Social Media Apps Programming

Mobile Apps Using HTML5/CSS3/JavaScript

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2014-10-15
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject/Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2014/09/17</td>
<td>Course Orientation and Introduction to Social Media and Mobile Apps Programming</td>
</tr>
<tr>
<td>2</td>
<td>2014/09/24</td>
<td>Introduction to Android / iOS Apps Programming</td>
</tr>
<tr>
<td>3</td>
<td>2014/10/01</td>
<td>Developing Android Native Apps with Java (Eclipse) (MIT App Inventor)</td>
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<tr>
<td>4</td>
<td>2014/10/08</td>
<td>Developing iPhone / iPad Native Apps with Swift / Objective-C (XCode)</td>
</tr>
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<td>5</td>
<td>2014/10/15</td>
<td>Mobile Apps Using HTML5/CSS3/JavaScript</td>
</tr>
<tr>
<td>6</td>
<td>2014/10/22</td>
<td>jQuery Mobile</td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Subject/Topics</td>
</tr>
<tr>
<td>------</td>
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<td>-------------------------------------------------------------------------------</td>
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<tr>
<td>7</td>
<td>2014/10/29</td>
<td>Create Hybrid Apps with Phonegap</td>
</tr>
<tr>
<td>8</td>
<td>2014/11/05</td>
<td>jQuery Mobile/Phonegap</td>
</tr>
<tr>
<td>9</td>
<td>2014/11/12</td>
<td>jQuery Mobile/Phonegap</td>
</tr>
<tr>
<td>10</td>
<td>2014/11/19</td>
<td>Midterm Exam Week (Midterm Project Report)</td>
</tr>
<tr>
<td>11</td>
<td>2014/11/26</td>
<td>Case Study on Social Media Apps Programming and Marketing in Google Play and App Store</td>
</tr>
<tr>
<td>12</td>
<td>2014/12/03</td>
<td>Google Cloud Platform</td>
</tr>
<tr>
<td>Week</td>
<td>Date</td>
<td>Subject/Topics</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>13</td>
<td>2014/12/10</td>
<td>Google App Engine</td>
</tr>
<tr>
<td>14</td>
<td>2014/12/17</td>
<td>Google Map API</td>
</tr>
<tr>
<td>15</td>
<td>2014/12/24</td>
<td>Facebook API (Facebook JavaScript SDK)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Integrate Facebook with iOS/Android Apps)</td>
</tr>
<tr>
<td>16</td>
<td>2014/01/31</td>
<td>Twitter API</td>
</tr>
<tr>
<td>17</td>
<td>2015/01/07</td>
<td>Final Project Presentation</td>
</tr>
<tr>
<td>18</td>
<td>2015/01/14</td>
<td>Final Exam Week (Final Project Report)</td>
</tr>
</tbody>
</table>
Outline

• Mobile Apps
• HTML5
  – Hyper Text Markup Language (version 5)(2012)
  – Content and Structure
• CSS3
  – Cascading Style Sheets (version 3)
  – Presentation, Layout and User Interface
• JavaScript
  – Behavior and Business Logic
Android /iOS Apps Programming

Native Apps

Hybrid Apps

Mobile Web Apps
App Development Comparison

<table>
<thead>
<tr>
<th>Device Access</th>
<th>Speed</th>
<th>Development Cost</th>
<th>App Store</th>
<th>Approval Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native Apps</td>
<td>Full</td>
<td>Very Fast</td>
<td>Expensive</td>
<td>Available</td>
</tr>
<tr>
<td>Hybrid Apps</td>
<td>Full</td>
<td>Native Speed as Necessary</td>
<td>Reasonable</td>
<td>Available</td>
</tr>
<tr>
<td>Web Apps</td>
<td>Partial</td>
<td>Fast</td>
<td>Reasonable</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Building Android Apps with HTML, CSS, and JavaScript: Making Native Apps with Standards-Based Web Tools, Jonathan Stark & Brian Jepson, O’reilly, 2012

