jQuery Tutorial

What is jQuery?

- A framework for client-side JavaScript.
- Frameworks provide useful alternatives for common programming tasks.
- An open source project at jquery.com
- It simplifies
  - HTML document traversing
  - Event Handling
  - Animating
  - AJAX interactions

What is available with jQuery?

- Cross browser support and detection
- AJAX functions
- CSS functions
- DOM manipulation
- DOM transversal
- Attribute manipulation
- Event detection and handling
- JavaScript animation
- Hundreds of plugins for pre-built user interfaces, advanced animations, form validation, etc
- Expandable functionality using custom plugins
- Small foot print

Downloading jQuery

- Installation – You just download the latest jquery-x.y.z.js file and put it in your website folder
- http://jquery.com/download
- jQuery is lightweight: 30KB (Minified and Gzipped)

So How Does jQuery Change How You Write JavaScript?

- jQuery adds a JavaScript object called **$** or **jQuery** to your JavaScript code.
  – Through manipulation of this JavaScript code, it abstracts away commonly used JavaScript objects into $ and jQuery, such as the DOM (document), XMLHTTPRequest, and JSON
- Example: Instead of

```
var myButton = document.getElementById("myButton");
```

- In jQuery, it’s just

```
$("#myButton");
```

jQuery Basic Selectors

- These are examples of “Basic” selectors, based on CSS1:
- All Selector (“*”): selects all elements, sets css properties and returns the number of elements found

```
var elementCount = $("*").css("border", "3px solid red" ).length;
```

- Class Selector (“.class”): selects all elements with a given class and sets css properties

```
$(".myClass").css("border", "3px solid red");
```

- Element selector (“element”): selects all elements with the given tag name, e.g. div, and sets css properties

```
$("div").css("border", "9px solid red");
```

- ID selector (“#id”): selects a single element with the given id attribute

```
$("#myDiv").css("border", "3px solid red");
```

- Multiple selector (“selector1, selector2, selectorN"): selects a combined result of all the specified selectors

```
$("div, span, p.myClass").css("border", "3px solid red");
```

- For more examples see: http://api.jquery.com/category/selectors/basic-css-selectors/

Other jQuery Selector Categories

- JQuery borrows notation from CSS1-3 “selectors”, as a tool to match a set of elements. Here are some examples of what one can do:
- Attribute: selects elements that have the specified attribute and changes the associated text

```
$("input[value='Hot Fuzz'] "). text( "Hot Fuzz" ) ;
```

- Basic Filter, e.g. selects all elements that are h1, h2, h3, etc and assigns css properties

```
$(":header").css({ background: "#ccc", color: "blue" });
```

- Child Filter, e.g. finds the first span in each div and underlines the text

```
$("div span:first-child").css( "text-decoration", "underline" )
```

- Content Filter, e.g. finds all div containing “John” and underlines them

```
$("div:contains('John’)").css( "text-decoration", "underline" );
```

- Form, e.g. finds all buttons and adds the css class “marked” to their properties

```
var input = $(":button").addClass( "marked" );
```

- For more examples see: http://api.jquery.com/category/selectors

jQuery Functions

- Either attached to the jQuery object or chained off of a selector statement.
  - E.g. Run a function when the page is fully loaded

```
$( window ).load(function() {
       //run code
} );
```

- Most functions return the jQuery object they were originally passed, so you can perform many actions in a single line.
  - E.g. Add the class *bigImg* to all images with height > 100 once the image is loaded

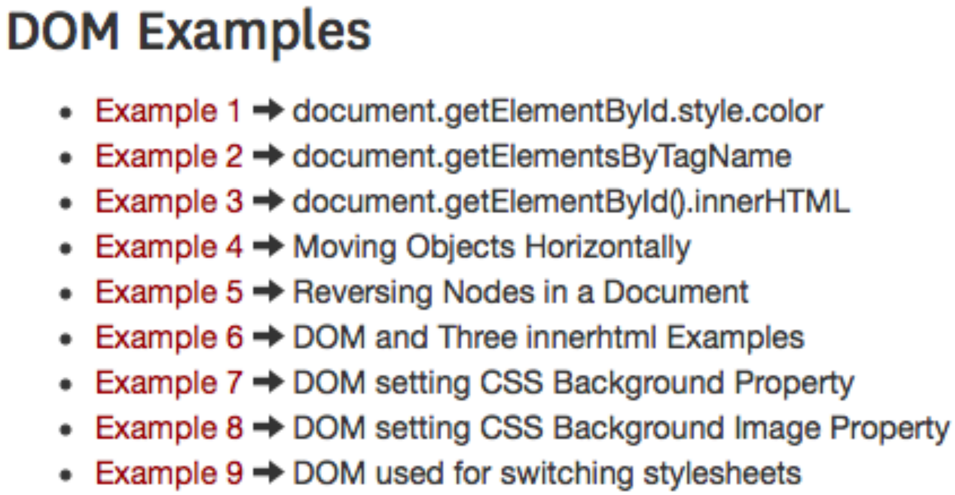
```
$("img.userIcon" ).load(function() {
   if ( $( this ).height() > 100 {
      $( this ).addClass("bigImg");
   }
});
```

