How jQuery Works

In this lesson, we shall delve deeper into the workings of jQuery.
Let's begin!

WE'LL COVER THE FOLLOWING

HOW IT WORKS

The key to the behavior you experienced is the script you added in step 4.

This script carries out two things.

1. First, it extends each `<h1>` element with a `<span>` tag that holds the plus or minus sign indicating the collapsed or expanded state of the heading.
2. Second, it describes the function that responds to the click events.

The script is very concise due to jQuery. The first `<script>` element you added in step 4 loads jQuery. The second script contains the magic.

Let's see how it works line by line.

index.html

```
$(document).ready(function () {
  $('h1').prepend('<span class="node">-</span>');
  $('h1').click(
      function () {
        var node = $(this).children('.node');
        $(this).next().fadeToggle(500, 'swing',
            function () {
              var mark = node.text();
              mark = mark === '-' ? '+' : '-';
              node.text(mark);
            });
      })
});
```

The `$` symbol used in this script is an alias to the jQuery JavaScript object that can be used to access the functions and variables defined in the library.

- **Line 1** defines a function that is executed when the page is entirely loaded by the browser and is ready for rendering.
- **Line 13** closes this declaration, so eventually the code between **line 2** and **line 12** are executed as soon as the page is loaded.
- **Line 2** is responsible for adding a `<span>` element with the minus sign to each `<h1>` element. The `$('h1')` expression retrieves a set of DOM elements that match the `h1` selector, and it retrieves the list of `<h1>` elements in the page. The `.prepend(…)` method nests the `<span>` elements within `<h1>`. After this line has run, the *Introduction* heading looks like this:

index.html

```
<h1>
  <span class="node">-</span>
  Introduction
</h1>
```

Output

- Introduction

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- **Line 3** defines a function that is invoked when you click an `<h1>` element. Similarly to line 2, the `$('h1')` expression retrieves the list of `<h1>` elements in the page, and `.click(…)` assigns a function to each `<h1>` to execute when the corresponding node is clicked. The body of the function that is carried out as a response for the click event that is

function that is carried out as a response for the click event that is defined between **line 5** and **11**.

- The variable declaration in **line 5** assigns the object behind the `<span>` element nested into the `<h1>` element, into the one clicked, to the node variable. The `$(this)` expression stands for the clicked `<h1>`, and `.children('.node')` gets all nested elements of `<h1>` with the class attribute set to 'node', which happens to be the single `<span>` element created in **line 2**.

- **Line 6** instructs the jQuery engine through the `fadeToggle` function that the node directly following `<h1>` should be faded out if its visible, or faded in if its hidden; and the whole action should take 500 milliseconds using the 'swing' easing (slow start and slow end).

- The third parameter of `fadeToggle` is a function to be executed when the appropriate fading animation has completed, and it is defined between **line 8** and **10**. Because the node directly following an `<h1>` is a `<div>` enclosing second-level headings, the whole content of that `<div>` is faded in or out.

> 📜**NOTE**: The `<div>` element defines a block of content in the page. Although `<div>` is a logical container too, just like `<span>`; in contrast to `<span>`, `<div>` is not inline. It will start a new block, just as `<p>` starts a new paragraph.

- When the fading animation has completed, the code between **lines 8** and **10** toggles the plus and minus signs. **Line 8** reads the text of the `<span>` node into the mark variable (with the `text()` function), **line 9** toggles the value, and **line 10** writes that value back to the node.

- The triple equation mark in **Line 9** is not a typo, it is a valid JavaScript equality operator.

- The style definition you added in **step 6** defines that all elements that are embedded into `<h1>` and have a class attribute with value node should use `monospace` font. These elements happen to be the `<span>` elements.

This short script may demonstrate the power of jQuery. JavaScript is often

mentioned as the de facto assembly of the Web. Using this metaphor, if

JavaScript is the assembly language, then jQuery is the C programming language.

There are at least a dozen great JavaScript libraries used by the majority of Web developers, and many of them are built with (or built on) jQuery.

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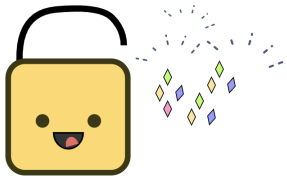
Achievement unlocked!



Congratulations! You've learned the essentials of how jQuery works!

Great work! Give yourself a round of applause!

In the *next lesson*, we'll discover the art of debugging JavaScript.

Stay tuned! :)