

Web Behavior with JavaScript Libraries

JavaScript Libraries

- Advanced JavaScript programming
 - Difficult and time-consuming
 - Difficultly dealing with browser differences
- JavaScript (helper) libraries
 - Sometimes called "frameworks"
 - Files of JavaScript, written so you don't have to
- To Use:
 1. Copy the library file to your file system
 2. Link to the file from your HTML file
 3. Learn how to use the library
 4. Write the JavaScript code in your HTML file to "turn-on" and use the library

Advantages and disadvantages of libraries

Advantages	Disadvantages
Speeds up the development process Helpful in collaborative work	Yet another learning curve
Clean and tidy code	Unused code leftover
Solutions to common problems <ul style="list-style-type: none">- Browser compatibility solutions- Typical patterns, ready to use/edit	You inherit bugs & bad practices
Learn good practices	You don't learn to do it yourself

When is it advisable to use a library?

When installing, learning and using a library, at what point do you realize it would have been faster or easier to code it yourself from the ground-up?

jQuery

- The most popular JavaScript library on the Internet today
- It's JavaScript!
- Reuses what you know: CSS selectors to access and manipulate the DOM
- Unobtrusive by Design
 - Respects progressive enhancement - adds functionality without having to hack-up HTML documents
 - Follows the "Principle of least astonishment"
 - Built to be easy for Web Developers
 - `$ (" . someSelector ") . someAction ()`
- Some guy from RIT: John Resig

jQuery In Use

The main jQuery function is the `$ ()` function ...the jQuery function
jQuery allows you to select elements by CSS selectors.

Plain JavaScript – stick some text in an HTML element

Step 1: Target the ID in the HTML (it must be an ID), get a "handle" on the element in the DOM, and assign the handle to a new variable

```
var e = document.getElementById("someID");
```

Step 2: Assign some HTML content to the "inside node" of the variable

```
e.innerHTML = "JavaScript says Hello World!";
```

jQuery – stick some text in an HTML element

Step 1: install jQuery

Step 2: Send some HTML content to the `".html()"` method that is associated with the targeted CSS selector

```
$(".any-element").html("jQuery says Hello World!");
```

CDN - Content Delivery Networks

- You want your web pages to be as fast as possible
- You want the browser to **cache** as much as possible
- If many different web sites use the same JavaScript framework, it makes sense to host the framework library in a common location for every web page to share
- A CDN is a network of servers containing shared code libraries
- CDNs provide a number of popular JavaScript libraries, including:
 - jQuery
 - Prototype
 - MooTools
 - Dojo
 - Yahoo! YUI

Google: <http://code.google.com/apis/libraries/devguide.html>

Microsoft: <http://www.asp.net/ajax/cdn>

CDN JS: <https://cdnjs.com/>

Where to get jQuery

- Option 1: download and install from www.jquery.com

- In your HTML...

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

- Option 2: use a Content Delivery Network (CDN)

- In your HTML...

```
<script src="http://ajax.googleapis.com/ajax/libs/jquery/1.11.0/jquery.min.js"></script>
```

- Or, for development (less typing)...

```
<script src="http://code.jquery.com/jquery.js"></script>
```

Minification

- For faster Websites
 - Faster downloads
 - Fewer HTTP requests (when minifying multiple libraries together)
- Remove unnecessary characters (comments, line breaks, extra spaces)
- See:
<http://code.jquery.com/jquery/>

Unminified (normal)

```
/*!
 * jQuery JavaScript Library v2.1.3
 * http://jquery.com/
 *
 * Includes Sizzle.js
 * http://sizzlejs.com/
 *
 * Copyright 2005, 2014 jQuery Foundation, Inc. and other contributors
 * Released under the MIT license
 * http://jquery.org/license
 *
 * Date: 2014-12-18T15:11Z
 */

(function( global, factory ) {

    if ( typeof module === "object" && typeof module.exports === "object" ) {
        // For CommonJS and CommonJS-like environments where a proper `window`
        // is present, execute the factory and get jQuery.
        // For environments that do not have a `window` with a `document`
        // (such as Node.js), expose a factory as module.exports.
        // This accentuates the need for the creation of a real `window`
        // e.g. var jQuery = require("jquery")(window);
        // See ticket #14549 for more info.
        module.exports = global.document ?
            factory( global, true ) :
            function( w ) {
                if ( !w.document ) {
                    throw new Error( "jQuery requires a window with a document" );
                }
                return factory( w );
            };
    }