- The same function can perform an entirely different action based on the number and type of parameters.

More jQuery Examples

- Remember these examples?

  http://cs-server.usc.edu:45678/examples.html#dom

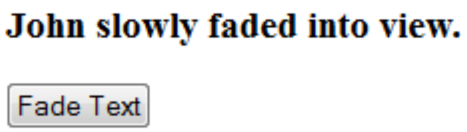


DOM Examples

- Example 1 → document.getElementById.style.color
- Example 2 → document.getElementsByTagName
- Example 3 → document.getElementById().innerHTML
- Example 4 → Moving Objects Horizontally
- Example 5 → Reversing Nodes in a Document
- Example 6 → DOM and Three innerhtml Examples
- Example 7 → DOM setting CSS Background Property
- Example 8 → DOM setting CSS Background Image Property
- Example 9 → DOM used for switching stylesheets

- We’ll revisit the examples, but with jQuery instead!

Example 1: document.getElementById.style.color


John slowly faded into view.

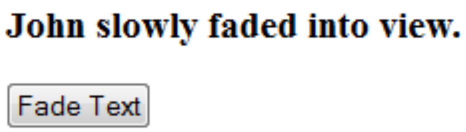
JavaScript w/o jQuery

```
hex=255 // Initial color value.
function fadetext() {
 if(hex>0) { //If color is not black yet
     hex -= 11; // increase color darkness

document.getElementById("sample").style.color="rgb("+hex+","+hex+","+hex+")";
     setTimeout("fadetext()",20);   }
  else   hex=255 //reset hex value
}
```

http://cs-server.usc.edu:45678/examples/dom/ex1.html

Example 1: $.fadeOut(), $.delay(), $.fadeIn()



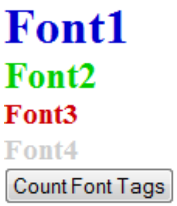
John slowly faded into view.

JavaScript with jQuery

```
$(function() { // when document is ready
        $("#fadeText").click(function() { // set a onClick handler on fadeText
                $("h3").fadeOut(125).delay().fadeIn(125);
                // fadeOut the h3 for 125 ms, delay, then fadeIn
        });
});
```

http://cs-server.usc.edu:45678/examples/jquery/dom/ex1.html

Example 2: document.getElementsByTagName


Font1
Font2
Font3
Font4

JavaScript w/o jQuery

```
function handleAllTags()
  { var arrayOfDocFonts;
    if (document.all || document.getElementById) {
           arrayOfDocFonts =     document.getElementsByTagName("font");
           alert("Number of font tags in this document are " + arrayOfDocFonts.length + ".");
    }
    else
           document.write("Unrecognized Browser Detected"); }
  }
```

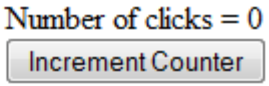
JavaScript w/ jQuery

```
$(function() {// when document is ready
           $("#countTags").click(function() { // when countTags is clicked,
                      alert("Number of font tags in this document are " + $("font").length);
                      // alert the number of font tags in the HTML
           });
});
```

http://cs-server.usc.edu:45678/examples/dom/ex2.html

http://cs-server.usc.edu:45678/examples/jquery/dom/ex2.html

Example 3: document.getElementById().innerHTML


Number of clicks = 0

JavaScript w/o jQuery

```
 var hits = 0;
 function updateMessage() {
    hits += 1;
    document.getElementById("counter").innerHTML = "Number of clicks = " + hits; }
```

