HTML & CSS: Week 4

Instructor: Devon Persing
TA: Becky Pezely

Review!

Abbreviations

- **Hex colors** that appear in triplets can be abbreviated
  - `#ff0000` can be `#f00`
  - `#666666` can be `#666`
- Some **CSS properties** that are related to each other can be grouped into a single property

Property abbreviations example

```
p {
   font-style: italic;
   font-weight: bold;
   font-size: 1.4em;
   line-height: 1.2em;
   font-family: Georgia, Times, "Times New Roman", serif;
   /* can be */
   font: italic bold 1.4em/1.2em Georgia, Times, "Times New Roman", serif;
}
```

`class` and `id` attributes

- **`class`** attributes
  - can be applied to multiple HTML elements of any kind to assign them the same styles
  - HTML elements can have more than one class
  - are denoted with a period in CSS (**`.example`**)
- **`id`** attributes
  - can be applied to a single element on a page to assign it styles
  - are denoted with a hash in CSS (**`#example`**)
- elements can have an **`id`** and **`class`**(es)

`class` example

```
/* a class in CSS */
.highlight { background: #ff0; }

<!-- a class in HTML -->
<h1 class="highlight">My page title</h1>
<p class="highlight">A paragraph of text.
</p>
```

`id` and `class` example

```
/* an id in CSS */
#title { font-size: 4em; }
/* a class in CSS */
.highlight { background: #ff0; }

<!-- an id and a class in HTML -->
<h1 id="title" class="highlight">My page title</h1>
<p class="highlight">A paragraph of text.</p>
```

`id` and multiple `class` example

```
/* an id and multiple classes in CSS */
#title { font-size: 4em; }
.highlight { background: #ff0; }
.offset { font-style: italic; margin-left: 20px; }

<!-- an id and multiple classes in HTML -->
<h1 id="title" class="highlight">My page title</h1>

<p class="highlight offset">A paragraph of text that has
two classes.</p>
```

`class` and `id` descendent selectors

```
#main h2 { /* some styles */ }
div .highlight { /* some styles */ }
#main .highlight { /* some styles */ }

/* works just like */

li span { /* some styles */ }
div p a { /* some styles */ }
```

combined `class` and `id` selectors

```
.highlight.offset { /* some styles */ }
#title.highlight { /* some styles */ }
div.main.featured { /* some styles */ }
```

- string **`class`**/**`id`** selectors together *without spaces* to style elements that have:
  - two or more of ***the same*** **`class`** attributes
  - a specific **`class`** ***and*** a specific **`id`**
  - an **`id`** ***and*** two or more of ***the same*** **`class`** attributes

combined `class` and `id` selectors

```
/* CSS ids and classes */
.highlight.offset { /* some styles */ }
#title.highlight { /* some styles */ }
div.main.featured { /* some styles */ }

<!-- HTML ids and classes →
<div>
   <h1 id="title" class="highlight"></h1>
   <p class="highlight offset"></p>
</div>
```

CSS backgrounds

```
background-color: #eee;
background-image: url("../img/kitten.jpg");
/* or */
background: #eee url("../img/kitten.jpg");

/* can be transparent! */
background: rgba(200, 54, 54, 0.5);
```

