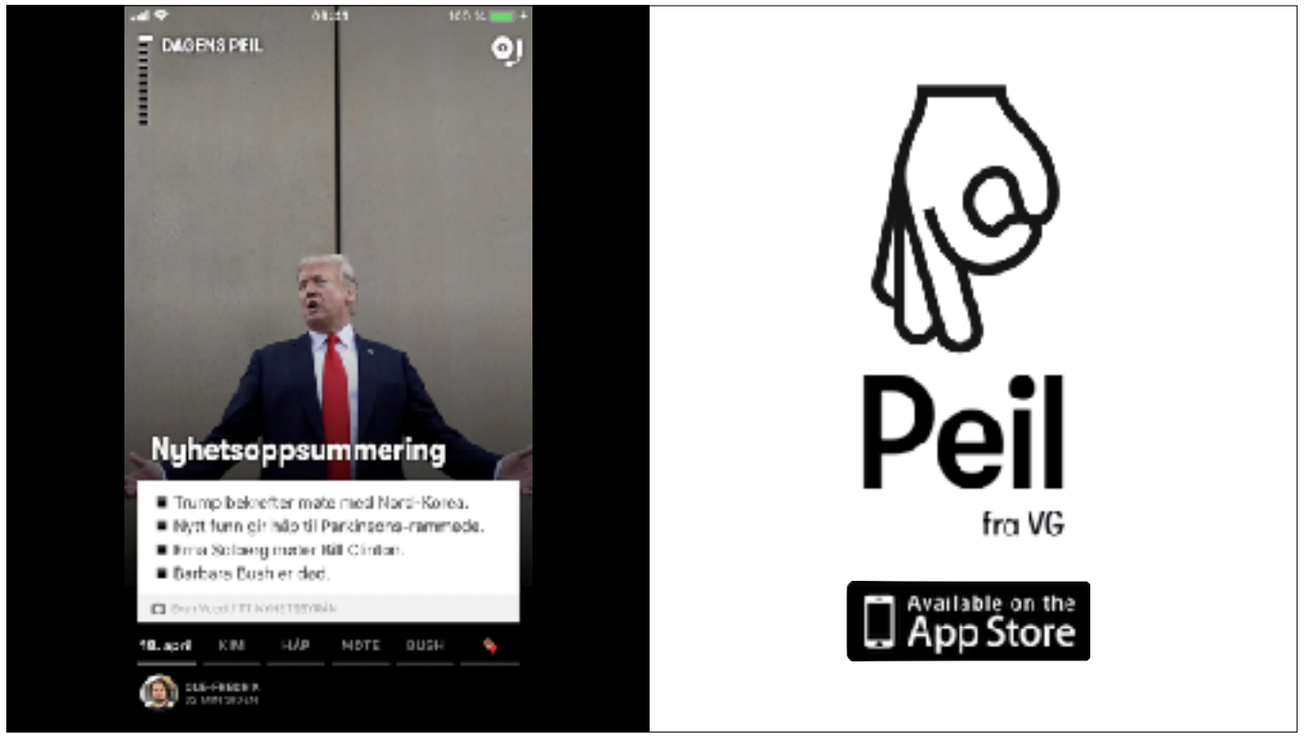
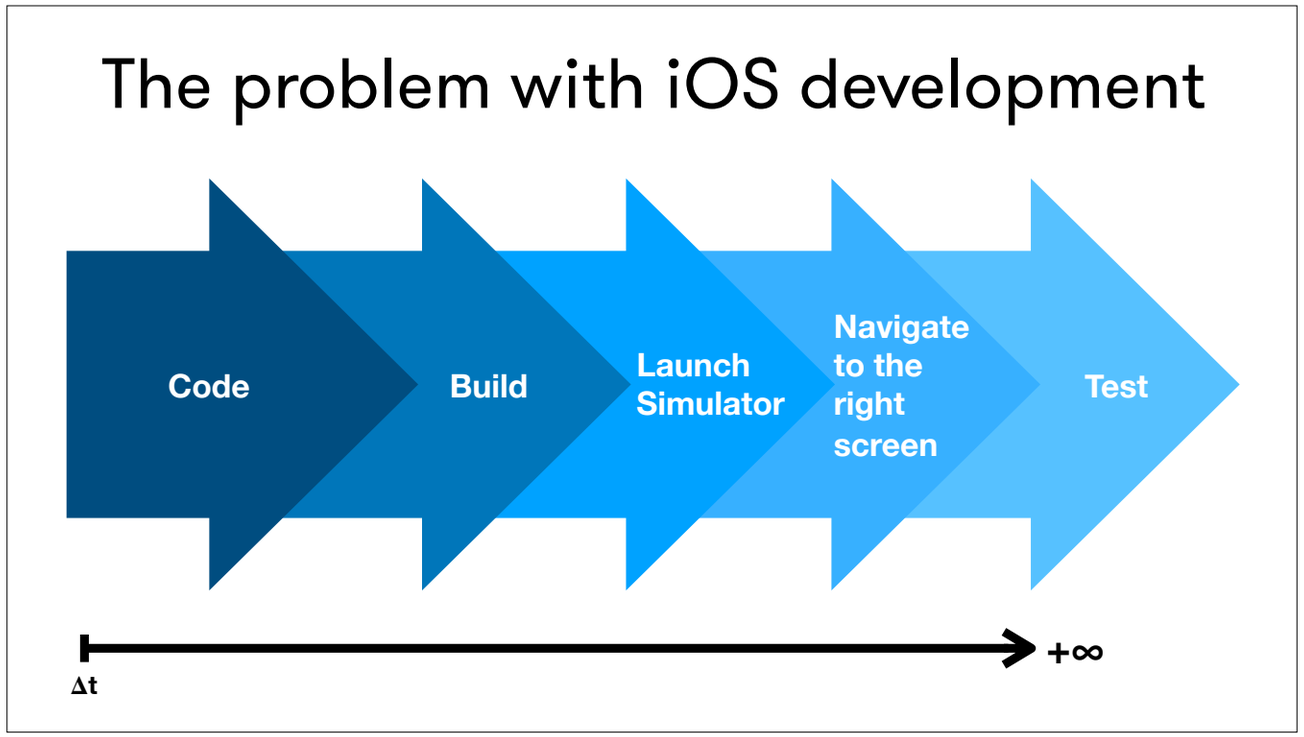
some recommendations of how to use playgrounds

