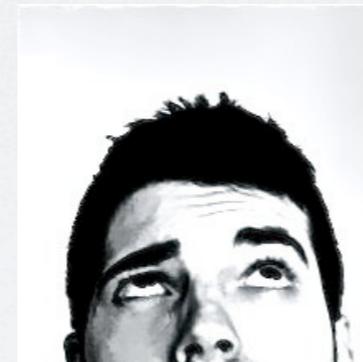


CROSS PLATFORM MOBILE DEVELOPMENT

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#pip11 meeting, January 21st 2011

www.programmersinpadua.it

The purpose

- Write once, run everywhere
- No specific language/API/IDE knowledge



Native development from scratch

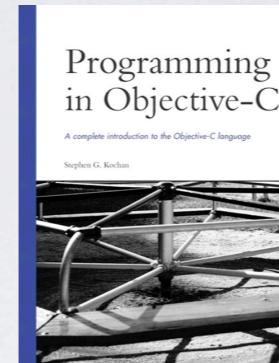
- Learn the language
- Learn how tools work
- Learn how to develop starting from samples
- Learn how to test and deploy



A LOT OF TIME TO GET STARTED!

The iPhone (iOS) way to go

- Learn Objective-C

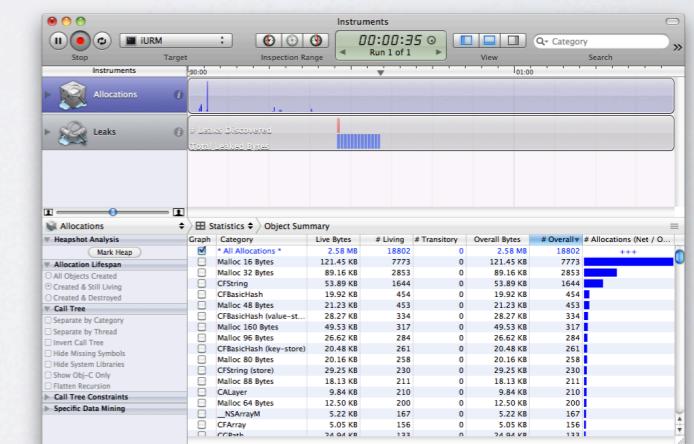
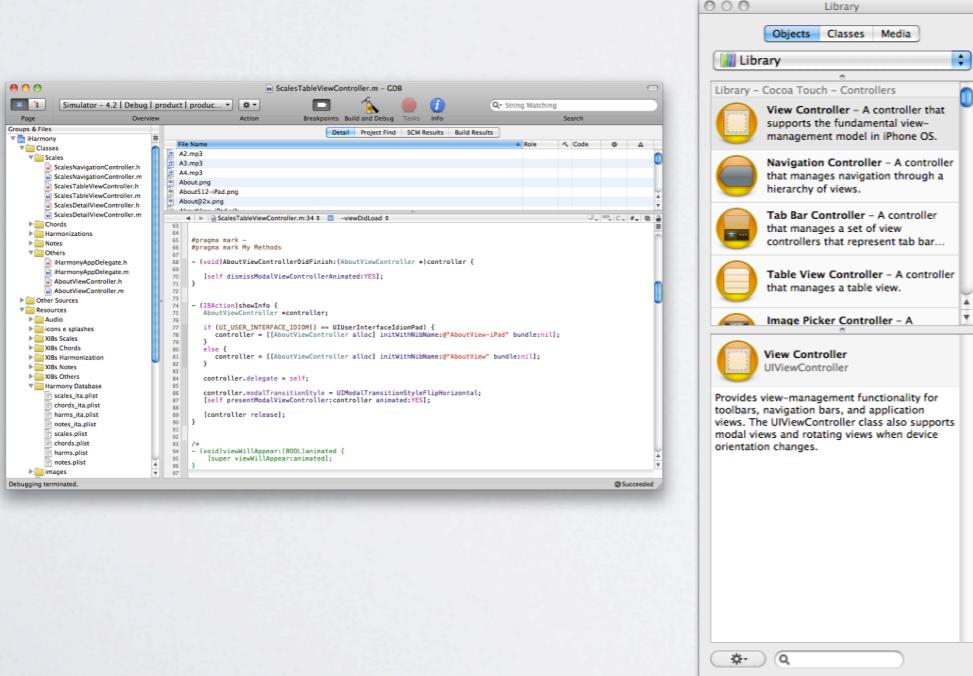


```
#pragma mark -
#pragma mark My Methods

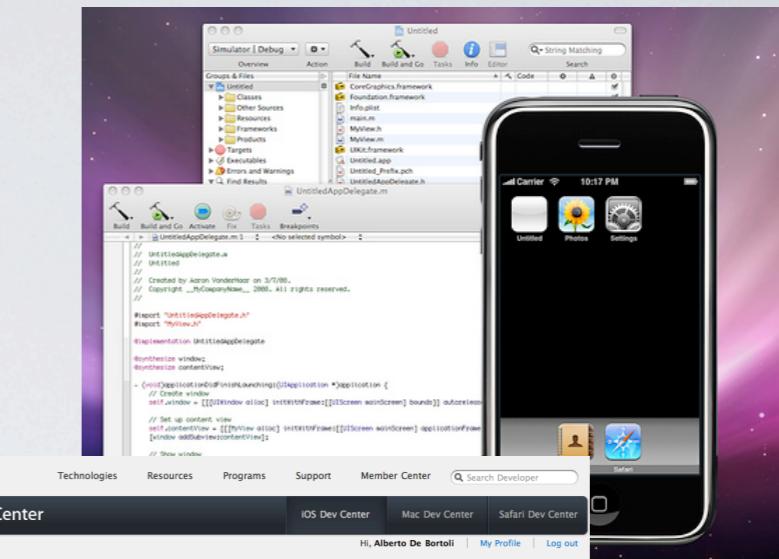
- (void)AboutViewControllerDidFinish:(AboutViewController *)controller {
    [self dismissModalViewControllerAnimated:YES];
}

- (IBAction)showInfo {
    AboutViewController *controller;
    if (UI_USER_INTERFACE_IDIOM() == UIUserInterfaceIdiomPad) {
        controller = [[AboutViewController alloc] initWithNibName:@"AboutView-iPad" bundle:nil];
    } else {
        controller = [[AboutViewController alloc] initWithNibName:@"AboutView" bundle:nil];
    }
    controller.delegate = self;
    controller.modalTransitionStyle = UIModalTransitionStyleFlipHorizontal;
    [self presentModalViewController:controller animated:YES];
    [controller release];
}
```

