GENERAL ASSEMBLY

JAVASCRIPT DEVELOPMENT

Sasha Vodnik, Instructor

HELLO!

1. Pull changes from the `svodnik/JS-SF-15-resources` repo to your computer
2. Open the `07-events-jquery` folder in your editor

Intro to jQuery

LEARNING OBJECTIVES

At the end of this class, you will be able to

- Use vanilla JavaScript methods and properties to create and modify DOM nodes.
- Create DOM event handlers using vanilla JavaScript.
- Select DOM elements and properties using jQuery.
- Manipulate the DOM by using jQuery selectors and functions.
- Create DOM event handlers using jQuery.

AGENDA

- Creating DOM nodes with vanilla JS
- JavaScript events
- jQuery
- Getting and setting DOM elements with jQuery
- Responding to events with jQuery

WEEKLY OVERVIEW

WEEK 4	JSON & Intro to DOM / Events & jQuery
WEEK 5	Advanced jQuery / Ajax & APIs
WEEK 6	Asynchronous JS & callbacks / Advanced APIs

EXIT TICKET QUESTIONS

1. I am curious about the technology that is used in the Deep/Dark Web vs. the regular web. Is there a difference in programming for these different platforms?
2. Is DOM manipulation non browser specific or do you need to edit your elements/code depending on what browser will be opening the html?
3. When working with for/in, why does it use square brackets to reference properties instead of dot notation: like `obj[prop]` vs `obj.prop`?
4. I don't understand the bonus nth-type-of() CSS pseudo-class at the end of exercise 4. Can you explain how this can be used in the context of this exercise?

EXERCISE — CATCH PHRASE

EXERCISE

TYPE OF EXERCISE

- Pairs

TIMING

4 min

1. Get your partner to guess the word on each piece of paper by giving clues describing it **without saying the word itself**.
2. Take turns giving clues and guessing words.

LAB — DOM

KEY OBJECTIVE

- Use vanilla JavaScript methods and properties to create and modify DOM nodes.

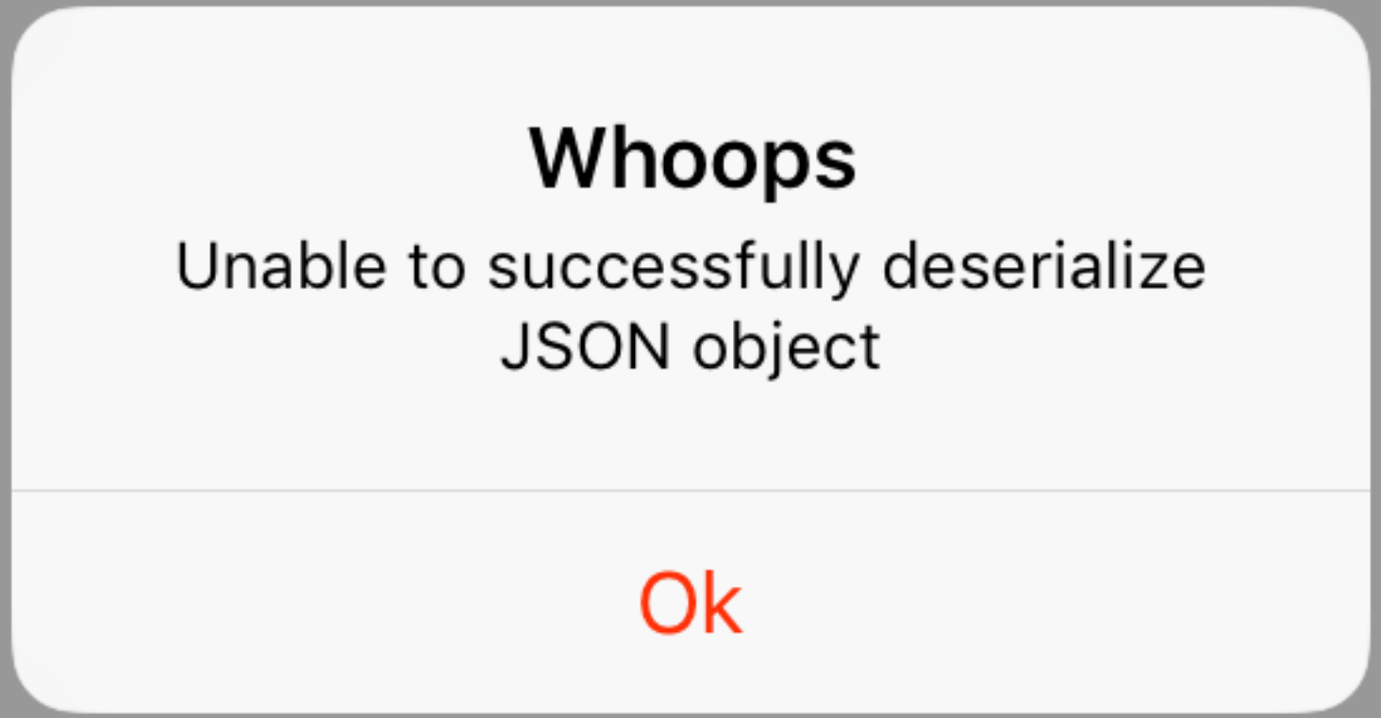
TYPE OF EXERCISE

- Individual or pair

TIMING

5 min

1. Open `starter-code > 00-dom-attributes-exercise > app.js` in your editor.
2. Follow the instructions to write code that selects and modifies the indicated elements and content.


Whoops
Unable to successfully deserialize JSON object
Ok

VANILLA JAVASCRIPT DOM CREATION METHODS

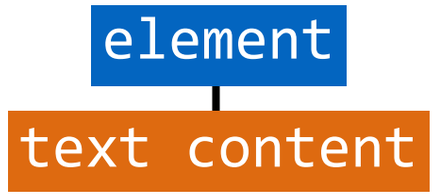
Adding content to the DOM

1. create a new element with `document.createElement()`

`element`

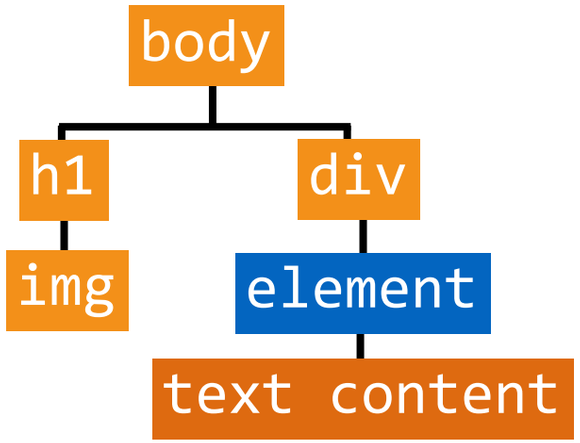
Adding content to the DOM

1. create a new element with `document.createElement()`
2. add content to that element with a property such as `textContent`, `innerHTML`, or `src`



Adding content to the DOM

1. create a new element with `document.createElement()`
2. add content to that element with a property such as `textContent`, `innerHTML`, or `src`
3. attach the new element to the DOM with `appendChild()`



createElement()

- Creates a new element

```
document.createElement('li'); // creates an li element
```

