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jQuery – 'The Write Less Do More' Javascript Library

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Agenda

- What is jQuery and why you need it
- Javascript: Advanced Basics
- DOM Traversal and Manipulation Using jQuery
- jQuery's Event Handling Model
- Ajax and jQuery
- Special Effects Using jQuery and Plugins
- jQuery Utility Functions

"The DOM is a Mess"

- DOM traversal without jQuery
 - getElementById
 - getElementsByName
 - getElementsByTagName
 - getElementsByClassName
 - querySelectorAll
- Verbose
- Different/buggy across browsers

getElementById

- ⚠ IE and older versions of Opera returning elements with a name == id

getElementsByTagName

- ❗ “*” returns no elements on <object> elements in IE 7
- ❗ .length gets overwritten in IE if an element with an ID="length" is found

getElementsByTagName

- Available in Firefox 3, Safari 3, Opera 9.6
- Opera doesn't match a second-specified class (e.g. `class="a b"`, `b` isn't found)

querySelectorAll

- 📌 Relatively very new: In Firefox 3.1, Safari 3.1, Opera 10, IE 8
- 📌 Doesn't exist in quirks mode, in IE 8
- 📌 Safari 3.2 can't match uppercase characters in quirks mode
- 📌 #id doesn't match in XML documents

Enter jQuery

- Fast, lightweight, cross-browser Javascript library
 - ~19 kb when minified+gzipped
 - Excellent support for most browsers – including IE6, IE7, IE8, FF2, FF3, Safari, Chrome and Opera
- Open source and part of official Microsoft Ajax stack
 - Started as a one-person effort in Jan 2006 John Resig. Now a team of contributors runs it.

Browser Support Grid

	IE	Firefox	Safari	Opera	Chrome
Previous	6.0	2.0	3.0	9.5	
Current	7.0	3.0	3.2	9.6	1.0
Next	8.0	3.1	4.0	10.0	2.0

Some advanced basics

- Anonymous functions
- Functions as objects
- “Length” of a Function
- JSON

Demo: Javascript – Advanced Basics

\$ - one function to bind them all

- \$ is an alias for jQuery function
- It accepts a selector string
- It returns a “wrapper”
 - A special Javascript object
 - Contains an array of elements that match selector
 - Has a number of useful methods that act on a group of elements

A selector can be

- #id, element
- .class
- And others (we'll see more shortly)
- You can do things with values returned by selectors
 - Hide/Show
 - Change html
 - Change attributes
 - Animate

Demo: Hello World

Selector Syntax – Basic Filters

- :first, :last
- :not(selector)
- :even, :odd
- :eq(index), :gt(index), :lt(index)
- :header
- :animated

Selector Syntax - Content Filters

- :contains
- :empty
- :has(selector)
- :parent

Selector Syntax – Attribute Filters

- [attribute]
- [attribute=value]
- [attribute!=value]
- [attribute^=value]
- [attribute\$=value]
- [attribute*=value]
- [attributeFilter1][attributeFilter2][attributeFilterN]

Selector Syntax - Heirarchy

- Ancestor Descendant
- Parent > Child
- Prev + Next
- Prev ~ Siblings

Selector Syntax - Child Filters

- :nth-child(index/even/odd/equation)
- :first-child
- :last-child
- :only-child

Selector Syntax – Forms

- :input
- :text, :password
- :radio, :checkbox
- :submit, :reset, :button
- :image
- :file
- :hidden

Selector Syntax: Form Filters

 :enabled

 :disabled

 :checked

 :selected

Demo:

1. More Selectors

2. Fun with Checkboxes

Event handling using jQuery

- jQuery “unifies” event handling models across browsers
- Allows you to cleanly separate the design of a page from its behavior

Event handling using jQuery

- `$(document).ready(fn)` binds a function to be executed whenever DOM is ready
 - Can have multiple `$(document).ready`
 - Executed in the order they were added
- `bind(type, [data], fn)` associates events with elements. `unbind(type, fn)` does the opposite
- `one(type, [data], fn)` same as `bind` but executes the handler only once
- Shortcuts exist for common events like `click`

Ajax and jQuery

- Several ways to Ajax depending on scenario
- `.load(url, [data], [callback])`
 - loads html from a remote url and injects it into dom
 - Very easy to use

Ajax and jQuery

- `jQuery.get(url, [data], [callback], [type])`
 - allows you to specify key value pairs that are sent using GET
 - type sends that correct data type to your callback and can be one of xml, html, script, json, jsonp or text
- `jQuery.post(url, [data], [callback], [type])`
 - uses POST to send data to the url

Ajax and jQuery

- `jQuerygetJSON(url, [data], [callback])`
 - Specialized for loading JSON data across domains
 - Used with jsonp callback
- `jQuerygetScript(url, [callback])`
 - Loads and executes scripts
 - Useful for “delay-loading” scripts

Ajax and jQuery

jQuery.ajax(options)

- Gives you more control over your ajax calls
- Can monitor and ajax call using events
 - ajaxStart
 - ajaxSend, ajaxSuccess, ajaxError, ajaxComplete
 - ajaxStop
- Can use jQuery.ajaxSetup(options) to specify options for jQuery.ajax once

Demo: jQuery and AJAX

Effects Using jQuery and Plugins

- jQuery has built-in functions that allows you to hide/show/animate elements
 - `show()` `.hide()`
 - `slideDown(speed, [callback])` `slideUp(speed, [callback])`
 - `fadeIn(speed, [callback])`, `fadeOut(speed, [callback])`, `fadeTo(speed, [callback])`
- `animate` allows you a fine-grained control over animations

Effects Using jQuery and Plugins

- jQuery is extensible using a plugin model
 - Hundreds of plugins exist
 - Writing one yourself is easy too!
- Plugins can
 - Enhance UIs (auto-complete, calendars, sort tables etc.)
 - Provide custom animations (advanced sliding, fading)
 - Provide utility functions (cookie handling, JSON handling)

Demo: Animations and Plugins

jQuery Utility Functions

- Browser detection
 - `jQuery.browser`, `jQuery.browser.version`
- Iterator
 - `jQuery.each(object, callback)`
- String handling
 - `jQuery.trim(str)`
- Array handling
 - `jQuery.grep(array, callback, [invert])`
 - `jQuery.map(array, callback)`

jQuery and Microsoft

- jQuery now part of official ASP.NET stack
- Can download a 'development' version that adds intellisense to VS
- Ships with ASP.NET MVC
- Will possibly ship with future versions of Visual Studio

Demo: jQuery and Visual Studio

Summary

- Cross browser Javascript programming tedious
- jQuery makes it easy to write compact, reliable cross-browser code
- Robust support for AJAX
- 100s of 3rd party plugins
- Vibrant community

Resources

Online:

- Documentation: docs.jquery.com
- Blogs: learningjquery.com, ejohn.org
- deepakg.com/prog/

Offline

- Manning Press: jQuery In Action
- Manning Press: Secrets of Javascript Ninjas
- Packt Publishing: Learning jQuery
- Packt Publishing: jQuery Reference Guide

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Questions?