- Getting started with the IDE
(Xcode, Interface Builder, Instruments...)



- Look at the samples...

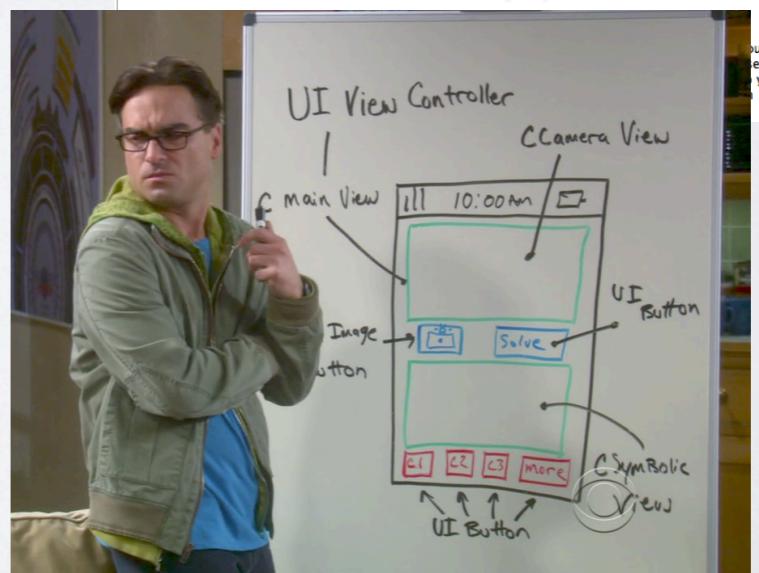


- Get the license and distribute the apps
(Developer Program, Developer Portal, iTunes Connect...)