- Created element isn't attached to DOM
  - » assign variable when creating so you can reference later

```
let item1 = document.createElement('li');
let item2 = document.createElement('li');
```

textContent

- Specifies text content of an element
- Any nested HTML tags are parsed as text, not HTML

```
item1.textContent ='banana';
item2.textContent ='apple';
```

innerHTML

- Specifies text content of an element
- May include nested HTML tags

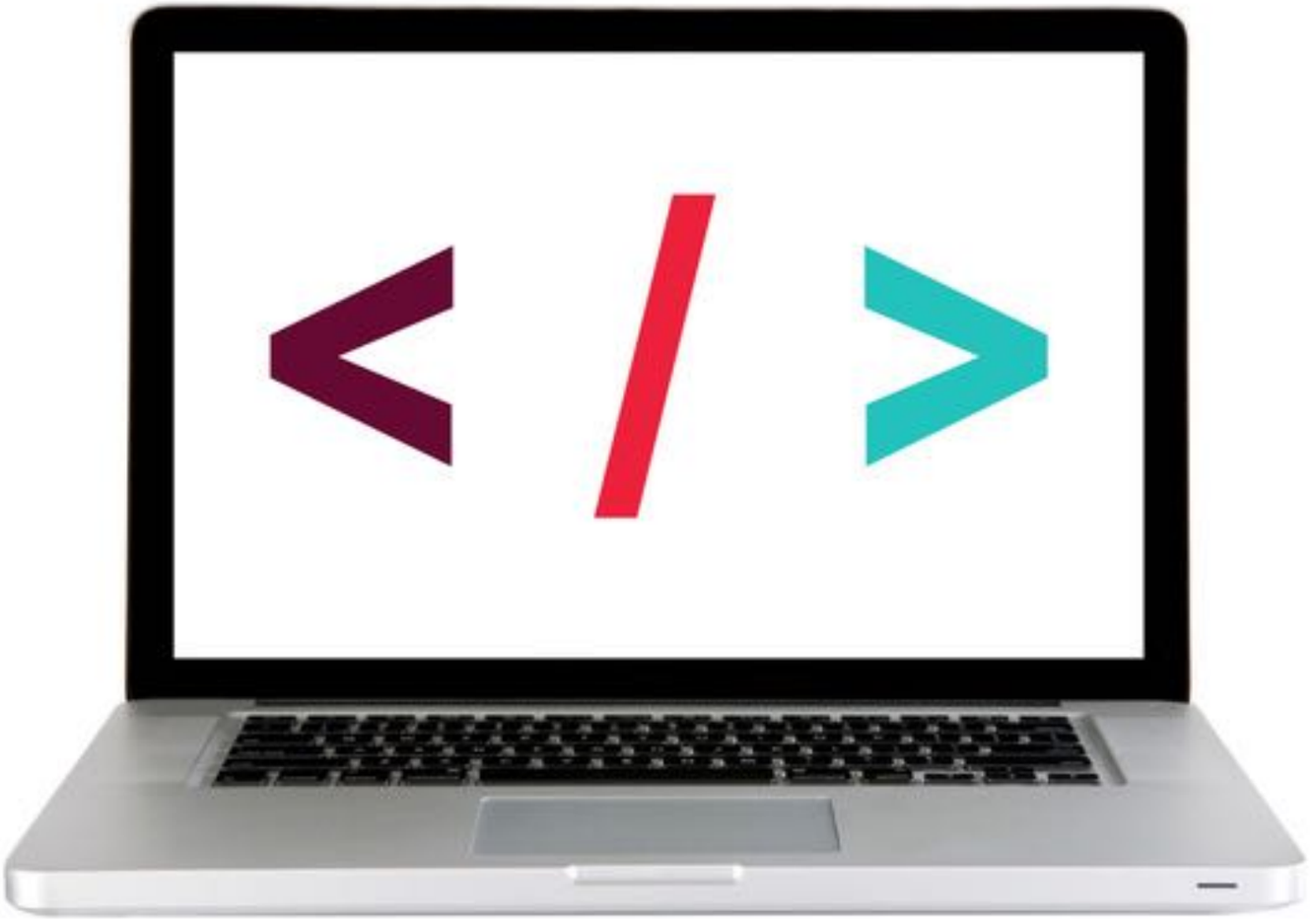
```
item1.innerHTML ='<strong>banana</strong>';
item2.innerHTML ='<em>apple</em>';
```

appendChild()

- Attaches element or node as child of specified element
  - » Attaching to a DOM element makes it part of the DOM
- Syntax:
  parent.appendChild(*child*);

```
let list = document.querySelector('ul'); // selects ul element
list.appendChild(item1);    // adds item1 li to list ul
list.appendChild(item2);    // adds item2 li to list ul
```

LET'S TAKE A LOOK



EXERCISE

KEY OBJECTIVE

- Use vanilla JavaScript methods and properties to create and modify DOM nodes.

TYPE OF EXERCISE

- Pairs

TIMING

2 min

1. Work together to create and complete a list of the three steps in creating new DOM nodes.
2. For each step in your list, add the method/property used.

EXERCISE – ADD CONTENT TO A WEB PAGE USING JAVASCRIPT

LOCATION

▸ `starter-code > 02-create-append-exercise`

TIMING

20 min

1. Open preview.png. Your task is to use DOM manipulation to build the sidebar shown in the image and add it to the blog.html web page.
2. Open app.js in your editor, then follow the instructions to create and the “About us” heading and the 2 paragraphs of text to the sidebar.
3. BONUS 1: Open preview-bonus.png, then write JavaScript code to add the image shown to the sidebar. (Filename and location in app.js.)
4. BONUS 2: Create and append the “Recent issues” heading and list.

EVENTS

EVENT LISTENERS

selecting element

```
let button = document.querySelector(‘.submitBtn’);
```

element reference

```
button.addEventListener('click', () => {
  // your code here
});
```

EVENT LISTENERS

```
let button = document.querySelector(‘.submitBtn’);
```

method to add event listener

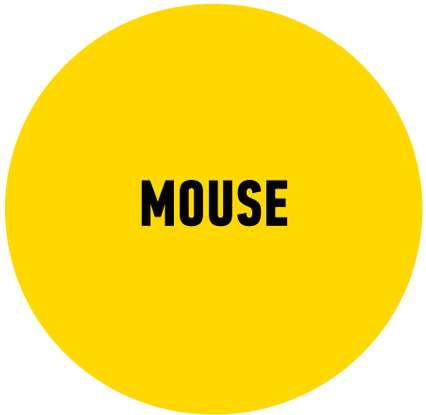
```
button.addEventListener('click', () => {
  // your code here
});
```

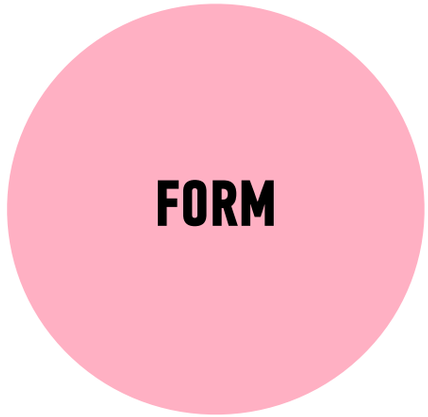
EVENT LISTENERS

```
let button = document.querySelector(‘.submitBtn’);
```

type of event

```
button.addEventListener('click', () => {
  // your code here
});
```





click

dblclick

mouseenter

mouseleave

keypress

keydown

keyup

submit

change

focus

blur

resize

scroll

```
button.addEventListener('eventgoeshere', () => {
  // your code here
}, false);
```

EVENT LISTENERS

```
let button = document.querySelector(‘.submitBtn’);
```

```
button.addEventListener('click', () => {
  // your code here
});
```

