Web Development

Lecture 13 – JQuery

http://www.w3schools.com/jquery/default.asp

What is jQuery?

jQuery is a library of JavaScript Functions.

A lightweight "write less, do more" JavaScript library.

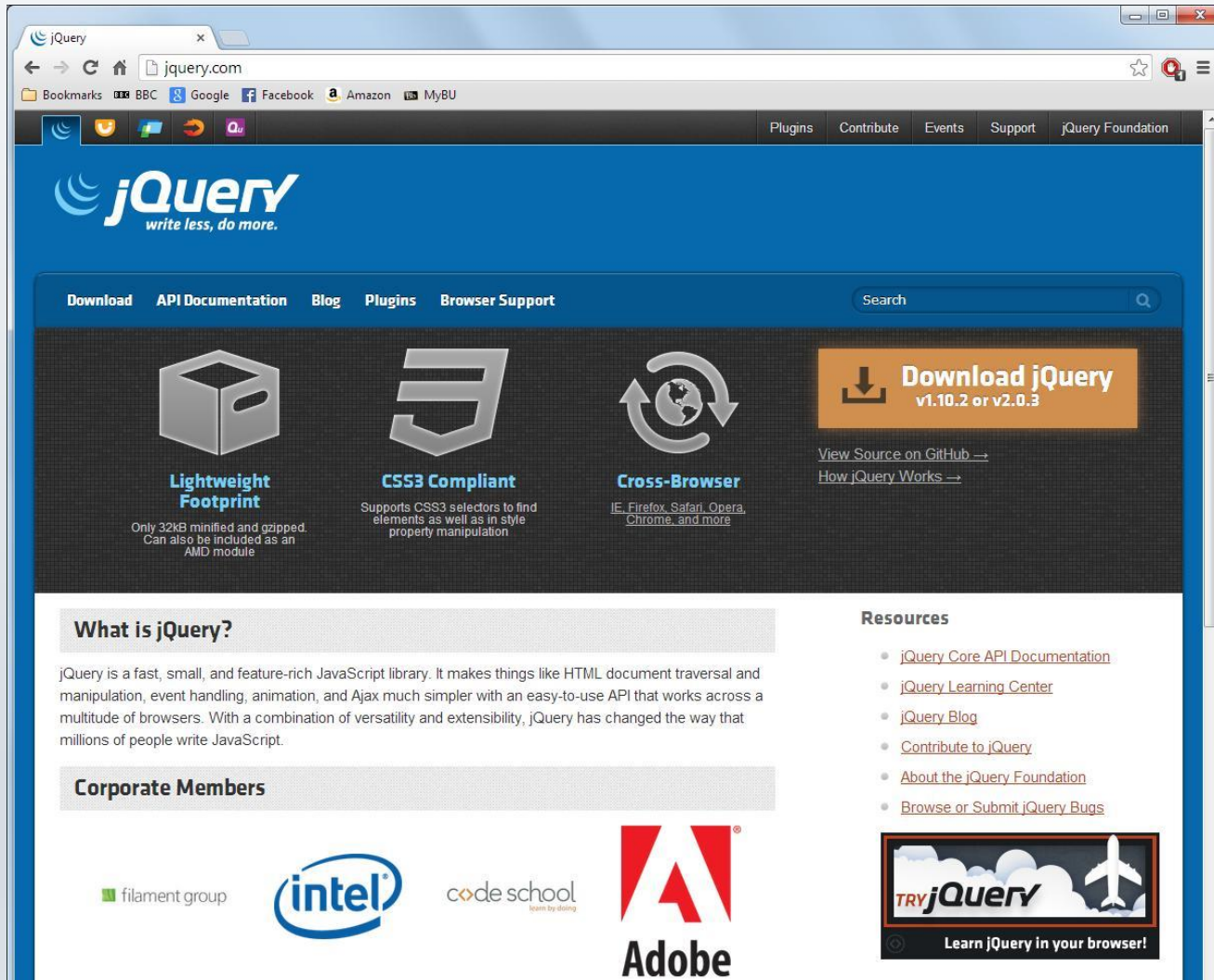The jQuery library contains the following features:

- HTML element selections
- HTML element manipulation
- CSS manipulation
- HTML event functions
- JavaScript Effects and animations
- HTML DOM traversal and modification
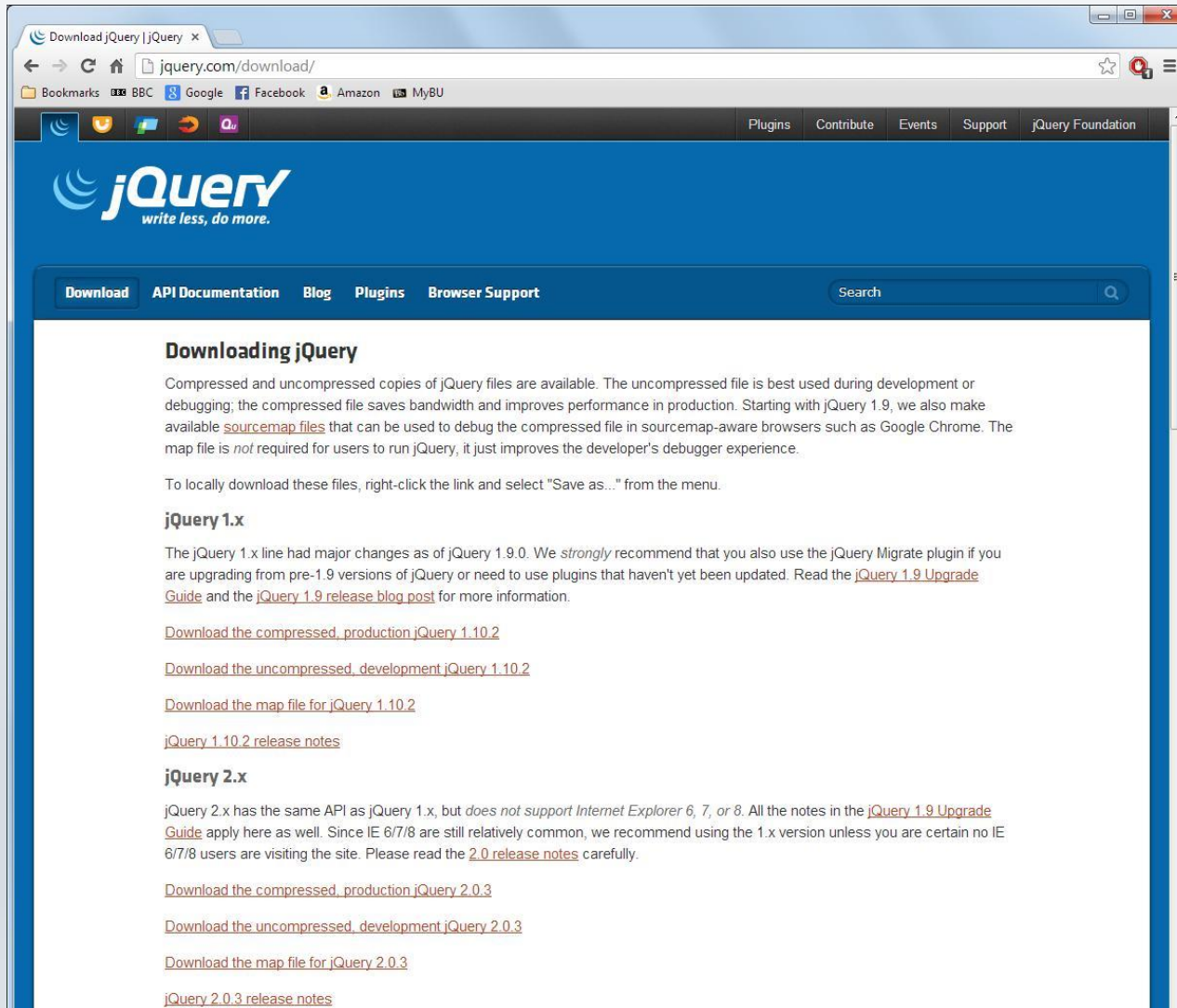- AJAX
- Utilities

Adding the jQuery library

There are two ways that you can link your pages to the jQuery library:

1. Download the library file from http://jquery.com/ and link to it as a local file.

2. Link to a remotely hosted copy of the library.

Download and link to local file

jquery-1.12.0.js   (uncompressed)

```javascript
(function( window, undefined ) {
// Use the correct document accordingly with window argument (sandbox)
var document = window.document, navigator = window.navigator,  location = window.location;
var jQuery = (function() {

// Define a local copy of jQuery
var jQuery = function( selector, context ) {
            // The jQuery object is actually just the init constructor 'enhanced'
            return new jQuery.fn.init( selector, context, rootjQuery );
    },

    // Map over jQuery in case of overwrite
    _jQuery = window.jQuery,

    // Map over the $ in case of overwrite
    _$ = window.$,

    // A central reference to the root jQuery(document)
    rootjQuery,

    // A simple way to check for HTML strings or ID strings
    // Prioritize #id over <tag> to avoid XSS via location.hash (#9521)
    quickExpr = /^(?:[^#<]*(<[\w\W]+>)[^>]*$|#([\w\-]*)$)/,

    // Check if a string has a non-whitespace character in it
    rnotwhite = /\S/,

    // Used for trimming whitespace
    trimLeft = /^\s+/,
    trimRight = /\s+$/,
    // Match a standalone tag
    rsingleTag = /^<(\w+)\s*\/?>(?:<\/\1>)?$/,
```

followed by another
9000 lines of code

jquery-1.12.0.min.js   (minified)

```
/*! jQuery v1.12.0 jquery.com | jquery.org/license */(function(a,b){function cy(a) {returnf.isWindow(a) ?a:a.nodeType===9
?a.defaultView||a.parentWindow:!1}function cv(a){if(!ck[a]){var b=c.body,d=f("<"+a+">").appendTo(b),e=d.css("display");
d.remove(); if(e==="none"||e===""){cl||(cl=c.createElement("iframe"),cl.frameBorder=cl.width=cl.height=0) ,b.appendChild(cl);
if(!cm||!cl.createElement)cm=(cl.contentWindow||cl.contentDocument) .document,cm.write((c.compatMode==="CSS1Compat"?"<!doctype
html>":"")+"<html><body>"),cm.close(); d=cm.createElement(a),cm.body.appendChild(d),e=f.css(d,"display"), b.removeChild(cl)
}ck[a]=e}return ck[a]}function cu(a,b){var c={}; f.each(cq.concat.apply([],cq.slice(0,b)), function() {c[this]=a}); return
c}function ct(){cr=b}function cs(){setTimeout(ct,0); return cr=f.now()}function cj(){try{return new a.ActiveXObject(
"Microsoft.XMLHTTP")} catch(b){}}function ci(){try{return new a.XMLHttpRequest}catch(b){}}function cc(a,c) {a.dataFilter &&
(c=a.dataFilter(c,a.dataType));  var d=a.dataTypes,e={},g,h,i=d.length,j,k=d[0],l,m,n,o,p;  for(g=1; g<i;  g++){if(g===1)
for(h in a.converters) typeof h=="string"&&(e[h.toLowerCase()]=a.converters[h]); l=k,k=d[g]; if(k==="*")k=l; else
if(l!=="*"&&l!==k){m=l+" "+k,n=e[m]||e["* "+k]; if(!n){p=b; for(o in e){j=o.split(" "); if(j[0]===l||j[0]==="*") {p=e[j[1]+"
"+k]; if(p){o=e[o],o===!0?n=p:p===!0&&(n=o); break}}}}!n&&!p&&f.error("No conversion from "+m.replace(" "," to ")),n!==!0&&
(c=n?n(c): p(o(c)))}}return c}function cb(a,c,d){var e=a.contents,f=a.dataTypes,g=a.responseFields,h,i,j,k; for(i in g)i in
d&&(c[g[i]]=d[i]); while(f[0]==="*")f.shift(),h===b&&(h=a.mimeType||c.getResponseHeader("content-type")); if(h)for(i in
e)if(e[i]&&e[i].test(h)){f.unshift(i); break}if(f[0]in d)j=f[0]; else{for(i in d){if(!f[0]||a.converters[i+" "+f[0]]){j=i;
break}k||(k=i)}j=j||k}if(j){j!==f[0]&&f.unshift(j); return d[j]}}function ca(a,b,c,d){if(f.isArray(b)) f.each(b,function
(b,e){c||bE.test(a)?d(a,e):ca(a+"["+(typeof e==="object"||f.isArray(e)?b:"")+"]",e,c,d)}); else if(!c&&b!=null&&typeof
b=="object")for(var e in b)ca(a+"["+e+"]",b[e],c,d); else d(a,b)}function b_(a,c){var d,e,g=f.ajaxSettings.flatOptions||{};
for(d in c)c[d]!==b&&((g[d]?a:e||(e={}))[d]=c[d]); e&&f.extend(!0,a,e)}function b$(a,c,d,e,f,g){f=f||c.dataTypes[0],
g=g||{},g[f]=!0; var h=a[f],i=0,j=h?h.length:0,k=a===bT,l; for(; i<j&&(k||!l); i++)l=h[i](c,d,e),typeof l=="string"&&
(!k||g[l]?l=b:(c.dataTypes.unshift(l),l=b$(a,c,d,e,l,g))); (k||!l)&&!g["*"]&&(l=b$(a,c,d,e,"*",g)); return l}function
bZ(a){return function(b,c){typeof b!="string"&&(c=b,b="*"); if(f.isFunction(c)){var d=b.toLowerCase().split(bP),
e=0,g=d.length,h,i,j; for(; e<g; e++)h=d[e],j=/^\+/.test(h), j&&(h=h.substr(1)||"*"),i=a[h]=a[h]||[], i[j?"unshift":"push"]
(c)}}}function bC(a,b,c) {var d=b==="width"?a.offsetWidth:a.offsetHeight,e=b==="width"?bx:by,g=0,h=e.length; if(d>0)
{if(c!=="border") for(; g<h; g++)c||(d-=parseFloat(f.css(a,"padding"+e[g]))||0), c==="margin"?d+=parseFloat(f.css(a,c+e[g]))
||0:d-=parseFloat(f.css(a,"border"+e[g]+"Width"))||0; return d+"px"}d=bz(a,b,b); if(d<0||d==null)d=a.style[b]||0;
d=parseFloat(d)||0;  if(c)for(; g<h; g++)d+=parseFloat(f.css(a,"padding"+e[g]))||0, c!=="padding"&& (d+=parseFloat(f.css
(a,"border"+e[g]+"Width"))||0),c==="margin"&&(d+=parseFloat(f.css(a,c+e[g]))||0); return d+"px"}function bp(a,b){b.src?f.ajax
({url:b.src,async:!1,dataType:"script"}):f.globalEval((b.text||b.textContent||b.innerHTML||"").replace(bf,"/*$0*/")),b.parent
```

