iPad
What's New for Software Developers

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  - “Get Your Development Team Up To Speed Fast!”
- Servin Web-Based Training
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  - iPhone External Accessory Programming Exercises
  - iPhone Flashlight Programming Tutorial
  - iPhone 3 Programming Templates Explained
  - Red Hat Enterprise Linux 5 Admin Skills
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Servin Apps
25+ iPhone Apps

- Technology Professionals
  - Device Info Plus
    - Device ID Info, Font Info, CPU Info, Network Info, and more!
  - Accelerometer Fun
    - Display, record, and export accelerometer info
  - Process Log
    - Display list of processes
- Health/Fitness
  - Weight Log Simple – keep log of your weight
  - Sleep Log Simple – keep log of your sleep
- Games and Entertainment
  - Touch Fast – how fast can you touch the screen?
  - Simon Says Face Up – can you do as Simon says?

UCSD Extension Courses

- These courses are taught by Norman McEntire and fill up quickly so register early
  - iPhone Programming: Touch, Sound, and More!
    - Summer 2010: July 6 – Aug 31, Tuesdays 6pm - 9pm
  - iPhone Programming: Advanced
    - Summer 2010: July 8 – Sep 2, Thursdays 6pm – 9pm
  - Google's Android
    - Summer 2010: July 10 – Sep 4 , Saturdays 9am - 12pm

Previous SDSIC Presentations

- These SDSIC presentations are available on http://servin.com
  - 2010-03-09
    - Mobile Apps 2010: iPhone and Android
  - 2009-07-13
    - iPhone OS 3.0: What's New for Software Developers
  - 2009-04-02
    - iPhone Programming: Touch, Sound, and More!

Opening Remarks

- Welcome!
- Thank you!
- My Promise To You
  - Show you what's new for software developers in iPad
    - iPad => iPhone OS SDK 3.2
- My teaching style
    - Show a few slides
    - Do lots of live demos
    - Questions at anytime are great!

PDF Slides and WebEx Recording Will Be Posted on http://servin.com

- My Goal: Show you, ***faster than any method on planet earth***, how to use the new software features for iPad
  - Frameworks. Classes. Methods.
- This demo is fast paced but PDF slides and WebEx recording will be posted on http://servin.com
  - The PDF Slides include the source code
  - The WebEx Recording can be paused/replayed

Time for the Demos!

Demo 1

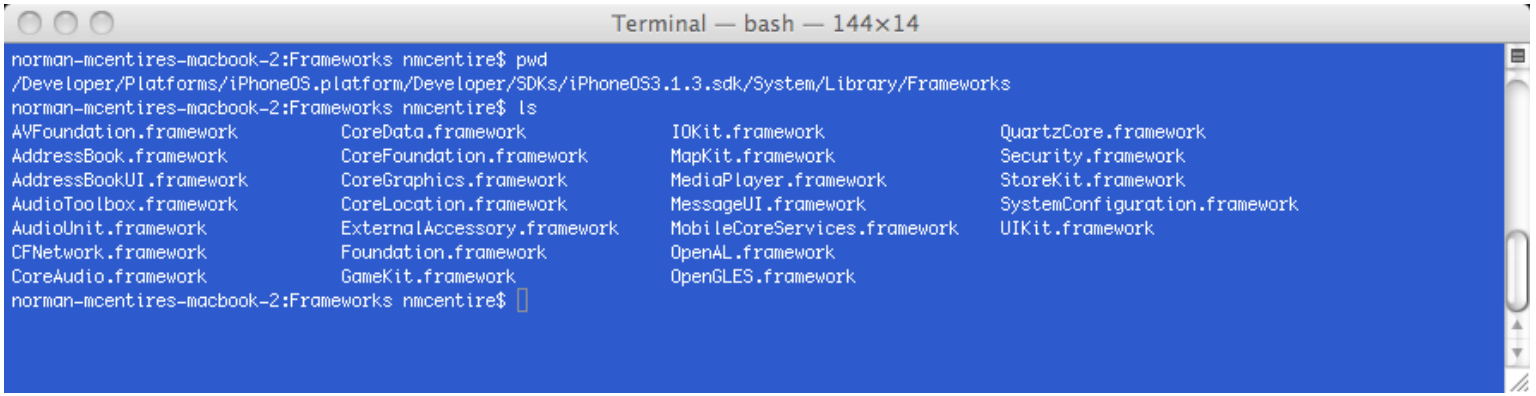
Explore iPad SDK

Demo 1 – Key Concepts

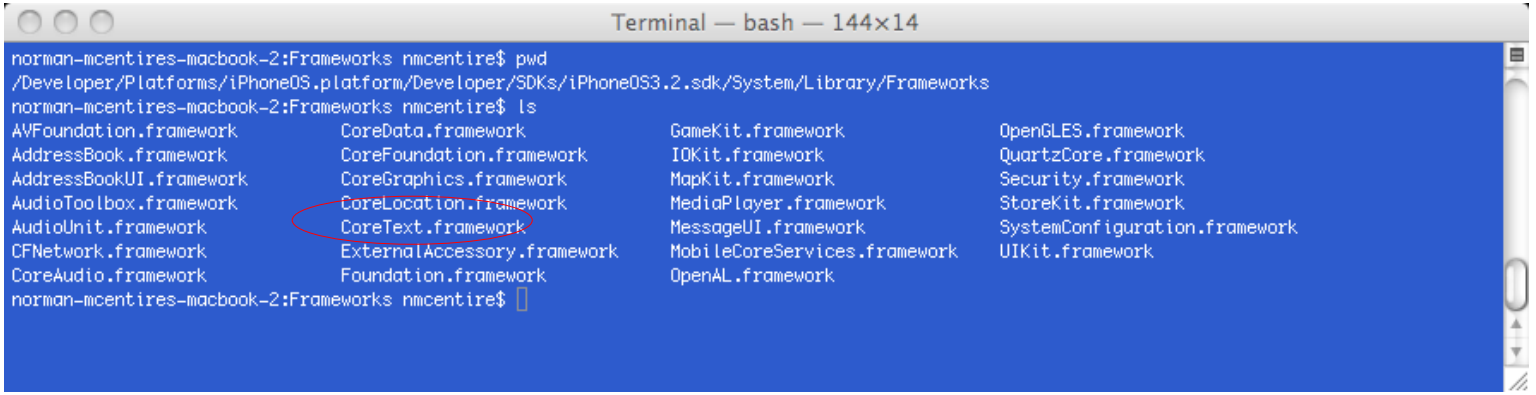
- Every iPhone OS SDK provides a specific set of interfaces for use by software developers
- SDK – Software Development Kit
  - iPhone/iPod Touch => iPhone OS 3.1 SDK
  - iPad => iPhone OS 3.2 SDK
- Look for New Frameworks, New Header File Additions, and New Project Templates

Demo 1/Part 1 – New Frameworks

iPhone/iPod Touch Frameworks:
/Developer/Platforms/iPhoneOS.platform/Developer/SDKs/iPhoneOS3.1.3.sdk/System/Library/Frameworks



iPad Frameworks (New CoreText.framework)
/Developer/Platforms/iPhoneOS.platform/Developer/SDKs/iPhoneOS3.2.sdk/System/Library/Frameworks

