GENERAL ASSEMBLY

JAVASCRIPT DEVELOPMENT

Sasha Vodnik, Instructor

HELLO!

1. Pull changes from the `svodnik/JS-SF-8-resources` repo to your computer
2. Open the `08-jquery > starter-code` folder in your code editor
3. Check out the questions on the white board

JAVASCRIPT DEVELOPMENT

INTRO TO JQUERY

LEARNING OBJECTIVES

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

- Create DOM event handlers to respond to user actions
- Manipulate the DOM by using jQuery selectors and functions.
- Register and trigger event handlers for jQuery events.
- Use chaining to place methods on selectors.

AGENDA

- DOM manipulation lab
- JavaScript events
- jQuery intro
- jQuery events

WEEKLY OVERVIEW

WEEK 5	Intro to the DOM / Intro to jQuery
WEEK 6	Advanced jQuery & templating / Ajax & APIs
WEEK 7	Asynchronous JavaScript & Callbacks / Advanced APIs

EXIT TICKET QUESTIONS

1. - Can you give an example of using DOM beyond basic functionality
   - In what case would you use DOM to add elements rather than just coding it in the HTML?
   - Curious about seeing a real life example of `createElement` on a live site.
2. I am still fuzzy on this
3. Why using DOM manipulation when we can use CSS?
4. Getting our hubot to work in slack. A lot of questions on the tools we use versus the actual coding.

EXIT TICKET QUESTIONS

5. Why doesn't `document.createElement("li").createTextNode("Hello")` work? (Creates "Hello" without the `<li>` tags)
6. How to insert pictures into the DOM?

EXERCISE - ADD CONTENT TO A WEB PAGE USING JAVASCRIPT

EXERCISE

LOCATION

▸ `08-jquery > starter-code > 1-create-append-exercise`

TIMING

15 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.

EXERCISE — WARMUP

EXERCISE

TYPE OF EXERCISE

- Pairs

TIMING

2 min

1. Make a list of events you've seen, experienced, or imagined that can trigger a change in a web page
2. Compare your list with your partner, and ask about any events on your partner's list that you're unfamiliar with

DOM EVENTS

EVENTS

MOUSE

- click
- dblclick
- mouseenter
- mouseleave

KEYBOARD

- keypress
- keydown
- keyup

FORM

- submit
- change
- focus
- blur

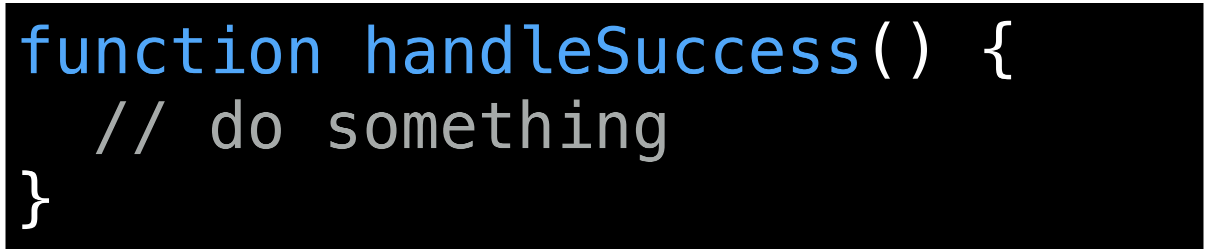
DOCUMENT

- resize
- scroll

EVENT HANDLER

- **Event handler**: code that responds to an event

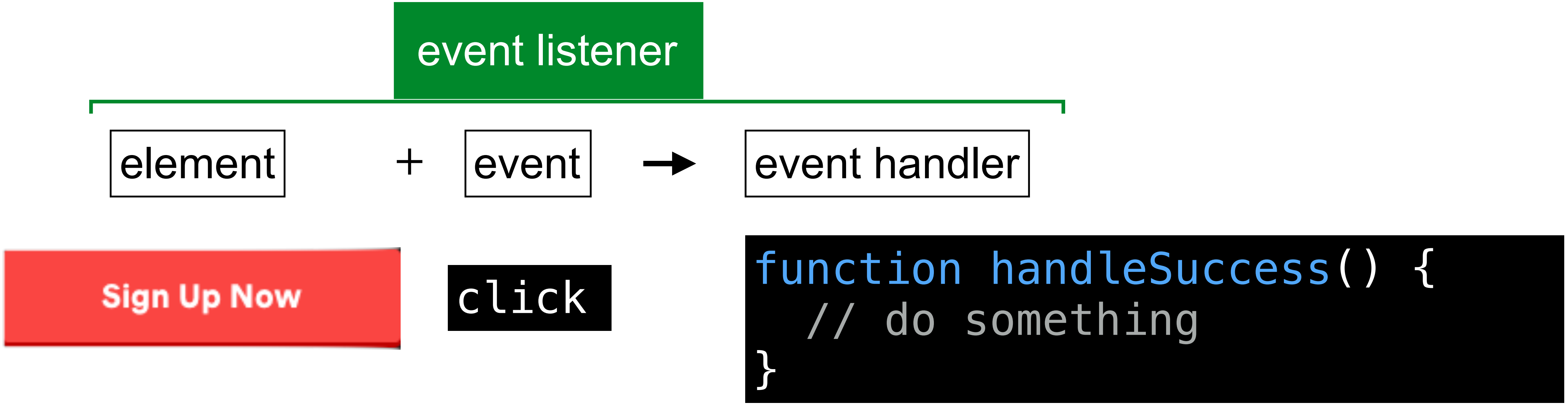
event handler



```
function handleSuccess() {
  // do something
}
```

EVENT LISTENER

- **Event listener**: code that associates an element, an event, and an event handler



event listener

element + event → event handler

click

```
function handleSuccess() {
  // do something
}
```

addEventListener()

- Method used to add an event listener to an element

EVENT LISTENERS

selecting element

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

element reference

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

EVENT LISTENERS

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

method to add event listener

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

EVENT LISTENERS

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

type of event

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

MOUSE	KEYBOARD	FORM	DOCUMENT
click	keypress	submit	resize
dblclick	keydown	change	scroll
mouseenter	keyup	focus	
mouseleave		blur	