The collage includes:

- iOS Dev Center:** Shows links for 'Downloads', 'Getting Started Videos', 'Getting Started Documents', 'iOS Reference Library', and 'iAd JS Reference Library'.
- iOS Provisioning Portal:** Shows tabs for 'Development', 'Distribution', 'History', and 'How To'. It highlights 'Development Provisioning Profiles'.
- iTunes Connect:** Shows sections for 'Welcome', 'Sales and Trends', 'Contracts, Tax, and Banking', 'Payments and Financial Reports', 'Manage Your Applications', 'Manage Your In App Purchases', and 'iAd Network'.

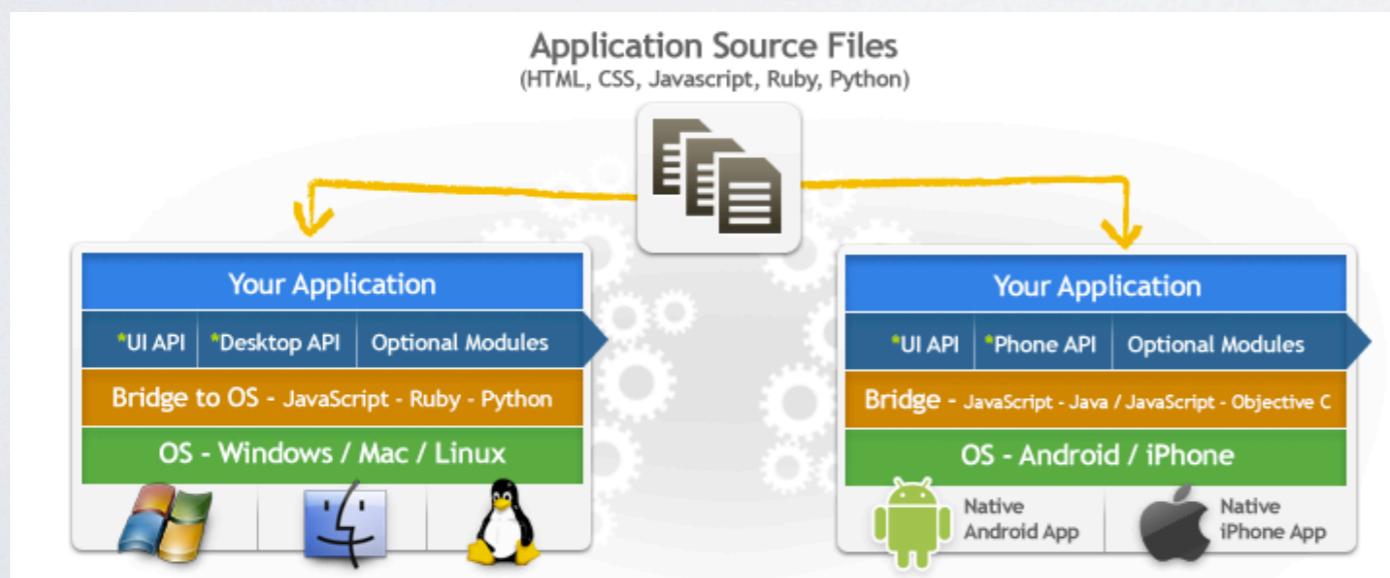
- Start developing!



Higher-level frameworks

- Develop apps using web developers knowledge and web languages

javascript ruby python CSS HTML ...



