

How Open Source Software Development Can Make You a Better Developer

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The Washington Post

"Open source software is software with source code that anyone can inspect, modify, and enhance."

– OpenSource.com

OSS Résumé

- 1.3 million+ downloads via CocoaPods¹
- 7,200+ stars on GitHub²
- Contributed to Swift 3.1³
- Contributed to Swift Source Compatibility^{4 5}

Stats on the right generated by GitFame⁶

¹ [CocoaPods Stats for ArtSabintsev](#)

² [GitHub Account for ArtSabintsev](#)

³ [XCTAssertNoThrow Implementation for Swift 3.1](#)

⁴ [Guitar: Platform-Independent Regular Expression and String Library](#)

⁵ [Swift Source Compatibility Suite](#)

⁶ [GitFame: Swift CLI Script That Logs GitHub Stars and Forks.](#)

\$ gitfame ArtSabintsev	2345 ★/ 290 ♦
... Welcome to GitFame! ...	1978 ★/ 166 ♦
... Fetching Stars (★) and Forks (♦) for GitHub user (ArtSabintsev) on Aug 3, 2017 10:03:33 PM ...	832 ★/ 58 ♦
	ArtSabintsev has 7234 ★ and 715 ♦
	Harpy 2345 ★/ 290 ♦
	Siren 1978 ★/ 166 ♦
	FontBlaster 832 ★/ 58 ♦
	Guitar 532 ★/ 21 ♦
	Zephyr 368 ★/ 26 ♦
	Magic 295 ★/ 10 ♦
	UIFloatLabelTextField 281 ★/ 40 ♦
	Solarized-Dark-for-Xcode 262 ★/ 48 ♦
	UIFloatLabelTextView 150 ★/ 20 ♦
	Freedom 52 ★/ 0 ♦
	Ethminer-for-macos 24 ★/ 4 ♦
	Asynchronous-Freeloader 20 ★/ 3 ♦
	ASPullToRefresh 14 ★/ 2 ♦
	UIDevice-SupportedDevices 13 ★/ 3 ♦
	MaterialSwitch 11 ★/ 2 ♦
	GitFame 9 ★/ 0 ♦
	UIView-AutoLayoutView 9 ★/ 1 ♦
	MGSplitViewController 6 ★/ 8 ♦
	UIColor-ColorWithHexAndAlpha 6 ★/ 2 ♦
	Cognac-Xcode 5 ★/ 1 ♦
	Panhandler 4 ★/ 1 ♦
	Cognac 3 ★/ 2 ♦
	NSDate-DateFromJSONObjectID 2 ★/ 0 ♦
	JVFloatLabeledTextField 2 ★/ 2 ♦
	Swift-3-CocoaHeads-DC-Talk 2 ★/ 0 ♦
	Simple-Class-Portraits 1 ★/ 0 ♦
	VNImageScanner 1 ★/ 2 ♦
	aeon 1 ★/ 0 ♦
	Alamofire 1 ★/ 0 ♦
	Apple-Watch-WatchKit-CocoaHeads-DC-Talk-artsabintsev.github.io 1 ★/ 1 ♦
	RealmResultsController 1 ★/ 0 ♦
	Cognac-Terminal 1 ★/ 0 ♦
	360iDevCodeAndSlides 1 ★/ 0 ♦
	Kitura-net 0 ★/ 0 ♦
	Curassow 0 ★/ 0 ♦
	Commander 0 ★/ 0 ♦
	Cognac-TextMate 0 ★/ 0 ♦
	ios-icon-generator 0 ★/ 1 ♦
	MOB-DC-3 0 ★/ 0 ♦
	MUDammer 0 ★/ 0 ♦
	Cognac-Sublime 0 ★/ 0 ♦
	Cognac-Atom-Syntax 0 ★/ 0 ♦
	Perfect-Notifications 0 ★/ 0 ♦
	homebrew-core 0 ★/ 0 ♦
	siesta 0 ★/ 0 ♦
	Gamifying-the-News-360iDev-2016 0 ★/ 0 ♦
	cocoapods-wholemodule 0 ★/ 0 ♦
	solar-theme-jekyll 0 ★/ 0 ♦
	basic-template 0 ★/ 0 ♦
	Specs 0 ★/ 0 ♦
	ssoper.github.io 0 ★/ 0 ♦
	swift 0 ★/ 0 ♦
	Dash-iOS 0 ★/ 1 ♦
	swift-corelibs-foundation 0 ★/ 0 ♦
	swift-corelibs-xctest 0 ★/ 0 ♦
	swift-evolution 0 ★/ 0 ♦
	swift-package-manager 0 ★/ 0 ♦
	swift-source-compat-suite 0 ★/ 0 ♦
	SwiftLint 0 ★/ 0 ♦
	SwiftPlate 0 ★/ 0 ♦
	dracula-theme 0 ★/ 0 ♦
	alcatraz-packages 0 ★/ 0 ♦
	Freetime 0 ★/ 0 ♦
	AFWebViewController 0 ★/ 0 ♦
	GeoTrackKit 0 ★/ 0 ♦
	Gamifying-the-News-Columbia-Meetup-2017 0 ★/ 0 ♦
	XCGLogger 0 ★/ 0 ♦
	xmrig 0 ★/ 0 ♦
	learn-swift-nova-july-2017-presentation 0 ★/ 0 ♦
	PMKVObserver 0 ★/ 0 ♦

You don't need a computer science
degree to contribute to Open
Source.

