iPhone Specialist Lab
L03: Introduction to iOS Development

Prof. Dr. Jan Borchers, Florian Heller, Jonathan Diehl
Media Computing Group, RWTH Aachen University

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http://hci.rwth-aachen.de/iphone

The iOS Device Family

Mobile Device Characteristics

- Screen size is compact

- Memory is limited

- Users interact with one screen at a time

- Users interact with one application at a time

- Onscreen help is minimal

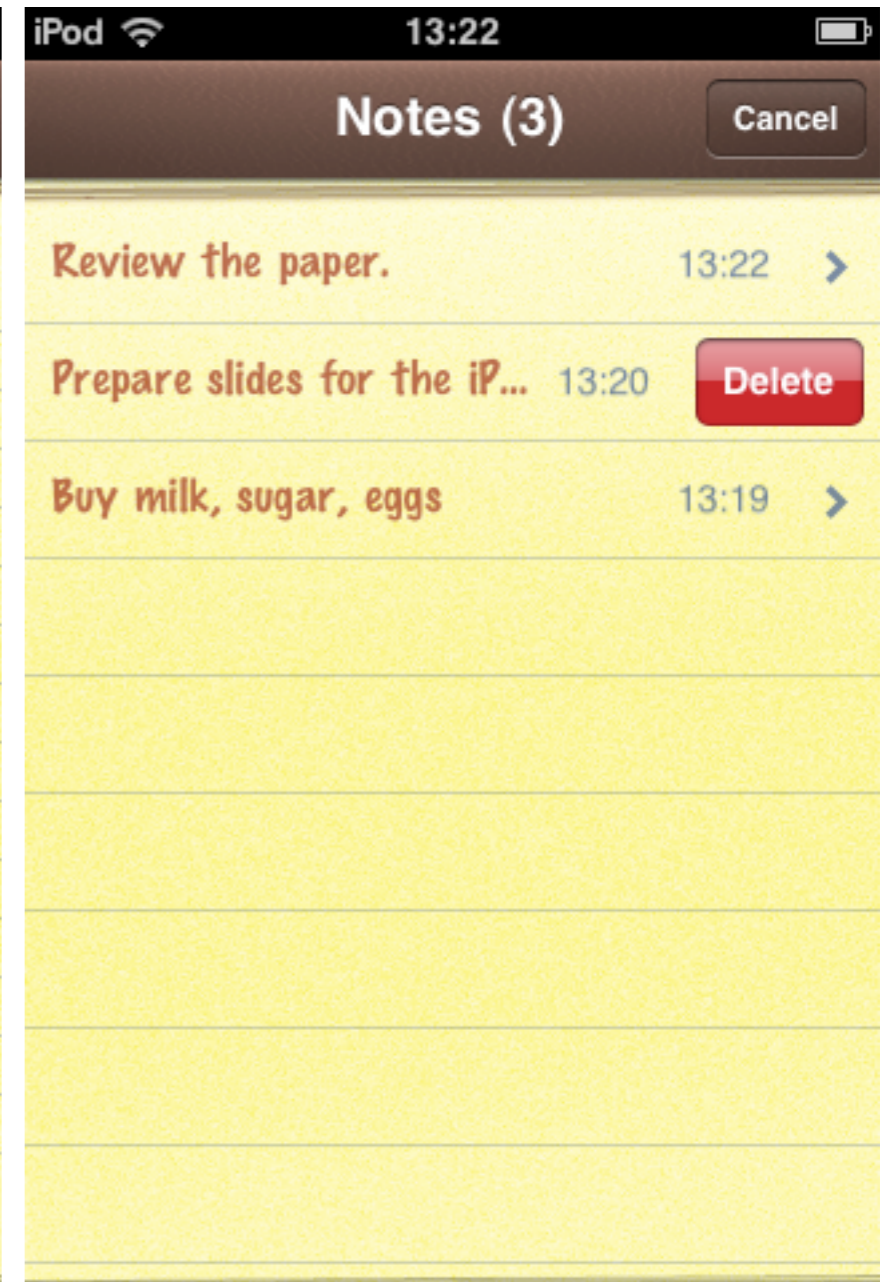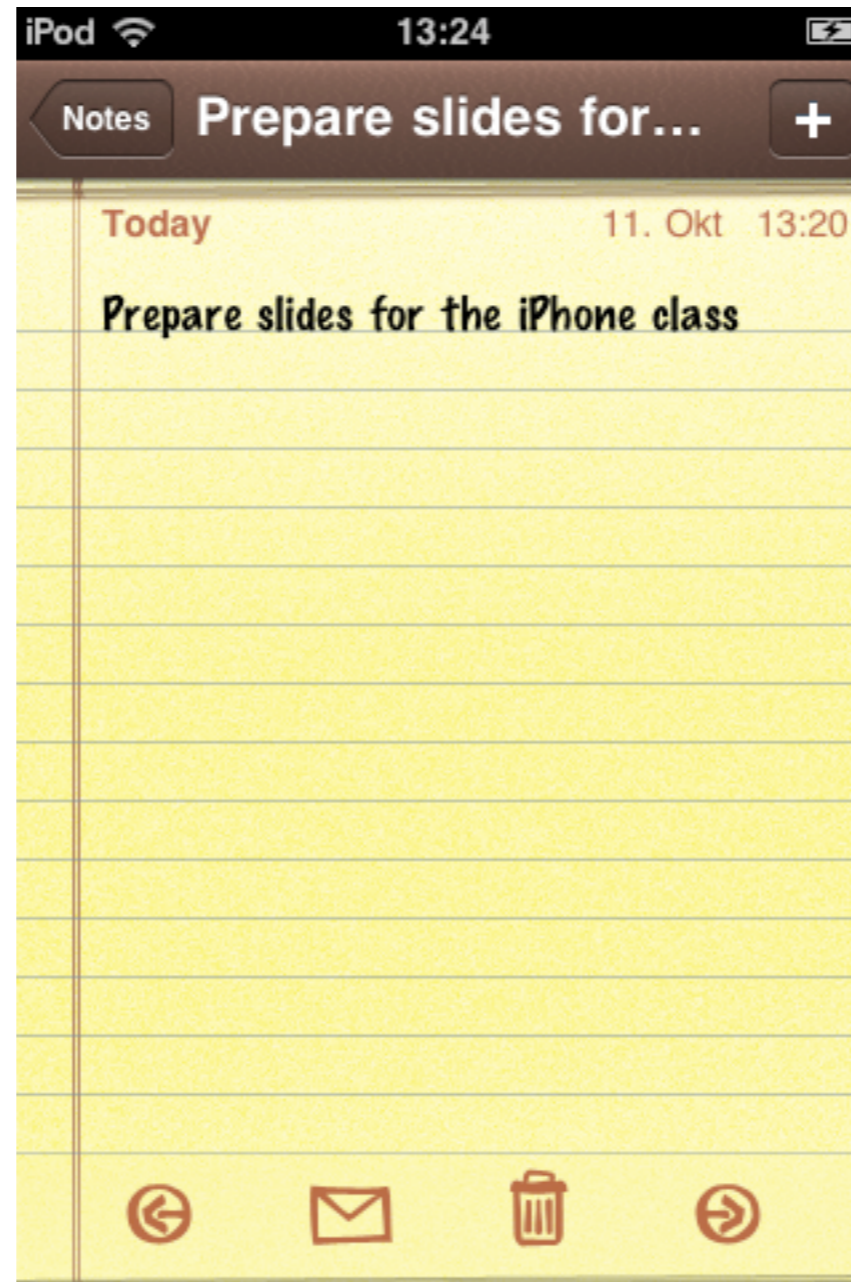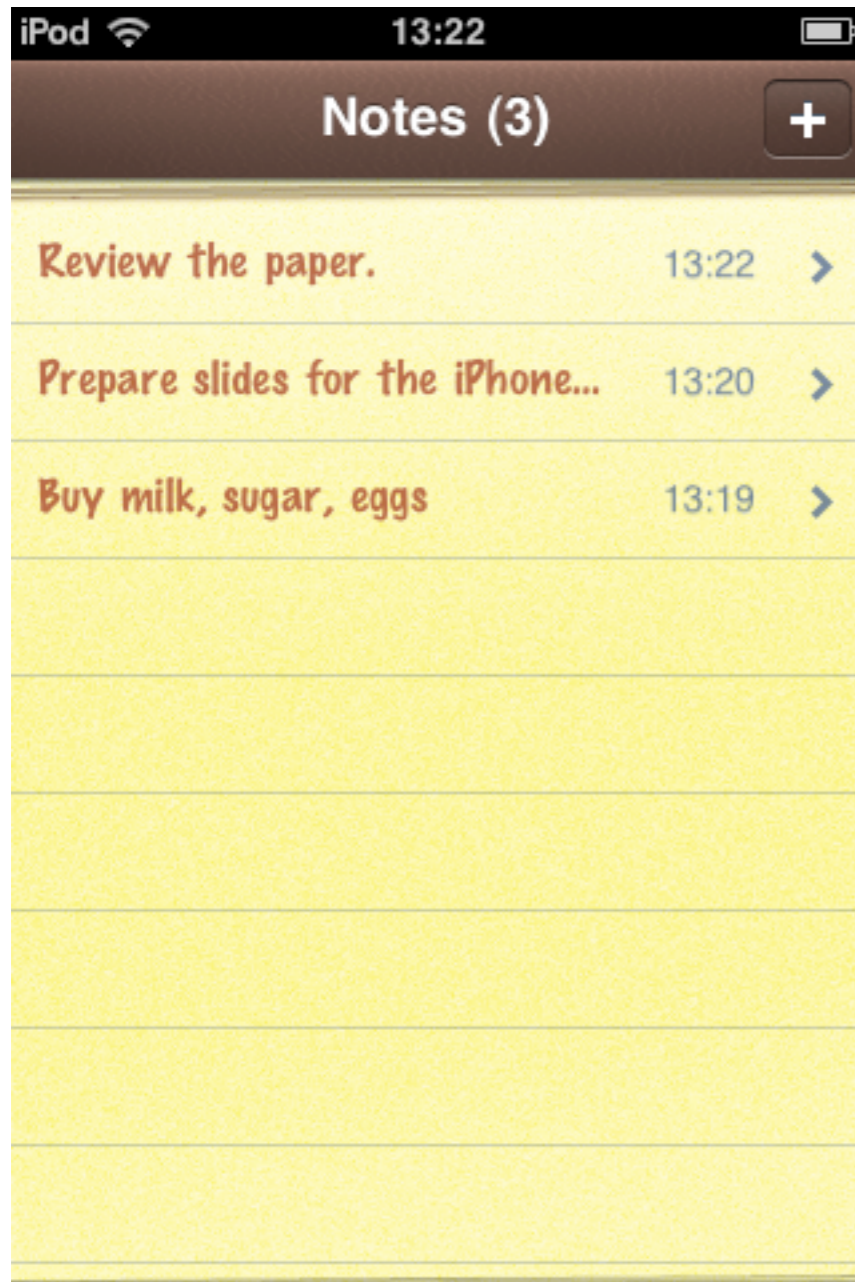- *Context is key (task focus, peripheral use)*