Rhodes

PhoneGap

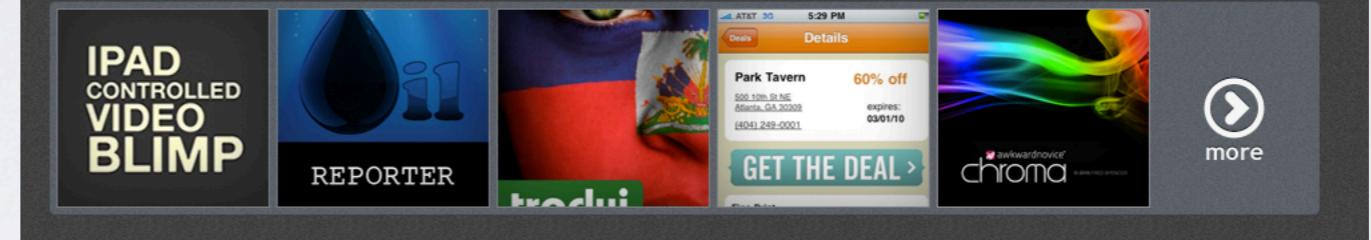
Titanium

Titanium



99,815 developers and growing!

Now powering over 1,189 native applications per month:



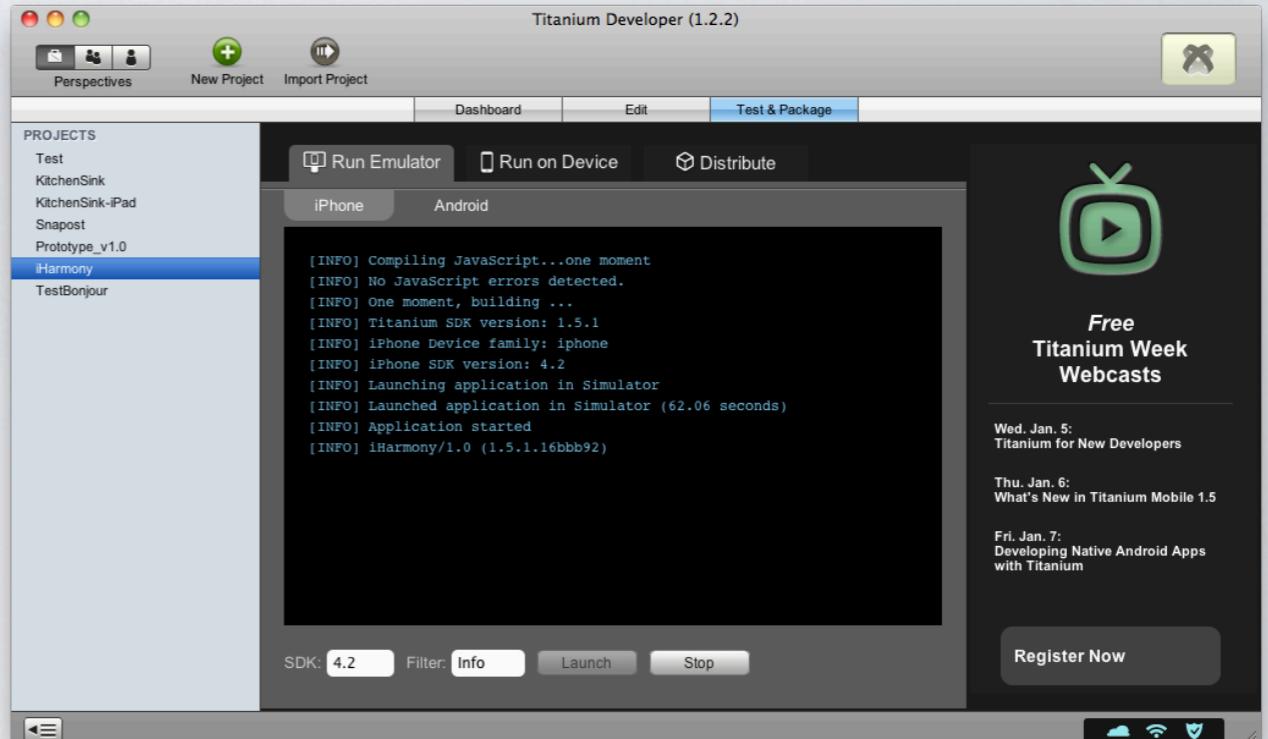
- Create powerful apps with *native* controls using the Web technologies you know
- Framework for developing desktop and native mobile applications
- For Windows and Mac
- Mobile developing with JavaScript for Apple App Store & Google Android Market

Titanium Developer

- NO IDE
- NO visual UI editor
- NO Debug tools

doh... but...

