

Multi-platform Mobile Apps

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Please Don't tell my mother - she saw me with two phones and now thinks I'm a drug dealer
and I wouldn't want to break her heart saying that I work in IT

Why we did it ?

- Hertford College in 2004 opted for a digital prospectus (CD then a DVD) saving ~ £15,000 per year
- Filming did take a bit of time, so did post processing
- At the time it was well worth doing for a number of reasons

How we used to do it

- We recorded current SCR, MCR and JCR members
- Did the art work , video rendering and duplication in house
- Used the Orchestra for sound track
- In total we created over 20,000 DVDs over the years

What Changed ?

- We realised we needed to get information to admission students before they arrived
- We wanted to reduce costs (filming time, postage, man hours, duplication costs etc ...)
- We wanted it to be up date
- We wanted mobile access

What we thought !

- Let's do an App ...
- Let's try and make it multi-platform
- +1 platform a year
- Let's try and reuse media
- Let's use in built maps
- Let's give it away

Our expectations

- Let's see how much someone would charge
 - HOW MUCH !!!! (£3K - 30K)
- Let's see how we can do it in house
 - Hmm.. seems like 150 hrs of relearning objective C programming alone !
- LET'S CHEAT !

Phonégap

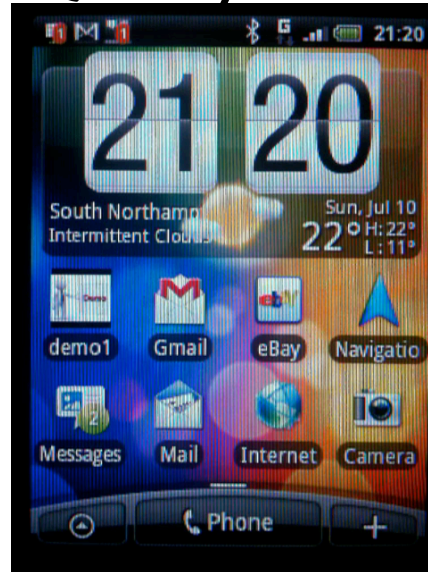
- Phonégap is a framework for making apps
- You don't need to relearn Objective C
- You can design for many platforms
 - Symbian, iOS, Blackberry, Android, WebOS, Palm, (soon Windows mobile 7)

What phonegaps gives you

- Accelerometer, camera, compass, contacts, geolocation, network, notifications, media, URLs, maps and users
- And I'm not interested in using most of it :)
- Here's a demo (demo I App droid user use the QR)



Poor Quality video time



What you will need

- A basic understanding of HTML, CSS, Javascript or be really good at cutting and pasting
- A mobile device
- A SDK of some kind
- Phonegap (MIT)

What would be handy

- jQTouch (MIT) for animations, URL handling, etc
- A design brief
- A reason for doing it
- Content !!!

How we did it for the admissions App

- As iOS was going to be the really difficult one we started with doing that one
- We decided Android was the next one we should do at the moment
- We work to a limit of 50 man-hours development (after that we would write off the project)

Show me the money

SDKs etc

- SDKs are free (sort of)
- iOS Developer Cost £59 (or \$99)
- Google developer £15 (or \$25)
- Phonegap, jQTouch - free
- Hardware (intel mac ...er)
- iPhone(already had),Android £130 PAYG
- Time !

Designing

- Be realistic, you are not creating Angry Birds
- Map what you want to do
- Look at the device limitations
- Figure out your market's ability to use it !

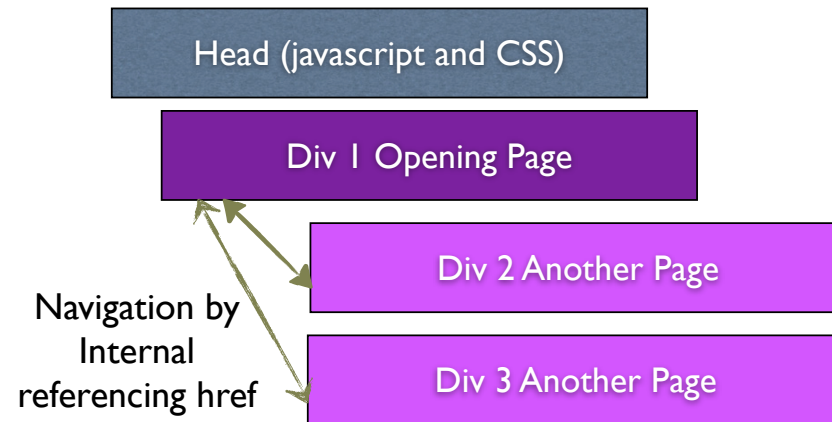
How to start

- Design it on paper (1/2 a post-it note size)
- Install XCode (or Android SDK)
- Install Phonegap
- Install jQTouch

