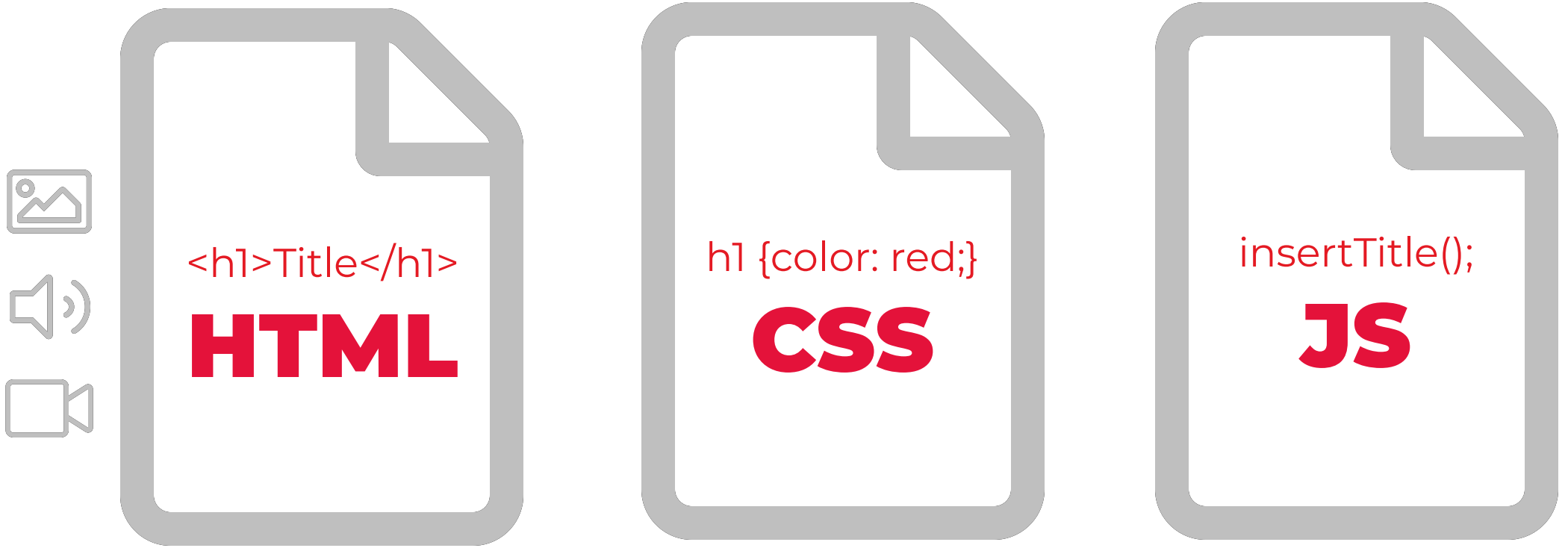
FEWD WEEK 5 • CLASS 9:

Intro to jQuery

https://slides.com/jennifermeade/fewd-5-9/live

WHAT IS JQUERY

WEB PAGE COMPONENTS



SO, WHAT'S JQUERY THEN?

Under the covers, jQuery
is Javascript

WAIT, JQUERY IS JAVASCRIPT?

Yes, the jQuery library is **written in Javascript**. You can think of the jQuery Library as a kind of **glossary for the browser**. All of the definitions in this glossary are in Javascript so the browser can make sense of it. When it encounters jQuery (which it doesn't natively understand) in our code, it looks them up in the glossary (i.e., the jQuery Library).

WHY USE JQUERY?

- More **concise** and **intuitive** way of writing Javascript
- A great way to **start learning Javascript** and programming
- Became popular because it smoothed out the differences between how browsers interpreted Javascript

GETTING STARTED

OBJECTIVES

- Adding jQuery to your page
- jQuery Syntax
- Using jQuery Methods
- Events

ADDING JQUERY TO YOUR PAGE

MEET THE SCRIPT TAG

- Javascript can be embedded or linked in HTML
- The <script> tag is used to **either** link an external file **or** wrap embedded code
- The **best** place for all of your script tags is in the body just before the closing `</body>` tag

```
    <!-- Place scripts before the closing body tag -->
    <script>
      /* Your code here */
    </script>
  </body>
</html>
```

TRY IT!


```
<!DOCTYPE html>
<html>
    <head>

        <meta charset="UTF-8">
        <title>Hello World!</title>

    </head>
    <body>


        <script>
            // Say hello!
            alert('Hello World');
        </script>
    </body>
</html>
```

CONGRATS! YOU JUST WROTE JAVASCRIPT CODE

Let's break down what you did...