– *Lesson #1*

4 Types of Open-Source Projects Based on Adoption⁷

1. No Adoption

2. Adoption

3. Gold Standard

4. Hyper-Scale

⁷ Felix Krause's Four Stages of Open Source Projects

Journey into the past, to a time before

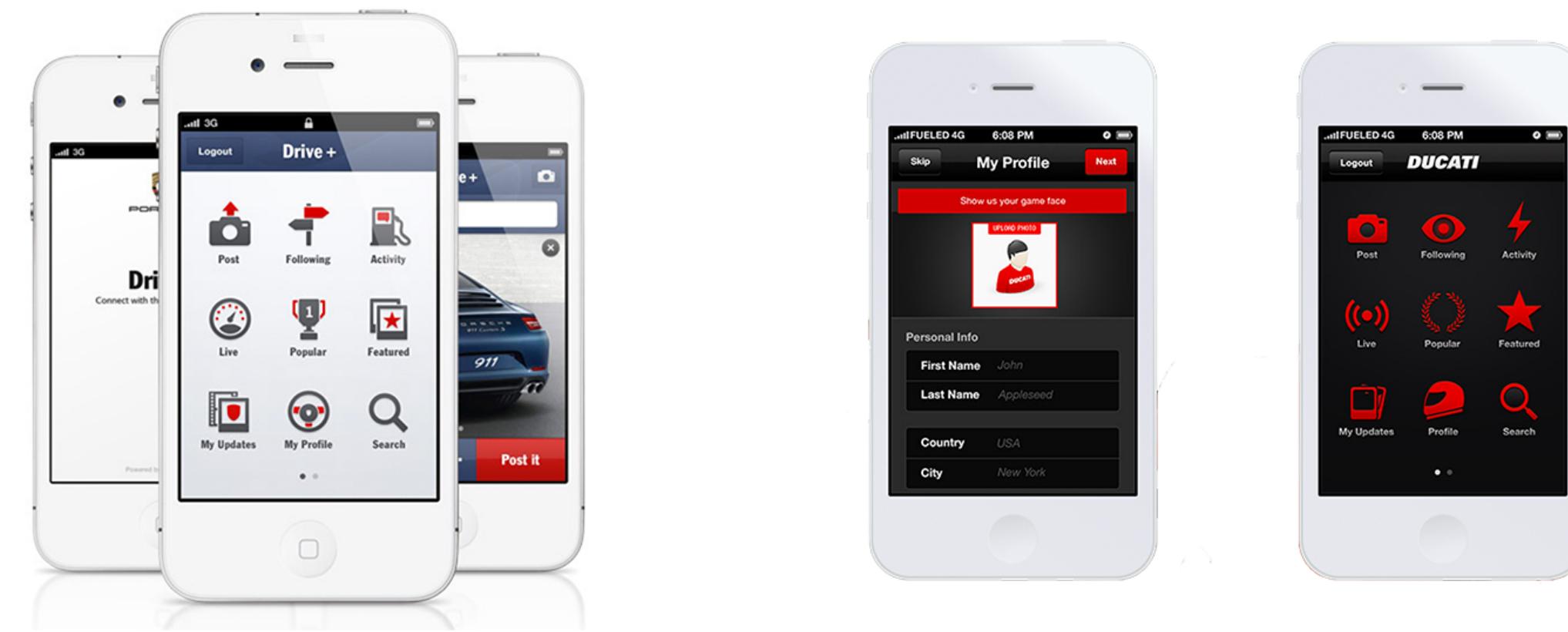
- **JSON parsing libs** (Argo, Gloss, SwiftyJSON, etc.)
- **Auto Layout libs** (PureLayout, SnapKit, Stevia, etc.)
- **Async. Image Downloading libs** (Kingfisher, SDWebImage, etc.)
- Journey back to the days of **Pull to Refresh!**

Three20

Three20 is a collection of iPhone UI classes, like a photo viewer, and general utilities, like an HTTP disk cache.
Three20 is derived from the [Facebook iPhone app](#), which is one of the most downloaded iPhone apps ever.

