

Beginning iOS Development

A Deeper Look

Daniel Norton

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Beginning iOS Development, MVC in iOS

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Agenda

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- Advanced Objective-C Language Features
 - ▣ Categories
 - ▣ Protocols
 - ▣ Delegates
 - ▣ Blocks
- View Animation
- Web Service Communication
- Core Data
- What's new in iOS5
- Additional Resources

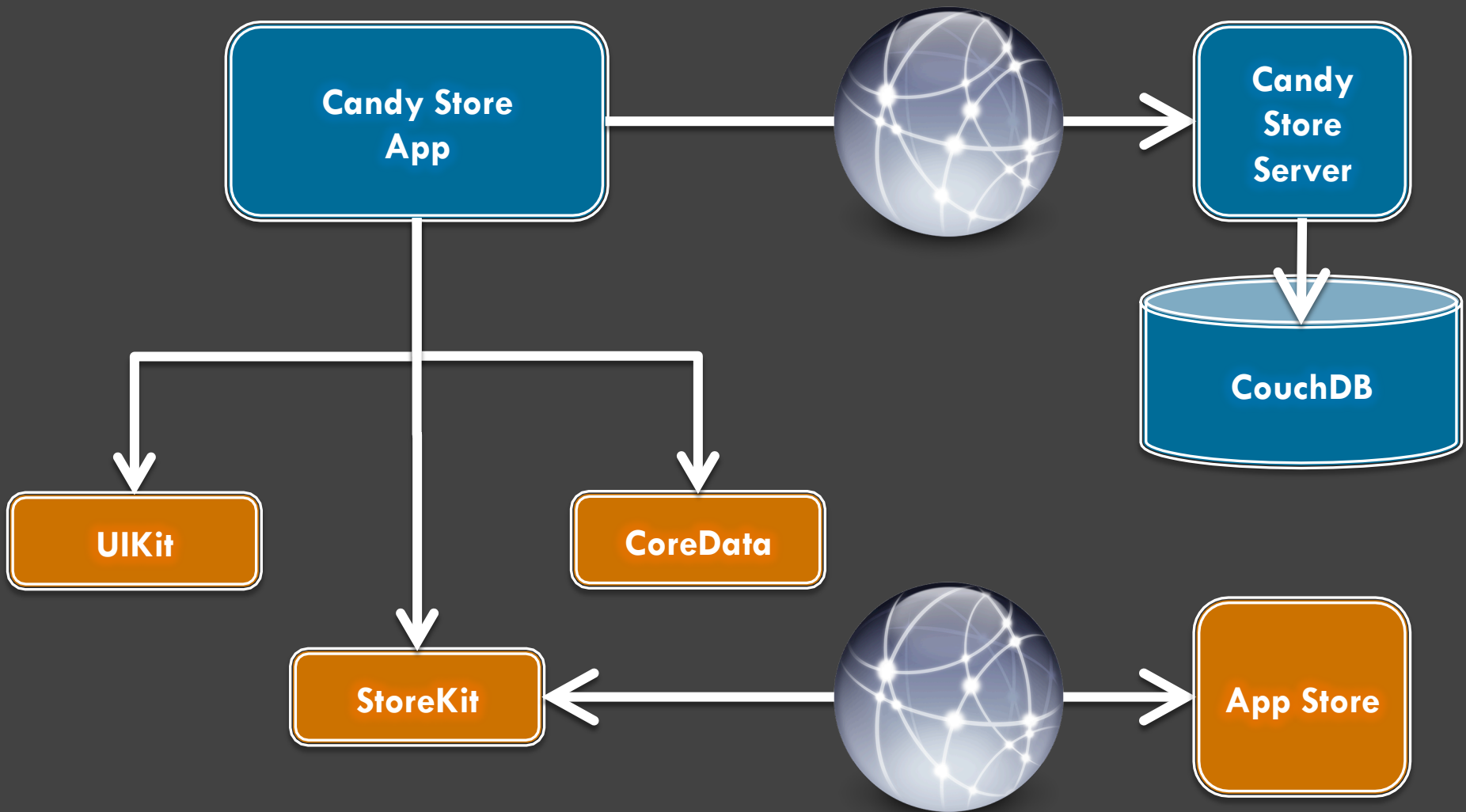
github: danielnorton
blog: framewreck.net
twitter: @daniel_norton



Candy Store

github.com/danielnorton/CandyStore-app

github.com/danielnorton/candystore-server



A few caveats ...

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STOREKIT



Y U NO WORK IN SIMULATOR?



