

# Into to Cocoa/ Objective C

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# Overview

- What is Objective C?
- What is Cocoa?
- Where did Cocoa come from?
- How to use Cocoa and Objective C
- Cocoa programming example

# Objective C

- “Objective C is an object-oriented language: it supports hierarchies of substitutable types, message passing, between objects, and code reuse through inheritance.” --Objective C Pocket Ref.

# Objective C

- An extension of C
- Compiled with gcc just like C and C++
- Dynamic dispatch
- Dynamic typing
- Dynamic loading

# Data Types

- id
- int
- double
- BOOL
  - YES, NO, true, false

# Cocoa

- A set of object-oriented frameworks
  - Sockets
  - Remote objects
  - Strings, Lists, Arrays, Trees
- Derivative of NeXT's NeXTSTEP OS
- Most APIs still prefixed with NS

# Cocoa

- Divided into two main frameworks
  - Foundation classes
  - Application Kit (AppKit) classes

# Foundation

- NSString, NSMutableString
- NSArray, NSMutableArray
- NSDate
- NSURL
- NSLock
- NSTimer

# AppKit

- NSButton
- NSTextView
- NSTextView
- NSComboBox
- NSSlider
- NSColor

# Objects

- Instantiation
  - `id str = [[NSString alloc] init];`
  - `NSString *str = [[NSString alloc] init];`
- Messaging
  - `[str intValue];`
  - `[str characterAtIndex:5];`

# Memory Management

- “Reference counting” mechanism
- Objects maintain a reference count
- Update reference count through:
  - [object retain];
  - [object release];
- Many Cocoa objects are autoreleased

# Classes

- Made up of an interface and an implementation
- Interface: `@interface ... @end`
- Implementation: `@implementation ... @end`
- Interface usually in `.h` file
- Implementation usually in `.m` file