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Some Examples

Osmos HD

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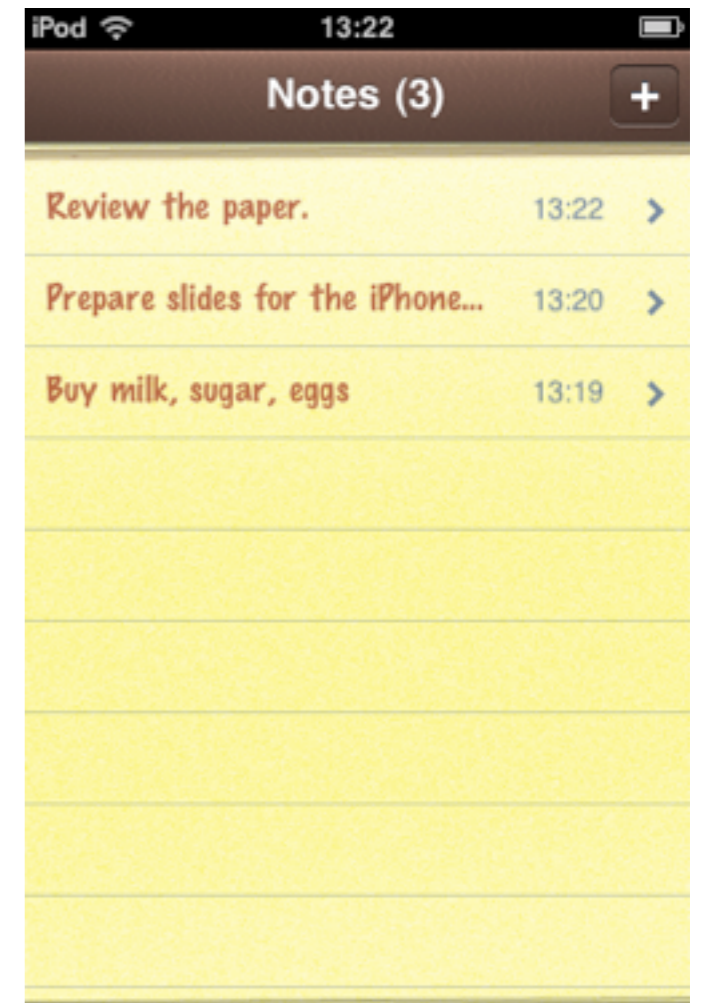
Some Examples