Building iPhone Apps with HTML, CSS, and JavaScript: Making App Store Apps Without Objective-C or Cocoa, Jonathan Stark, O’Reilly, 2010

Source: http://www.amazon.com/Building-iPhone-Apps-HTML-JavaScript/dp/0596805780
Learn HTML5 and JavaScript for iOS: Web Standards-based Apps for iPhone, iPad, and iPod touch, Scott Preston, Apress, 2012

Learn HTML5 and JavaScript for iOS

This site features a series of examples for every chapter. Look at the site on your desktop, iPad or iPhone as you read the book. Click "View Source" in your browser or go to the Apress download zip to see the source code for each example.

What you see in the book might only be part of the code needed to demonstrate an idea or concept, but this site has everything you need, like additional JS, or CSS, or rendered HTML.

The Real World Example Site

www.grandviewave.com/m

The Grandview Avenue site was written in 2010 and continues to evolve. It's a real site designed to give local businesses an app and mobile site presence.

Each chapter in the book ends with a section called "Putting It All Together", in which I show you how I apply the concepts in the chapter to this real world application.

Hopefully you can see how this site works and either build one like it yourself, or do something completely different.

http://www.learnhtml5book.com/
Mobile Apps

• Mobile Website
  – Classic Website

• Mobile Apps
  – Web Apps

• Responsive Web Design (RWD)

Source: Scott Preston, Learn HTML5 and JavaScript for iOS: Web Standards-based Apps for iPhone, iPad, and iPod touch, Apress, 2012
Mobile Website
Classic Website

http://grandviewave.com/
Responsive Web Design (RWD)

http://grandviewave.com/m/
Mobile Web App

HTML

CSS

JavaScript

Phone Data

External Data

Mobile frameworks and Libraries

Templates

Source: Scott Preston, Learn HTML5 and JavaScript for iOS: Web Standards-based Apps for iPhone, iPad, and iPod touch, Apress, 2012
Mobile Web App

Organizing files in directories

• Classic Website
  – / - for all HTML files
  – /css - for all CSS
  – /js - for all JavaScript
  – /images - for all images

• Mobile Web App
  – /m -for all HTML files
  – /m/css - for all CSS
  – /m/js - for all JavaScript
  – /m/images - for all images.
HTML5
HTML5 Game

http://www.cuttherope.ie/
Cut the Rope

By Chillingo Ltd

Open iTunes to buy and download apps.

Description
Cut the rope to feed candy to little monster Om Nom®! 400 million downloads around the world of this phenomenal puzzle game. 375 levels and more to come!

What's New in Version 2.3.1
It's time to update! To ensure all in-app purchases and data are saved, please update Cut the Rope now.

iPhone Screenshots

Source: https://itunes.apple.com/app/cut-the-rope/id380293530?mt=8
### HTML Versions

<table>
<thead>
<tr>
<th>Version</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>HTML</td>
<td>1991</td>
</tr>
<tr>
<td>HTML+</td>
<td>1993</td>
</tr>
<tr>
<td>HTML 2.0</td>
<td>1995</td>
</tr>
<tr>
<td>HTML 3.2</td>
<td>1997</td>
</tr>
<tr>
<td>HTML 4.01</td>
<td>1999</td>
</tr>
<tr>
<td>XHTML 1.0</td>
<td>2000</td>
</tr>
<tr>
<td>HTML5</td>
<td>2012</td>
</tr>
</tbody>
</table>

The `<!DOCTYPE>` Declaration

**HTML5**

```html
<!DOCTYPE html>
```

**HTML 4.01**

```html
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
```

**XHTML 1.0**

```html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```
What is HTML?

• HTML is a language for describing web pages.
  – HTML stands for Hyper Text Markup Language
  – HTML is a markup language
  – A markup language is a set of markup tags
  – The tags describe document content
  – HTML documents contain HTML tags and plain text
  – HTML documents are also called web pages

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>My Title</title>
  </head>
  <body>
    Hello World
  </body>
</html>
```