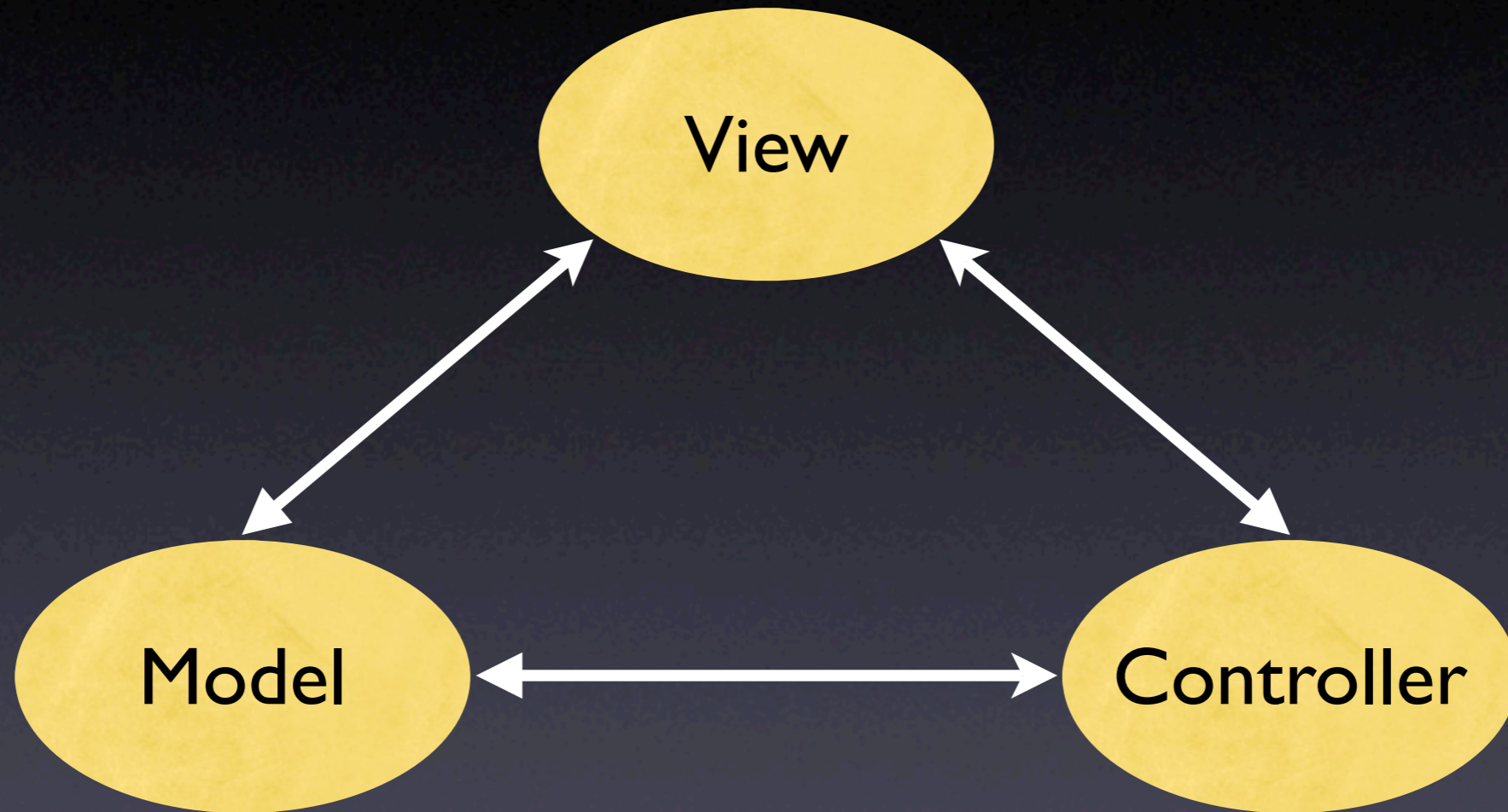
# String Constants

- NSString constants denoted @"My String"
- Compiler errors if you leave out the @
- Can be used just like NSString

# Some Reserved Words

- nil
  - Like null in Java
- self