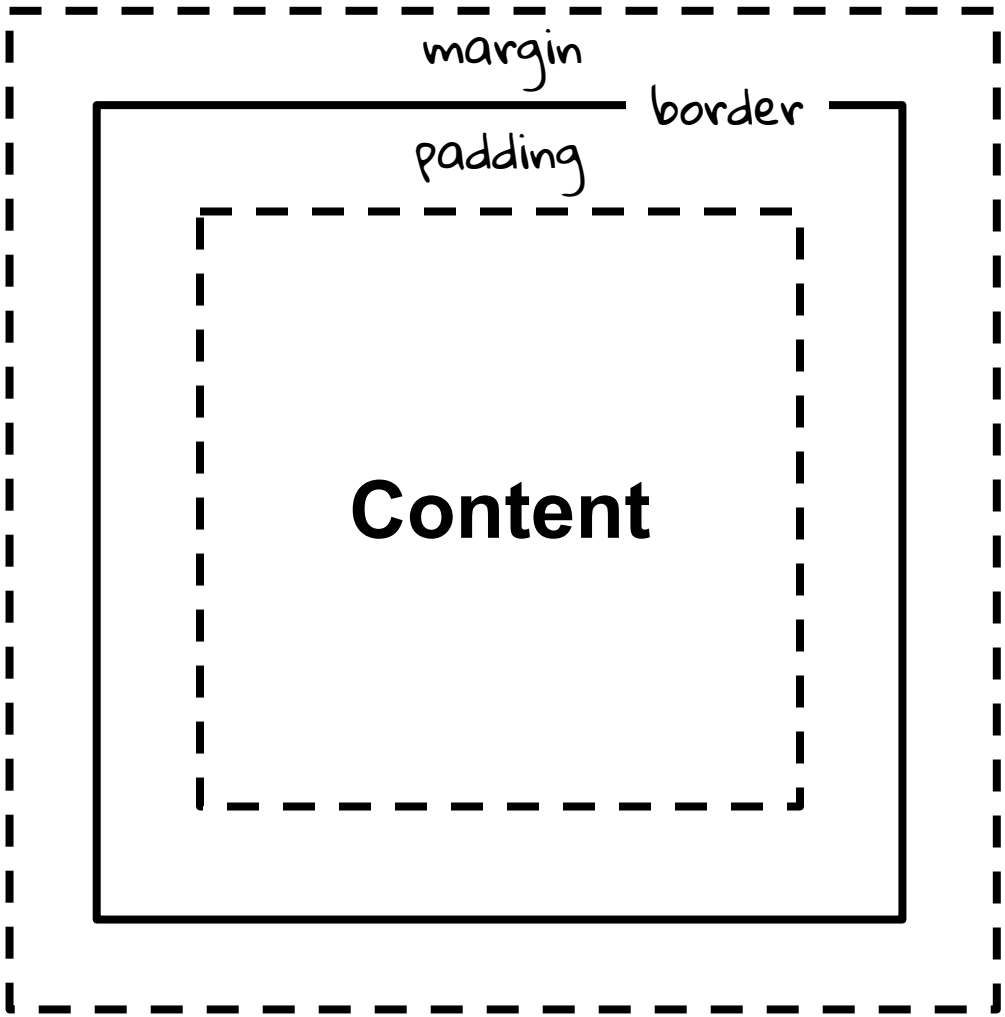
"a" for alpha transparency

color opacity from 0 (invisible) to 1 (opaque)

background options

```
/* repeating */
background-repeat: repeat-x; /* horizontal */
background-repeat: repeat-y; /* vertical */
background-repeat: no-repeat; /* none! */

/* position along y and x axes */
background-position: top right;
background-repeat: center center;
background-repeat: 20px 10px;

/* combined */
background: #eee url("../img/kitten.jpg")
no-repeat bottom right;
```

CSS box model



CSS box model components

- **Content** that defines the default **`width`** and **`height`** properties of an element's "box"
- **Border** that goes around the edge of the box
- **Padding** that adds space between the content and border
- **Margin** that adds space outside the border
- Edges are referenced clockwise (top, right, bottom, left)

