





How to do Almost Smalltalking to develop iOs Apps



How to do Almost Smalltalking to develop iOs Apps

Tansel Ersavas
tansel@tansel.org





Let us do some survey



Let us do some survey

- **As primary development platform**



Let us do some survey

- **As primary development platform**
- **How many uses Windows**



Let us do some survey

- As primary development platform
 - How many uses Windows
 - Linux



Let us do some survey

- As primary development platform
 - How many uses Windows
 - Linux
 - Mac





Mobile Platforms



Mobile Platforms

- **Any developers for mobile platforms?**



Mobile Platforms

- Any developers for mobile platforms?
- Any iOS developers



Mobile Platforms

- Any developers for mobile platforms?
- Any iOS developers
- Any Android developers



Mobile Platforms

- Any developers for mobile platforms?
- Any iOS developers
- Any Android developers
- Windows



Mobile Platforms

- Any developers for mobile platforms?
- Any iOS developers
- Any Android developers
- Windows
- Multiple platforms?





Who am I?



Who am I?

- **Doing Smalltalk since 1992**



Who am I?

- **Doing Smalltalk since 1992**
- **Involved in Squeak since 1996**



Who am I?

- Doing Smalltalk since 1992
- Involved in Squeak since 1996
- Past developer and editor of the SqueakNews e-zine



Who am I?

- Doing Smalltalk since 1992
- Involved in Squeak since 1996
- Past developer and editor of the SqueakNews e-zine
- Experienced systems developer with 30+ years of experience



Who am I?

- Doing Smalltalk since 1992
- Involved in Squeak since 1996
- Past developer and editor of the SqueakNews e-zine
- Experienced systems developer with 30+ years of experience
- Currently iOS, Android and RAILS consultant





Why am I not there?







Mobile madness



Mobile madness

- **Who is to blame?**



Mobile madness

- **Who is to blame?**
- **Especially tablets**



Mobile madness

- Who is to blame?
- Especially tablets
- Guess who started it







Why iOs



Why iOs

- Rise of mobile devices



Why iOs

- Rise of mobile devices
- Rise of tablets



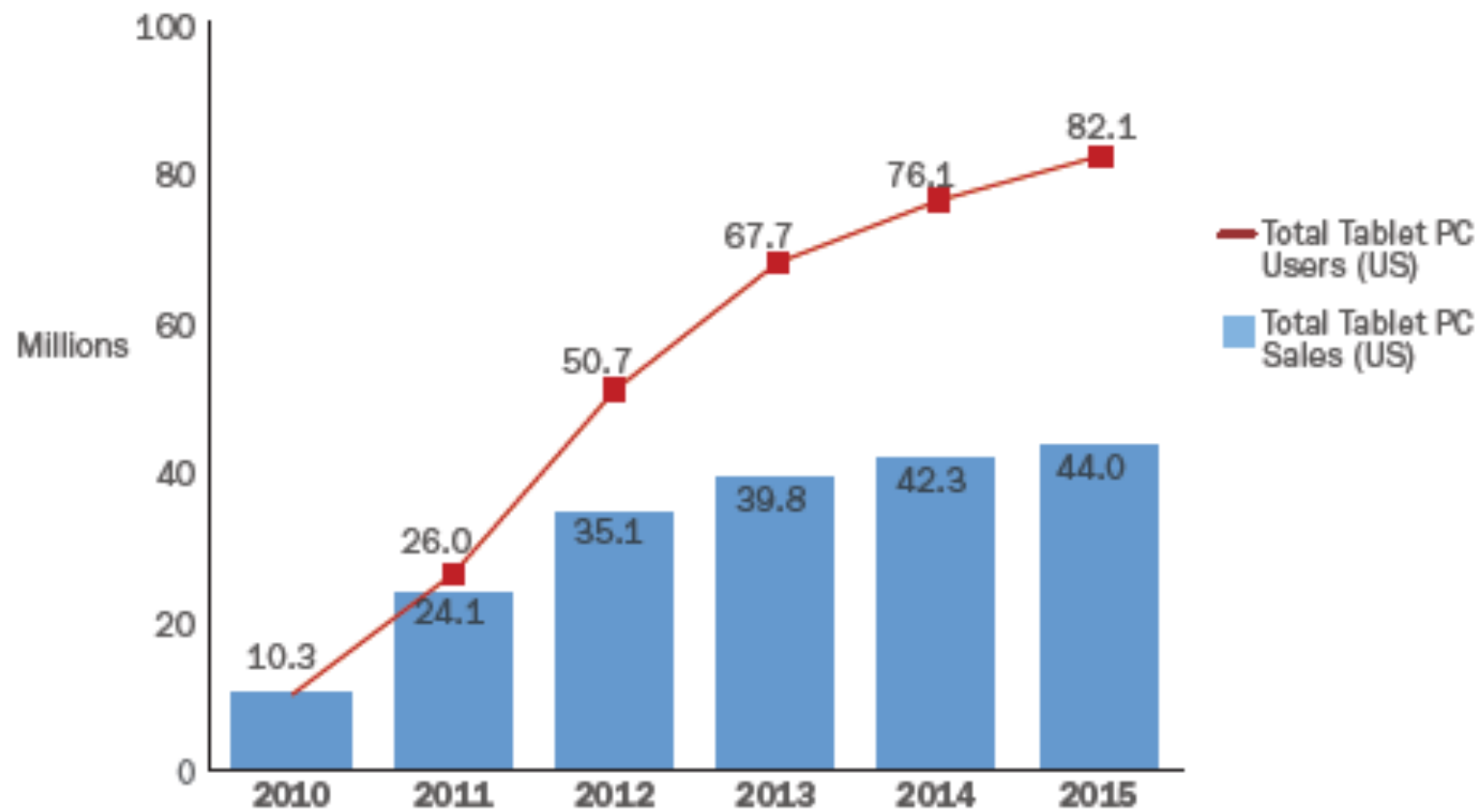
Why iOs

- Rise of mobile devices
- Rise of tablets
- Apple projected to sell more tablets



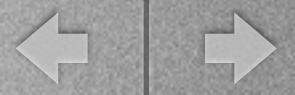
Why iOs

Forecast: US Tablet Devices, 2010 to 2015



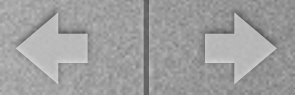
Source: Forrester Research Report "Tablets Will Grow As Fast As MP3 Players"