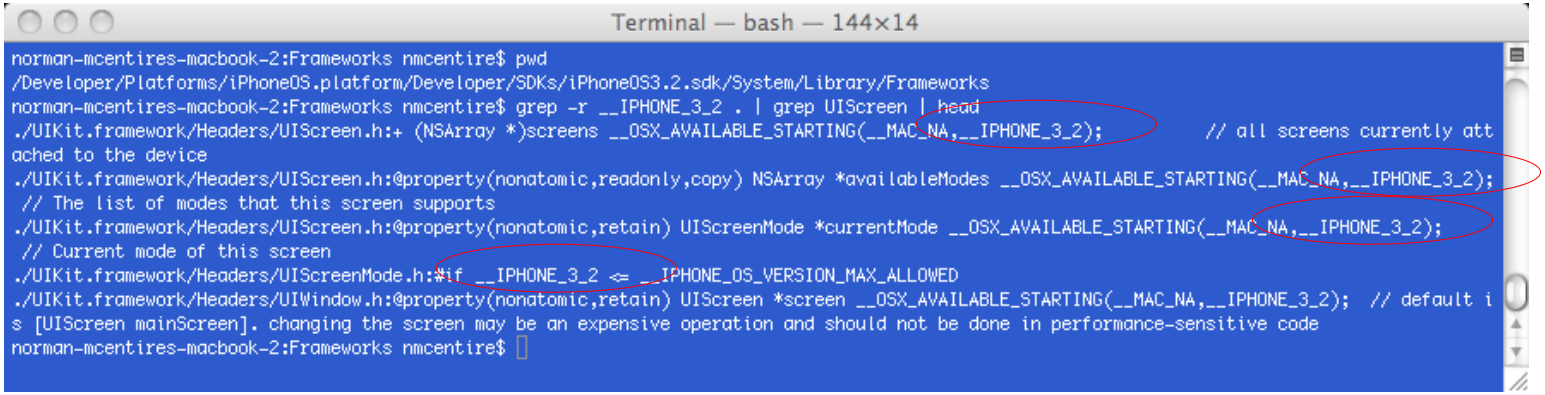


Demo 1/Part 2 – New Header File Info

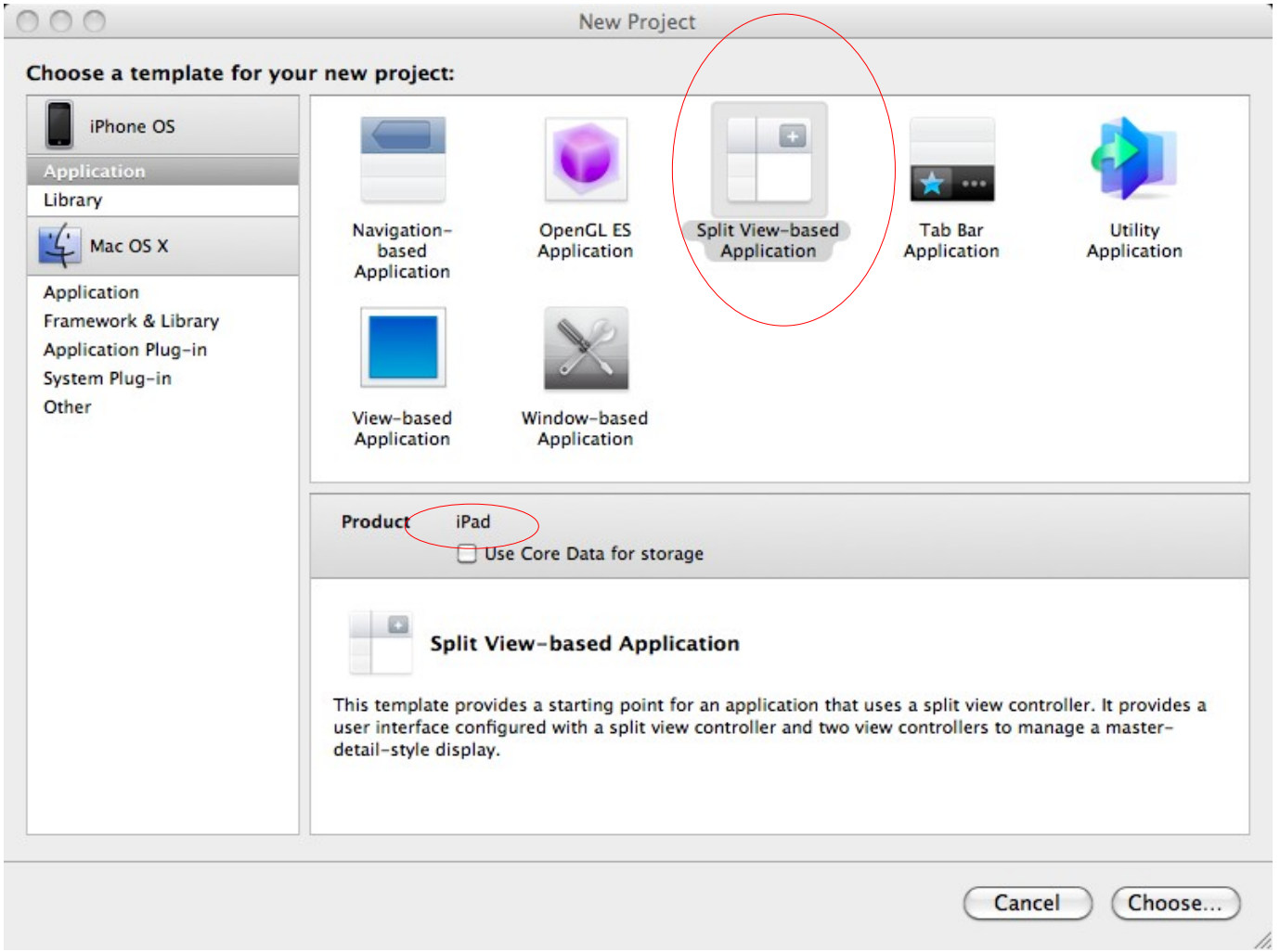
iPad New Header File Info (New __IPHONE_3_2)

From top-level of Framework Header files, do a recursive grep on the pattern __IPHONE_3_2

$ cd /Developer/Platforms/iPhoneOS.platform/Developer/SDKs/iPhoneOS3.2.sdk/System/Library/Frameworks
$ grep -r __IPHONE_3_2 . | less