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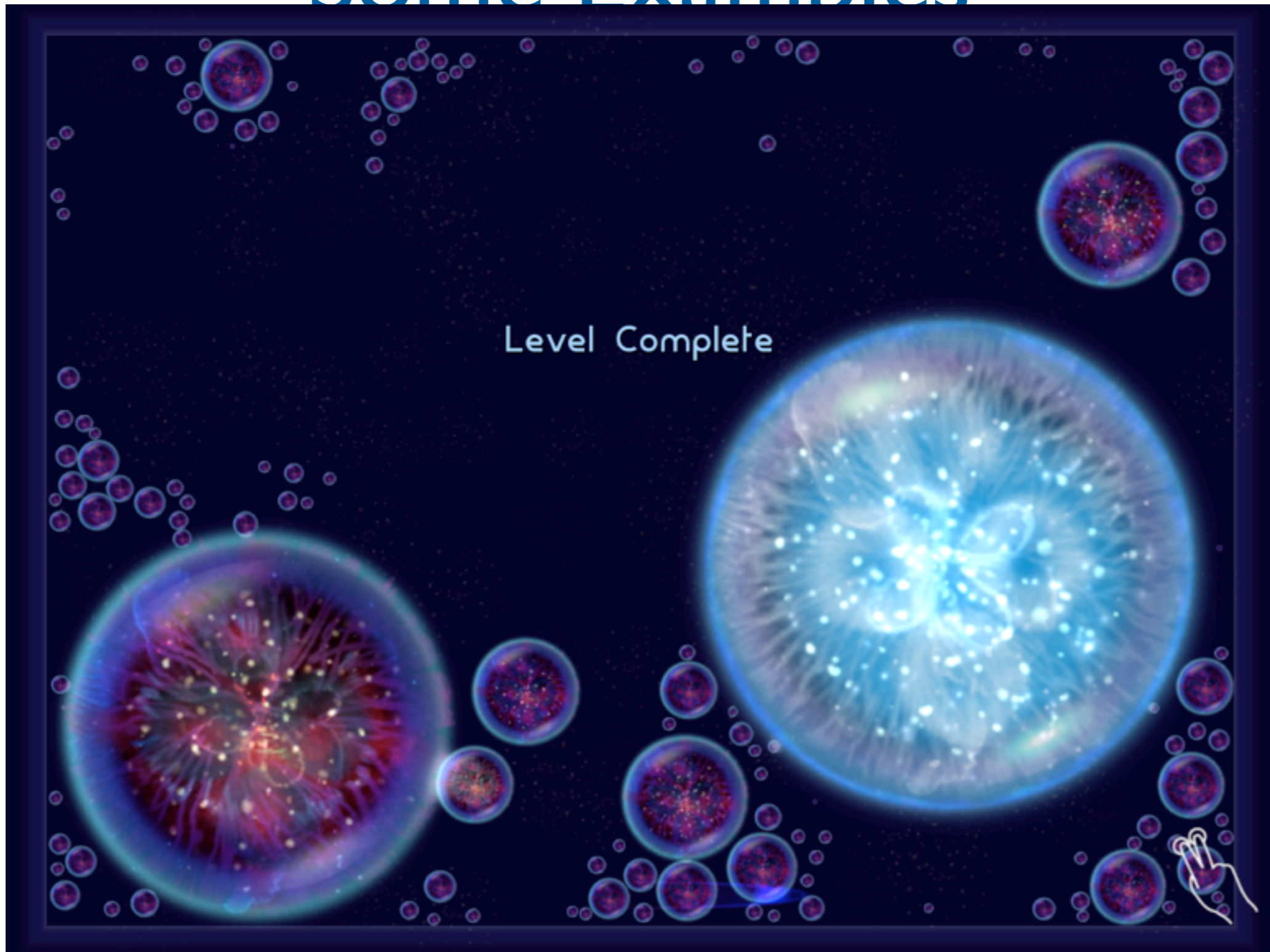
Life as an App

- The iPhone is an app-centric environment

- One app per task

- Do one thing but do it well

- Data is stored per app

- Data exchange between apps is difficult

- Define the task that users want to accomplish with your app

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Designing the UI

- Make it obvious how to use your application
- Sort information from top to bottom
- Minimize text input
- Express information succinctly
- Provide fingertip-size targets

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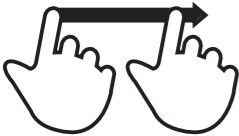media computing group
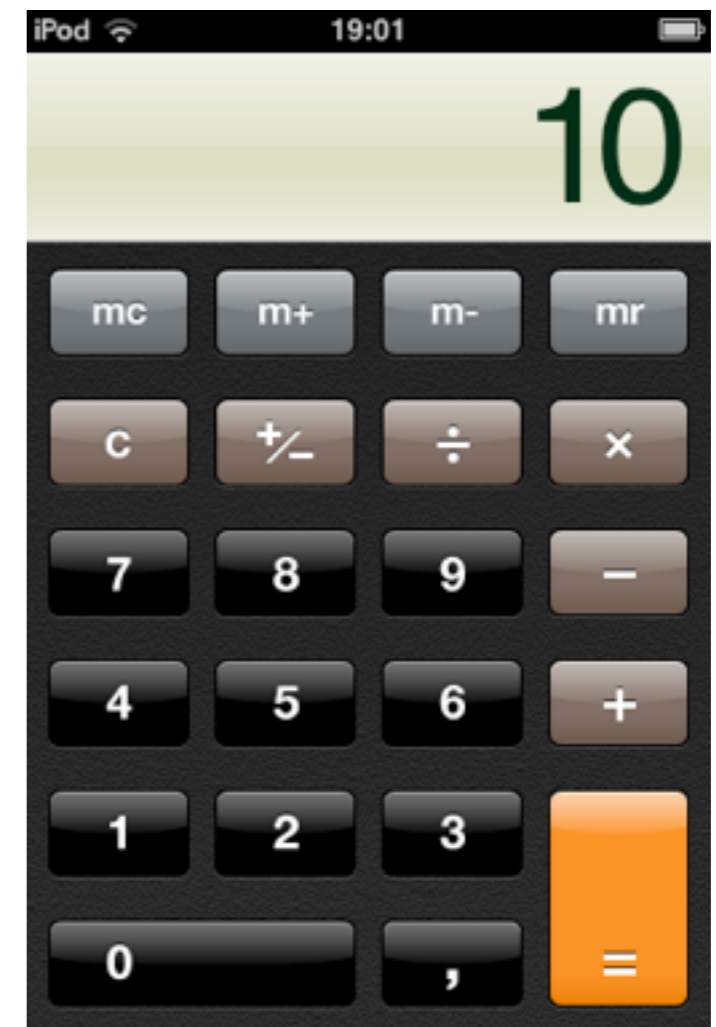
Interaction Design

- Multitouch interaction is still new
- Interaction patterns not established yet
- Follow Apple's examples if possible
- If you use complex gestures, help the user

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Standard Gestures

	Tap	To press or select a control or item (analogous to a single mouse click).
	Drag	To scroll or pan.
	Flick	To scroll or pan quickly.
	Swipe	In a table-view row, to reveal the Delete button.
	Double tap	To zoom in and center a block of content or an image. To zoom out (if already zoomed in).
	Pinch open	To zoom in.
	Pinch close	To zoom out.
	Touch and hold	In editable text, to display a magnified view for cursor positioning.

