Towards Modular App

Demystify the process

Rimesh Jotaniya
https://recursiveswift.com

Rimesh Jotaniya

Independent iOS developer

- 7 years working on iOS app development
- 5 years worked as a solo iOS developer
- Traveling 🛬
- Trekking 🥾
- Swimming 🚤

Starting your career as iOS developer

Intern / Junior iOS developer in a team

- Focus on specific task
- Get mentorship
- Learn collaboration and team work
- Follow predefined architecture

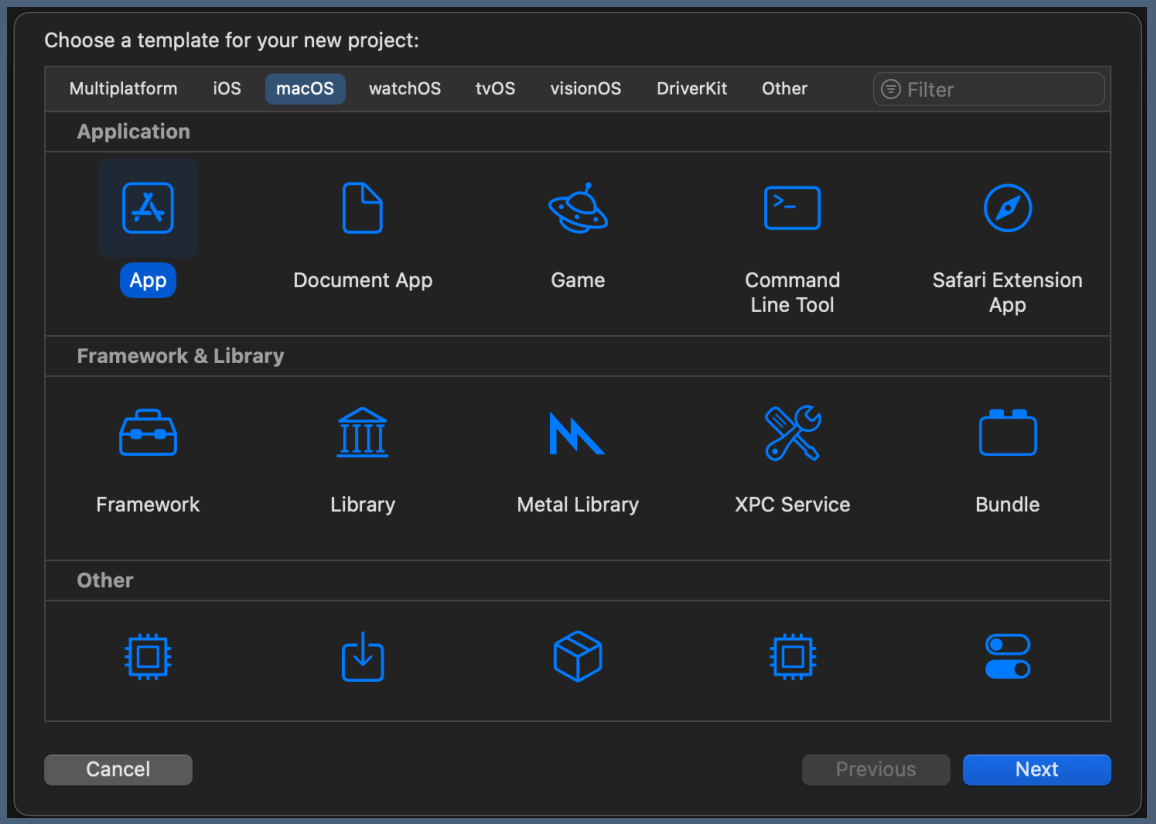
Solo iOS developer

- Build everything from scratch
- Learning from YouTube and courses
- Ownership of the work
- Monolithic architecture