Demo 1/Part 3 – New Project Templates



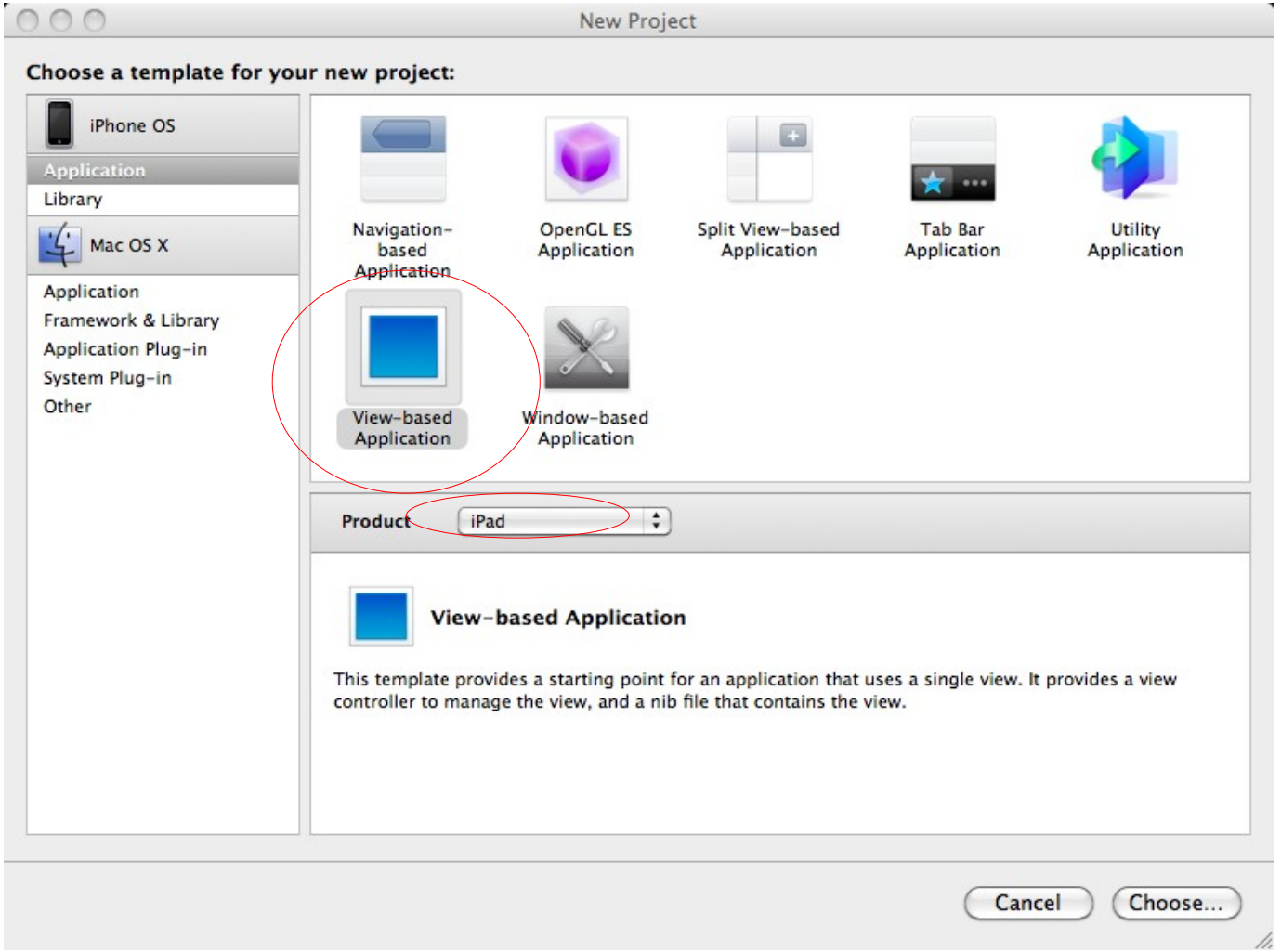
Demo 2

iPad Modal Presentation Styles

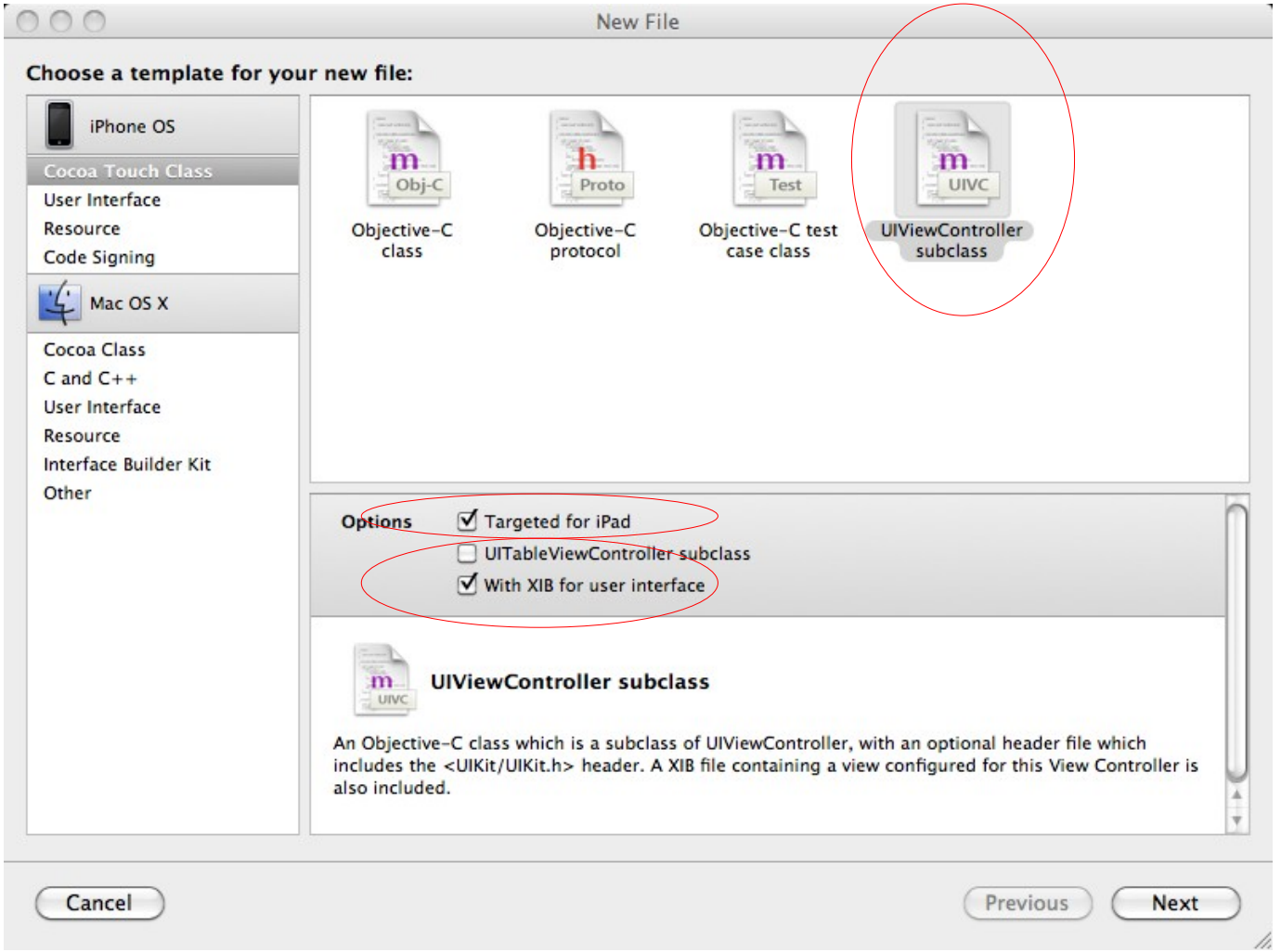
Demo 2 – Key Concepts

- iPhone/iPod Touch has single fullscreen modal style
- iPad UIViewController provides new modalPresentationStyle property
  - Values of modalPresentationStyle Property
    - UIModalPresentationStyleFullScreen
    - UIModelPresentationStylePageSheet
    - UIModelPresentationStyleFormSheet

