

Chapter 8

Get Off A Fast Start With jQuery

Objectives

- Introduction to jQuery
- The basic of jQuery programming
- The Email List application in jQuery
- A working subset of selectors, methods and event methods
- Three illustrative applications



Introduction to jQuery



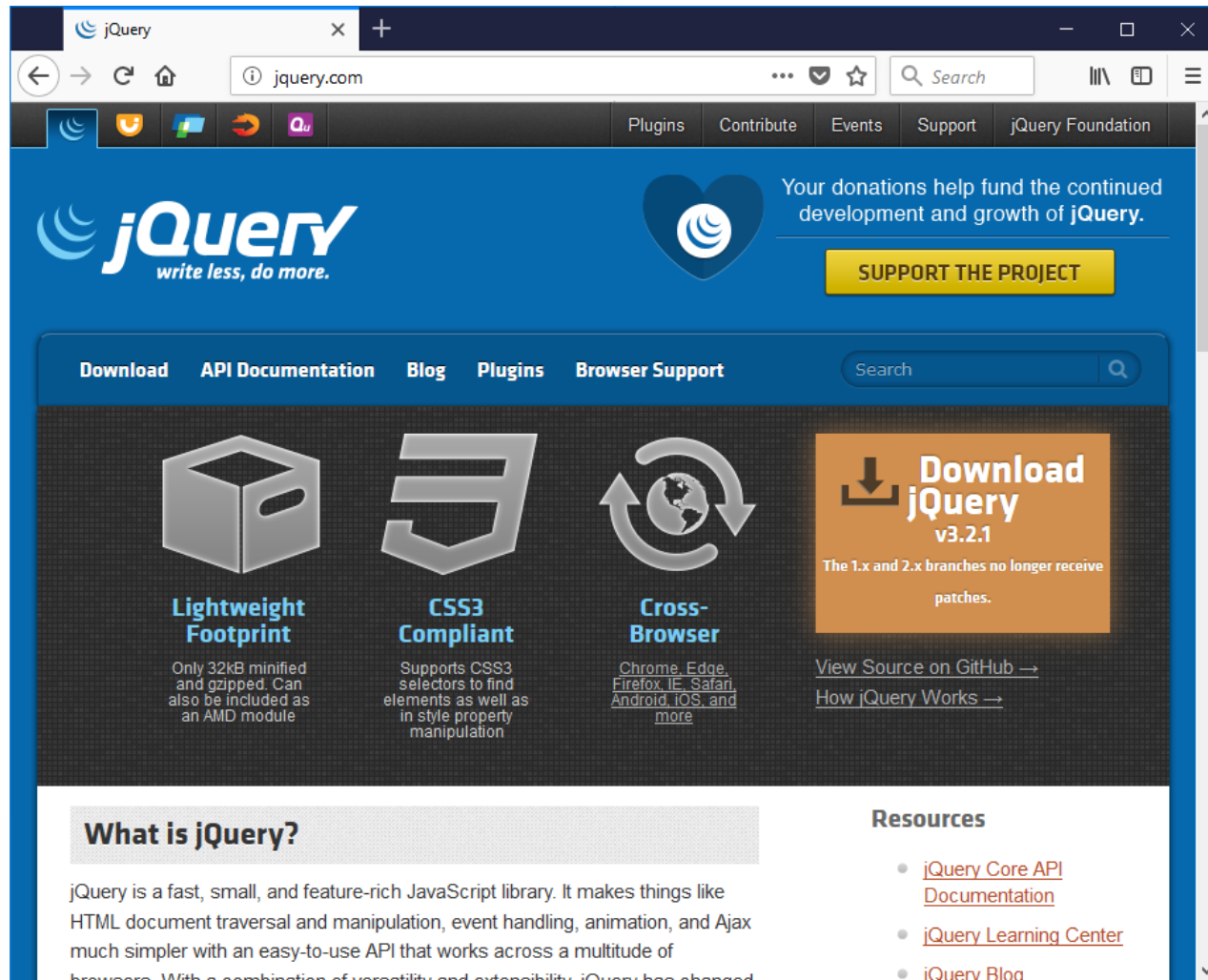
What jQuery is

- jQuery is a free, open-source, JavaScript library that provides methods that make JavaScript programming easier.
- **What jQuery offers:**
 - Dozens of selectors, methods and event methods that make it easier to add JavaScript features to your web pages
 - Cross-browser compatibility
 - Selectors that are compliant with CSS3
 - A compressed library that loads quickly



What jQuery is (cont.)

