HTML and CSS

CS142 Section 1

Overview: HTML vs. CSS

HTML = scaffolding / structure

- Applying "meaning/structure" to content, rather than style.
  - e.g. "This is a paragraph, this is a heading."
  - **NOT**: "This is in size-16 Times New Roman."
- (This is why `<i>` and `<b>` tags are now considered bad practice; *semantic* `<em>` and `<strong>` preferred.)

Overview: HTML vs. CSS

CSS = painting / styling / (some) interactivity

- Styling for the semantic content expressed in HTML.
- CSS Rule = Selector + Declaration(s).
- "Don't Repeat Yourself:" Selector lets you apply the same style to multiple elements, change them all at once by modifying declaration.

HTML: Head and body

- **Head:** Contains title of page, link to CSS stylesheet, sometimes scripts.

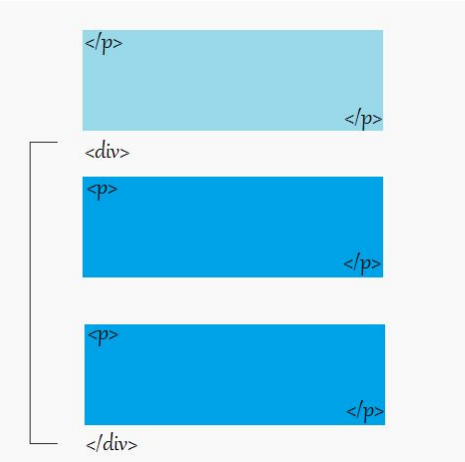
- **Body:** All the stuff that's actually rendered by the browser: text, tables, images, etc.

HTML: Div and Span

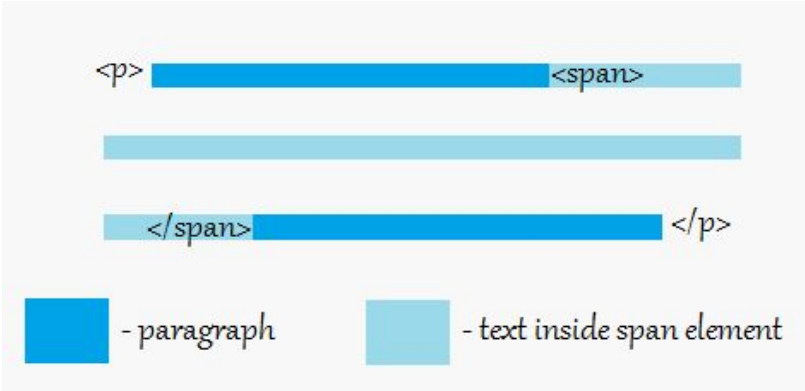
`<p> = paragraph, <h1> = heading...`

`<div>` and `<span>` have no semantic meaning, define presentation of document. (Can be used to "group" sections of the document.)

div: block element (by default)



span: inline element (by default)



http://bricksofweb.com/span-and-div-elements/

HTML: Attributes

Give element a custom "attribute" so that it can be picked out by a CSS selector.

ID: **uniquely** identifies object within a document (**don't re-use!**)
Classes: Think of as a "group" an element belongs to (can be repeated).

HTML

```
<div id="large" >
<div class="large">

<div class="large">
```

CSS

```
#large { // CSS styling by id}
.large { //CSS styling by class}
```

CSS Rules

- Selector + Declaration(s)
- **Selector:** Pick out element(s) by tag, class, or id.
  - Examples: `p {}, .large {}, #container {}`
  - Pseudo-selectors: `:hover {}`
  - Can combine: `p.large {}, div:hover{}`
- **Declaration:** Property-Value pair, specifying what the property should be.
  - Examples: `height: 300px; font-family: Arial`

Must-know CSS

Rule Conflicts / Overriding

- Cascade
- Inheritance

CSS Display Models

- Box Model, Flexbox

Useful Features

- Positioning, Shorthand, Pseudo Selectors

Override Rules

Cascade

CSS is "cascading" because of fixed priority of rules if more than one conflicting rule refers to the same object. [If two rules don't conflict, both are applied.]