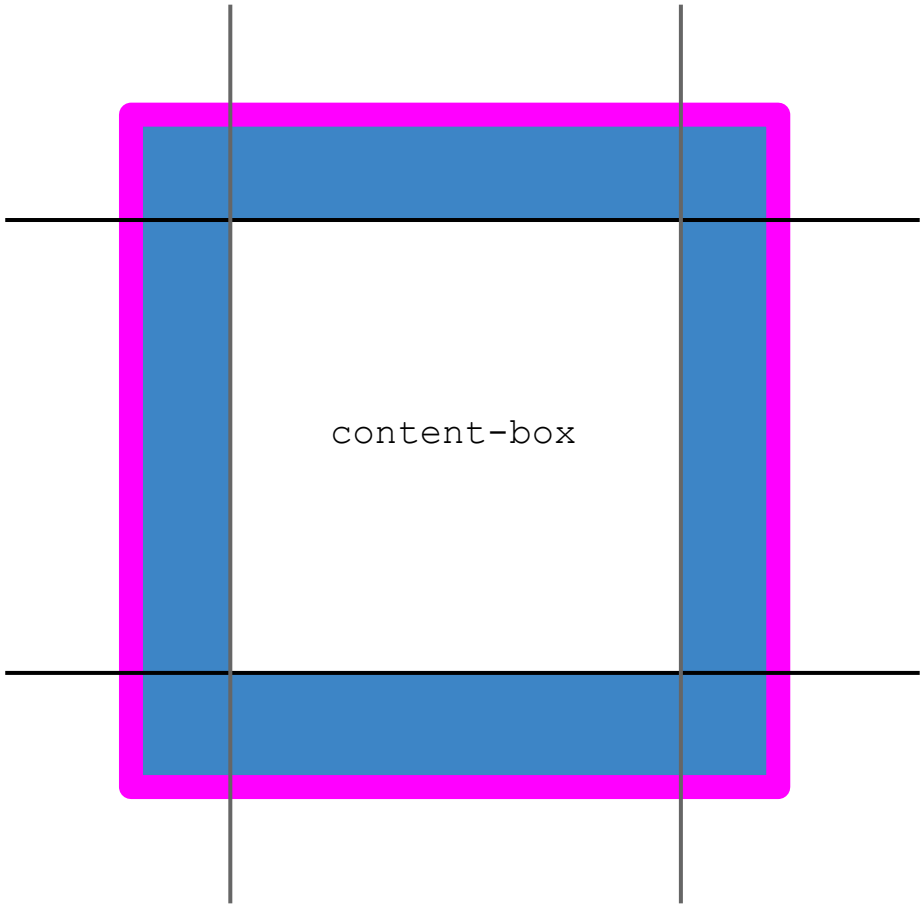
Example border box styles

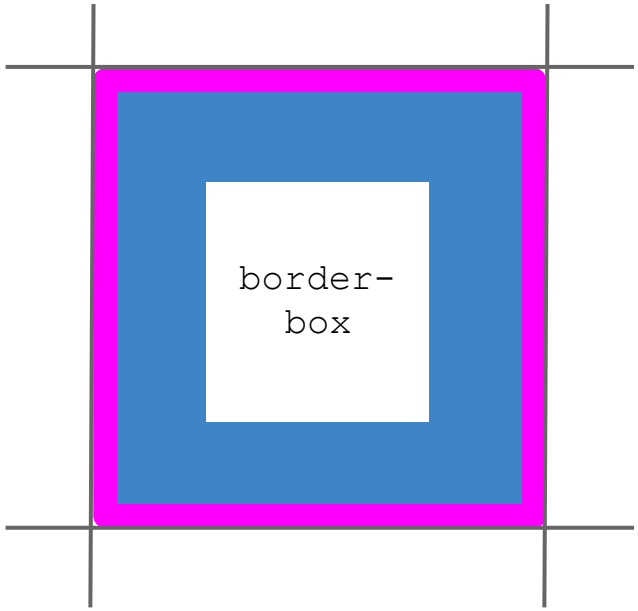
```
width: 400px; /* reset content width */
height: 200px; /* reset content height */

/* abbr. border styles: width, style, color */
border: 2px solid #ff0;

/* margin style written out */
margin-left: 20px;
margin-bottom: 10px;

/* abbr. padding styles: 10px top/bottom, 20px right/left
*/
padding: 10px 20px;
```

`box-sizing` to the rescue

- The **`box-sizing`** property affects how containers are rendered on the page, with `content-box` as the default value
- The `border-box` value renders border and padding **inside** the container instead of **outside**

content-box to border-box





Using `box-sizing`

```
div {
   /* Firefox vendor prefix */
   -moz-box-sizing: border-box;
   box-sizing: border-box;
}
```

Questions?

This week

- HTML data tables
- New HTML5 container elements
- Multi-column layouts
- CSS pseudo-classes

HTML data tables

What's a table for?