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

EVENT LISTENERS

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

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

function to run when event is triggered

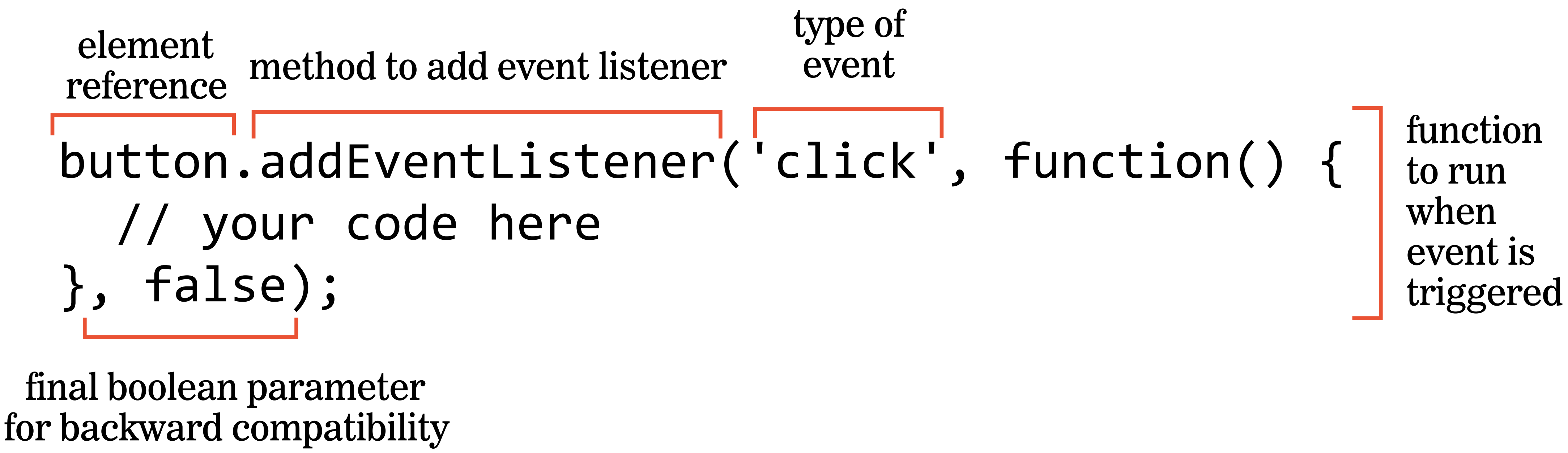
EVENT LISTENERS

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

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

final boolean parameter
for backward compatibility

EVENT LISTENERS



element reference

method to add event listener

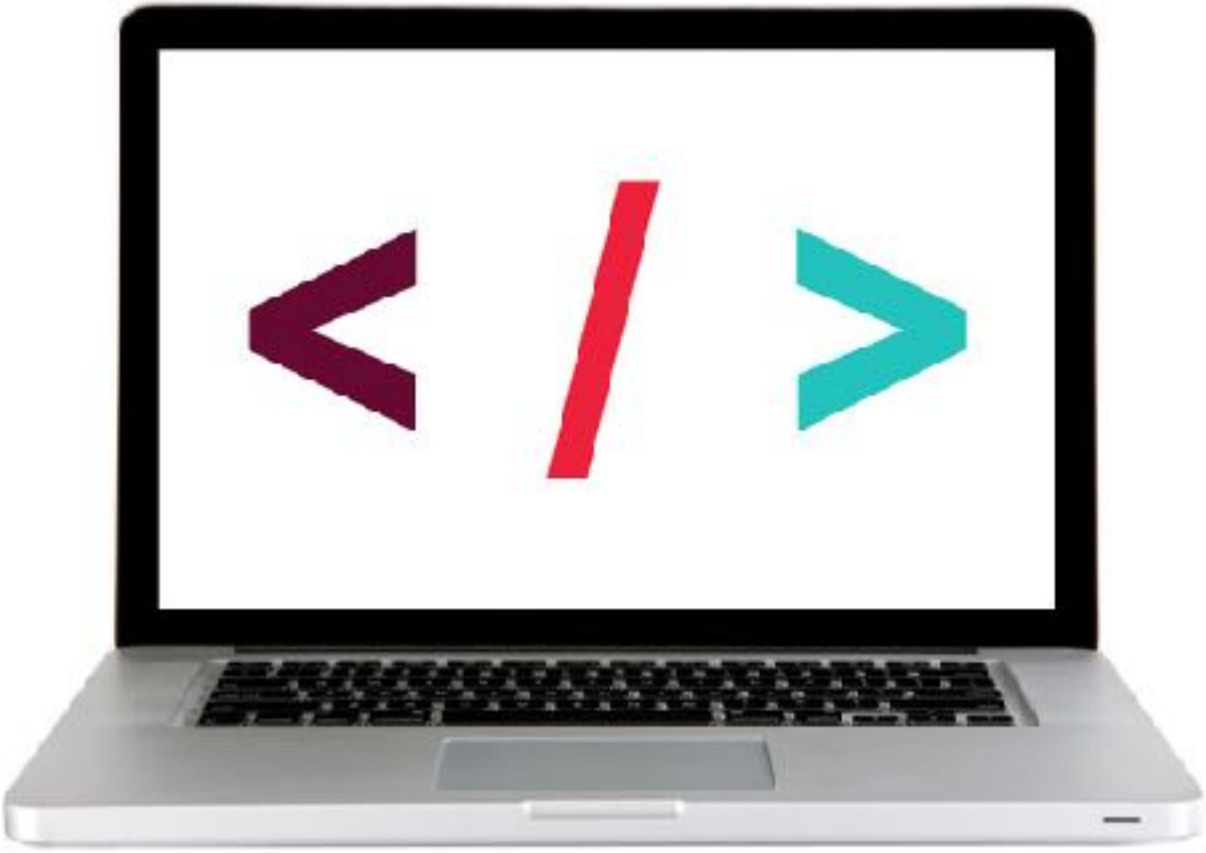
type of event

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

function to run when event is triggered

final boolean parameter for backward compatibility

INTRO TO JQUERY



LET'S TAKE A CLOSER LOOK

ACTIVITY

EXERCISE

KEY OBJECTIVE

- Create event handlers to respond to user actions

TYPE OF EXERCISE

- Individual/Partner

TIMING

10 min

Exercise is in `3-events-exercise` folder

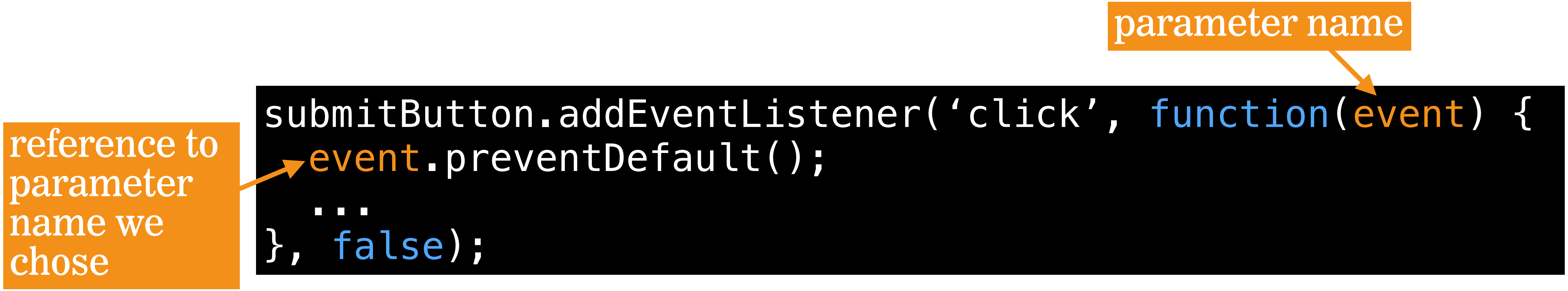
1. Add event listeners to the 3 buttons at the top of the page. Clicking each button should hide the block below it with the corresponding color.
2. Use cheat sheet/slides as a guide for syntax
3. BONUS: Add an event listener for the "Show all blocks" button that removes the hidden class from all the colored block elements.

`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`



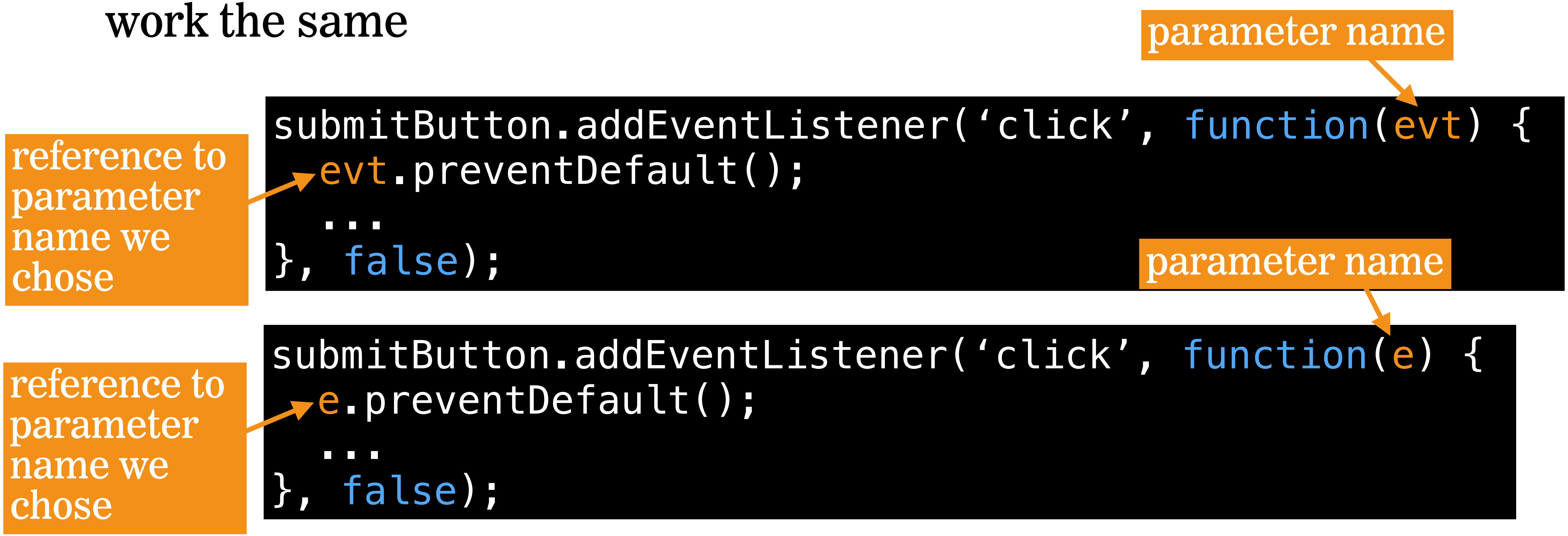
parameter name

reference to parameter name we chose

```
submitButton.addEventListener(‘click’, function(event) {
  event.preventDefault();
  ...
}, false);
```