- The jQuery website at jquery.com



A simple jQuery application

- Web interface

jQuery FAQs

+ What is jQuery?

= Why is jQuery becoming so popular?

Three reasons:

- It's free.
- It lets you get more done in less time.
- All of its functions are cross-browser compatible.

+ Which is harder to learn: jQuery or JavaScript?

- HTML code

```
<main id="faqs">
  <h1>jQuery FAQs</h1>
  <h2><a href="#">What is jQuery?</a></h2>
  <div>
    <hr>
    <h2><a href="#">Why is jQuery becoming so popular?</a></h2>
    <div>
      <p>Three reasons:</p>
      <ul>
        <li>It's free.</li>
        <li>It lets you get more done in less time.</li>
        <li>All of its functions are cross-browser compatible.</li>
      </ul>
    </div>
    <h2><a href="#">Which is harder to learn: jQuery or JavaScript?</a></h2>
    <div>

```



A simple jQuery application (cont.)

- The jQuery code for the application

```
$(document).ready(function() {  
    $("#faqs h2").click(function(evt) {  
        $(this).toggleClass("minus");  
        if ($(this).attr("class") !== "minus") {  
            $(this).next().hide();  
        }  
        else {  
            $(this).next().show();  
        }  
        evt.preventDefault();  
    }); // end click  
    $("#faqs").find("a:first").focus();  
}); // end ready
```



The basic of jQuery programming



How to include jQuery in your web pages

- Before use jQuery you must include library file to your web page.
- You can download library file from jquery.com or use it from CDN(Content Delivery Network).
- Include jQuery 3.1.1 after download

```
<script src = "jquery-3.1.1.min.js"></script>
```

- Include jQuery 3.11 from a CDN

```
<script src ="https://code.jquery.com/jquery-3.1.1.min.js"> </script>
```



How to code jQuery selectors

- The sign (\$) is used to refer to the jQuery library.
- The ***selectors*** used same in CSS syntax.

The syntax for a jQuery selector

`$("selector")`

How to select elements by element, id, and class

By element type: All <p> elements in the entire document

`$("p")`

By id: The element with “faqs” as its id

`$("#faqs")`

By class: All elements with “plus” as a class

`$(".plus")`



How to code jQuery selectors (cont.)

The HTML for the elements that are selected by the examples

```
<section id="faqs">
  <h1>jQuery FAQs</h1>
  <h2 class="plus">What is jQuery?</h2>
  <div>
    <p>jQuery is a library of the JavaScript functions that you're most
      likely to need as you develop web sites.
    </p>
  </div>
  <h2 class="plus">Why is jQuery becoming so popular?</h2>
  <div>
    <p>Three reasons:</p>
    <ul>
      <li>It's free.</li>
      <li>It lets you get more done in less time.</li>
      <li>All of its functions cross-browser compatible.</li>
    </ul>
  </div>
</section>
```



How to code jQuery selectors (cont.)

How to select elements by relationship

Descendants: All <p> elements that are descendants of the section element

```
$("#faq&#x20;p");
```

Adjacent siblings: All div elements that are adjacent siblings of h2 elements

```
$("h2 + div")
```

General siblings: All <p> elements that are siblings of ul elements

```
$("ul ~ p")
```

Children: All ul elements that are children of div elements

```
$("div > ul")
```

How to code multiple selectors

```
$("#faq&#x20;li, div p")
```

```
$("p + ul, div ~ p")
```



How to call jQuery methods

The syntax for calling a jQuery method

`$("selector").methodName(parameters)`

Some common jQuery methods

Method	Description
val()	Get the value of a text box or other form control.
val(value)	Set the value of a text box or other form control.
text()	Get the text of an element.
text(value)	Set the text of an element.
next([type])	Get the next sibling of an element or the next sibling of a specified type if the parameter is coded.
submit()	Submit the selected form.
focus()	Move the focus to the selected form control or link.



How to call jQuery methods (cont.)

How to get the value from a text box

```
var gallons = $("#gallons").val();
```

How to set the value for an input element

```
$("#gallons").val("");
```

How to set the text in an element

```
$("#email_address_error").text("Email address is required");
```

How to set the text for the next sibling with object chaining

```
$("#last_name").next().text("Last name is required");
```

How to submit a form

```
$("#join_list").submit();
```

How to move the focus to a form control or link

```
$("#email_address").focus();
```



How to use jQuery event methods

The syntax for a jQuery event method

```
$(selector).eventMethodName(function() {  
    // the statements of the event handler  
});
```

Two common jQuery event methods

Event method	Description
ready(handler)	The event handler runs when the DOM is ready.
click(handler)	The event handler runs when the selected element is clicked.

