

# Building a Simple Mobile-optimized Web App/Site Using the jQuery Mobile Framework

# pinboard.in tag

<http://pinboard.in/u:jasonclark/t:cil2013-mobile/>

# Agenda

- Learn what a mobile framework is.
- Understand the various technologies (HTML, CSS, JavaScript) and how they work together to build mobile Web apps/sites.
- Recognize the differences between native and web apps/sites.
- Explore jQuery Mobile basics.
- Acquire best practices in mobile Web development.
- Create an opportunity to continue to work with us after the webinar to demonstrate what you learned.
- Gain access after the webinar to a free Web server so you can see your mobile Web app/site live.

# Quick Poll

**Does your library have:**



- ☒ Mobile-optimized Website
- ☒ Native App (iOS, Android etc.)
- ☒ Nothing yet, but considering an app
- ☒ Nothing yet, but considering a website.
- ☒ No plans; it is too expensive/complex!

**A framework resembles scaffolding. It is a temporary platform used as a supportive guide to help build something. Mobile frameworks work similarly in that they provide libraries etc. that allow one to build something quickly.**



# Mobile Frameworks Comparison Chart

Looking for the right mobile framework? Compare all major mobile frameworks and choose

Framework	Platform (Rendering Engine)																		
	iOS (Webkit)	Android (Webkit)	Windows Mobile (Trident)	Windows Phone (Trident)	Blackberry OS (Webkit)	Symbian (Webkit/Gecko)	MeeGo (Gecko)												
Adobe Flex*	✓	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗	✗	✗	✗
Appcelerator Titanium Mobile*	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✓	✗	✓
CNET iPhone UI*	✓	✓	✗	✗	✓	✗	✓	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗	✗
Corona*	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗
GWT mobile webkit + gwt mobile ui*	✓	✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✓	✓	✗	✗	✗	✓	✗	✗
iPhone Universal*	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗
iUI*	✓	✓	✗	✗	✓	✗	✓	✗	✓	✓	✗	✓	✓	✗	✗	✗	✗	✗	✗
Jo HTML5 Mobile App Framework*	✓	✓	✗	✗	✗	✓	✗	✗	✓	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗

Platform

What platforms must be supported by the framework?

☐ iOS
 ☐ Android
 ☐ Windows Mobile
 ☐ Windows Phone
 ☐ Blackberry OS
 ☐ Symbian
 ☐ MeeGo
 ☐ Maemo
 ☐ WebOS
 ☐ Bada
 ☐ Java ME

1 2 3 4 5 6 7 Next
 [Uncheck all](#)

# Native Apps vs. Web/Browser Apps

Issues	Native apps	Web apps
Internet access	Not required	Required, except for apps written in HTML5 (offline capabilities)
Shareable content (Twitter etc.)	Only if it is built in to the app	Web links can be shared. Social API's allow 1-click posting
Access to hardware sensors	Yes: camera, gyroscope, microphone, compass, accelerometer, GPS	Access thru browser is limited. Geolocation works!
Development	Build app for target platform (Android, iOS [Objective-C] etc.)	Write/publish once using standard Web technologies, view it anywhere with URL. Speedy debugging and development.
Distribution	Most app stores require approval.	No hassles.

# jQuery Mobile is ...

a unified, HTML5-based user interface system  
for all popular mobile device platforms.



# jQuery Mobile is well-documented and there are great demos to get you started



A Touch-Optimized Web Framework for  
Smartphones & Tablets

**Welcome.** Browse the jQuery Mobile components and learn how to make rich, accessible, touch-friendly websites and apps.