function to run when event is triggered

EVENT LISTENERS

element reference

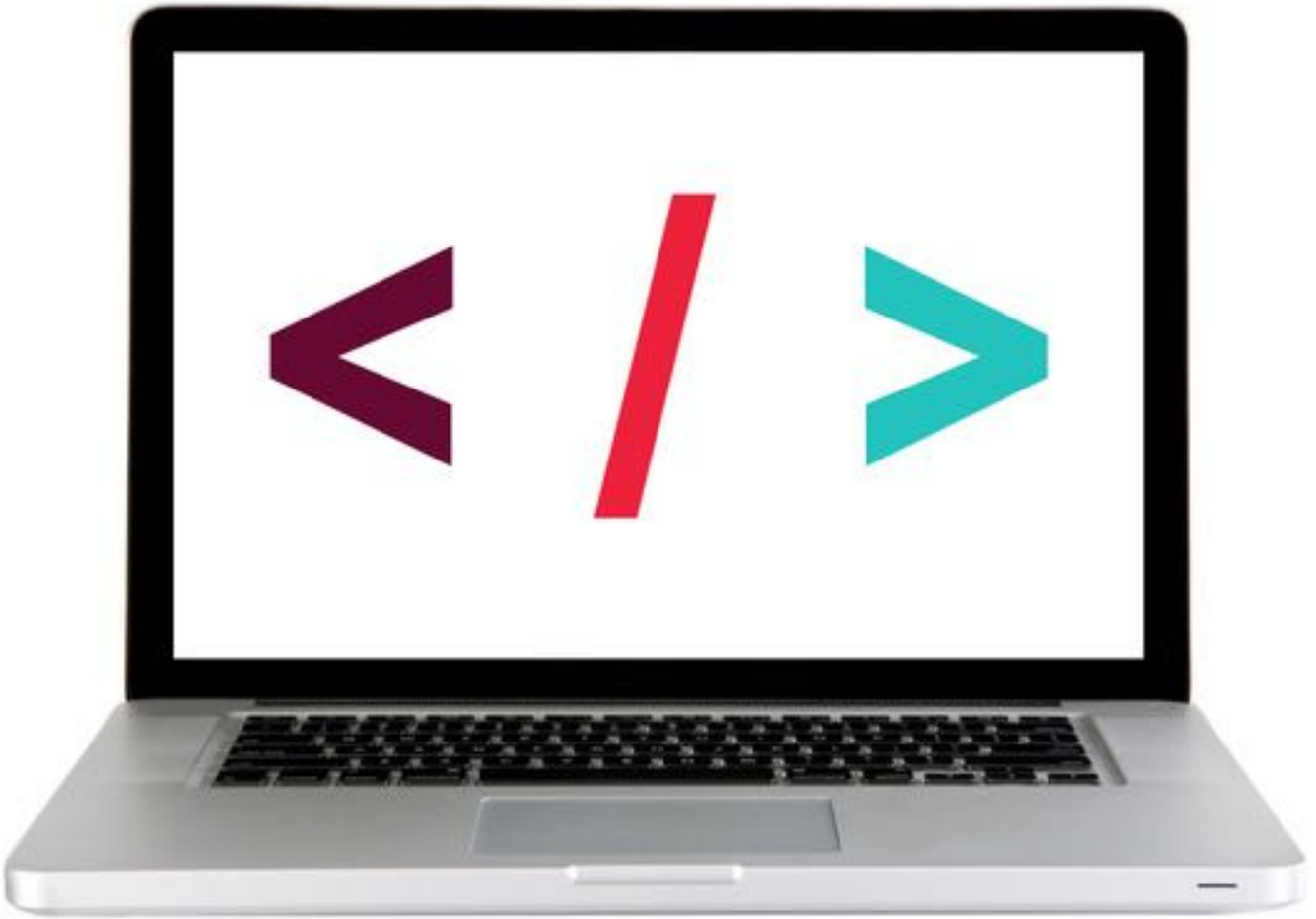
method to add event listener

type of event

```
button.addEventListener('click', () => {
  // your code here
});
```

function to run when event is triggered

LET'S TAKE A CLOSER LOOK



ACTIVITY

KEY OBJECTIVE

- Create DOM event handlers using vanilla JavaScript

TYPE OF EXERCISE

- Individual/Partner

TIMING

8 min `04-events-exercise`

1. Add event listeners to the 3 buttons at the top of the page.
2. Clicking each button should hide the block below it with the corresponding color.
3. Use handout/slides as a guide for syntax

WORKING WITH EVENT OBJECTS

`preventDefault()`

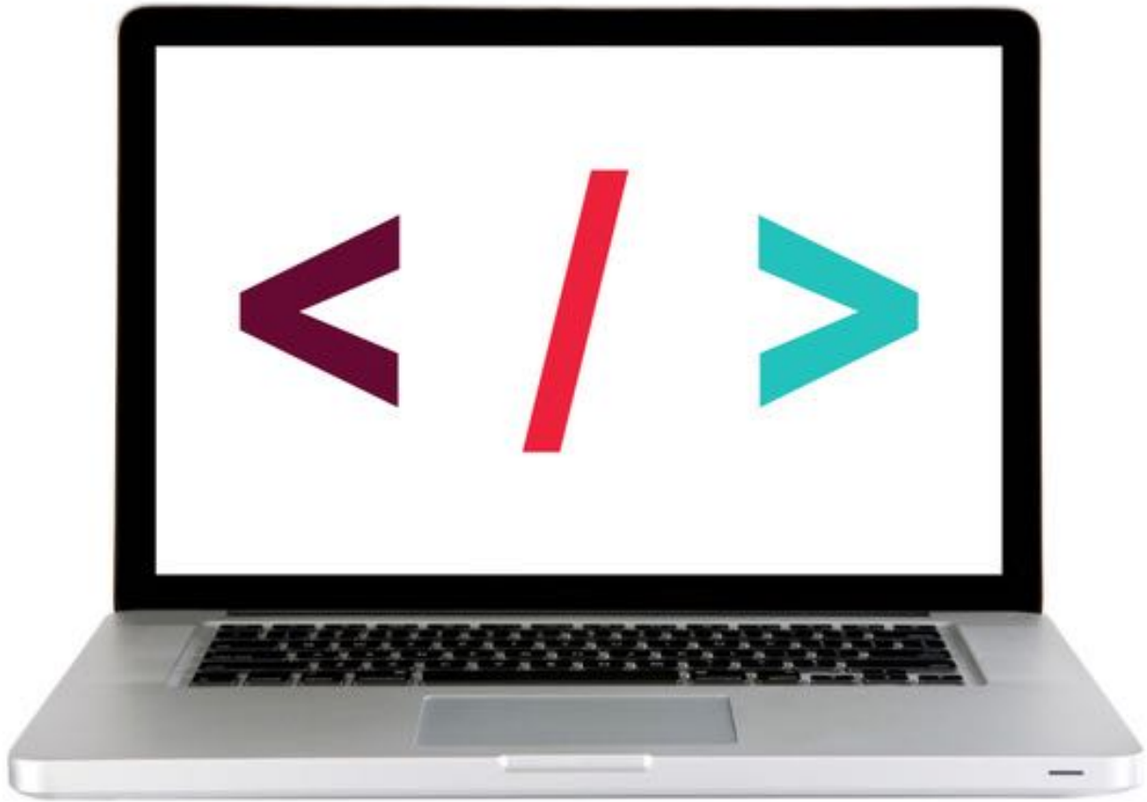
- Prevents element from executing default behavior in response to an event

Referencing an event

- An object containing information about the triggering event is passed to a function called in response to an event
- Specify a parameter to be able to reference this event in your code
  - » By convention, we use `event`, `evt`, or `e`

```
submitButton.on('click', function(event) {
  event.preventDefault();
  ...
)};
```

EVENTS & JQUERY



LET'S TAKE A CLOSER LOOK

EXERCISE

LOCATION

▸ `starter-code > 06-event object—exercise`

TIMING

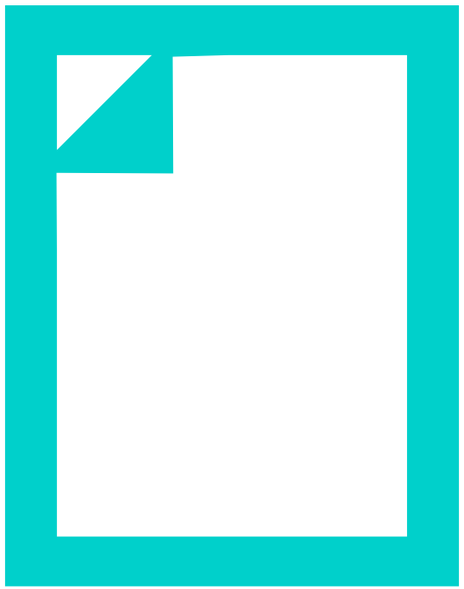
2 min

1. Update the code to prevent the form from submitting when the button is clicked.
2. Test your code in the browser and check the URL to verify that the form is not being submitted.

JQUERY

INTRO TO JQUERY — YOUR NEW BEST FRIEND!

jQuery is a JavaScript library you include in your pages.



JQUERY VS. JAVASCRIPT

jQuery allows us to keep using the CSS-style selectors that we know and love — but more concisely! Yay!