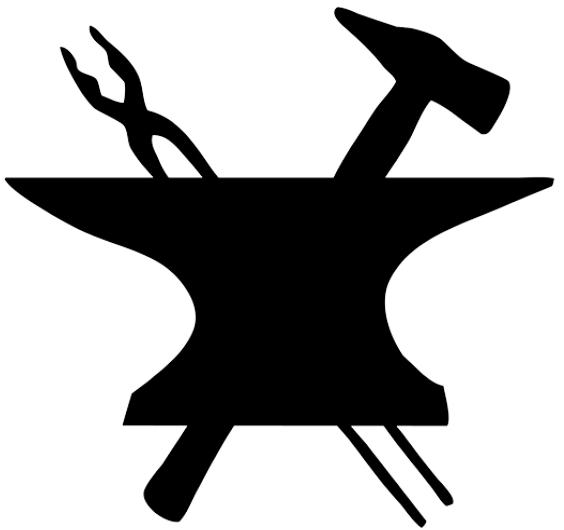


Drive+ by Porsche & Ducati Community for Ducati



Programmers are like
Blacksmiths, we create
our own tools.

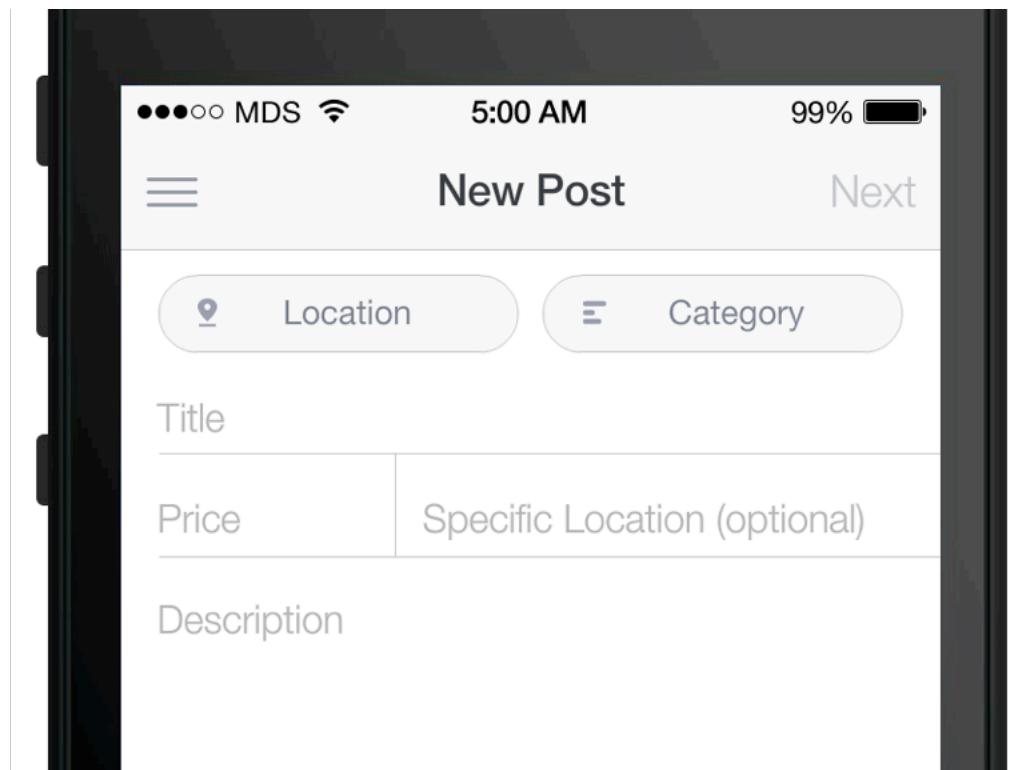
– *Lesson #2*



Gumption

– *Lesson #3*

The Float Label Pattern ^{8 9 10}



⁸ [The Float Label Pattern by Matt D. Smith](#)

⁹ [UIFloatLabelTextField](#)

¹⁰ [UIFloatLabelTextview](#)

Swizzling UITextField's Clear Button

```
- (void)setupTextFieldClearButton
{
    // A boolean that toggles the state of the keyboard after the clear-text button is pressed.
    _dismissKeyboardWhenClearingTextField = @NO;

    // Create selector for Apple's built-in UITextField button - clearButton
    SEL clearButtonSelector = NSSelectorFromString(@"clearButton");

    // Reference clearButton getter
    IMP clearButtonImplementation = [self methodForSelector:clearButtonSelector];

    // Create function pointer that returns UIButton from implementation of method that contains clearButtonSelector
    UIButton * (* clearButtonFunctionPointer)(id, SEL) = (UIButton * (*)(id, SEL))clearButtonImplementation;

    // Set textFieldClearButton reference to "clearButton" from clearButtonSelector
    _textFieldClearButton = clearButtonFunctionPointer(self, clearButtonSelector);

    if (_textFieldClearButton) {
        // Remove all textFieldClearButton target-actions (e.g., Apple's standard clearButton actions)
        [self.textFieldClearButton removeTarget:nil action:NULL forControlEvents:UIControlEventAllEvents];

        // Add new target-action for textFieldClearButton
        [_textFieldClearButton addTarget:self action:@selector(clearTextField) forControlEvents:UIControlEventTouchUpInside];
    }
}
```

