

Today's schedule

Schedule:

a)

- HTML and CSS
- Inline vs block
- Classes and Ids

b)

- Other selectors
- Box Model
- Mobile Web

HTML and CSS

Quick review

Recall: HTML

HTML (Hypertext Markup Language)

- Describes the **content** and **structure** of a web page; not a programming language.
- Made up of building blocks called **elements**.

<p>

HTML is awesome!!!

</p>

Some HTML elements

Top-level heading: **h1**, **h2**, ... **h6**

```
<h1>Moby Dick</h1>  
<h2>Or, the Whale</h2>
```

Moby Dick

Or, the Whale

Paragraph: **p**

```
<p>Call me Ishmael.</p>
```

Call me Ishmael.

Line break: **br**

```
since feeling is first<br/>  
who pays any attention<br/>  
to the syntax of things
```

since feeling is first
who pays any attention
to the syntax of things

Some HTML elements

Image: **img**

```

```



Link: **a** (note: not **link**)

```
<a href="google.com">click here!</a>
```

[click here!](https://www.google.com)

Strong (bold): **strong** (note: don't use **b**)

```
<strong>Be BOLD</strong>
```

Be BOLD

Emphasis (italic): **em** (note: don't use **i**)

```
He's my <em>brother</em> and all
```

He's my *brother* and all

Recall: Course web page

We wrote [some HTML](#) to make the following page:

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

[View Syllabus](#)

That was weird

- We saw that HTML whitespace collapses into one space...

```
<h1>WPR: Web Pro</h1>  
<strong>Announcements</strong><br/>  
15/8: Assignment 1 is out! Due in 3  
weeks.<br/>
```

- Except weirdly the `<h1>` heading was on a line of its own, and `` was not.

Hmmm... strange...

Oh well, it works! Let's move on!!!

CSS

Recall: CSS

CSS: Cascading Style Sheets

- Describes the **appearance** and **layout** of a web page
- Composed of CSS **rules**, which define sets of styles

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

Linking CSS in HTML

(i.e. copy/paste boilerplate)

```
<!DOCTYPE html>
<html>
  <head>
    <title>WPR</title>
    <link rel="stylesheet" href="filename.css" />
  </head>

  <body>
    ... contents of the page...
  </body>
</html>
```

Some CSS properties

Font face: **font-family**

```
h1 {  
  font-family: Helvetica;  
}
```

Moby Dick

Font color: **color**

```
h1 {  
  color: green;  
}
```

Moby Dick

Note that color always refers to **font** color, and there's no way to make it mean anything other than font color.

Background color: **background-color**

```
body {  
  background-color: pink;  
}
```

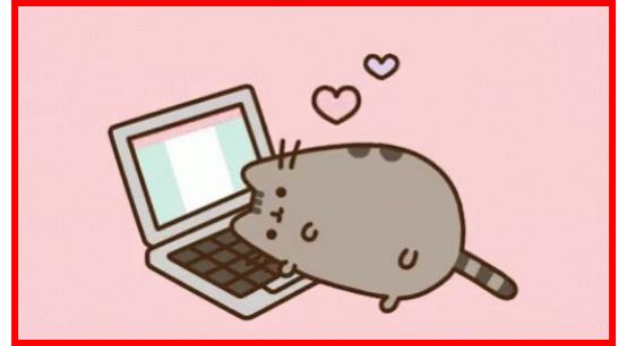
Moby Dick

Assign a background-color to body to make the page a different color.

Some CSS properties

Border: **border** ([border shorthand syntax](#))

```
img {  
  border: 3px solid red;  
}
```



Text alignment: **text-align** (note: don't use <center>)

```
p {  
  text-align: center;  
}
```

Welcome to WPR: Web Programming! In this class, you will learn modern full-stack web development techniques.

CSS colors

140 predefined names ([list](#))

```
color: black;
```

Hex values

```
color: #00ff00;
```

```
color: #0f0;
```

```
color: #00ff0080;
```

rgb() and rgba()

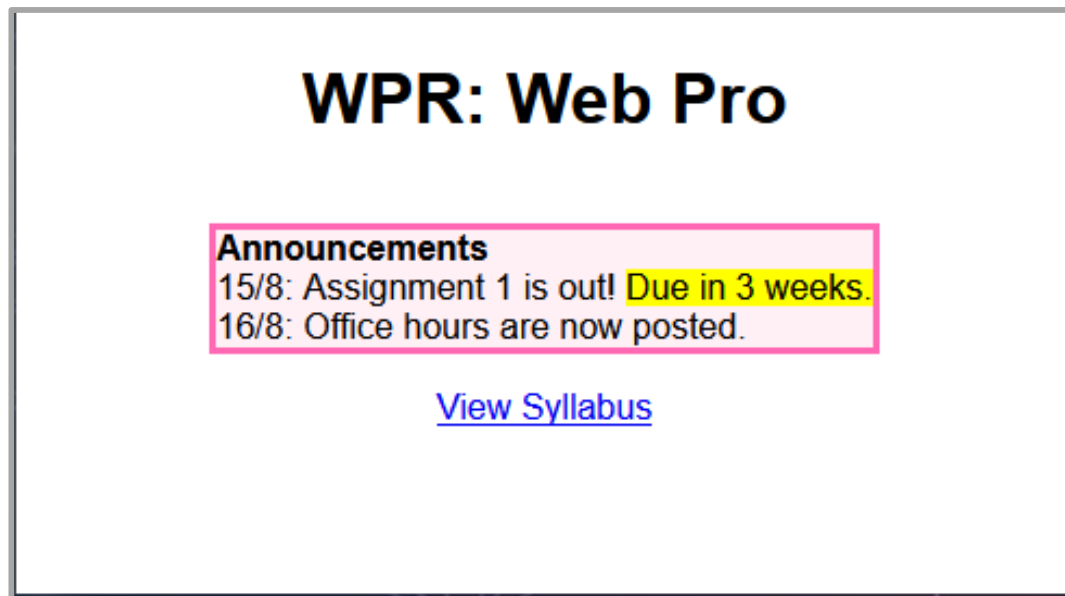
```
color: rgb(34, 12, 64);
```

```
color: rgba(0, 0, 0, 0.5);
```