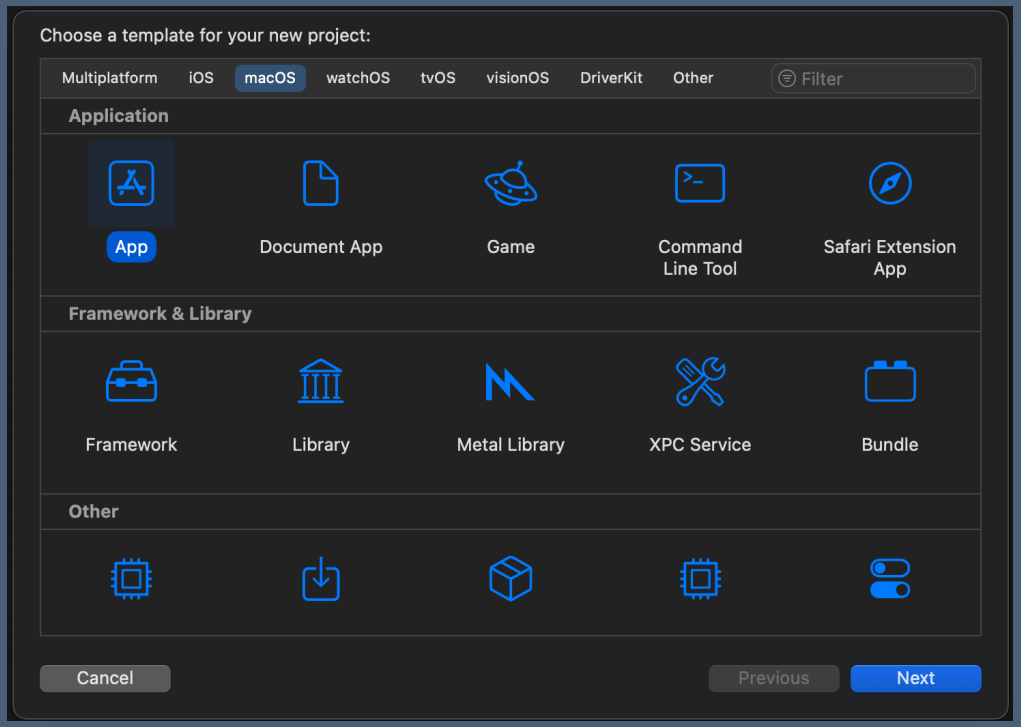
Convenient, but at what cost?

- Build time
- Inability to reuse code
- Inefficient collaboration between teams
- Debugging issues