JAVASCRIPT FUNCTIONS

- Functions perform a task or calculate a value
- In Javascript, functions are run when they are followed by parentheses (we often say **invoke**, **execute** or **call** a function)
- Alert is a built-in function that takes one value (known as a **parameter** or **argument**). That value is the text we want the alert to display.

```
print();
alert('Alerts can be annoying');
```

JAVASCRIPT STATEMENTS

- Statements are like sentences in Javascript.
- A semi-colon ; ends a statement, but line-breaks work ***most*** of the time as well

```
alert('This line is a statement');
confirm('So is this line');
```

Javascript has some ~~confusing~~ STUPID rules about when to use semicolons. As a general rule, use them at the end of a line except if the line ends with a closing curly brace `}`.

COMMENTS

- Single line or inline comments use `//`
- Multi-line comments use `/* comment */`

```
alert('Hello World'); //inline comment
/*
   MULTILINE COMMENT
   This one spans multiple lines
*/
```

Toggle comments with shortcut keys in most editors:

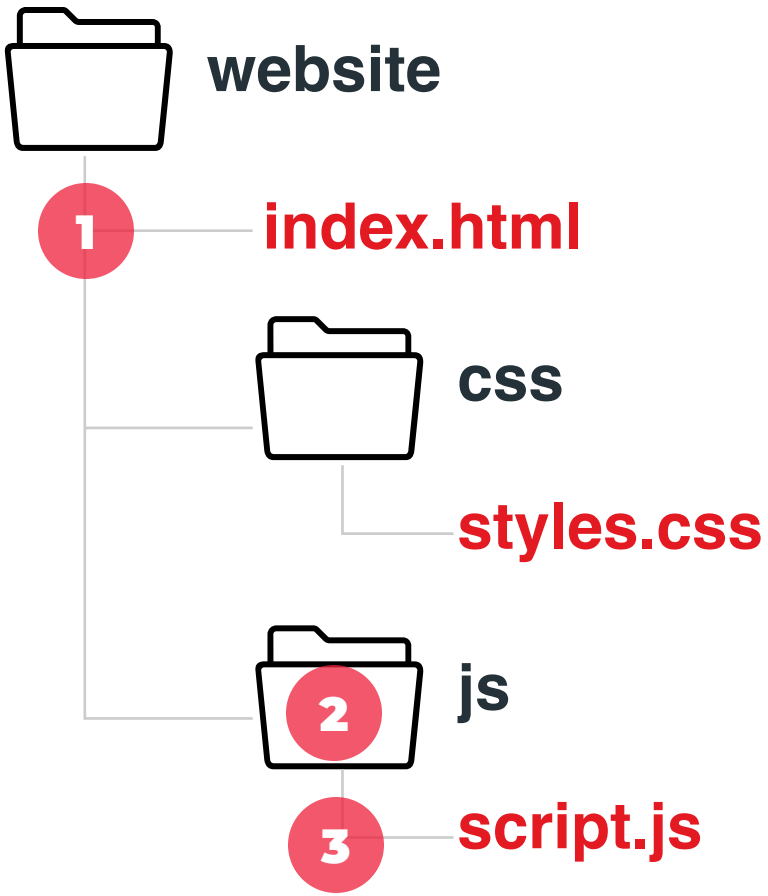
MAC: ⌘ Command + / Forward-slash

WIN: CTRL Control + / Forward-slash

EMBEDDED VS. EXTERNAL CODE

- Today, we'll be embedding our Javascript in our HTML.
- Just like **embedding** styles in HTML using the style tags makes your code more difficult to maintain, writing your code inside the script tags **isn't optimal**.
- Ideally, you'll want to create one or more separate files and **link your scripts** so you can reuse them on multiple pages in your site.

LINKING FILES RELATIVELY



index.html → script.js

```
<script src="js/script.js"></script>
```

1. Start in the folder where the current file is
2. Go into the folder called **js**
3. Get the file called **script.js**

GETTING JQUERY

1. Go to **code.jquery.com**
2. Click on the link for the **minified** version.
3. **Copy** the script tag from the modal window.
4. **Paste** the tag in your page at the bottom of the page, before the closing `</body>` tag and any other script tags.

TRY IT!


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Is jQuery Loaded?</title>
  </head>
  <body>

    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"
    integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8="
    crossorigin="anonymous"></script>
    <script>
      alert($===jQuery);
    </script>
  </body>
</html>
```

WHAT'S THAT?

