Command-line Automations

Unchain your Xcode Projects!

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Stefano Mondino

Mobile tech leader @Synesthesia

Twitter @puntoste
Github @stefanomondino

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Stuff we'd like to automate

- Project environment creation
- xcodeproj proper setup
- Beautification of our code (lint & format)
- Static references to resources (translations, images, etc.)

What should I do when I checkout a new project?

What “environmental tools” does my project require?

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Is Cocoapods available?

What version should I use?

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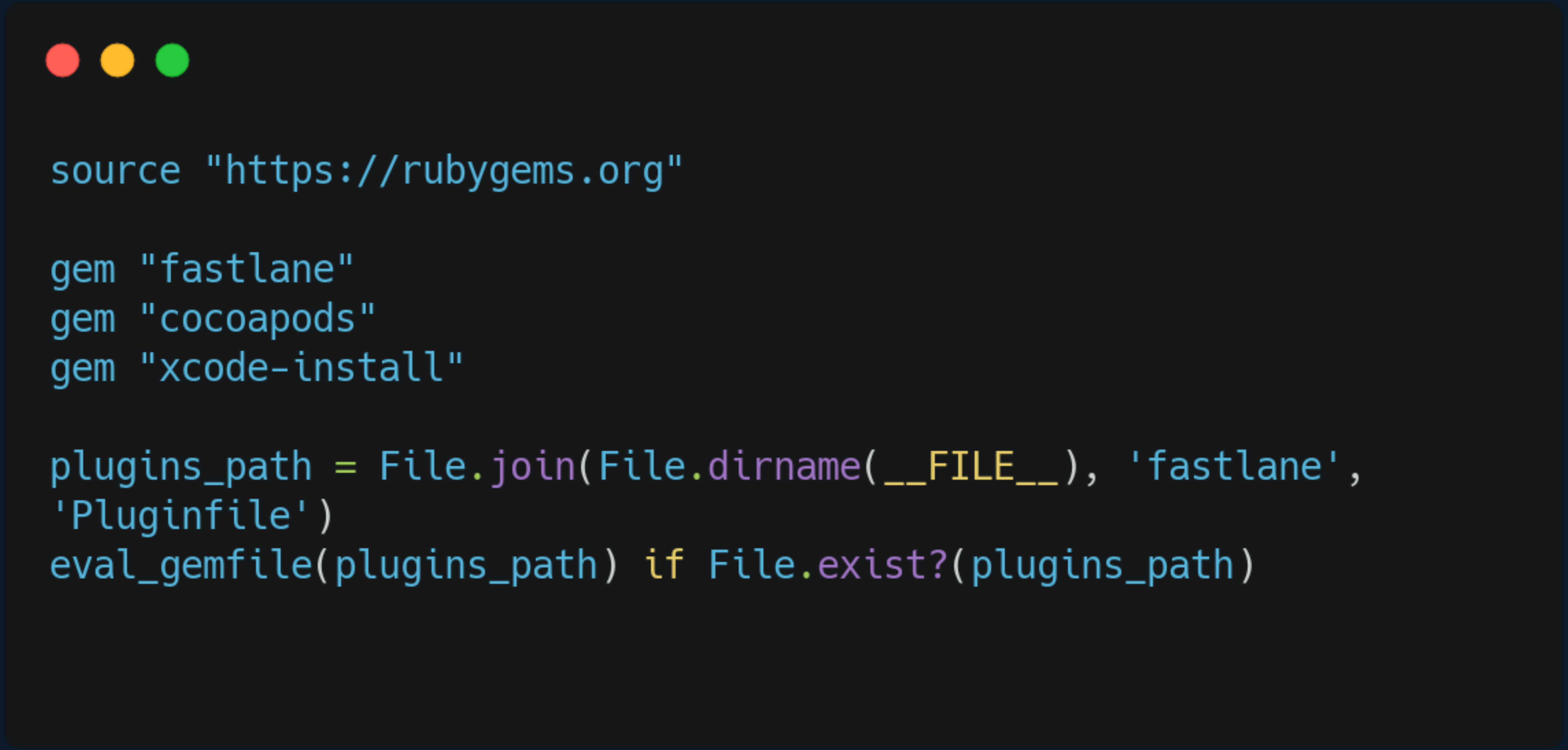
Trying to avoid this

The sandbox is not in sync with the Podfile.lock. Run 'pod install' or update your CocoaPods installation.