## Overview

[Intro to jQuery Mobile](#)

[Features](#)

[Accessibility](#)

[Supported platforms](#)

## Components

[Pages & dialogs](#)

[Toolbars](#)

[Buttons](#)

[Content formatting](#)

[Form elements](#)

[List views](#)

## API

[Configuring defaults](#)

[Events](#)

[Methods & Utilities](#)

[Responsive Layout](#)

[Theme framework](#)

# Mobile Development - Demos

## **Demos:**

Responsive Design Template (custom)

[www.lib.montana.edu/~jason/files/responsive-design/](http://www.lib.montana.edu/~jason/files/responsive-design/)

Mobile Template (jQuery Mobile)

[www.lib.montana.edu/~jason/files/touch-jquery/](http://www.lib.montana.edu/~jason/files/touch-jquery/)

## **Code Samples and Downloads:**

[www.lib.montana.edu/~jason/files.php](http://www.lib.montana.edu/~jason/files.php)

# Your Live Site

To test your work use this URL, but change it to your user number.

Example: <http://marcomponline.com/chadtest/Class/cil1/jquery-mobile-template/index.html>

Getting Started!  
Let's build something.

Handout: <http://goo.gl/xMGp0>

# Rapid Prototyping for jQuery Mobile

The screenshot displays the Codiqa web-based rapid prototyping tool. The interface includes a top navigation bar with the Codiqa logo, user information (Hi, Chad!), and links for 'My account' and 'Log out'. Below this is a status bar showing 'Last saved: just now' and controls for 'Theme', 'Device Size', 'Rotate Device', 'Design', and 'Preview'.

On the left, a sidebar contains two main sections: 'PAGES' and 'COMPONENTS'. The 'PAGES' section lists 'Home' (selected), 'News', 'Locations', 'Contact', 'Articles', 'Books', and 'Guides', with a 'New page' button. The 'COMPONENTS' section provides a library of UI elements categorized by type: Buttons (Button, Text Link, Map), Text (Text), Images (Image), Form Controls (Form Control, Text Input, Text Area), and Interactive Elements (Toggle Switch, Slider, Select Menu, Submit).

The central workspace features a grid background with a mobile device preview. The preview shows a prototype for 'SPC Libraries' with a blue-themed interface. It includes a top navigation bar with 'Home', 'News', 'Locations', and 'Contact' buttons. Below this is a search bar with a magnifying glass icon and the text 'Find Articles'. Further down are buttons for 'Find Books', 'Research Tools', 'Ask-a-Librarian', and 'Feedback'. A blue footer bar at the bottom is labeled 'Footer'.

On the right, a 'BUTTON' configuration panel is open, showing settings for the selected 'Find Articles' button. The settings include: 'Text' (Find Articles), 'Link to' (Articles), 'Transition' (Fade), 'Icon' (Search), 'Theme' (Default), 'Inline' (No), 'Reverse Transition' (No), and 'Back in history' (No).

Try it at <http://codiqa.com/>



# Exercise

- Pick a web site
- Define primary mobile actions
- Choose mobile entry points (links)
- What do library patrons want to do with library services in the mobile setting?

functional  
essence

necessary primary essential

core

simple



**CatSearch**[Advanced Search](#) | [About CatSearch](#) | [Feedback](#)**SEARCH****Find**

[Books \(Library Catalog\)](#)  
[Articles & Research Databases](#)  
[Journals \(Journ@List\)](#)  
[Digital Collections](#)  
[+ more...](#)

**Course Materials**

[Reserves](#)  
[Desire2Learn](#)  
[Library 121](#)  
[Instruction Services](#)  
[Guides | Tutorials](#)

**Spotlight**

**Late Night  
at the  
Library:**  
Extended Hours

**Services**

[Request It!](#)  
[Interlibrary Loan \(ILL\)](#)  
[Renew Books](#)  
[Schedule Group Room](#)  
[+ more...](#)

**Help**

[Library FAQ](#)  
[Research Assistance](#)  
[Borrowing from MSU Library](#)  
[Library Accounts & Passwords](#)  
[+ more...](#)

**About Us**

[Staff Directory](#)  
[Give to the Library](#)  
[Library Collections](#)  
[Site Search](#)  
[+ more...](#)

**News & Events****Today's Hours**

- 3/22 Free Workshop: Citing Sources Properly
- 3/14 Free Workshop: Exploring Wikipedia
- 4/12 Distinctive Dialogues
- Gothic & Horror in Fiction & Film