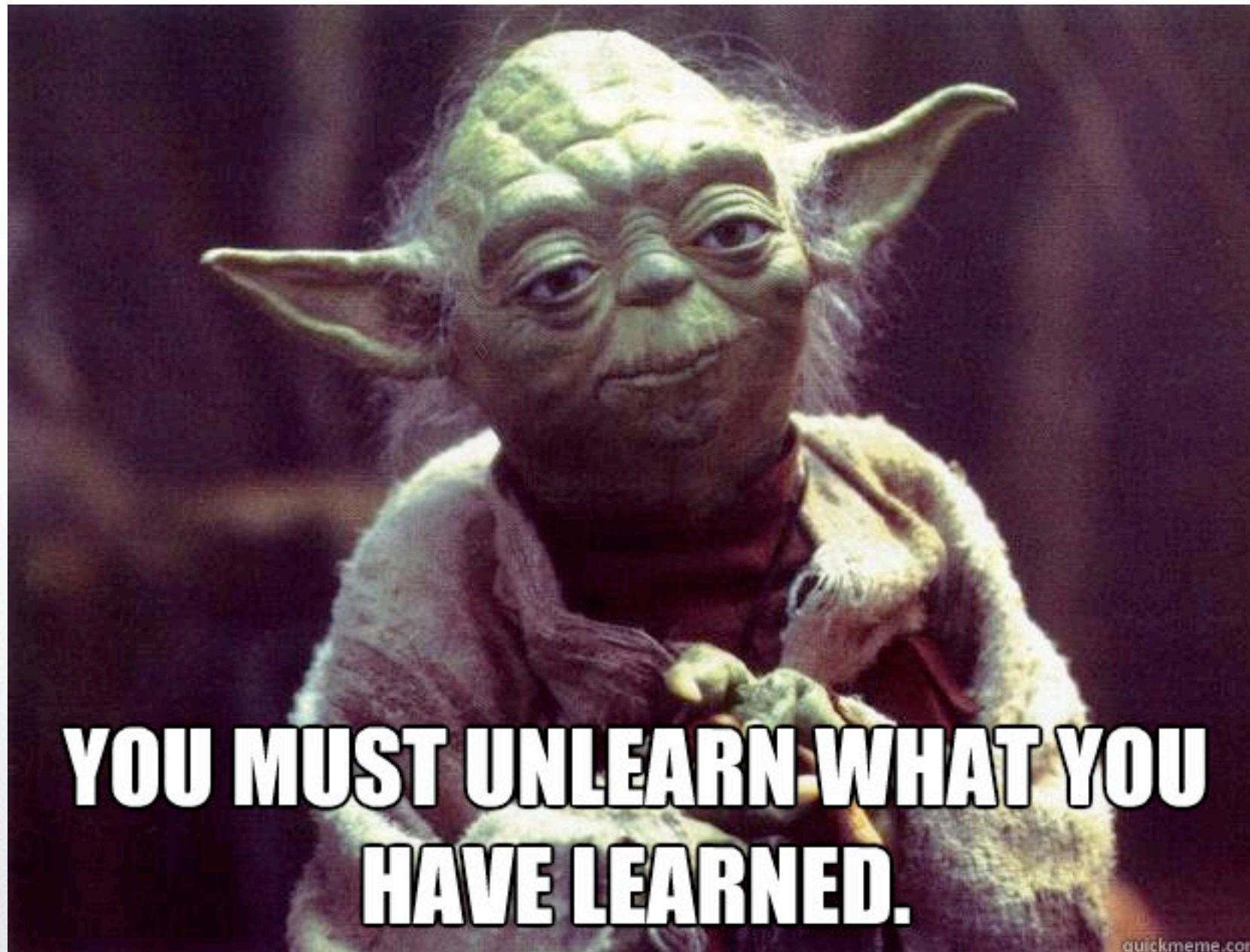


To Master Smalltalk





To Master Smalltalk







To Master Objective-C



To Master Objective-C

- You must remember or re-learn some!



To Master Objective-C

- You must remember or re-learn some!
- Return to “C”



To Master Objective-C

- You must remember or re-learn some!
- Return to “C”
- Come back to Smalltalk





Objective-C



Objective-C

- **Developed by Brad Cox and Tom Love in 1980s**



Objective-C

- Developed by Brad Cox and Tom Love in 1980s
- Earliest appearance 1981ish



Objective-C

- Developed by Brad Cox and Tom Love in 1980s
- Earliest appearance 1981ish
- Both were introduced to Smalltalk at ITT Corporation Programming Technology Center in 1981





OOPC to Objective-C



OOPC to Objective-C

- Brad Cox started writing a preprocessor for C to add some capabilities of Smalltalk



OOPC to Objective-C

- Brad Cox started writing a preprocessor for C to add some capabilities of Smalltalk
- He named it OOPC



OOPC to Objective-C

- Brad Cox started writing a preprocessor for C to add some capabilities of Smalltalk
- He named it OOPC
- meaning “Object oriented pre-compiler”



OOPC to Objective-C

- Brad Cox started writing a preprocessor for C to add some capabilities of Smalltalk
- He named it OOPC
- meaning “Object oriented pre-compiler”
- OOPC evolved to Objective-C





MacOS Replacement



MacOS Replacement

- **Candidates were:**



MacOS Replacement

- Candidates were:
 - BeOS



MacOS Replacement

- Candidates were:
 - BeOS
 - NeXTstep



MacOS Replacement

- Candidates were:
 - BeOS
 - NeXTstep
 - Winner was: NeXTstep





NeXT



NeXT

- **Steve Jobs founded NeXT**



NeXT

- Steve Jobs founded NeXT
- Licensed Objective-C to develop NeXTSTEP



NeXT

- Steve Jobs founded NeXT
- Licensed Objective-C to develop NeXTSTEP
- NeXTSTEP -> OPENSTEP (with SUN)



NeXT

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- NeXTSTEP -> OPENSTEP (with SUN)
- OPENSTEP +BSD ->Mac OS-X



NeXT

- Steve Jobs founded NeXT
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- NeXTSTEP -> OPENSTEP (with SUN)
- OPENSTEP +BSD ->Mac OS-X
- OS X -> iOs





Objective-C in iOs



Objective-C in iOs

- **Superset of C**



Objective-C in iOS

- **Superset of C**
- **Incorporates Smalltalk syntax and many Smalltalk concepts**





Objective-C



Objective-C

- **Basic syntax:**



Objective-C

- **Basic syntax:**
 - **Anything valid in C is valid in Objective-C**



Objective-C

- Basic syntax:
 - Anything valid in C is valid in Objective-C
 - Smalltalk syntax is introduced through “[]”





Additional Syntax



Additional Syntax

- **Separation of interface and implementation**



Additional Syntax

- Separation of interface and implementation
- Method categories



Additional Syntax

- Separation of interface and implementation
- Method categories
- Protocols



Additional Syntax

- Separation of interface and implementation
- Method categories
- Protocols
- UI related macros



Additional Syntax

- Separation of interface and implementation
- Method categories
- Protocols
- UI related macros
- Some code generation for getters-setters





Smalltalk in Objective-C



Smalltalk in Objective-C

```
[UIView setAnimationDelay:wait];
```



Smalltalk in Objective-C

```
[UIView setAnimationDelay:wait];
```

```
[UIView beginAnimations:@"Fade Out" context:nil];
```




Smalltalk in Objective-C

```
[UIView setAnimationDelay:wait];  
[UIView beginAnimations:@"Fade Out" context:nil];  
    [self.navigationController  
pushViewController:videoStarter animated:NO];
```



Smalltalk in Objective-C

```
[UIView setAnimationDelay:wait];  
[UIView beginAnimations:@"Fade Out" context:nil];  
    [self.navigationController  
pushViewController:videoStarter animated:NO];  
[self performSelector:@selector(showVideo:)  
withObject: @"Owh" afterDelay: 0.3];
```






Objective-C Quirks



Objective-C Quirks

```
[self dim: nenhButton alpha: ((aView == nenhButton) ? 0.5 : 0.1)];
```



Objective-C Quirks

```
[self dim: nenhButton alpha: ((aView == nenhButton) ? 0.5 : 0.1)];
```

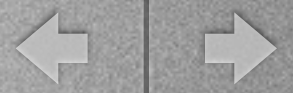
```
[self fadeIn:(UIView*)aView duration: (NSTimeInterval)1.5 wait:(NSTimeInterval)0];
```