Two ways to code an event handler for the jQuery ready event

The long way

```
$(document).ready(function() {  
    alert("The DOM is ready");  
});
```

The short way

```
$(function(){                                // (document).ready is assumed  
    alert("The DOM is ready");  
});
```

How to use jQuery event methods (cont.)

An event handler for the click event of all h2 elements

```
$("#h2").click(function() {  
    alert("This heading has been clicked");  
});
```

The click event handler within the ready event handler

```
$(document).ready(function() {  
    $("#h2").click(function() {  
        alert("This heading has been clicked");  
    }); // end of click event handler  
}); // end of ready event handler
```



The Email List application in jQuery



The Email List application in jQuery

- The web interface

Please join our email list

Email Address:	<input type="text"/>	*
Re-enter Email Address:	<input type="text"/>	*
First Name	<input type="text"/>	*
<input type="button" value="Join our List"/>		



The Email List application in jQuery (cont.)

- The HTML code

```
<main>
  <h1>Please join our email list</h1>
  <form id="email_form" name="email_form" action="join.html" method="get">
    <label for="email_address1">Email Address:</label>
    <input type="text" id="email_address1" name="email_address1">
    <span>*</span><br>

    <label for="email_address2">Re-enter Email Address:</label>
    <input type="text" id="email_address2" name="email_address2">
    <span>*</span><br>

    <label for="first_name">First Name</label>
    <input type="text" id="first_name" name="first_name">
    <span>*</span><br>

    <label>&nbsp;</label>
    <input type="button" id="join_list" value="Join our List">
  </form>
</main>
```



The Email List application in jQuery

(cont.)

- The jQuery code

```
$(document).ready(function() {
    $("#join_list").click(function() {
        var emailAddress1 = $("#email_address1").val();
        var emailAddress2 = $("#email_address2").val();
        var isValid = true;

        // validate the first email address
        if (emailAddress1 === "") {
            $("#email_address1").next().text("This field is required.");
            isValid = false;
        } else {
            $("#email_address1").next().text("");
        }

        // validate the second email address
        if (emailAddress2 === "") {
            $("#email_address2").next().text("This field is required.");
            isValid = false;
        } else if (emailAddress1 !== emailAddress2) {
            $("#email_address2").next().text(
                "This entry must equal first entry.");
            isValid = false;
        } else {
            $("#email_address2").next().text("");
        }
    });
});
```



The Email List application in jQuery (cont.)

- The jQuery code

```
// validate the first name entry
if ($("#first_name").val() === "") {
    $("#first_name").next().text("This field is required.");
    isValid = false;
}
else {
    $("#first_name").next().text("");
}

// submit the form if all entries are valid
if (isValid) {
    $("#email_form").submit();
}
}); // end click
$("#email_address1").focus();
..
```



A working subset of selectors,
Methods, and event methods



The most useful selectors

A summary of the most useful jQuery selectors

Selector	Selects
<code>[attribute]</code>	All elements with the named attribute.
<code>[attribute=value]</code>	All elements with the named attribute and value.
<code>:contains(text)</code>	All elements that contain the specified text.
<code>:empty</code>	All elements with no children including text nodes.
<code>:eq(n)</code>	The element at index n within the selected set.
<code>:even</code>	All elements with an even index within the selected set.
<code>:first</code>	The first element within the set.
<code>:first-child</code>	All elements that are first children of their parent elements.
<code>:gt(n)</code>	All elements within the selected set that have an index greater than n.
<code>:has(selector)</code>	All elements that contain the element specified by the selector.
<code>:header</code>	All elements that are headers (h1, h2, ...).
<code>:hidden</code>	All elements that are hidden.
<code>:last</code>	The last element within the selected set.
<code>:last-child</code>	All elements that are the last children of their parent elements.
<code>:lt(n)</code>	All elements within the selected set that have an index less than n.
<code>:not(selector)</code>	All elements that aren't selected by the selector.
<code>:nth-child</code>	All elements that are the nth children of their parent elements.
<code>:odd</code>	All elements with an odd index within the selected set.
<code>:only-child</code>	All elements that are the only children of their parent elements.
<code>:parent</code>	All elements that are parents of other elements, including text nodes.
<code>:text</code>	All input elements with the type attribute set to "text".
<code>:visible</code>	All elements that are visible.



The most useful selectors (cont.)