```
alert($===jQuery)
```

- This bit of code checks if jQuery is loaded. If it is, it returns **true**, if it isn't it returns **false**
- In Javascript three equals is how we check for **equality** (e.g., 5 + 1 === 2 + 4 would return true)
- jQuery uses the **dollar sign** as a shortcut, so $ === jQuery would only be true if jQuery is loaded

BEFORE WE MOVE ON...

```
// The jQuery script tag

<script src="https://code.jquery.com/jquery-3.3.1.min.js"
integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8="
crossorigin="anonymous"></script>
```

- What's up with the crazy long **integrity** attribute?
- And, what does **crossorigin** refer to?

JQUERY SYNTAX

JQUERY SYNTAX

```
$('selector').method();
```

1 2 3

1. The dollar sign is actually shorthand for **jQuery**
2. The selector targets the things in the DOM we want to operate on. Selectors are identical to **CSS** selectors (note that **they are always in quotes**)
3. The **method** is the operation we want to perform

TRY IT!


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Hello World!</title>
  </head>
  <body>
    <h1></h1>

    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"
    integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8="
    crossorigin="anonymous"></script>
    <script>
      $('h1').text('Hello World');
    </script>
  </body>
</html>
```

Add an h1 element

A QUICK REVIEW OF SELECTORS

ELEMENT TAG SELECTORS

To select all of the elements on the page with the same tag, we use the tag name

```
<body>
  <h1 id="title">This is a heading on the page</h1>
  <p class="red big">This is a paragraph.</p>
  <p>This is another paragraph.</p>
  <div class="big">
    <p class="red">This paragraph is a child of a div.</p>
  </div>
</body>
```

```
$('p') //Selects all of the paragraphs
```

CLASS SELECTORS

To select all of the elements on the page with the same class, we use the class name preceded by a dot (.)

```
<body>
  <h1 id="title">This is a heading on the page</h1>
  <p class="red big">This is a paragraph.</p>
  <p>This is another paragraph.</p>
  <div class="big">
    <p class="red">This paragraph is a child of a div.</p>
  </div>
</body>
```

```
$('.big') //Selects the elements with a class of big
```

ID SELECTORS

To select an element on a page by its id, we use the id name preceded by the pound symbol (#)

```
<body>
  <h1 id="title">This is a heading on the page</h1>
  <p class="red big">This is a paragraph.</p>
  <p>This is another paragraph.</p>
  <div class="big">
    <p class="red">This paragraph is a child of a div.</p>
  </div>
</body>
```

```
$('#title') //Selects the element with an id of title
```

DESCENDANT SELECTORS

To select elements that are descendants of specific elements, we use combinators. The space is for descendants, and > is for child elements.

```
<body>
  <h1 id="title">This is a heading on the page</h1>
  <p class="red big">This is a paragraph.</p>
  <p>This is another paragraph.</p>
  <div class="big">
    <p class="red">This paragraph is a child of a div.</p>
  </div>
</body>
```

```
$('div > p') //Selects p elements that are children of divs
```

GROUPS OF SELECTORS

As in CSS, we can use a comma to group multiple selectors together. The comma acts like an **OR**.

```
<body>
  <h1 id="title">This is a heading on the page</h1>
  <p class="red big">This is a paragraph.</p>
  <p>This is another paragraph.</p>
  <div class="big">
    <p class="red">This paragraph is a child of a div.</p>
  </div>
</body>
```

```
$('.red, .big') //Selects elements with a red OR big class
```

USING JQUERY METHODS

JQUERY METHODS

- There are over **100** methods in jQuery
- These let us add effects, change and move around the DOM, listen for events, process forms, and get and set the dimensions of things on our page
- We're going to look at **6** of popular methods for manipulating the DOM

JQUERY TEXT METHOD

```
//replaces the contents of every h2 element

$('h2').text("Here's some new text");

//replaces the contents of every element with a class of next

$('.next').text('Go To Next');

//replaces the contents of the element with an id of title

$('#title').text('New Title');
```

- The text method **replaces all of the contents** of each element that matches the selector with the text inside the method parentheses.
- Notice that the text value is surrounded in quotes

WHAT WILL HAPPEN?