- The "a" in rgba stands for alpha channel and is a transparency value
- Prefer more descriptive:
 1. Predefined name
 2. rgb / rgba
 3. Hex

Exercise: Course web page

Let's write some CSS to style our page:



 Lets code! 

Exercise: Course web page

Let's write some CSS to style our page:

Font face: Helvetica

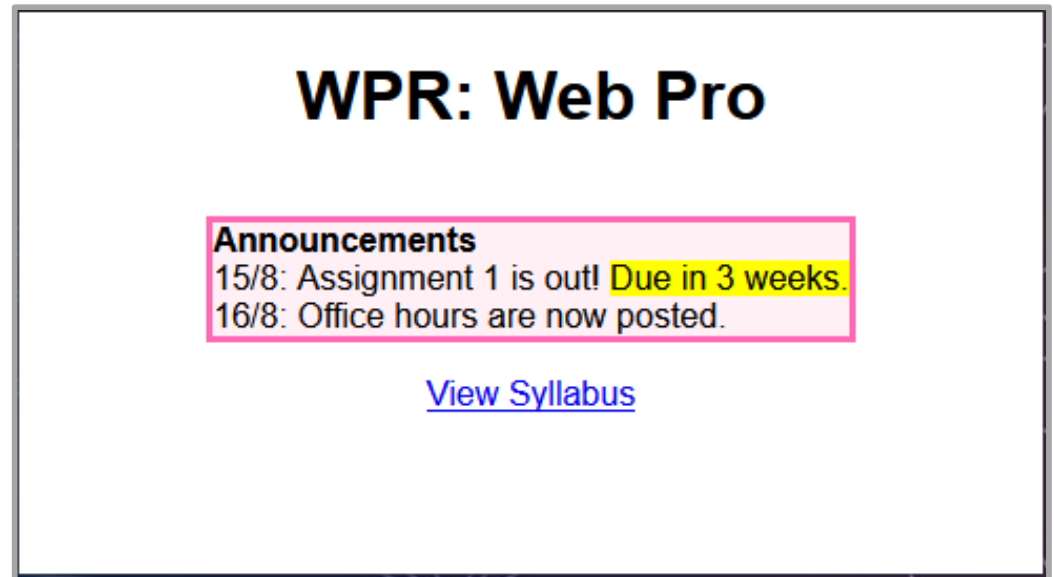
Border: hotpink 3px

Background color:

lavenderblush

Highlight: yellow

- Box is **centered**
- Header and link are **centered**
- Box contents are **left-aligned**



[CodePen link: Let's code!](#)



Solution?!

```
body {  
  font-family: Helvetica;  
}  
h1 {  
  text-align: center;  
}  
a {  
  text-align: center;  
}  
p {  
  border: 3px solid hotpink;  
  background-color: lavenderblush;  
}
```

Produces:

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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CSS exercise debrief

We used some **key techniques**:

- Add invisible containers in HTML to select groups of elements in CSS.
- Apply styles to parent / ancestor element to style parent and all its children. (Will talk more about this later.)

CSS exercise debrief

But we encountered **more weirdness...**

- `text-align: center;` didn't work on the `<a>` tag
- The box was reaaaaaally wide!
- How to center the box?!
- How do you highlight?!

How do we get from this...

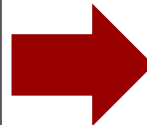
WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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... to this?

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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Q: Why is HTML/CSS so bizarre??

A: There is one crucial set of rules
we haven't learned yet...

block vs **inline** display

What is HTML?

HTML (Hypertext Markup Language)

- Describes the **content** and **structure** of a web page
- Made up of building blocks called **elements**.

<p>

HTML is awesome!!!

</p>

And there are 3 basic types.

Types of HTML elements

Each HTML element is categorized by the HTML spec into one of three-ish categories:

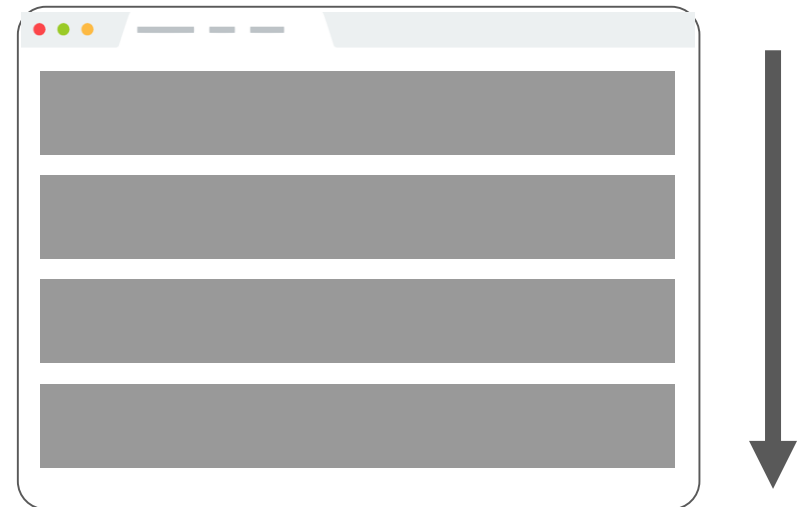
1. **block**: large blocks of content, has height and width
`<p>`, `<h1>`, `<blockquote>`, ``, ``, `<table>`
2. **inline**: small amount of content, no height or width
`<a>`, ``, ``, `
`
 - a. **inline block**: inline content with height and width
``
3. **metadata**: information about the page, usually not visible
`<title>`, `<meta>`