Demo 2 – Part 1



Demo 2 - Part 2
SecondViewController



Demo 2 - Part 3
FirstViewController.m

```
//  FirstViewController.m

#import "FirstViewController.h"
#import "SecondViewController.h"

@implementation FirstViewController

-(void)touchesBegan:(NSSet *)touches
                          withEvent:(UIEvent *)event {
    SecondViewController *vc = [[SecondViewController alloc]
            initWithNibName:@"SecondViewController" bundle:nil];
    vc.delegate = self;
    //vc.modalPresentationStyle = UIModalPresentationFullScreen;
    //vc.modalPresentationStyle = UIModalPresentationPageSheet'
    vc.modalPresentationStyle = UIModalPresentationFormSheet;
    [self presentModalViewController:vc animated:YES];
    [vc release];
}
```

Demo 2 - Part 4
FirstViewController.m

```
- (void)viewDidLoad {
    [super viewDidLoad];

    [self.view setBackgroundColor:[UIColor redColor]];

}
```

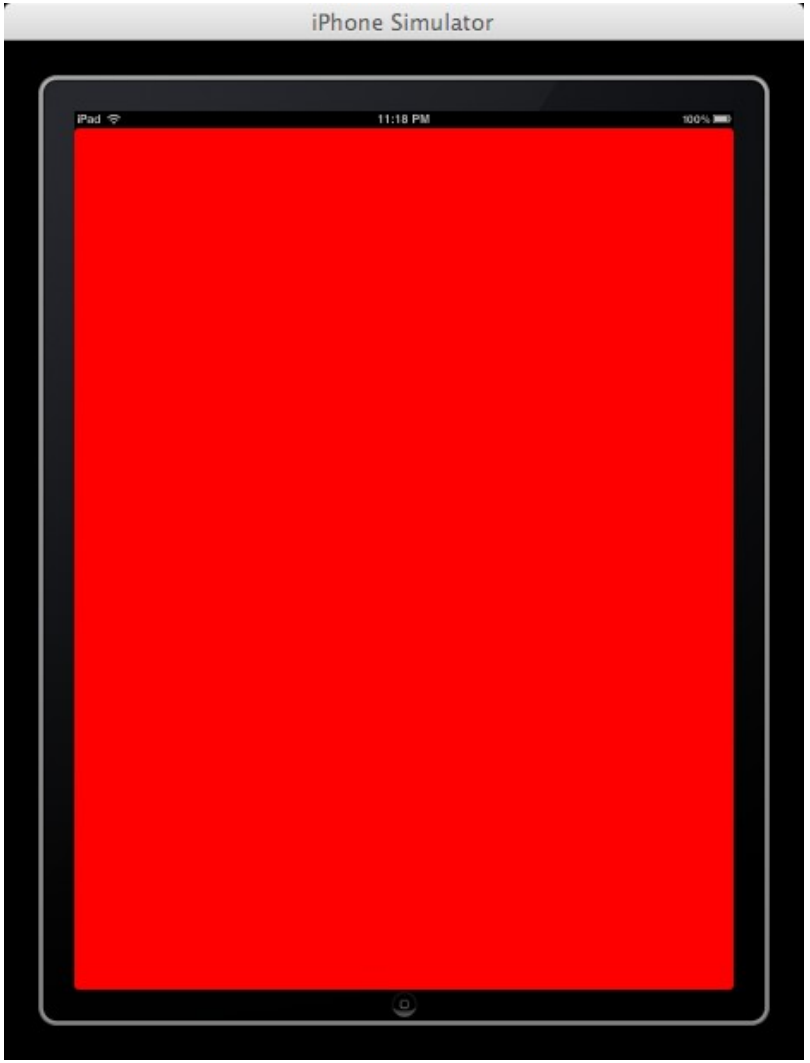
Demo 2 - Part 5
SecondViewController.h

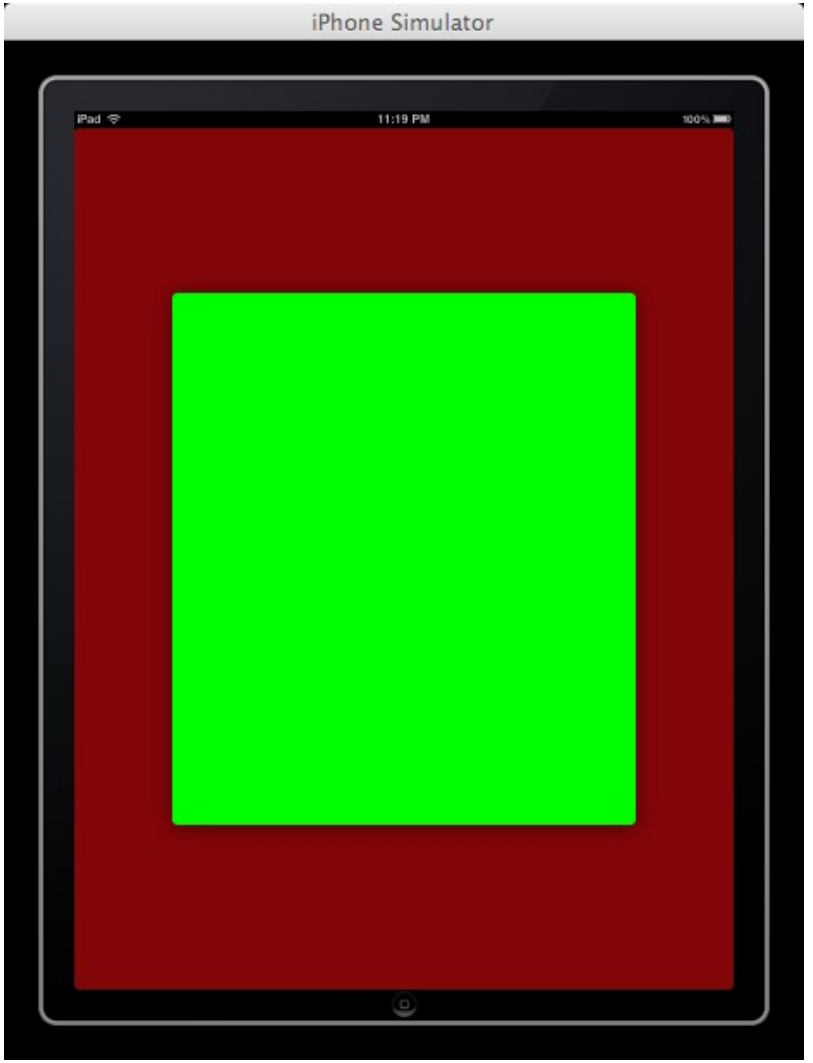
```
//  SecondViewController.h
#import <UIKit/UIKit.h>
@interface SecondViewController : UIViewController {
    id delegate;
}
@property (nonatomic, assign) id delegate;
@end
```