next gen
PRODUCTS

Peil
fra VG



https://itunes.apple.com/no/app/peil-nyheter-på-en-ny-måte/id1300541549?l=nb&mt=8



the feedback loop takes too much time!
=> less developer hapiness

as a new iOS developer, coming from backend where the feedback loop is smaller
i set myself an objective -> master playground driven development

Why use playgrounds?

Great for experimenting

- spikes, throw away code
- create new controllers/views
- test new pods

https://github.com/johnsundell/playground

```
$ playground -t ~/Desktop/lab/lottie-ios-test/lottie-test -d ../lottie-ios/
Lottie.xcodeproj
```

new pods
new controllers/views
throw away code (spikes)

```
view(state) -> rendered screen
```

playgrounds are like unit-test for view controllers

Clear boundaries

- For this particular screen:
  - what dependencies do i need?
  - what app context does it need?
  - what objects are called inside?
  - how should i invoke this view controller?

figure out dependencies
side effects
more testable code

Quick testing device + traits

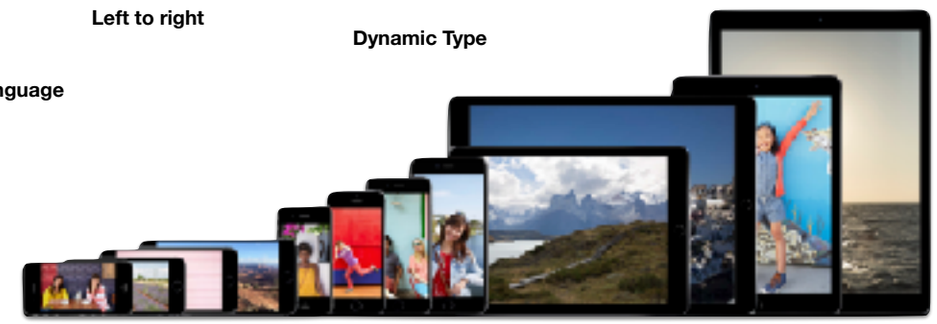
Portrait / Landscape

Right to left

Left to right

Dynamic Type

Language



Kickstarter Playground Helpers

https://github.com/kickstarter/ios-oss/blob/master/Kickstarter-iOS.playground/Sources/playgroundController.swift

Why not to use playgrounds?