- Presenting data in a tabular format
- That's it
- That's all
- For example:
  - Listings of people, addresses, etc.
  - Financial data
  - Product feature comparisons

Planning a table

- What **content** needs to be displayed?
- What's the most logical way to **organize and display** that content?
- How should the content be **labeled**?
- How should different parts of the table be **styled**?

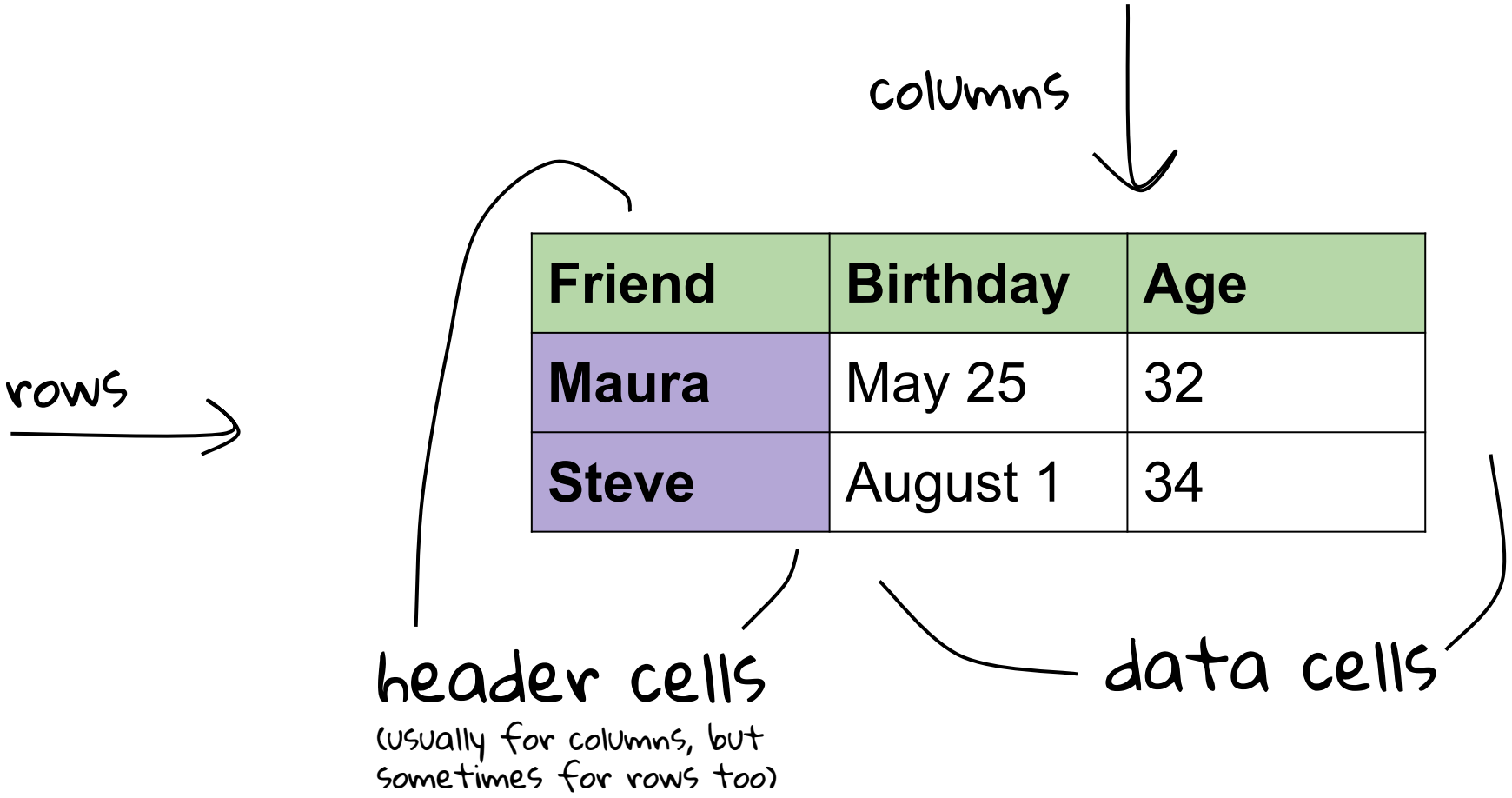
Basic table elements

- **`<table>`** wraps all table elements
- **`<tr>`** creates a row of table cells
- **`<th>`** creates a table header cell within a row
- **`<td>`** creates a regular table data cell within a row