Referencing an event

- We could choose a different parameter name and our code would still work the same



parameter name

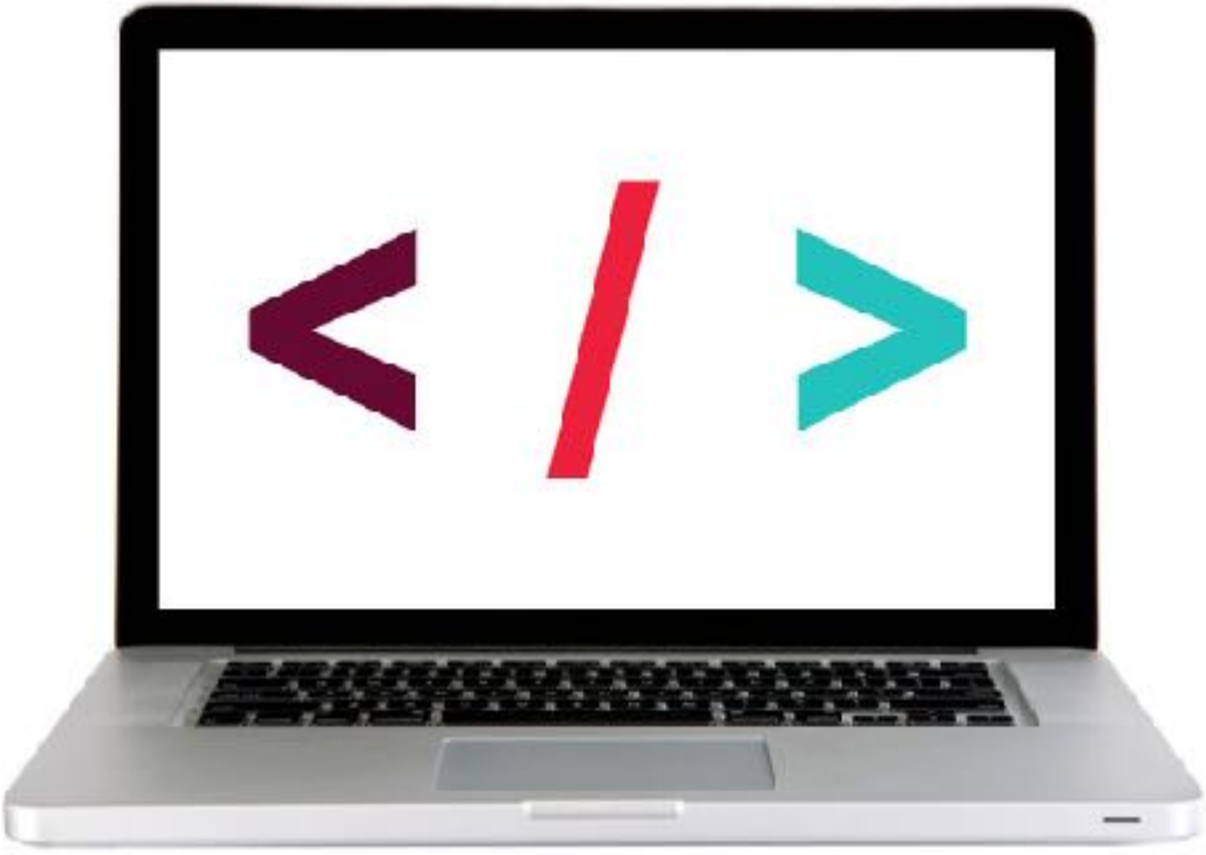
reference to parameter name we chose

```
submitButton.addEventListener(‘click’, function(evt) {
  evt.preventDefault();
  ...
}, false);
```

parameter name

reference to parameter name we chose

```
submitButton.addEventListener(‘click’, function(e) {
  e.preventDefault();
  ...
}, false);
```



LET'S TAKE A CLOSER LOOK

EXERCISE

EXERCISE

LOCATION

▸ `starter-code > 5-js-dom—exercise`

TIMING

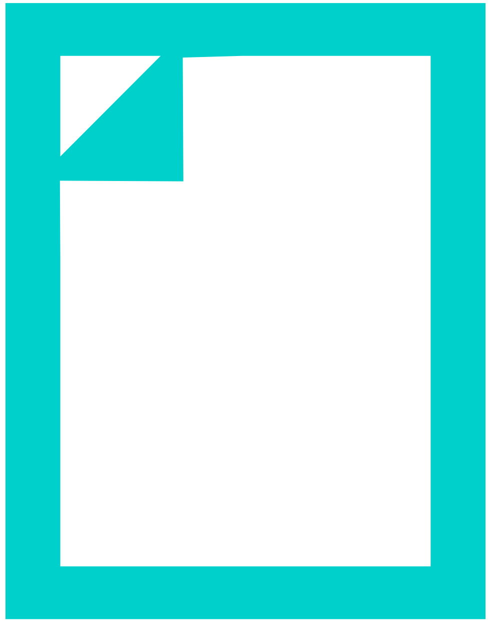
10 min

1. Open index.html in your browser.
2. Open main.js in your editor, then follow the instructions to make the submit button functional and use DOM manipulation to add items to the list.
3. BONUS: Add functionality that adds a message to the page that alerts the user when they click Submit without typing anything. (Use DOM manipulation, not the `alert` method.)

JQUERY

INTRO TO JQUERY — YOUR NEW BEST FRIEND!

jQuery is a JavaScript library you include in your pages.



JQUERY VS. JAVASCRIPT

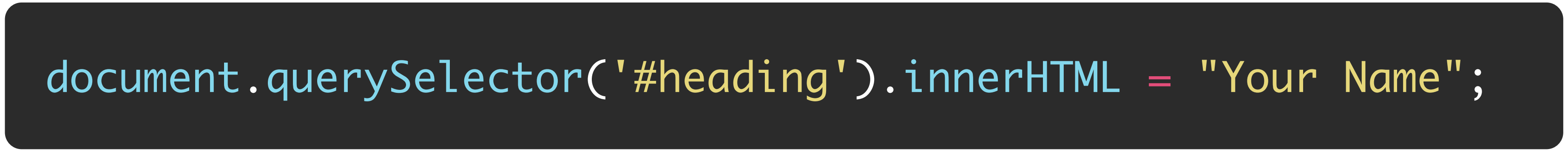
jQuery allows us to keep using the CSS-style selectors that we know and love —
but more concisely! Yay!

JS:		JQUERY:
😭 `document.querySelectorAll('ul li')`	→	`$('ul li’)` 😀
😭 `document.querySelector('#about')`	→	`$('#about')` 😀

JQUERY VS. JAVASCRIPT

jQuery statements for DOM manipulation are also more concise!