JQUERY VS. JAVASCRIPT

jQuery statements for DOM manipulation are also more concise!

JS:

```
document.querySelector(‘#heading').textContent = "Your Name";
```

JQUERY:

```
$('#heading').text('Your Name');
```

You could do everything jQuery does with plain-old vanilla Javascript

JQUERY VS. JAVASCRIPT — A COMPARISON OF BENEFITS

JQUERY

- Write way less code to achieve the same tasks

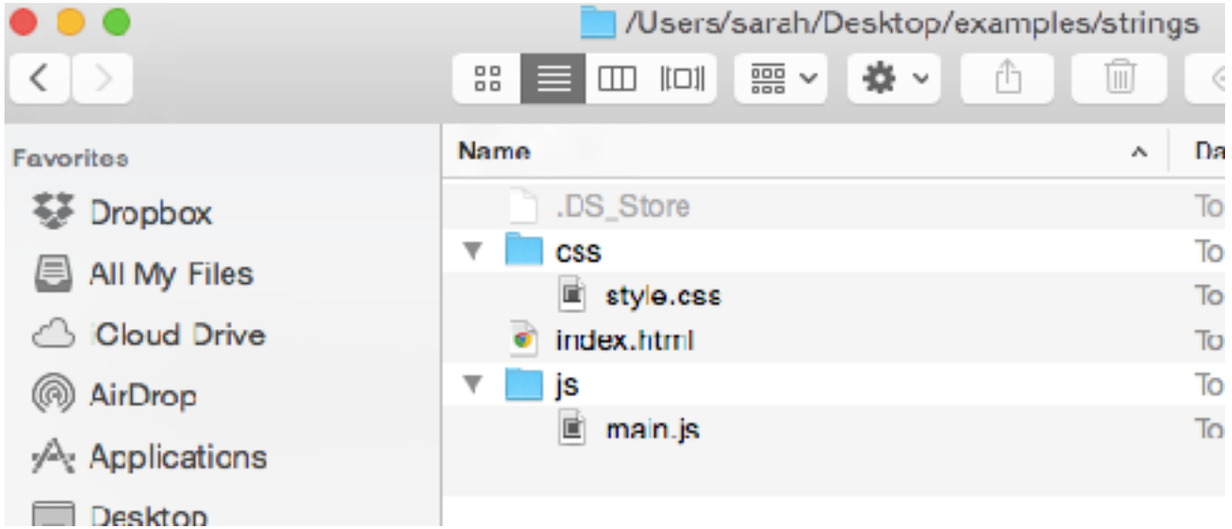
PURE JAVASCRIPT

- Better performance
- Faster

ADDING JQUERY TO YOUR PROJECT

KEEP IT ON THE UP AND UP!

- It is considered **best practice** to keep Javascript files organized in one folder.
- Usually people name this folder *scripts*, *js*, or *javascript*.



Remember - use an underscore or dash between words in folder names instead of a space. And try to avoid characters/symbols in file names (*really_cool_page.html* or *really-cool-page.html*).

REFERENCING A SCRIPT IN HTML

`script` element at the bottom of the `body` element

just before the closing `</body>` tag

```
<html>
  <head>
  </head>
  <body>
    <h1>JavaScript resources</h1>
    <script src="script.js"></script>
  </body>
</html>
```

STEP 1: ADD JQUERY TO YOUR WEBSITE

1. Download the jQuery script (compressed).
2. Add a `js` folder to your project
3. Move the jQuery file you downloaded to the `js` folder
4. Use a `<script>` tag to include the jQuery file after your HTML content and before any other JavaScript files that use it.

```
<body>
  <!-- HTML content here -->
  <script src="js/jquery-3.2.1.min.js"></script>
  <script src="js/main.js"></script>
</body>
```

STEP 2: ADD A JAVASCRIPT FILE

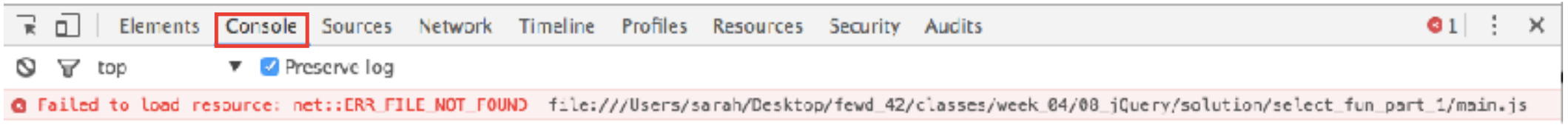
1. Create your custom JavaScript file with a .js extension (example: main.js)
2. Link to the JavaScript file from your HTML page using the `<script>` element. Add this **right before the closing `</body>` tag and after the `<script>` element for your jQuery file.**

```
<body>
  <!-- HTML content here -->
  <script src="js/jquery-3.2.1.min.js"></script>
  <script src="js/main.js"></script>
</body>
```

ORDER IS IMPORTANT!!!!

MAKE SURE YOUR JS IS HOOKED UP PROPERLY

- Open the page in Chrome, then open the console (command + option + J [Mac] or Ctrl + Alt + J [Win]) and make sure there are no errors.



This error means the file can't be found. Check your url in your <script> tag. Make sure the file exists.

PART 1 — SELECT AN ELEMENT

A JQUERY STATEMENT INVOLVES 2 PARTS

1

Select an element/elements

2

Work with those elements

INTRO TO JQUERY

1

Select an element/elements

2

Work with those elements

JQUERY — SELECTING ELEMENTS

JQUERY OBJECTS — FINDING ELEMENTS: SOME EXAMPLES

	CSS	JQUERY
ELEMENT	`a { color: blue; }`	`$('a')`
ID	`#special { color: blue; }`	`$('#special')`
CLASS	`.info { color: blue; }`	`$('.info')`
NESTED SELECTOR	`div span { color: blue; }`	`$('div span')`

```
<button id="form-submit">Submit</button>

<li class="circle">One</li>

<h1>Color Scheme Switcher</h1>
```

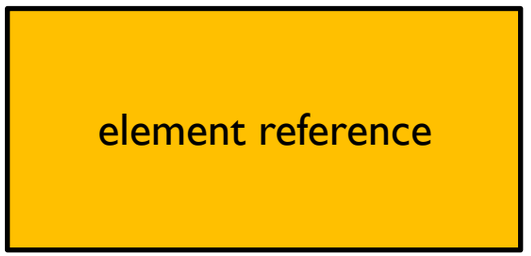
JQUERY OBJECTS

- Selecting elements with vanilla JavaScript returns an element reference (`querySelector`) or a collection of element references (`querySelectorAll`)

vanilla JavaScript selector

`querySelector('selector')`

plain element reference

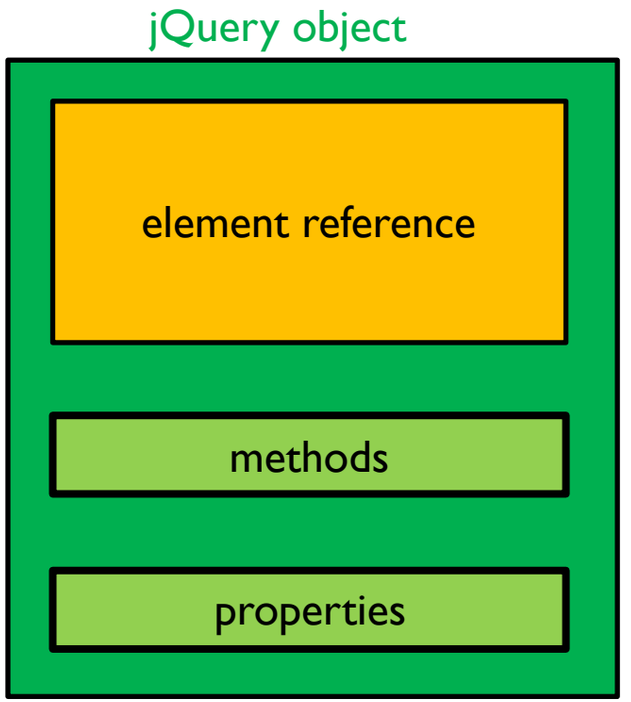


JQUERY OBJECTS

- Selecting elements with jQuery returns a **jQuery object**, which is one or more element references packaged with jQuery methods and properties