Block elements

Examples:

`<p>`, `<h1>`, `<blockquote>`, ``, ``, `<table>`

- Take up the full width of the page (**flows top to bottom**)
- Have a height and width
- Can have block or inline elements as children



Example: Block

About vrk

She likes *puppies*

```
<h1>About vrk</h1>
<p>
  She likes <em>puppies</em>
</p>
```

Q: What does this
look like in the
browser?

```
h1 {  
  border: 5px solid red;  
}
```

About vrk

She likes *puppies*

```
<h1>About vrk</h1>  
<p>  
  She likes <em>puppies</em>  
</p>
```

About vrk

She likes *puppies*

([Codepen](#))

Block-level:

extends the full width of the page

```
h1 {  
  border: 5px solid red;  
}
```

```
<h1>About vrk</h1>  
<p>  
  She likes <em>puppies</em>  
</p>
```

<h1> is block-level,
so it extends the full
width of the page by
default

Note how block-level
elements (**h1**, **p**) flow
top to bottom

See: [Codepen](#)

About vrk

She likes *puppies*

**Q: What does this
look like in the
browser?**

```
h1 {  
  border: 5px solid red;  
  width: 50%;  
}
```

About vrk

She likes *puppies*

```
<h1>About vrk</h1>  
<p>  
  She likes <em>puppies</em>  
</p>
```

About vrk

She likes *puppies*

([Codepen](#))

Block-level

width can be modified

```
h1 {  
  border: 5px solid red;  
  width: 50%;  
}
```

```
<h1>About vrk</h1>  
<p>  
  She likes <em>puppies</em>  
</p>
```

<h1> is block-level,
so its **width** can be
modified

Block-level elements
still flow top to
bottom

See: [Codepen](#)

About vrk

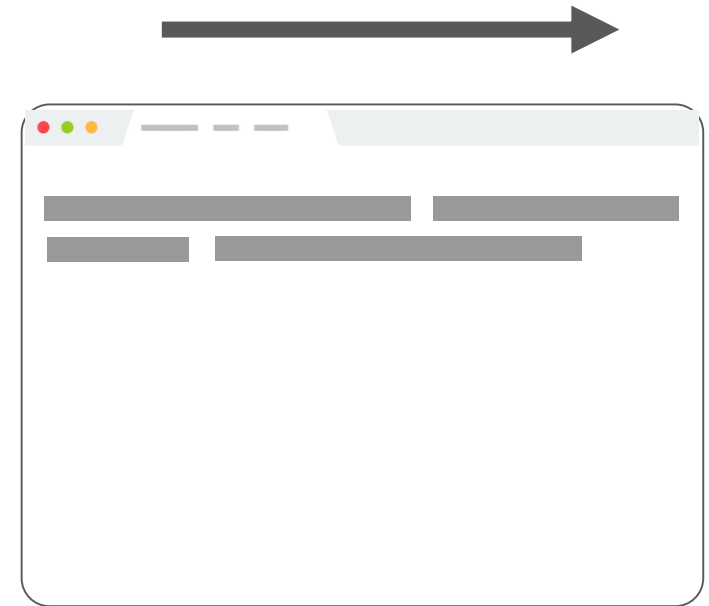
She likes *puppies*

Inline elements

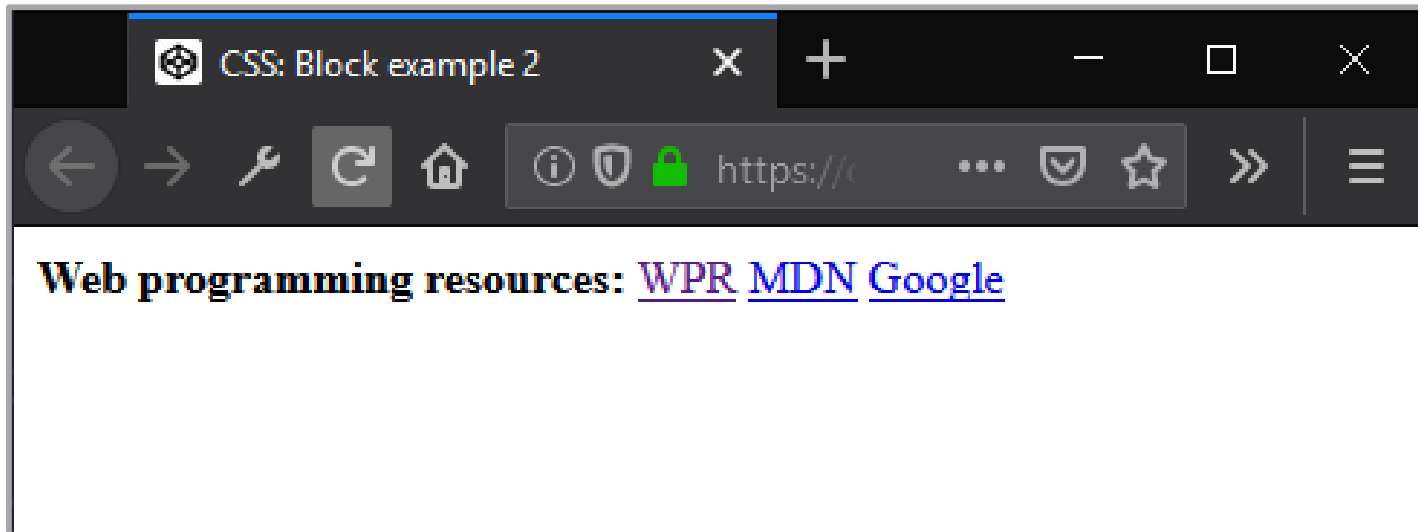
Examples:

`<a>`, ``, ``, `
`

- Take up only as much width as needed (flows left to right)
- **Cannot** have height and width
- **Cannot** have a block element child
- **Cannot** be positioned (i.e. CSS properties like `float` and `position` do not apply to inline elements)
 - o Must position **its containing block element** instead



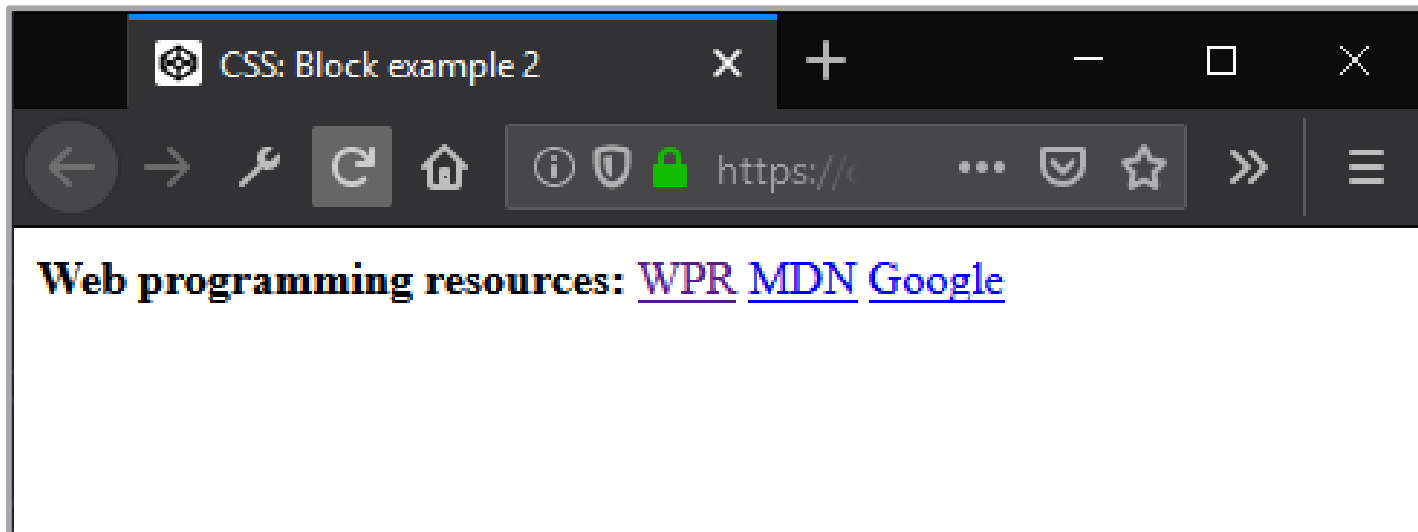
Example: Inline



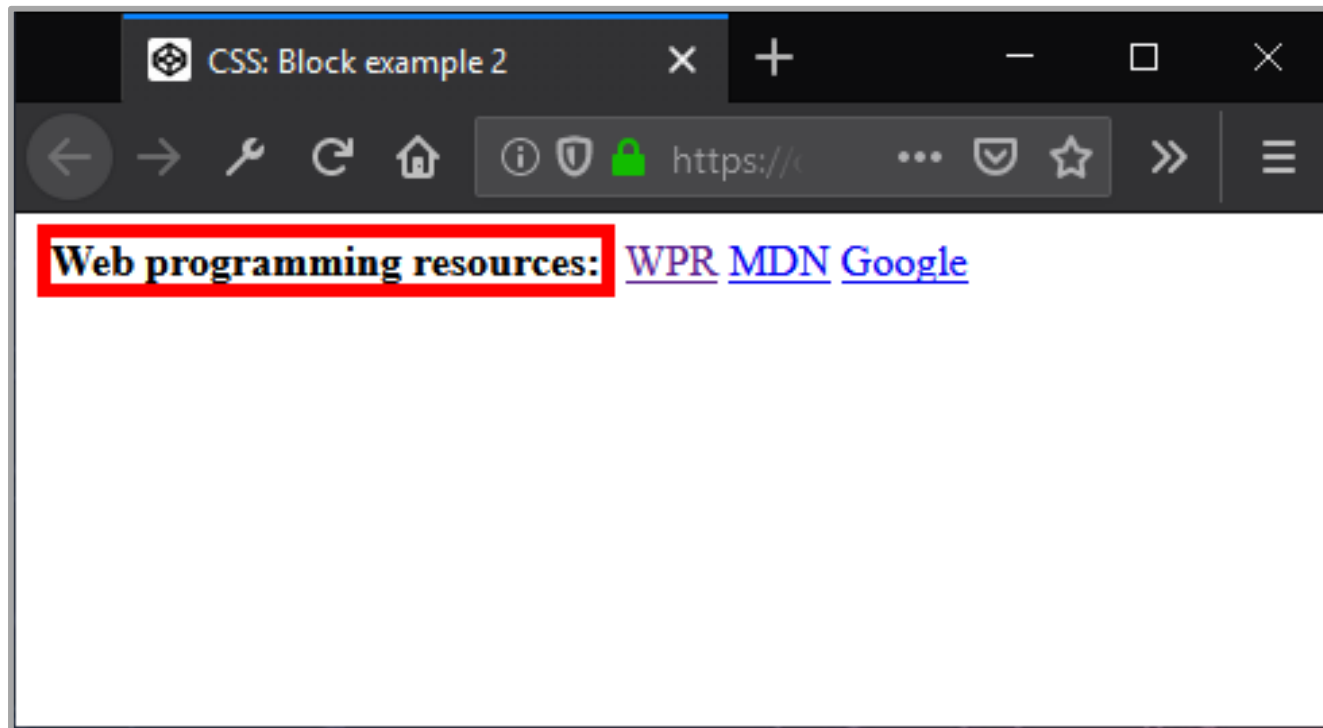
```
<strong>Web programming resources:</strong>  
<a href="http://fit.hanu.vn/">WPR</a>  
<a href="https://developer.mozilla.org/en-US/">MDN</a>  
<a href="http://google.com">Google</a>
```