Device specific capabilities

Debugger ability

```
extension SomeClass {

    static func determineActivity(array1: [Double], array2: [Double], hz: Double) -> Bool {

        let distance = hz * 0.2344
        let peaks1 = findpeaks(array1, minDistance: distance, minHeight: 2000)
        let peaks2 = findpeaks(array2, minDistance: distance, minHeight: 800)

        return peaks1.count >= 2 && peaks2.count >= 2
    }
}
```

Thread 2: breakpoint 2.1

Thread 2 | static SomeClass.determineActivity(array1:array2:hz:)

array1 = 300 values
array2 = 300 values
hz = 100
self = SomeClass
distance = 23.640000000000001
peaks1 = 0 values
peaks2 = 0 values

```
(lldb) p distance
error: Couldn't apply expression side effects : Couldn't get the data for variable self
(lldb) po distance
error: Couldn't apply expression side effects : Couldn't get the data for variable self
(lldb)
```

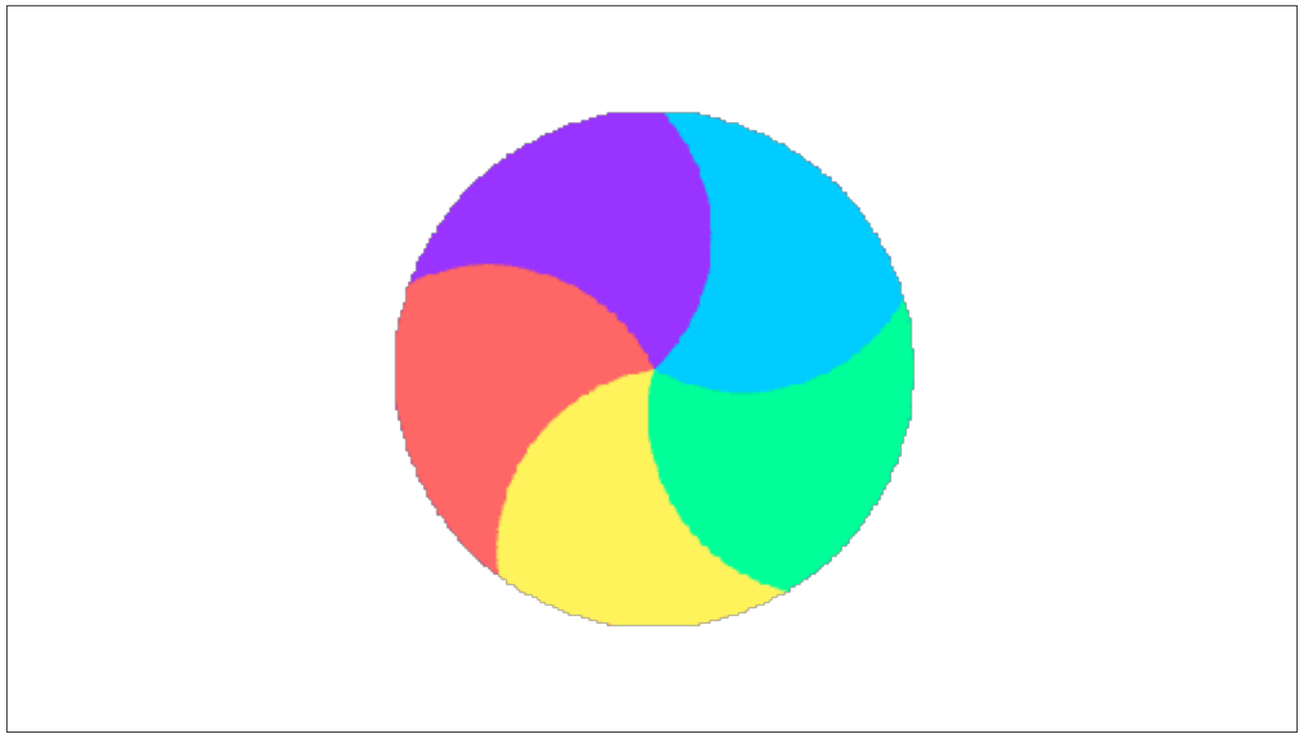
Other reasons

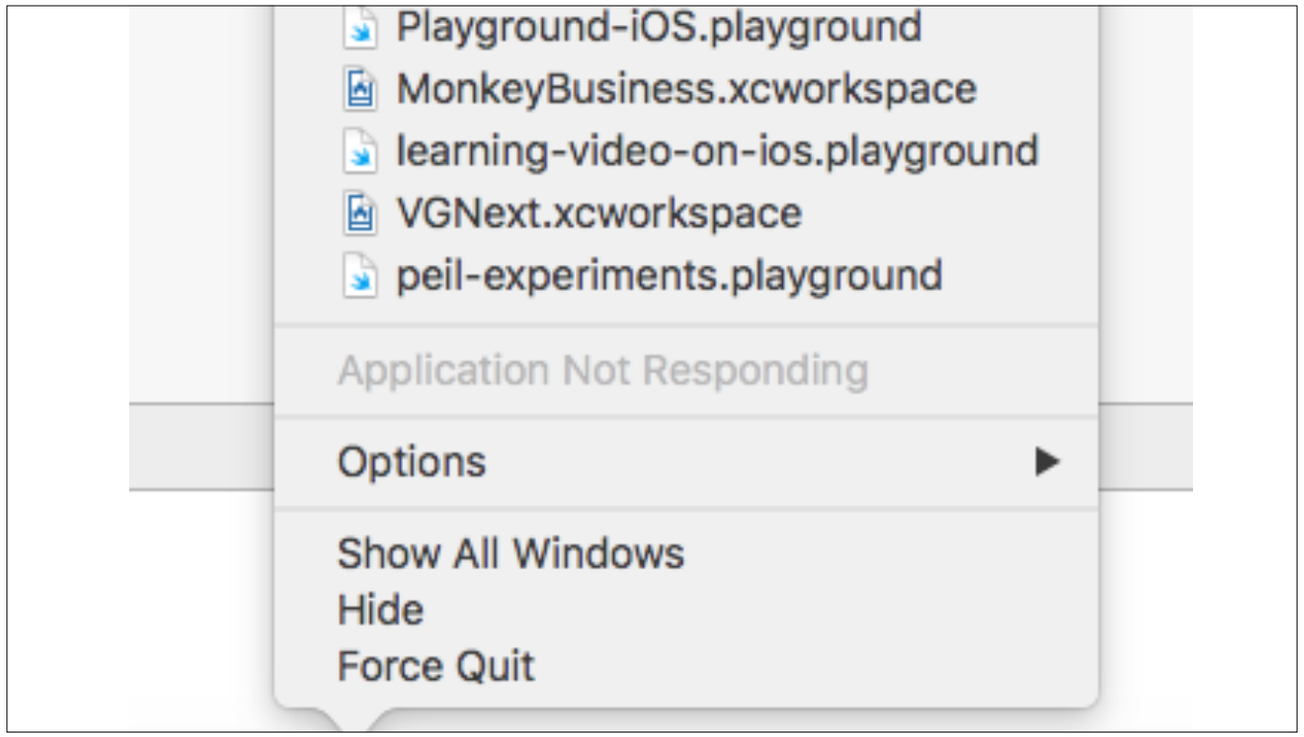
- complex gestures to be tested
- presence of strong side effects
- the effort of adopting them
- etc