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Text Method</title>
  </head>
  <body>
    <h1>My Title</h1>
    <p>Paragraph 1 content.</p>
    <p>Paragraph 2 content.</p>
    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"
    integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8="
    crossorigin="anonymous"></script>
    <script>
      $('h1').text('This is an h1');
      $('p').text('This is a paragraph');
    </script>
  </body>
</html>
```

JQUERY HTML METHOD

```
//replaces the contents of every p element

$('p').html("Here's some <strong>new</strong> text.");
```

- The html method **replaces all of the contents** of the elements that match the selector with the ***string passed to the method***.
- Unlike the text method, it **can include html** tags.
- Note that the value is always surrounded in quotes

TRY IT!


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>HTML Method</title>
  </head>
  <body>
    <h1>My Title</h1>
    <p>Paragraph 1 content.</p>
    <p>Paragraph 2 content.</p>
    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"
    integrity="sha256-FgpCb/KJQlLNfOu91ta32o/NMZxltwRo8QtmkMRdAu8="
    crossorigin="anonymous"></script>
    <script>
      $('h1').html('This is an <em>h1</em> element');
      $('p').html('This is a <em>paragraph</em>');
    </script>
  </body>
</html>
```

JQUERY & DOM MANIPULATION

- jQuery is great at manipulating the DOM
- The `.text()` and `.html()` are examples of DOM manipulation.
- Let's look at some others...

https://api.jquery.com/

JQUERY CSS METHOD

```
//adds an inline style to every p element

$('p').css('background-color', 'deeppink');
```

- The css method will add an inline style to every element that matches the selector.
- This method takes **2** values separated by a **comma**.
- Note that **each** value is always surrounded in quotes

TRY IT!


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>CSS Method</title>
  </head>
  <body>
    <p>Paragraph 1 content.</p>
    <p>Paragraph 2 content.</p>

    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"></script>
    <script>
      $('p').html('This is a <em>paragraph</em>');
      $('p:first-of-type').css('color', 'red');
    </script>
  </body>
</html>
```

JQUERY ADDCLASS METHOD

```
/* adds a class of pink to every p element if
   it doesn't already have that class */

$('p').addClass('pink');
```

- The `.addClass()` method adds a class, **if it doesn't already exist**.
- Has one parameter which is the name of a class or classes to add (not replace) surrounded by quotes
- Note that the class name doesn't have a dot before it! It's just like it would appear in our HTML

JQUERY REMOVECLASS METHOD

```
/* removes the classes of pink and red from every p
   element if it exists on the element */

$('p').removeClass('pink red');
```

- The `.removeClass()` method selectively removes a class, **if it already exists** (other classes are untouched).
- As with addClass() there is only one parameter, but you can pass it multiple classes using a space
- Don't forget, no dot before the class names!

JQUERY TOGGLECLASS METHOD

```
/* adds a class to every p element when it doesn't exist
   or removes it from the element if it does */

$('p').toggleClass('pink');
```

- The `.toggleClass()` method adds a class to each matched element if it **doesn't already exist**, and removes the class if it **does exist**.
- This method takes the name of the class
- Don't forget that the class name doesn't have a dot before it!
- Of course, the class name is always in quotes

TRY ON YOUR OWN...


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Swap Classes</title>
    <style>
      .red { color: red; }
    </style>
  </head>
  <body>
    <p>Give me the red class!</p>
    <p class="red">Remove the red class from me!</p>

    <script src="https://code.jquery.com/jquery-3.3.1.min.js"></script>
    <script>
      // Add the red class to the first p and remove it from the second p
    </script>
  </body>
</html>
```

I KNOW WHAT YOU'RE THINKING...

...BFD

WAIT, IT GETS BETTER :-)

The real power of JS is in its ability to **listen for and respond to what the user is doing**. Let's find out how...

LISTENING FOR EVENTS

WHAT ARE EVENTS?

- Events are things that happen when a user interacts with our page
- Some events are browser events like **scroll** and **resize**
- Some events are keyboard events like **keydown** and **keyup**
- Some events are mouse events like **click**, **mouseover** or **mouseout**

LISTENING FOR EVENTS

- With Javascript, we can listen for when these events happen and then respond to them
- To respond to events in Javascript we use an **event handler**

JQUERY EVENT HANDLER

```
    1          2                3
$('selector').eventmethod(function(){
    //code to run when the event is observed
});
```

1. The selector identifies the element we're listening for the event to happen on
2. The event method is the specific type of event we're listening for (such as **click**)
3. The function part is called an **anonymous function** because it has no name.

WHAT WILL HAPPEN?