Objective-C Quirks

```
[self dim: nenhButton alpha: ((aView == nenhButton) ? 0.5 : 0.1)];  
  
[self fadeIn:(UIView*)aView duration: (NSTimeInterval)1.5 wait:(NSTimeInterval)0];  
  
videoStarter = [[VideoStart alloc] initWithNibName:@"VideoStart"  
                bundle:[NSBundle mainBundle]];
```





```
//  
// Created by Tansel on 19/05/11.  
// Copyright 2011, 2012 Tansel Ersavas. All rights reserved.  
//  
  
#import <UIKit/UIKit.h>  
#import <AVFoundation/AVAudioPlayer.h>  
  
@class AVAudioPlayer;  
  
@interface Audio : UIViewController {  
    IBOutlet UIButton *__weak playNehButton;  
    IBOutlet UIButton *__weak playOwhButton;  
    IBOutlet UIButton *__weak playEhButton;  
    IBOutlet UIButton *__weak playEairhButton;  
    IBOutlet UIButton *__weak playHehButton;  
  
}  
  
@property (weak, nonatomic) IBOutlet UIButton *playNehButton;  
@property (weak, nonatomic) IBOutlet UIButton *playOwhButton;  
@property (weak, nonatomic) IBOutlet UIButton *playEhButton;  
@property (weak, nonatomic) IBOutlet UIButton *playEairhButton;  
@property (weak, nonatomic) IBOutlet UIButton *playHehButton;  
  
-(IBAction)playNeh;  
-(IBAction)playOwh;  
-(IBAction)playEh;  
-(IBAction)playEairh;  
-(IBAction)playHeh;  
-(IBAction)stop;  
@end
```





```
// Created by Tansel on 19/05/11.
// Copyright 2011, 2012 Tansel Ersavas. All rights reserved.
//

#import "Audio.h"

@implementation Audio

@synthesize playNehButton;
@synthesize playOwhButton;
@synthesize playEhButton;
@synthesize playEairhButton;
@synthesize playHehButton;

-(void) playSound: aSoundFile ofType: aType{
    ...
}

-(IBAction)playNeh {
    [self playSound: @"Neh" ofType: @"mp3"];
}

...

- (void)viewWillAppear:(BOOL)animated {
    [super viewWillAppear:animated];
    [self.navigationController setNavigationBarHidden: NO animated: YES];
}

...
@end
```





+(B00L) instancesRespondToSelector:aSelector

+(B00L) isKindOfClassOfClass:aClass

-(B00L) isKindOfClass:aClass

-(B00L) isMemberOfClass:aClass

-(B00L) respondsToSelector:aSelector

-(id)performSelector:aSelector

-(id)performSelector:aSelector withObject:anObject

-(id)performSelector:aSelector withObject:anObject withObject:anotherObject

-(id)performSelector:aSelector withObject:anObject afterDelay:aDelay





Objective-C



Objective-C

- **Naming conventions**



Objective-C

- **Naming conventions**
 - Long and verbose



Objective-C

- **Naming conventions**
 - Long and verbose
 - Very readable



Objective-C

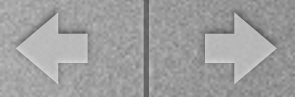
- **Naming conventions**
 - Long and verbose
 - Very readable
 - Very consistent



Objective-C

- **Naming conventions**
 - Long and verbose
 - Very readable
 - Very consistent
 - Bonus: Very Smalltalk like!





More info



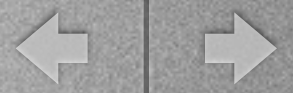
More info

- **Is abundant on the Web**



More info

- Is abundant on the Web
- One example is Objective-C tutorial by Cocoa Dev Central



More info

Learn Objective-C

Cocoa Dev Central

Objective-C

Objective-C is the primary language used to write Mac software. If you're comfortable with basic object-oriented concepts and the C language, Objective-C will make a lot of sense. If you don't know C, you should read the [C Tutorial](#) first.

This tutorial is written and illustrated by [Scott Stevenson](#)

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Let us start!



Let us start!





Let us start!



“Do or do not! There is no try!”





So, you decided



So, you decided

- **Download XCode**



So, you decided

- Download XCode
- Apple developer site



So, you decided

- Download XCode
- Apple developer site
- Free but requires registration



So, you decided

- Download XCode
- Apple developer site
- Free but requires registration
- Requires OS-X



So, you decided

- Download XCode
- Apple developer site
- Free but requires registration
- Requires OS-X
- Latest Xcode will require latest OS-X



So, you decided

- Download XCode
- Apple developer site
- Free but requires registration
- Requires OS-X
- Latest Xcode will require latest OS-X
- Can be downloaded through the App store



So, you decided

Download Xcode 4 for free.



Xcode 4.4.1

Xcode in the Mac App Store has been repackaged, and is now distributed as a stand-alone application. This replaces the Install Xcode package, and adds support for delta updates. Xcode includes a new "Downloads" preference pane to install optional components such as command line tools, and previous iOS Simulators.

Note: To get the latest version of Xcode, you will need to click the "View in Mac App Store" button to the right and download from the new Xcode product page. The update from Xcode 4.2 will not show up in the Mac App Store "Updates" tab. Updates will work as normal for Xcode 4.3 and later.

Looking for additional developer tools? [View Downloads](#) ▶

[View in Mac App Store](#)

- [What's New in Xcode](#)
- [Xcode 4 User Guide](#)
- [Xcode 4 Release Notes](#)





IDEs



IDEs

- **iOs uses XCode**



IDEs

- iOs uses XCode
- Not exactly like Smalltalk IDE



IDEs

- iOs uses XCode
- Not exactly like Smalltalk IDE
- Getting friendlier everyday

BabyEarsNewApp.xcodeproj

Archive Succeeded | 27/08/12 at 2:39 PM

Project ⚠️ 12

Run Stop BabyEar... > iOS Device Scheme Breakpoints Editor View Organizer

BabyEarsNewApp
1 target, iOS SDK 5.1

- babyears.png
- Button114x114px.png
- Button144x144px.png
- Button57x57px.png
- Button72x72px.png
- Default-Portrait~ipad.png
- Default~ipad.png
- Default@2x.png
- Entitlements.plist
- Frameworks
 - TestFlightSDK1-1
 - UIKit.framework
 - Foundation.framework
 - CoreGraphics.framework
 - QuartzCore.framework
 - AVFoundation.framework
 - MediaPlayer.framework
 - MessageUI.framework
- iPad
 - ClassesiPad.xib
 - QandAiPad.xib
 - AppDelegate_iPad.h
 - AppDelegate_iPad.m
 - MainWindow_iPad.xib
 - MainViewiPad.h
 - MainViewiPad.m
 - MainViewiPad.xib
 - VideoiPad.h
 - VideoiPad.m
 - VideoiPad.xib
 - AudioiPad.h
 - AudioiPad.m

PROJECT
BabyEarsN...

TARGETS
BabyEarsN...

Summary Info **Build Settings** Build Phases Build Ru

Setting Resolved BabyEarsNe...

Base SDK Latest iOS (i... Lat

▼ **Build Options**

Compiler for C/C++/Objective-C Apple LLVM... Apple LLVM...

▼ **Validate Built Product** <Multiple v... <Multiple v...