Using XCode

- Grab a Phonegap build template
 - <https://build.phonegap.com/generate>
- Installing the jQTouch
 - Throw the whole bundle into the project
'cept the demos folder (huge!!!)
- Create the whole thing as a single page
HTML separated by DIV

What index.html looks like



jQuery Touch

- Animation
- Capture URLs , Mail, Maps etc
- Allow jquery request
- Built in JSON

Let's do it

- Start up XCode
- Install Phonegap
- Get project from [https://
build.phonegap.com/generate](https://build.phonegap.com/generate)
- Throw some HTML at it
- Build , add developer ID, upload (eventually)

hello world

```
<!doctype html>
<html>
  <head>
    <title>Hello world</title>
    <meta name="viewport" content="width=device-width, initial-scale=1.0, maximum-
scale=1.0, user-scalable=no;" />
  </head>
  <body>
    <div id="home" class="current">
      <h1>Hello World !</h1>
      <p>
        <ul>
          <li class="arrow"><a href="#here">Go Here</a> </li>
          <li class="arrow"><a href="#there">Go There</a> </li>
        </ul>
      </div>
    <div id="here">
      <h1> HERE </h1>
      I'm Here
    </div>
    <div id="there">
      <h1> THERE </h1>
      I'm THERE
    </div>
  </body>
</html>
```

head

div
1

div
2

div
3

+ Javascript and CSS into head

```
<script src="jqtouch/jqtouch/jquery.1.4.2.min.js" type="text/  
javascript" charset="utf-8"></script>  
<script src="jqtouch/jqtouch/jqtouch.min.js" type="text/javascript"  
charset="utf-8"></script>  
<link rel="stylesheet" href="jqtouch/jqtouch/jqtouch.css"  
media="screen" title="no title" charset="utf-8">  
<link rel="stylesheet" href="jqtouch/themes/jqt/theme.css"  
media="screen" title="no title" charset="utf-8">  
<script type="text/javascript" charset="utf-8">  
var jQT = $.jQTouch({ icon: 'icon.png',  
startupScreen: 'startup.png' });  
</script>
```

+ Any other scripts into the body

```
<script src="phonegap.0.9.5.1.min.js">
</script>
<script>
  document.addEventListener('deviceready', function () {
    // add your PhoneGap-dependent functionality here!
    }, false);
</script>
```

Add Images + add external links

- Drag images in to folder (open in finder)
 - make sure they are png(8)
- New link target blank
 - e.g. ``

Greg do the demo !

- people are getting bored, do something!

Build it !

- Build , Run (in iOS simulator)
- Build and run on device with developer's key
- Build with added distribution key

build on simulator

Phonegap Build

- Very Cool ! avoids you having to use multiple compilers
- Very handy for rapid deploys
- Free*
- Just zip up the directory and send it off

go to [phonegap build](#)

Demo 2

- Uploading to phonegap build
- <https://build.phonegap.com/apps>

Testing

- Do lots of this
- On device
- On Simulator
- Using Safari (and its limitations)

say about cross domain testing
Bring up the android sdk
bring up Safari

Demo 3

- Android SDK & Safari

Publishing

- Similar requirement for screen shots, icons, descriptions, etc
- Android self sign or turn off trusted sources (xxx-debug.apk)
- Apple requires a registered CA or development device (ad hoc, jail broken, B2B ?)
- Android market updates happen synchronously
- iTunes take 2 days - 14 days to “review”

The results

- iTune connect (poor interface, yesterday's info 24hrs after lunch, data not exportable)
- iTunes connect App ok ..
- Android Market.. (Great interface, trends, numbers, active users, real time ..)
- Android App Analytics great

JSON

- Why you should use it
 - speed, tiny transfer, human readable, great error handling
- Whats wrong with XML
 - meant for documents not data, huge, Human readable ?