Categories

How many times have you written code like this?

```
ShopItemDetailViewController *controller =  
    [[ShopItemDetailViewController alloc]  
    initWithNibName:@"ShopItemDetailViewController" bundle:nil];  
  
UIAlertView *alert = [[UIAlertView alloc] initWithTitle:@"Candy Store"  
    message:message  
    delegate:nil  
    cancelButtonTitle:@"OK"  
    otherButtonTitles:nil];  
  
[alert show];  
[alert release];
```

How many times have you written code like this?

```
ShopItemDetailViewController *controller =  
    [ShopItemDetailViewController newWithDefaultNib];
```

```
[self popup:message];
```


Code

Uses of Categories

- ❑ Helper messages
- ❑ Extend iOS framework
- ❑ Private messages
- ❑ Common style



Protocols

Example iOS Protocols

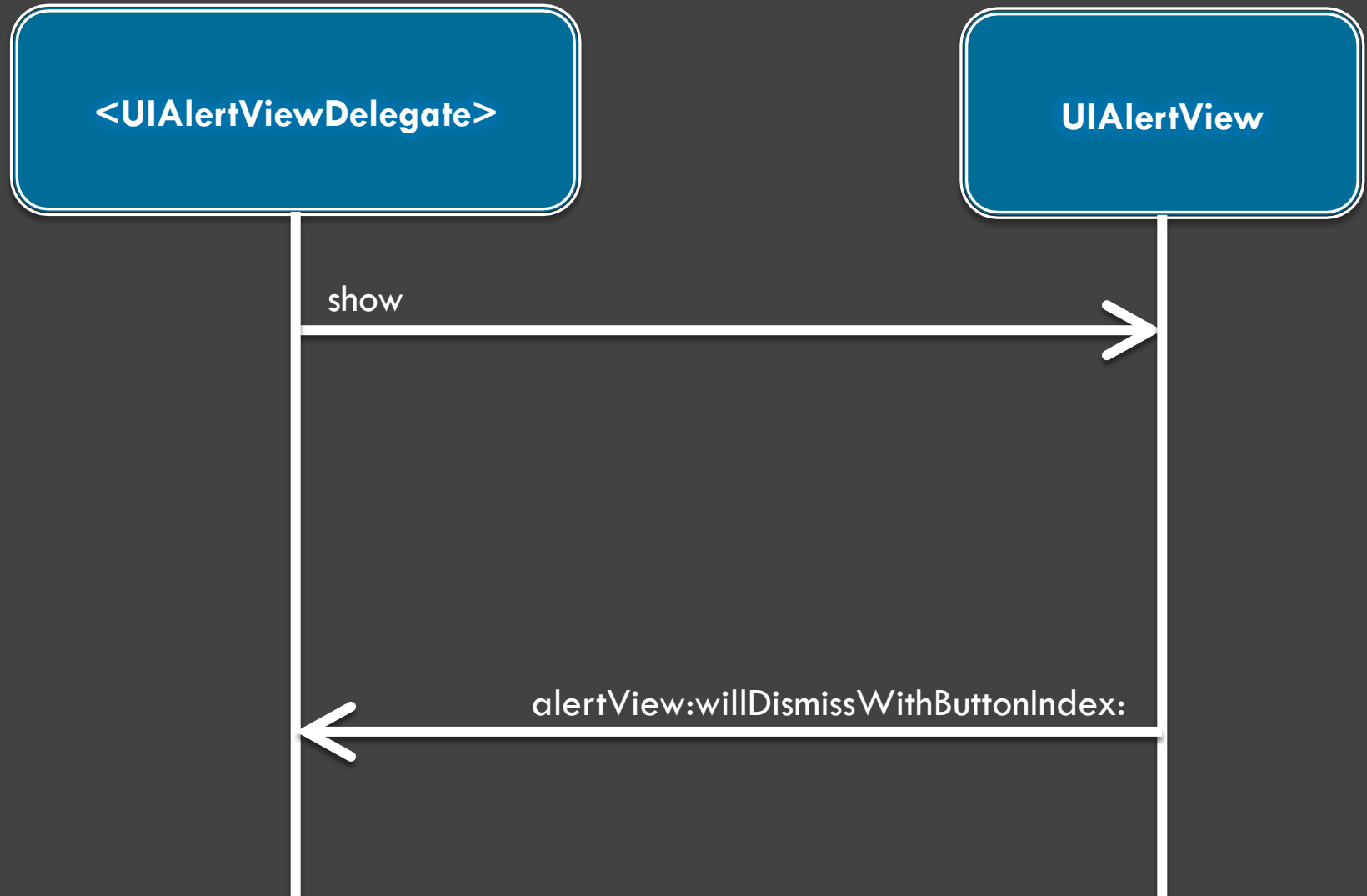
- ❑ NSCoder
- ❑ UITableViewDataSource
- ❑ UITableViewDelegate
- ❑ UIApplicationDelegate
- ❑ UIAlertViewDelegate
- ❑ MKAnnotation
- ❑ NSFetchedResultsController

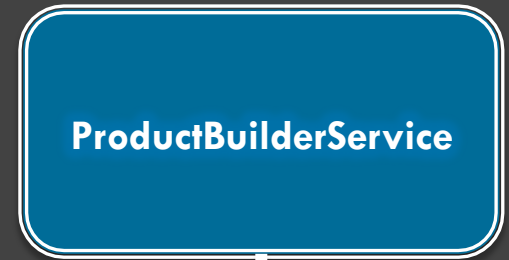
Code

Implementing iOS Protocols

- ❑ Decorate a type as conforming to a protocol
- ❑ Documentation
- ❑ Declare a variable that conforms to a protocol