Network Requests

like POST or DELETE

managing the Bundle




Playground-iOS.playground
MonkeyBusiness.xcworkspace
learning-video-on-ios.playground
VGNext.xcworkspace
peil-experiments.playground
Application Not Responding
Options
Show All Windows
Hide
Force Quit

BUT

Speed of development/test

Ability to prototype + compose

Work with views and state in **isolation**

How to use them in **your** project

Creating a framework

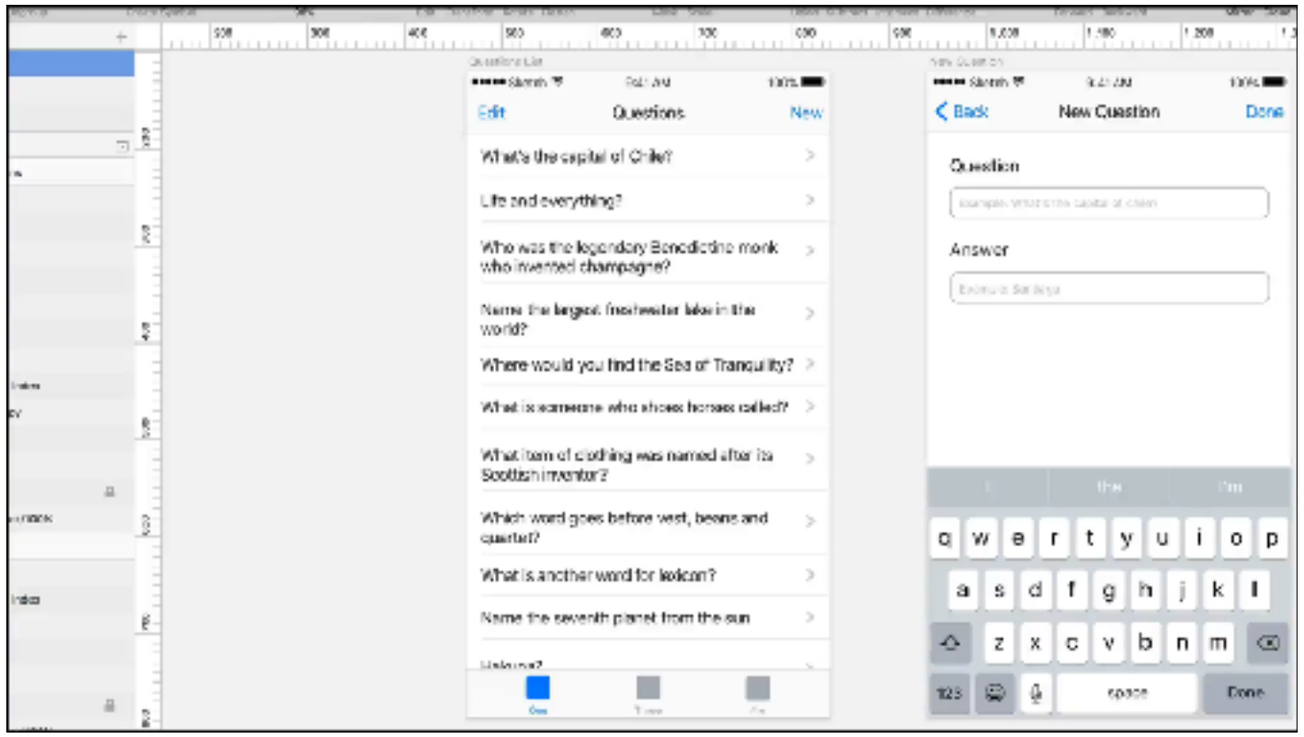
1. create a new framework target
2. add swift files to the new target*
3. add pods to the new target
4. create playground
5. add playground to the workspace
6. add helper files to playground
7. build the framework
8. profit

https://medium.com/flawless-app-stories/playground-driven-development-in-swift-cf167489fe7b

*This can be done in two ways:
1. every single swift file will be in both **the original target** and **the new framework target**, this is the easier approach for existing code, but it's more difficult to maintain
2. move all the swift files in your project to the **framework target** and work on making the appropriate files **public** to then import them in the **AppDelegate of the original target**. This approach is cleaner and makes explicit the separation of what is public facing code and internal implementation.