[More News](#)[More Hours](#)



## MSU Library (Mobile)

**Search**



**Databases**



**Hours**



**Ask a Librarian**



**About**



**Where**



Home



Search



Ask



Full site

Inspiration, Discovery, Knowledge



**CatSearch**

Search for articles, journals, books and more

Advanced Search

SEARCH

## FIND

Find research materials, including articles, books, databases, journals, and course reserves

## REQUEST

Request resources and services, including group study rooms, laptops, documents, and books

## INTERACT

Learn about the library and meet with us for research assistance, writing help, and tech support

Events

Hours

Twitter

10/15 Library Workshop: Google Search Secrets

10/16 Library Workshop: Word 2010 Tips & Tricks

10/23 Library Workshop: Keyboard Shortcuts: Let your f

Database trial: IBISWorld Industry Research Reports



# Small Screen Rendering (260 px) using the Web Developer add-on in Firefox

## Desktop

**SPC** M.M. Bennett Libraries  
St. Petersburg College classic view

Download SPC Library Toolbar

Home Mobile Text-Only Databases A-Z or by Subject Journals A-Z My Account

Library Search Article Search Subject Guides Databases & Journals

Enter Search Terms Go >>

Advanced Library Search | What am I searching?

**I Need to Find**

- Books and More
- Articles
- Journals A-Z
- Citation Help
- Subject Guides
- Course Reserves

**SPC Links**

- ANGEL
- Contact Staff/Faculty
- Critical Thinking Gateway
- Library Events
- MySPC
- SPC Home

**Library Information & Help**


- FAQ's - Frequently Asked Questions
- Instruction Request Form
- Interlibrary Loan Form *What is this?*
- Library Locations & Hours
- Library Policies and Procedures
- Renew Items
- SPC Archive - Digital Collection

**News**

- New database: DemographicsNow
- To Kill a Mockingbird Turns 50!
- New databases: GREENR and Grzimek's Animal Life
- Local Book Talks & Signings
- The Madonnas of Echo Park

**New Titles**

**New Titles @ SPC Libraries**



## Small Screen

**SPC** M.M. Bennett Libraries  
St. Petersburg College classic view

Story Time!  
West St. Petersburg Community Library / Gibbs Campus

Home Mobile Text-Only Databases A-Z or by Subject Journals A-Z My Account

- Library Search
- Article Search
- Subject Guides
- Databases & Journals

Enter Search Terms Go >>

Advanced Library Search | What am I searching?

ShareThis Page!

**Library Information & Help**

- FAQ's - Frequently Asked Questions
- Instruction Request Form
- Interlibrary Loan Form *What is this?*
- Library Locations & Hours
- Library Policies and Procedures
- Renew Items
- SPC Archive - Digital Collection

**I Need to Find**

## In-page Analytics

SPC St. Petersburg College

Download Audiobooks, Music & Movies.

Home Mobile Text-Only Databases A-Z by Subject Journals A-Z My Account

Search Article Search Subject Guides Databases & Journals

Enter Search Terms Go >>

Advanced Library Search | What am I searching?

Live Chat Email About us

ASK a Librarian

ShareThis Page!

**I Need to Find**

- Books and More
- Articles
- Journals A-Z
- Citation Help
- Subject Guides
- Course Reserves

**SPC Links**

- ANGEL
- Contact Staff/Faculty
- Thinking Gateway
- Events
- MySPC
- me

**Library Information & Help**

- FAQ's - Frequently Asked Questions
- Instruction Request Form
- Interlibrary Loan Form
- Locations & Hours
- Policies and Procedures
- Renew Items
- Archive - Digital Collection

**News**

- New databases: GREENR and Grzimek's Animal Life
- Local Book Talks & Signings
- The Madonnas of Echo Park
- NPR Music app for iPhone and iPod