**Q: What does this
look like in the
browser?**

```
strong {  
    border: 5px solid red;  
    width: 1000px;  
}
```



```
<strong>Web programming resources:</strong>  
<a href="http://fit.hanu.vn/">WPR</a>  
<a href="https://developer.mozilla.org/en-US/">MDN</a>  
<a href="http://google.com">Google</a>
```

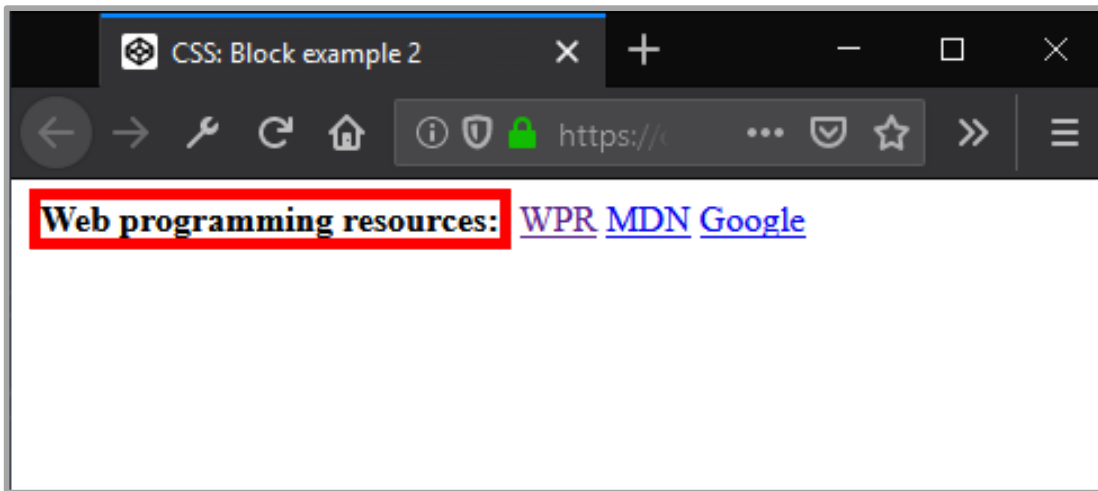


([Codepen](#))

Inline elements ignore width

width cannot be modified

```
strong {  
  border: 5px solid red;  
  width: 1000px;  
  /* Will not work; strong is  
    inline! */  
}
```

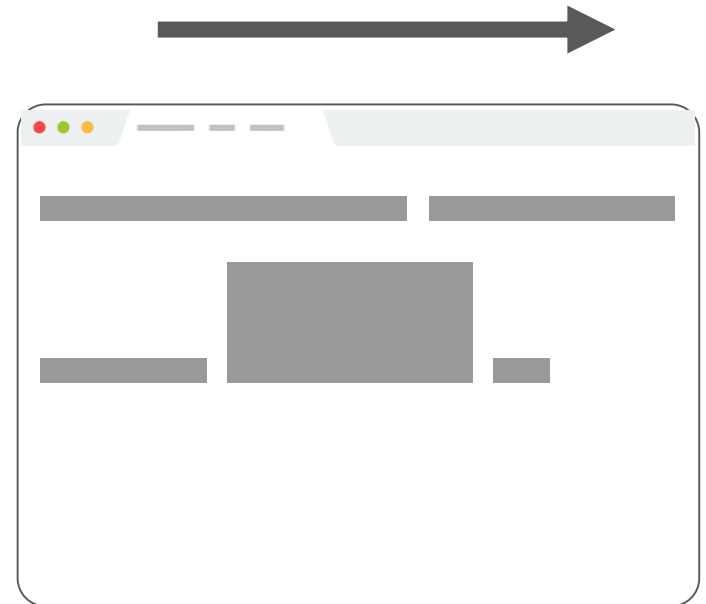


Cannot set **width** on inline element, so it is ignored ([Codepen](#))

inline-block

Examples: ``, any element with `display: inline-block;`

- Width is the size of the content, i.e. it takes only as much space as needed (flows left to right)
- **Can** have height and width
- **Can** have a block element as a child
- **Can** be positioned (i.e. CSS properties like `float` and `position` apply)