Gemfile

- Container of all ruby dependencies
- Ruby code: can be scripted
- Lock specific gem versions for your project
- `bundle exec` before each command (`bundle exec pod install`)
- Requires: bundler -> `gem install bundler`

Gemfile



```ruby
source "https://rubygems.org"

gem "fastlane"
gem "cocoapods"
gem "xcode-install"

plugins_path = File.join(File.dirname(__FILE__), 'fastlane',
'Pluginfile')
eval_gemfile(plugins_path) if File.exist?(plugins_path)
```

Is Carthage available?

And what about SwiftLint / SwiftFormat / other non-ruby dependencies?

Brewfile

- brew install …
- carthage, swiftlint, xcodegen
- List dependencies in Brewfile
- Requires: homebrew -> see https://brew.sh

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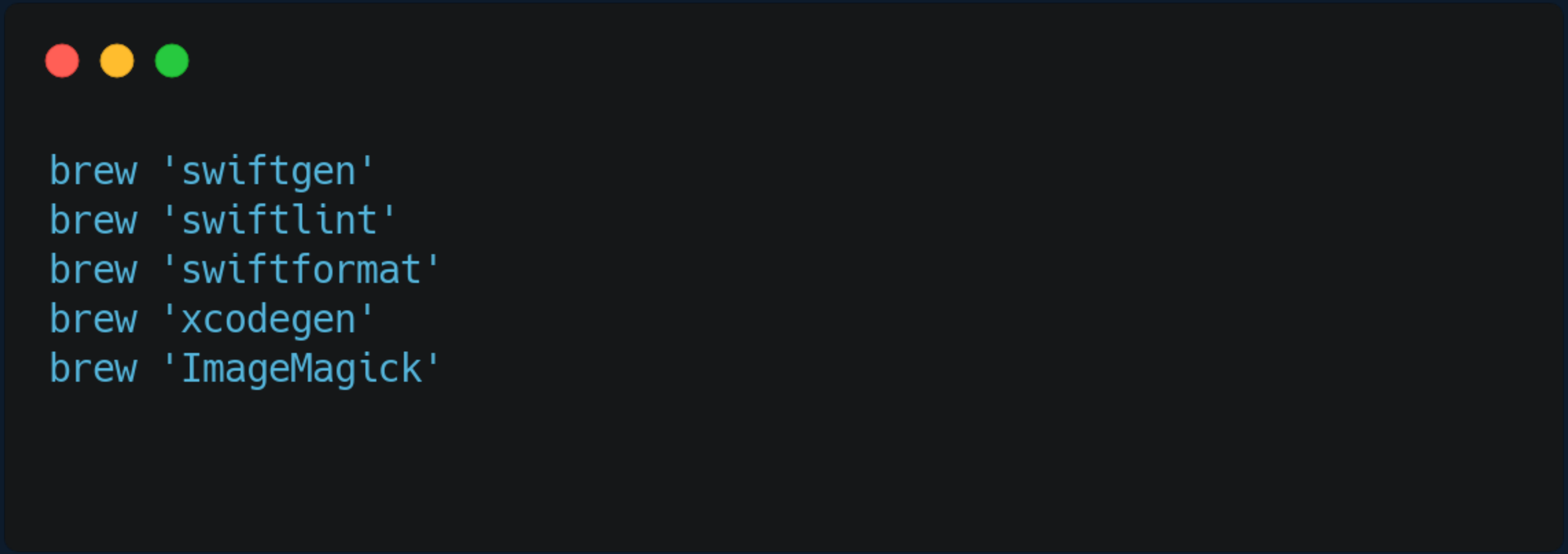
Brewfile



```
brew 'swiftgen'
brew 'swiftlint'
brew 'swiftformat'
brew 'xcodegen'
brew 'ImageMagick'
```