**Titles**

New Titles @ SPC Libraries

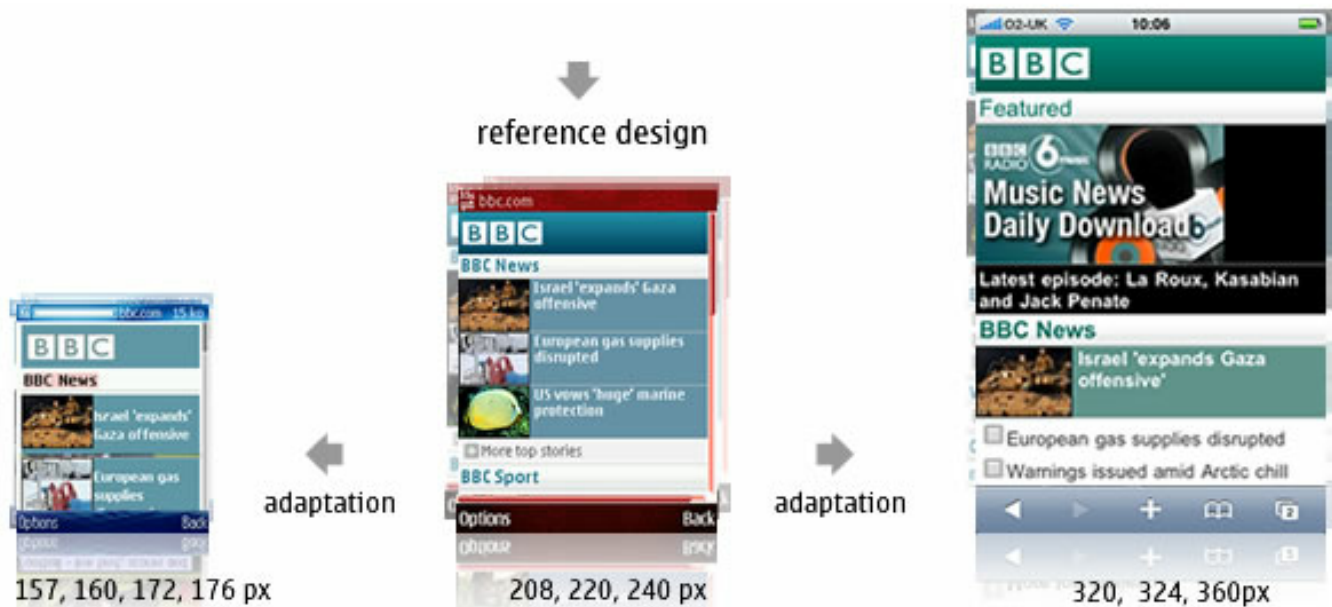
Mobile Device Info

	Visits
1. Apple iPad	109
2. Apple iPhone	75
3. SonyEricsson LT15i Xperia Arc	11
4. Acer A200 Picasso_E	9
5. Apple iPod Touch	8
6. Samsung SGH-T679 Exhibit II 4G	7
7. LG MS690 Optimus M	6
8. Samsung SPH-D710	6
9. HTC EVO 4G	5
10. HTC EVO 3D Shooter	5

**Note:** you can determine how your user's are accessing your Web site (e.g., mobile devices, carriers, browsers , OS's, screen resolution etc.)



