



Computing & Information Sciences
FLORIDA INTERNATIONAL UNIVERSITY

Mobile Application Development

lecture2

Fall 2011 - COP 4655 U1

T/R 5:00 - 6:15pm – ECS 135

Steve Luis

Agenda

- Syllabus Review
- Brief intro to Objective-C, Cocoa and Xcode
- Programming Demos
- Reading assignment

Objective-C Origins

- Created by Brad Cox and Tom Love @ StepStone in the early 1980
- Modeled after Smalltalk-80
- Extension of ANSI C (superset)
- Licensed by Steve Jobs @ NeXT in 1988
- NeXT is purchased by Apple in 1996.
- Developer tools continue Objective-C use in the release of Mac OS X (2001).



Origins of Cocoa

- NeXT creates NeXTStep Frameworks in 1989
- Apple purchases NeXT (1996), creates Cocoa from NeXTStep/OpenStep (1999).
- Notice class references: NSxxx like NSObject

Cocoa Touch Layer

AddressBook UI	Protocols	Message UI	UIKit	UINavigationController	UITableView	UIImagePickerControllerDelegate
ABNewPersonViewController	GKPeerPickerControllerDelegate	MFMailComposeViewController	UINavigationController	UINavigationControllerDelegate	UITableViewCell	UINavigationControllerDelegate
ABPeoplePickerNavigationController	GKSessionDelegate	Protocols:	UINavigationController	UIPageControl	UITableViewField	UIPickerViewDataSource
ABPersonViewController	GKVoiceChatClient	MFMailComposeViewControllerDelegate	UIAlertView	UIPageControl	UITextField	UIPickerViewDataSource
ABUnknownPersonViewController	Map Kit	UIKit	UIApplication	UIPageControl	UITextView	UIPickerViewDelegate
	MKAnnotationView	Message UI	UIBarButtonItem	UIPageControl	UITextView	UIResponderStandardEditActions
Protocols:	MKMapView	UIActivityIndicatorView	UIBarItem	UIProgressView	UIToolbar	UIScrollViewDelegate
ABNewPersonViewControllerDelegate	MKPinAnnotationView	UIAlertView	UIButton	UISearchBar	UITouch	UISearchBarDelegate
ABPeoplePickerNavigationControllerDelegate	MKPlaceMark	UIApplication	UIControl	UIScrollView	UIView	UISearchBarDisplayDelegate
ABPersonViewControllerDelegate	MKReverseGeocoder	UIBarItem	UIControl	UISearchBar	UIView	UITabBarControllerDelegate
ABUnknownPersonViewControllerDelegate	MKUserLocation	UIControl	UIControl	UISearchBar	UIViewController	UITabBarControllerDelegate
		UISearchBar	UISearchBar	UISearchBar	UIViewController	UITabBarDelegate
Game Kit	Protocols:	UISearchBar	UISearchBar	UISearchBar	UIWebView	UITableViewDataSource
GKPeerPickerController	MKAnnotation	UISearchBar	UISearchBar	UISearchBar	UIWebView	UITableViewDelegate
GKSession	MKMapViewDelegate	UISearchBar	UISearchBar	UISearchBar	UIWebView	UITableViewDataSource
GKVoiceChatService	MKReverseGeocoderDelegate	UISearchBar	UISearchBar	UISearchBar	UIWebView	UITableViewDelegate
		UISearchBar	UISearchBar	UISearchBar	UIWebView	UITableViewDataSource

Core OS

CFNetwork	Ext. Accessory	System & Security
CFReadStream	EAAccessory	System & Security
CFReadStream	EAAccessoryManager	
CFHTTPAuthentication	EAAccessoryManager	
CFHTTPMessage	EASession	
CFHTTPStream		
CFNetworkDiagnostics		
CFNetServices		
CFProxySupport		
CFStream Socket Additions		