HTML Tag, Element, Attribute

\[ \text{HTML Element} \]

\[
\langle \text{title} \rangle \text{My Title} \langle /\text{title} \rangle
\]

\[
\langle \text{p} \rangle \text{This is a paragraph.} \langle /\text{p} \rangle
\]

\[
\langle \text{tagname} \rangle \text{content} \langle /\text{tagname} \rangle
\]
HTML Tag, Element, Attribute

HTML Element

<title>My Title</title>

Tag
Start Tag
Opening Tag

Tag
End Tag
Closing Tag
HTML Tag, Element, Attribute

```html
<meta charset="UTF-8">
```

- **Element**
  - **Tag**
  - **Attribute**
What is HTML5

• HTML5 is The New HTML Standard
  – What HTML5 is Not

• The new HTML5 structural elements and attributes

• The new HTML5 form input types and attributes
What HTML5 is Not

• It’s Not XHTML
  – `<div id=container> This is a div<br></div>`
  – `<div id="container"> This is another div<br/></div>`

• It’s Not HTML4+1

• HTML5 is Not Just Markup
  – Not just tags
  – It’s also a set of JavaScript APIs
    • Provide a richer user experience

Source: Scott Preston, Learn HTML5 and JavaScript for iOS: Web Standards-based Apps for iPhone, iPad, and iPod touch, Apress, 2012
HTML5 is The New HTML Standard

Source: http://www.w3.org/html/logo/
HTML5 is The New HTML Standard

- New Elements
- New Attributes
- Full CSS3 Support
- Video and Audio
- 2D/3D Graphics
- Local Storage
- Local SQL Database
- Web Applications

Source: http://www.w3schools.com/html/html5_intro.asp
HTML5 is The New HTML Standard

- New Elements
- New Attributes
- Full CSS3 Support
- Video and Audio
- 2D/3D Graphics
- Local Storage
- Local SQL Database
- Web Applications

With HTML5, playing video and audio is easier than ever.

- HTML5 `<video>`
- HTML5 `<audio>`

```html
<!DOCTYPE HTML>
<html>
<body>

<video width="320" height="240" controls>
  <source src="movie.mp4" type="video/mp4">
  <source src="movie.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>

</body>
</html>
```

HTML5 Graphics

With HTML5, drawing graphics is easier than ever:

• Using the <canvas> element
• Using inline SVG
• Using CSS3 2D/3D

Source: http://www.w3schools.com/html/html5_intro.asp
HTML5 Applications

With HTML5, web application development is easier than ever.

- Local data storage
- Local file access
- Local SQL database
- Application cache
- Javascript workers
- XHTMLHttpRequest 2

Semantic Elements

HTML5 Forms

• Semantic Elements
  – New elements for headers, footers, menus, sections, and articles.

• HTML5 Forms
  – New form elements,
  – new attributes,
  – new input types,
  – automatic validation.

Source: http://www.w3schools.com/html/html5_intro.asp
HTML5 uses CSS3

- New Selectors
- New Properties
- Animations
- 2D/3D Transformations
- Rounded Corners
- Shadow Effects
- Downloadable Fonts

<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>My Title</title>
  </head>
  <body>
    Hello World
  </body>
</html>
CSS3
Cascading Style Sheets (CSS)

• a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents.

Source: http://www.w3.org/Style/CSS/
• CSS3 is the latest standard for CSS.
• CSS3 is completely backwards-compatible with earlier versions of CSS.