JavaScript w/ jQuery

```
$(function() {
           var hits = 0;
           $("#updateMessage").click(function() {
                      $("#counter").html("Number of clicks = " + ++hits);
           });
});
```

http://cs-server.usc.edu:45678/examples/dom/ex3.html

http://cs-server.usc.edu:45678/examples/jquery/dom/ex3.html

Example 4:
document.getElementById().style.left

Move Button right once
Move Button down Once

JavaScript and HTML w/o jQuery

```
<FORM>
<INPUT ID="counter1" STYLE="position:relative; left:0px" TYPE="button" VALUE="Move Button
right once"
    onclick="document.getElementById('counter1').style.left = '500px';">
</FORM>
<br><br><br><br><br><br><br><br><br>
<FORM>
<INPUT ID="counter2" STYLE="position:relative; top:0px" TYPE="button" VALUE="Move Button down
Once"
           onclick="document.getElementById('counter2').style.top = '15px';">
</FORM>
```

http://cs-server.usc.edu:45678/examples/dom/ex4.html

Example 4: $.css();

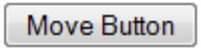
Move Button right once
Move Button down Once

JavaScript and HTML w/ jQuery

```
<FORM>
<INPUT ID="counter1" STYLE="position:relative; left:0px" TYPE="button" VALUE="Move Button
right once"
    onclick="$('#counter1').css('left', '500px');">
</FORM>
<br><br><br><br><br><br><br><br><br>
<FORM><INPUT ID="counter2" STYLE="position:relative; top:0px" TYPE="button" VALUE="Move
Button down Once"
            onclick="$('#counter2').css('top', '15px');">
</FORM>
```

http://cs-server.usc.edu:45678/examples/jquery/dom/ex4.html

Example 5: document.getElementById(), parseint()



JavaScript w/o jQuery

```
var obj = document.getElementById(‘counter1’);
var xlocation = parseInt(obj.style.left);
function handleClick( ) {
           xlocation += 50;
           document.getElementById(‘counter1’).style.left = xlocation + “px”;}
```

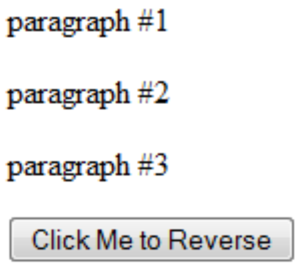
JavaScript w/ jQuery

```
$(function() {
           $("#counter1").click(function() {
                   $(“#counter1”).css(“left”,(parseInt($(“#counter1”).css(“left”))+50)+”px”);
           });
});
```

http://cs-server.usc.edu:45678/examples/dom/ex5.html

http://cs-server.usc.edu:45678/examples/jquery/dom/ex5.html

Example 6: Uses childNodes, removechild, appendChild



paragraph #1

paragraph #2

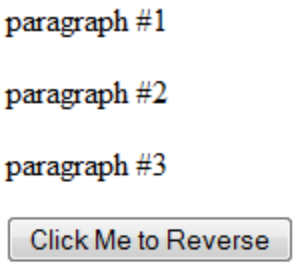
paragraph #3

JavaScript w/o jQuery

```
function reverse(n)
 { // Reverse the order of the children of Node n
   var kids = n.childNodes; // Get the list of children
   var numkids = kids.length; // Figure out how many children there are
   for(var i = numkids-1; i >= 0; i--) { // Loop backward through the children
      var c = n.removeChild(kids[i]); // Remove a child
      n.appendChild(c); // Put it back at its new position
  } }
```

http://cs-server.usc.edu:45678/examples/dom/ex6.html

Example 6: $.children(), $.remove(), $.append();



paragraph #1

paragraph #2

paragraph #3

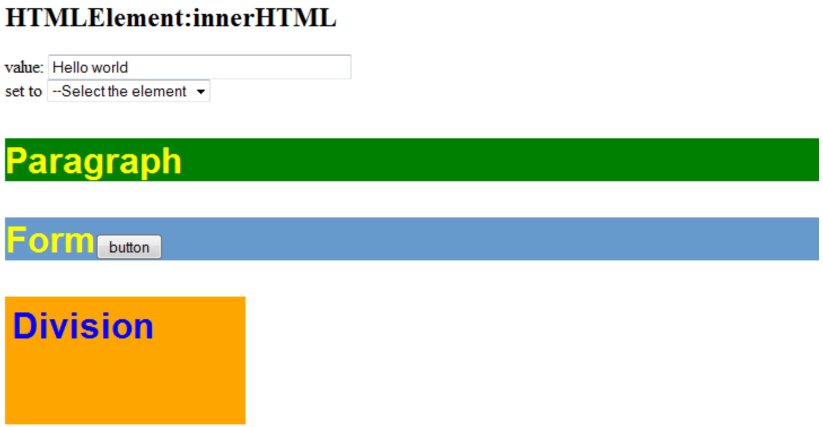
JavaScript w/ jQuery

```
var onReady = function() {
        $(".reverse").on("click", function() {
                var kids = $("body").children();
                for(var i = kids.length - 1; i >= 0; i--) {
                        var c = $(kids[i]).remove();
                        $("body").append(c);
                }
                onReady();
        });
}

$(onReady);
```