```

Minified

```
/*! jQuery v2.1.3 | (c) 2005, 2014 jQuery Foundation, Inc. | jquery.org/license */
!function(a,b){if("object"===typeof module&&"object"===typeof module.exports){module.exports=a.document?b(a,!0):function(){return b(a,!0)}}if(!a.document)throw new Error("jQuery requires a window with a document");return b(a)}(b(a))("undefined"!==typeof window?
window:this,function(a,b){var c=[],d=c.slice,e=c.concat,f=c.push,g=c.indexOf,h={},i=h.toString,j=h.hasOwnProperty,k=
{},{l=a.document,m="2.1.3",n=function(a,b){return new n.fn.init(a,b)},o=/^\s\uFEFF\xA0+|[\s\uFEFF\xA0]+$/g,p=/^-ms-/
, q=-
([da-z])/gi,r=function(a,b){return b.toUpperCase();n.fn=n.prototype=
{jquery:m,constructor:n,selector:"",length:0,toArray:function(){return d.call(this)},get:function(a){return null!=a?0>a?
this[a+this.length]:this[a]:d.call(this)},pushStack:function(a){var b=n.merge(this.constructor(),a);return
b.prevObject=this,b.context=this.context,b.each=function(a,b){return n.each(this,a,b)},map:function(a){return
this.pushStack(n.map(this,function(b,c){return a.call(b,c,b)}))},slice:function(){return
this.pushStack(d.apply(this,arguments))},first:function(){return this.eq(0)},last:function(){return this.eq(-1)},eq:
function(a){var b=this.length,c=a+0>a?b:0;return this.pushStack(c>0&&b?c?[this[c]]:[],end:function(){return
this.prevObject||this.constructor(null)},push:f,sort:c.sort,splice:c.splice,n.extend=n.fn.extend=function(){var
a,b,c,d,e,f,g=arguments[0]||[],h=1,i=arguments.length,j=1;for("boolean"===typeof g&&(j=g,g=arguments[h])||
{},{h++},"object"===typeof g||n.isFunction(g)||g===i&&(g=this,h--);i>h;h++)if(null!=(a=arguments[h]))for(b in
a)c=g[b],d=a[b],g!==d&&(j&&d&&(n.isPlainObject(d)||n.isArray(d)))?(e=!n.isArray(d))?(e=!1,f=c&&n.isArray(c)?c:[]):f=c&&n.isPlainObject(c)?
c:[]:g[b]=n.extend(j,f,d):void 0!==d&&(g[b]=d));return g,n.extend({expand:"jQuery"+
(m+Math.random()).replace(/D/g,"")},isReady:!0,error:function(a){throw new Error(a)},noop:function(){},isFunction:function(a)
{return"function"===n.type(a)},isArray:n.isArray,isArray:function(a){return null!=a&&a===a.window},isNumeric:function(a)
{return!n.isArray(a)&&aparseFloat(a)+1>0},isPlainObject:function(a)
{return"object"===n.type(a)||a.nodeType||n.isWindow(a)?!1:a.constructor&&!j.call(a.constructor.prototype,"isPrototypeOf")?!1:0
},isEmptyObject:function(a){var b;for(b in a)return!0;return!0},type:function(a){return null==a?"":n.type(a)},isFunction:
function(a){return"function"===typeof a?h[i.call(a)]:"object":typeof a},globalEval:function(a){var b,c=eval;a.trim(a),a&&(1===a.indexOf("use
strict"))?(b=l.createElement("script"),b.text=a,l.head.appendChild(b),parentNode.removeChild(b)):c(a)},camelCase:function(a)
{return a.replace(p,"ms-").replace(q,r)},nodeName:function(a,b){return
a.nodeName&&a.nodeName.toLowerCase()===b.toLowerCase()},each:function(a,b,c){var d,e=0,f=a.length,g=s(a);if(c){if(g){if(g)

```