How to select the li elements that are the first child of their parent element

```
$("li:first-child")
```

How to select the even tr elements of a table

```
$("table > tr:even")           // numbering starts at 0, so first tag is even
```

How to select the third descendant <p> element of an element

```
$("#faqs p:eq(2)")           // numbering starts at 0
```

How to select all input elements with “text” as the type attribute

```
$(":text")
```



The most useful methods

A summary of the most useful jQuery methods

Method	Description
next([selector])	Get the next sibling of an element or the first sibling of a specified type if the parameter is coded.
prev([selector])	Get the previous sibling of an element or the previous sibling of a specified type if the parameter is coded.
attr(attributeName)	Get the value of the specified attribute.
attr(attributeName, value)	Set the value of the specified attribute.
css(propertyName)	Get the value of the specified property.
css(propertyName, value)	Set the value of the specified property.
addClass(className)	Add one or more classes to an element and, if necessary, create the class. If you use more than one class as the parameter, separate them with spaces.
removeClass([className])	Remove one or more classes. If you use more than one class as the parameter, separate them with spaces.
toggleClass(className)	If the class is present, remove it. Otherwise, add it.
hide([duration])	Hide the selected element. The duration parameter can be "slow", "fast", or a number giving the time in milliseconds. By default, the duration is 400 milliseconds, "slow" is 600 milliseconds, and "fast" is 200 milliseconds.
show([duration])	Show the selected element. The duration parameter is the same as for the hide method.
each(function)	Run the function for each element in an array.

The most useful methods (cont.)

Get the value of the src attribute of an image

```
$("#image").attr("src");
```

Set the value of the src attribute of an image to the value of a variable

```
$("#image").attr("src", imageSource);
```

Set the value of the color property of the h2 elements to blue

```
$("h2").css("color", "blue");
```

Add a class to the h2 descendants of the “faqs” element

```
$("#faqs h2").addClass("minus");
```

Run a function for each <a> element within an “image_list” element

```
$("#image_list a").each(function() {  
    // the statements of the function  
});
```



The most useful event methods

A summary of the most useful jQuery event methods

Event method	Description
<code>ready(handler)</code>	The handler runs when the DOM is ready.
<code>unload(handler)</code>	The handler runs when the user closes the browser window.
<code>error(handler)</code>	The handler runs when a JavaScript error occurs.
<code>click(handler)</code>	The handler runs when the selected element is clicked.
<code>toggle(handlerEven, handlerOdd)</code>	The first handler runs on even clicks of the element, starting with 0. The second handler runs on odd clicks of the element.
<code>dblclick(handler)</code>	The handler runs when the selected element is double-clicked.
<code>mouseenter(handler)</code>	The handler runs when the mouse pointer enters the selected element.
<code>mouseover(handler)</code>	The handler runs when the mouse pointer moves over the selected element.
<code>mouseout(handler)</code>	The handler runs when the mouse pointer moves out of the selected element.
<code>hover(handlerIn, handlerOut)</code>	The first event handler runs when the mouse pointer moves into an element. The second event handler runs when the mouse pointer moves out.



The most useful event methods (cont.)

A handler for the double-click event of all text boxes that clears the clicked box

```
$("#:text").dblclick(function () {  
    $(this).val("");  
})
```

A handler for the hover event of each img element within a list

```
$("#image_list img").hover(  
    function() {  
        alert("The mouse pointer has moved into an img element");  
    },  
    function() {  
        alert("The mouse pointer has moved out of an img element");  
    }  
); // end hover
```



Other event methods that you should be aware of

Other event methods that you should be aware of

Event method	Description
<code>bind(event, handler)</code>	Attach an event handler to an event.
<code>unbind(event, handler)</code>	Remove an event handler from an event.
<code>one(event, handler)</code>	Attach an event handler and remove it after it runs one time.
<code>trigger(event)</code>	Trigger the event for the selected element.

How to store an event handler in a variable

```
var clearClick = function () {  
    // the statements for the event handler  
}
```

How to attach an event handler to an event

With the bind method

```
$("#clear").bind(click, clearClick);
```

With the shortcut method

```
$("#clear").click(clearClick);
```

How to attach an event handler to two different events

```
$("#clear").click(clearClick);  
$(":text").dblclick(clearClick);
```



Other event methods that you should be aware of (cont.)

How to remove an event handler from an event

```
$("#clear").unbind("click", clearClick);
```

How to attach and remove an event handler so it runs only once

```
$("#clear").one("click", confirmClick);
```

How to trigger an event

With the trigger method

```
$("#clear").trigger("click");
```

With the shortcut method

```
$("#clear").click();
```

How to use the shortcut method to trigger an event from an event handler

```
$("#text").dblclick(function () {  
    $("#clear").click();    // triggers the click event of the clear button  
})
```



Three illustrative applications



The FAQs application jQuery

- The web interface

jQuery FAQs

+ What is jQuery?