1. Importance
   - !important properties override normal ones `color: red !important;`
   - (It is strongly discouraged to use !important explicitly)
   - User style sheets (e.g. browser default) overridden by author stylesheets.
2. Specificity
   - Declaration in style attribute has highest priority
   - id > class/pseudo-class > element type (eg. `#first > .tab > div`)
3. Source Code Order

Inheritance

CSS

```
div {
    font-size: 15px;
}
```

HTML

```
<div> <p> This font is 15px. </p> </div>
```

Not everything is inherited! (Why?)

Inheritance

Some properties inherit automatically (font size, font color) while others do not (background color).

Force inheritance by using the `inherit` property:

```
div { background-color: inherit; }
```

Percentages are a computed value, and imply inheritance (parent property needs to be defined)

```
div { font-size: 75%; }
```

More on cascade and inheritance:
https://developer.mozilla.org/en-US/docs/Learn/CSS/Introduction_to_CSS/Cascade_and_inheritance

Display Models

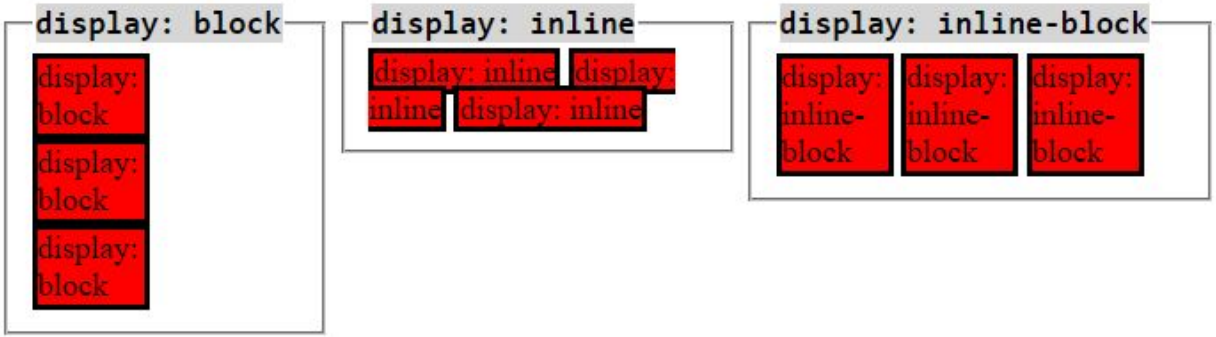
Box Model

- `width/height` properties refer to the **content only** by default.
  - (`box-sizing: content-box`)
  - Have add content width + border + padding to get width of the whole thing.
- If you want `width/height` to include border and padding:
  - `box-sizing: border-box`

