

Choosing a JavaScript library

Intro

We need a library to provide common, reusable functionality and save us from writing lots of repetitive code. Libraries also provide a layer of abstraction, thus hiding browser differences.

We do not want to write one ourselves because it saves time to use an existing one, plus these libraries are more likely to contain fewer bugs because of the significant user base.

Because of the multitude of Javascript libraries, we started our search by selecting only the most-used, most-popular and up-to-date Ajax-enabled libraries.

The contestants

	Latest (non-beta) release	Size	the good	the bad	Licence	Browser compatibility
Dojo ¹	1.0.2 (12/15/07)	50kb+	<ul style="list-style-type: none">• OOP• CSS3• buildsystem with compression• unittest• widgets (Dijit)• cross site Ajax²• IFrame IO³	<ul style="list-style-type: none">• buggy• ugly code• big	modified BSD or Academic Free 2.1	Safari 3.0.x Opera 9.0+ IE 6.0+ FF1.5+ Konqueror 3.5+
Prototype ⁴	1.6.0.2 (01/25/08)	~120kb	<ul style="list-style-type: none">• support• Script.aculo.us⁵ for UI• OOP	<ul style="list-style-type: none">• poor documentation• extends Object.prototype (here⁶ and here⁷)	MIT prototype	IE 6.0+ FF1.0+/ Mozilla 1.7+ Safari 1.2+
jQuery ⁸	1.2.2 (01/14/08)	~26kb	<ul style="list-style-type: none">• documentation only• easy to use• fast• CSS 1-3, basic xpath• CSS selector	<ul style="list-style-type: none">• selector +effects +some-XHR• only for simple and	MIT or GPL	FF1.5+ IE 6+ Safari 2.0.2+ Opera 9+

			<ul style="list-style-type: none"> • lightweight • chainable • plugins • namespaced • jQuery UI for widgets • cross site Ajax • compatible with others (through jQuery.noConflict()) 	small projects		
Ext JS ⁹	2.0.1 (01/23/08)	500kb	<ul style="list-style-type: none"> • support • good collection of widgets • UI-centric (+ or -) • on top of jquery/yui/prototype or standalone • fast 	<ul style="list-style-type: none"> • big¹⁰ 	LGPL 3.0	IE 6+ FF1.5+ Safari 2+ Opera 9+
Yahoo UI Library ¹¹	2.4.1 (12/19/07)	29kb+	<ul style="list-style-type: none"> • history manager • documentation • modular • event driven • namespaced • CSS framework • Skins • YUI Loader¹² 	<ul style="list-style-type: none"> • slow • big • complex • verbose 	BSD	IE 6+ FF1.5+ Safari 2+ Opera 9+
MooTools ¹³	1.1 (05/07/07)	9kb+	<ul style="list-style-type: none"> • lightweight • fast • easy • modular 	<ul style="list-style-type: none"> • extends many of js 	MIT	IE 6+ FF Safari Opera

			<ul style="list-style-type: none"> Object Oriented chainable dynamic loading for images, css and javascript files 	built-in objects		Camino
qooxdoo ¹⁴	0.7.3 (01/14/08)		<ul style="list-style-type: none"> buildsystem for optimazing and packaging namespaced event binding cross-browser back button support bookmarkability AOP IFrame IO¹⁵ 	non-CSS-based styling	LGPL or EPL	IE 5.5+ FF 1.0+/ Mozilla 1.3+ Opera 8+ Safari 3
GWT ¹⁶	1.4.61 (11/03/07)		<ul style="list-style-type: none"> browser history JUnit i18n Java compiled to javascript 		Apache 2.0	IE Firefox Mozilla Safari Opera

The pros and cons are (possibly biased) opinions collected from blogs and fora, or features promoted on the homepages.