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Hello World!</title>
  </head>
  <body>
    <h1>My Title</h1>
    <!-- Where your content ends -->
    <script src="https://code.jquery.com/jquery-3.3.1.min.js"></script>
    <script>
      $('h1').click(function(){

          $('h1').css('color', 'red');

      });
    </script>
  </body>
</html>
```

ANONYMOUS FUNCTION

```
$('p').text( 'substitute content' );
```

```
$('p').click( function(){} );
```

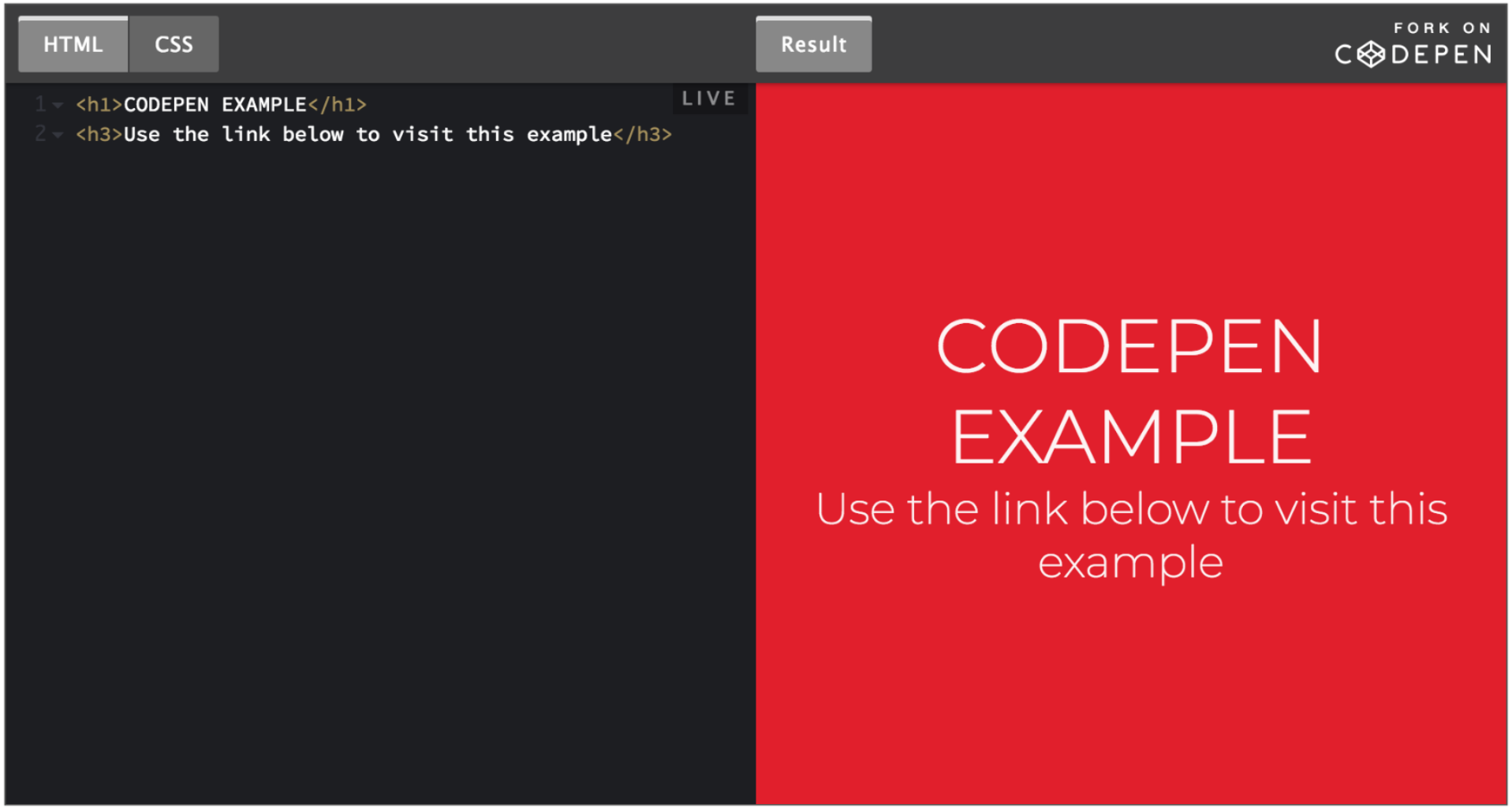
Notice that the only difference between the methods we used earlier and the event handler is the function given to the method.

FUNCTION SYNTAX

```
$('h1').click( function(){} );
```

- The function part is easy to mess up, so here's an easy way to get it right
- Say it out loud as we type it:
  function - **open paren** - **close paren** - **squiggly** - **squiggly**
- Once you've typed your function on one line, place the cursor inside the curly braces and hit return a couple of times so you have room to type the code that'll run when the event is observed.

CODEPEN



https://codepen.io/jme11/pen/mQJeVv

ONE MORE TIME