Experimenting with APIs You Normally Wouldn't Use ¹¹

```
/// Returns the latinized version of the string without diacritics.  
///  
///     let string = "Hello! こんにちは! สวัสดี! مرحبا! 您好!"  
///     print(string.latinized())  
///     // Prints "Hello! kon'nichiha! swasdi! mrhba! nin hao!"  
///  
/// - Returns: The latinized version of the string without diacritics.  
@discardableResult  
func latinized() -> String {  
    #if !os(Linux)  
        if #available(iOS 9.0, macOS 10.11, tvOS 9.0, watchOS 3.0, *) {  
            return (applyingTransform(.toLatin, reverse: false) ?? self).withoutAccents()  
        } else {  
            assertionFailure("The latinized function is only available iOS 9.0+, macOS 10.11+, tvOS 9.0+, and watchOS 3.0+")  
            return self.withoutAccents()  
        }  
    #else  
        assertionFailure("The latinized function is only available for Darwin devices; iOS, macOS, tvOS, watchOS")  
        return self.withoutAccents()  
    #endif  
}
```

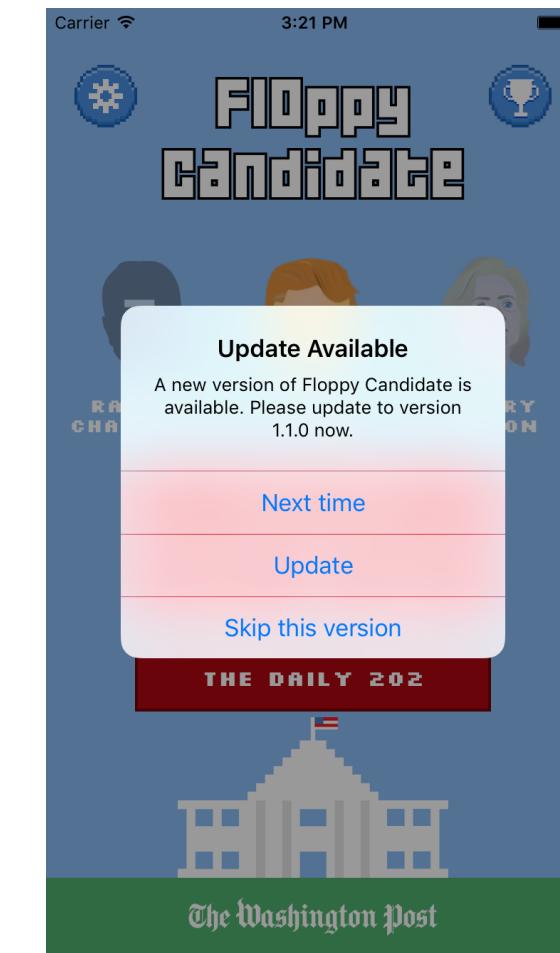
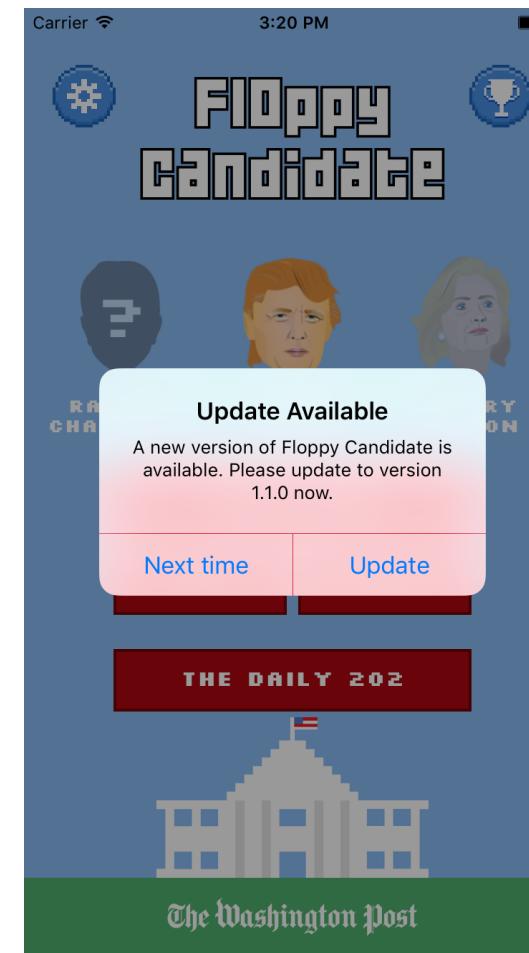
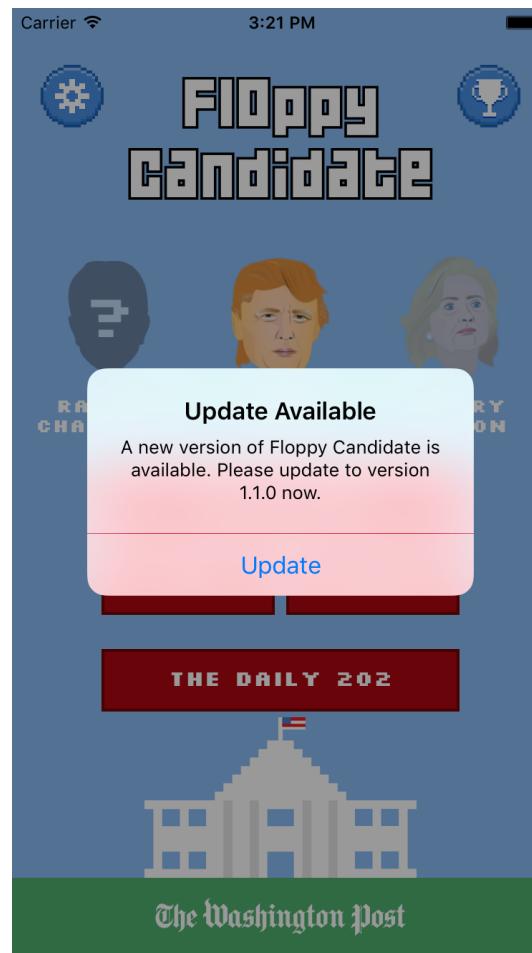
¹¹ [Guitar](#)