Code for a basic table

```
<table>
    <tr>
        <th>Column 1 Header</th>
        <th>Column 2 Header</th>
        <th>Column 3 Header</th>
    </tr>
    <tr>
        <td>Column 1 Data Cell</td>
        <td>Column 2 Data Cell</td>
        <td>Column 3 Data Cell</td>
    </tr>
</table>
```

Anatomy of a table



Friend	Birthday	Age
Maura	May 25	32
Steve	August 1	34

`<th>` attributes

- For accessibility, it's good practice to use a scope attribute for table header cells:
  - **`scope="`**`col`**`"`** for table headers that describe a column
  - **`scope="`**`row`**`"`** for table headers that describe a row
- Creates an explicit connection for data cells that have multiple headers

A basic table with header rows

```
<table>
    <tr>
        <th scope="col">Column 1 Header</th>
        <th scope="col">Column 2 Header</th>
        <th scope="col">Column 3 Header</th>
    </tr>
    <tr>
        <th scope="row">Row 2 Header</th>
        <td>Row 2, Column 2 Data Cell</td>
        <td>Row 2, Column 3 Data Cell</td>
    </tr>
</table>
```

Styling table elements

- **`background`**, **`border`**, **`margin`**, and **`padding`** styles can all be applied
- **`border-spacing`** controls space between adjacent cells
- **`border-collapse`** removes `border-spacing`

```
border-spacing: 10px 5px;

border-collapse: collapse;
```

Spanning multiple rows/columns

- The **`colspan`** attribute allows a cell to span multiple columns (**`colspan="2"`** would span 2 columns)
- The **`rowspan`** attribute allows a cell to span multiple rows (**`rowspan="2"`** would span 2 rows)
- In general, cells that span only one row or column are recommended

Let's style a table.

HTML5 containers

Pre-HTML5 structure

- Previously, HTML had semantic values for content (like **<h1>** and **<p>**) but not for groups of content
- We faked it by using ** ** elements with semantic-sounding **id** attributes like:

```
<div id="header"></div>

<div id="main"></div>
<div id="sidebar"></div>

<div id="footer"></div>
```

HTML5 containers elements

- `<header>`: header of a container
- `<nav>`: navigation links
- `<main>`: primary content
- `<section>`: a group of related content
- `<article>`: what is says on the tin
- `<aside>`: supportive, non-primary content
- `<footer>`: footer of a container

Support for older browsers

- <IE9 and older mobile browsers have no native support for shiny new HTML5 tags
- These browsers can be ~~tricked~~ *gently coaxed* into displaying and styling new HTML5 elements via Javascript
- The most popular method is the **HTML5 shim**: https://code.google.com/p/html5shim/

Installing the HTML5 shim

1. Visit https://code.google.com/p/html5shim/ and download the zip file
2. Unzip it, and add it to your site files (hint: maybe in a **`js`** folder?)
3. Paste/type this into the `<head>` element of all your pages:

```
<!--[if lt IE 9]>
<script scr="your-file-location"></script>
<![end if]-->
```

While we're in our files

Let's add a new selector to our reset styles...

```
html, body, div, span, applet, object, iframe, h1, h2, h3, h4, h5, h6, p,
blockquote, pre, a, abbr, acronym, address, big, cite, code, del, dfn, em,
img, ins, kbd, q, s, samp, small, strike, strong, sub, sup, tt, var, b, u,
i, center, dl, dt, dd, ol, ul, li, fieldset, form, label, legend, table,
caption, tbody, tfoot, thead, tr, th, td, article, aside, canvas, details,
embed, figure, figcaption, footer, header, hgroup, menu, nav, output,
ruby, section, summary, time, mark, audio, video,  main {
    margin: 0; padding: 0; border: 0; font-size: 100%; font: inherit;
vertical-align: baseline;
}


/* HTML5 display-role reset for older browsers */
article, aside, details, figcaption, figure, footer, header, hgroup, menu,
nav, section, main {
    display: block;
}
```