  - The current object
- super
  - The parent class

# Model-View-Controller





# Xcode

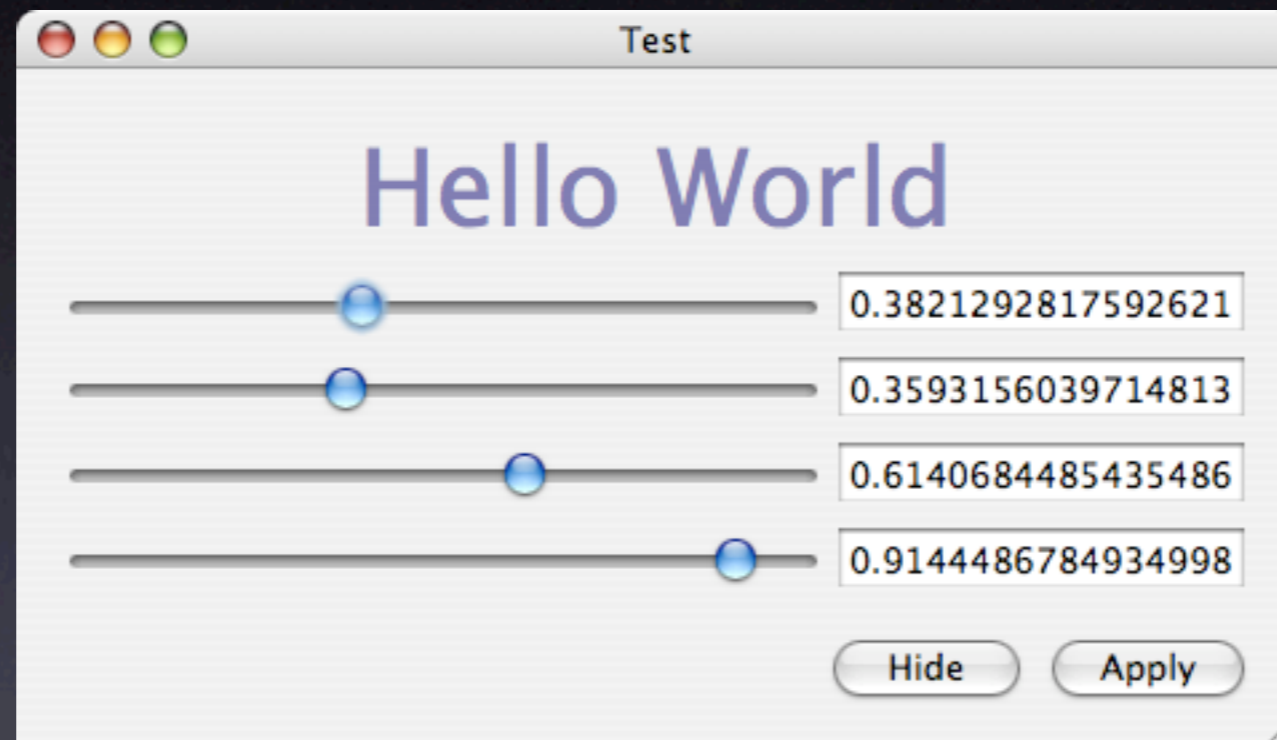
- Apple's IDE
- Compiles with gcc
- Debugs with GDB
- Uses distcc for distributed compilations