Learn and experiment with language
and platform APIs that you normally
wouldn't in your day job.

– *Lesson #4*

Harpy & Siren

Checks currently installed version of your app against the version that is available in the App Store.



Package Managers

- CocoaPods
- Carthage
- Swift Package Manager

Continuous Integration

- BuddyBuild.com / Travis CI
- YAML Files
- Pre-Install & Post-Install Scripts

Internationalization (i18n) & Localization (l10n)

- Adding ability to be used across Languages
 - NSLocalizedString, Custom Bundles
 - Localized for 40 Languages.
- Overriding iOS-system-level localization

Being a Maintainer vs. Being a Consumer

- I *rarely* use Harpy and Siren
 - 70,000+ combined monthly downloads
- Consumers:
 - Report when the projects stop working
 - Request features
 - Add features via PRs

Maintaining an Open Source project
is both a rewarding and thankless
job.

– *Lesson #5*

How to Contribute to Open Source

Contributing to Swift

- Search bugs.swift.org for **StarterBug** issues that are **Open**.
- Search the Swift and Corelibs repositories for
 - `NSUnimplemented()`
 - `// FIXME: Unsupported`

>> **Search** [Save as](#)

Project: All ▾ Type: All ▾ Open ▾ /

Label: StarterBug ▾ [×](#)

Order by ▾

 SR-5615	QoI: improve "public' modifier cannot b...
 SR-5614	'NS_EXTENSIBLE_STRING_ENUM' o...
 SR-5605	Parser fails on optional #keyPath in case
 SR-5467	The .build/debug symlink doesn't work f...
 SR-5457	Specific error message when user tries...
 SR-5383	Display appropriate message when tryi...
 SR-5358	Utilities/bootstrap fails on path with spa...

Contributing to Established Projects (1/2)

