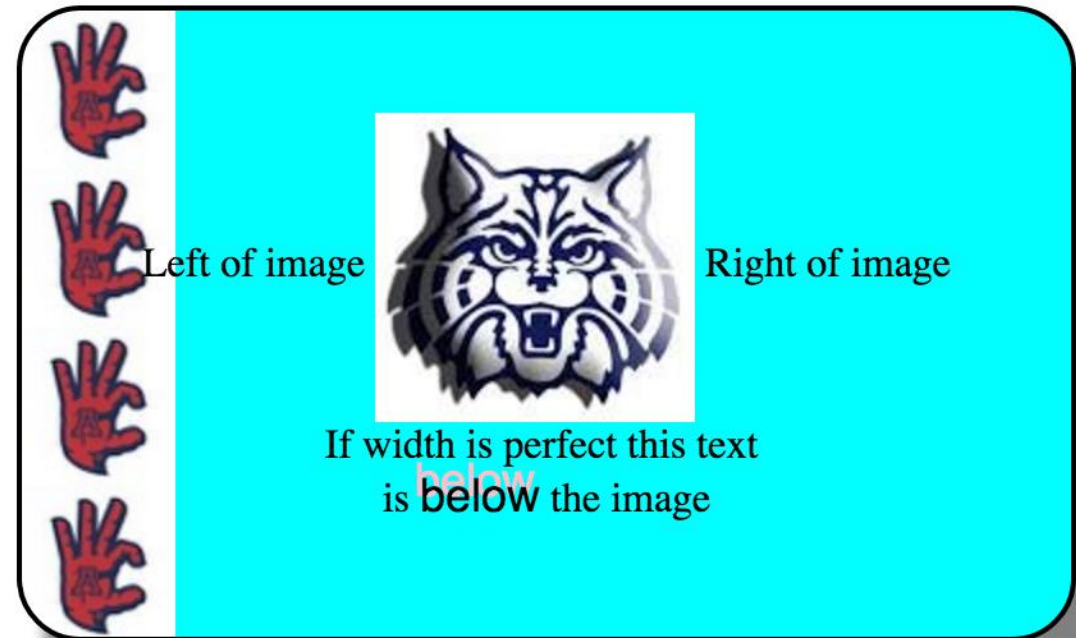
- Summarizing some things

```html
<div class="bigDiv">
        Left of image <img src="wildcat.jpeg" alt="AZ Wildcat">
        Right of image If width is perfect this text <br> is
        <span class="shadowText">below</span> the image
</div>
<p> class="shadow">After the div floated right</p>
```

After the div floated right

After the div floated right

Left of image   Right of image

If width is perfect this text
is below the image

css must really be one of the ugliest, uncontrolled and unchartered fields in web design out there. The lack of best practices, clarity, clean code and bad browser support results in time bombs that eat away at every project.