Source: http://www.w3schools.com/css/css3_intro.asp
CSS

Selector: h1

Declaration: {color: blue; font-size: 12px;}

Properties:
- color
- font-size

Values:
- blue
- 12px

http://www.w3schools.com/css/css_syntax.asp
<link rel="stylesheet" type="text/css" href="mystyle1.css" />
<style>
  body {background-color:yellow;}
  h1 {color:green}
  p {color:red;}
  div {color:blue; font-size:18px;}
</style>
JavaScript
JavaScript

- JavaScript is a **Scripting Language**
  - A scripting language is a lightweight programming language.
  - JavaScript is **programming code** that can be inserted into HTML pages.
  - JavaScript code can be executed by all **modern web browsers**.
  - JavaScript is easy to learn.

```html
<script language="javascript">
  function sayHello()
  {
    var strNameInput = document.getElementById('txtNameInput').value;
    var strOutput = "Hello, my friend, " + strNameInput;
    document.getElementById('divOutput').innerHTML = strOutput;
  }
</script>
```

Source: [http://www.w3schools.com/js/js_intro.asp](http://www.w3schools.com/js/js_intro.asp)
JavaScript: Writing Into HTML Output

document.write("<h1>This is a heading</h1>");
document.write("<p>This is a paragraph</p>");
JavaScript: Reacting to Events

```html
<button type="button" onclick="alert('Welcome!')">Click Me!</button>
```
JavaScript: Changing HTML Content

```javascript
x=document.getElementById("demo");
x.innerHTML="Hello JavaScript";
```
MVC Framework of Mobile Apps (HTML5, CSS3, JavaScript)

Source: http://sc5.io/blog/2012/02/anatomy-of-a-html5-app/
HTML5 Editors
Maqetta: Online HTML5 WYSIWYG Editor

Maqetta is an open source project that provides WYSIWYG visual authoring of HTML5 user interfaces. The Maqetta application itself is authored in HTML, and therefore runs in the browser without requiring additional plugins or downloads.

http://maqetta.org/
Aloha Editor: HTML5 WYSIWYG editor

The world’s most advanced browser HTML5 based WYSIWYG editor lets you experience a whole new way of editing. It’s faster than existing technologies and offers unprecedented WYSIWYG functionalities.

Aloha Editor is available for:

- Sentic
- CONTENT
- NODE
- WordPress
- Drupal
- TYPO3
- ektron
- Create
- Meteor JS
- Fire

http://www.aloha-editor.org/
Adobe Dreamweaver

The new standard in web standards.

New features, instant access to new updates, and more efficient tools let you work faster and code smarter.

Develop more web content, more quickly. A streamlined user interface, connected tools, and new visual CSS editing tools let you code efficiently and intuitively. And now, Dreamweaver® CC lets you share work directly from within the application, and helps you keep up with web standards by giving you access to new features as soon as they’re available. Your entire creative world, together in one place. Only in

BlueGriffon: WYSIWYG content editor

http://www.bluegriffon.org/
Online Editor: http://jsbin.com

http://jsbin.com/
Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by GPL License.

Based on the powerful editing component Scintilla, Notepad++ is written in C++ and uses pure Win32 API and STL which ensures a higher execution speed and smaller program size. By optimizing as many routines as possible without losing user friendliness, Notepad++ is trying to reduce the world carbon dioxide emissions. When using less CPU power, the PC can throttle down and reduce power consumption, resulting in a greener environment.

You're encouraged to translate Notepad++ into your native language if there's not already a
Sublime Text

Sublime Text is a sophisticated text editor for code, markup and prose.
You'll love the slick user interface, extraordinary features and amazing performance.

http://www.sublimetext.com/
HTML5 Mobile Apps Simulators
Ripple Emulator

A browser based HTML5 mobile application development and testing tool

Welcome to Ripple, The Mobile Environment Emulator!

Ripple is a multi-platform mobile environment emulator that is custom-tailored to mobile HTML5 application development and testing. Ripple aims to reduce the challenges being faced by mobile developers caused by today's platform fragmentation in the marketplace.

Ripple is targeted towards WebWorks, PhoneGap, and mobile web development and testing!