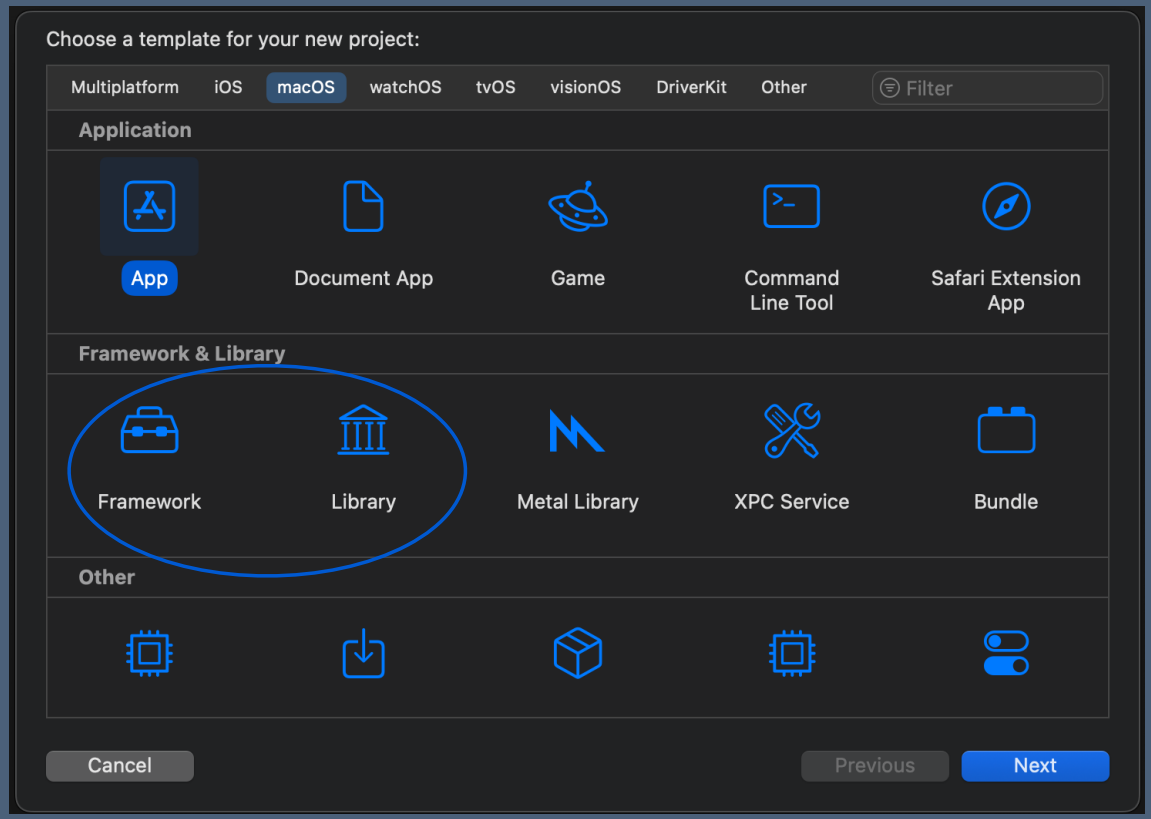
Starting a new project



Starting a new project



Starting a new project



It’s 2025

It's 2025

Framework

Define a Framework in context of iOS development

In the context of iOS development, a **framework** is a pre-built collection of code, resources, and tools that developers can use to build apps more efficiently. It encapsulates a set of related functionalities, allowing developers to leverage existing solutions rather than writing everything from scratch.

Apple provides many built-in frameworks for iOS development, such as **UIKit** for user interfaces, **CoreData** for local data storage, **CoreML** for machine learning, and **ARKit** for augmented reality.

Library

Define a Library in context of iOS development

In the context of iOS development, a **library** is a collection of precompiled code that provides reusable functions and routines that developers can integrate into their apps to avoid reinventing the wheel. Unlike frameworks, which are more comprehensive and often contain both code and resources (like images, storyboards, etc.), a library is typically a more focused set of functions that handle specific tasks.

SwiftyJSON is a library that simplifies JSON parsing, SDWebImage is a library for image downloading and caching, and Lottie is a library for displaying JSON-based animations in iOS development.

Framework - Apple

UIKit, SwiftUI, CoreData, CoreML

Library - Third party devs

SDWebImage, Alamofire, SnapKit

“NO”

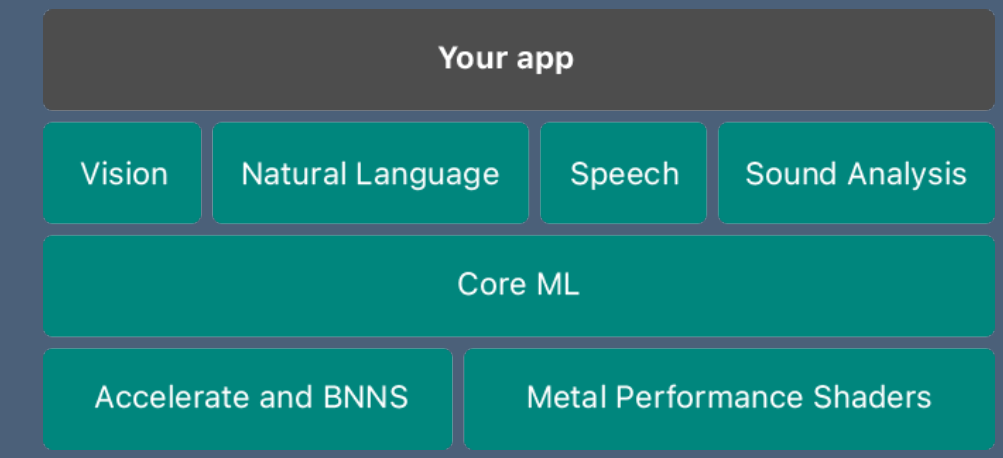
Does Apple provide any Library?