```
$('h1').click(function(){   });
```

function

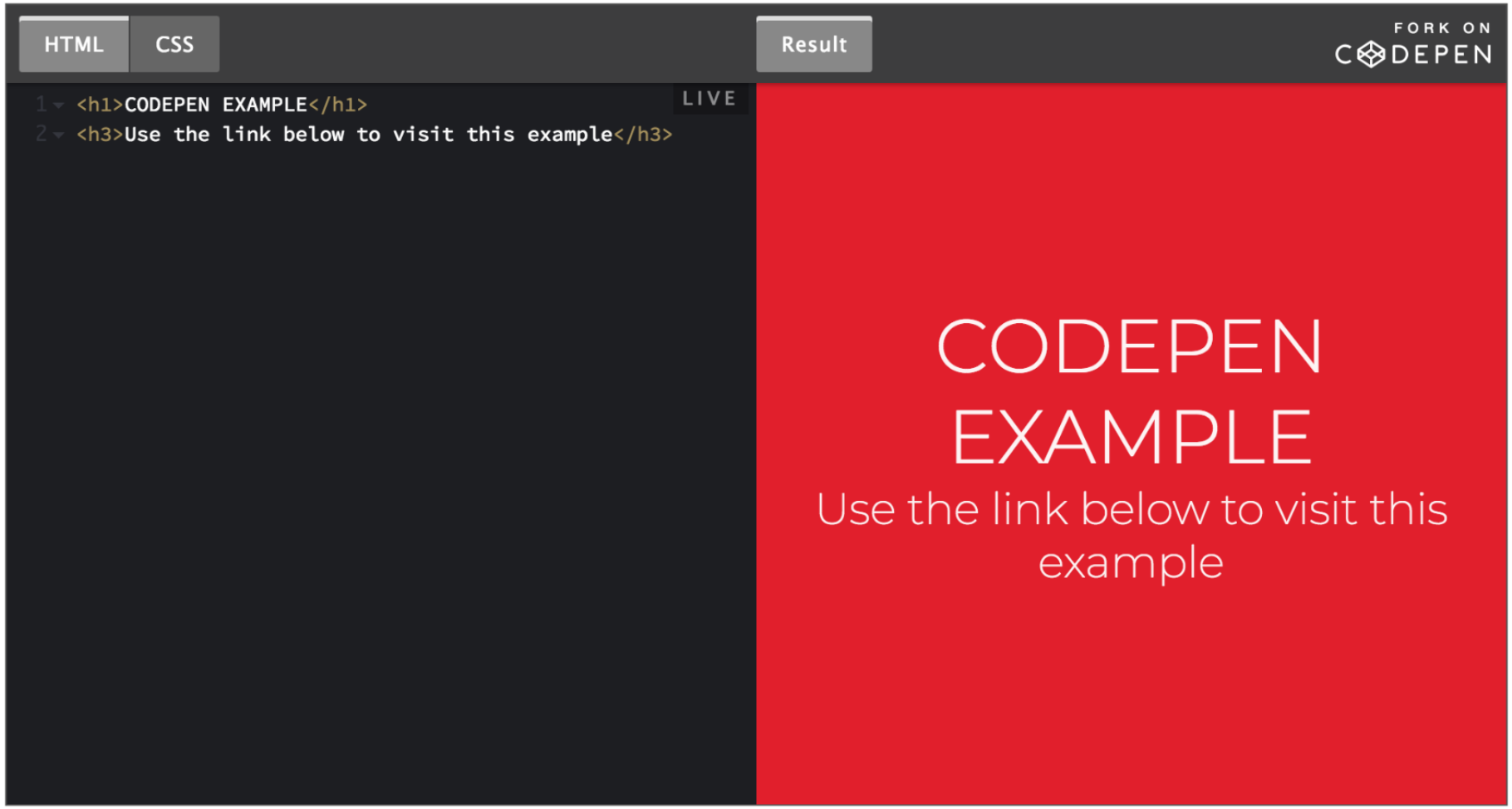
open paren

close paren

squiggly

squiggly

JQUERY TRAFFIC LIGHT



https://codepen.io/jme11/pen/KeLOgP/

TRAFFIC LIGHT SOLUTION


```
$('#stop-btn').click(function(){

  $('.bulb').removeClass('red yellow green'); //BONUS
  $('#stop-light').addClass('red');

});

$('#slow-btn').click(function(){

  $('.bulb').removeClass('red yellow green'); //BONUS
  $('#slow-light').addClass('yellow');

});

$('#go-btn').click(function(){

  $('.bulb').removeClass('red yellow green'); //BONUS
  $('#go-light').addClass('green');