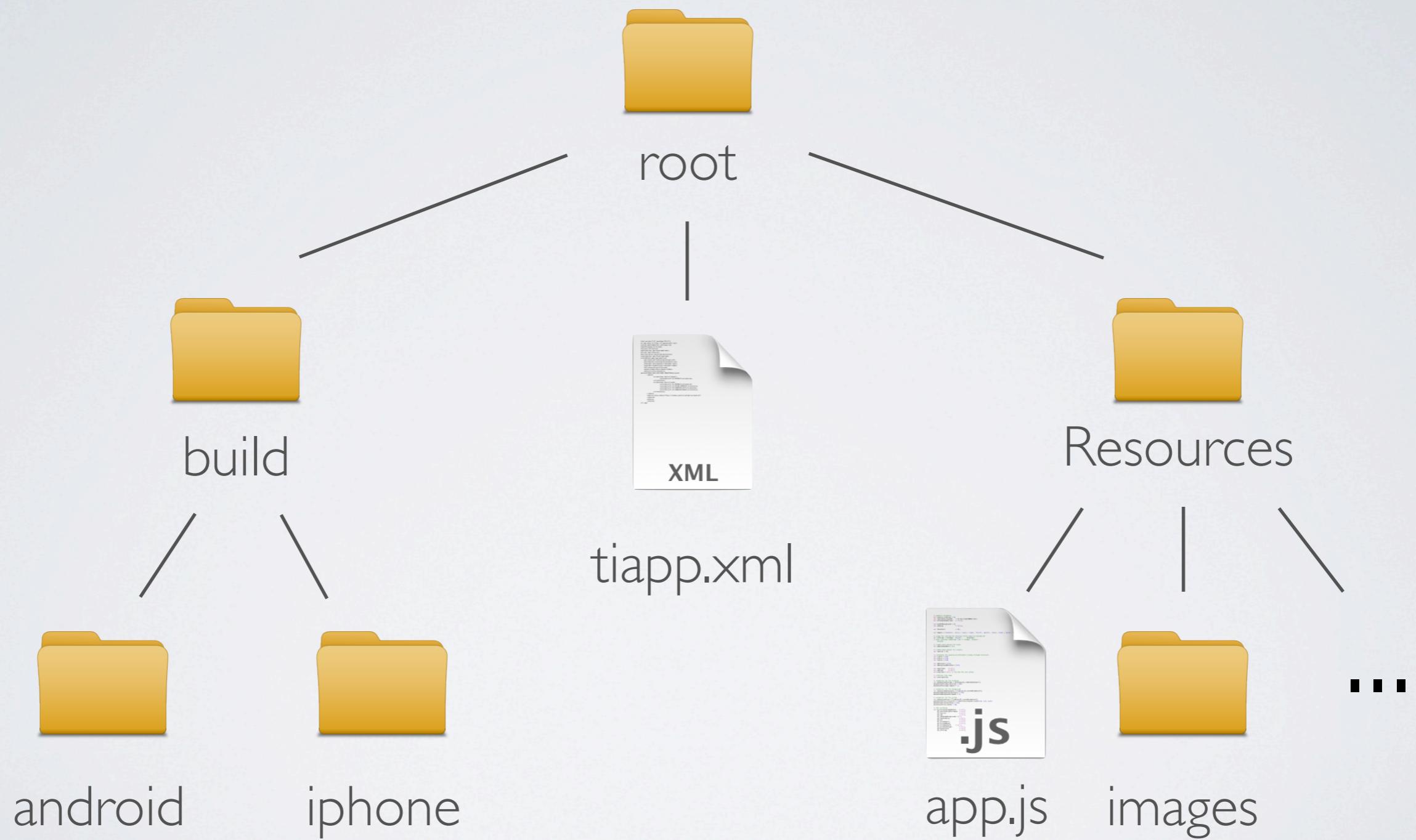
- No ‘serious’ memory management
- No strong typing
- Simple native API use



```
// play the harmonization by chords
if (e.index < 7) {
    note = convertNote(listArray[entryIndex].key_single_notes[e.index][0]);
    if (note == not_used) {
        harmDoesntExist();
    }
    else {
        for (var iter=0; iter<listArray[entryIndex].key_single_notes[e.index].length; iter++) {
            Ti.API.log("iterazione: " + iter);
            if (noteIsNewOctave(convertNote(listArray[entryIndex].key_single_notes[e.index][iter]))) {
                octave++;
            }
            note = convertNote(listArray[entryIndex].key_single_notes[e.index][iter]);
            playArray(listArray[entryIndex].key_single_notes[e.index][iter],
                     timespanChords,
                     "harmonization",
                     false,
                     octave);
            sleep(timespanHarms);
        }
        Ti.API.log("iterazione: ?");
        if (noteIsNewOctave(convertNote(listArray[entryIndex].key_single_notes[e.index][0]), note))
            octave++;
    }
    playArray(listArray[entryIndex].key_single_notes[e.index][0],
             timespanChords,
             "harmonization",
             false,
             octave);
}
```