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Designing the UI

- Three resolutions: iPhone, iPhone 4, iPad

  - (320x480, 640x960, 1024 x 768)

- Device orientation:

  - Portrait or landscape

- Designing for the iPad requires more than increasing the resolution

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Example: Mail

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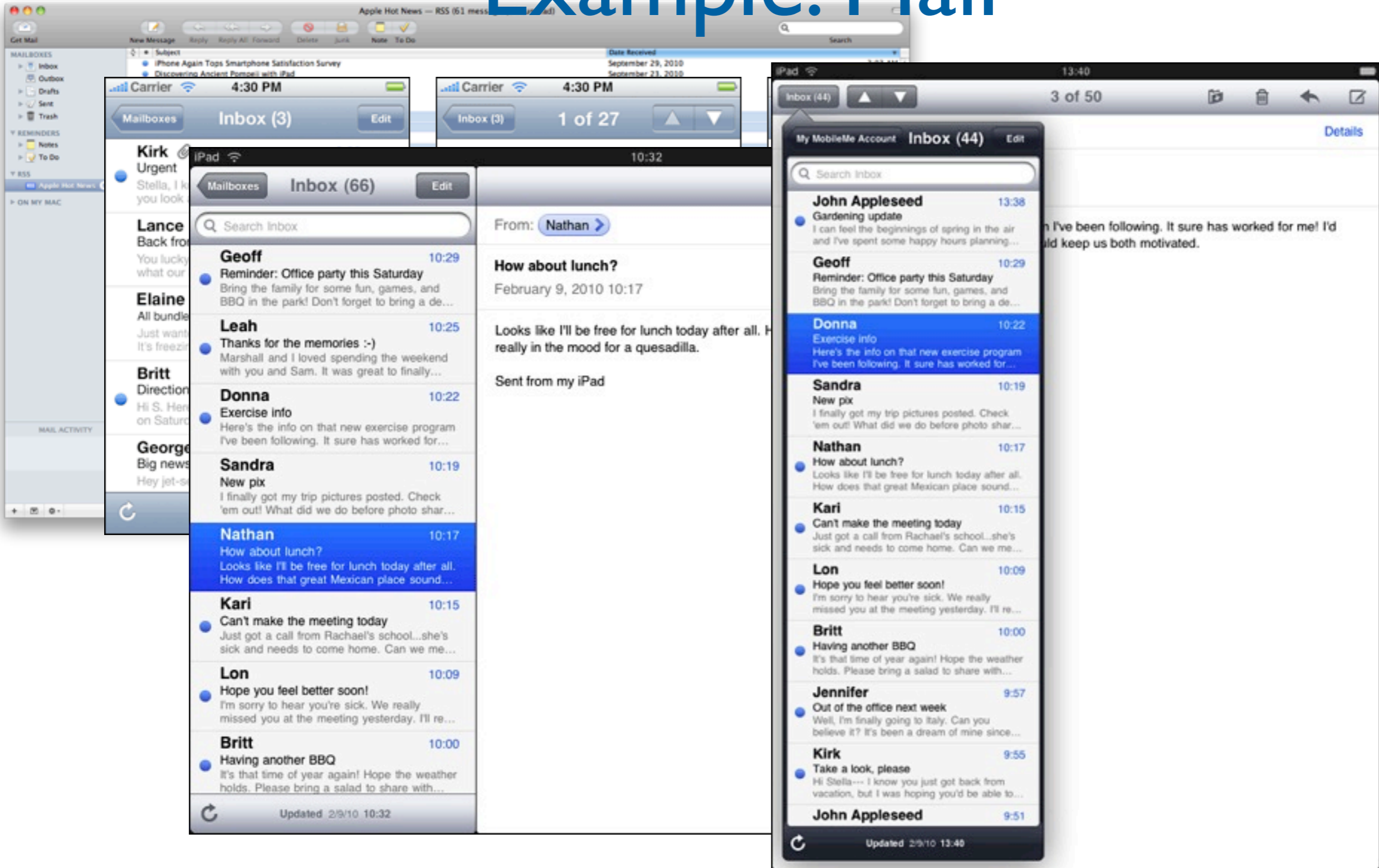
iPhoto
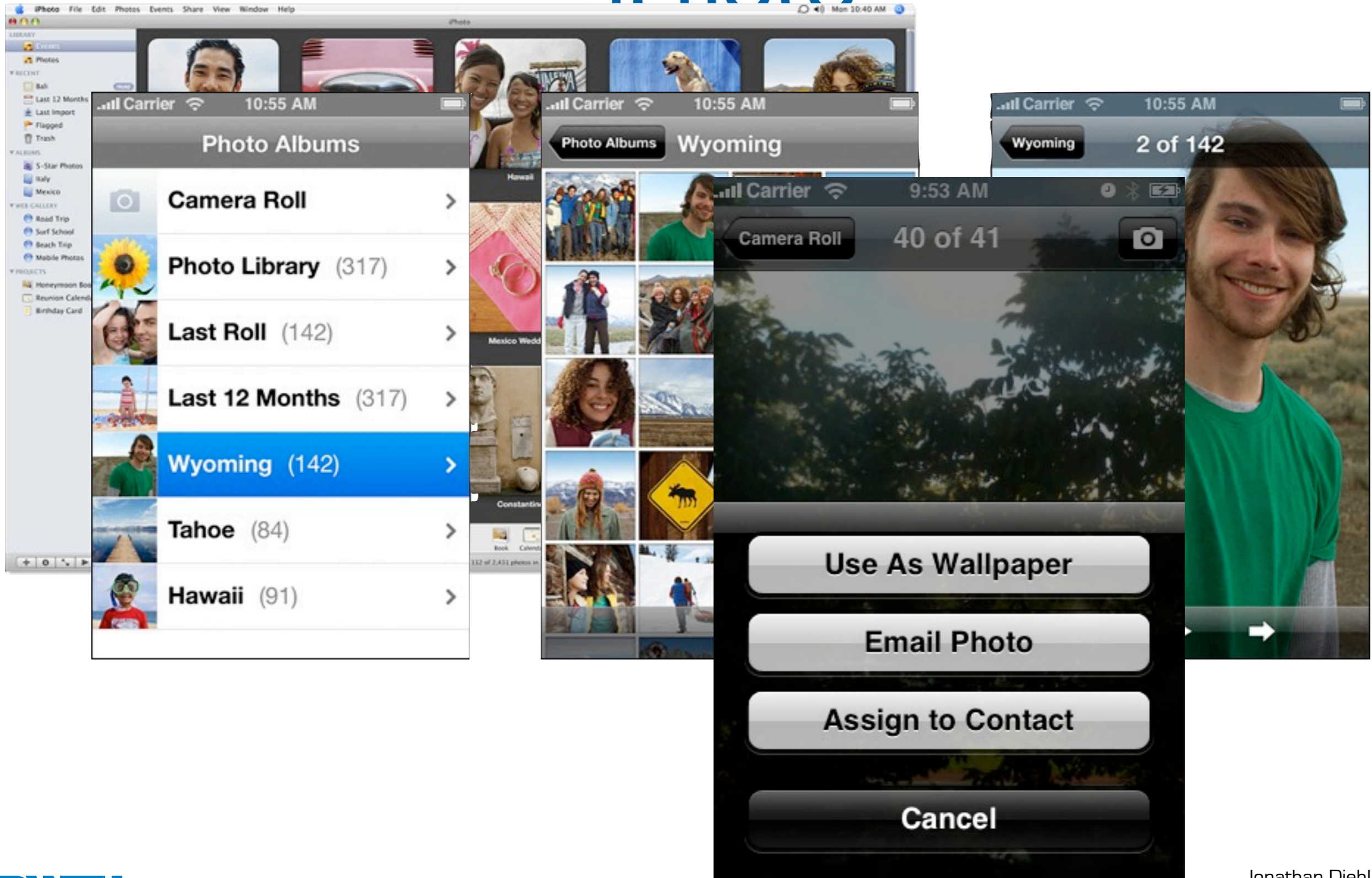
Starting

- Apps should start quickly to provide a fluid user experience

- Show a launch image that closely resembles the first screen of your app

- Restore the state of last run

- By default, launch in portrait orientation.