http://cs-server.usc.edu:45678/examples/jquery/dom/ex6.html

Example 7: Uses innerHTML



HTMLElement:innerHTML

value: Hello world

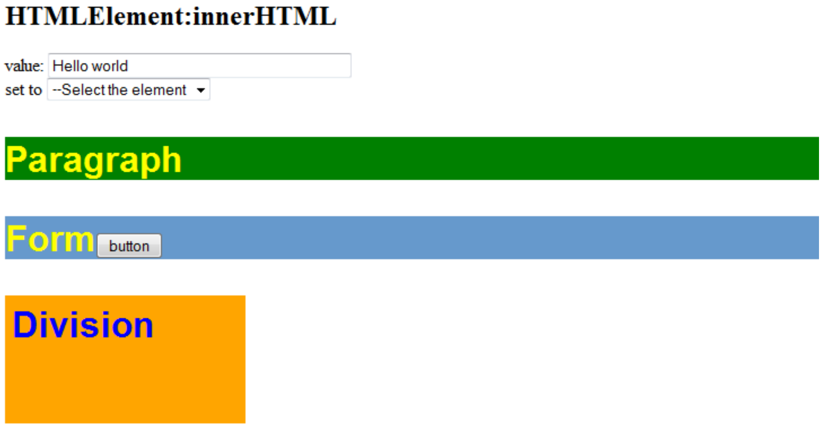
set to --Select the element

JavaScript w/o jQuery

```
function setInnerHTML(nm, value) {
 if (nm == '') return;
 var
element=document.getElementById?document.getElementById(nm):(document.all?document.all(nm):nu
ll);
 if (element) {
   if(element.innerHTML) {
     element.innerHTML=value;
   }
   else notSupported( );
  }
 else NotSupported( );
}
```

http://cs-server.usc.edu:45678/examples/dom/domtest.html

Example 7: $.change() and $.html();



HTMLElement:innerHTML

value: Hello world

set to --Select the element

Paragraph

Form

Division

JavaScript w/ jQuery

```
$(function() {
          $("#sel").change(function() {
                    var selector = "#" + $("#sel").val();
                    $(selector).html($("input[name='t']").val());
          });
});
```

http://cs-server.usc.edu:45678/examples/jquery/dom/domtest.html

jQuery & AJAX

- jQuery has a series of functions which provide a common interface for AJAX, no matter what browser you are using.
- Most of the upper level AJAX functions have a common layout:
  - $.func(url[,params][,callback]), [ ] optional
    - url: string representing server target
    - params: names and values to send to server
    - callback: function executed on successful communication.

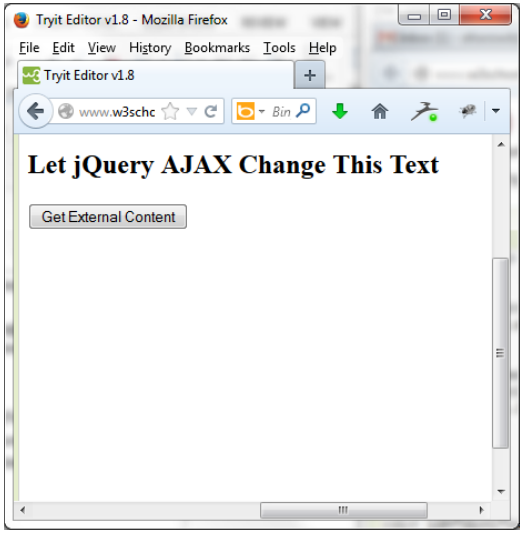
jQuery AJAX load method

- The load() method loads data from a server and puts the returned data into the selected element.
- $(*selector*).load(*URL,data,callback*);
- The selector is a usually a reference to div or span tag
- The required URL parameter specifies the URL you wish to load.
- The optional data parameter specifies a set of querystring key/value pairs to send along with the request.
- The optional callback parameter is the name of a function to be executed after the load() method is completed.
- For examples see

