jQuery Mobile

Developing Web applications with interfaces suited for touch screens

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Why jQuery Mobile?

Mobile devices are becoming more prevalent. They use different:

- hardware
- operating systems
- development languages

This makes it difficult to manage multiple versions of mobile applications.

jQuery Mobile: 30,000 foot view

The jQuery mobile framework:

- takes the "write less, do more" mantra to the next level.
- helps you design a single, customized web application that'll work on all popular app-phone and tablet platforms
- provides tools to build dynamic touch interfaces, adapting gracefully to a range of mobile form factors

But first…

In the beginning…

...there was the browser.

And it was dull.

Then, Brendan Eich created JavaScript.

Netscape looked upon his creation and thought it was good.

Netscape looked upon his creation and thought it was good.

Those of us who had to use (and look at) it, though, weren't convinced.

Background: in the beginning...

Most of you know what JavaScript is. It's a client-side scripting language used for many things including:

- user input (form) validation, reducing server load
- special effects to amuse and annoy website visitors
- user interface design using asynchronous server calls

Background: in the beginning...

Code to find html elements, of the same class, on a web page looks like this:

```
document.getElementsByClassName('abc')
```

Not too bad, right?

Background: in the beginning...

Consider: Microsoft Internet Explorer doesn't support that function. You'd have to write special code:[1]

```
function getElementsByClassName(node, classname) {
    var a = [];
    var re = new RegExp('(^| )'+classname+'( |$)');
    var els = node.getElementsByTagName("*");
    for(var i=0,j=els.length; i<j; i++)
        if(re.test(els[i].className))a.push(els[i]);
    return a;
}
var tabs = document.getElementsByClassName(document.body,'tab');
```

[1] http://snook.ca/archives/javascript/your_favourite_1

Background: enter jQuery

jQuery is a cross-browser JavaScript library designed to simplify client-side scripting of HTML. Released in January 2006 at BarCamp NYC by John Resig, it's used by over 49% of the 10,000 most visited websites, making it the most popular JavaScript library in use today.[2]

[2] http://en.wikipedia.org/wiki/JQuery

Background: enter jQuery

jQuery's syntax is designed to make it easier to:

- navigate a document
- select DOM elements
- create animations
- handle events
- develop Ajax (Asynchronous JavaScript and XML) applications
- create jQuery plug-ins

Background: enter jQuery

To get it to work, include it in your html document:

```
<script src="http://code.jquery.com/jquery-1.7rc2.js"></script>
```

It's common to wait for the document to load:

```
$(document).ready(function() {
  // Your genius code here
});
```

What's with the dollar sign? $ is a substitution for the word jQuery: one or the other must precede the parentheses. The above could've been written: `jQuery(document).ready({});`

Of course this is very basic use.

Background: enter jQuery

Remember that JavaScript code?

```
document.getElementsByClassName('abc')
```

Here's what it looks like in jQuery:

```
$(".abc")
```

Applause? Anyone? jQuery looks pretty nice, right?

Background: enter jQuery

Okay, to be fair, jQuery's ('.class') selector works its magic by using JavaScript's getElementsByClassName() function.

But, not every browser supports that. With jQuery you write that one line of code and it works on any browser.*

*In theory. I've often said, "In computer science, it's all theory until it works." Something like that, anyway. I'm always misquoting me.

Enough about jQuery!