# Mobile Screen Resolutions



Android (Motorola Droid) 480x854

Android (MyTouch) 320x480

Android (Nexus One) 480x800

Apple iPhone 320x480

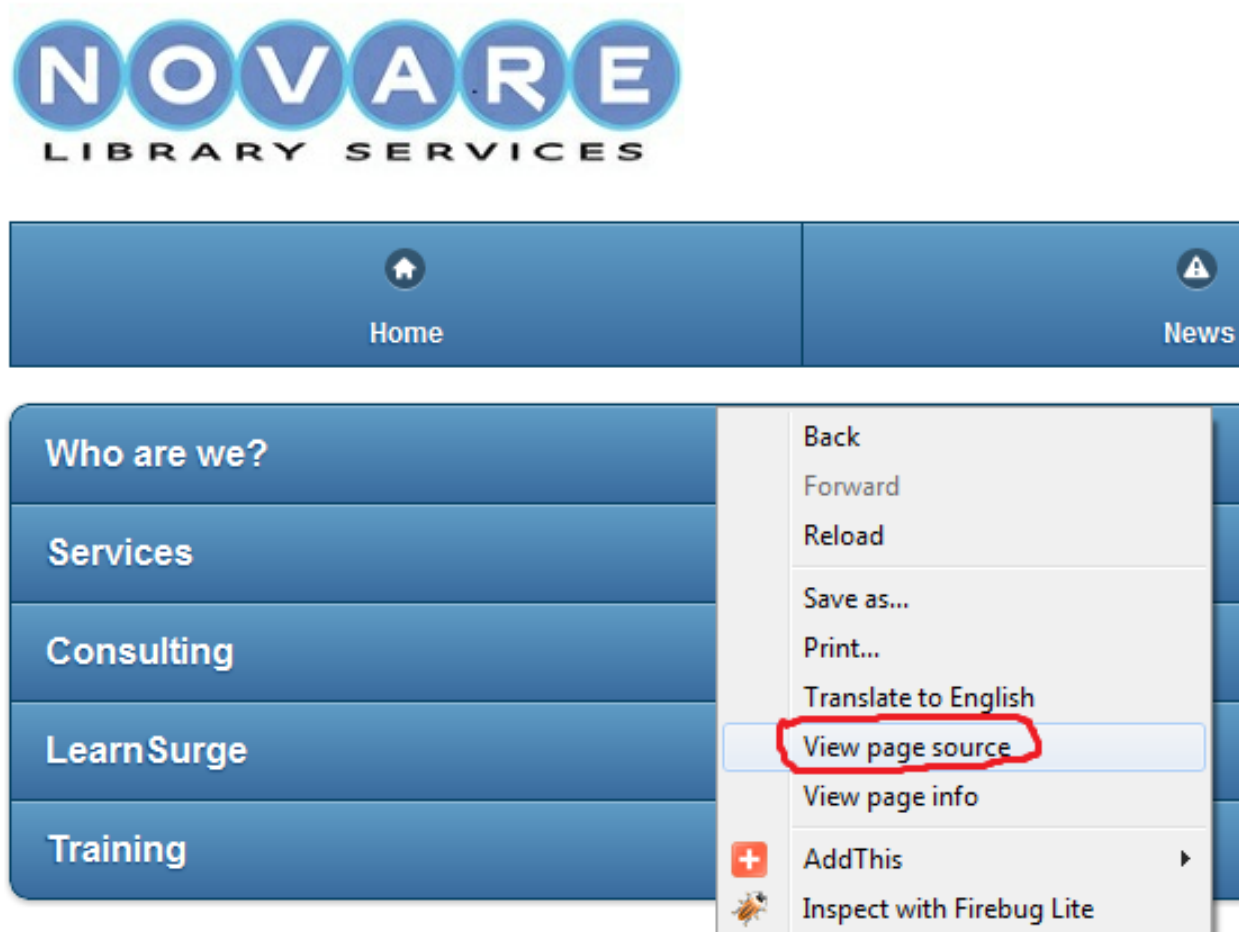
Apple iPad 1024x768

Palm Pre 320 x 480

# Some Best Practices

- Follow the "m" convention (m.novarelibrary.com OR lifeonterra.com/m/)
- Keep categories (directories) short. Remember that you are creating a page that people touch without much typing
- Limit image and markup sizes
- Limit HTML pages to 25KB to allow for caching
- "Minify" your scripts and CSS (JSLint, CleanCSS)
- Link to Full Site
- Sniff for User Agent – Detection (allow the user to decide where to go)
- One Column Layout with some whitespace
- Mobile refers to the user!