Disqualified:

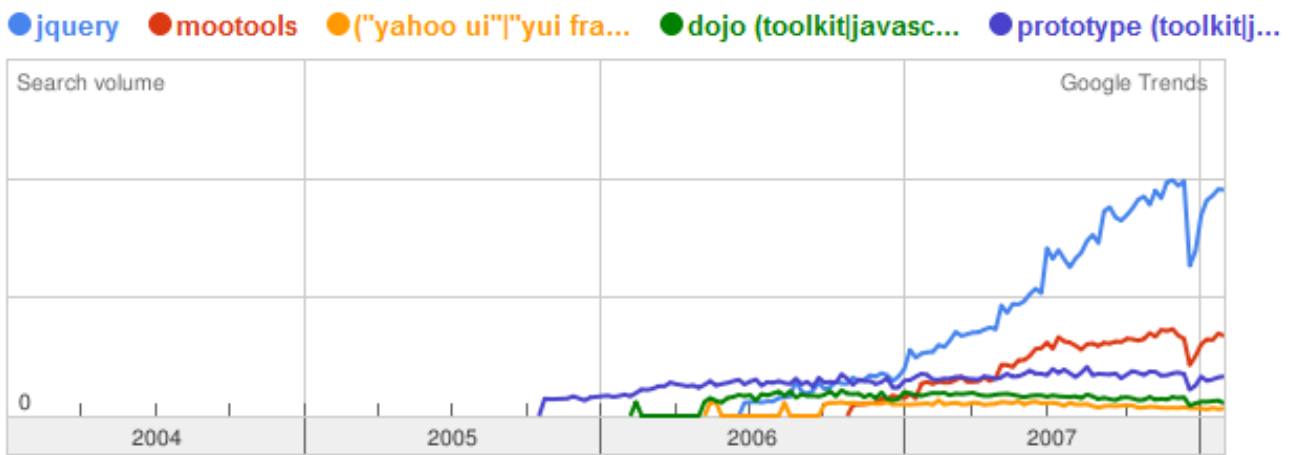
- [MochiKit](#)¹⁷: seems to be deserted
- [Rico](#)¹⁸: dying community, low support

The requirements

1. base for client-side restletport

2. cross-browser issues:
 - syntax
 - DOM model
 - event model
3. dynamic loading of js-files
4. event binding
5. unit testing
6. (widgets, effects)
7. integration of external widgets (Simile)
8. size, stability, maturity
9. compression
10. i18n, L10n

Popularity (by number of searches)



The other frameworks (qooxdoo, Rico, Ext js) didn't have enough search volume to show up on the graph. The seeming extreme popularity of Prototype is caused by the added searches for the prototype object of JavaScript.

Language

	Custom event-binding	OO	namespaced API	Namespacing
Prototype	✓ 19	✓ 20	✗	✓ 21
Dojo	✓ 22	✓ 23	✓	✓ 24
jQuery	✓ 25	✗	✓	✓ 26
MooTools	✓ 27	✓ 28	✗	✗
ExtJS	✓ 29	✗	✓	✓ 30

qooxdoo		31		32			33
YUI		34		35			36

XmlHttpRequest

All libraries contain specialized methods for Ajax calls, with support for GET and POST requests, parameters and callback functions.

XHR API	custom HTTP request headers	Callback	Error handling	Cross-site scripting	IFrame IO	Synchronous
Prototype ³⁷						
Dojo ³⁸ * ³⁹						40
jQuery ⁴¹						
MooTools ⁴²						
ExtJS ⁴³					44	45
qooxdoo ⁴⁶						47
YUI ⁴⁸				49		50

GWT wrappers

GWT + ExtJS: [gwt-ext](#)⁵¹, [MyGWT](#)⁵²

GWT + Dojo: [Tatami](#)⁵³

GWT + Script.aculo.us: [Script.aculo.us integration](#)⁵⁴

Java + qooxdoo: [QWT](#)⁵⁵

[JavaScript Native Interface \(JSNI\)](#)⁵⁶

Test 1: GWT Integration

- jQuery: [Google Maps the jQuery Way](#)⁵⁷
- YUI: [Google Maps + Yahoo UI Lib \(YUI\) = Mashup fun](#)⁵⁸

51. <http://code.google.com/p/gwt-ext/>

52. <http://mygwt.net/>

53. <http://code.google.com/p/tatami/>

54. <http://gwt.components.googlepages.com/script.aculo.usintegration>

55. <http://qooxdoo.org/documentation/contrib/contributions/qwt/about>

56. <http://code.google.com/webtoolkit/documentation/com.google.gwt.doc.DeveloperGuide.JavaScriptNativeInterface.html>