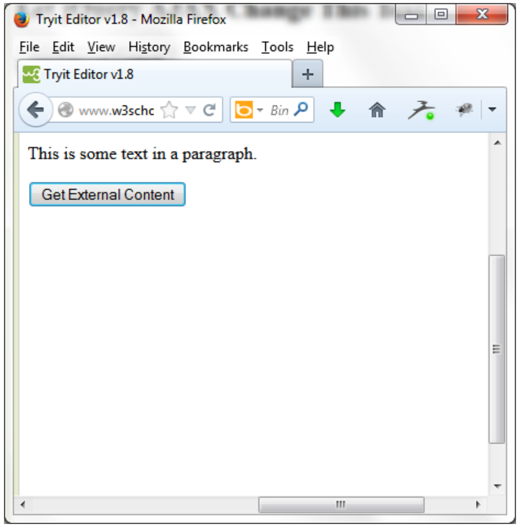
http://cs-server.usc.edu:45678/ajaxexamples/simple/simpleajaxexjquery.html

AJAX Example 1

```
<!DOCTYPE html><html><head>
<script
src="http://ajax.googleapis.com/ajax/
libs/jquery/1.10.2/jquery.min.js">
</script>
<script>
$(document).ready(function(){
  $("button").click(function(){
    $("#div1").load("demo_test.txt
#p1");
  });
});
</script>
</head><body>
<div id="div1"><h2>Let jQuery AJAX
Change This Text</h2></div>
<button>Get External Content</button>
</body></html>
```


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3schc
Bin
Get External Content

Let jQuery AJAX Change This Text

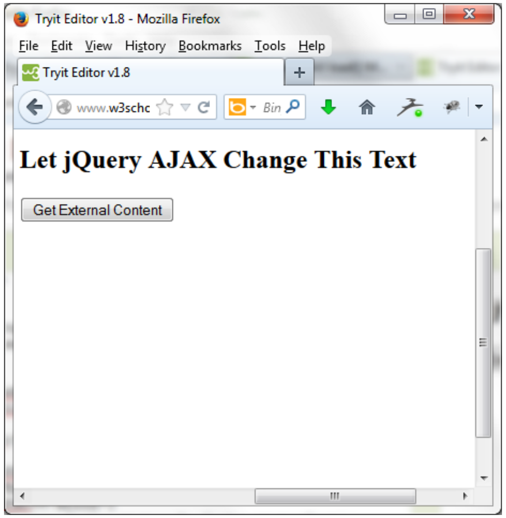

Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3schc
Bin
Get External Content

This is some text in a paragraph.

AJAX Example 2

```
<!DOCTYPE html><html><head>
<script
src="http://ajax.googleapis.com/ajax/li
bs/jquery/1.10.2/jquery.min.js">
</script><script>
$(document).ready(function(){
  $("button").click(function(){

$("#div1").load("demo_test.txt",functio
n(responseTxt,statusTxt,xhr){
      if(statusTxt=="success")
        alert("External content loaded
successfully!");
      if(statusTxt=="error")
        alert("Error: "+xhr.status+":
"+xhr.statusText);   });    });    });
</script></head><body>
<div id="div1"><h2>Let jQuery AJAX
Change This Text</h2></div>
<button>Get External
Content</button></body></html>
```


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3schc
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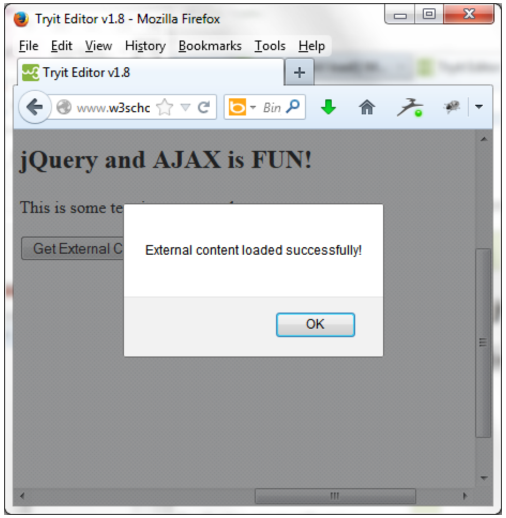
Get External Content