jQuery selector

```
$('selector')
```



NAMING VARIABLES WHEN USING JQUERY

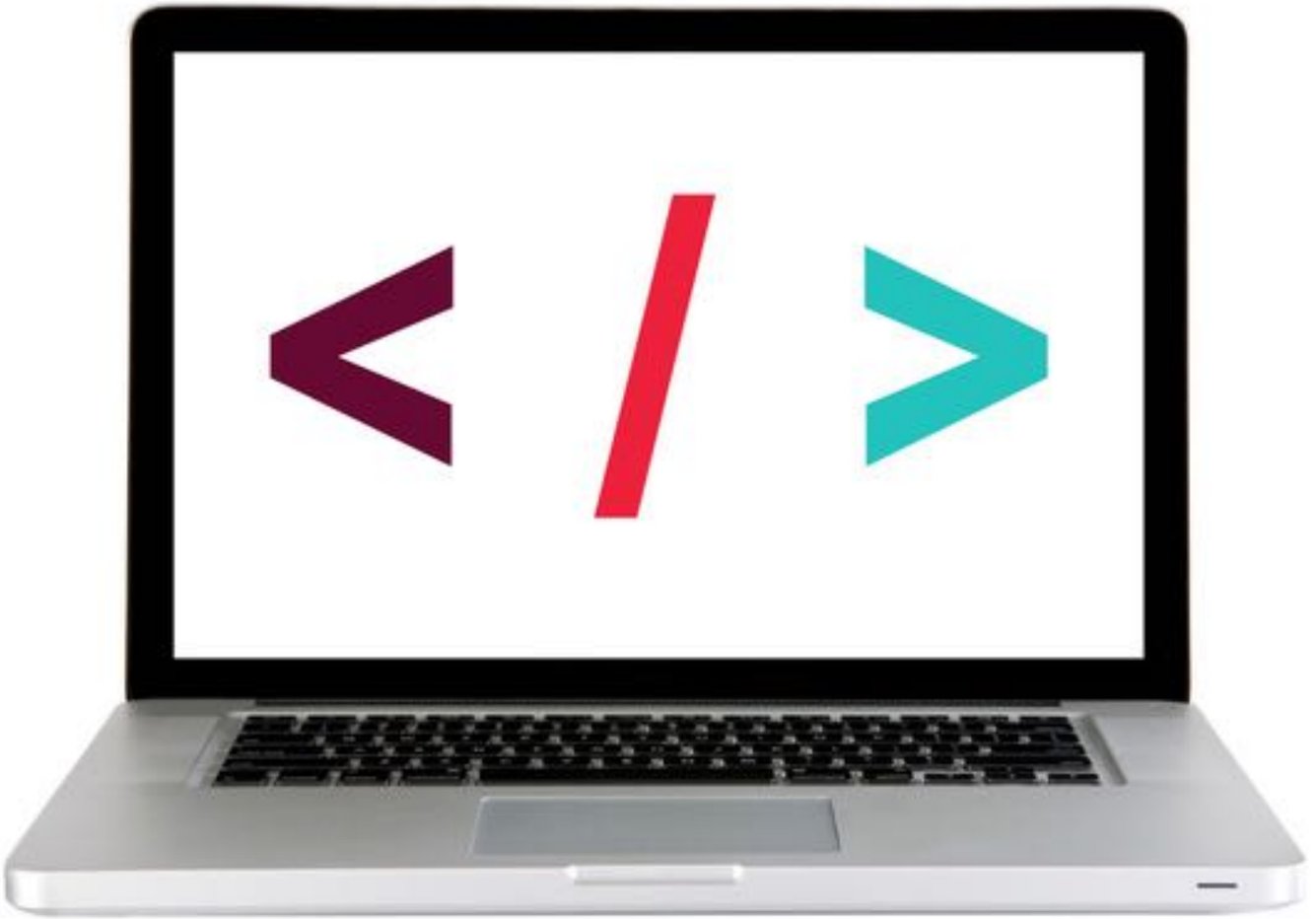
include $ at start of variable name to indicate that its value is a jQuery object

```
let $openTab = $('.open');
```

it's not an error to name the variable with out the $ — it just wouldn't give us as much information

```
let openTab = $('.open');
```

LET'S TAKE A CLOSER LOOK



PART 2 — ADD A METHOD

USING JQUERY TO MANIPULATE THE DOM

1

Select an element/elements

2

Work with those elements

JQUERY — WORKING WITH THOSE ELEMENTS

JQUERY METHODS

Be forewarned!

There are a lot of methods!

Do not feel like you need to sit down and memorize these. The important things is knowing that they're there and **being able to look them up** in the documentation.

api.jquery.com

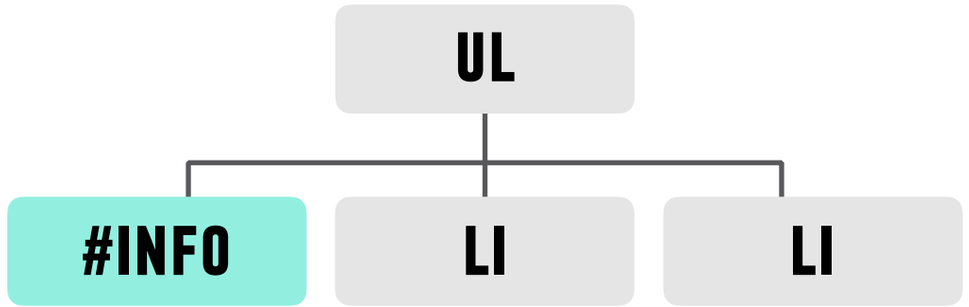
JQUERY METHODS — WORKING WITH THOSE ELEMENTS

After we've selected elements, we can use jQuery methods to:

See your handout or the jQuery docs for list!

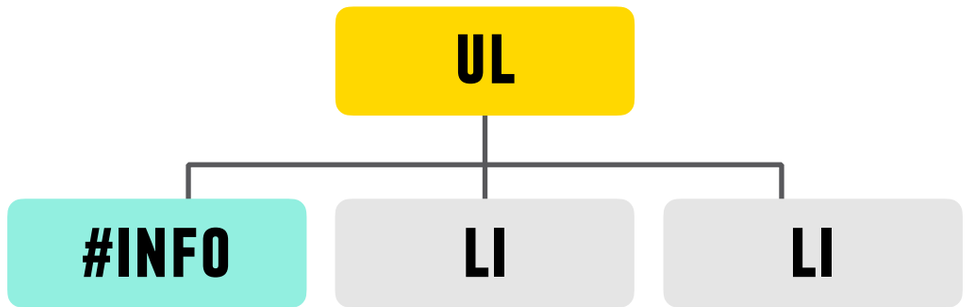
TRAVERSING THE DOM?

```
$('#info').parent();
```



TRAVERSING THE DOM?

```
$('#info').parent();
```



JQUERY METHODS — TRAVERSING THE DOM

FIND ELEMENTS

- Think of these as filters, or part of the selection process.
- They must come *directly after another selection*

METHODS	EXAMPLES
`.find()` *finds all descendants*	`$('h1').find('a');`
`.parent()`	`$('#box1').parent();`
`.siblings()`	`$('p').siblings('.important');`
`.children()`	`$('ul').children('li');`

What goes in the parentheses?
A **css-style selector**

JQUERY METHODS — WORKING WITH THOSE ELEMENTS

After we've selected elements, we can use jQuery methods to:

See your handout or the jQuery docs for list!