We're interested in developing mobile applications.

jQuery Mobile

Syntax is still jQuery:

```
$('div').live('tap', function(event){
  alert('You touched the element');
});
```

It's very easy to read. Knowing just a little jQuery, we can probably figure out what this function is for.

jQM: Setup

Setting up an application to use jQuery Mobile:

1. Set up your web page.

```
<!DOCTYPE html>
```

You're using HTML5, right? jQuery Mobile requires it.

jQM: Setup

Setting up an application to use jQuery Mobile:

1. Set up your web page.

```
<head>
  <title>Page Title</title>
  <meta name="viewport" content="width=device-width, initial-scale=1">
```

This meta tag tells the browser to render a mobile view scaled to the device's display width.

jQM: Setup

Setting up an application to use jQuery Mobile:

1. Set up your web page.

```
<head>
  <title>Page Title</title>
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link href="http://code.jquery.com/mobile/latest/jquery.mobile.min.css"
        rel="stylesheet" type="text/css" />
  <script type="text/javascript" src="http://code.jquery.com/
        jquery-1.6.4.min.js"></script>
  <script type="text/javascript" src="http://code.jquery.com/mobile/latest/
        jquery.mobile.min.js"></script>
</head>
```

Link to jQuery Mobile's stylesheet and include the jQuery and jQuery mobile libraries.

jQM: Syntax

So what does a jQuery Mobile html "page" look like?

Using the tag, you can create several mobile pages within one html file:

```
<div data-role="page1" id="first" data-theme="a"></div>

<div data-role="page2" id="second" data-add-back-btn="true" data-theme="b">
</div>
```

The id attributes allow links between mobile pages by using an anchor tag: `<a href="#first">Go to first page</a>`

jQM: Libraries

jQuery Mobile offers libraries for many touch-related components such as:

- dialog boxes
- buttons
- lists
- forms
- tool bars

jQM: Libraries

...and events such as:

- tap and tap hold (long touch)
- swipe, swipe left, and swipe right
- screen orientation changes
- scrolling
- virtual mouse clicks

jQM: Libraries

It also has some visual goodies:

- transition effects
- themes
  - online tool for customizing themes
- layout grids

jQM compatibility

Mobile browser support [edit]

Platform	Version	Native	PhoneGap	Opera Mobile			Opera Mini		Fennec		Ozone	Netfront
			0.9	8.5	8.65	9.5	10.0	4.0	5.0	1.0	1.1*	0.9	4.0
iOS	v2.2.1	B	A										
	v3.1.3, v3.2	A	A						A				
	v4.0	A	A						A				
Symbian S60	v3.1, v3.2	C		C	C		B	C	B			C	C
	v5.0	A	A	C	C		A	C	A				
Symbian UIQ	v3.0, v3.1				C							C	
	v3.2					C						C	
Symbian Platform	v.3.0	A											
BlackBerry OS	v4.5	C						C	C				
	v4.6, v4.7	C	C					C	B				
	v5.0	B	A					C	A				
	v6.0	A	A						A				
Android	v1.5, v1.6	A	A										
	v2.1	A	A										
	v2.2	A	A				A*		C*		A*		
Windows Mobile	v6.1	C		C	C	C	B	C	B				C
	v6.5.1	C		C	C	A	A	C	A				
	v7.0	A					A	C	A				
webOS	**1.4.1**	A	A										
bada	**1.0**	A											
Maemo	**5.0**	B					B			C	B*		
MeeGo	1.1*	A*					A*				A*		

Key:

- **A - High Quality.** A browser that's capable of, at minimum, utilizing media queries (a requirement for jQuery Mobile). These browsers will be actively tested against, but may not receive the full capabilities of jQuery Mobile.
- **B - Medium Quality.** A capable browser that doesn't have enough market share to warrant day-to-day testing. Bug fixes will still be applied to help these browsers.
- **C - Low Quality.** A browser that is not capable of utilizing media queries. They will not be provided any jQuery Mobile scripting or CSS (falling back to plain HTML and simple CSS).
- * - Upcoming browser. This browser is not yet released but is in alpha/beta testing.

Creating a basic application is straight-forward and easy.

I'll show you...

jQM: Example

Let's create a simple, two-page application with a pop-up dialog box.