# Learn and borrow from sites you like.



<http://m.novarelibrary.com/>



SPC mobile

Header image

NAV BAR

Home

News

Location

Contact

Find Articles →

Find Books →

Research Guides →

Ask-a-Librarian →

Feedback →

Home

Social

My Favs

Full Site

\* Don't forget Google Analytics.

Sketch ideas

# Testing and validation

## SPC M.M. Bennett Libraries St. Petersburg College

1. [Hours](#)
2. [Contact us](#)
3. [Directions](#)
4. [Find articles](#)
5. [Find books](#)
6. [Call the Library](#)
7. [Popular Links](#)

Connect with us on --> 

# Test Page Speed in Firebug

Console HTML CSS Script DOM Net Page Speed Page Speed Activity

Performance Resources Export Help

Page Speed Score: 84/100 Refresh Analysis

Leverage browser caching

The following cacheable resources have a short freshness lifetime. Specify an expiration at least one week in the future for the following resources:

- <http://www.spcollege.edu/central/libonline/mobile/css/mobile.css> (expiration not specified)
- <http://www.spcollege.edu/central/libonline/mobile/images/facebookBtn.gif> (expiration not specified)
- <http://www.google-analytics.com/ga.js> (1 day)

Minify CSS

Serve static content from a cookieless domain

Specify a Vary: Accept-Encoding header

Minify HTML

Optimize images

Enable compression

Minify JavaScript

Remove unused CSS

Avoid bad requests

Combine external CSS

Combine external JavaScript

Minimize DNS lookups

Minimize redirects

Minimize request size

Optimize the order of styles and scripts

Parallelize downloads across hostnames

Put CSS in the document head

Remove query strings from static resources

Serve resources from a consistent URL

Compress images



## Firebug

Web Development Evolved.

<http://getfirebug.com/>

# W3C mobileOK Checker

## <http://validator.w3.org/mobile/>



W3C mobileOK Checker  
Is your Web site mobile-friendly?



[Expand all](#) | [Expand one level](#) | [Collapse one level](#) | [Collapse all](#)

► Address

<http://www.spcollege.edu/central/libonline/mobile/index.html>

▼ Result

96%



96%

### FAILURES PER SEVERITY

	CRITICAL	0
	SEVERE	0
	MEDIUM	0
	LOW	2

### FAILURES PER CATEGORY

	Rely on Web standards	2
--	-----------------------	---

↑ TOP

► Page Size

5.9KB

► Network usage

3 requests

▼ Detailed report

# http://ready.mobi

mobiReady.

YOU ARE HERE: [home](#) > **page results**

Username:  Password:    
Use your mobiForge sign-in - [Sign up@mobiForge](#) - [Lost password](#)

## Page results

URL tested: <http://www.spcollege.edu/central/libonline/mobile/index.html>

<http://www.spcollege.edu/central/libonline/mobile/>

4

Overall

GOOD



**It will probably display well on a mobile phone.**

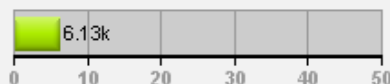
Your mobi.readiness score is calculated from the results displayed below. Failing tests and large page sizes both lower the score. Read through the report to understand how to improve your score - and your site.

### Readiness, Size, Time & Cost

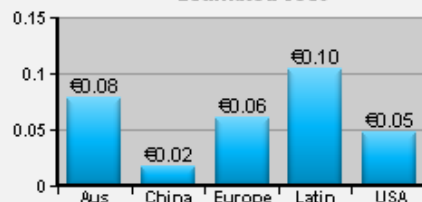
Score



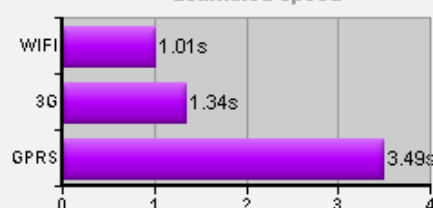
Size



Estimated cost



Estimated speed



[Representative charges for a user on a usage-based tariff]

### About this report



Ready.mobi uses industry standard tests developed with the W3C and leading mobility companies.