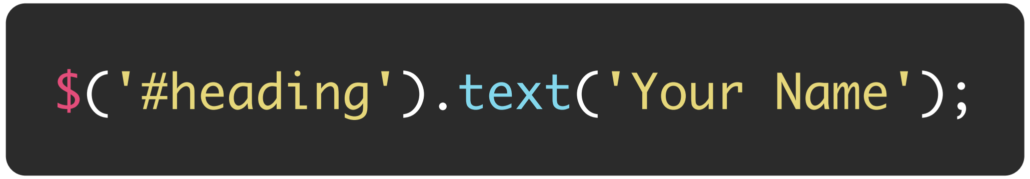
JS:



```
document.querySelector('#heading').innerHTML = "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

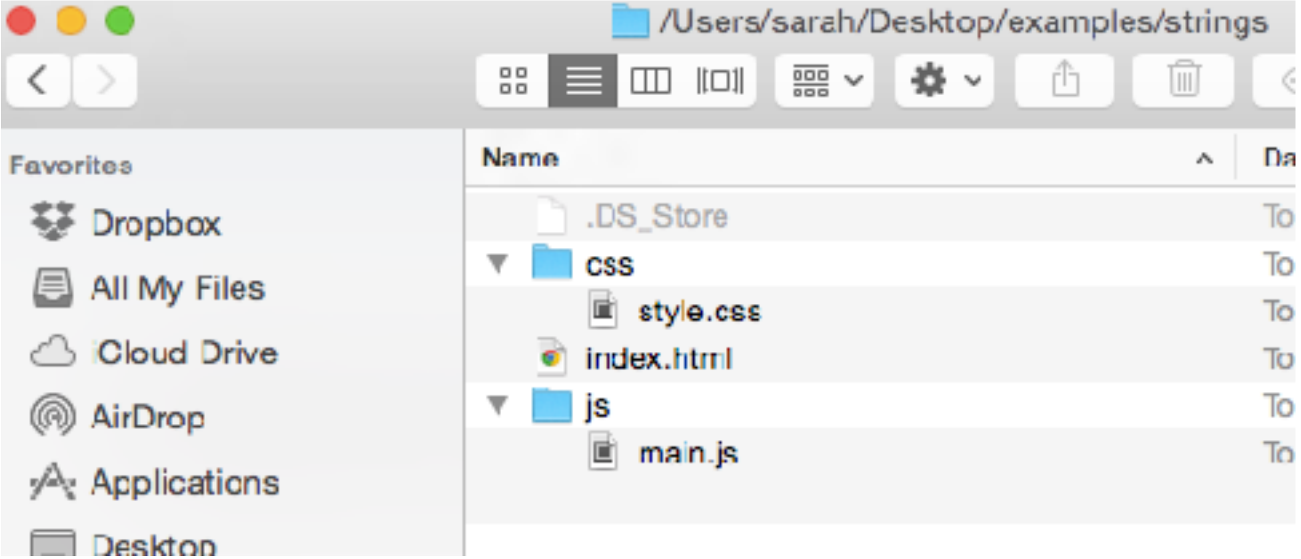
PURE JAVASCRIPT

- 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*).

STEP 1: ADD JQUERY TO YOUR WEBSITE

1. Download the jQuery script (version 3.x, 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

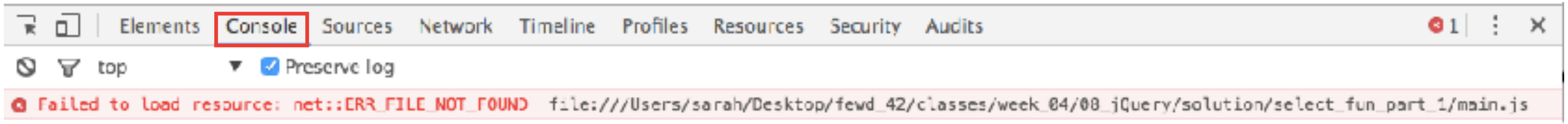
1. Create your custom JavaScript file with a .js extension (example: main.js)
2. Link to the JavaScript file from your HTML page using the `<script>` element. Add this **right before the closing `</body>` tag and after the `<script>` element for your jQuery file.**

```html
<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

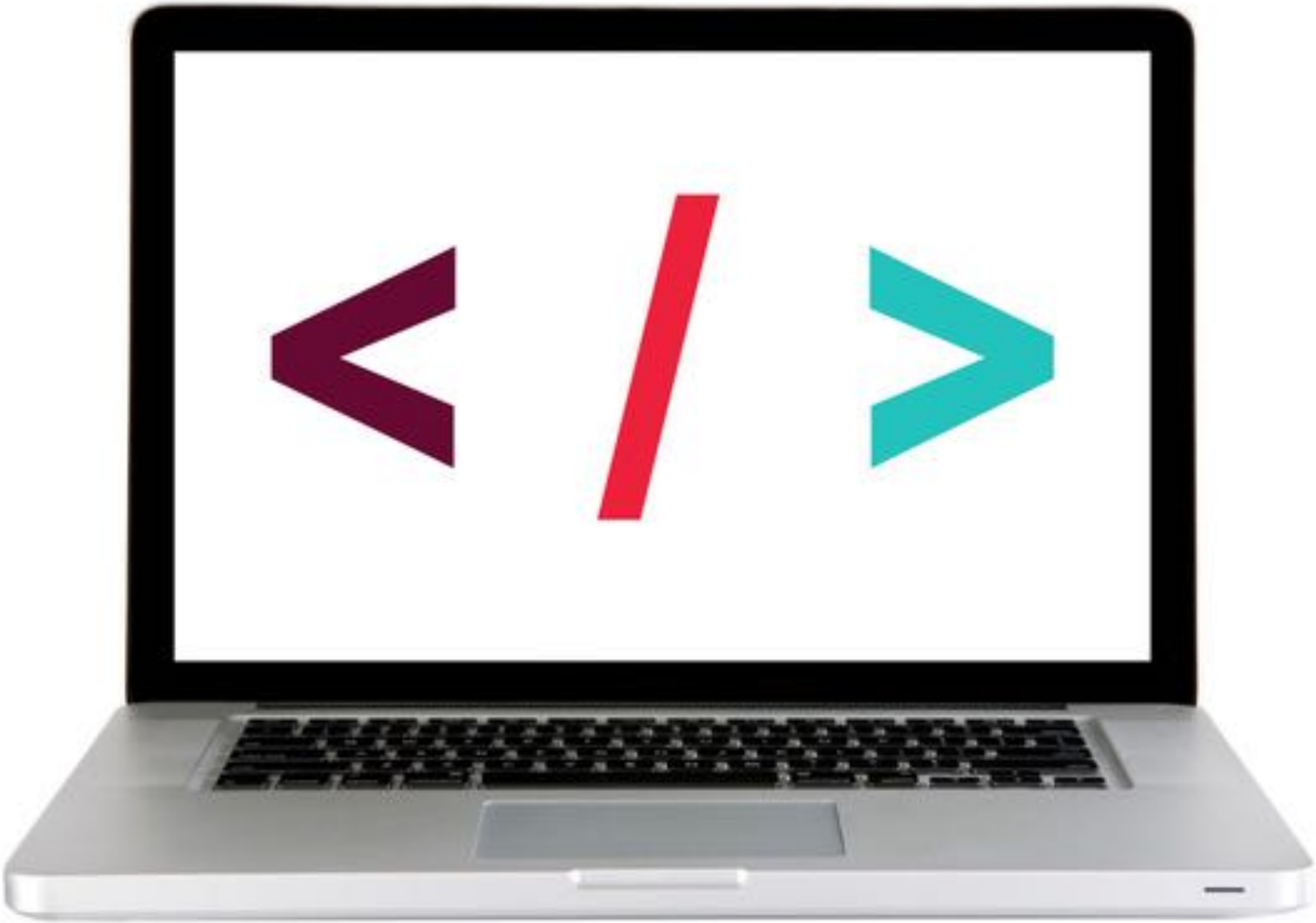
- Open the page in Chrome, then open the console (command + option + J [Mac] or Ctrl + Alt + J [Win]) and make sure there are no errors.



```
Failed to load resource: net::ERR_FILE_NOT_FOUND   file:///Users/sarah/Desktop/fewd_42/classes/week_04/08_jQuery/solution/select_fun_part_1/main.js
```