Core Service Layer

AddressBook	Core Data	Core Foundation	Foundation	Core Location	System Configuration	Store Kit
NSManagedObjectModel	NSAtomicStore	CFAllocator	NSAssertionHandler	CLLocation	SCNetworkReachability	SKMutablePayment
NSMappingModel	NSAtomicStoreCacheNode	CFArray	NSAssertionHandler	CLLocation	Manager References	SKPayment
NSMigrationManager	NSAttributeDescription	CFAttributedString	NSAutoreleasePool	CLLocationManager		SKPaymentQueue
NSPersistentStore	NSEntityDescription	CFBinaryHeap	NSBundle	CLLocationManagerDelegate		SKPaymentTransaction
NSPersistentStoreCoordinator	NSEntityMapping	CFBitVector	NSCachedURLResponse			SKProduct
NSPropertyDescription	NSFetchRequest	CFBoolean	NSCalendar			SKProductsRequest
NSPropertyMapping	NSFetchRequestExpression	CFBundle	NSCalendar			SKProductsResponse
NSRelationshipDescription	NSManagedObject	CFBundle	NSCalendar			SKRequest
	NSManagedObjectContext	CFBundle	NSCalendar			
ABGroup	NSManagedObjectID	CFBundle	NSCalendar			
ABPerson		CFBundle	NSCalendar			
		CFBundle	NSCalendar			