- Issues posted by the maintainer

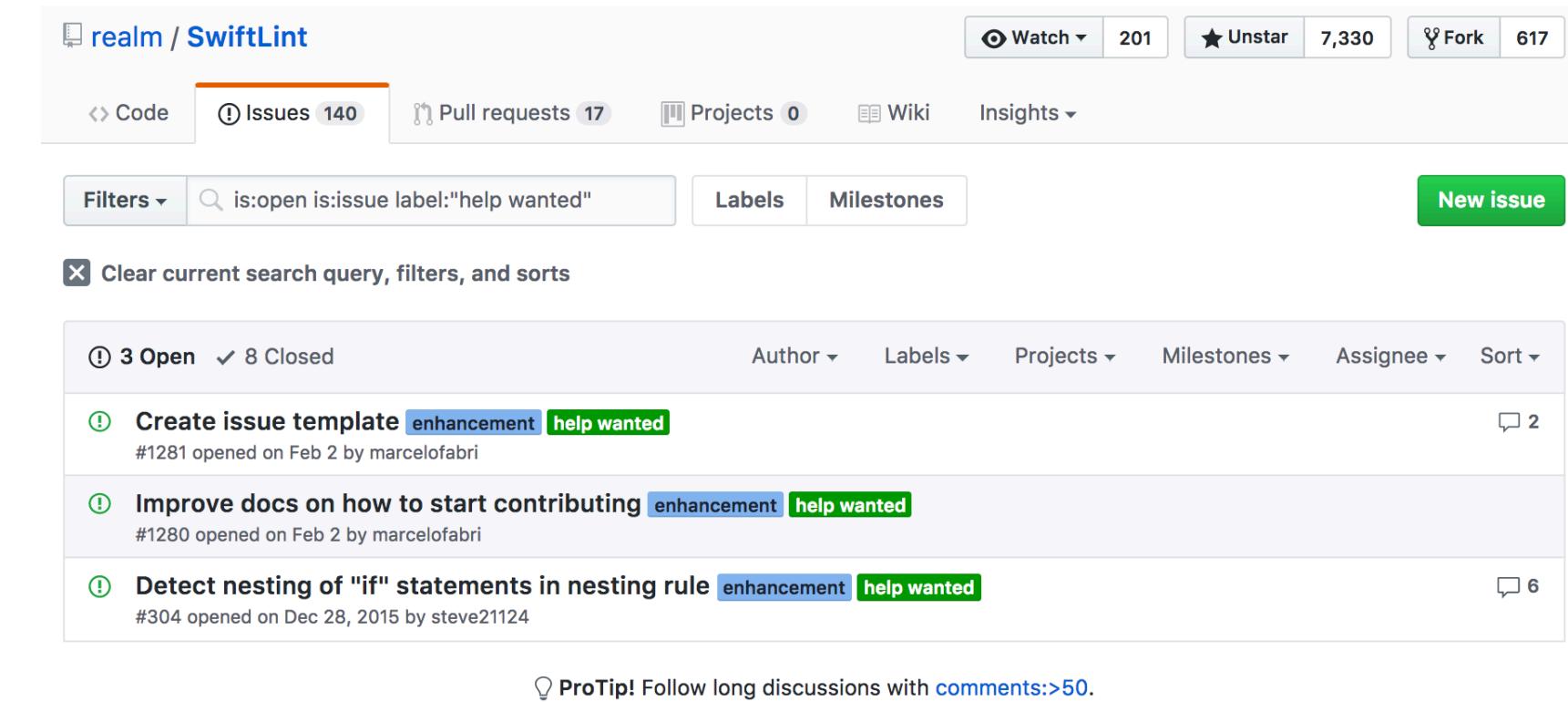
The screenshot shows a GitHub repository page for 'rnystrom / Freetime'. The top navigation bar includes 'Watch' (14), 'Code', 'Issues 83', 'Pull requests 5', and 'Insights'. Below the navigation is a search bar with the query 'is:open is:issue author:rnystrom sort:comm'. A 'Clear current search query, filters, and sorts' button is also present. The main content area displays a list of 44 open issues. The first few issues are:

- Sample issue [debug] #1 opened on May 22 by rnystrom → 2.0.0
- Growth hacking [wishlist] #192 opened 6 days ago by rnystrom
- Allow soft-read when opening issues [feature] #102 opened 23 days ago by rnystrom
- Add a Search tab [wishlist] #96 opened 24 days ago by rnystrom
- Add milestone summary to issue/PR [feature] #208 opened 4 days ago by rnystrom → 1.0.0
- Badge images not rendering in webview [bug] #80 opened 27 days ago by rnystrom

Filtering options 'Author ▾', 'Labels ▾', and 'Milestones ▾' are located on the right side of the issue list.

Contributing to Established Projects (2/2)

- Look at labels:
 - starter task
 - help
 - feature
 - bug
- Help me implement a rule in SwiftLint!
 - [SwiftLint#1315](#)



Creating Your Own Project

- Add a README
- Document every line of public code
 - Document private code as necessary
- Add Documentations using [Jazzy](#)
- Add Tests and hook up to Continuous Integration
- Add a document describing the Vision (e.g., VISION.md)
- Add issues delineating future features
 - Mark some with labels, like Starter Tasks