Framework

Core ML

Integrate machine learning models into your app.

iOS 11.0+ | iPadOS 11.0+ | Mac Catalyst 13.0+ | macOS 10.13+ | tvOS 11.0+ | visionOS 1.0+ | watchOS 4.0+



Accelerate / BNNS

API Collection

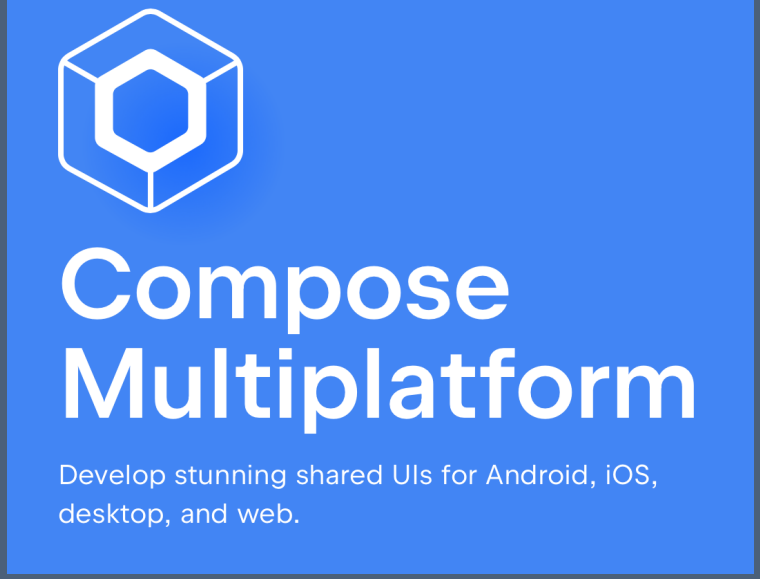
BNNS

Implement and run neural networks for training and inference.

Overview

The Accelerate framework's BNNS library is a collection of functions that you use to construct neural networks for training and inference. BNNS provides routines optimized for high performance and low energy consumption across all Apple platforms.

Does third party devs provide Framework?



Anyone can create
Framework and Library.

Adding Awesomeness

```
import SwiftUI
import Awesomeness                    No such module 'Awesomeness'

struct AwesomeView: View {
    var body: some View {
        Text("Awesome View")
    }
}

#Preview {
    AwesomeView()
}
```

Module?

Module?

Swift organizes code into *modules*. Each module specifies a namespace and enforces access controls on which parts of that code can be used outside of the module.