Display

```
#element {
    display: none;
}
```

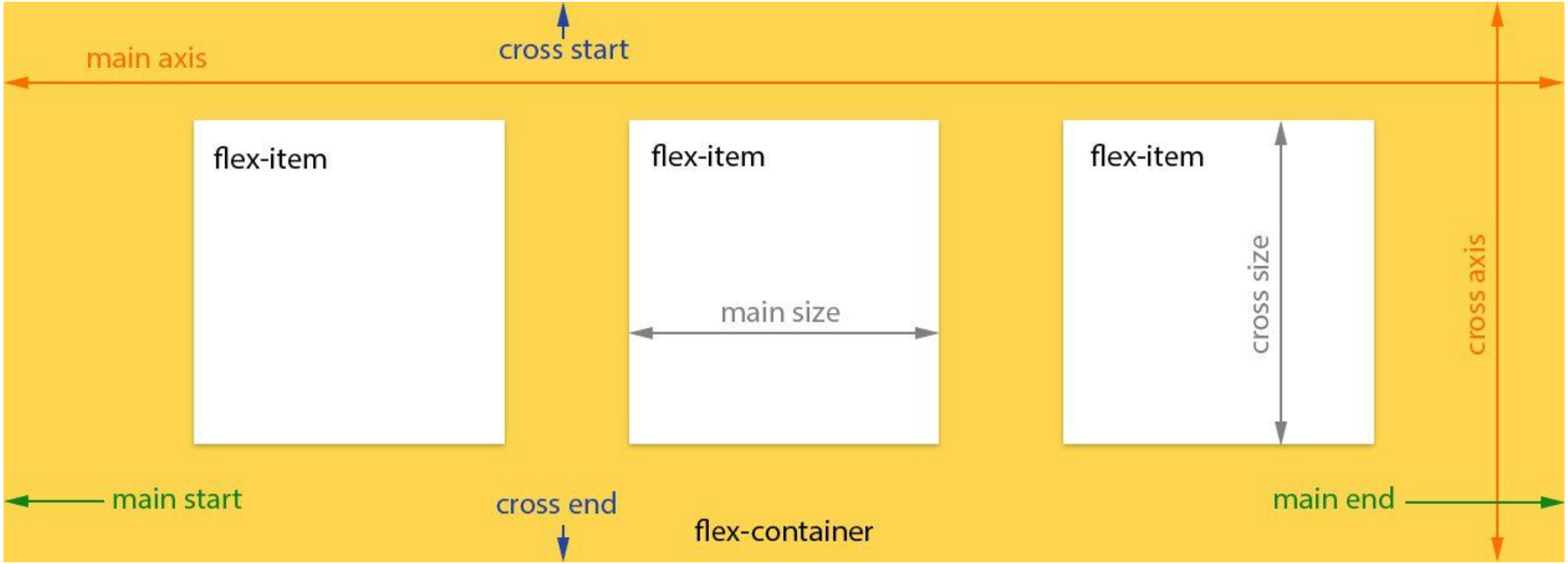
- `none` (as opposed to `visibility: hidden`)
  - Question: What's the difference between these two?
- `block`, `inline`, `inline-block`, `float`
- `flex`