Start with your header info:

```
<!DOCTYPE html>
<head>
  <title>Page Title</title>
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link href="http://code.jquery.com/mobile/latest/jquery.mobile.min.css"
  rel="stylesheet" type="text/css" />
  <script type="text/javascript" src="http://code.jquery.com/
  jquery-1.6.4.min.js"></script>
  <script type="text/javascript" src="http://code.jquery.com/mobile/latest/
  jquery.mobile.min.js"></script>
</head>
```

jQM: Example

Now, all in that same document...

create page one:

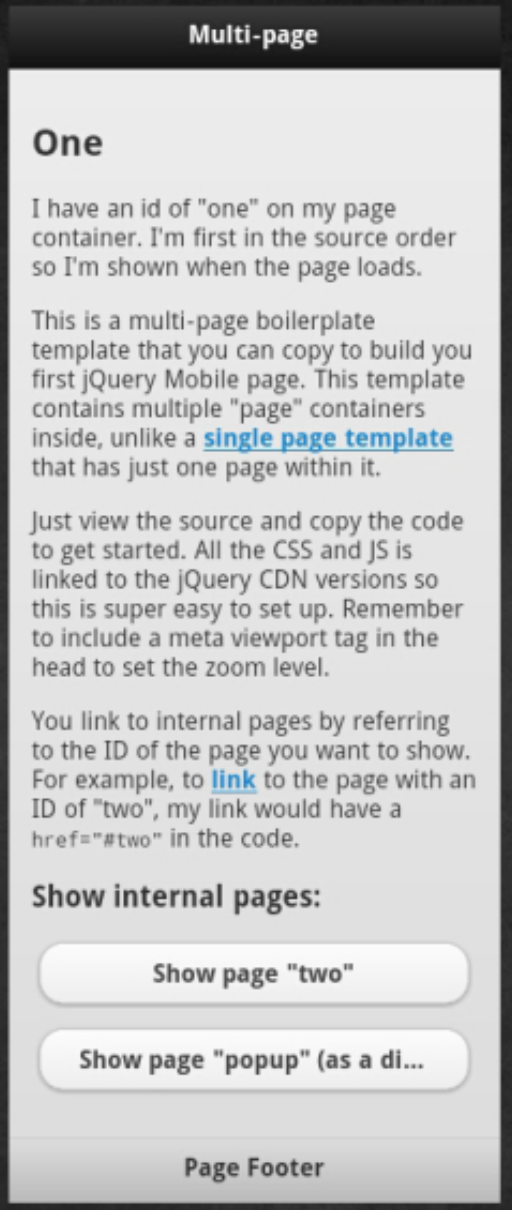
```
<div data-role="page" id="one">
    <div data-role="header">
        <h1>Multi-page</h1>
    </div>
    <div data-role="content" id="one">
        <h1>One</h1>
        <p>Some text...</p>
```

jQM: Example

Now, all in that same document...

add buttons for page two and the pop-up:

```
<div data-role="page" id="one">
    <div data-role="header">
        <h1>Multi-page</h1>
    </div>
    <div data-role="content" id="one">
        <h1>One</h1>
        <p>Some text...</p>
        <p><a href="#two" data-role="button">Show page "two"</a></p>
        <p><a href="#popup"data-role="button" data-rel="dialog" data-
            transition="pop">Show page "popup" (as a dialog)</a>
        </p>
    </div>
</div>
```



With extras, it'll look like this in a mobile browser.

jQM: Example

Now, all in that same document...

create page two:

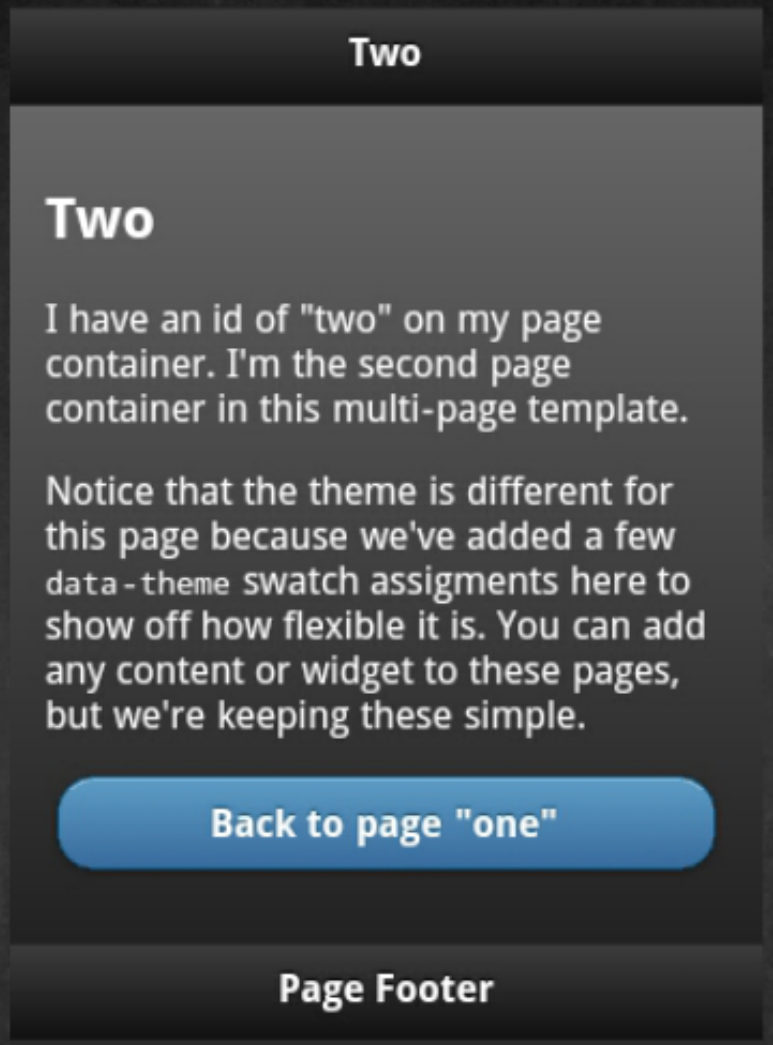
```
<div data-role="page" id="two" data-theme="a">
    <div data-role="header">
        <h1>Two</h1>
    </div>
    <div data-role="content" data-theme="a">
        <h2>Two</h2>
        <p>Some text...</p>
```

jQM: Example

Now, all in that same document...

add a button to go back to page one:

```
<div data-role="page" id="two" data-theme="a">
    <div data-role="header">
        <h1>Two</h1>
    </div>
    <div data-role="content" data-theme="a">
        <h2>Two</h2>
        <p>Some text...</p>
        <p><a href="#one" data-direction="reverse" data-role="button" data-
            theme="b">Back to page "one"</a>
        </p>
    </div>
</div>
```



With extras, it'll look like this in a mobile browser.