Demo 2 - Part 6
SecondViewController.m

```
-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {
    [delegate dismissModalViewControllerAnimated:YES];
}

- (void)viewDidLoad {
    [super viewDidLoad];

    [self.view setBackgroundColor:[UIColor greenColor]];

}
```

Demo 2 – Results UIModalPresentationFormSheet





Demo 3

iPad Gesture Recognizers

Demo 3 – Key Concepts

- iPhone OS 3.1 and below had no gesture recognition
- iPad (iPhone OS 3.2) provides gesture recognizers
  - Taps, Long Press (touch and hold), Swipe Left, Swipe Right, Pinching, Rotating
- Gesture Recognizers attach to a view

Demo 3 – New Classes

- UIGestureRecognizer – base class
- UITapGestureRecognizer
- UILongPressGestureRecognizer
- UISwipeGestureRecognizer
- UIPinchGestureRecognizer
- UIPanGestureRecognizer
- UIRotationGestureRecognizer

Demo 3 - Part 1
FirstViewController.m

```
//  FirstViewController.m

#import "FirstViewController.h"
#import "SecondViewController.h"

@implementation FirstViewController
//-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {
-(void) doSwipe:(UISwipeGestureRecognizer *)swipe {
    SecondViewController *vc = [[SecondViewController alloc]
            initWithNibName:@"SecondViewController" bundle:nil];
    vc.delegate = self;
    //vc.modalPresentationStyle = UIModalPresentationFullScreen;
    //vc.modalPresentationStyle = UIModalPresentationPageSheet'
    vc.modalPresentationStyle = UIModalPresentationFormSheet;
    [self presentModalViewController:vc animated:YES];
    [vc release];
}
```

Demo 3 - Part 2
FirstViewController.m

```
- (void)viewDidLoad {
    [super viewDidLoad];

    [self.view setBackgroundColor:[UIColor redColor]];

    UISwipeGestureRecognizer *gesture =
       [[UISwipeGestureRecognizer alloc]
        initWithTarget:self action:@selector(doSwipe:)];
    gesture.direction = UISwipeGestureRecognizerDirectionRight;
    [self.view addGestureRecognizer:gesture];
    [gesture release];

}
```

Demo 3 - Part 3
SecondViewController.m

```
//-(void)touchesBegan:(NSSet *)touches withEvent:(UIEvent *)event {
-(void) doSwipe:(UISwipeGestureRecognizer *)swipe {
    [delegate dismissModalViewControllerAnimated:YES];
}

- (void)viewDidLoad {
    [super viewDidLoad];

    [self.view setBackgroundColor:[UIColor greenColor]];

    UISwipeGestureRecognizer *gesture =
    [[UISwipeGestureRecognizer alloc]
     initWithTarget:self action:@selector(doSwipe:)];
    gesture.direction = UISwipeGestureRecognizerDirectionLeft;
    [self.view addGestureRecognizer:gesture];
    [gesture release];
}
```

Demo 4

UIPopoverController

Demo 4 - Concepts

- UIPopoverController displays view controller on top of another
- Similar to UIAlertView, but not modal
  - User does not have to respond to UIPopoverController – touch outside to dismiss
- UIPopoverController displayed where it makes sense
  - Size and “arrow” are configurable
- Example use: Split View-based App

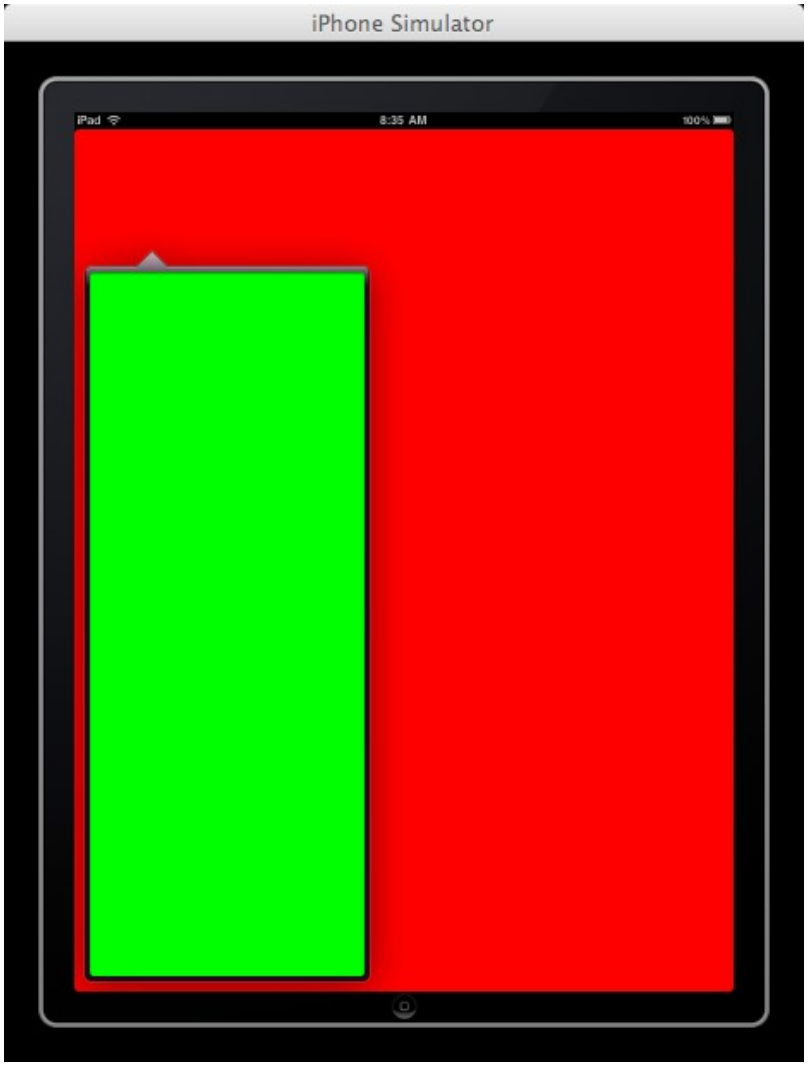
Demo 4 - Part 1
FirstViewController.m

```
//  FirstViewController.m

-(void) doSwipe:(UISwipeGestureRecognizer *)swipe {

    SecondViewController *vc =
          [[SecondViewController alloc]
           initWithNibName:@"SecondViewController" bundle:nil];

    UIPopoverController *popover = [[UIPopoverController alloc]
                    initWithContentViewController:vc];
    vc.delegate = popover;
    CGRect rect = CGRectMake(40.0, 40.0, 100.0, 100.0);
    [popover presentPopoverFromRect:rect  inView:self.view
          permittedArrowDirections:UIPopoverArrowDirectionUp
          animated:YES];
    [vc release];
}
```