... and so on.

There are only 4 lines of code in this file

but they are very long lines

Linking to the libary file

Once you have downloaded one of the library files, you need to add the following line at the top of your webpage:

```html
<head>
  <script type="text/javascript" src="jquery-1.12.0.js"></script>
</head>
```

This tells the browser where to find the jQuery library routines.

Linking to a remotely hosted copy

Alternatively, both Google and Microsoft host copies of the jQuery library online.

You can make use of them by adding one of the following lines of code to your page:

```
<head>
<script type="text/javascript"
src="http://ajax.googleapis.com/ajax/libs/jquery/1.12.0/jquery.min.js"></script>
</head>
```

or

```
<head>
<script type="text/javascript"
src="http://ajax.microsoft.com/ajax/jquery/jquery-1.12.0.min.js"></script>
</head>
```

jQuery Syntax

With jQuery you select HTML elements and perform some action upon them.

Basic syntax is:

`$(selector).effect()`

- A dollar sign to define jQuery
- A (selector) to "query (or find)" HTML elements
- A jQuery effect() to be performed on the element(s)

jQuery uses a combination of XPath and CSS selector syntax

The Document Ready Function

You will notice that all jQuery methods, in the examples, are inside a document.ready() function:

```
$(document).ready(function(){
    // jQuery functions go here...
    });
```

This is to prevent any jQuery code from running before the document has finished loading (is ready).

If functions are run before the document is fully loaded, you might find that the code is, for example:

- Trying to hide an element that doesn't exist

- Trying to get the size of an image that is not loaded

jQuery Selectors

When using jQuery, you need to select exactly the elements that you want to apply a method to.

You can select HTML elements (or groups of elements) by element name, attribute name or by content.