`<header>`

- Wraps introductory content and/or navigation elements
- Can appear in multiple places on the page
- Use it for things like:
  - The global header of a site
  - The header of an article
  - The header of a long section within an article

`<nav>`

- Wraps major navigation elements
- Can appear in multiple places on the page
- Use it for things like:
  - Global navigation links for a site
  - Pagination links
  - Anything used to get around within a site

`<main>`

- Wraps the main content of a page
- Is used **only once per page**, unlike other elements
- Use it for things like:
  - A group of blog posts
  - An article with its own header
  - Whatever makes up the main focus of the page
- Came out after our reset styles were made!

`<section>`

- Wraps thematically related content, often with its own heading
- Can appear in multiple places on the page
- Use it for things like:
  - A group of related blog posts
  - A section within an article
  - A sidebar widget with its own header

`<article>`

- Wraps standalone texts
- A page might have one, several, or none
- Use it for things like:
  - Individual blog posts
  - Individual news articles
  - Individual comments on other articles

`<aside>`

- Wraps non-primary or tangential content
- A page might have one, several, or none
- Use it for things like:
  - A sidebar of related links
  - A pullquote from an article
  - A supporting fact for an article ("Did You Know?")
  - Things that can stand alone but aren't the main content of a page

`<footer>`

- Wraps any closing information in a container
- A page might have one, several, or none
- Use it for things like:
  - The global footer of a site
  - The footer of an article

Notes on using HTML5 containers

- HTML5 is an experiment in process and documentation!
- Elements will come and go
- When in doubt, use an online resource like **http://html5doctor.com/** (these will be more up to date than books)
- If you're not sure, use a **`<div>`**!

Let's swap out some `<div>` elements for HTML5 containers.

Creating CSS layouts

A brief history of web layouts

- Before CSS, we used `<table>` elements to make layouts :(
- With CSS we can use a variety of declarations to arrange elements on the screen by adjusting the flow of the page
  - **Pros:** Any content can be displayed anywhere!
  - **Cons:** Any content can be displayed anywhere!

Centering our page in the browser

```
.wrapper { width: 960px; margin: 0px auto; }
```

- Most websites sit in the middle!
- To do this, give your **<body>** or another container that wraps the whole page:
  - a **width**
  - a left and right **margin** value of **auto**

Resizing images to fit in containers

```
img { width: 100%; height: auto; }
```

- Often images may come in different sizes, but need to be standardized to fit into a layout
- Use the **`height`** and **`width`** properties to mix and match % and auto values to scale images based on their default height or width

3 main ways to adjust the page flow

Historically, we've used three main ways to create web layouts. I like to call them:

1. **Floating Down the River**
2. **Behavior Modification**
3. **Dictator for Life**

We'll try them out in our **Layout Laboratory**.

Method 1: Floating Down the River

- The **`float`** property lets us arrange elements like islands in the flow of the page:
  - To the left of the flow (**`left`**)
  - To the right of the flow (**`right`**)
- The **`clear`** property resets content that comes after floated content, like a bridge across the river (or a dam?)
  - Use **`clear:`** `both;` to clear **`left`** and **`right`** floats

Let's make a floated layout.

A few more ways to use `float`

- Position illustrations or photos (**`<img>`**) in the flow of a large block of text
- Position pullquotes or fun facts (**`<aside>`**) in the sides/margins of an article
- Position any non-primary content that lives inside primary content (social sharing buttons, bylines, dates, etc.)