Demo 4 - Part 2
SecondViewController.m

```
-(void) doSwipe:(UISwipeGestureRecognizer *)swipe {

    [delegate dismissPopoverAnimated:YES];

}
```

Demo 4 - Results



Demo 5

Keyboard Accessory

Demo 5 – Key Concepts

- iPad provides for custom input views and custom accessory views
  - Applies to UITextField and UITextView
- New UIResponder Properties
  - inputView
  - inputAccessoryView

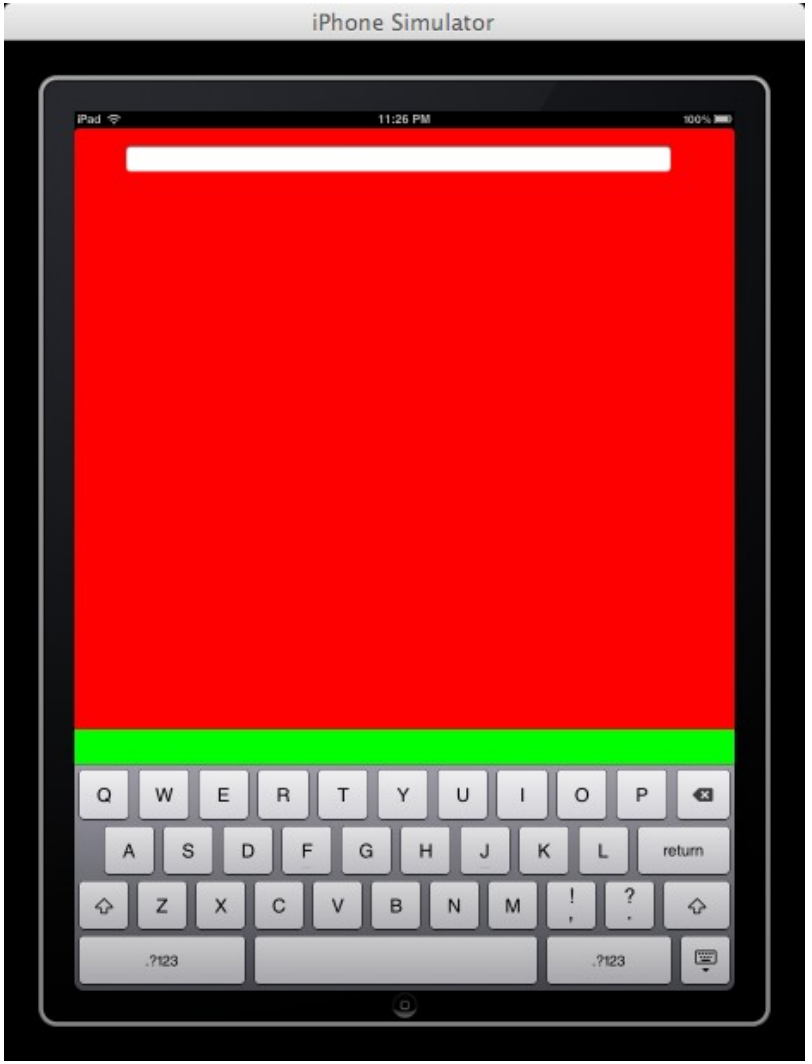
Demo 5 - Part 1
FirstViewController.h

```
//  FirstViewController.h

#import <UIKit/UIKit.h>

@interface FirstViewController : UIViewController {

    IBOutlet UITextField *myTextField;

}

@end
```

Demo 5 - Part 2
FirstViewController.m

```
//  FirstViewController.m

...

- (void)viewDidLoad {
    [super viewDidLoad];

    CGRect rect = CGRectMake(0.0, 0.0, 40.0, 40.0);
    UIView *myView = [[UIView alloc] initWithFrame:rect];
    [myView setBackgroundColor:[UIColor greenColor]];
    myTextField.inputAccessoryView = myView;

    ...
```

Demo 5 – Results



Demo 6

iPad Screens

Demo 6 – Concepts

- iPad has larger screen size
  - iPhone/iPod Touch: 320 x 480
  - iPad: 768 x 1024
- iPad has two screens (internal and external)
- Use notification center to detect when external screen connected/disconnected
  - UIScreenDidConnectNotification
  - UIScreenDidDisconnectNotification

Demo 6 – FirstViewController.m

```
-(void)doScreenConnect:(NSNotification *)notification {
    NSLog(@"%@", [notification description]);
}
- (void)viewDidLoad {
    [super viewDidLoad];

    NSArray *screens = [UIScreen screens];
    for (UIScreen *screen in screens) {
       NSLog(@"screen.bounds: width: %1.0f, height: %1.0f",
             screen.bounds.size.width,
               screen.bounds.size.height);
    }

    [[NSNotificationCenter defaultCenter]
       addObserver:self
       selector:@selector(doScreenConnect:)
       name:UIScreenDidConnectNotification
       object:nil];
```

...