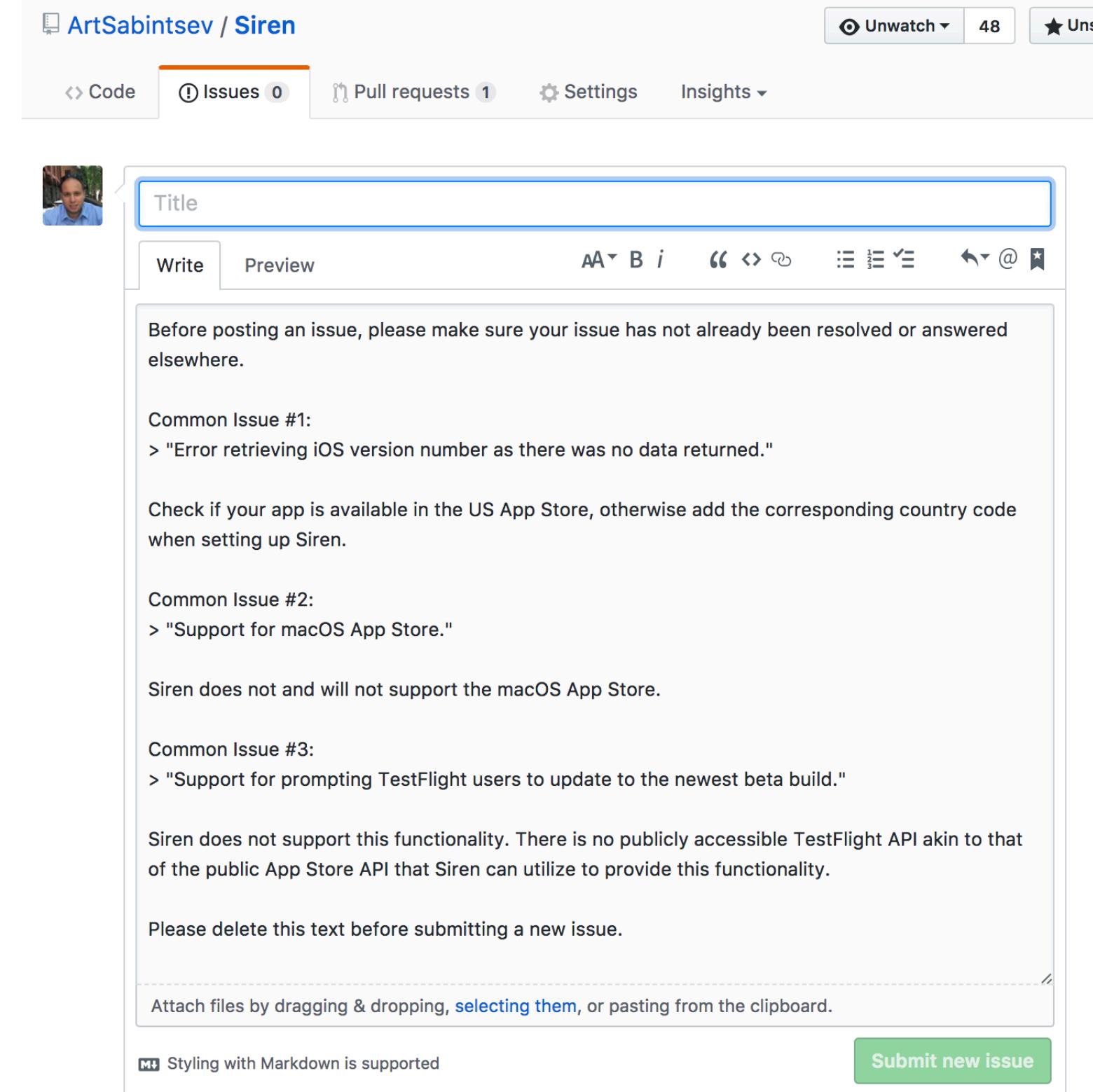
Marketing your Library

- Submit to Mailing Lists
 - [iOS Dev Weekly](#) - Dave Verwer, Evan Dekhayser, Vicc Alexander
 - [This Week in Swift](#) - Natasha The Robot
 - [iOS Goodies](#) - Rui Peres & Tiago Almeida
 - [Lil' Bites of Cocoa](#) - Jake Marsh
 - [iOS Cookies](#) - Adam Bardon
 - [Swift Weekly](#) - 9Elements
 - [Swift Developments](#) - Andy Bargh
- Twitter
 - `#swiftlang, #iosdev`

Maintenance Tips & Tricks

Issue Templates

- Pre-populate the **New Issue** screen with information that informs people about previously answered questions.
- Located at `/path/to/project/.github/ISSUE_TEMPLATE.md`



The screenshot shows a GitHub repository page for "ArtSabintsev / Siren". The "Issues" tab is selected, showing 0 issues. On the right side, there is a large "New Issue" form. At the top of this form is a "Title" input field. Below it are "Write" and "Preview" tabs, and a rich text editor toolbar with various icons. The main body of the form contains pre-populated text:

Before posting an issue, please make sure your issue has not already been resolved or answered elsewhere.

Common Issue #1:
> "Error retrieving iOS version number as there was no data returned."
Check if your app is available in the US App Store, otherwise add the corresponding country code when setting up Siren.

Common Issue #2:
> "Support for macOS App Store."
Siren does not and will not support the macOS App Store.

Common Issue #3:
> "Support for prompting TestFlight users to update to the newest beta build."
Siren does not support this functionality. There is no publicly accessible TestFlight API akin to that of the public App Store API that Siren can utilize to provide this functionality.

Please delete this text before submitting a new issue.

At the bottom of the form, there is a note: "Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard." A small note also says "Styling with Markdown is supported". In the bottom right corner of the form is a green "Submit new issue" button.

Pull Requests vs. Issues

Turn off issues in favor of pull requests¹³

PRs require the consumer to (at the very least):

- RTFM.
- Provide sample code for a feature.
- Attempt fixing a bug.
- Understand how to *fork* a GitHub project and open a PR.