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

LET'S TAKE A CLOSER LOOK



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

Selector

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

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')`

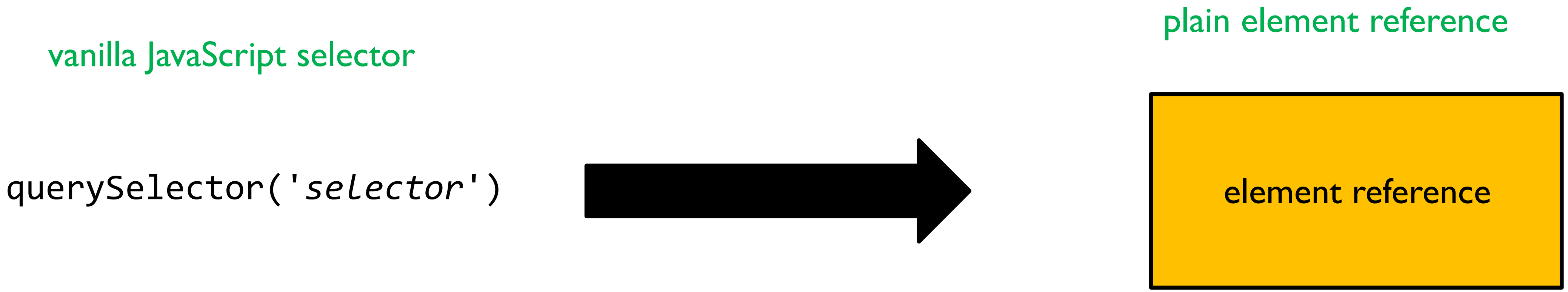
```
<button id="form-submit">Submit</button>

<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

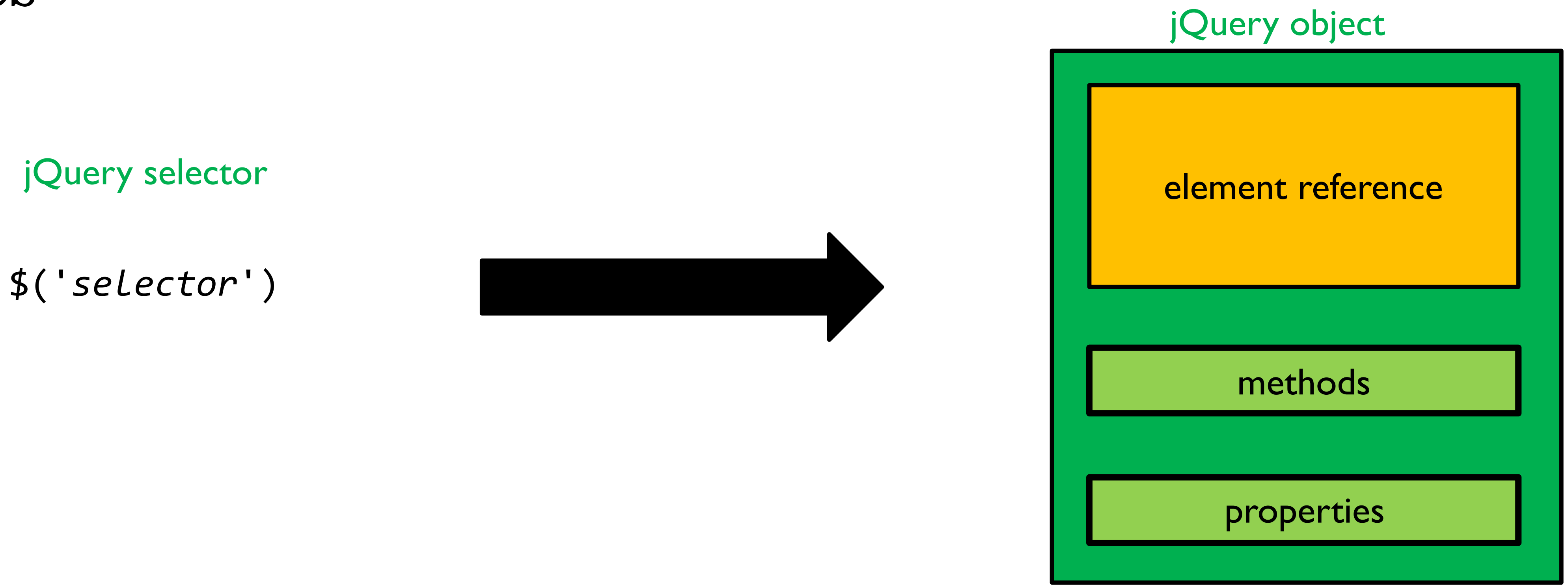
`querySelector('`*`selector`*`')`

plain element reference

element reference

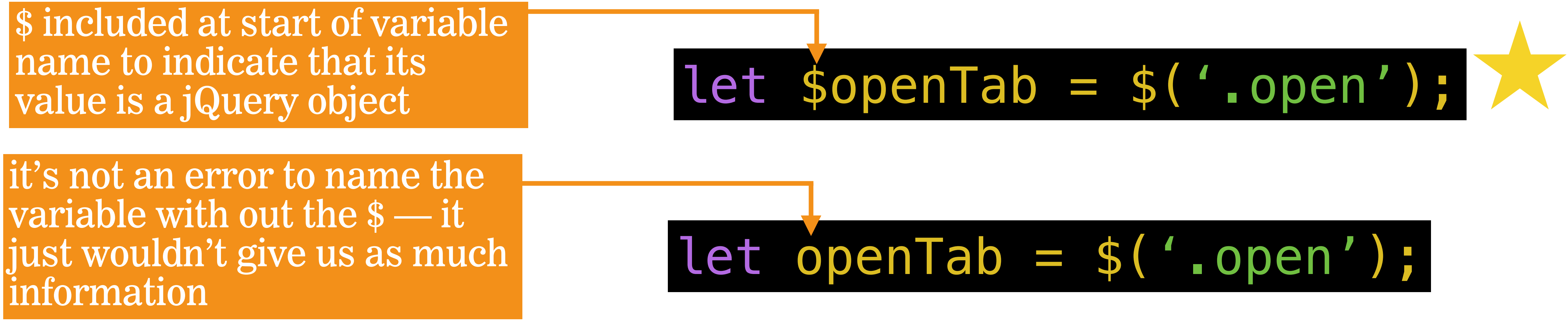
JQUERY OBJECTS

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



NAMING VARIABLES WHEN USING JQUERY

- Best practice: include $ as the first character of any variable whose value is a jQuery object
- This is not required by jQuery, but helps us keep track of what parts of our code rely on the jQuery library



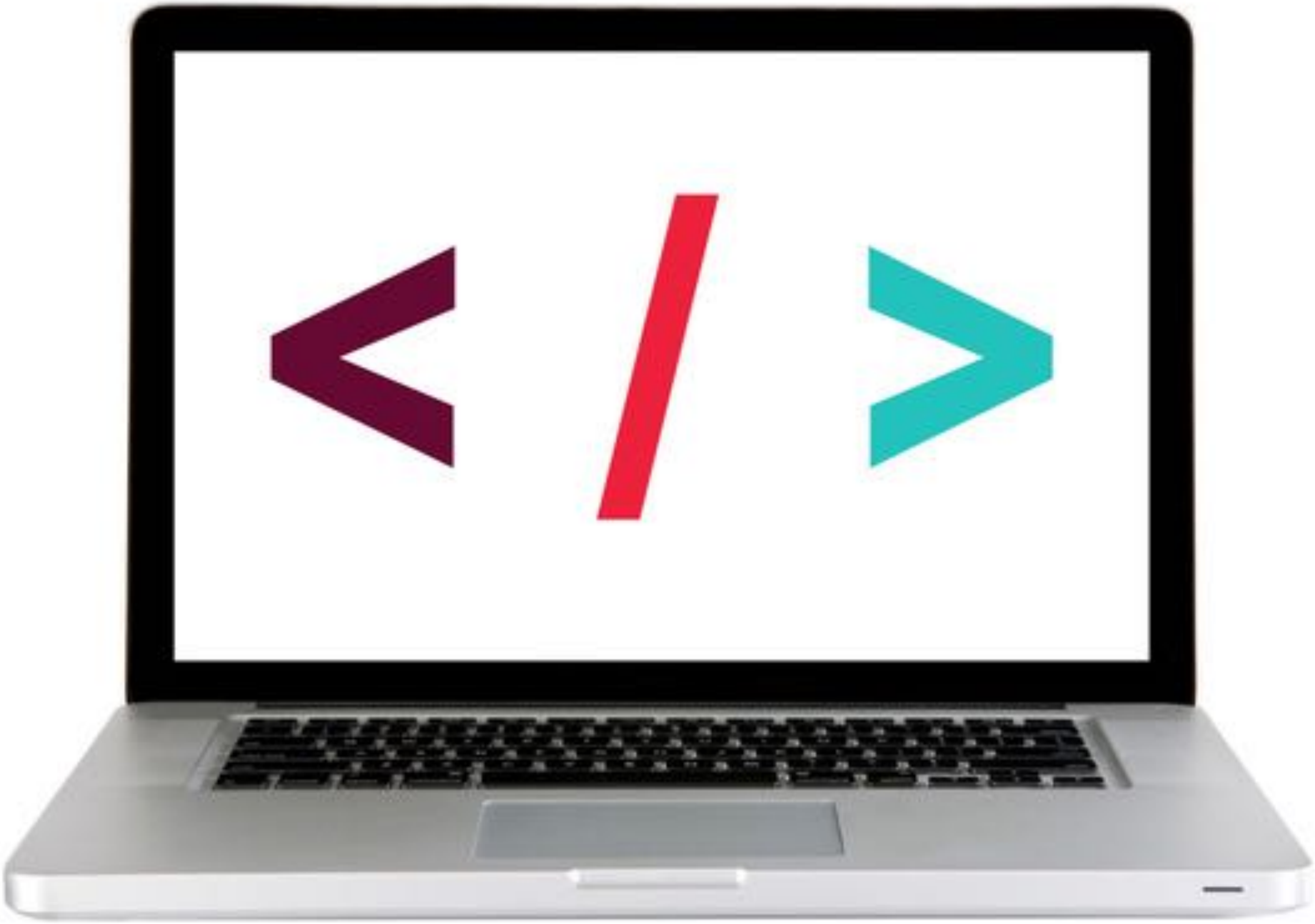
$ included at start of variable name to indicate that its value is a jQuery object