BetaTest Distribution Yes Yes

Debug No

Release Yes Yes

▼ **Code Signing**

Code Signing Entitlements

▼ **Code Signing Identity** iPhone Distr... iPhone Distr... iPh

BetaTest Distribution iPhone Distr... iPhone Distr... iPh

Any iOS SDK iPhone iPhone iPh

Debug iPhone Distr... iPhone Distr... iPh

Any iOS SDK iPhone Distri... iPh

Release iPhone Distr... iPhone Distr... iPh

Any iOS SDK iPhone Distr... iPhone Distr... iPh

▼ **Deployment**

+ Add Target 🕒 Validate Settings + Add Build Se

Auto All Output Clear

```

iPhoneSimulator.platform/
Developer/SDKs/
iPhoneSimulator5.0.sdk/System/
Library/Frameworks/
CoreFoundation.framework/
CoreFoundation
in /System/Library/Frameworks/
Security.framework/Versions/A/
Security
          
```

▼ Quick Help

Name: Code Signing Identity
Declaration: CODE_SIGN_IDENTITY
Abstract: The name ("common name") of a valid code-signing certificate in a keychain within your keychain path. A missing or invalid certificate will cause a build error. [CODE_SIGN_IDENTITY]

Label Label - A variably sized amount of static text.

Round Rect Button - Intercepts touch events and sends an action message to a target object when it's tapped.

Segmented Control - Displays multiple segments, each of which functions as a discrete button.

BabyEarsNewApp.xcodeproj — BEAppDelegate.m

Archive Succeeded | 27/08/12 at 2:39 PM

Project 12

BabyEarsNewApp > Shared > BEAppDelegate.m > No Selection

Run Stop Scheme Breakpoints Editor View Organize

BEAppDelegate.m BEAppDelegate.h TutokiPresenter.h TutokiPresenter.m Audio.h Audio.m Audio.xib Video.h Video.m Video.xib BabyEarsN...p-Info.plist MainView.h MainView.m MainView.xib Classes.h Classes.m Classes.xib Qanda.h Qanda.m Qanda.xib Test.h Test.m Test.xib VideoPlayer.h VideoPlayer.m VideoPlayer.xib TutokiAnimation.h TutokiAnimation.m VideoStart.h VideoStart.m VideoStart.xib NoteView.h NoteView.m NoteView.xib

```
//
// BEAppDelegate.m
// TestApp
//
// Created by Tansel on 21/08/12.
// Copyright (c) 2012 Tansel Ersavas. All rights reserved.
//

#import "BEAppDelegate.h"
#import "TestFlight.h"

#import "MainView.h"

@implementation BEAppDelegate

@synthesize window = _window;
@synthesize mainViewController = _mainViewController;

- (BOOL)application:(UIApplication *)application
didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
{
    [TestFlight takeOff:@"02d3e3fee36e94b5006adf847735bb57_0DE4MTMyMDEyLTA3
LTA0IDIZ0jMx0jA2LjIxMTI0Mg"];
#ifdef TESTING
    // [TestFlight setDeviceIdentifier:[UIDevice currentDevice]
    // uniqueIdentifier]];
#endif

    self.window = [[UIWindow alloc] initWithFrame:[UIScreen mainScreen]
    bounds]];
    // Override point for customization after application launch.

```

Quick Help

Name: .

No Quick Help

Search Documentation

Objects

Label Label - A variably sized amount of static text.

Round Rect Button - Intercepts to events and sends an action message target object when it's tapped.

1 2 Segmented Control - Displays multiple segments, each of which functions as a discrete button.

All Output

BabyEarsNewApp[97370:92675]
TestFlight: Started Session
2012-08-27 14:34:13:284
BabyEarsNewApp[97370:92675]
TestFlight: Crash Handlers are installed
2012-08-27 14:34:14:862
BabyEarsNewApp[97370:92675]
TestFlight: Team Token is recognized

BabyEarsNewApp.xcodeproj — Video.xib

Archive Succeeded | 27/08/12 at 2:39 PM

Run Stop Scheme Breakpoints Editor View Organize

BabyEarsNewApp > Shared > Video.xib > View > Button

BEAppDelegate.m
BEAppDelegate.h
TutokiPresenter.h
TutokiPresenter.m
Audio.h
Audio.m
Audio.xib
Video.h
Video.m
Video.xib
BabyEarsNewApp-Info.plist
MainView.h
MainView.m
MainView.xib
Classes.h
Classes.m
Classes.xib
Qanda.h
Qanda.m
Qanda.xib
Test.h
Test.m
Test.xib
VideoPlayer.h
VideoPlayer.m
VideoPlayer.xib
TutokiAnimation.h
TutokiAnimation.m
VideoStart.h
VideoStart.m
VideoStart.xib
NoteView.h
NoteView.m
NoteView.xib

Placeholders
File's Owner
First Responder

Objects
View
Image View - BabyFinal60...
Button
Button
Button
Button
Button

Button

Type Custom

State Config Default

Title Default Title

Image Default Image

Background Eairh.png

Font Helvetica Bold 24.0

Text Color Dark Text Color

Shadow Color Default

Shadow Offset 0 0
Width Height

Reverses On Highlight

Highlight Tint Default

Drawing Shows Touch On Highlight
Highlighted Adjusts Image
Disabled Adjusts Image

Line Break Word Wrap

Objects

Label Label - A variably sized amount of static text.

Round Rect Button - Intercepts touch events and sends an action message to target object when it's tapped.

Segmented Control - Displays multiple segments, each of which functions as a discrete button.

All Output
Clear

```

BabyEarsNewApp[97370:92675]
TestFlight: Started Session
2012-08-27 14:34:13:284
BabyEarsNewApp[97370:92675]
TestFlight: Crash Handlers are
installed
2012-08-27 14:34:14:862
BabyEarsNewApp[97370:92675]
TestFlight: Team Token is
recognized

```








Custom Artwork





Custom Artwork

- **You WILL need at least some custom artwork**



Custom Artwork

- You **WILL** need at least some custom artwork
- Unless you are graphics artist do not do it yourself!!



Custom Artwork

- You **WILL** need at least some custom artwork
- Unless you are graphics artist do not do it yourself!!
- If you must, then read “Human Interface Guidelines” especially:



Custom Artwork

- You **WILL** need at least some custom artwork
- Unless you are graphics artist do not do it yourself!!
- If you must, then read “Human Interface Guidelines” especially:
 - “Human Interface Principals”





iPhone Mockups





iPhone Mockups

- Use a GUI designer



iPhone Mockups

- Use a GUI designer
- Use ready made mockup images from the internet



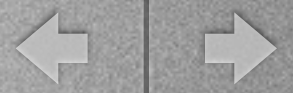
iPhone Mockups

- Use a GUI designer
- Use ready made mockup images from the internet
- <http://www.teehanlax.com/downloads/iphone-4-guid-psd-retina-display/>



iPhone Mockups

- Use a GUI designer
- Use ready made mockup images from the internet
- <http://www.teehanlax.com/downloads/iphone-4-guid-psd-retina-display/>
- Careful: the above can only be used by designers for mockups not for promotion







Apple Human Interface Guidelines



Apple Human Interface Guidelines

- **Must-must-must read!**



Apple Human Interface Guidelines

- **Must-must-must read!**
- “iOS Human Interface Guidelines describes the guidelines and principles that help you design a superlative user interface and user experience for your iOS app”



Apple Human Interface Guidelines

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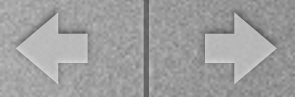
Apple Human Interface Guidelines

- **Must-must-must read!**
- “iOS Human Interface Guidelines describes the guidelines and principles that help you design a superlative user interface and user experience for your iOS app”