¹³ [Turning Off Github Issues](#)

The 5 Day Rule

If a consumer opens an Issue/PR, but does not follow up to your questions/comments within **5 work days**, close the Issue/PR and move on.

Network of Trust

...built on a network of trust among developers that have come to know each other over the years. There's no way I can test all the platforms we support – the same way there is no way I can check every single commit that gets merged..."

– *Linus Torvalds*¹⁴

¹⁴ [Video: Linus Torvalds on How to Build a Successful Open Source Project](#)

Deprecating A Project

- Update the README
- Remove the codebase from the final commit

Three20 is an Objective-C library for iPhone developers

1,778 commits 14 branches 18 releases 59 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

jamesgpearce Update README.mdown Latest commit 434cdbf on May 13, 2014

.gitignore remove Three20.xcworkspace from ignores 6 years ago

AUTHORS update authors 6 years ago

Icon.png Let's be consistent with CGFloat across the board 6 years ago

LICENSE updated copyright notice in license. 7 years ago

README.mdown Update README.mdown 3 years ago

README.mdown

Archived Repo

This is an archived project and is no longer supported or updated by Facebook. Please do not file issues or pull-requests against this repo. If you wish to continue to develop this code yourself, we recommend you fork it.

Proceed and be bold!

Three20

What now?

If you updated to this revision by accident (e.g. a git pull), you might want to switch back to the version you had before (`git checkout cc672132ab`).

Three20 still compiles and seems to work on iOS6, so there's no immediate need to remove everything now. Still, as the library is not maintained anymore, it might be a good time to replace it.

Lots of Three20's helpers are not needed anymore, as they are now present right in iOS. For other parts there are some really good replacement available. If you're searching for a full replacement, [NimbusKit](#) might help, they even provide a [migration guide](#).

Links

[Three20 Mailing List](#)

Passing the Torch

- Jesse Squires recently deprecated [JSQMessagesViewController](#)¹⁵
- [MessageKit](#) is a community effort to support a rewrite Swift version of the library

Officially deprecating JSQMessagesViewController

No longer maintaining or supporting this project 16 Jul 2017

Updated: 18 July 2017

Beginning immediately, [JSQMessagesViewController](#) is no longer officially supported or maintained. In fact, you may have noticed that it has been neglected for the past year. The most recent release was published almost exactly one year ago today. This is an incredibly difficult post for me to write and I have not made this decision carelessly. This open source project had a great run. There was (and still is) a great community around it, and I'm sorry for bringing this to an end.

Update

18 July 2017

The community has started a thread about alternative solutions and is organizing a new GitHub organization for a new community-driven library. This would be a great project to get involved with. See [#2159](#) for details.

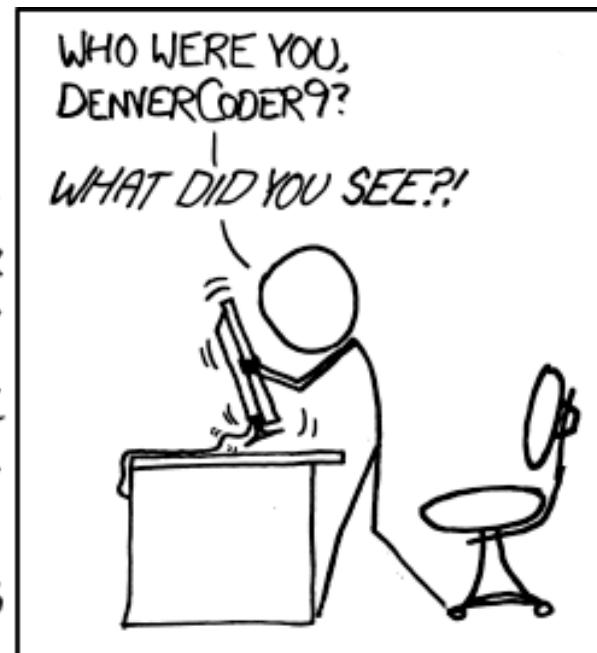
¹⁵ [Officially Deprecating JSQMessagesViewController Blog Post](#)

Final Words of Advice

From The Shark Tank

BROKE POWER PRINCIPLE #4: Understand that you will be rewarded for solving other people's problems or filling holes in the marketplace, just as you will be rewarded for helping others reach their desired objectives. In other words, if you can figure out how to do something better, faster, easier, and more efficiently than anybody else, and if you can make somebody else's life a little smoother in the bargain, you're way ahead of the game.

NEVER HAVE I FELT SO
CLOSE TO ANOTHER SOUL
AND YET SO HELPLESSLY ALONE
AS WHEN I GOOGLE AN ERROR
AND THERE'S ONE RESULT
A THREAD BY SOMEONE
WITH THE SAME PROBLEM
AND NO ANSWER
LAST POSTED TO IN 2003



Thank You!

<https://github.com/ArtSabintsev/360iDev-2017>