http://dustwell.com/div-span-inline-block.html

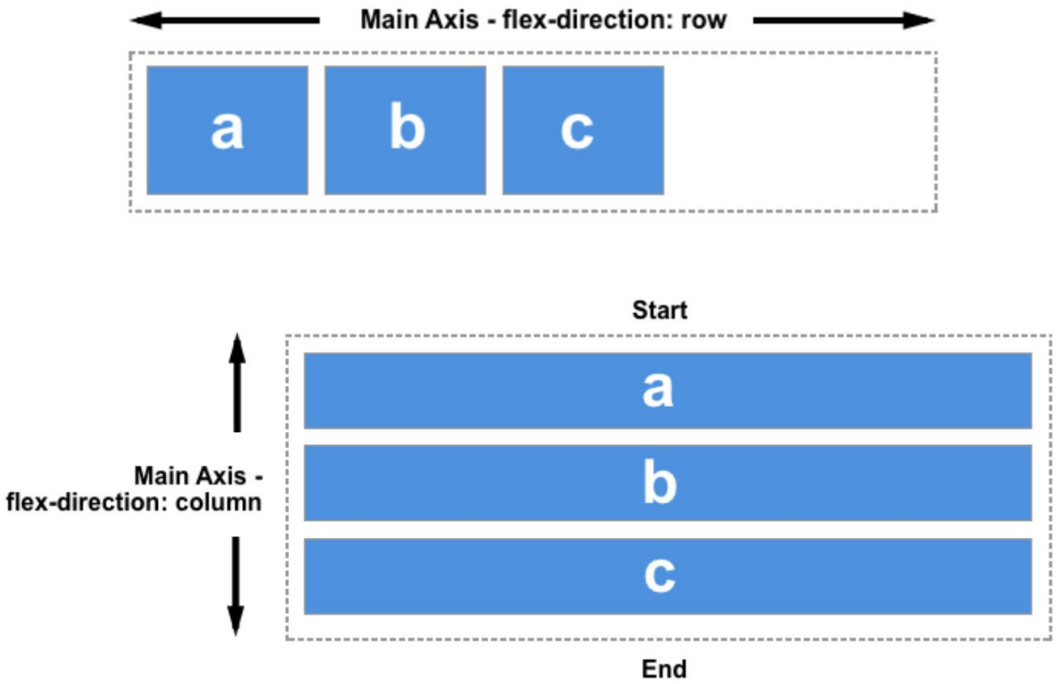
Flexbox

`cross` and `main` instead of `width` and `height`



https://scotch.io/tutorials/a-visual-guide-to-css3-flexbox-properties

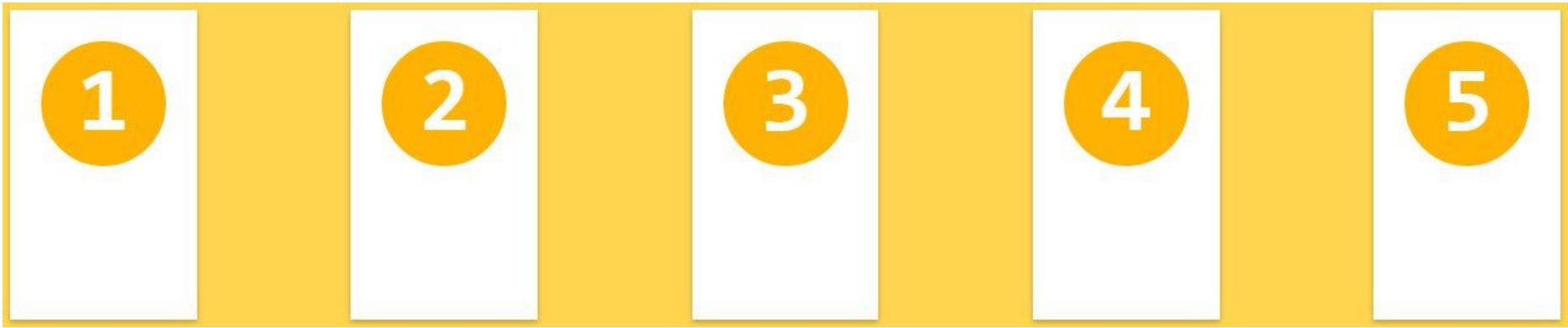
Flex Container: Direction



https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Flexible_Box_Layout/Ordering_Flex_Items

Flex Container: Alignment

- `justify-content:` determines how items spaced out along main axis
  - `left/right/center, space-between, space-around`
- `align-items:` determines how items aligned on cross axis



https://scotch.io/tutorials/a-visual-guide-to-css3-flexbox-properties

Justify Content Demo: https://developer.mozilla.org/en-US/docs/Web/CSS/justify-content

Flex Items: Sizing

Elements can expand (or shrink) to fill available space

https://scotch.io/tutorials/a-visual-guide-to-css3-flexbox-properties

Useful Features

CSS Positioning

`position: static;`

- Item is positioned as it falls in the flow of the document.

`position: relative;`

- Item is *offset* relative to where it would be with `static`, using `top`, `left`, `right`, and/or `bottom` properties.

`position: fixed;`

- Item is positioned relative to browser window (viewport) with `top`, `left`, `right`, and/or `bottom` properties. This means if you scroll, item stays put.

`position: absolute;`

- Item is positioned relative to closest "positioned" (non-`static`) ancestor, offset by `top`, `left`, `right`, and/or `bottom` properties.