Code

Delegates

- ❑ Delegate protocols
- ❑ Delegate properties
- ❑ Sending messages to a delegate
- ❑ Optional delegate messages



Block Syntax

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Return Type	Variable Name	Message Signature	Input Variables	
<code>int</code>	<code>(^add)</code>	<code>(int, int)</code>	<code>= ^(int one, int two)</code>	<code>{</code>
				<code>return one + two;</code>
				<code>};</code>

Code Block

Calling the
block

```
int three = add(1, 2);
```

Block Syntax

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```
void (^sayHi)() = ^() {  
    NSLog(@"hi");  
};
```

```
void (^simpler)() = ^{  
    NSLog(@"Hello");  
};
```

Block Syntax

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```
NSNumber *(^makeCount)(NSArray *) = ^(NSArray *counted) {  
    NSNumber *number = [NSNumber numberWithInt:counted.count];  
    return number;  
};
```

Block Syntax

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```
NSArray *array = [NSArray arrayWithObjects:@"one", @"two", @"three", nil];

[array enumerateObjectsUsingBlock:^(id obj, NSUInteger idx, BOOL *stop) {
    NSLog(@"item: %@", obj);
}];

NSString *match = @"one";

NSPredicate *pred =
    [NSPredicate predicateWithBlock:^(BOOL(id evaluatedObject, NSDictionary *bindings) {
        NSString *item = (NSString *)evaluatedObject;
        return [item isEqualToString:match];
    }]);

NSArray *filtered = [array filteredArrayUsingPredicate:pred];
```

Block Syntax

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```
NSArray *array = [NSArray arrayWithObjects:@"one", @"two", @"three", nil];

NSString *greeting = @"Hello";
__block int count = 0;
[array enumerateObjectsUsingBlock:^(id obj, NSUInteger idx, BOOL *stop) {
    count++;
    NSLog(@"%@: %@", greeting, obj);
}];
```

Code

Blocks

- ❑ Enumerating NSArray and NSDictionary
- ❑ Method pointer



View Animation


```
[UIView animateWithDuration:0.33f
                        delay:1.0f
                        options:UIViewAnimationOptionCurveEaseIn
animations:^(
    [self setFrame:newFrame];
}
completion:^(BOOL finished) {
    [self.titleLabel setAlpha:1.0f];
}]];
```

Code

View Animation

- Change location and size of a button



Web Service Communication

NSURLConnection

NSURLResponse

NSURLRequest

NSMutableURLRequest

NSData

NSMutableData

Web Service Communication Classes

NSURLConnection

```
NSURLConnection *aConnection =  
[[NSURLConnection alloc] initWithRequest:request  
delegate:self];
```

- (void)connection:(NSURLConnection *)connection
didSendBodyData:(NSInteger)bytesWritten
totalBytesWritten:(NSInteger)totalBytesWritten
totalBytesExpectedToWrite:(NSInteger)totalBytesExpectedToWrite;
- (void)connection:(NSURLConnection *)connection
didReceiveResponse:(NSURLResponse *)response;
- (void)connection:(NSURLConnection *)connection didReceiveData:(NSData *)data;
- (void)connection:(NSURLConnection *)connection
didFailWithError:(NSError *)anError;
- (void)connectionDidFinishLoading:(NSURLConnection *)connection;

Code

Web Service Communication

- ❑ Connect to a web service
- ❑ Edit HTTP Body, Method, etc.
- ❑ Parse return JSON

HttpRequestService

RemoteServiceBase

AppProductRemoteService

Example Candy Store Implementation



Core Data

NSManagedObjectContext

NSFetchedResultsController

.xcdatamodel

NSManagedObjectID

NSManagedObject

.sqlite

NSManagedObjectModel

NSPersistentStoreCoordinator

Core Data

NSManagedObjectContext

NSFetchResultsController

.xcdatamodel

NSManagedObjectID

Product

.sqlite

NSManagedObjectModel

NSPersistentStoreCoordinator

Core Data

Code

Core Data

- Model schema
- Typed Model Classes
- CRUD
- Fetched results controller
- Versioning

Gotcha's When editing the model without versioning

- ❑ Reset Simulator and/or delete app from device
- ❑ Xcode -> Product -> Clean

What's New in iOS5

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How are the topics we discussed today impacted by new features and technologies in iOS5?

- Automatic Reference Counting
- Core Data
 - ▣ Nested Contexts
 - ▣ Nonatomic persistent stores

Additional Resources

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- iOS Developer Library
 - ▣ Core Data Programming Guide
 - ▣ iOS Development Guide
 - ▣ iOS Application Programming Guide
 - ▣ Coding Guidelines for Cocoa
 - ▣ What's New in iOS

- WWDC 2011 Videos
 - ▣ Blocks and Grand Central Dispatch in Practice

Review

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Thanks, guys! Enjoy the rest of devLink 2011!