jQM: Example

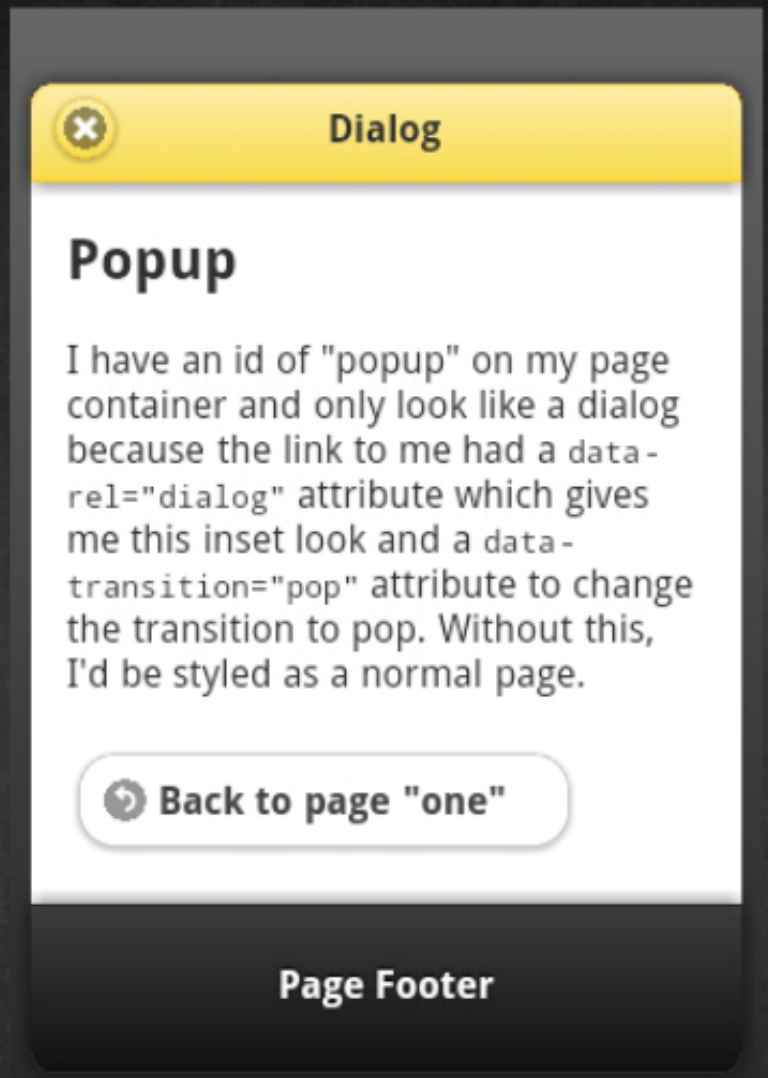
Now, all in that same document...
create the pop-up:

```
<div data-role="page" id="popup">
    <div data-role="header" data-theme="e">
        <h1>Dialog</h1>
    </div>
    <div data-role="content" data-theme="d">
        <h2>Popup</h2>
        <p>Some text...</p>
```

jQM: Example

Now, all in that same document...
add a "close" button (really a back button):

```
<div data-role="page" id="popup">
	<div data-role="header" data-theme="e">
		<h1>Dialog</h1>
	</div>
	<div data-role="content" data-theme="d">
		<h2>Popup</h2>
		<p>Some text...</p>
		<p><a href="#one" data-rel="back" data-role="button" data-
			inline="true" data-icon="back">Back to page "one"</a>
		</p>
	</div>
</div>
```



With extras, it'll look like this in a mobile browser.

jQM: Example

jQuery Mobile isn't perfect. In the screen shots, you can see it adds extra to the bottom of a small page. Also, I viewed these pages on my Samsung Galaxy S using a Mozilla-based browser and the Android operating system. I noticed some flaws.

jQM: Flaws in example

- Page one is long and doesn't all fit on one screen, so I had to scroll to access the buttons
- The button pushes are actually page transitions and the page always jumped to the top, after a button press, to execute the transition to another page.
- Closing the pop-up was very odd looking because, rather than disappear, it uses a transition that makes it get smaller as it fades into the background. It didn't look very good on my phone.

jQM: It ain't perfect

In addition to the flaws I mentioned, one of the big complaints is it doesn't look like a native application. It won't look like the other applications on your app phone.

jQM: It's still very good

However, it does have a few things going for it. It's:

- free--as in beer, speech, and of operating systems
- only a year old, but in its second release candidate
- built on jQuery, an already well-established JavaScript library, by the jQuery development team
- compatible with other mobile development frameworks such as PhoneGap[3]
- documentation uses jQM, so if you really want to see it in action, visit jquerymobile.com using your phone's browser.

[3]See Lukas Jeter's presentation from last semester:

http://www.cs.colorado.edu/~kena/classes/5448/s11/presentations/phonegap_jeter.pdf

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