Method 2: Behavior Modification

- **Inline** elements like **`<span>`** and **`<a>`** line up with their neighbors
- **Block** elements like **`<div>`**, **`<p>`**, **`<ul>`**, etc. create line breaks
- **Inline-block** elements like **`<img>`** line up but also maintain the box like block elements
- We can use the CSS **`display`** property to make elements behave like one or the other

Modify `display` behavior with CSS

- Make any element **behave like a block element**
- Make any element **behave like an inline element**
- Make any element **behave like an inline-block element**

```
a { display: block; }
div { display: inline; }
article { display: inline-block; }
```

Let's make a display-inline layout.

The `inline-block` layout trick

- **`inline-block`** was designed to display text elements like links, so it includes a tiny bit if space at the right for readability
- To fix this, give your inline-block elements a **negative right margin**:

```
div {
   display: inline-block;
   margin-right: -4px;
}
```

A few more ways to use `display`

- Make a normally-inline element **stand out**
- Style the same HTML differently in **different contexts**
- Manipulate how/when content is displayed using **Javascript**

Method 3: Dictator for Life

- The **`position`** property lets us arrange elements:
  - In relation to the flow (**`relative`**)
  - In a very specific place outside of the flow or within another **`relative`** element (**`absolute`**)
  - In relation to the browser window (**`fixed`**)
- How **position** is applied depends on to where the element is in the flow by default

Tweaking the `position`

- We can further dictate where elements go down to the pixel with a few additional elements
- **`left`**, **`right`**, **`top`** and **`bottom`** add or subtract pixels between positioned elements and their containers

```
div { position: absolute; right: -10px; top: 30px;
}
```

Let's make a positioned layout.

Some issues with this method

- Layouts that rely on absolute and fixed positioning require micromanagement:
  - The size of elements must be very precise and may need to be adjusted over time
  - It's difficult to mix other layout methods with this method
- Absolute and fixed positioning scales poorly on smaller devices like tablets and phones

What's the verdict?

CSS pseudo-classes

Pseudo-classes are conditional

- **Pseudo-classes** are added to a selector to add conditional styles to an element
- Most often used to style **states** of **<a>** elements and form elements

```
a:link { /* the default state of a link */ }
a:visited { /* a link that's been clicked */ }
a:hover { /* a link that has a mouse hover */ }
a:focus { /* a link that has keyboard focus */ }
a:active { /* a link that is currently being clicked */ }
```

`:hover` versus `:focus`

- `:hover` is for a link or other interactive element that has a **mouse hover**
- `:focus` is for a link or other interactive element that has **keyboard focus**
- Browsers have their own default `:focus` styles for **accessibility**

```
a:hover, a:focus {
    /* it's good practice to style :hover and :focus
together so they're both accounted for */
}
```

`:hover` for non-interactive elements

- `:hover` can be used to style hover states for some non-interactive elements to create a more dynamic experience

```
tr { /* a table row with one background... */
    background: #99ff66;
}

tr:hover { /* ...could have another on hover */
    background: #ff6600;
}
```

Some other nifty pseudo-elements

- `:first-letter` styles the first letter of a block of text
- `:first-child` and `:last-child` style the first and last children of a parent
- `:nth-child()` can be used to style even or odd children, or do some math to style every 5th, etc.
- `:before` and `:after` can be used to add style-only content to elements

CSS selectors are evolving

- **Pseudo-classes**, **pseudo-elements**, **combinators**, and **attribute selectors** create extremely targeted ways to style content
- To learn more of these techniques, and see which ones work in which browsers: **http://www.quirksmode.org/css/selectors/**

For next week

- Style your links with **pseudo-classes**
- Implement **HTML5 containers**
- Make and style a **data table**, if appropriate
- Style your **layouts**!
- Let me know if you'd like to **demo**
- ***HTML5 for Web Designers***: ch. 5
- ***HTML and CSS***: ch. 6, 14-15, 17

Next week

- Lingering and new questions
- Project demos?
- Web fonts and other 3rd party services
- Embedding iFrames and media
- A bit about more CSS3 (and CSS4)
- A bit about Javascript and JQuery
- A bit about the present and future of web dev

Questions?

- Visit http://dpersing.github.io/svc
  - Class slides
  - Code examples from class
  - Additional general and class-specific resources
- Email me at dep@dpersing.com