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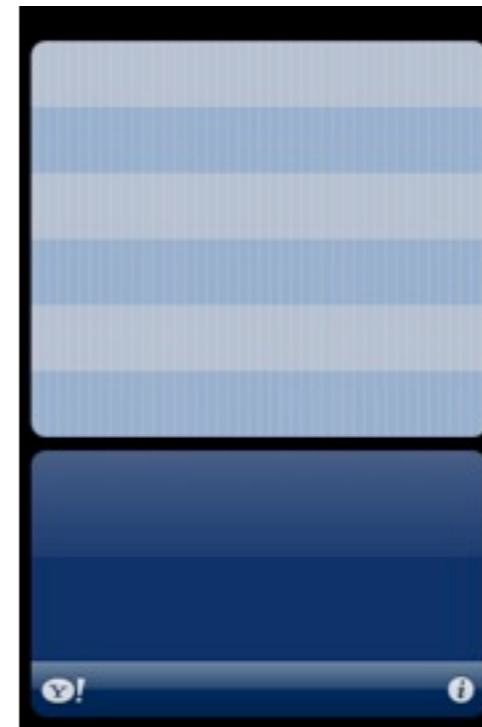
Stopping

- No *Quit* button or menu item
- Be prepared to quit at any time
- Program flow interrupted by external events
  - Incoming phone call
- Store state when stopping
- Application moved to background

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Application Styles

Productivity   **Utility**   **Immersive**
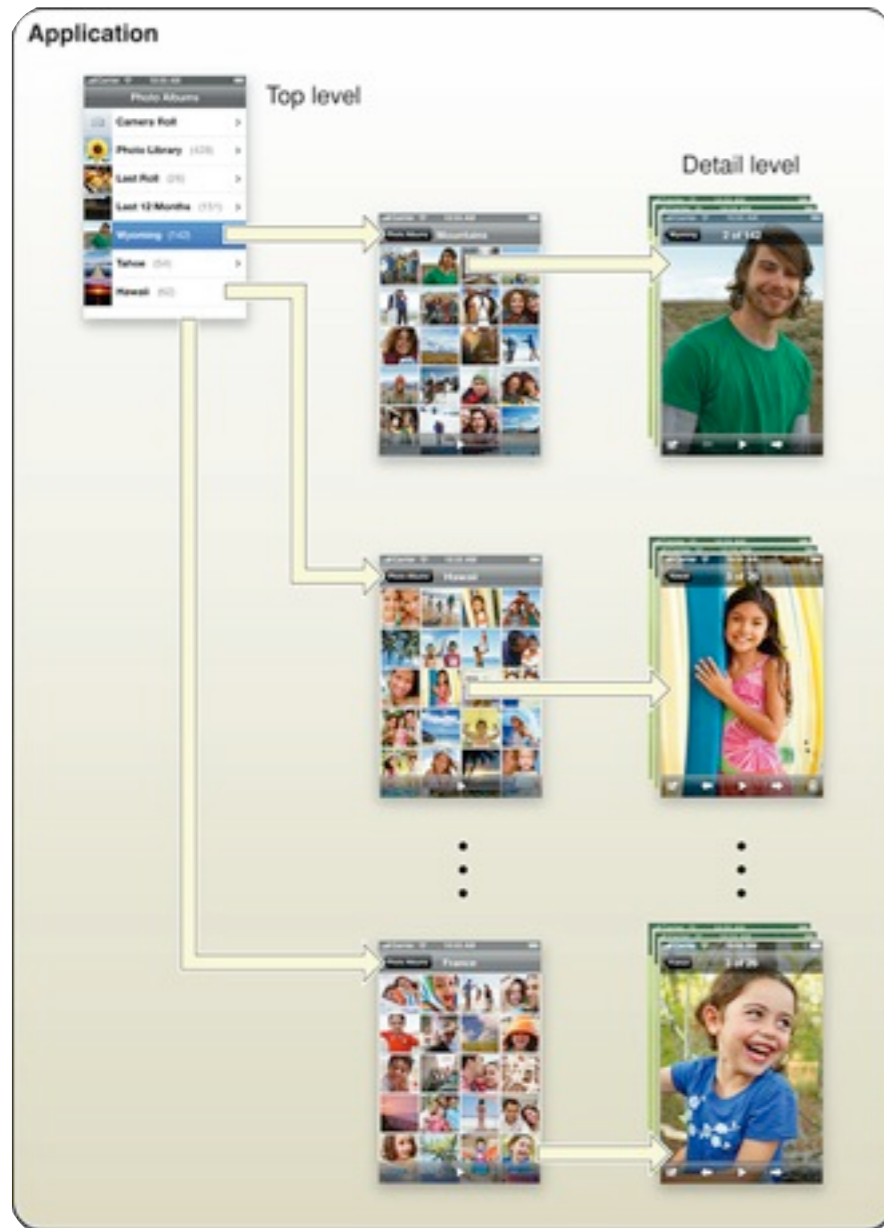
Photos   Weather   Seadragon