```
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

Argument(s)

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

Method

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

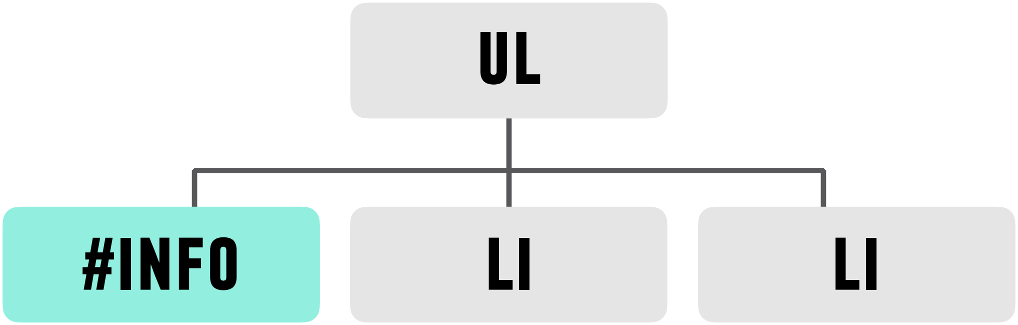
After we've selected elements, we can use jQuery methods to:

- FIND ELEMENTS
- GET/SET CONTENT
- ADD EFFECTS/ ANIMATION
- CREATE EVENT LISTENERS

See your handout or the jQuery docs for list!

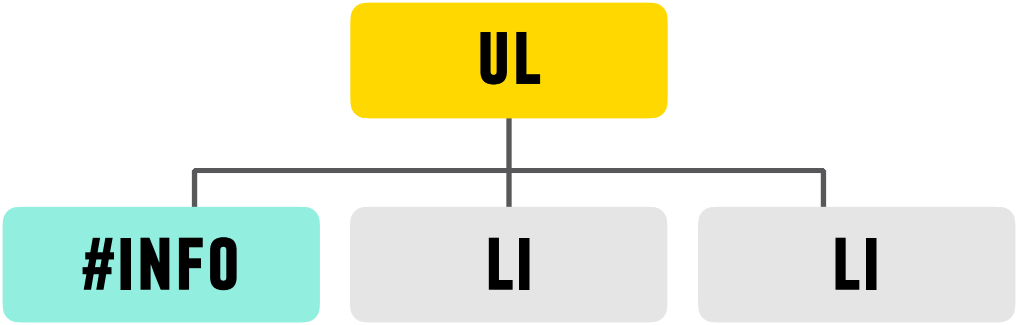
TRAVERSING THE DOM?

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



TRAVERSING THE DOM?

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



JQUERY METHODS — TRAVERSING THE DOM

TRAVERSE THE DOM

- 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:

FIND ELEMENTS

GET/SET CONTENT

ADD EFFECTS/ ANIMATION

CREATE EVENT LISTENERS

See your handout or the jQuery docs for list!

GETTING/SETTING CONTENT — PART 1

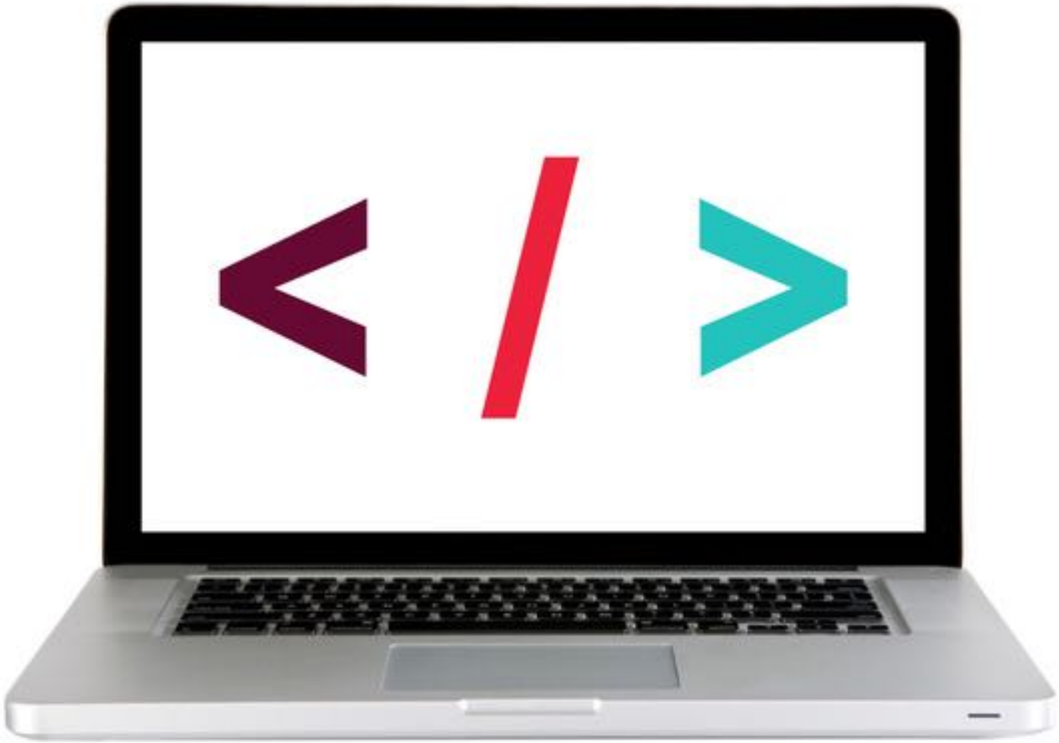
GET/SET CONTENT

Get/change content of elements and attributes

METHODS	EXAMPLES
`.html()`	`$('h1').html('Content to insert goes here');`
`.attr()`	`$('img').attr('src', 'images/bike.png');`

What goes in the parentheses?
The **html** 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.

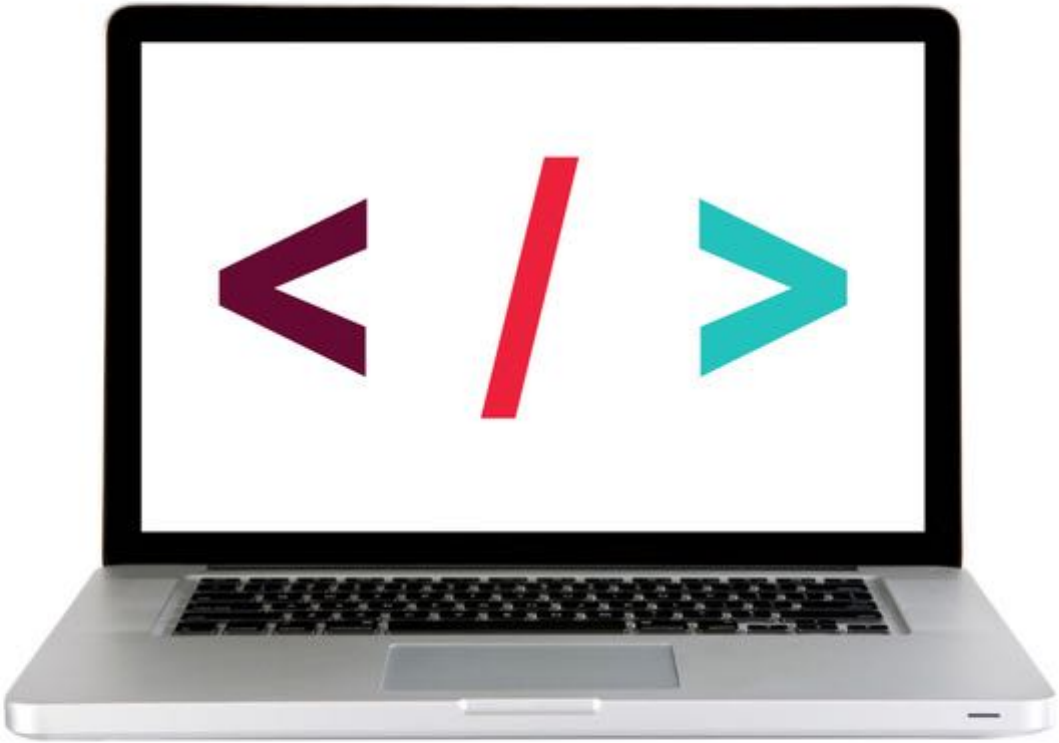
JQUERY METHODS — GETTING/SETTING CONTENT

GET/SET CONTENT

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

NO PERIOD!!!