Example: Inline-block

```
img {  
  width: 50px;  
}
```

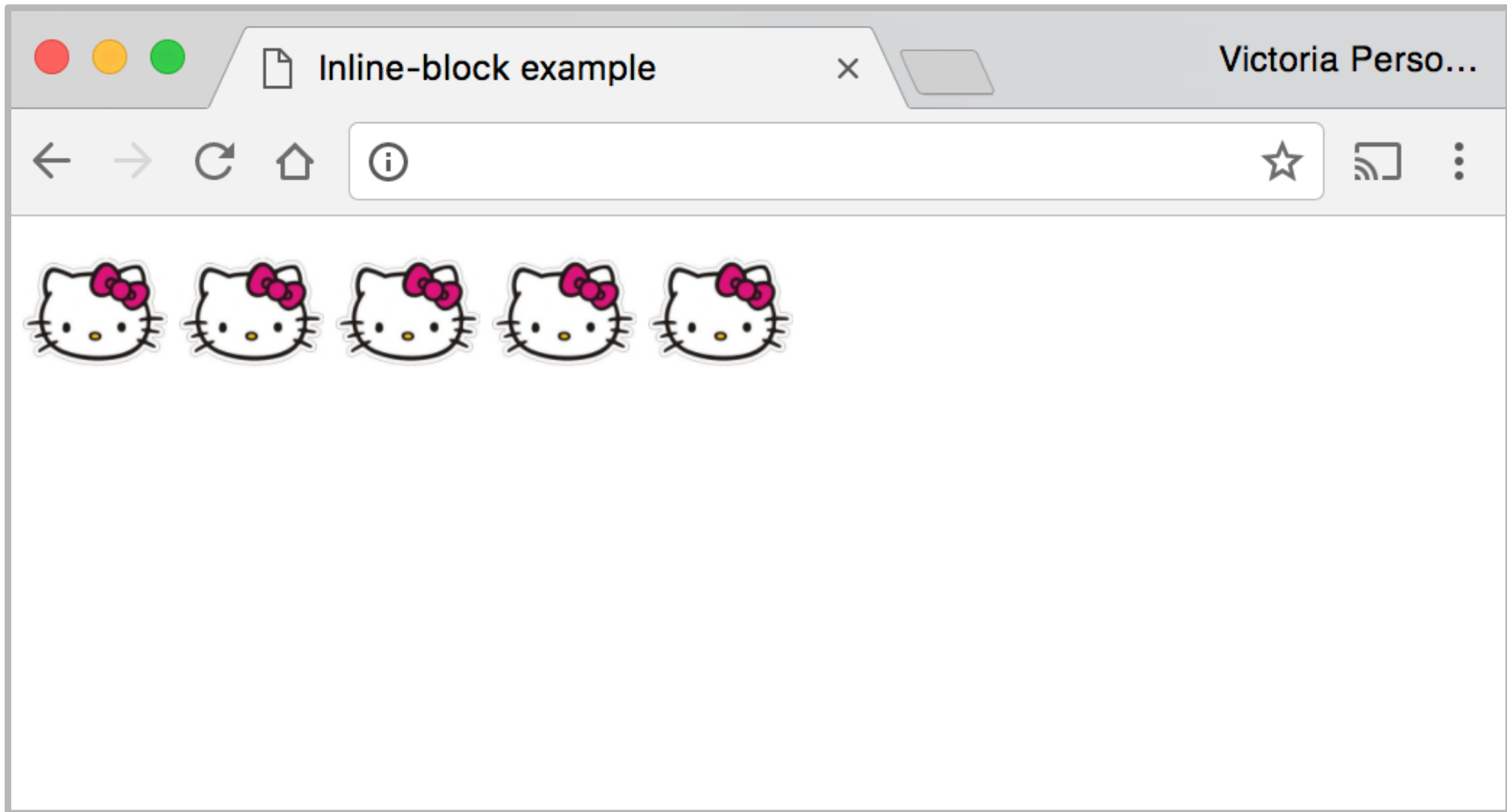
Q: What does this look like in the browser?

```
  
  
  
  

```

<http://i.imgur.com/WJToVGv.jpg> =





([Codepen](#))