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Productivity Applications

- Organizing and managing detailed information

- Often organize data hierarchically

- Organizing the list, add or remove items

- Examples: Contacts, Photos

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Productivity Applications

Photos

Contacts
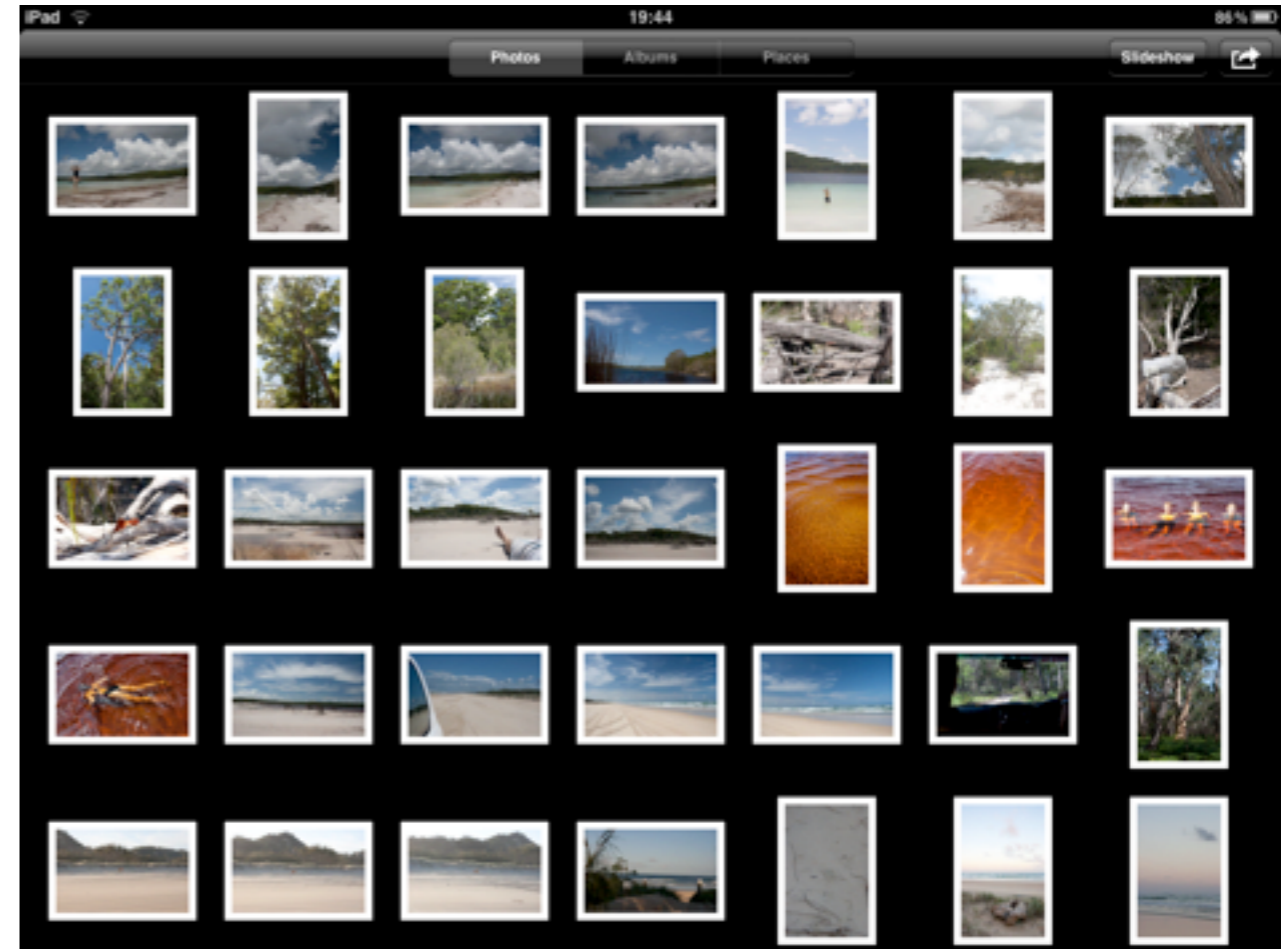
Photos

Utility Applications

- Simple task, minimum user input

- Customized, visually attractive UI that enhances the displayed information

- Data is organized in flattened list of items

- Examples: Weather, Stocks

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Utility Applications

Weather

Stocks

Elements

Immersive Applications

- Full-screen, visually rich UI

- Focussed on content and user experience

- Tends to hide much of the device's user interface