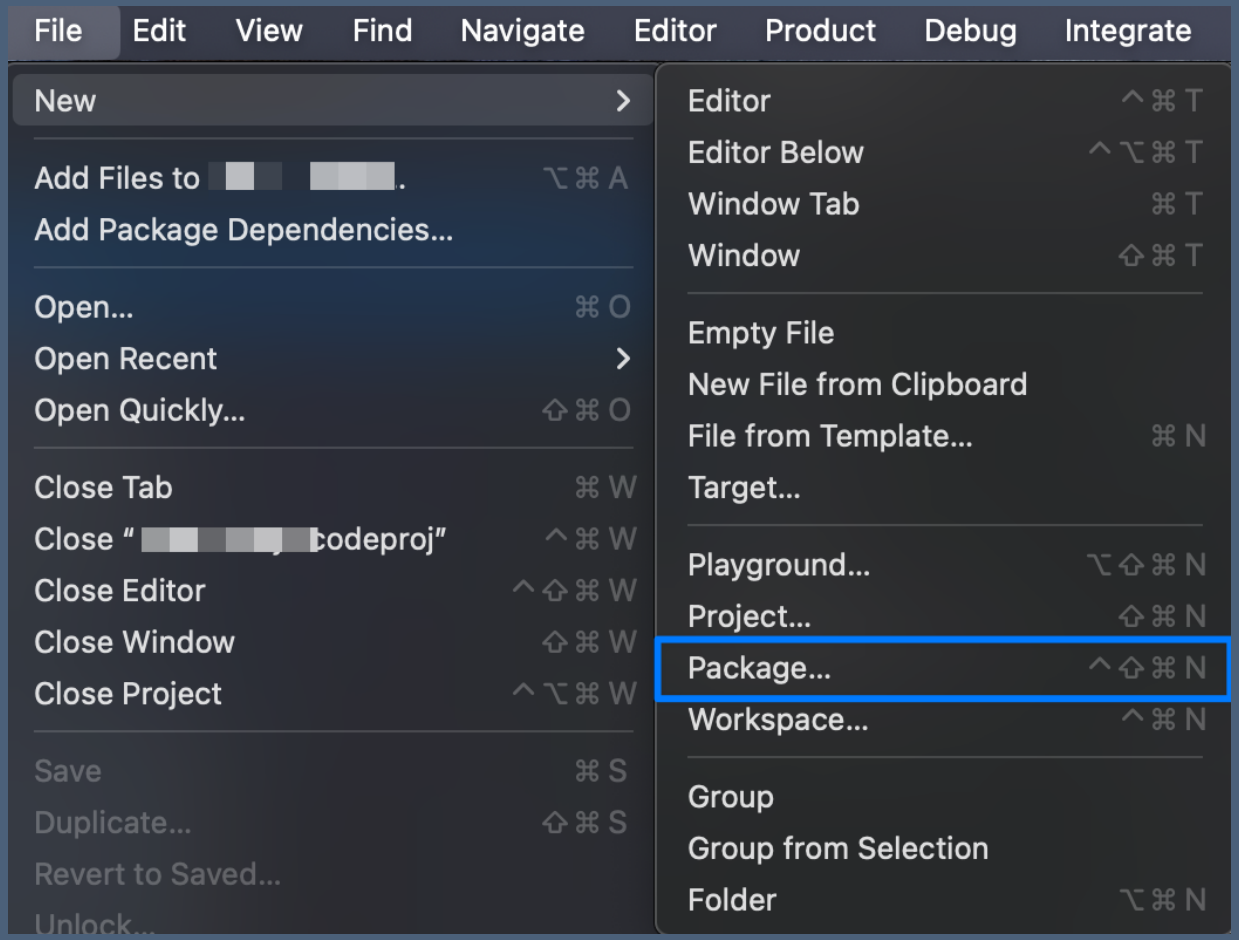
- swift.org

Whether it's Framework or Library, Swift deals in Modules.

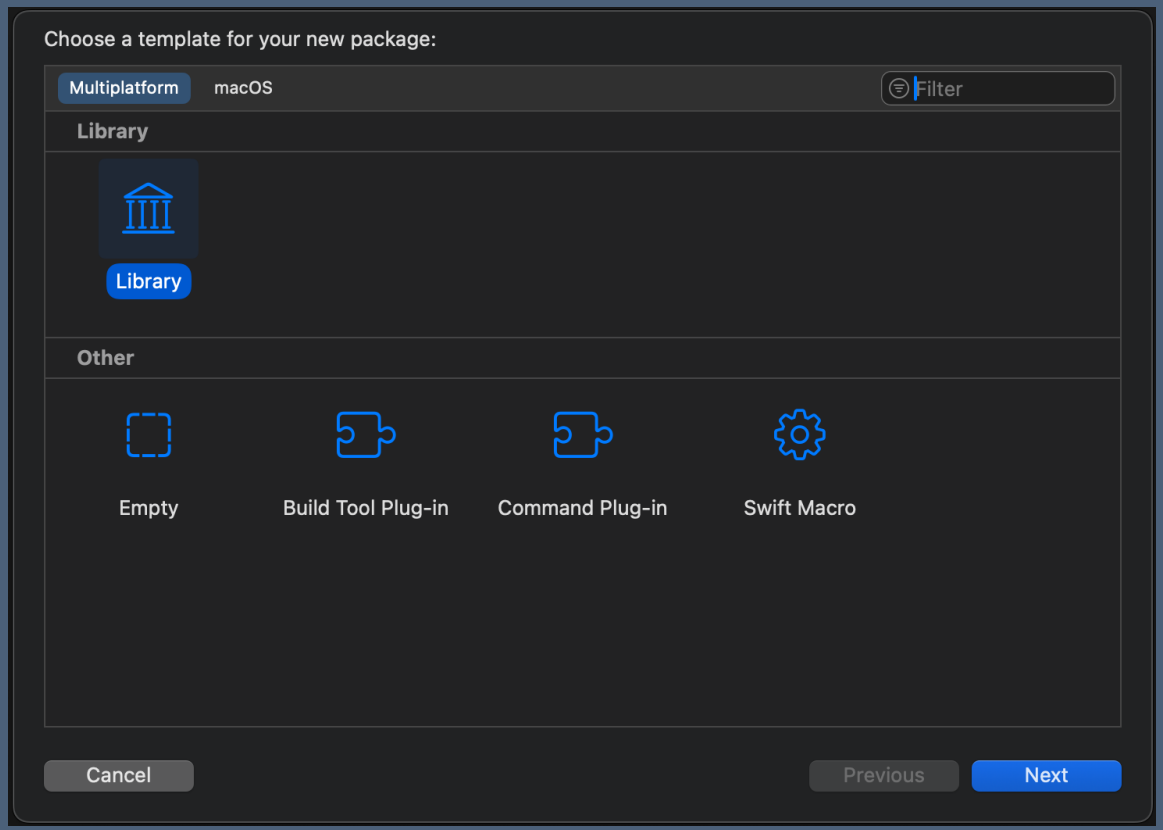
How to create Module?