Quick comparison

```
{ "ID": ["302"], "badge_name": ["Greg Jennings"], "badge_role": ["IT Manager"], "badge_unit": ["Hertford College"], "receipt": ["Yes"], "bowl": ["Yes"], "bus": ["Yes - Keble Road"], "Workshops_Name": ["IAM who IAM (but who the heck is alic3000)?"], "Workshops_1_Name": ["Multiplatform Mobile Phone App Development - Without Programming"], "Workshops_2_Name": ["The Oxford Nexus SharePoint service"], "Workshops_3_Name": ["Apple Technology Update"] }
```

```
<!-- version 1.0? -->
<Workbook xmlns="urn:schemas-microsoft-com:office:spreadsheet"
  xmlns:c="urn:schemas-microsoft-com:office:custom"
  xmlns:s="urn:schemas-microsoft-com:office:spreadsheet"
  xmlns:dt="http://www.w3.org/1999/02/22-xdt:w3c-schema0?">
  <DocumentProperties xmlns="urn:schemas-microsoft-com:office:office">
    <Author>IT Office</Author>
    <Created>2011-07-10T08:56:32Z</Created>
    <Version>1.0</Version>
  </DocumentProperties>
  <OfficeDocumentSettings xmlns="urn:schemas-microsoft-com:office:office">
    <AllowPNG/>
  </OfficeDocumentSettings>
  <ExcelWorkbook xmlns="urn:schemas-microsoft-com:office:excel">
    <WindowHeight>1220</WindowHeight>
    <WindowWidth>2136</WindowWidth>
    <WindowTop>220</WindowTop>
    <WindowLeft>220</WindowLeft>
    <CalcPr>
      <ProtectStructure>False</ProtectStructure>
      <ProtectWindows>False</ProtectWindows>
    </ExcelWorkbook>
    <Styles>
      <Style ss:ID="Default" ss:Name="Normal">
        <Alignment ss:Vertical="Bottom">
          <Font ss:FontName="Verdana">
            <Size>
              <NumberFormat>
                <Protect>
                  <Style>
                    <Worksheet ss:Name="demo01">
                      <Table ss:ExpandedColumnCount="1" ss:ExpandedRowCount="1" s:FullColumns="1" s:FullRows="1">
                        <Cell>
                          <Data ss:Type="String">=&quot;ID&quot;=&quot;[&quot;302&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;badge_name&quot;=&quot;[&quot;Greg Jennings&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;badge_role&quot;=&quot;[&quot;IT Manager&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;badge_unit&quot;=&quot;[&quot;Hertford College&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;receipt&quot;=&quot;[&quot;Yes&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;bowl&quot;=&quot;[&quot;Keble Road&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;Workshops_Name&quot;=&quot;[&quot;IAM who the heck is alic3000?&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;Workshops_1_Name&quot;=&quot;[&quot;Multiplatform Mobile Phone App Development - Without Programming&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;Workshops_2_Name&quot;=&quot;[&quot;The Oxford Nexus SharePoint service&quot;]&quot;</Data>=&lt;Cell>
                          <Data ss:Type="String">=&quot;Workshops_3_Name&quot;=&quot;[&quot;Apple Technology Update&quot;]&quot;</Data>=&lt;Cell>
                        </Cell>
                      </Table>
                    </Worksheet>
                    <PageLayoutZoom>0</PageLayoutZoom>
                    <Selected>
                      <ProtectObjects>False</ProtectObjects>
                      <ProtectScenarios>False</ProtectScenarios>
                    </WorksheetOptions>
                  </Worksheet>
                </Workbook>
              </Workbook>
            </Style>
          </Font>
        </Alignment>
      </Style>
    </Styles>
  </ExcelWorkbook>
</Workbook>
```

Building a search

- MYSQL back end
- PHP “fuzzy” query page
- Separate page “lookup.html” within the App for ease of writing
- What we wanted it to do !
 - either retain user details or
 - do a look up of anyone’s details

number two was easier and more helpful

Gotcha's

- Email addresses, External web links and searches in jQTouch
- Mentioning Android in Apple meta data
- Cross domain links (testing)
- Phoneygap build in beta
- Non compliant hardware
- Incrementing version number x.x.x
- config.xml
- iTunes Connect being unavailable

Sent yesterday !



Thanks then !

Dear greg.jennings@hertford.ox.ac.uk,

iTunes Connect will be undergoing scheduled maintenance on Wednesday, July 13 from 9 a.m. to 4 p.m. PDT.

During this time, iTunes Connect will still be available. However, pricing changes made between 9 a.m. and 4 p.m. PDT will cause the app to become unavailable for purchase until maintenance is complete, at which point the app will become available at the new price. To avoid interruptions to the availability of your apps, do not make price changes during this time.

Lastly, customers may not be able to purchase apps in the Mexico, U.K., Australia, Switzerland, Japan or Norway storefronts during the scheduled maintenance.

Regards,

The App Store team

Benefits of this approach

- You have made a web app, why not use it too ?
 - <http://testing.hertford.ox.ac.uk/www>
- Changes can be synchronised across Apps
- Using existing skills

The CITF I App

- 2317 lines long
- just the same as we have done here
- but written with earlier, “nicer” XCode 3
- written in evenings after work
- content from Tony, Malcolm, Elsa, ICTF
- checked by Garrith, Natasha and users such as James ~~Partidge~~ ~~Partridge~~ Partridge

Conclusions

- Easy to do
- Cheap to do
- Hardest part is getting content and licences

Questions and links

- <https://build.phonegap.com/>
- <http://www.jqtouch.com/>
- <https://itunesconnect.apple.com>
- <http://testing.hertford.ox.ac.uk/www>
- <http://developer.android.com/index.html>