- Custom navigational methods

- Examples: Living Earth, Carpenter

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Immersive Applications

Living Earth

Carpenter

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In-Class Exercise

- Find 3 free Apps on the AppStore and install them on your device

- Try to find good examples for all 3 application styles

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iOS SDK Overview

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Cocoa Touch Architecture

Cocoa Touch

UIKit

User interface elements
Application runtime
Event handling
Hardware APIs

Foundation

Utility classes
Collection classes
Object wrappers for
system services

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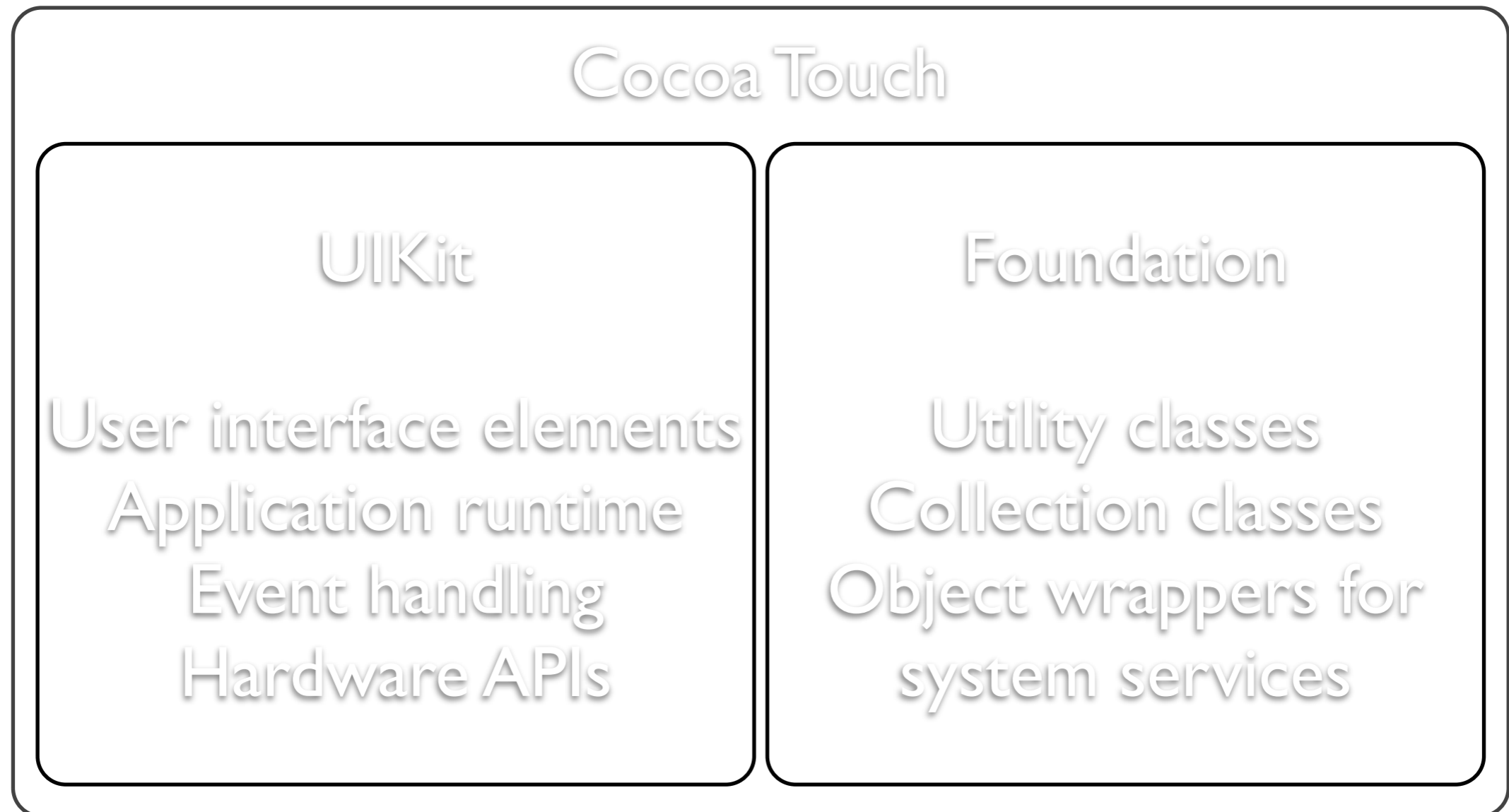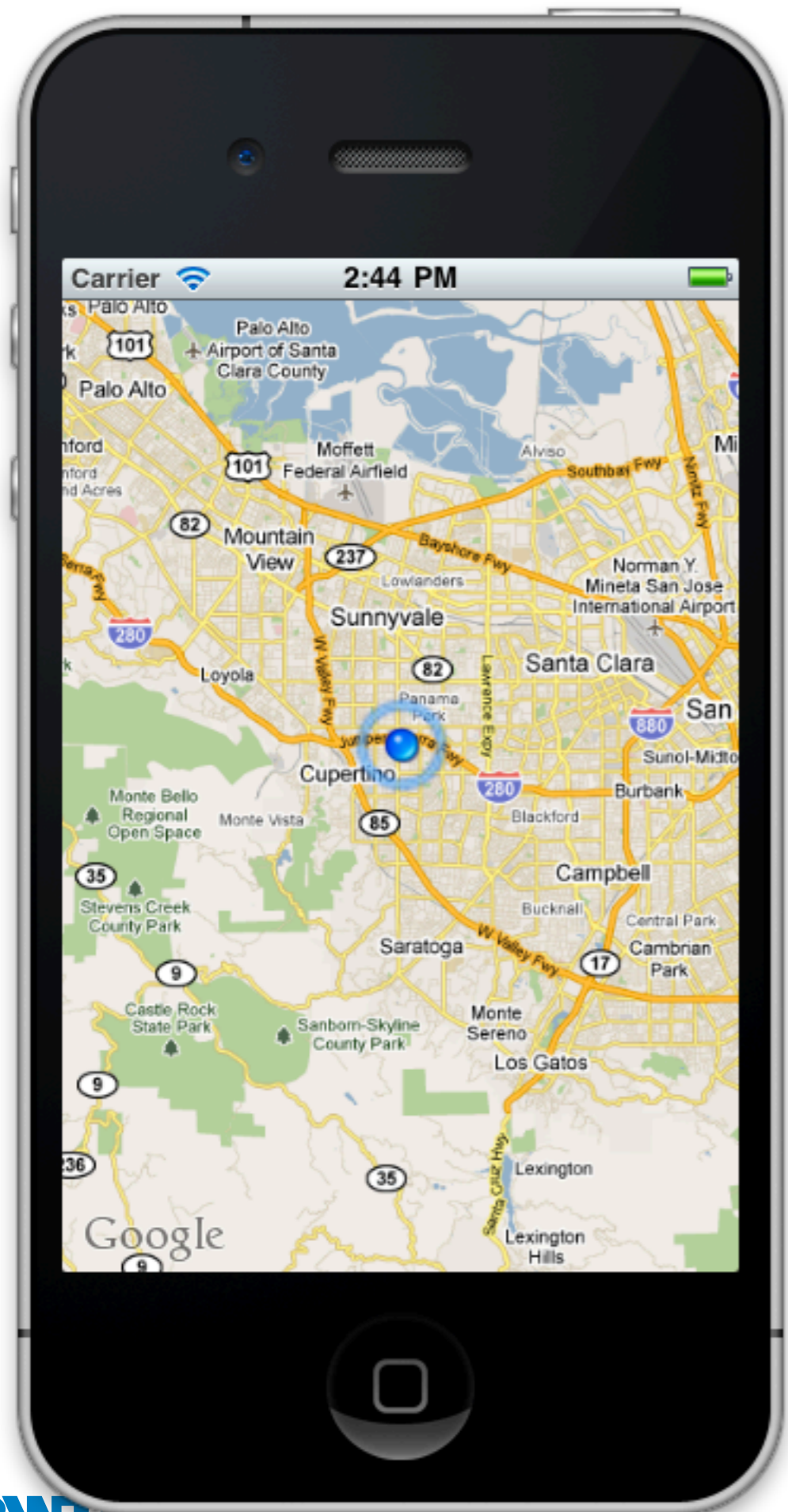
MapKit