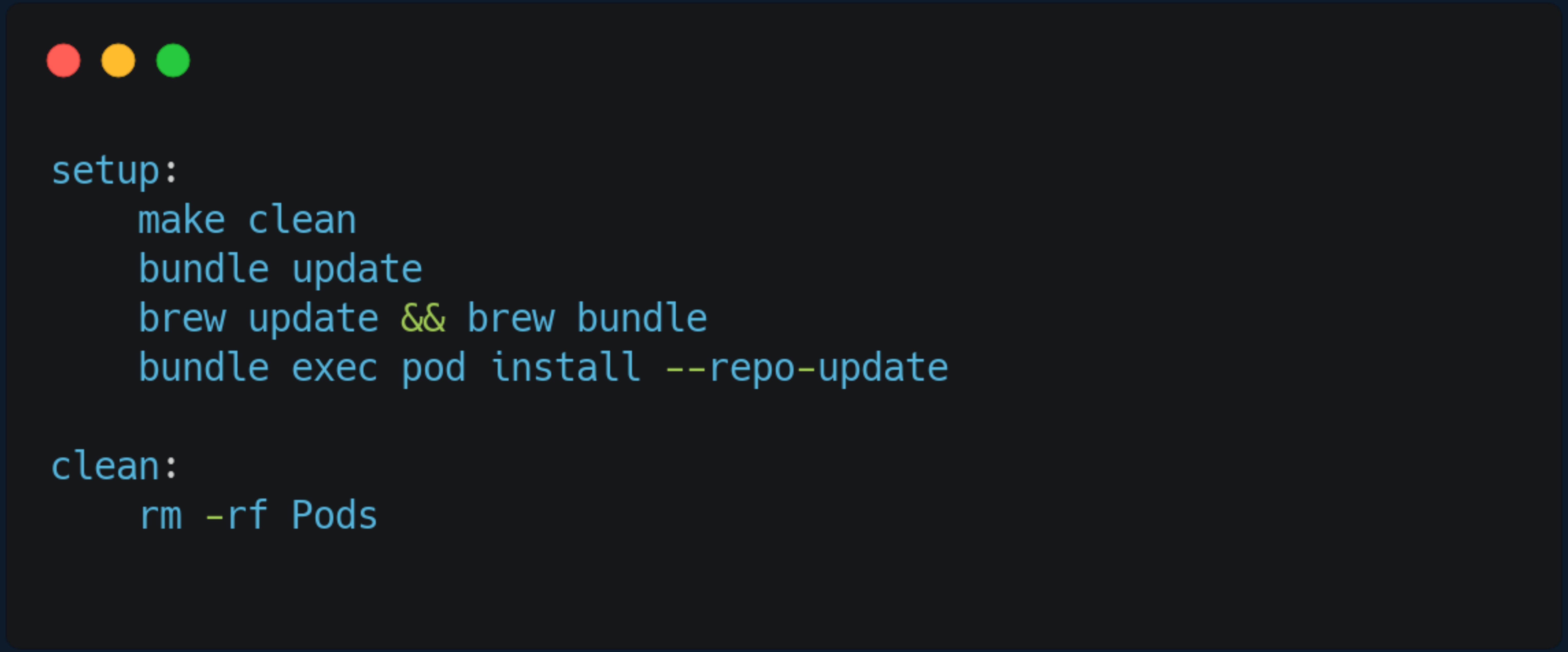
How do i chain those commands?

Should I really remember everything?

Makefile

- Contains targets: list of shell commands
- Can define environment variables
- Invoke a target with `make target`
- Requires: Command line tools

Makefile



```
setup:
    make clean
    bundle update
    brew update && brew bundle
    bundle exec pod install --repo-update

clean:
    rm -rf Pods
```

Why should I deal with xcodeproj stuff?