Ripple offers the ability to look under the hood of your mobile application, giving you full visibility into what it is doing. It also allows for the use of existing tools to perform JavaScript debugging, HTML DOM inspection, automated testing, as well as multiple device and screen resolution.

https://chrome.google.com/webstore/detail/ripple-emulator-beta/geelfhphabnejjhdalkjhgiohpdpnoc?hl=en
Online browser simulator: ipadpeek.com

http://ipadpeek.com/
Opera Mobile Classic Emulator

Do your mobile development straight from your desktop, and pair it with Opera Dragonfly for advanced debugging.

**Opera Mobile Classic Emulator 12.1 for Windows**
**Opera Mobile Classic Emulator 12.1 for Mac**

http://www.opera.com/developer/mobile-emulator
Xcode iPhone Simulator
http://grandviewave.com
http://grandviewave.com
Demo

Building Mobile Apps with HTML5, CSS3, and JavaScript

http://jsbin.com
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<meta name="viewport" content="width=device-width, initial-scale=1" />
<title>Hello World HTML5 by Myday</title>
<style>
body {background-color:yellow;}
h1 {color:green}
p {color:red;}
div {color:blue; font-size:18px;}
</style>
<script language="javascript">
function sayHello()
{
  var strNameInput = document.getElementById('txtNameInput').value;
  var strOutput = "Hello, my friend, " + strNameInput;
  document.getElementById('divOutput').innerHTML = strOutput;
}
</script>
</head>
<body>
<h1>Hello, World!</h1>
<p>What's your name?</p>
<input id="txtNameInput" type="text"><br>
<button type="button" id="btnClick1" onClick="sayHello()">Press Me!</button><br>
<div id="divOutput">Hi</div>
</body>
</html>
Online Editor: http://jsbin.com

```html
<!DOCTYPE html>
<html>
<head>
<meta charset=utf-8 />
<title>JS Bin</title>
</head>
<body>
</body>
</html>
```

http://jsbin.com/
CompileOnline: Try jQueryMobile Online

http://www.compileonline.com/try_jquerymobile_online.php
<!DOCTYPE html>
<html>
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Mobile App with HTML5, CSS3, and JavaScript

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background-color:yellow;
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h1 {color:green}

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<button type="button" id="btnClick1" onClick="sayHello()">Press Me!</button><br>
<div id="divOutput">Hi</div>
</body>
</html>

http://jsbin.com/oWOsUcl/1
<!DOCTYPE html>
<html>
<head>
  <meta charset=utf-8 />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
  <title>Hello World HTML5 by Myday</title>
  <style>
    body {
      background-color:yellow;
    }
    h1 {
      color:green
    }
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      color:red;
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      var strNameInput = document.getElementById('txtNameInput').value;
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      document.getElementById('divOutput').innerHTML = strOutput;
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  <h1>Hello, World!</h1>
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  <input id="txtNameInput" type="text"><br>
  <button type="button" id="btnClick1" onClick="sayHello()">Press Me!</button><br>
  <div id="divOutput">Hi</div>
</body>
</html>
<!DOCTYPE html>
<html>
<head>
  <meta charset=utf-8 />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
  <title>Hello World HTML5 by Myday</title>
  <style>
    body {background-color:yellow;}
    h1 {color:green}
    p {color:red;}
    div {color:blue; font-size:18px;}
  </style>
  <script language="javascript">
    function sayHello()
    {
    var strNameInput = document.getElementById('txtNameInput').value;
    var strOutput = "Hello,
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    friend,
    "+ strNameInput;
    document.getElementById('divOutput').innerHTML = strOutput;
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Summary

• Mobile Apps
• HTML5
  – Hyper Text Markup Language (version 5)(2012)
  – Content and Structure
• CSS3
  – Cascading Style Sheets (version 3)
  – Presentation, Layout and User Interface
• JavaScript
  – Behavior and Business Logic
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• CSS Tutorial for Beginners
  — https://www.youtube.com/watch?v=Wz2kIMXDqF4
• JavaScript & jQuery Tutorial for Beginners
  — https://www.youtube.com/watch?v=VRnQOcVcIS8