Demo

1. show the design of the app
2. show work in progress in the simulator
3. show work in progress in playgrounds
4. style better
5. show issue with border for the long text labels
   5.1. how to fix it
6. render app in different device/traits combinations
   6.1. fix dynamic font
6. copy code to project, show it in the simulator


Edit
Questions
New
What's the capital of Chile?
Life and everything?
Who was the legendary Benedictine monk who invented champagne?
Where would you find the Sea of Tranquility?
Name the seventh planet from the sun
Back
New Question
Done
Question
Answer
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
space
Done

1920x1080

Recommendations

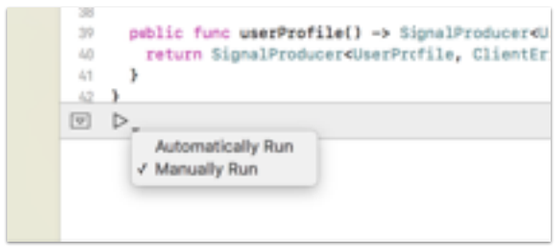
- if you declared a view, added it to a superview, added constraints to it and still doesn't layout appropriately, make sure you set

```
view.translatesAutoresizingMaskIntoConstraints = false
```

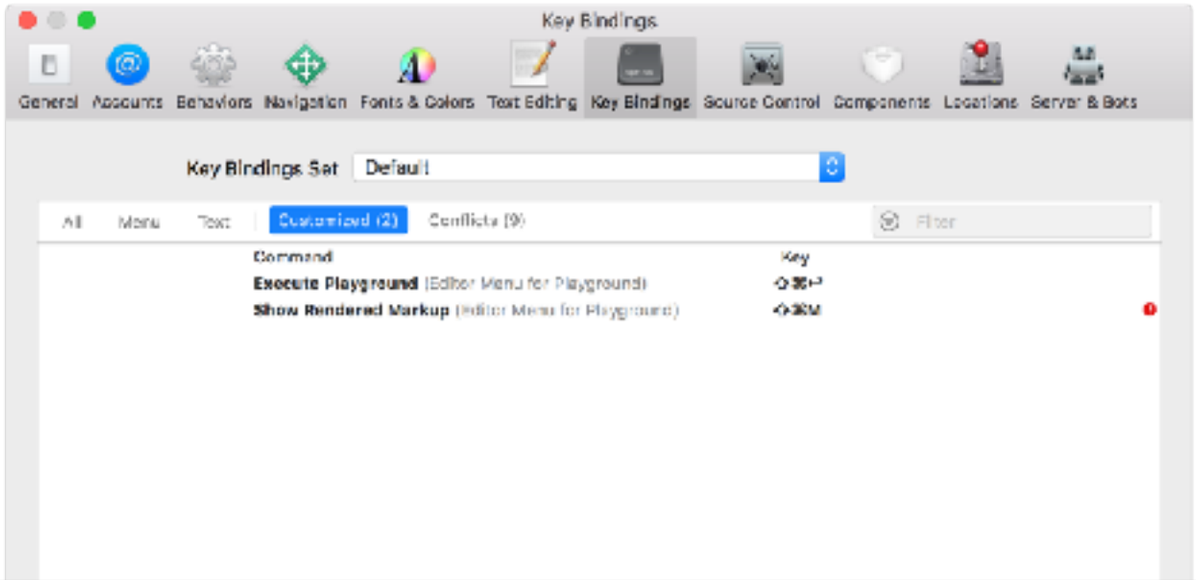
- cautious use of `@testable`

Manually Run Playgrounds

- prevents crashes, makes playground more stable
- easy to add a keyboard shortcut



Useful Key Bindings



Using images

```
UIImage(named: "example")
```

Before

After

```
let myBundle = Bundle(for: MyViewController.self)
UIImage(named: "example", in: myBundle, compatibleWith: self.traitCollection))
```

https://github.schibsted.io/spt-nextgen-vgnext/ios/blob/master/VGNext/App/ImageScope.swift#L22

Localized text

```
NSLocalizedString("example", comment: "An example string")
```