Image and quote source: Apple developer Library





iOs Apps - Devices



iOs Apps - Devices

- iPhone-iPod touch only



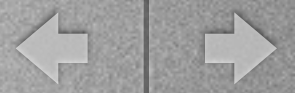
iOs Apps - Devices

- iPhone-iPod touch only
- iPad only



iOs Apps - Devices

- iPhone-iPod touch only
- iPad only
- Universal



iOs Apps - Devices



- iPhone-iPod touch only
- iPad only
- Universal







iOs Apps-Orientation



iOs Apps-Orientation

- **Portrait**



iOs Apps-Orientation

- **Portrait**
- **Landscape**



iOs Apps-Orientation

- **Portrait**
- **Landscape**
- **Supporting both**



iOs Apps-Orientation

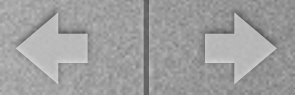
- Portrait
- Landscape
- Supporting both
- Don't forget upside-down versions



iOs Apps-Orientation

- Portrait
- Landscape
- Supporting both
- Don't forget upside-down





iOs Apps-Orientation

- Portrait
- Landscape
- Supporting both
- Don't forget upside-down







iOs App types



iOs App types

- **Generally fits into a few basic categories**



iOs App types

- Generally fits into a few basic categories
 - Simple one or 2 page apps



iOs App types

- Generally fits into a few basic categories
 - Simple one or 2 page apps
 - Tab based apps



iOs App types

- Generally fits into a few basic categories
 - Simple one or 2 page apps
 - Tab based apps
 - Navigation based apps



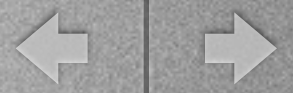
iOs App types

- Generally fits into a few basic categories
 - Simple one or 2 page apps
 - Tab based apps
 - Navigation based apps
 - OpenGL Apps

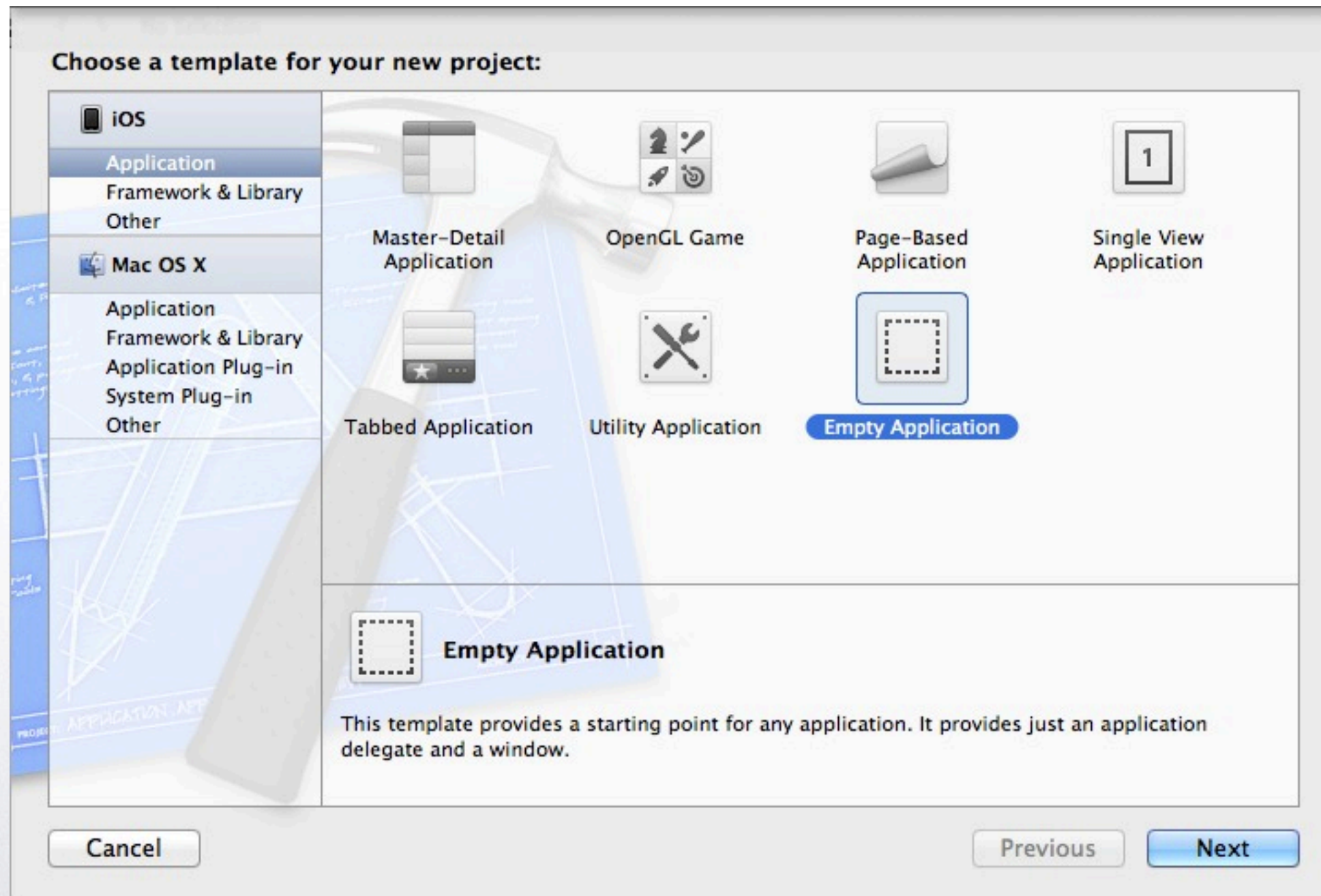


iOs App types

- Generally fits into a few basic categories
 - Simple one or 2 page apps
 - Tab based apps
 - Navigation based apps
 - OpenGL Apps
 - Mixed apps