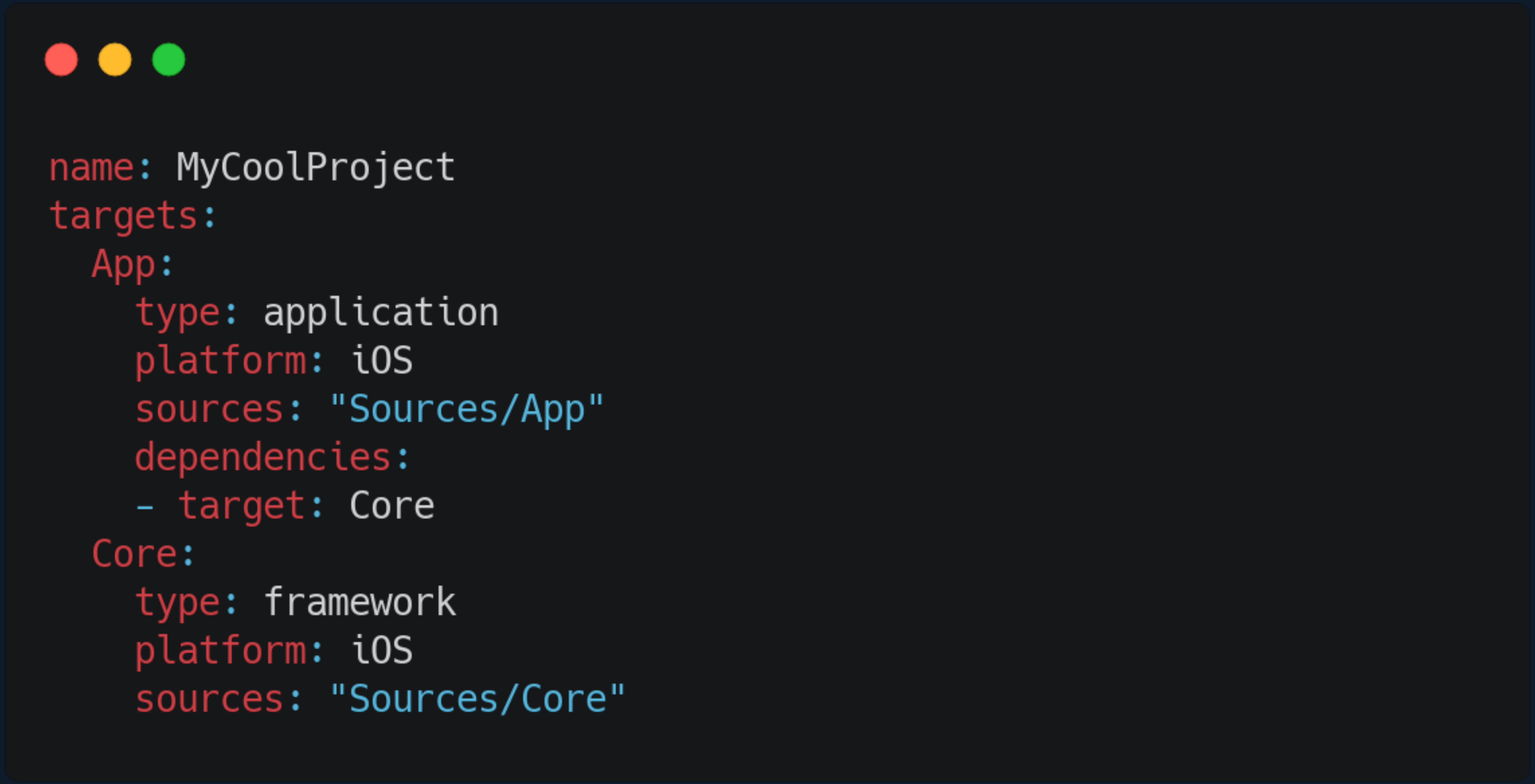
Merge conflicts are hard to solve

Errors are hard to spot

XcodeGen

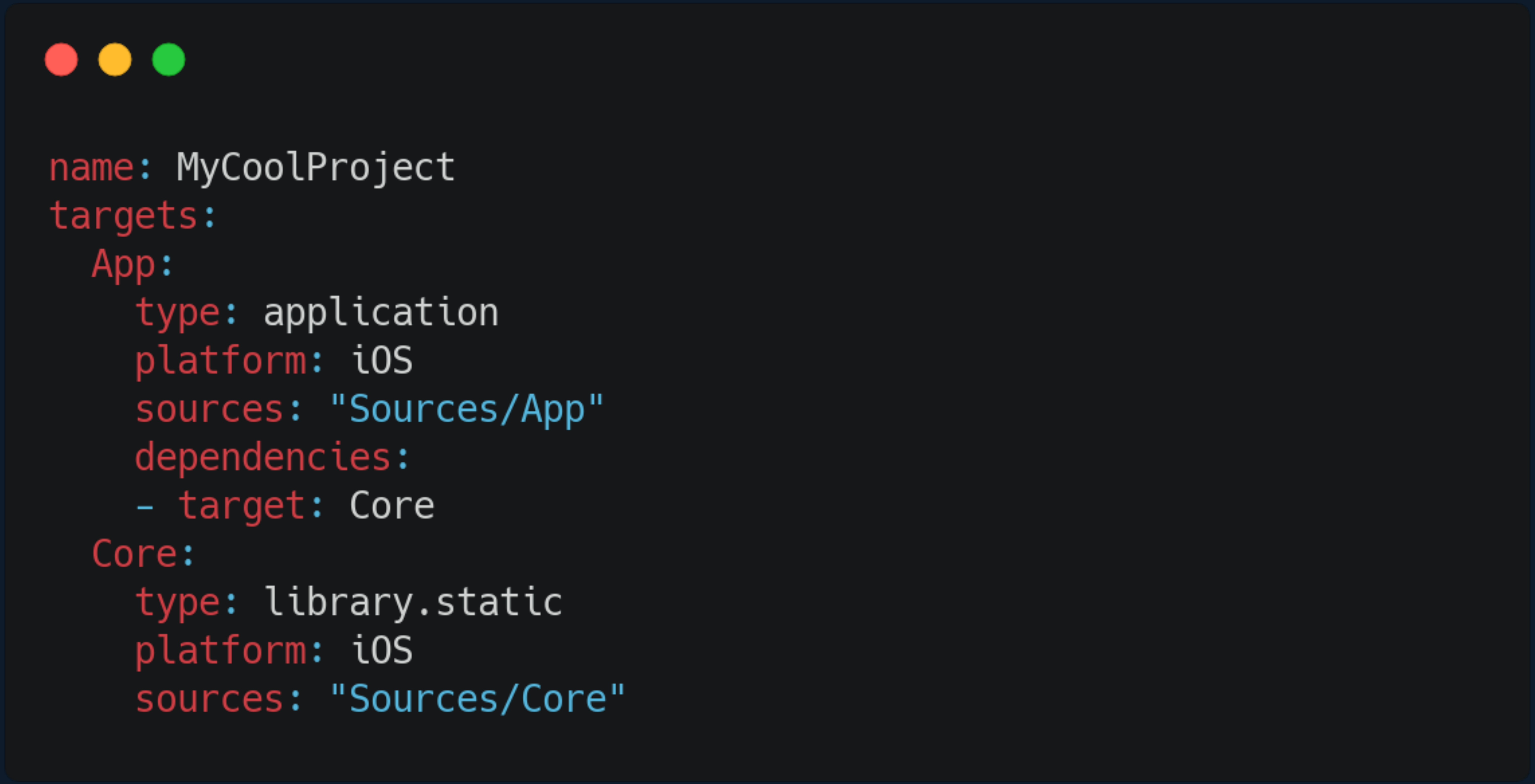
- A xcodeproj automatic generator (written in Swift ❤️)
- Driven by a YAML configuration file (project.yml)
- Supports environment variables from Makefile
- No need to check xcodeproj file into version control

project.yml



```yaml
name: MyCoolProject
targets:
  App:
    type: application
    platform: iOS
    sources: "Sources/App"
    dependencies:
    - target: Core
  Core:
    type: framework
    platform: iOS
    sources: "Sources/Core"
```

project.yml (static lib)



```yaml
name: MyCoolProject
targets:
  App:
    type: application
    platform: iOS
    sources: "Sources/App"
    dependencies:
    - target: Core
  Core:
    type: library.static
    platform: iOS
    sources: "Sources/Core"
```

Pros

- No accidental/unwanted changes to main xcodeproj
- Merge conflicts on YAML files (easier to solve)
- Names and types can be changed from environment variables
- Easy to add custom configurations or custom targets

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Cons

- It’s a third party dependency
- No-conventional way to change settings
- Not a standard: developers may need instructions

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Alternatives

- Tuist (Swift)
- Xcake (Ruby)
- struct(YAML)

How can enforce my team’s codestyle?

Everyone codes differently.

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SwiftFormat

Automatic code reformatter, based on general swift conventions

SwiftLint

Code linter -> Warnings and errors if code style is “wrong”
Autocorrection is available as separate command

Check this out!