CSS Shorthand

```
background-color: #000;
background-image: url(images/bg.gif);
background-repeat: no-repeat;
background-position: top right;
```

```
background: #000 url(images/bg.gif) no-repeat top right;
```

Useful Pseudo-Class Selectors

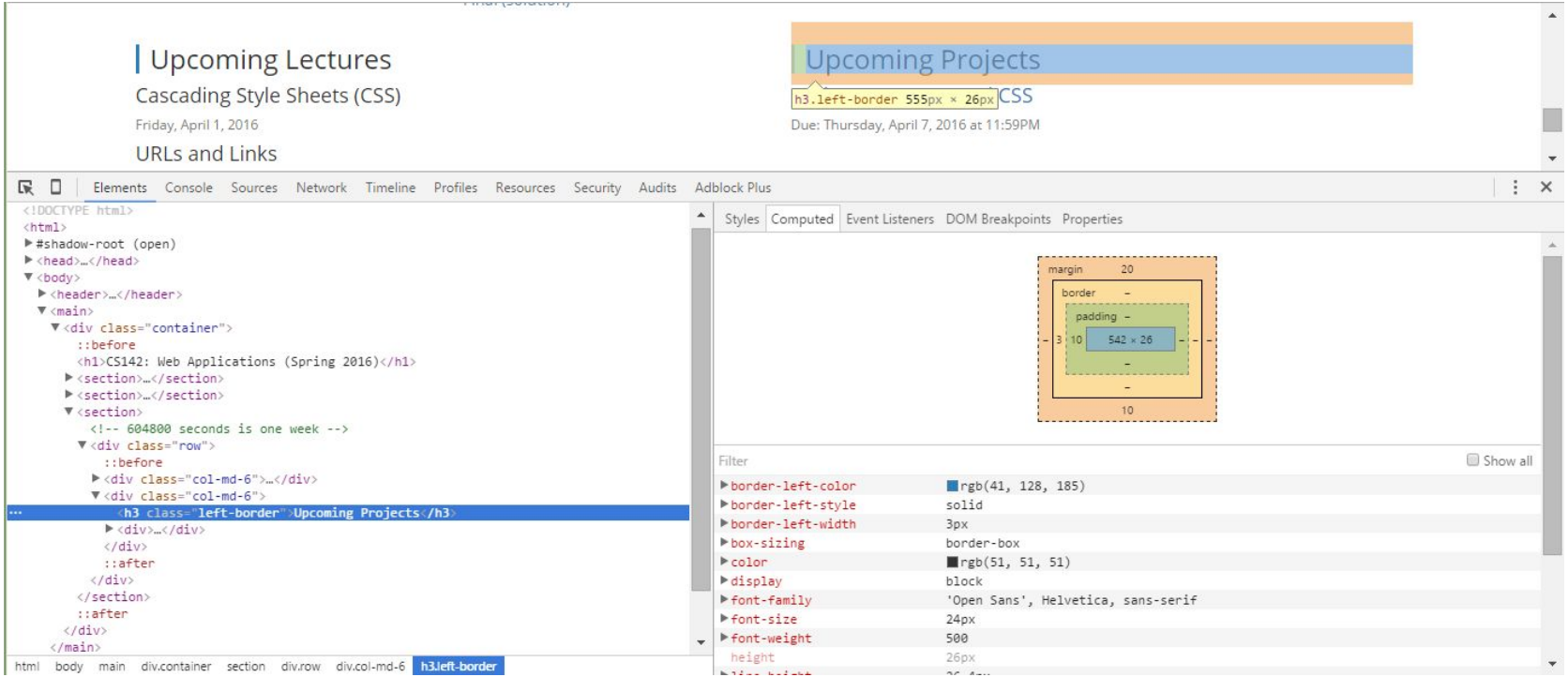
```
:nth-child(odd, even, 8)

:first/last-child

:hover :focus
```

Validation

XHTML 1.0 validated at: https://validator.w3.org/

Debugging CSS (very useful!)

Chrome Inspector (right-click > Inspect)



Use references frequently!

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

https://www.w3schools.com/cssref/