Core Location

Camera

Calendar

Address Book

StoreKit

iAd

Made for iPod

Works with iPhone

Core Data   WebKit   Push Notifications

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Touch

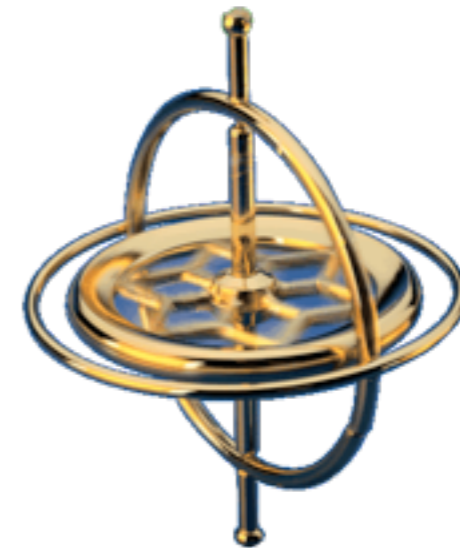Accelerometer

CoreMotion

Gyroscope

Graphics

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GameKit

GameCenter

Bonjour

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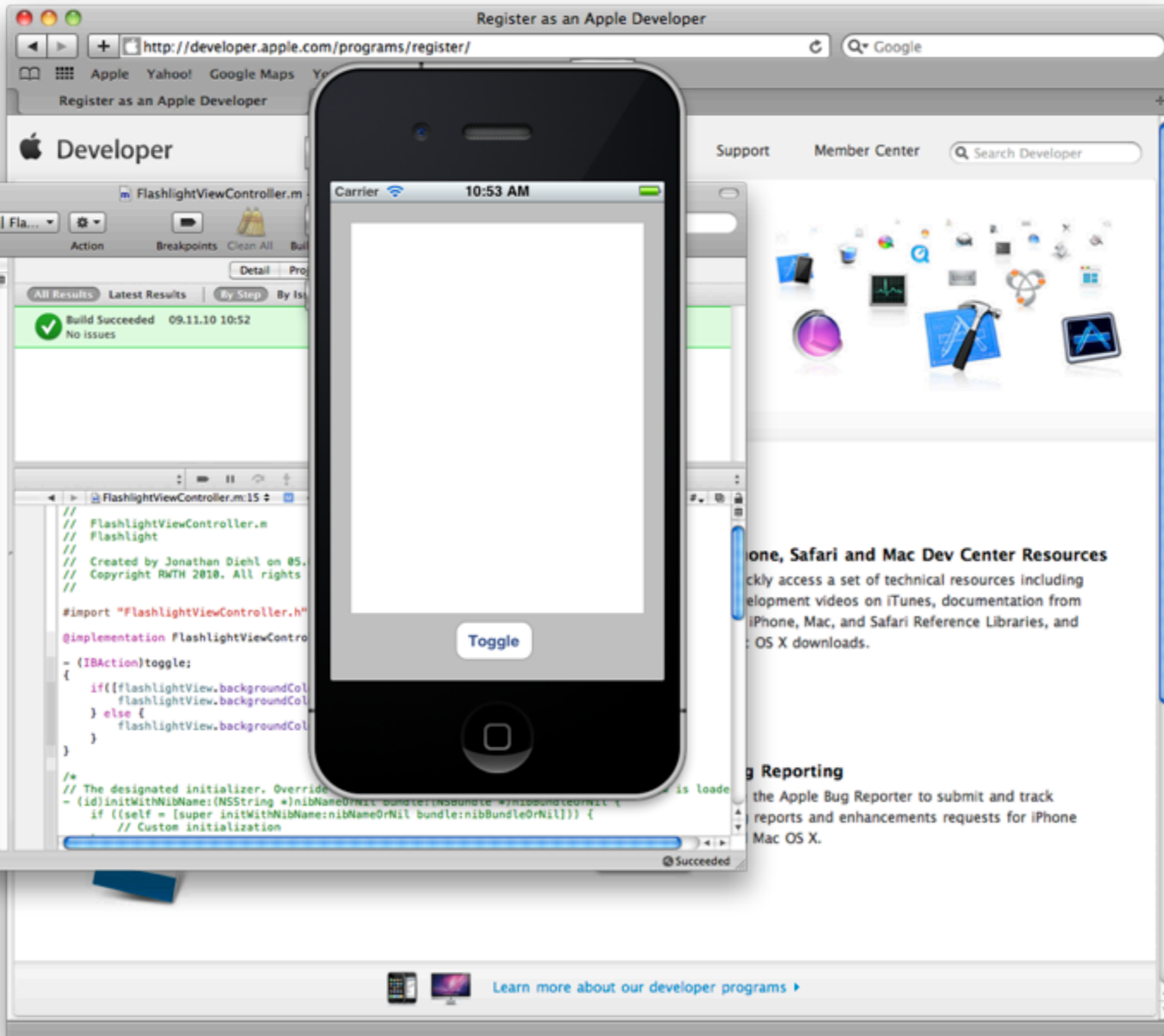
Core Audio
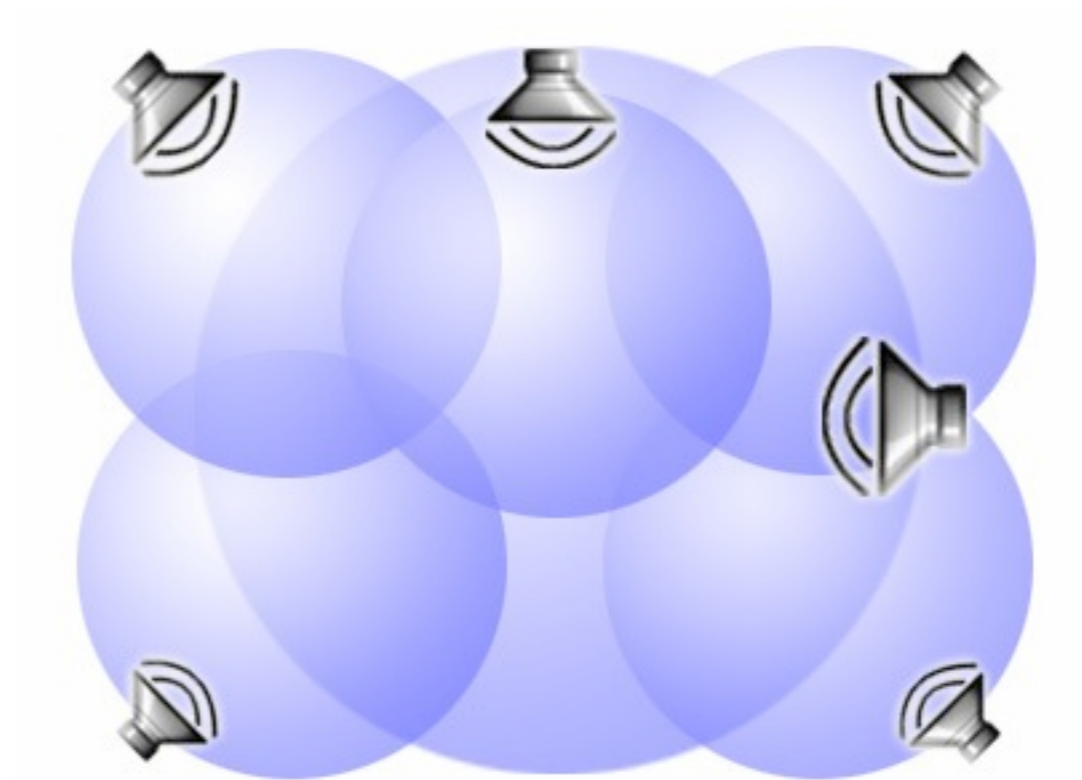
In-Class Exercise

- Find and install the following Apps from the AppStore:
  - Bump
  - Angry Birds Free
  - DB Navigator
  - Remote
- Determine for each App, which frameworks it uses.

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Register as an Apple Developer

http://developer.apple.com/programs/register/

Apple   Yahoo!   Google Maps   Ye

Register as an Apple Developer

Developer

Support   Member Center   Search Developer

FlashlightViewController.m

Simulator - 4.2 | Debug | Fla...

Page   Overview   Action   Breakpoints   Clean All   Buil

Groups & Files

Flashlight
  Classes
    FlashlightAppDelegate.h
    FlashlightAppDelegate.m
    FlashlightViewController.h
    FlashlightViewController.m
  Other Sources
    Flashlight_Prefix.pch
    main.m
  Resources
    FlashlightViewController.xib
    MainWindow.xib
    Flashlight-Info.plist
  Frameworks
    UIKit.framework
    Foundation.framework
    CoreGraphics.framework
  Products
  Targets
  Executables
  Find Results
  Bookmarks
  SCM
  Project Symbols
  Implementation Files
  XIB Files
  Breakpoints

Detail   Pro

All Results   Latest Results   By Step   By Iss

Build Succeeded   09.11.10 10:52
No issues

FlashlightViewController.m:15

```
//
//  FlashlightViewController.m
//  Flashlight
//
//  Created by Jonathan Diehl on 05.
//  Copyright RWTH 2010. All rights

#import "FlashlightViewController.h"

@implementation FlashlightViewContro

- (IBAction)toggle;
{
    if([flashlightView.backgroundCol
        flashlightView.backgroundCol
    } else {
        flashlightView.backgroundCol
    }
}

/*
// The designated initializer. Overrid                is loade
- (id)initWithNibName:(NSString *)nibNameOrNil bundle:(NSBundle *)nibBundleOrNil {
    if ((self = [super initWithNibName:nibNameOrNil bundle:nibBundleOrNil])) {
        // Custom initialization
```

Flashlight launched

Succeeded

Carrier   10:53 AM

Toggle

one, Safari and Mac Dev Center Resources

ckly access a set of technical resources including
elopment videos on iTunes, documentation from
iPhone, Mac, and Safari Reference Libraries, and
OS X downloads.

Reporting

the Apple Bug Reporter to submit and track
reports and enhancements requests for iPhone
Mac OS X.

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