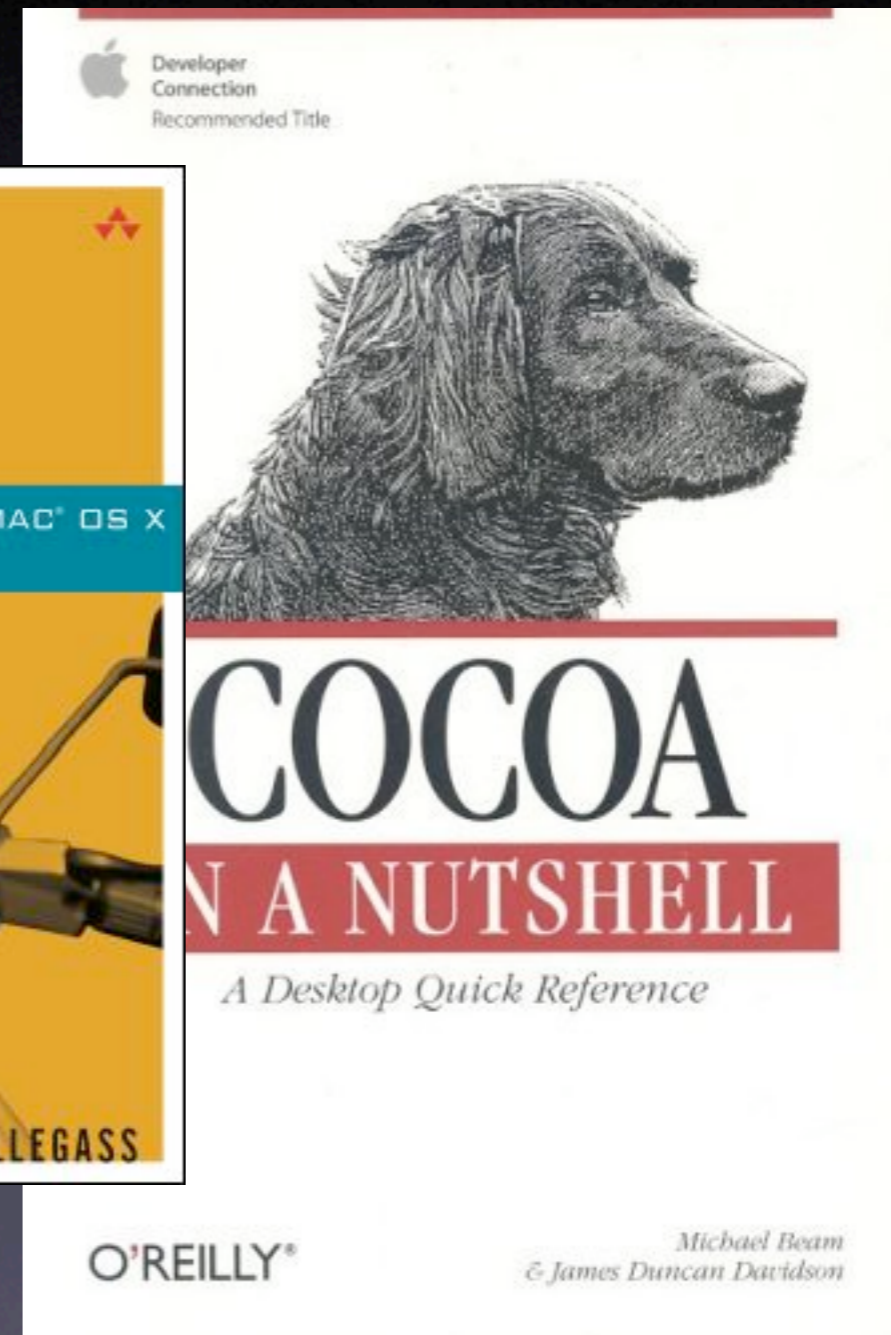
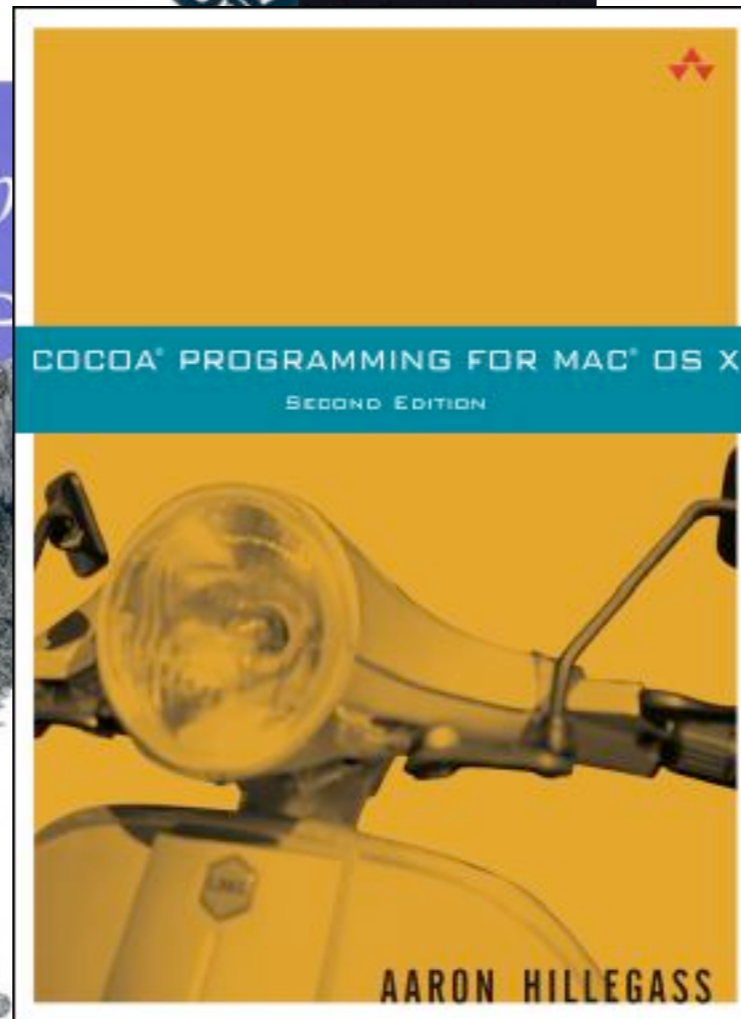
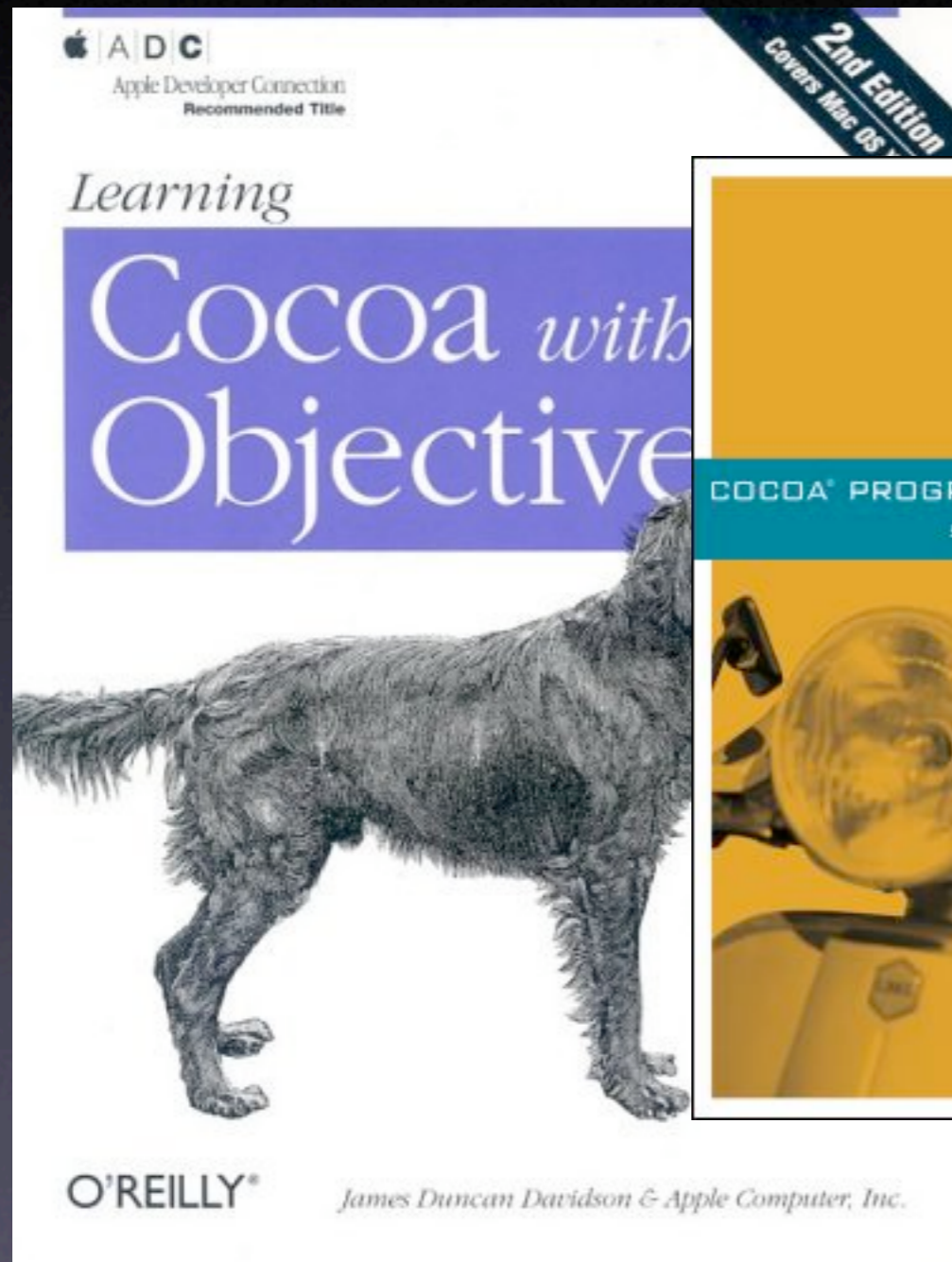
# Interface Builder

- Apple's GUI builder
- Drag and drop GUI creation
- Creates nib files
- Interfaces with XCode
- Parses code for IBActions and IBOutlets

# Example Program



# Further Reading



# Questions