Ready.mobi provides an analysis of how your web content is likely to function on a mobile device.



Many tests performed by ready.mobi are defined by the W3C in the [MobileOK Basic Tests 1.0](#) document.

### More testing?



[Back to start page](#)

[Retest this page](#)

Test another page

### Feedback



How useful did you find this report?

SHARE

Tweet 8

Like 140

No one's ever changed the world by being boring

This isn't just a story about beer  
This is our story of interesting choices

Schroll Down

WTF?!!!

Name	Method	Status	Type	Initiator	Size	Time	Timeline	35.40s	53.10s	1.2min	1.5min	1.8min	2.1min
f2.png	GET	200	image/png	jquery-1.7.1.min...	72.07KB	58.02s							
f3.png	GET	200	image/png	jquery-1.7.1.min...	70.66KB	58.96s							
f4.png	GET	200	image/png	jquery-1.7.1.min...	68.74KB	59.05s							
f5.png	GET	200	image/png	jquery-1.7.1.min...	63.82KB	59.11s							
f6.png	GET	200	image/png	jquery-1.7.1.min...	27.56KB	59.21s							
facebook.png	GET	200	image/png	jquery-1.7.1.min...	22.06KB	59.30s							

388 requests | 24.29MB transferred | 2.1min (onload: 49.60s, DOMContentLoaded: 1.23s)

# Mobile Optimization

- Minify scripts, html, css ...
- Reduce HTTP requests
- Compress files with gzip
- Cache static resources

“Speed matters.”

<https://developers.google.com/speed/pagespeed/insights>

# Mobile Analytics

- Web metrics and statistics
- Mobile search logs

“Data is your friend. Take out the guesswork.”



# Editors and Tools

- You can use a simple text editor (e.g., Notepad) or a more sophisticated application (e.g., Dreamweaver).
- Adobe Device Central is part of Adobe's CS.
- iUI: <http://code.google.com/p/iui/> for iPhone.
- MIT Mobile Web Open Source Project <http://sourceforge.net/projects/mitmobileweb/>
- Device detection? <http://detectmobilebrowsers.mobi/>
- To see your browser's HTTP Headers. Works on mobile browsers. <http://rabin.mobi/http>
- Web Developer Toolbar in Firefox: Select Miscellaneous >>> Small Screen Rendering (260 px) >>> the layout will be reformatted to simulate rendering by a mobile browser



# Emulators/Simulators:

- Cowemo Mobile Emulator: <http://www.mobilephoneemulator.com/>
- dotMobi Emulator - <http://mtld.mobi/emulator.php>
- Opera Mini Simulator - <http://www.opera.com/mobile/demo/>
- Mimic - emulates European and Japanese models: N400i and N505i. <http://pukupi.com/post/2059>
- Android Emulator - <http://developer.android.com/guide/developing/tools/emulator.html>
- BlackBerry Device Simulators - <https://www.blackberry.com/Downloads/entry.do?code=060AD92489947D410D897474079C1477>
- iPhone Dev Center: <http://developer.apple.com/iphone/>
- Palm Pre - <http://developer.palm.com/>

# Take an emulated look at your desktop site.

## Mobile Site

Select Skin:

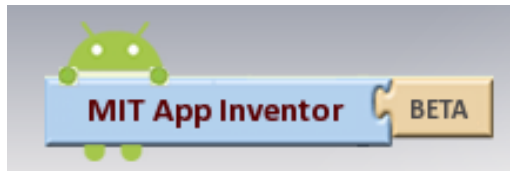


## Desktop Site

Select Skin:



# Other mobile development tools/frameworks



Mobilize.js



# The Future of Mobile Web App/Site Development? Responsive Web Design?




jQuery Mobile Templates at: <http://goo.gl/1FdO0>




**Handout:** <http://goo.gl/xMGp0>


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 Text *chadmairn* to 50500

Scan Chad's ShareSquare



shsq.re/73



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