GETTING/SETTING CONTENT — PART 1

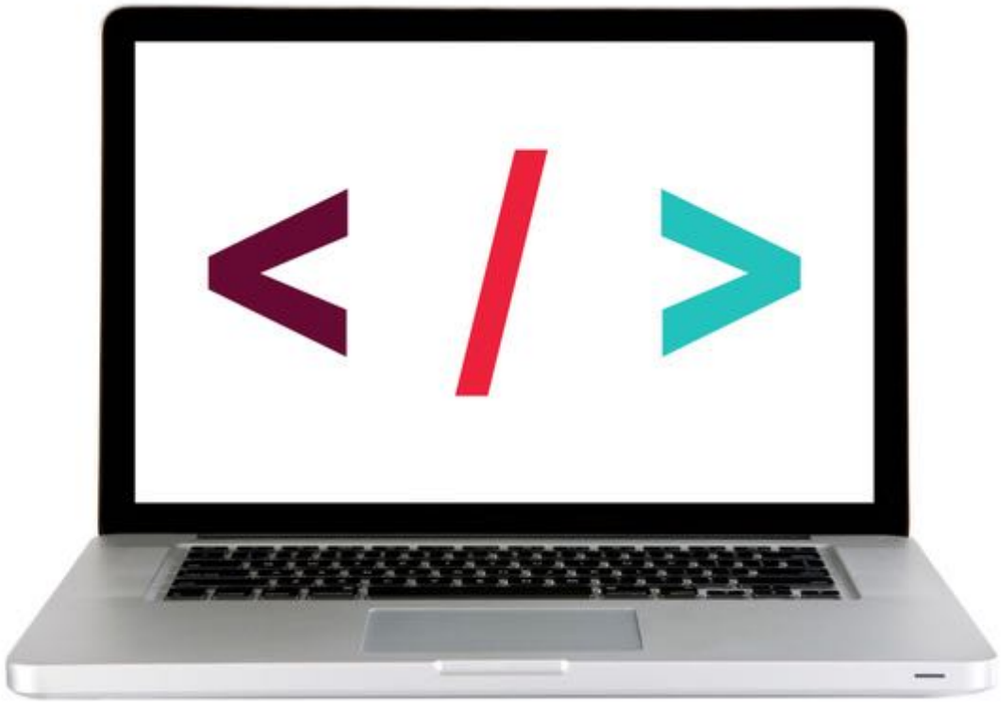
GET/SET CONTENT

Get/change content of elements and attributes

METHODS	EXAMPLES
.html()	$(‘h1').html('Content');
.text()	$(‘h1’).text('Just text content!’);
.attr()	$('img').attr('src', ‘images/bike.png');

What goes in the parentheses?
The **content** you want to change.

LET'S TAKE A CLOSER LOOK



GETTING/SETTING CONTENT — PART 2

GET/SET CONTENT

Get/change content of elements and attributes

METHODS	EXAMPLES
`.addClass()`	`$('p').addClass('success');`
`.removeClass()`	`$('p').removeClass('my-class-here');`
`.toggleClass()`	`$('p').toggleClass('special');`

What goes in the parentheses?
The **classes** you want to change.

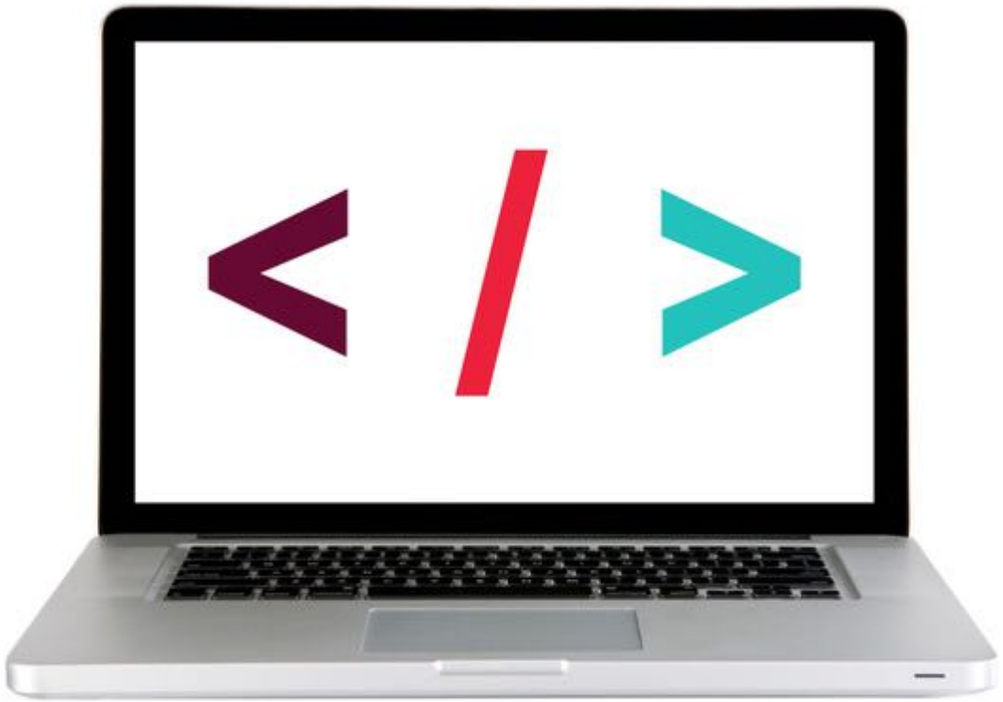
JQUERY METHODS — GETTING/SETTING CONTENT

GET/SET CONTENT

```
$('li').addClass('selected');
```

NO PERIOD!!!

LET'S TAKE A CLOSER LOOK



ACTIVITY

KEY OBJECTIVE

- Utilize jQuery to access and manipulate DOM elements.

TYPE OF EXERCISE

- Individual/Partner

TIMING

5 min `08-jquery-statements-exercise`

1. Follow the instructions under part 1 in main.js
2. Use handout/slides as a guide for syntax

JQUERY METHODS — WORKING WITH THOSE ELEMENTS

After we've selected elements, we can use jQuery methods to:

See your handout or the jQuery docs for list!

JQUERY METHODS — EFFECTS/ANIMATION

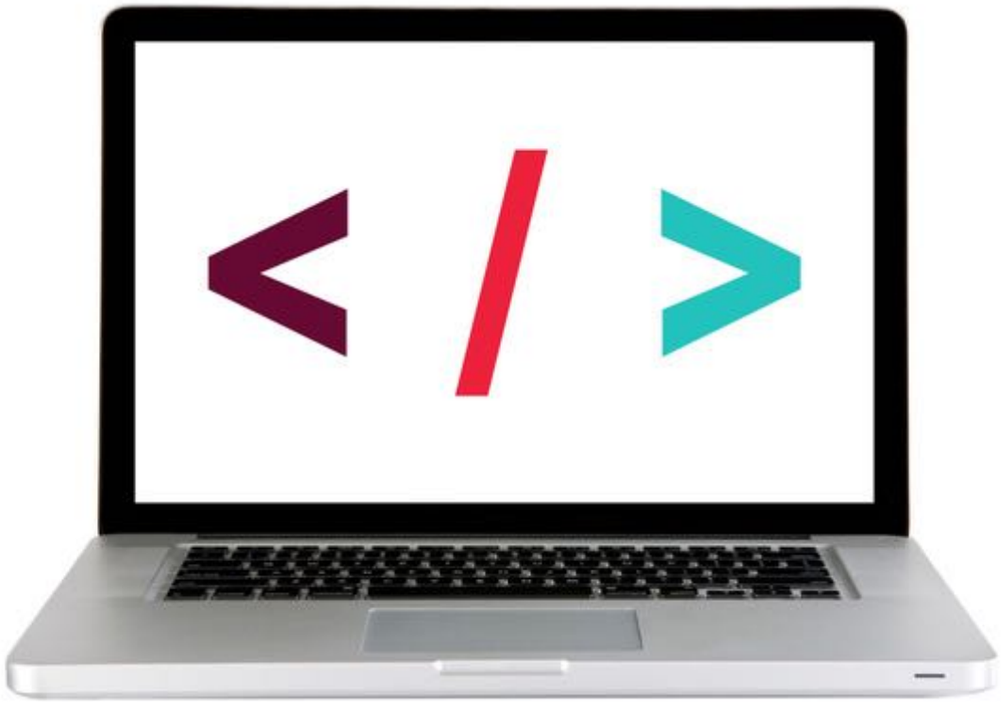
ADD EFFECTS/ ANIMATION

Add effects and animation to parts of the page

METHODS	EXAMPLES
.show()	$('h1').show();
.hide()	$('ul').hide();
.fadeIn()	$('h1').fadeIn(300);
.fadeOut()	$('.special').fadeOut('fast');
.slideUp()	$('div').slideUp();
.slideDown()	$('#box1').slideDown('slow');
.slideToggle()	$('p').slideToggle(300);

What goes in the parenthesis?
An animation speed

LET'S TAKE A CLOSER LOOK



JQUERY METHODS — WORKING WITH THOSE ELEMENTS

After we've selected elements, we can use jQuery methods to:

See your handout or the jQuery docs for list!