iOs App types







Simple Apps



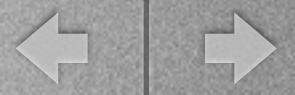
Simple Apps

- **Single Page App template**

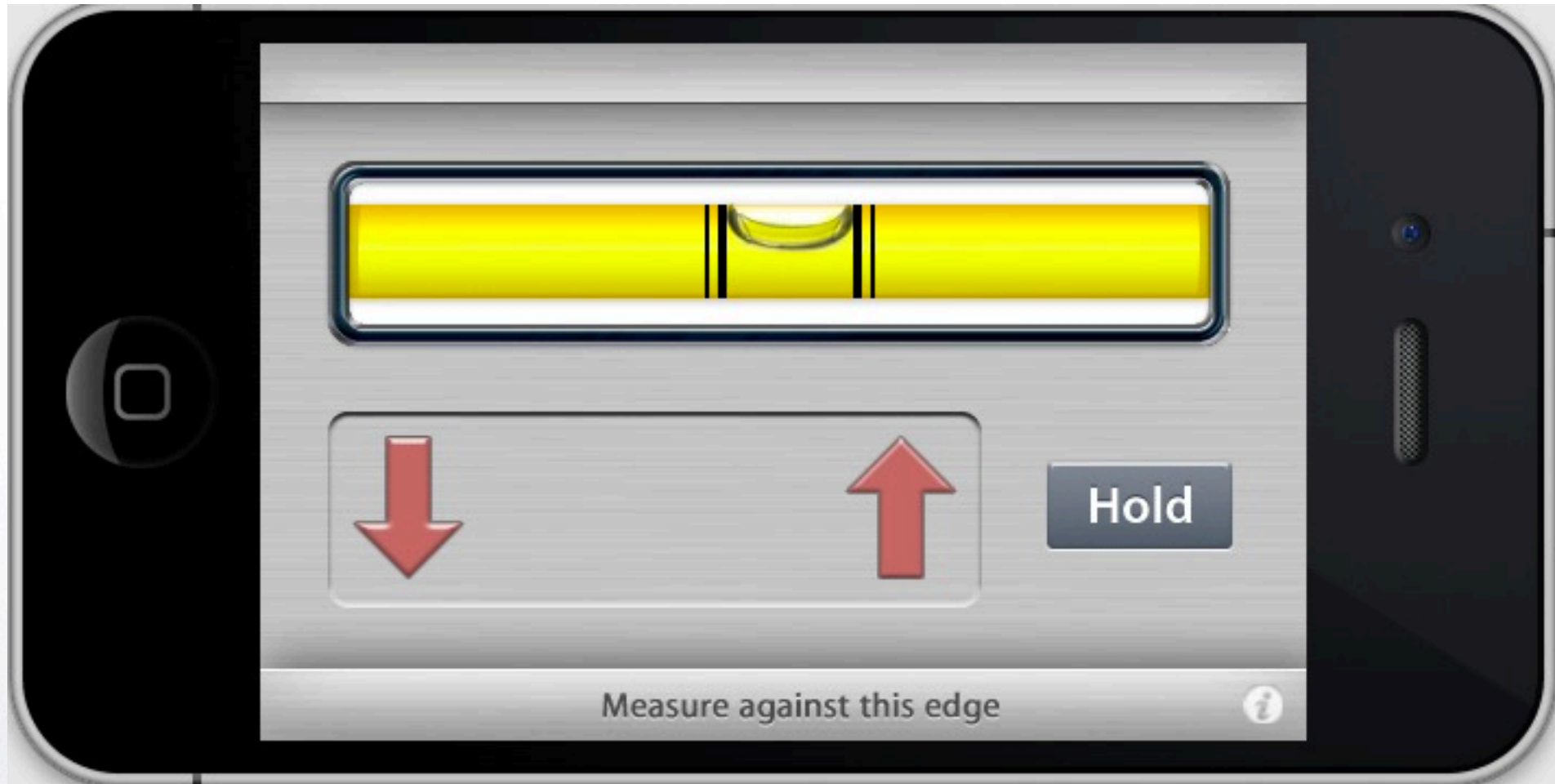


Simple Apps

- **Single Page App template**
- **Utility App template**

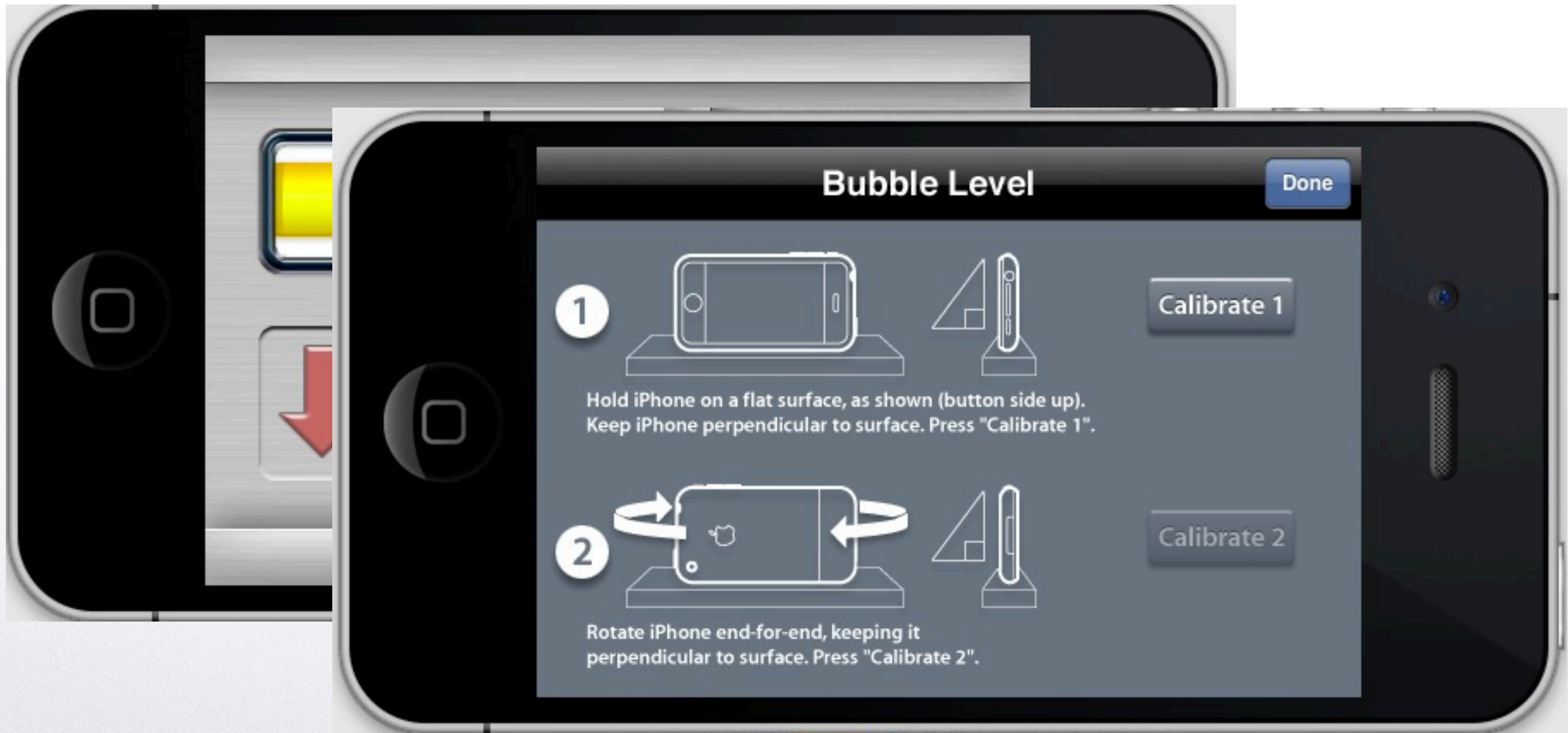


Simple Apps





Simple Apps







Tabbed Apps



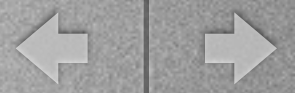
Tabbed Apps

- Good when there are a few pages

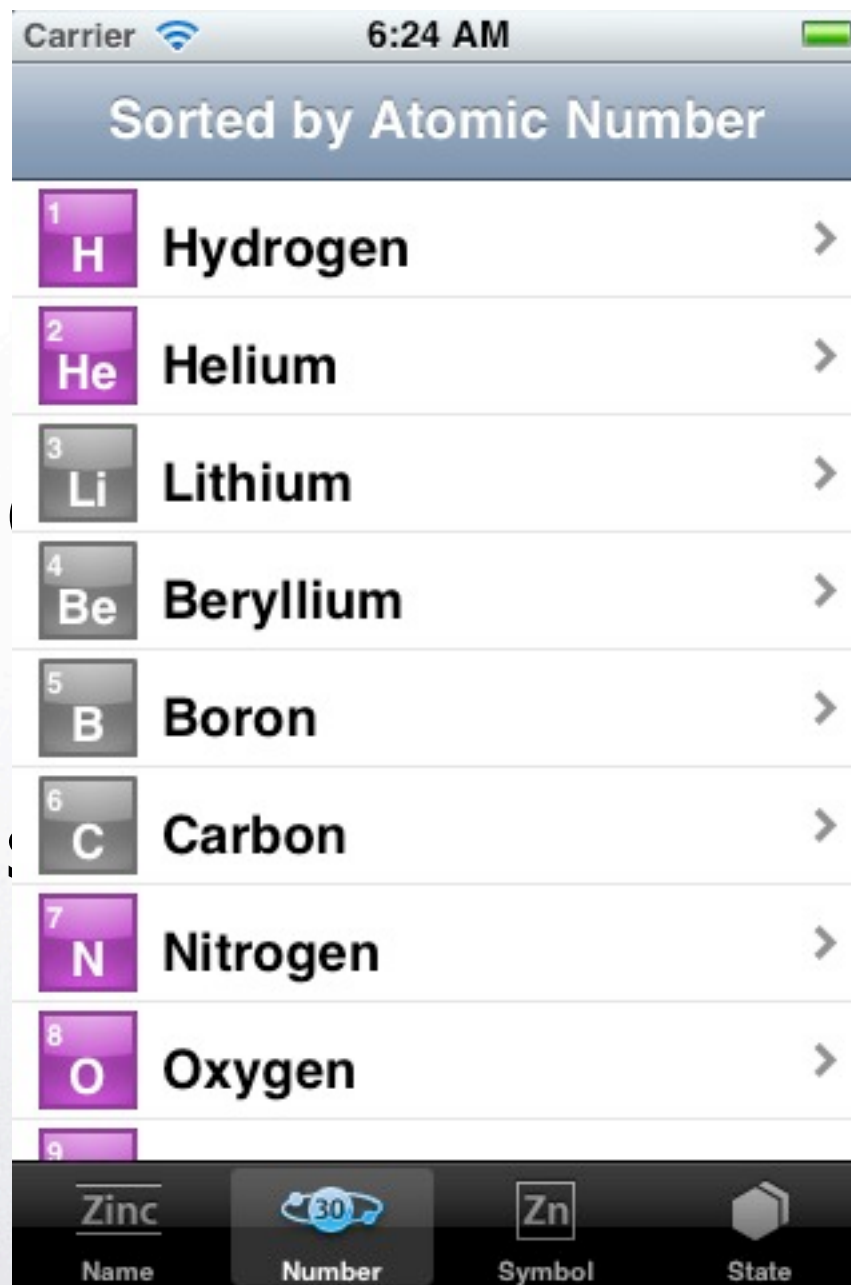


Tabbed Apps

- Good when there are a few pages
- Navigation is through always visible sometimes horizontally scrollable tabs



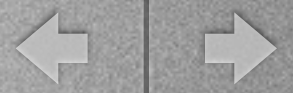
Tabbed Apps



are a few pages

gh always visible

ntally scrollable tabs



Tabbed Apps

Carrier 6:24 AM Carrier 6:25 AM

Sorted by Atomic Number		Sorted by Atomic Symbol	
1 H Hydrogen	>	89 Ac Actinium	>
2 He Helium	>	47 Ag Silver	>
3 Li Lithium	>	13 Al Aluminum	>
4 Be Beryllium	>	95 Am Americium	>
5 B Boron	>	18 Ar Argon	>
6 C Carbon	>	33 As Arsenic	>
7 N Nitrogen	>	85 At Astatine	>
8 O Oxygen	>	79 Au Gold	>
9		5	

Zinc 30 Zn State