Let jQuery AJAX Change This Text


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3schc
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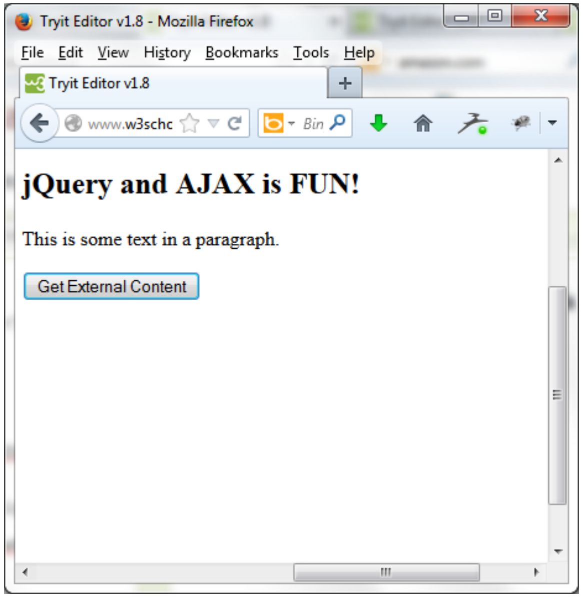
Get External C
OK

jQuery and AJAX is FUN!

This is some te

External content loaded successfully!


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3schc
Bin
Get External Content

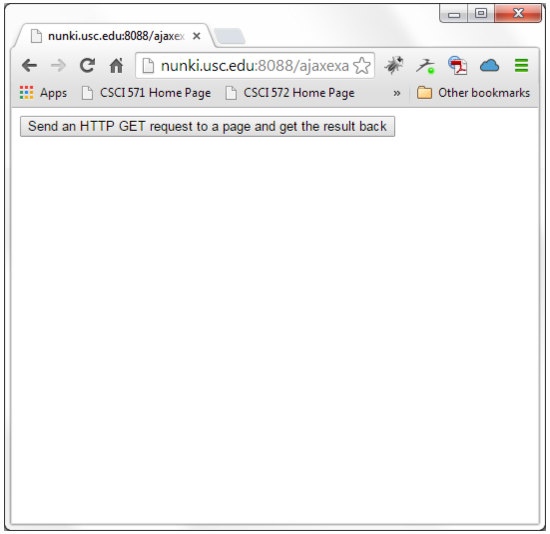
jQuery and AJAX is FUN!

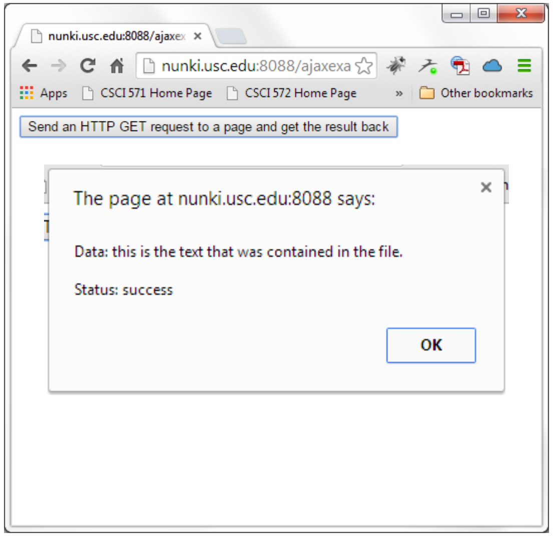
This is some text in a paragraph.

AJAX Example 3 – GET Method

```
<!DOCTYPE html><html><head>
<script
src="http://ajax.googleapis.com/ajax/li
bs/jquery/1.10.2/jquery.min.js">
</script><script>
$(document).ready(function(){
  $("button").click(function(){

$.get("demo_test3.test",function(data,s
tatus){
      alert("Data: " + data +
"\nStatus: " + status);
    });
  });
});
</script></head><body>
<button>Send an HTTP GET request to a
page and get the result back</button>
</body></html>
```


nunki.usc.edu:8088/ajaxe
nunki.usc.edu:8088/ajaxexa
Apps
CSCI 571 Home Page
CSCI 572 Home Page
Other bookmarks
Send an HTTP GET request to a page and get the result back


nunki.usc.edu:8088/ajaxe
nunki.usc.edu:8088/ajaxexa
Apps
CSCI 571 Home Page
CSCI 572 Home Page
Other bookmarks
Send an HTTP GET request to a page and get the result back

The page at nunki.usc.edu:8088 says:

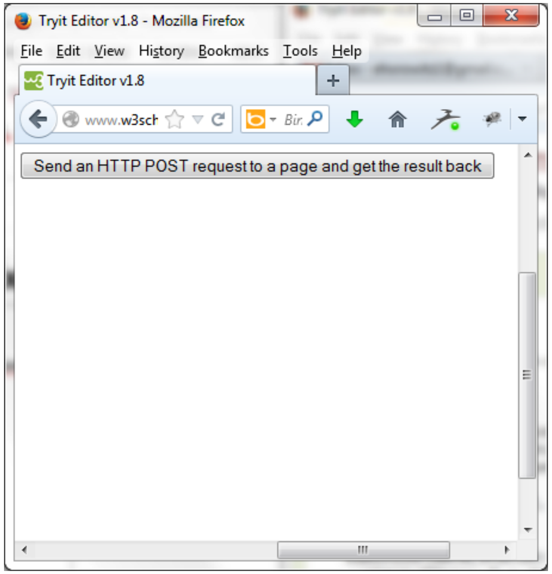
Data: this is the text that was contained in the file.

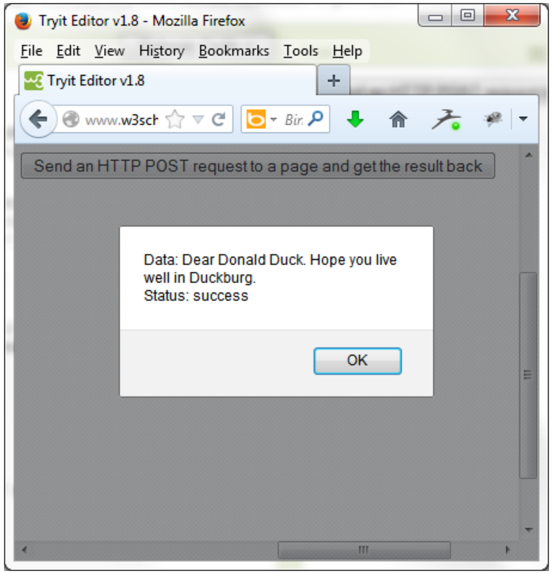
Status: success

The $.get() method requests data from the server with an HTTP GET request.
The required URL parameter specifies the URL you wish to request.
The optional callback parameter is the name of a function to be executed if the request succeeds.
The following example uses the $.get() method to retrieve data from a file on the server

AJAX Example 4 – POST Method

```
<!DOCTYPE html><html><head>
<script
src="http://ajax.googleapis.com/ajax
/libs/jquery/1.10.2/jquery.min.js">
</script><script>
$(document).ready(function(){
  $("button").click(function(){
    $.post("demo_test_post.php",
    {
      name:"Donald Duck",
      city:"Duckburg"
    },
    function(data,status){
      alert("Data: " + data +
"\nStatus: " + status);
    });
  });
});
</script></head><body>
<button>Send an HTTP POST request to
a page and get the result
back</button>
</body></html>
```


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3sch
Send an HTTP POST request to a page and get the result back


Tryit Editor v1.8 - Mozilla Firefox
File Edit View History Bookmarks Tools Help
Tryit Editor v1.8
www.w3sch
Send an HTTP POST request to a page and get the result back

Data: Dear Donald Duck. Hope you live
well in Duckburg.
Status: success

Summary jQuery AJAX Functions

- $.func(url[,params][,callback])
  - $.get
  - $.getJSON
  - $.getIfModified
  - $.getScript
  - $.post
- $(selector), inject HTML
  - load
  - loadIfModified
- $(selector), ajaxSetup alts
  - ajaxComplete
  - ajaxError
  - ajaxSend
  - ajaxStart
  - ajaxStop
  - ajaxSuccess

- $.ajax, $.ajaxSetup
  - async
  - beforeSend
  - complete
  - contentType
  - data
  - dataType
  - error
  - global
  - ifModified
  - processData
  - success
  - timeout
  - type
  - url

jQuery Usage Example (1)

- jQuery way of a mouseover event that shows a submenu when menu is selected:

```
$( ‘#menu’ ).mouseover(function() { // Anonymous function
     $( ‘#submenu’ ).show();
});
```

jQuery Usage Example (2)

- Stopping a normal event action: Suppose we want to stop the action of following a URL when a link is clicked. The action is part of the event object. We can reference the event object and call .preventDefault();

```
$( ‘#menu’ ).click(function(evt){
     //JS code here
     evt.preventDefault();
}
```

jQuery Usage Example (3)

- Selecting all form elements of a certain type:

  $(‘:text’) It selects all text fields.