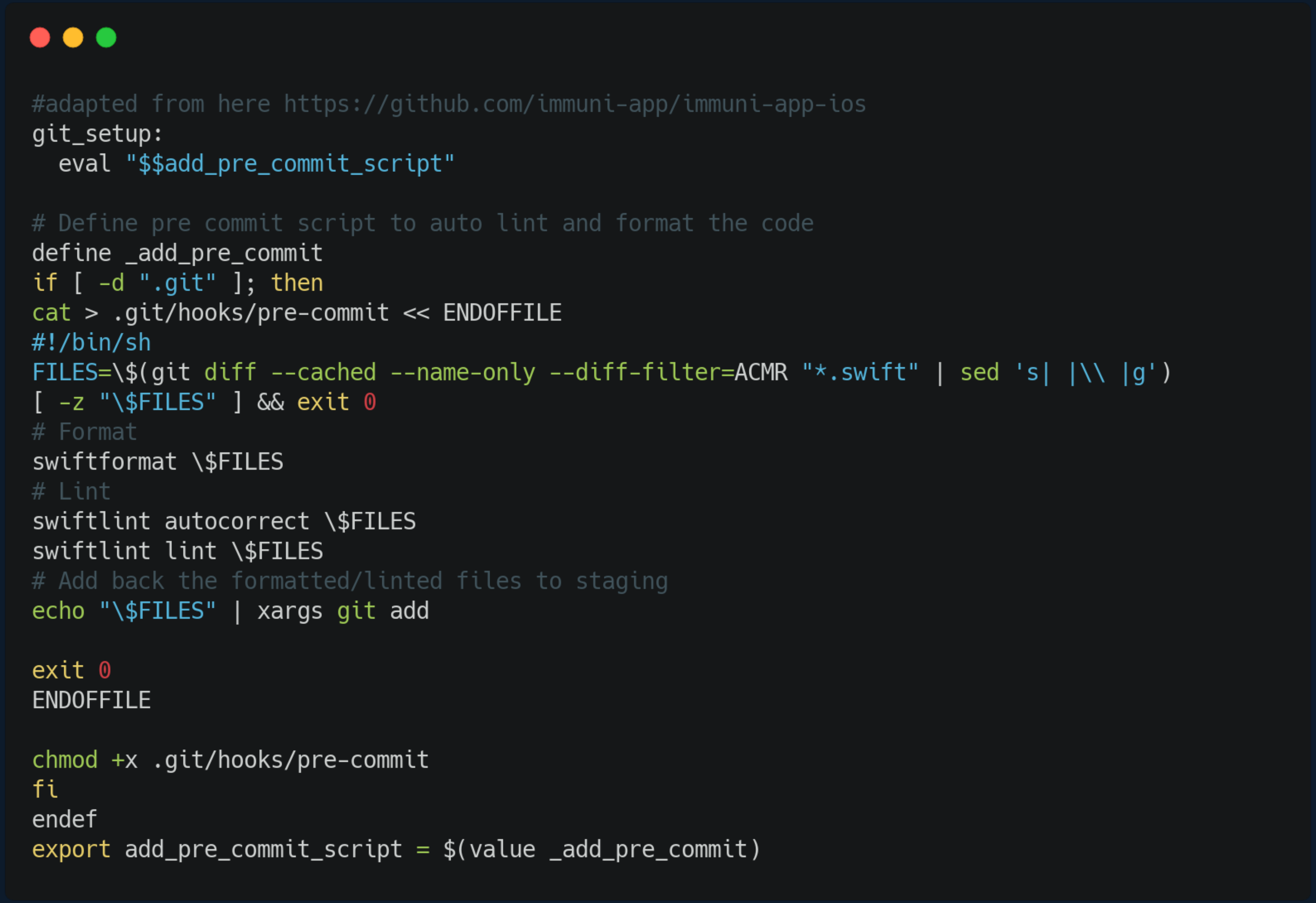
https://nshipster.com/swift-format/

{}

Format/lint automation

- pre-commit git hooks: executed right before commit
- run swift format + swiftlint only on modified files
- install git-hook with Makefile
- Credits: Immuni (italian Covid19-Tracing by Bending Spoons)

Makefile script



```
#adapted from here https://github.com/immuni-app/immuni-app-ios
git_setup:
  eval "$$add_pre_commit_script"

# Define pre commit script to auto lint and format the code
define _add_pre_commit
if [ -d ".git" ]; then
cat > .git/hooks/pre-commit << ENDOFFILE
#!/bin/sh
FILES=\$(git diff --cached --name-only --diff-filter=ACMR "*.swift" | sed 's| |\\ |g')
[ -z "\$FILES" ] && exit 0
# Format
swiftformat \$FILES
# Lint
swiftlint autocorrect \$FILES
swiftlint lint \$FILES
# Add back the formatted/linted files to staging
echo "\$FILES" | xargs git add

exit 0
ENDOFFILE

chmod +x .git/hooks/pre-commit
fi
endef
export add_pre_commit_script = $(value _add_pre_commit)
```

How can statically reference my resources?

Should I remember all those strings? What if I type them wrong?