LET'S TAKE A CLOSER LOOK



ACTIVITY

EXERCISE

KEY OBJECTIVE

- Utilize jQuery to access and manipulate DOM elements.

TYPE OF EXERCISE

- Individual/Partner

TIMING

5 min

Exercise is in `8-jquery-exercise`

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

JQUERY METHODS — WORKING WITH THOSE ELEMENTS

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

- FIND ELEMENTS
- GET/SET CONTENT
- ADD EFFECTS/ ANIMATION
- CREATE EVENT LISTENERS

See your handout or the jQuery docs for list!

JQUERY METHODS — EFFECTS/ANIMATION

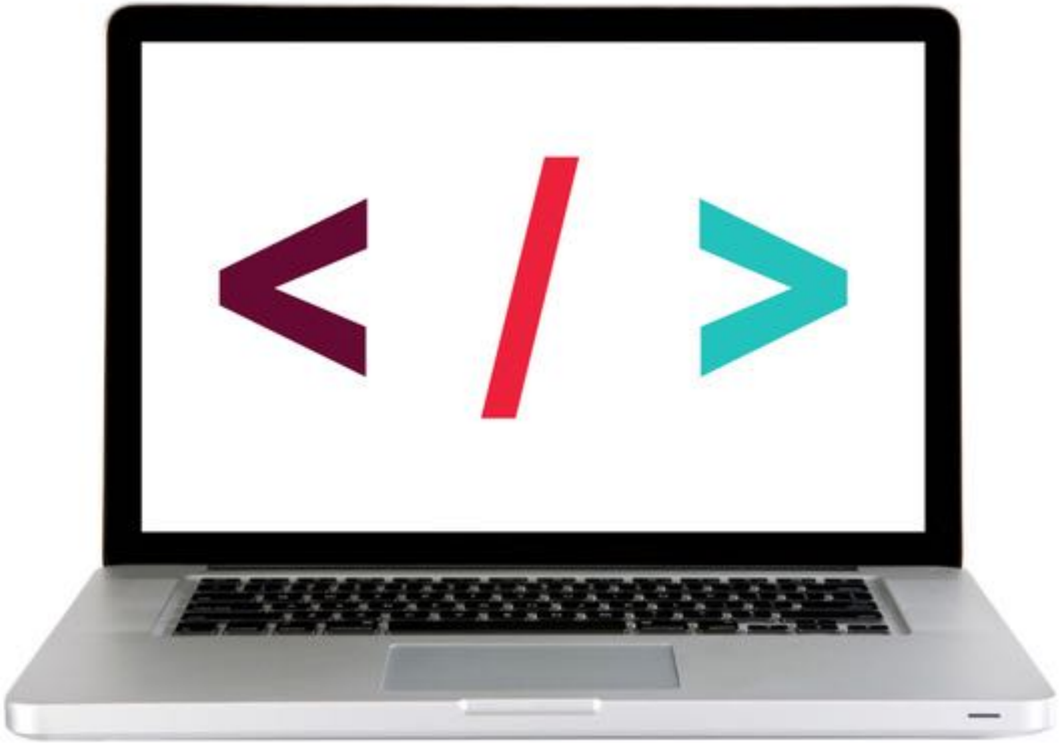
ADD EFFECTS/ ANIMATION

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:

- FIND ELEMENTS
- GET/SET CONTENT
- ADD EFFECTS/ ANIMATION
- CREATE EVENT LISTENERS

See your handout or the jQuery docs for list!

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', function() {
  // your code here
});
```

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

method for all events

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

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS

type of event

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

MOUSE

click

dblclick

mouseenter

mouseleave

KEYBOARD

keypress

keydown

keyup

FORM

submit

change

focus

blur

DOCUMENT

resize

scroll

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

JQUERY METHODS — EVENTS!

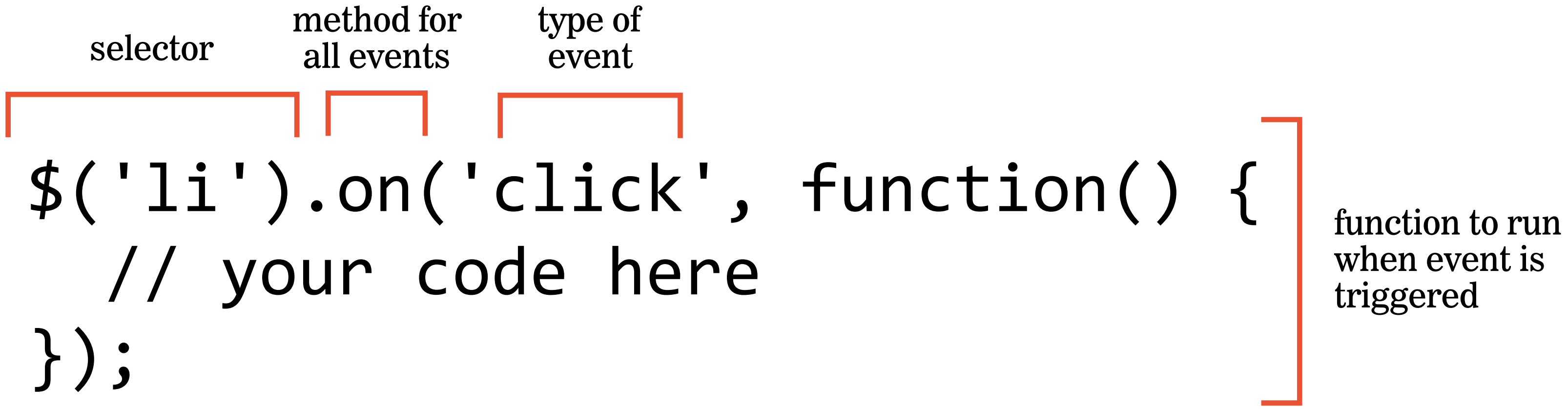
CREATE EVENT LISTENERS

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

function to run when event is triggered

JQUERY METHODS — EVENTS!

CREATE EVENT LISTENERS



selector

method for all events

type of event

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

function to run when event is triggered

ACTIVITY

EXERCISE

KEY OBJECTIVE

- Utilize jQuery to access and manipulate DOM elements.

TYPE OF EXERCISE

- Individual/Partner

TIMING

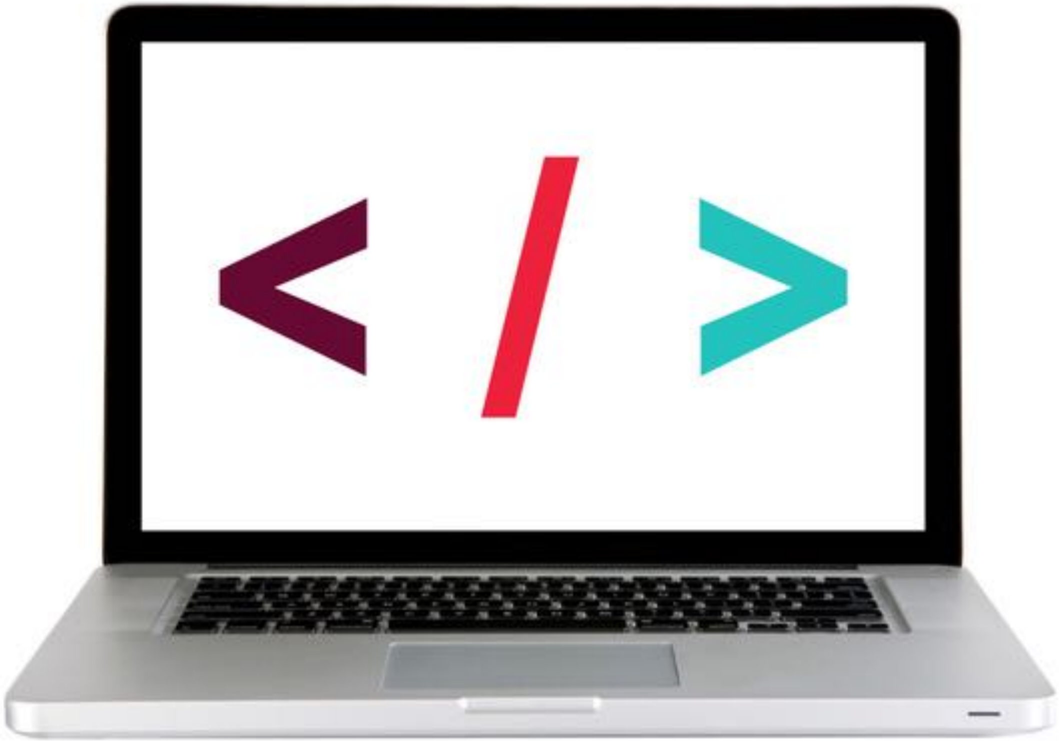
5 min Continue with `08-jquery-exercise`

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

JQUERY

METHOD CHAINING

ACTIVITY — METHOD CHAINING



METHOD CHAINING!!!

JQUERY METHODS — METHOD CHAINING