});
```

BONUS SOLUTION EXPLAINED

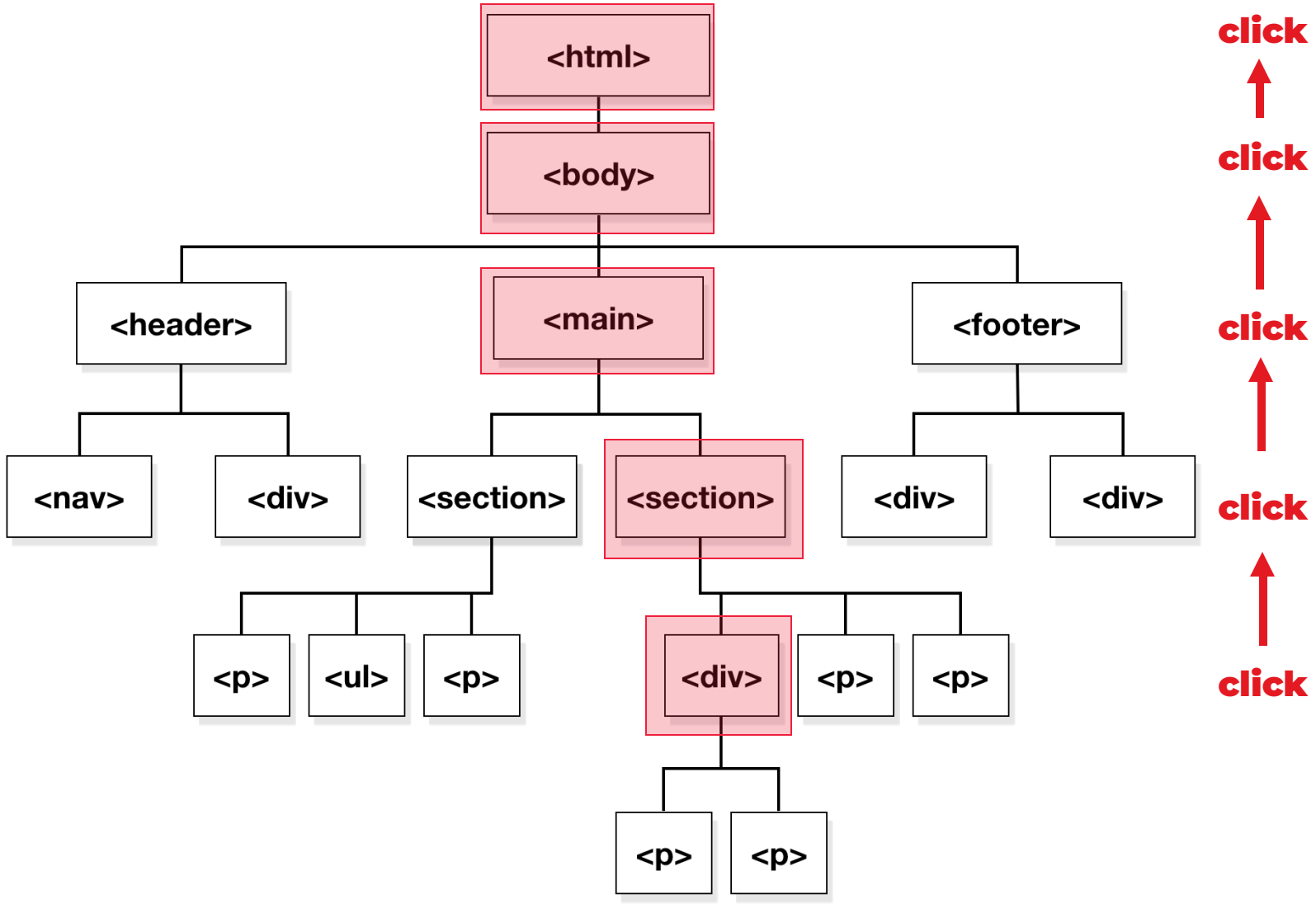
```
/* Remove all of the color classes from all of the lights */