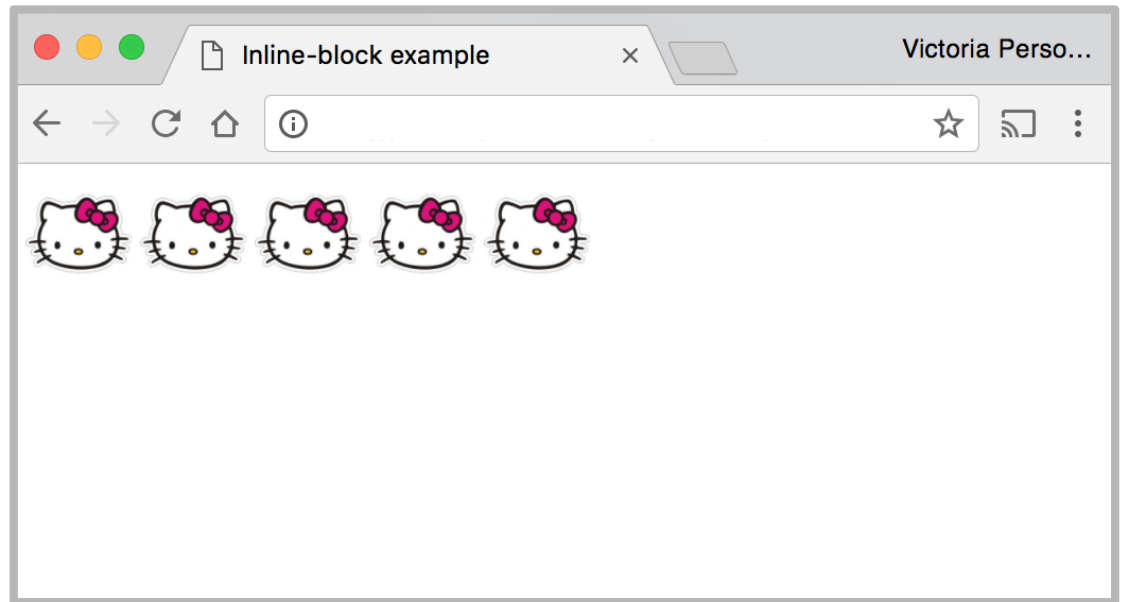
Inline-block

Has width and height; flows left to right

Can set **width** on inline-block element, so image width is set to 50px.

([Codepen](#))

inline-block flows left to right, so images are right next to each other.



```
img {  
  width: 50px;  
}
```

```
  
  
  
  

```


The display CSS property

You can change an element's default rendering type by changing the **display** property. Examples:

```
p {  
  display: inline;  
}
```

```
a {  
  display: block;  
}
```

Possible values for display:

- block
- inline
- inline-block
- some others: [link](#)

Review

1. **block**: flows **top-to-bottom**; **has** height and width
`<p>`, `<h1>`, `<blockquote>`, ``, ``, `<table>`
2. **inline**: flows **left-to-right**; **does not have** height and width
`<a>`, ``, ``, `
`
 - a. **inline block**: flows **left-to-right**; **has** height and width
equal to size of the content
``

Questions?

Moral of the story:

If your CSS isn't working, see if you're trying to apply block-level properties to inline elements

h1 vs strong mystery

Recall: Weirdly the `<h1>` heading was on a line of its own, and `` was not. -- **Why?**

```
<h1>WPR: Web Pro</h1>
<strong>Announcements</strong>
15/8: Assignment 1 is out!
Due in 3 weeks.<br/>
```

WPR: Web Pro

Announcements 15/8: Assignment 1 is out! Due in 3 weeks.

```
<h1>WPR: Web Pro</h1>
<strong>Announcements</strong><br/>
15/8: Assignment 1 is out!
Due in 3 weeks.<br/>
```

WPR: Web Pro

Announcements
15/8: Assignment 1 is out! Due in 3 weeks.

h1 vs strong mystery

Recall: Weirdly the `<h1>` heading was on a line of its own, and `` was not. -- **Why?**

```
<h1>WPR: Web Pro</h1>
<strong>Announcements</strong>
15/8: Assignment 1 is out!
Due in 3 weeks.<br/>
```

WPR: Web Pro

Announcements 15/8: Assignment 1 is out! Due in 3 weeks.

```
<h1>WPR: Web Pro</h1>
<strong>Announcements</strong><br/>
15/8: Assignment 1 is out!
Due in 3 weeks.<br/>
```

WPR: Web Pro

Announcements
15/8: Assignment 1 is out! Due in 3 weeks.

**Because h1 is a block-level element,
and strong is an inline-level element**

text-align mystery

Recall: We couldn't set `text-align: center;` on the `<a>` tag directly, but we could center `<h1>`. **Why?**

```
h1 { /* works! */  
  text-align: center;  
}  
  
a { /* fails :( */  
  text-align: center;  
}
```

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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Let's try looking at the [MDN description of text-align](#)...

text-align mystery

Summary

The **text-align** CSS property describes how inline content like text is aligned in its parent block element. **text-align** does not control the alignment of block elements, only their inline content.

Initial value	start, or a nameless value that acts as left if direction is ltr, right if direction is rtl if start is not supported by the browser.
Applies to	block containers

([source](#))

text-align demystified!

Why? From the [spec](#), **can't apply text-align to an inline element**; must apply text-align to its block container, or set **a { display : block; }**

The screenshot shows a web browser window with a dark theme. On the left, there are two panels: 'HTML' and 'CSS'. The 'HTML' panel shows the following code:

```
<p>
  <a href="http://cs193x.stanford.ed
    View Syllabus
  </a>
</p>
```

The 'CSS' panel shows the following code:

```
p { /* works! */
  text-align: center;
}
```

On the right, the rendered page is shown. It has a title 'WPR: Web Pro' in a large, bold, black serif font. Below the title is a section 'Announcements' in a smaller, bold, black serif font. Under 'Announcements', there are two lines of text: '15/8: Assignment 1 is out! Due in 3 weeks.' and '16/8: Office hours are now posted.' Below this text is a link 'View Syllabus' in a blue, underlined serif font. The text and link are centered horizontally on the page.

Box size mystery

Recall: The pink box we put around the announcements extended the entirety of the page.

```
p {  
  border: 3px solid hotpink;  
  background-color: lavenderblush;  
}
```

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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Why?

How do we fix this?