EVENTS

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

We can use the `on()` method to handle all events in jQuery.

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

selector

```
$('li').on('click', () => {
  // your code here
});
```

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

method for all events

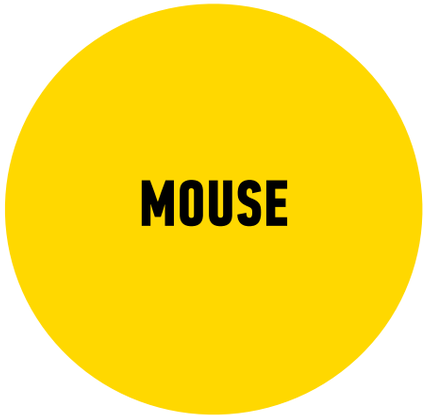
```
$('li').on('click', () => {
  // your code here
});
```

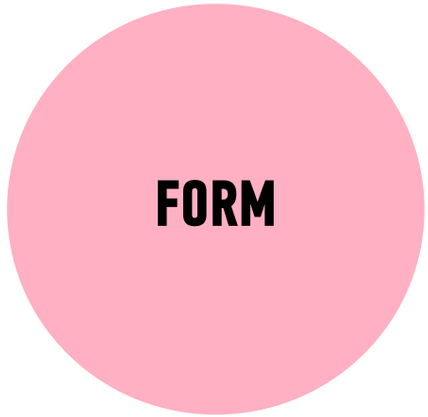
JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

type of event

```
$('li').on('click', () => {
  // your code here
});
```





click

dblclick

mouseenter

mouseleave

keypress

keydown

keyup

submit

change

focus

blur

resize

scroll

```
$('li').on('eventGoesHere', () => {
  // your code here
});
```

JQUERY METHODS — EVENTS!

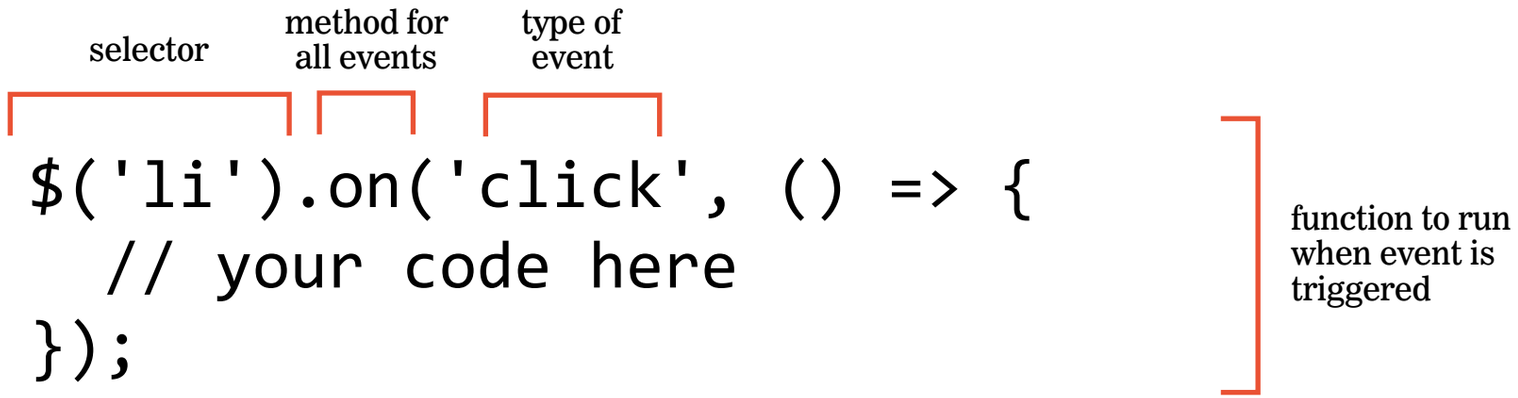
CREATE EVENT LISTENERS

```
$('li').on('click', () => {
  // your code here
});
```

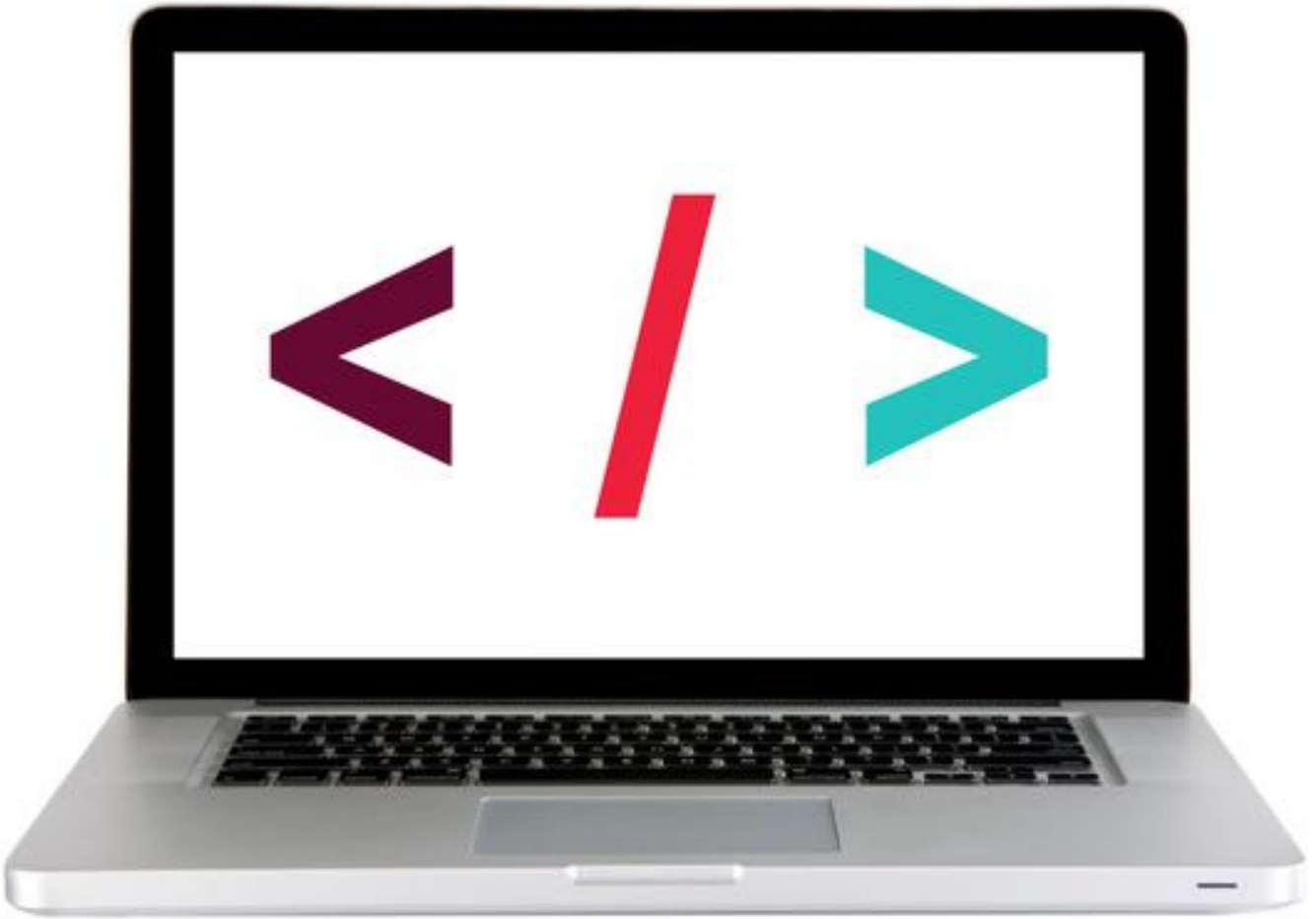
function to run when event is triggered

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS



LET'S TAKE A LOOK



ACTIVITY

KEY OBJECTIVE

- Utilize jQuery to access and manipulate DOM elements.