```
$( )
```

```
'li'
```

```
.slideUp( )
```

```
'slow'
```

JQUERY METHODS — METHOD CHAINING

```
$('li')
.slideUp('slow')
```

JQUERY METHODS — METHOD CHAINING

```
$('li').slideUp('slow');
```

JQUERY METHODS — METHOD CHAINING

```
$( )

.addClass( )
```

```
'li'

'.complete'

'complete'
```

JQUERY METHODS — METHOD CHAINING

```
$('li')
.addClass('complete')
```

JQUERY METHODS — METHOD CHAINING

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

JQUERY METHODS — METHOD CHAINING

```
$( )
```

```
.html( )
```

```
'li'
```

```
300
```

```
'<li>Feed cat</li>'
```

JQUERY METHODS — METHOD CHAINING

```
$('li')
.html('<li>Feed cat</li>')
```

JQUERY METHODS — METHOD CHAINING

```
$('li').html('<li>Feed cat</li>');
```

JQUERY METHODS — METHOD CHAINING

```
$( )

.show( )

.siblings( )
```

```
'h3'

'p'
```

JQUERY METHODS — METHOD CHAINING

```
$('h3')

.show()

.siblings('p')
```

JQUERY METHODS — METHOD CHAINING

```
$('h3').siblings('p').show();
```

JQUERY METHODS — METHOD CHAINING

`$( )`

`.slideUp( )`

`.find( )`

`'.item'`

`300`

`'h2'`

JQUERY METHODS — METHOD CHAINING

```
$('.item')
.slideUp(300)
.find('h2')
```

JQUERY METHODS — METHOD CHAINING

```
$('.item') .find('h2') .slideUp(300);
```

JQUERY METHODS — METHOD CHAINING

```
$( )

.fadeOut( )

.children( )
```

```
'#main'

'slow'

'p'
```

JQUERY METHODS — METHOD CHAINING

```
$('#main')
.fadeOut('slow')
.children('p')
```

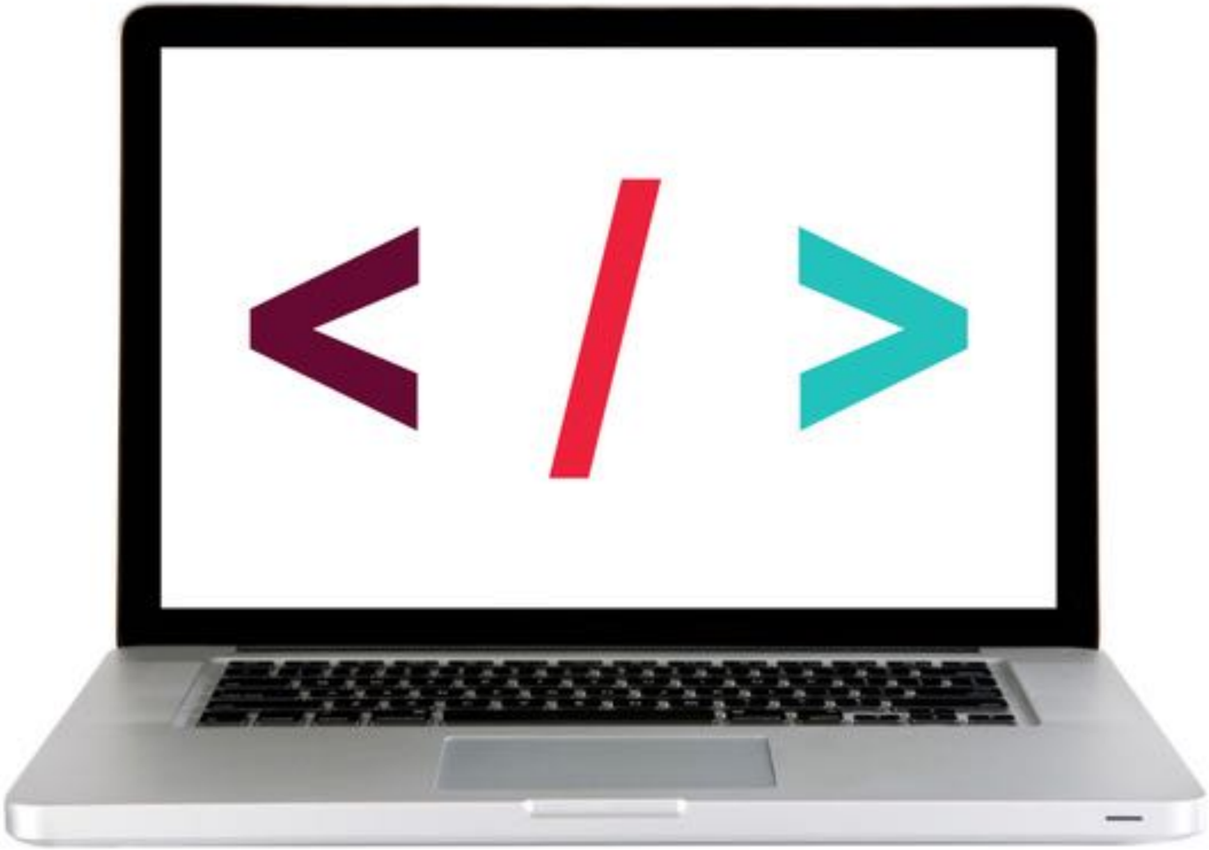
JQUERY METHODS — METHOD CHAINING

```
$('#main').children('p').fadeOut('slow')
```

REFACTORING

- **Refactoring** is the process of rewriting code to make it more efficient, or to incorporate new coding practices
- Rewriting code to replace vanilla JavaScript with jQuery methods is an example of refactoring

INTRO TO JQUERY



LET'S TAKE A CLOSER LOOK

INTRO TO JQUERY

EXERCISE

EXERCISE

OBJECTIVE

- Manipulate the DOM by using jQuery selectors and functions.

LOCATION

- `starter-code > 10-jquery—todo-list`

TIMING

until 9:20

1. The HTML document contains an empty unordered list. It also contains a text input box and a Create button. Write jQuery to enable users to add elements to the to do list.
2. BONUS: Use jQuery to add a "complete task" link at the end of each to-do item when it is added to the list.

LEARNING OBJECTIVES - REVIEW

- Create DOM event handlers to respond to user actions
- Manipulate the DOM by using jQuery selectors and functions.
- Register and trigger event handlers for jQuery events.
- Use chaining to place methods on selectors.

NEXT CLASS PREVIEW

Advanced jQuery & templating

- Use event delegation to manage dynamic content.
- Use implicit iteration to update elements of a jQuery selection
- Build content programmatically using ES6 template literals

Exit Tickets!

Q&A