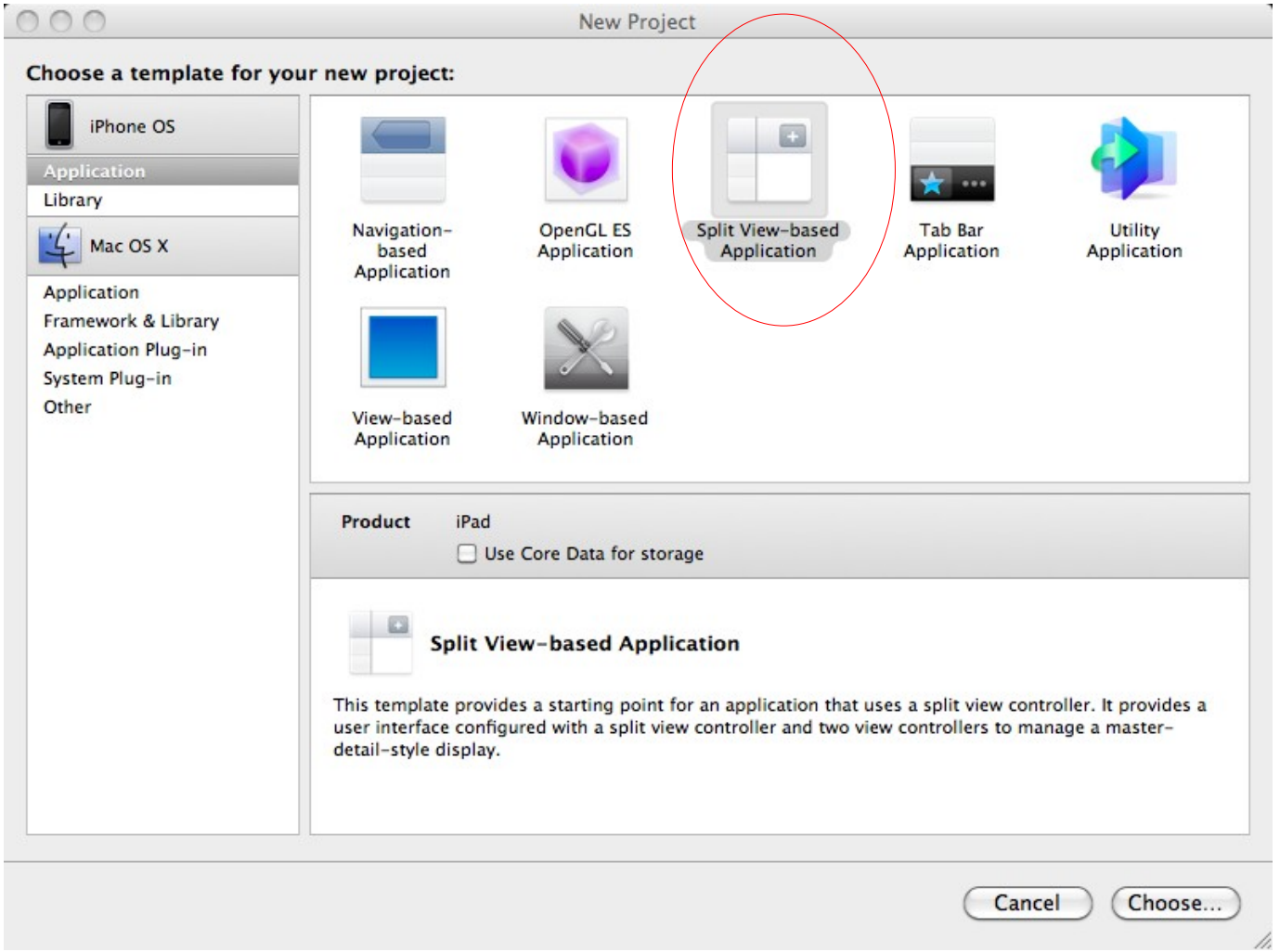
Demo 7

Split View-based Application

Demo 7 – Concepts

- iPad introduces UISplitViewController to manage two view controllers
  - RootViewController, DetailViewController
- Auto hides RootViewController on Portrait; Auto displays RootViewController on Landscape
- iPad introduces UIPopoverController to display “hidden” RootViewController

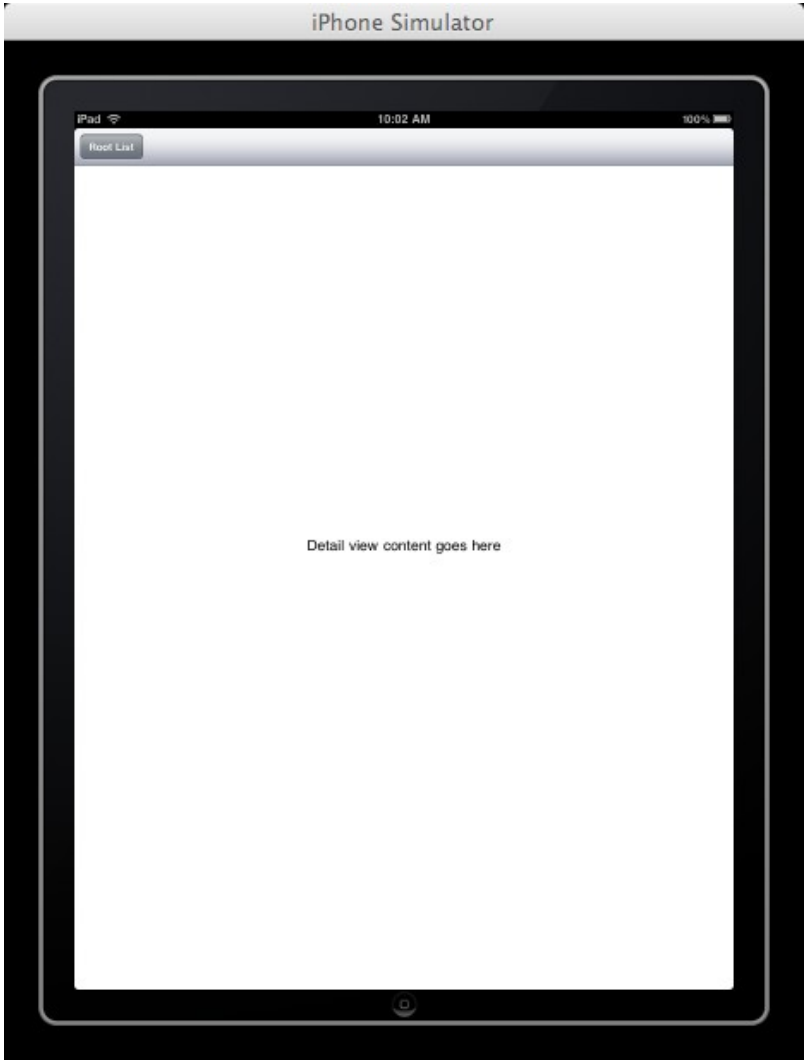
Demo 7/Part 1 – Split View-based App

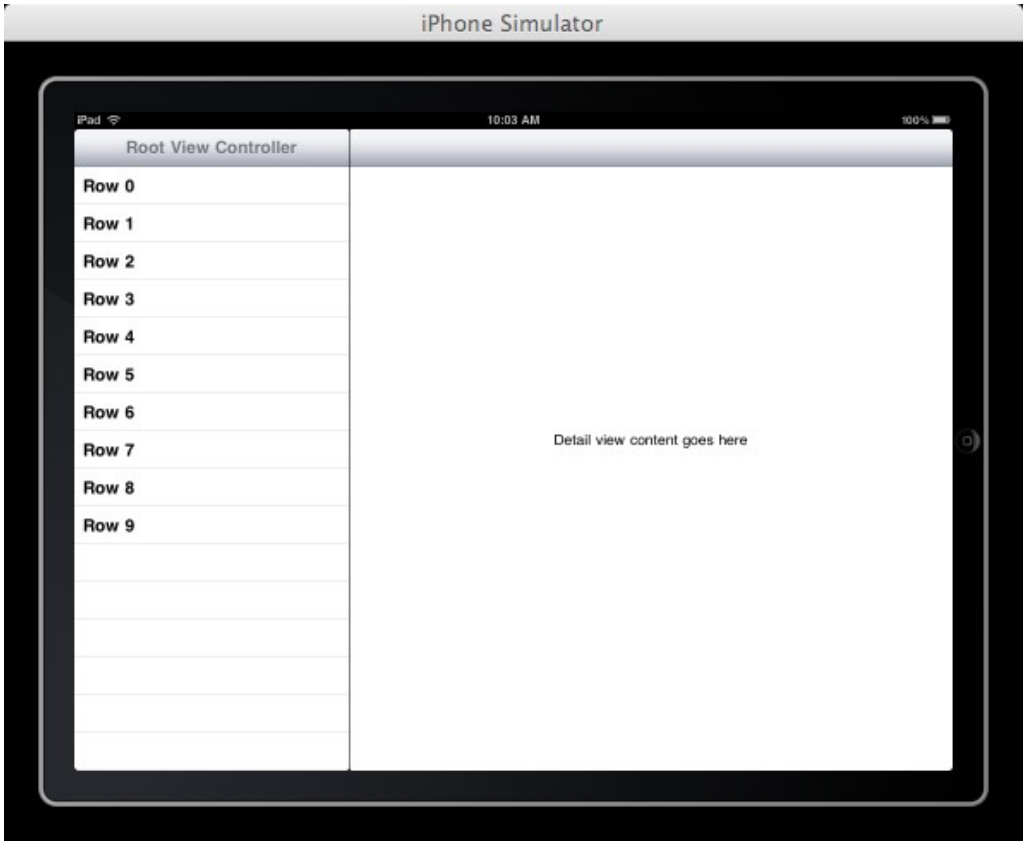


Demo 7/Part 2 - HelloAppDelegate.h

```
//  HelloAppDelegate.h

#import <UIKit/UIKit.h>

@class RootViewController;
@class DetailViewController;

@interface HelloAppDelegate : NSObject <UIApplicationDelegate> {

    UIWindow *window;

    UISplitViewController *splitViewController;

    RootViewController *rootViewController;
    DetailViewController *detailViewController;
}

...
```