SwiftGen

- Generates source code files through templates
- Input can be xcassets, custom JSON/YAML/pList
- Processing with Stencil templates
- Generated output is Swift code

SwiftGen - Use cases

- Swift enum with all images in a xcassets folder
- Swift enum with all Storyboard/xibs contained in a folder
- Swift custom colors from json file
- Swift enum with translations
- Your custom template for your specific use case

Wrapping up!

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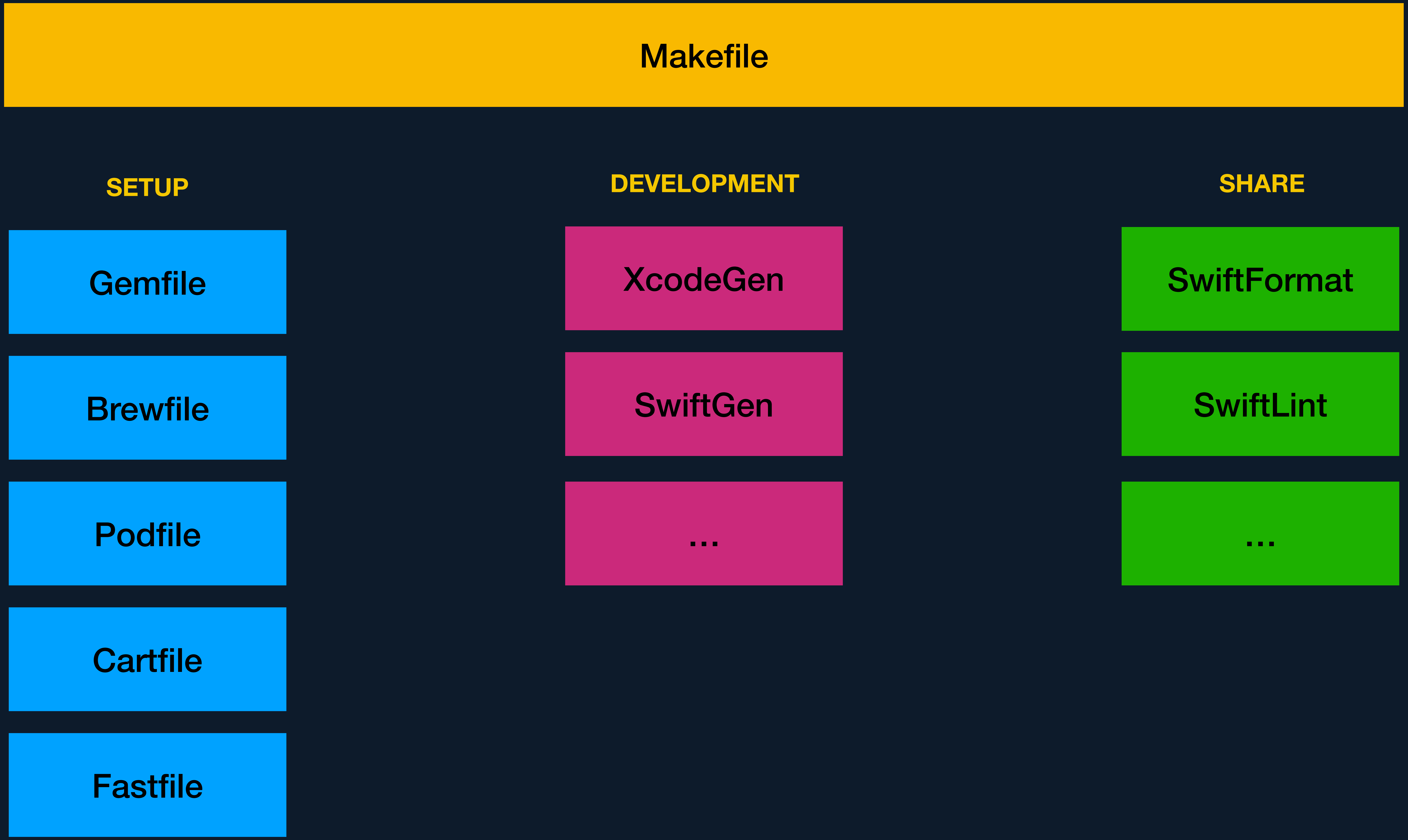
Makefile
SETUP
Gemfile
Brewfile
Podfile
Cartfile
Fastfile
DEVELOPMENT
XcodeGen
SwiftGen
...
SHARE
SwiftFormat
SwiftLint
...

Showtime!

https://github.com/stefanomondino/CommandLineAutomations

Thanks!

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