– Why is jQuery becoming so popular?

Three reasons:

- It's free.
- It lets you get more done in less time.
- All of its functions are cross-browser compatible.

+ Which is harder to learn: jQuery or JavaScript?



The FAQs application jQuery(cont.)

- The html code

```
<main id="faqs">
<h1>jQuery FAQs</h1>
  <h2><a href="#">What is jQuery?</a></h2>
  <div>
    <p>jQuery is a library of the JavaScript functions that you're most likely
      to need as you develop websites.
    </p>
  </div>
  <h2><a href="#">Why is jQuery becoming so popular?</a></h2>
  <div>
    <p>Three reasons:</p>
    <ul>
      <li>It's free.</li>
      <li>It lets you get more done in less time.</li>
      <li>All of its functions are cross-browser compatible.</li>
    </ul>
  </div>
  <h2><a href="#">Which is harder to learn: jQuery or JavaScript?</a></h2>
  <div>
    <p>For most functions, jQuery is significantly easier to learn
      and use than JavaScript. But remember that jQuery is JavaScript.
    </p>
  </div>
</main>
```



The FAQs application jQuery(cont.)

- The jQuery code

```
$(document).ready(function() {  
    $("#faqs h2").click(function(evt) {  
        $(this).toggleClass("minus");  
        if ($(this).attr("class") !== "minus") {  
            $(this).next().hide();  
        }  
        else {  
            $(this).next().show();  
        }  
        evt.preventDefault();  
    }); // end click  
    $("#faqs").find("a:first").focus();  
}); // end ready
```



The Image Swap application

- The web interface



The Image Swap application (cont.)

- The HTML code

```
<main>
  <h1>Fishing Images</h1>
  <p>Click on an image to enlarge.</p>
  <ul id="image_list">
    <li><a href="images/release.jpg" title="Catch and Release">
      </a></li>
    <li><a href="images/deer.jpg" title="Deer at Play">
      </a></li>
    <li><a href="images/hero.jpg" title="The Big One!">
      </a></li>
    <li><a href="images/bison.jpg" title="Grazing Bison">
      </a></li>
  </ul>
  <h2 id="caption">Catch and Release</h2>
  <p></p>
</main>
```



The Image Swap application (cont.)

- The jQuery code

```
$(document).ready(function() {
    // preload images
    $("#image_list a").each(function() {
        var swappedImage = new Image();
        swappedImage.src = $(this).attr("href");
    });

    // set up event handlers for links
    $("#image_list a").click(function(evt) {
        // swap image
        var imageURL = $(this).attr("href");
        $("#main_image").attr("src", imageURL);

        //swap caption
        var caption = $(this).attr("title");
        $("#caption").text(caption);

        // cancel the default action of the link
        evt.preventDefault(); // jQuery cross-browser method
    }); // end click

    // move focus to first thumbnail
    $("li:first-child a").focus();
}); // end ready
```



The Image Rollover application

- The web interface

Fishing Images

Move your mouse over an image to change it and back out of the image to restore the original image.



The Image Rollover application (cont.)

- The HTML code

```
<main>
  <h1>Fishing Images</h1>
  <p>Move your mouse over an image to change it and back out of the
    image to restore the original image.</p>
  <ul id="image_rollovers">
    <li></li>
    <li></li>
  </ul>
</main>
```



The Image Rollover application (cont.)

- The jQuery code

```
$(document).ready(function() {
    $("#image_rollovers img").each(function() {
        var oldURL = $(this).attr("src");           // gets the src attribute
        var newURL = $(this).attr("id");           // gets the id attribute

        // preload rollover image
        var rolloverImage = new Image();
        rolloverImage.src = newURL;

        // set up event handlers
        $(this).hover(
            function() {
                $(this).attr("src", newURL); // sets the src attribute
            },
            function() {
                $(this).attr("src", oldURL); // sets the src attribute
            }
        ); // end hover
    }); // end each
}); // end ready
```



Summary

- jQuery is a free, open-source, JavaScript library that provides methods that make JavaScript programming easier.
- Before use jQuery you must include library file to your web page. You can download or use CDN to include jQuery file.
- The sign (\$) is used to refer to the jQuery library.
- The ***selectors*** used same in CSS syntax.



The End.