TYPE OF EXERCISE

- Individual/Partner

TIMING

5 min Continue with `08-jquery-statements-exercise`

1. Follow the instructions under Part 2 in main.js
2. Use handout/slides as a guide for syntax

ACTIVITY

KEY OBJECTIVE

- Create DOM event handlers to respond to user actions

TYPE OF EXERCISE

- Individual/Partner

AS A CLASS

6 min Return to `04-events-exercise` folder

1. Rewrite your vanilla JavaScript code to use jQuery instead.
2. Use handout/slides as a guide for syntax

CREATING & APPENDING DOM NODES WITH JQUERY

document.ready()

- specifies code to run only after the DOM has finished loading
- Syntax:

```
$(document).ready(() => {
  // code goes here
});
```

- Shorthand version (best practice):

```
$(() => {
  // code goes here
});
```

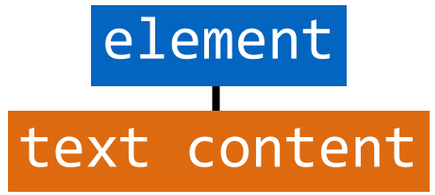
Adding content to the DOM

1. create a new element with `$('<element>')`

`element`

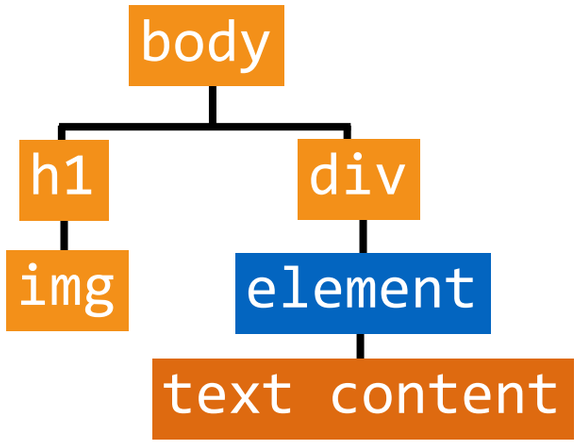
Adding content to the DOM

1. create a new element with `$('<element>')`
2. add new content to that element with a method like `.text()`, `.html()`, or `.attr()`



Adding content to the DOM

1. create a new element with `$('<element>')`
2. add new content to that element with a method like `.text()`, `.html()`, or `.attr()`
3. attach the new element to the DOM with `.append()`



$(‘<element>’)

- Creates a new element

```
$(‘<li>’); // creates an li element
```

- Created element isn’t attached to DOM
  - » assign variable when creating so you can reference later

```
let item1 = $(‘<li>’);
let item2 = $(‘<li>’);
```

`.text()` or `.html()`

- Creates and adds text content as the child of an element
- Easiest to add method to same statement that creates element

```
let item1 = $('<li>').text('banana');
let item2 = $('<li>').text('apple');
```

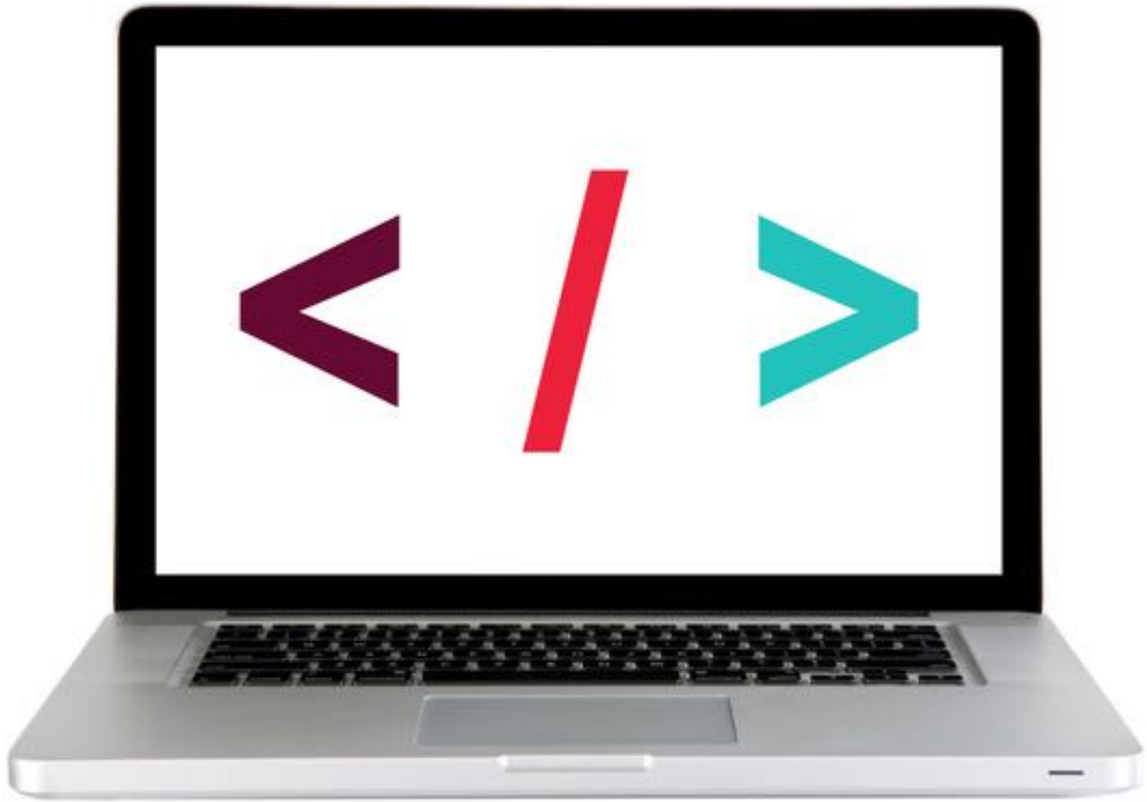
```
let item1 = $('<li>').html('<strong>Every</strong> dinosaur');
let item2 = $('<li>').html('Books (<em>not</em> ebooks)');
```

.append()

- Attaches element or node as child of specified element
  - » Attaching to a DOM element makes it part of the DOM
- Syntax:
  `$(parent).append(child);`

```
const list = $('ul');  // selects ul element
list.append(item1);    // adds item1 li to list ul
list.append(item2);    // adds item2 li to list ul
```

EVENTS & JQUERY



LET'S TAKE A CLOSER LOOK

EXERCISE – ADD CONTENT TO A WEB PAGE USING JQUERY

LOCATION

▸ `starter-code > Homework-3 > create-append–homework`

TIMING

until 9:20

1. Open preview.png. Your task is to use DOM manipulation to build the sidebar shown in the image and add it to the blog.html web page.
2. Open app.js in your editor, then follow the instructions to create and the “About us” heading and the 2 paragraphs of text to the sidebar.
3. BONUS 1: Open preview-bonus.png, then write JavaScript code to add the image shown to the sidebar. (Filename and location in app.js.)
4. BONUS 2: Create and append the “Recent issues” heading and list.

Exit Tickets!

(Class #7)

LEARNING OBJECTIVES - REVIEW

- Use vanilla JavaScript methods and properties to create and modify DOM nodes.
- Create DOM event handlers using vanilla JavaScript.
- Select DOM elements and properties using jQuery.
- Manipulate the DOM by using jQuery selectors and functions.
- Create DOM event handlers using jQuery.

NEXT CLASS PREVIEW

Advanced jQuery & APIs

- Use event delegation to manage dynamic content.
- Use implicit iteration to update elements of a jQuery selection
- Identify all the HTTP verbs & their uses.
- Describe APIs and how to make calls and consume API data.
- Access public APIs and get information back.

Q&A