- qooxdoo: [Google Maps widget](#)⁵⁹
- ExtJS: [Adding a Google Map to a Tab or Window](#)⁶⁰
- MooTools: [GMapsOverlay](#)⁶¹, [google-maps-lightbox](#)⁶²
- Prototype: [gplotter](#)⁶³

Test 2: Simile

- Dojo: [Dojo and TimeLine](#)⁶⁴
- jQuery: [How to make Timeline not conflict with jQuery](#)⁶⁵
- GWT: [gwtsimiletimeline](#)⁶⁶
- Prototype: [Timeline](#)⁶⁷

Test 3: i18n support

- Dojo: has a specific i18n module (*⁶⁸).
- jQuery: no built-in i18n support. Localization is available for the datepicker-widget
- Prototype: no built-in i18n support.
- ExtJS: localization support (*⁶⁹, *⁷⁰).
- YUI: no built-in i18n support, there is however an internationalization plugin (*⁷¹).
- MooTools: no built-in i18n support.
- qooxdoo: i18n and L10n are fully supported (*⁷²).
- GWT: internationalization support (*⁷³).

Test 4: Unit test

- qooxdoo: [testrunner](#)⁷⁴
- Prototype: there's a test framework that can be extended for custom unit tests (*⁷⁵).
- jQuery: internal test framework
- Dojo: has a unit testing harness, [D.O.H.](#)⁷⁶
- MooTools: no unit testing
- Ext JS: no unit testing (*⁷⁷, *⁷⁸)
- YUI: [YUI Test](#)⁷⁹
- GWT: [JUnit integration](#)⁸⁰

Standalone js unit test tools:

- [Crosscheck](#)⁸¹
- [Testcase](#)⁸² (Prototype-based)
- [Selenium](#)⁸³
- [JUnit](#)⁸⁴

Test 5: Building custom widget

jQuery: [Writing your own plugins](#)⁸⁵

Dojo: [Creating new Dojo Widget](#)⁸⁶, [Dojo Custom Widget Tutorial](#)⁸⁷, [Create a Custom Javascript/AJAX Widget with Dojo](#)⁸⁸

ExtJS: [Writing Ext 2 Plugins](#)⁸⁹

Dojo, MooTools, jQuery, prototype: [Creating an AJAX Rating Widget](#)⁹⁰

The first 4 losers

Links

JavaScript Frameworks Compared

<http://www.zenperfect.com/2007/08/11/javascript-frameworks-compared/>

Top 5 javascript frameworks

<http://www.whenpenguinsattack.com/2007/04/24/top-5-javascript-frameworks/>

JavaScript Libraries By Comparison

<http://javascriptant.com/articles/24/javascript-libraries-by-comparison>

Javascript Toolkit Comparison

<http://www.ja-sig.org/wiki/display/UP3/Javascript+Toolkit+Comparison>

Why I'm moving from jQuery to ExtJs

<http://coderseye.com/2007/why-im-moving-from-jquery-to-extjs.html>

2007 Ajax Tools Usage Survey Results

http://www.surveymonkey.com/sr.aspx?sm=fXLiKcnKID6cO5bRe961aBB6NCCWytRyY3rParAYmwa_3d

A Mootools Tutorial

<http://clientside.cnet.com/wiki/mootorial>

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<http://www.b-list.org/weblog/2007/jan/22/choosing-javascript-library/>

Prototype and jQuery: A code comparison

<http://ajaxian.com/archives/prototype-and-jquery-a-code-comparison>

Simplify Ajax development with jQuery

<http://www.ibm.com/developerworks/library/x-ajaxjquery.html>

85. <http://jquery.bassistance.de/jquery-getting-started.html#plug>

86. <http://www.alexatnet.com/node/14>

87. http://www.coachwei.com/blog/_archives/2007/3/28/2841519.html

88. http://taubler.com/articles/article_Create_a_Custom_Javascript_AJAX_Widget_with_Dojo?id=5

89. http://extjs.com/learn/Tutorial:Writing_Ext_2_Plugins

90. <http://www.progressive-coding.com/tutorial.php?id=6>