$(this).hide()	will select the current HTML element
$("p").hide()	will select all <p> elements
$("p#demo").hide()	will select the <p> element with id="demo".
$("#test").hide()	will select the element with id="test"
$("p.intro").hide()	will select all <p> elements with class="intro".
$(".test").hide()	will select all elements with class="test"

jQuery Attribute Selectors

jQuery uses XPath expressions to select elements with given attributes.

$("[href]").hide()

select all elements with an href attribute.

$("a:[href]").hide()

select all <a> elements with an href attribute.

$("[href='kevin.htm']").hide()

select all elements with an href value equal to "kevin.htm".

$("[href!='kevin.htm']").hide()

select all elements with an href attribute NOT equal to "kevin.htm".

$("[href$='.htm']").hide()

select all elements with an href attribute that ends with ".htm".

jQuery CSS Selectors

jQuery CSS selectors can be used to change CSS properties for HTML elements.

The following example changes the background-color of all p elements to yellow:

$("p").css("background-color","yellow");

jQuery Selectors Test

$(this)   Current HTML element

$("p")   All <p> elements

$("p.intro")   All <p> elements with class="intro"

$("p#intro")   All <p> elements with id="intro"

$("p#intro:first")   The first <p> element with id="intro"

$(".intro")   All elements with class="intro"

$("#intro")   The first element with id="intro"

$("div#intro .head")   All elements with class="head" inside a <div> element
                            with id="intro"

$("ul li:first")   The first <li> element of each

$("[href$='.jpg']")   All elements with an href attribute that ends with ".jpg"

jQuery Effects

$(selector).hide()   Hide selected elements

$(selector).show()   Show selected elements

$(selector).toggle()   Toggle (between hide and show) selected elements

$(selector).slideDown()   Slide-down (show) selected elements

$(selector).slideUp()   Slide-up (hide) selected elements

$(selector).slideToggle()   Toggle slide-up and slide-down of selected elements

$(selector).fadeIn()   Fade in selected elements

$(selector).fadeOut()   Fade out selected elements

$(selector).fadeTo()   Fade out selected elements to a given opacity

$(selector).animate()   Run a custom animation on selected elements

There are many others. See jQuery reference documentation at:

http://api.jquery.com/category/effects/

jQuery Events

The jQuery event handling methods are core functions in jQuery.

Event handlers are methods that are called when "something happens" in HTML. The term "triggered (or "fired") by an event" is often used.

We also say that we are binding a function to the click event of an element

```
$("button").click(function(){
    $("p").hide();
  });
```

In the example above, a function is called when the click event for the button is triggered:

```
$("button").click( function() { ..some code... } )
```

jQuery Events

Here are some examples of event methods in jQuery:

$(document).ready(function)   Triggered when the document is finished loading

$(selector).click(function)   Triggered when an element is clicked

$(selector).dblclick(function)   Triggered when an element is double clicked

$(selector).focus(function)   Triggered when an element is given focus

$(selector).mouseover(function)   Triggered when the mouse moves over an element

There are many others. See jQuery reference documentation, at:

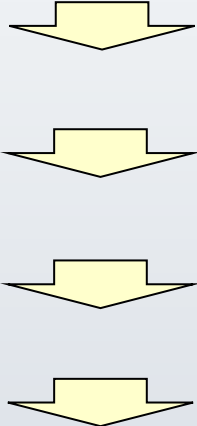http://api.jquery.com/category/events/

jQuery Name Conflicts

Some other JavaScript libraries also use the dollar sign for their functions.

The jQuery noConflict() method allows you to specify a custom name (like jq), instead of using the dollar sign.

```
var jq = jQuery.noConflict();
jq(document).ready(function(){
    jq("button").click(function(){
        jq("p").hide();
    });
});
```

jQuery Summary

```
$(document).ready(                                              );
```

```
              function(){                              }
```

```
          $("button").click(                    );
```

```
                  function(){              }
```

```
                  $("p").hide();
```

Usually written as:

```
$(document).ready(function()
   {  $("button").click(function()
      {  $("p").hide();
      });
   });
```

There are variations on this basic syntax

```
$(document).ready(function(){
  $(".ex .hide").click(function(){
    $(this).parents(".ex").hide("slow");
  });
});
```

Means:

If someone clicks on an element with the class name 'hide', which is inside an element with the class name 'ex', then find the parent element (with the class name 'ex') of the clicked element, and hide it.