Box size mystery

Recall: The pink box we put around the announcements extended the entirety of the page.

```
p {  
  border: 3px solid hotpink;  
  background-color: lavenderblush;  
}
```

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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Why? Because `p` is block-level, so `width == width of the page`

How do we fix this?

Box size mystery: demystified!

Recall: The pink box we put around the announcements extended the entirety of the page.

```
p {  
  border: 3px solid hotpink;  
  background-color: lavenderblush;  
  display: inline-block;  
}
```

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.
16/8: Office hours are now posted.

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Why? Because `p` is block-level, so `width == width of the page`

How do we fix this? Change `display` to `inline-block` (though now the space above the box has increased... will address later!)

Centering the box

We can also center the box by centering the body tag, since p is now inline-block.

```
body {  
  text-align: center;  
}  
  
p {  
  border: 3px solid hotpink;  
  background-color: lavenderblush;  
  display: inline-block;  
}
```

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.
16/8: Office hours are now posted.

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Highlight mystery

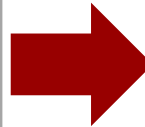
Recall: We didn't know how to select a random snippet of text to change its background.

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Announcements

15/8: Assignment 1 is out! Due in 3 weeks.
16/8: Office hours are now posted.

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WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.
16/8: Office hours are now posted.

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How do we fix this?

Highlight: demystified!

We can select a random segment of text by wrapping it in an **inline element**:

The image shows a web browser's developer tools interface. On the left, the 'HTML' panel displays the following code:

```
<strong>Announcements</strong><br/>
4/3: Homework 0 is out!
<em>Due Friday.</em><br/>
4/3: Office hours are now posted.
```

Below the HTML panel, the 'CSS' panel shows a rule for the 'em' element:

```
em {
  font-style: normal; /* undoes italics */
  background-color: yellow;
}
```

On the right, the rendered page is shown. It has a title 'WPR: Web Pro'. Below the title, there is a section titled 'Announcements' (highlighted with a pink box). Under 'Announcements', there are two lines of text: '15/8: Assignment 1 is out! Due in 3 weeks.' (where 'Due in 3 weeks.' is highlighted in yellow) and '16/8: Office hours are now posted.' (highlighted with a pink box). Below this text is a link 'View Syllabus'.

Hmmm... but wouldn't it be better to have a "highlight" element?

Highlight: demystified!

We can select a random segment of text by wrapping it in an **inline element**:

The screenshot shows a web editor interface with two panels on the left and a preview on the right.

HTML Panel: Contains the following code:

```
<strong>Announcements</strong><br/>
4/3: Homework 0 is out!
<em>Due Friday.</em><br/>
4/3: Office hours are now posted.
```

The `Due Friday.` segment is circled in red.

CSS Panel: Contains the following code:

```
em {
  font-style: normal; /* undoes italics */
  background-color: yellow;
}
```

Preview Panel: Shows the rendered output. At the top is the heading "WPR: Web Pro". Below it is a pink-bordered box containing the text "Announcements", "15/8: Assignment 1 is out! Due in 3 weeks.", and "16/8: Office hours are now posted.". The text "Due in 3 weeks." is highlighted in yellow. Below the pink box is a blue link labeled "View Syllabus".

Hmmm... but wouldn't it be better to have a "highlight" element?
How do we make a generic HTML element?

Have you heard of `<div>` and ``?

What are they?

<div> and

Two generic tags with no intended purpose or style:

- <div>: a generic **block** element
- : a generic **inline** element

 in action

We can use as a generic inline HTML container:

HTML

```
<strong>Announcements</strong><br/>
4/3: Homework 0 is out!
<span>Due Friday.</span><br/>
4/3: Office hours are now posted.
```

CSS

```
span {
  background-color: yellow;
}
```

WPR: Web Pro

Announcements
15/8: Assignment 1 is out! Due in 3 weeks.
16/8: Office hours are now posted.

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Multiple generic containers?

But won't we often want multiple generic containers?

How do we distinguish two generic containers?

In other words, how do we select a subset of elements instead of **all** elements on the page?

WPR: Web Pro

Announcements

15/8: Assignment 1 is out! Due in 3 weeks.

16/8: Office hours are now posted.

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CSS Selectors: Classes and Ids

Classes and ids

There are 3 basic types of CSS selectors:

Element selector (this is the one we've been using)	p	All <p> elements
✦ ID selector ✦	#abc	element with id="abc"
✦ Class selector ✦	.abc	elements with class="abc"

```
<h1 id="title">Homework</h1>
<em class="hw">HW0</em> is due Friday.<br/>
<em class="hw">HW1</em> goes out Monday.<br/>
<em>All homework due at 11:59pm.</em>
```

Classes and ids

```
<h1 id="title">Homework</h1>
<em class="hw">HW0</em> is due Friday.<br/>
<em class="hw">HW1</em> goes out Monday.<br/>
<em>All homework due at 11:59pm.</em>
```

```
.hw {
  color: hotpink;
}

#title {
  color: purple;
}
```

Homework

HW0 is due Friday.

HW1 goes out Monday.

All homework due at 11:59pm.

More on `class` and `id`

- **`class`** and **`id`** are special HTML attributes that can be used on any HTML element
 - **`class`**: Used on 1 or more elements; identifies a **collection** of elements
 - **`id`**: Used on exactly 1 element per page; identifies **one unique** element
- Can apply multiple classes by space-separating them:
`HW1`
- Often used with `span` and `div` to create generic elements: e.g. `` is like creating a "highlight" element

Next!

Other selectors