The code editor shows the file 'harms.js' with line numbers from 149 to 186. The code handles touch events to play harmonization chords based on the current note and octave.

A Titanium project



How to start with Titanium

Read “Getting started with Titanium”	3 hours
Download & Install Titanium	10 mins
Take a glance to Titanium app and set it up	30 mins
Download & Test “Kitchen Sink” app	1 hour
Amaze yourself	2-3 days
Keep studying/testing samples and documentation	...

Comparison between filling a tableView natively and with Titanium

Objective-C 1/4

```
@interface myViewController : UITableViewController  
    <UITableViewDelegate, UITableViewDataSource> {  
    IBOutlet UITableView *myTableView;  
    IBOutlet UIView *myView;  
    NSArray *myArray;  
}  
  
@property (nonatomic, retain) IBOutlet UITableView *myTableView;  
@property (nonatomic, retain) IBOutlet UIView *myView;  
  
@end
```



Objective-C 2/4

```
// Load DB from file
dbPath = [[NSBundle mainBundle] pathForResource: @"db"
                                         ofType: @"plist"];

myArray = [[NSArray alloc] initWithContentsOfFile: dbPath];

#pragma mark -
#pragma mark Table View data source

// Customize the number of sections in the table view.
- (NSInteger)numberOfSectionsInTableView:(UITableView *)tableView {
    return [myArray count];
}

- (NSInteger)tableView:(UITableView *)tableView
 numberOfRowsInSection:(NSInteger)section {
    return [[myArray objectAtIndex: section] count];
}

- (NSString *)tableView:(UITableView *)tableView
titleForHeaderInSection:(NSInteger)section {
    if (section < sectionName.length)
        return sectionName[section];
    else
        return @"unknown section";
}
```

Objective-C 3/4

```
// Customize the appearance of table view cells.
- (UITableViewCell *)tableView:(UITableView *)tableView
    cellForRowAtIndexPath:(NSIndexPath *)indexPath {
    UITableViewCell *cell = [tableView dequeueReusableCellWithIdentifier: @"Cell"];

    // create a cell
    if (cell == nil) { ← best practice...
        cell = [[UITableViewCell alloc]
            initWithStyle: UITableViewCellStyleSubtitle
            reuseIdentifier: @"Cell"];
    }
    // determine the correct row.
    // it will be restarted from 0 every time, and as
    // we're just loading in from one array, we need to
    // offset it by the right amount depending on the section.

    cell.textLabel.text = [[[myArray objectAtIndex: indexPath.section]
        objectAtIndex: indexPath.row]
        objectForKey: @"title"];
    cell.detailTextLabel.font = [UIFont systemFontOfSize: 11];
    cell.detailTextLabel.text = [[[myArray objectAtIndex: indexPath.section]
        objectAtIndex: indexPath.row]
        objectForKey: @"subtitle"];
    cell.accessoryType = UITableViewCellAccessoryDisclosureIndicator;

    // return it
    return cell;
}
```