Name Number Symbol State







Navigation based Apps



Navigation based Apps

- For more sophisticated apps



Navigation based Apps

- For more sophisticated apps
- Allows to navigate through pushing new views



Navigation based Apps

- For more sophisticated apps
- Allows to navigate through pushing new views
- Can create a complex tree like navigation



Navigation based Apps

- For more sophisticated apps
- Allows to navigate through pushing new views
- Can create a complex tree like navigation
- with or without a navigation bar on top



Navigation based Apps



phisticated apps

avigate through pushing new

complex tree like navigation

out a navigation bar on top



Navigation based Apps



l apps

ough pushing new

tree like navigation

gation bar on top



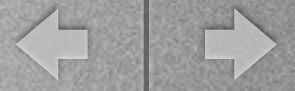
Navigation based Apps



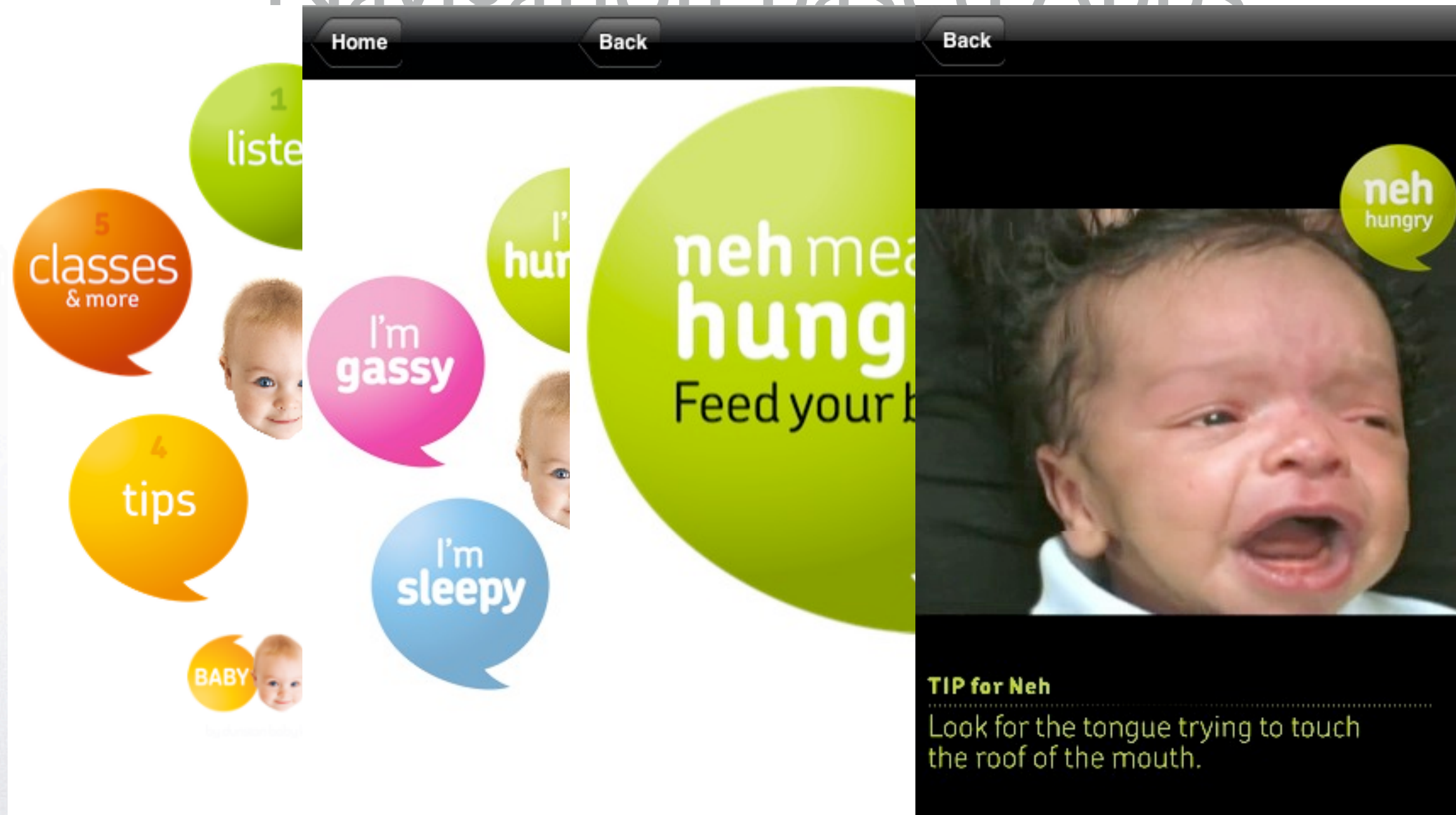
ing new

avigation

on top



Navigation based Apps







OpenGL Games



OpenGL Games

- Do not need to be compliant to Apple Human Interface Guidelines as much as other iOS apps