Demo 7/Part 3





Demo 8. PDF Generation

Demo 8 - Concepts

- Ipad provides generation of PDF content
  - Generate as either data or into file
- The overall flow
  - UIGraphicsBeginPDFContextToFile(...)
  - UIGraphicsBeginPDFPage()
  - Draw content using Core Graphics and Core Text
  - UIGraphicsEndPDFContext()

Demo 8 - FirstViewController.h

```
//  M1ViewController.h

#import <UIKit/UIKit.h>

@interface M1ViewController : UIViewController {
    IBOutlet UITextField *myTextField;

    IBOutlet UIWebView *myWebView;

}

-(IBAction) generatePDF;
-(IBAction) displayPDF;

@end
```

Demo 8 - FirstViewController.m

```
-(IBAction) generatePDF {

    // Pathname to file
    NSString *path = [NSHomeDirectory()
          stringByAppendingPathComponent:@"Documents/demo.pdf"];

    // Create PDF context to file
    CGRect bounds = CGRectZero; //Default 8.5x11 page
    BOOL success =
             UIGraphicsBeginPDFContextToFile (path, bounds, nil);

    if (success != YES) {
       NSLog(@"no success");
       return;
    }
```

Demo 8 - FirstViewController.m

```
    // Start a new page
    UIGraphicsBeginPDFPage();

    // Get current date/time
    NSString *dateTime = [[NSDate date] description];

    // Prepare the text
    CFAttributedStringRef dateTimeText =
CFAttributedStringCreate(NULL, (CFStringRef)dateTime, NULL);
    CTFramesetterRef framesetter =
CTFramesetterCreateWithAttributedString(dateTimeText);
    if (framesetter == NULL) {
       NSLog(@"todo");
       return;
    }
```

Demo 8 - FirstViewController.m

```
// Get the graphics context.
CGContextRef    context = UIGraphicsGetCurrentContext();

// Put the text matrix into a known state. This ensures
// that no old scaling factors are left in place.
CGContextSetTextMatrix(context, CGAffineTransformIdentity);

// Create a path object to enclose the text. Use 72 point
// margins all around the text.
CGRect    frameRect = CGRectMake(72, 72, 468, 648);
CGMutablePathRef framePath = CGPathCreateMutable();
CGPathAddRect(framePath, NULL, frameRect);
```

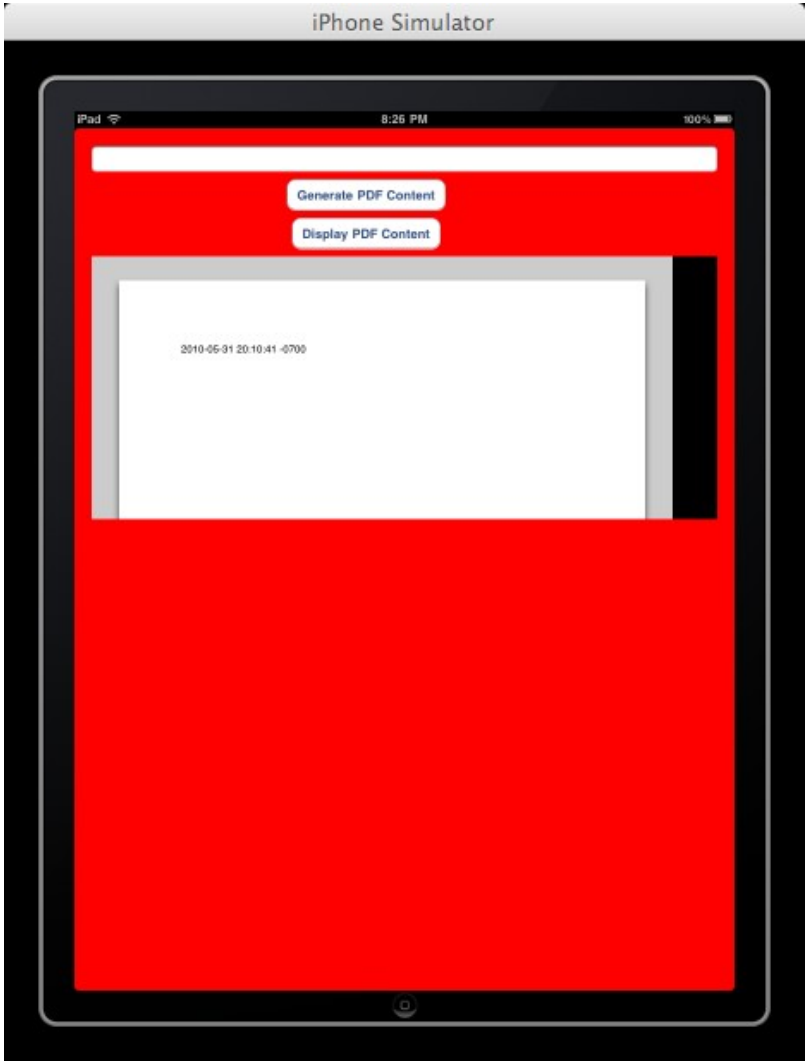
Demo 8 - FirstViewController.m

```
    // Get the frame that will do the rendering.
     CFRange currentRange = CFRangeMake(0, 0);
    CTFrameRef frameRef =
    CTFramesetterCreateFrame(framesetter, currentRange, framePath,
NULL);
    CGPathRelease(framePath);

    // Core Text draws from the bottom-left corner up, so flip
    // the current transform prior to drawing.
    CGContextTranslateCTM(context, 0, 792);
    CGContextScaleCTM(context, 1.0, -1.0);

    // Draw the frame.
    CTFrameDraw(frameRef, context);

    // All done with page
    UIGraphicsEndPDFContext();
}
```

Demo 8 - FirstViewController.m

```
-(IBAction) displayPDF {
    // Pathname to file
    NSString *path =
          [NSHomeDirectory()
        stringByAppendingPathComponent:@"Documents/demo.pdf"];

    NSURL *url = [NSURL fileURLWithPath:path];
    NSURLRequest *request = [NSURLRequest requestWithURL:url];
    [myWebView loadRequest:request];
}
```

Demo 8 - Results



Questions/Answers

Thank You!