Objective-C 4/4

```
#pragma mark -
#pragma mark Table View delegate

//returns floating point which will be used for a cell row height at specified row index
- (CGFloat)tableView:(UITableView *)tableView
heightForRowAtIndexPath:(NSIndexPath *)indexPath {
    return 46.0;
}

- (void)tableView:(UITableView *)tableView
didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    // Navigation logic may go here -- for example, create and push another view controller.
    myDetailViewController *myDetail = [[myDetailViewController alloc]
                                         initWithNibName: @"myDetailView"
                                         bundle:nil];

    // passing the right kid of scale (NSDictionary)
    myDetail.scale = [[myArray objectAtIndex: indexPath.section]
                      objectAtIndex: indexPath.row];
    iHarmonyAppDelegate *delegate = [[UIApplication sharedApplication] delegate];
    [delegate.navigationController pushViewController: myDetail
                                         animated: YES];

    [myDetail release];
}
```

Javascript 1/2

```
// get the JSON file
var file = Ti.Filesystem.getFile(Titanium.Filesystem.resourcesDirectory,
'ext/database/notes.js');
var listArray = JSON.parse(file.read().text);

// the data to load in the tableView
var data = [];
```

```
// create table view
var tableView = Titanium.UI.createTableView({
    style: Titanium.UI.iPhone.TableViewStyle.GROUPED
});
```

/* LOAD DATA */ ← the core, next slide

```
tableView.setData(data);
```

Javascript 2/2

```
/* BEGIN - loading data for TableView */

// create first section
if (listArray[0] != null) {
    var section          = Ti.UI.createTableViewSection();
    section.headerTitle = listArray[0].group;
}

// update section name tracking variable
var sectionTitle = listArray[0].group;

for (var i=0; i<listArray.length; i++) {

    // if the group is changed
    if (sectionTitle != listArray[i].group) {
        // apply rows to data array
        data.push(section);
        // create new section
        var section = Ti.UI.createTableViewSection();
        section.headerTitle = listArray[i].group;
        // update section name tracking variable
        sectionTitle = listArray[i].group;
    }
    var row = Ti.UI.createTableViewRow({
        hasChild:           true,
        title:              listArray[i].info
    });
    section.add(row);
}
// push the last section
data.push(section);

/* END - loading data for TableView */
```

Titanium documentation

- developer.appcelerator.com

Mobile API Reference  

search documentation

0.1

Titanium	The top level Accelerometer module. The Accelerometer modules contains methods and properties for using the device accelerometer.
Titanium.API	
Titanium.Accelerometer	Methods
Titanium.Analytics	
Titanium.Android	
Titanium.Android.Calendar	
Titanium.App	Properties This module has no properties
Titanium.App.Android	Events
Titanium.App.Properties	
Titanium.App.iOS	

Titanium.Accelerometer

submodule of [Titanium](#)

The top level Accelerometer module. The Accelerometer modules contains methods and properties for using the device accelerometer.

Methods

Name	Description
addEventListener	add an event listener for the instance to receive view triggered events
fireEvent	fire a synthesized event to the views listener
removeEventListener	remove a previously added event listener

Properties

This module has no properties

Events

Name	Description
<code>update</code>	fired when the accelerometer changes

iHarmony Titanium porting

- My first simple app (back to 2008)
- Musical app about musical harmony, chords, scales...
- One of the first 5.000 apps on the App Store
- Developed in Xcode
(2 weeks, September 2008-June 2010)
1.0 → 1.1 → 1.2 → 2.0
- Developed using Titanium
(2 days for full porting, January 2011,
not yet on any market)



iHarmony Titanium porting



Standard developing

Titanium developing

Thanks for watching

Q&A