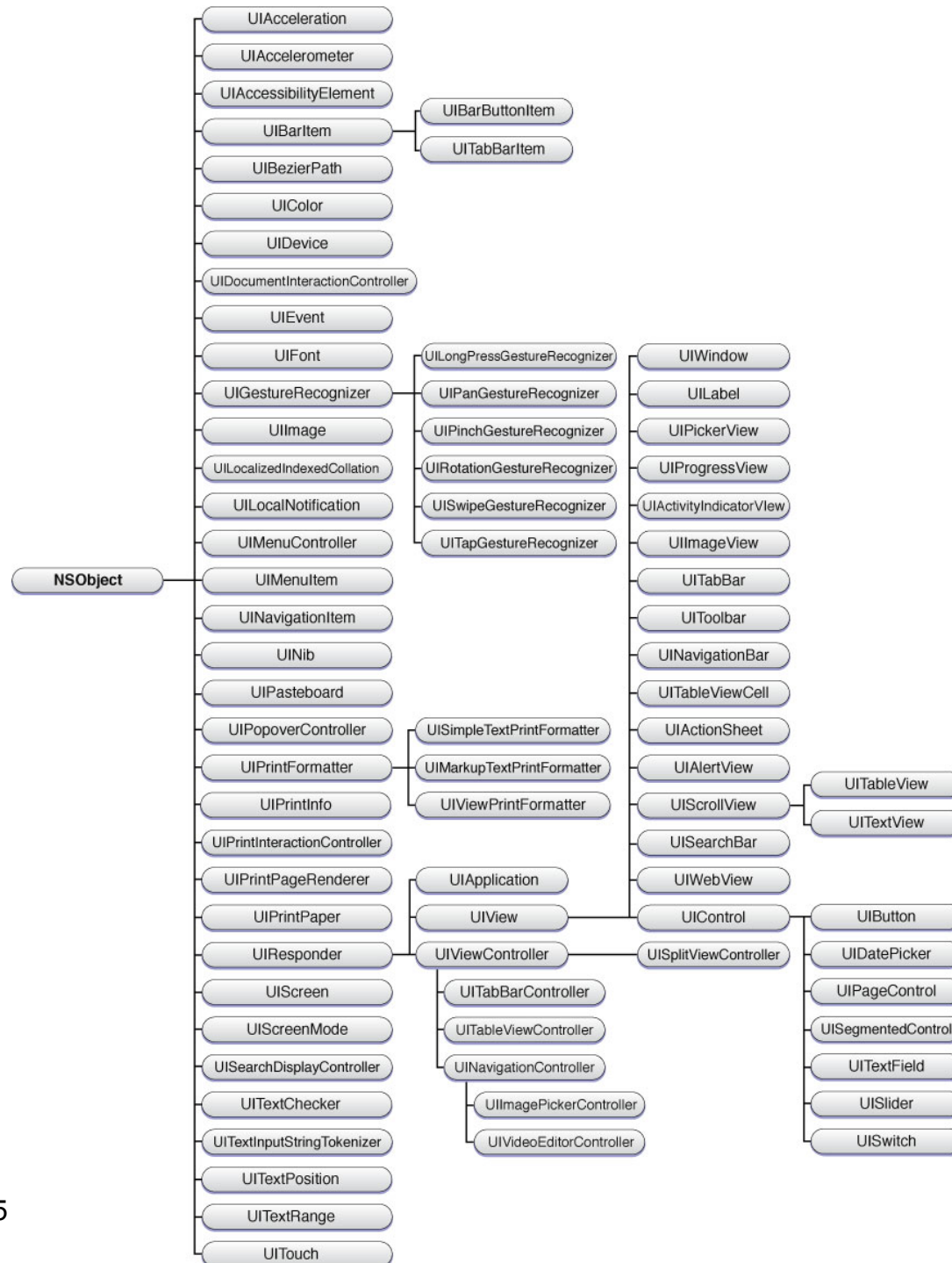
Media Layer

AudioToolbox	Audio Unit	AVFoundation	Core Graphics	CGPDFScanner	Media Player	MPMoviePlayerController	Protocols	Core Animation
Audio Converter Services	Audio Component Services	Audio Component Services	CGColor	CGPDFStream	MPMediaItem	MPMusicPlayerController	CAAnimation	CAScrollLayer
Audio File Services	Audio Unit Component Services	Audio Unit Component Services	CGColor	CGPDFString	MPMediaItemCollection	MPVolumeView	CANimationGroup	CATiledLayer
Audio File Stream Services	Output Audio Unit Services	Output Audio Unit Services	CGColorSpace	CGPDFArray	MPMediaLibrary		CABasicAnimation	CATransaction
Audio Format Services			CGContext	CGPDFDict	MPMediaPickerController		CABasicAnimation	CATransition
Audio Queue Services	Core Audio	Protocols:	CGDataConsumer	CGPDFDictionary	MPMediaPickerController	Protocols:	CABasicAnimation	CAValueAnimation
Audio Session Services	Core Audio Data Types	AVAudioPlayerDelegate	CGDataProvider	CGPDFDocument	MPMediaPickerController	MPMediaPickerControllerDelegate	CABasicAnimation	
Audio Unit Processing Services		AVAudioRecorderDelegate	CGFont	CGPDFPage	MPMediaPicker		CABasicAnimation	
Extended Audio File Services		AVAudioSessionDelegate	CGFunction	CGPDFPage	MPMediaPredicate		CAKeyframeAnimation	
System Sound Services			CGGradient	CGPDFPage	MPMediaPropertyPredicate		CAKeyframeAnimation	
			CGImage	CGPDFPage	MPMediaQuery		CAKeyframeAnimation	

http://www.cheat-sheets.org/saved-copy/Cocoa_iOS_3.0_cheatsheet.pdf

The UIKit framework provides the core for all iOS applications.

- This framework provides the infrastructure for creating and managing your user interface, handling events, supporting multitasking, and managing most other interactions with the system



Sample Programs

- UICatalog: A look at the type of user interface objects UIKit provides
- http://developer.apple.com/library/ios/#samplecode/UICatalog/Introduction/Intro.html#//apple_ref/doc/uid/DTS40007710