$('.bulb').removeClass('red yellow green');
```

- In the HTML, the lights each have class of **bulb** and are wrapped in an outer div with with an id of traffic light.
- The selector `#traffic-light>div` targets all of the divs that are children of the outer div, thus, it would work too.
- We simply need to remove all of the color classes before we apply the new class to the currently selected lamp.
- Remember, `.removeClass()` only removes the class if it exists! And, just like in HTML, we can give it multiple classes separated with spaces.

THE TRICKY PART OF EVENTS

- Events **bubble** meaning they travel from the element all the way up through the up through the element's ancestors.
- So... if you've got another event handler listening somewhere up the chain, it will fire!

BUBBLING EVENTS

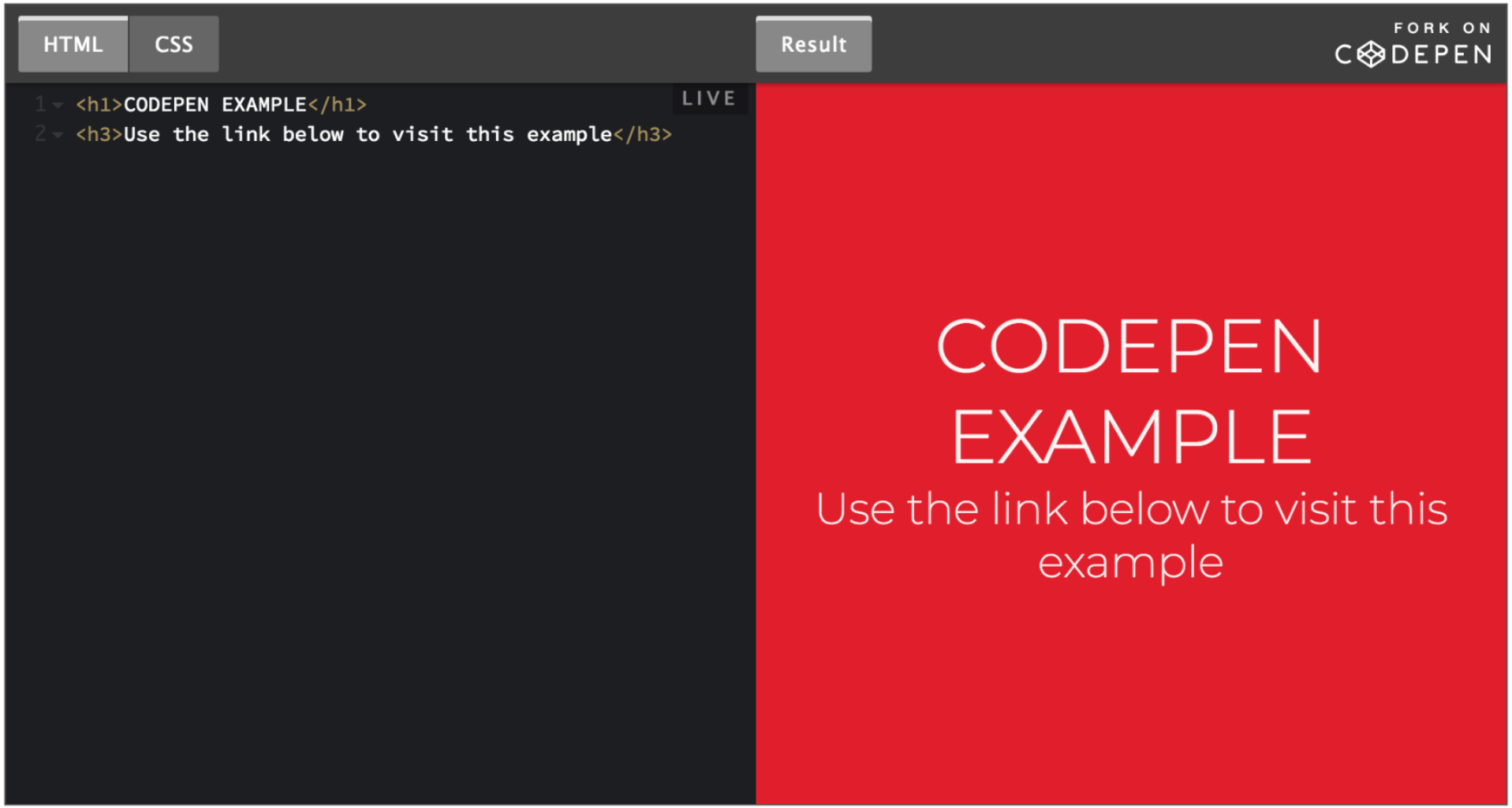


STOPPING ROGUE EVENTS

```
$('selector').eventmethod(function( event ){
    event.stopPropagation();
    // do other stuff...
});
```

- The stopPropagation method is used to capture and prevent the event from bubbling beyond the current element
- To use it, we need to pass the **event** to our anonymous function
- By convention, we name the event either ***event*** or ***e***

BUBBLING IN ACTION



https://codepen.io/jme11/pen/yRaEPL

THE READY EVENT

```
$(document).ready(function(){
    // ALL of our jQuery scripts inside here

});
```

- To be safe, it is convention to wrap all of your jQuery inside of a document ready handler.
- The **ready event will fire only once** when the entire DOM has been parsed by the browser.
- Note that in this case the document selector **does not** get quotes.

GO BUILD AWESOME THINGS!