- Use with :input (all form elements), :password, :radio, :checkbox, :submit, :image, :reset, :button, :file, :hidden
- Set the value of a form element

  Var fieldvalue = $(‘#total’).val(Yourvalue);

jQuery Usage Example (4)

- Determining if checkbox is checked

```
If ($( ‘#total’ ).attr( ‘checked’ )) {
        //Do whatever you want if box is checked
    }
    else {
        //Do whatever you want if box is not checked
    }
```

jQuery Usage Example (5)

- Form Events such as submit:

```
        $(document).ready(function() {
                $( ‘#signup’ ).submit(function() {
                        if ($( ‘#username’ ).val() == ‘’ ) {
                                alert ( ‘Please supply name to name
field’ );
                                return false;
                        }
                })
        });
```

jQuery Usage Example (6)

- Focus Example: Auto erases default text in a field when it gets the focus

```
    <input name=“username” type=“text” id=“username”
value=“Please type your user name”>
    $( ‘#username’ ).focus(function() {
        var field = $(this);
        if(field.val()==field.attr( ‘defaultValue’ )) {
            field.val( ‘’ );
        }
    });
```

jQuery Usage Example (7)

- Click: If any radio button is clicked

```
$( ‘:radio’ ).click(function() {
     //do stuff
});
```

- Add focus to the first element of the form:

```
$( ‘username’ ).focus;
```

jQuery Snippet that Detects Browser Width

```
<html><head><link rel="stylesheet" href="style.css" type="text/css" />
<script type="text/javascript" src="http://ajax.googleapis.com/ajax/libs/jquery/1.4.4/jquery.min.js">
</script></head><body>
<h2>Text that will be red if screen width is less than 800px, mobile.css is used,
and text will be green if screen width is greater than 800px, style.css is used, and black if no
style sheet is specified</h2>
<div id="browserInfo" style="padding:8px; border:1px solid blue; width:300px;"></div>
<script type="text/javascript">
        $(document).ready(function(){  resizeWindow();
                $(window).bind('resize', resizeWindow);
                getBrowserInfo();   });
function resizeWindow(){$('#browserInfo').text('Browser (Width : ' + $(window).width() +
 ' , Height :' + $(window).height() + ' )');
                var newWindowWidth = $(window).width();
          // If window width is below 800px, switch to the mobile stylesheet
if(newWindowWidth < 800){ $("link[rel=stylesheet]").attr({href : "mobile.css"});  }
                // Else if width is above 800px, switch to the large stylesheet
                else //if(newWindowWidth >= 800)
                {  $("link[rel=stylesheet]").attr({href : "style.css"});
                }    }
function getBrowserInfo(){
                $('#browserInfo').text('Browser (Width : ' + $(window).width() +
 ' , Height :' + $(window).height() + ' )');   }
</script><noscript></body></html>
```

Is jQuery Worth It?

Yes	No
Good use of the jQuery library will make it worthwhile in your code; will make JavaScript more readable and understandable	Bad use of jQuery library adds extra overhead. Why even add jQuery? Remember you need to add: `<script src="//ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js"></script>`
If web application requires a lot of DOM manipulation, hiding elements, fading out elements, etc	Doesn’t even need DOM manipulation; could be done with CSS
Cross Browser Support – no need extra code for browser compatibility	Audience only uses Firefox – no need cross browser support only

jQuery

- It’s a useful library **when used wisely.**
- It will allow you to write JavaScript differently
  - **Write less, do more.**
- Remember: jQuery is just JavaScript
  - What you can do with jQuery, **you can always do without jQuery** but with ***more code.***

jQuery Resources

- Project website
  - http://www.jquery.com
- Learning Center
  - http://docs.jquery.com/Tutorials
  - http://www.learningjquery.com/
  - http://15daysofjquery.com/
- Support
  - http://docs.jquery.com/Discussion
  - http://www.nabble.com/JQuery-f15494.html mailing list archive
  - irc.freenode.net irc room: #jquery
- Documentation
  - http://docs.jquery.com/Main_Page
  - http://www.visualjquery.com
  - http://jquery.bassistance.de/api-browser/
- jQuery Success Stories
  - http://docs.jquery.com/Sites_Using_jQuery