Hello World in Objective-C

```
// main.m

#import <Foundation/Foundation.h>

int main (int argc, const char * argv[])
{

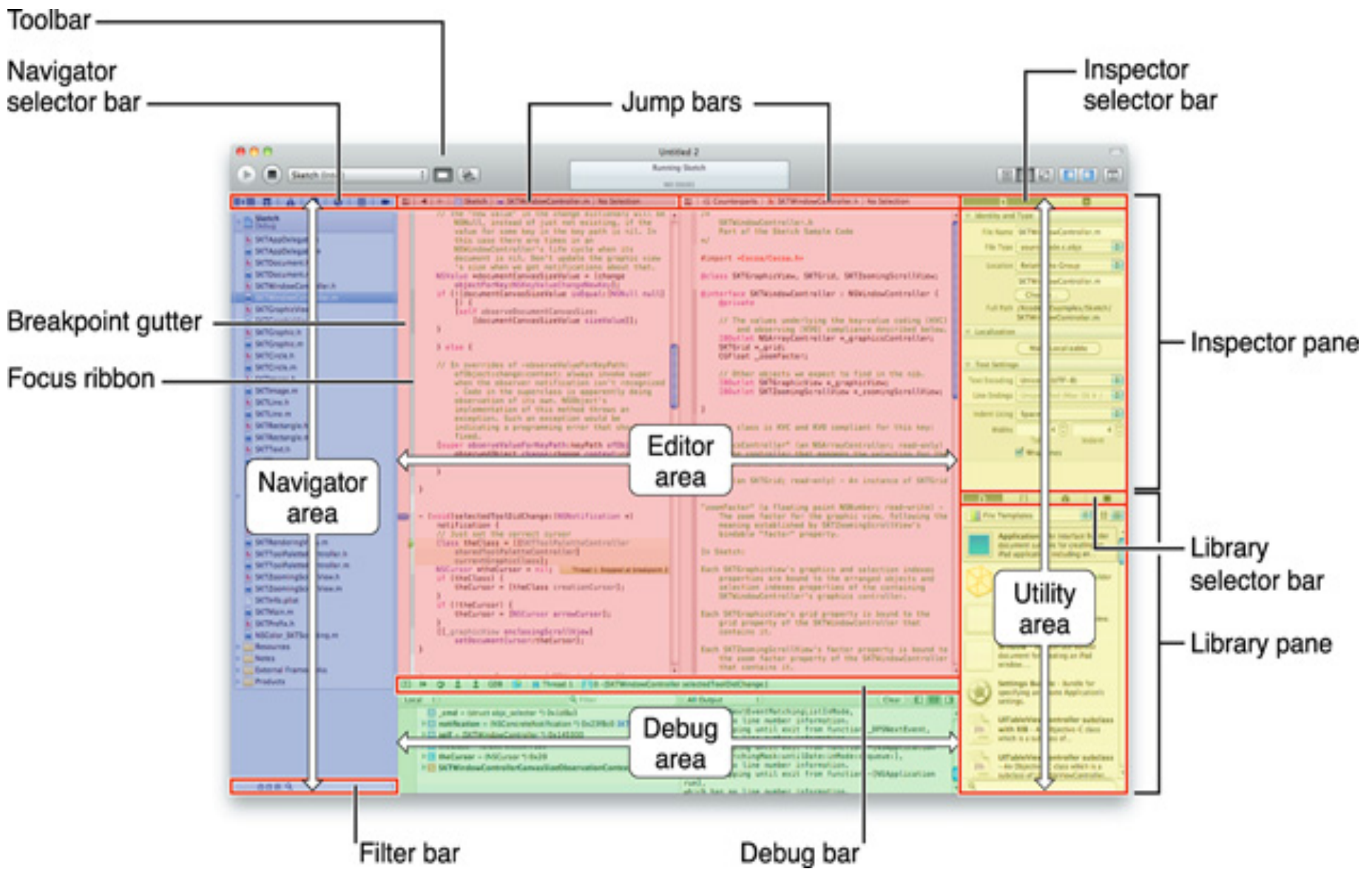
    NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init];

    // insert code here...
    NSLog(@"Hello, World!");

    [pool drain];
    return 0;
}
```



- XCODE example: Build Hello World via Project Templates/Command Line



Selected Xcode Features

- Project Navigator – Manage files/groups
- Project Templates – pre-built code
- Code editor that includes static code checking, code completion and dynamic hints/tips.
- Interface Builder (IB) prototype U/I and load different application objects like images.
- Debugger that supports breakpoints and inspect symbols
- iOS Simulator
- Extensive built-in documentation

Assignment

- Read in Apple Developer Library:
 - Xcode 4 User Guide
 - Learning Objective-C a primer
 - The Objective-C Programming Language
- Read Kochan:
 - Chapters 1-3, 21 and Glossary
- Complete Reading by Thursday, Sept. 1st.