OpenGL Games

- Do not need to be compliant to Apple Human Interface Guidelines as much as other iOS apps
- OpenGL is generally much harder than Apple UI component based apps



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OpenGL Games

- Do not need to be compliant to Apple Human Interface Guidelines as much as other iOS apps
- OpenGL is generally much harder than Apple UI component based apps



Image from Apple developer site





Other tools to consider



Other tools to consider

- **General**



Other tools to consider

- **General**
- **PhoneGap**



Other tools to consider

- **General**
 - PhoneGap
 - RhoStudio



Other tools to consider

- **General**
 - PhoneGap
 - RhoStudio
 - Appcelerator



Other tools to consider

- **General**
 - PhoneGap
 - RhoStudio
 - Appcelerator
 - MoSync





2D and 3D Graphics



2D and 3D Graphics

- **Game engines-frameworks**



2D and 3D Graphics

- **Game engines-frameworks**
 - **Corona SDK**



2D and 3D Graphics

- **Game engines-frameworks**
 - **Corona SDK**
 - **Unity3D**



2D and 3D Graphics

- **Game engines-frameworks**
 - **Corona SDK**
 - **Unity3D**
 - **Unreal**



2D and 3D Graphics

- **Game engines-frameworks**
 - **Corona SDK**
 - **Unity3D**
 - **Unreal**
 - **Cocos-2D**



2D and 3D Graphics

- **Game engines-frameworks**
 - Corona SDK
 - Unity3D
 - Unreal
 - Cocos-2D
 - Many others





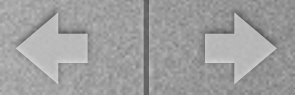
An Example of a Unity3D Game





An Example of a Unity3D Game

- **Battlestar Galactica online by NBCUniversal**



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An Example of our Unity3D work





An Example of our Unity3D work

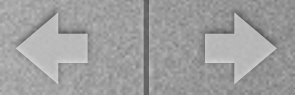
- **Chora Museum by IZApps**



An Example of our Unity3D work

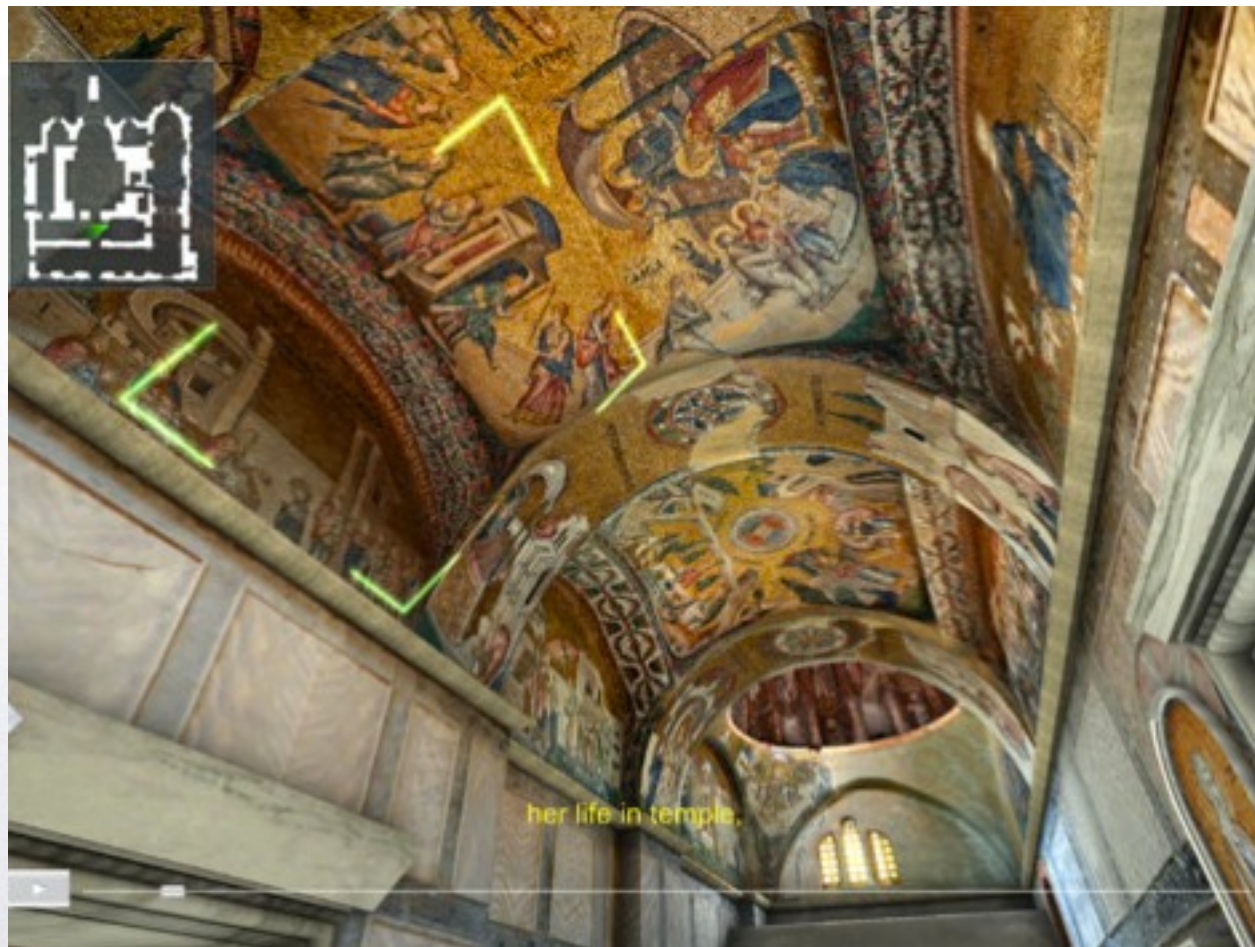
- Chora Museum by IZApps





An Example of our Unity3D work

- Chora Museum by IZApps







Where to go next





Where to go next

- **Play with Xcode**



Where to go next

- **Play with Xcode**
- **Immense amount of tutorials on the web**



Where to go next

- Play with Xcode
- Immense amount of tutorials on the web
- Some on-line courses by respected universities





Stanford University





CS 193P iPhone Application Development

Search web pages...

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iTunesU Viewers

Spring (2011-2012) quarter's lectures will NOT be available on iTunesU.

Fall (2011-12) quarter's lectures are available on [iTunesU](#) and here are its associated [downloads](#) (lecture slides and homework assignments).

[paul's blog](#)

Last modified: by paul | Sat, 2011-03-26 22:00

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Closing



Closing

- You can develop with Objective-C



Closing

- You can develop with Objective-C
- Resources are abundant



Closing

- You can develop with Objective-C
- Resources are abundant
- Good designers are available on the Web





Any questions?



Any questions?

- You can reach me at tansel@tansel.org



Any questions?

- You can reach me at tansel@tansel.org
- Come and visit us in Turkey while I am there!



Any questions?

- You can reach me at tansel@tansel.org
- Come and visit us in Turkey while I am there!
- Let us do an ESUG conference in Istanbul!