Before

After

```
let bundle = Bundle(for: PeilApplication.self)
NSLocalizedString(
 "example", tableName: nil, bundle: bundle, value: "\(self) localization not found", comment: ""
 )
```

https://github.schibsted.io/spt-nextgen-vgnext/ios/blob/master/VGNext/Utils/String+Localized.swift#L17

Using Fonts

To be able to use custom fonts in playgrounds, you need to register them, even if you already did on the application

```
@discardableResult
public func registerFont(withName fontName: String) -> Bool {
  let bundle = Bundle(for: PeilApplication.self)
  let fontURL = bundle.url(forResource: fontName, withExtension: "otf")
  return CTFontManagerRegisterFontsForURL(fontURL! as CFURL, .process, nil)
}


public func registerPeilFonts() {
  registerFont(withName: "GT-Walsheim-Condensed-Bold")
  registerFont(withName: "GT-Walsheim-Condensed-Regular")
}
```

https://github.schibsted.io/spt-nextgen-vgnext/ios/blob/master/Playground-iOS.playground/Sources/PeilConfiguration.swift#L55-L60

Summary

TODO

State

Model State

View State

ViewControllers **Navigation** **Rendered Screen**

Device

Current User settings

if you make state more explicit and easy to set, it’s easier to quickly develop considering the most cases

Conclusions

Conclusions

- ✅ it requires a bit of work but forces you to write less effect dependent code
- ✅ increases velocity of iteration and **can be used within your project**
- ✅ easier test of different traits combinations => better support for them
- ⚠️ there is a way to go regarding Xcode playground's stability

Main request for wwdc: more stable playgrounds!


Thanks!
@fespinoza
@fespinozacast
https://github.com/fespinoza/Talks/tree/master/2018-05-23-playground-driven-development

end

Appendix 1: Resources

Resources

- Playground Driven Development Talk by @mbrandronw
- Everyone is an API designer by @johnsundell
- Adding playgrounds to your Xcode Project by @onmyway133
- Playground Driven Development in Swift by @onmyway133
- How to playground by @fespinoza
- Kickstarter's playground helpers

Resources (even more)

- Point free's testing helpers
- @johnsundell's playground script
- Use a custom framework in a playground
- Peil's source code
- Writing unit tests in Swift playgrounds by @johnsundell
- Test-Driven Reactive Programming from objc.io

Appendix 2: playground-error dictionary

```
error: module compiled with Swift 4.0 cannot be imported in Swift 4.0.3
```

Clear derived data

```
Playground execution failed:

error: Couldn't lookup symbols:
  __T013PeilFramework13VGServiceViewCACSC6CGRectV5frame_tcfC
  __T013PeilFramework13VGServiceViewCMa
```

Playgrounds regression between CocoaPods 1.4.0 and CocoaPods 1.5.0

```
Playground execution failed:

error: Couldn't lookup symbols:
  __T013PeilFramework13VGServiceViewCACSC6CGRectV5frame_tcfC
  __T013PeilFramework13VGServiceViewCMa
```

Problem

Solution

```ruby
use_frameworks!

target 'DateToolsPlayground' do
  pod 'DateTools'
end

post_install do |installer|
  installer.pods_project.targets.each do |target|
    target.build_configurations.each do |config|
      config.build_settings['CONFIGURATION_BUILD_DIR'] = '$PODS_CONFIGURATION_BUILD_DIR'
    end
  end
end
```

https://github.com/CocoaPods/CocoaPods/issues/5334#issuecomment-223444937

```
error: Playground execution aborted: error: Execution was
interrupted, reason: EXC_BAD_INSTRUCTION (code=EXC_I386_INVOP,
subcode=0x0).
The process has been left at the point where it was interrupted,
use "thread return -x" to return to the state before expression
evaluation.
```

There is an unhandled NSError to fix

```
error: no such module 'Playground_iOS_Sources'
```

Force a recompilation of the sources by adding a comment or anything


Thanks!
@fespinoza
@fespinozacast
https://github.com/fespinoza/Talks/tree/master/2018-05-23-playground-driven-development

end