- Manually creating Framework / Library
- Swift Package Manager
- Using CocoaPods
- Other third party solutions

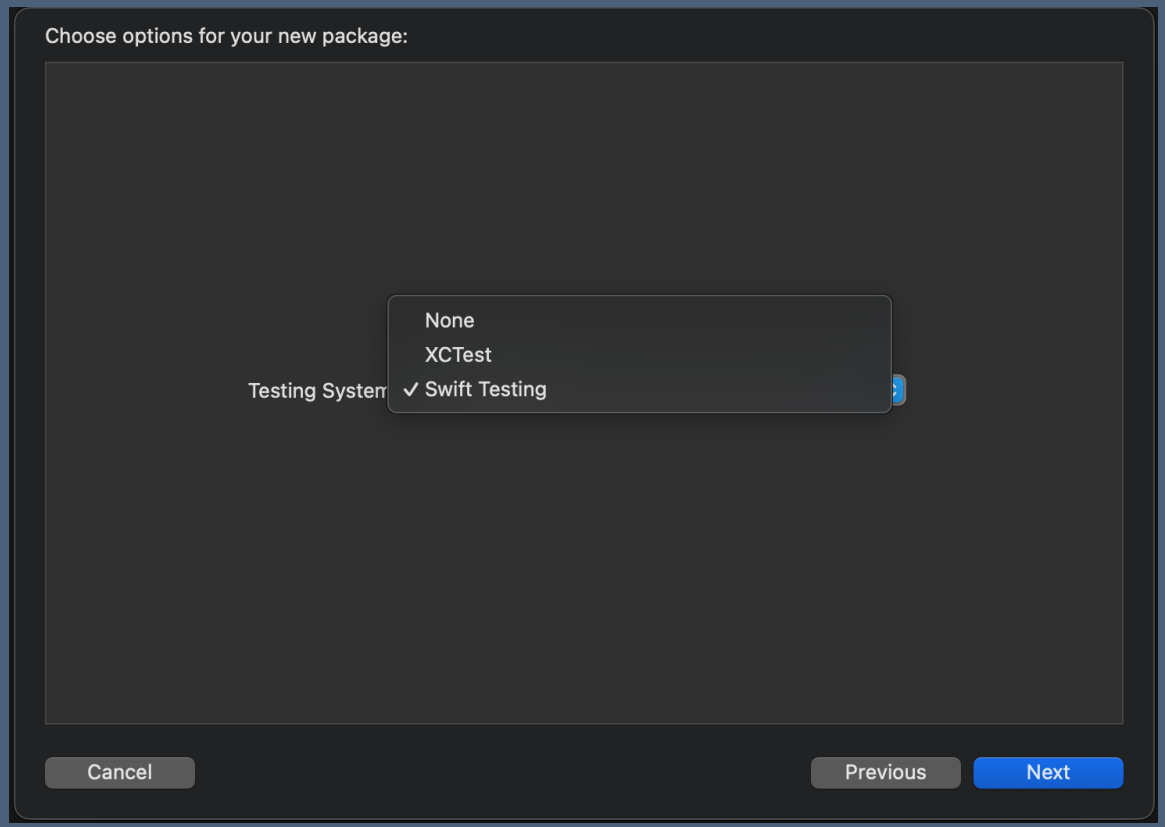
Create a new package



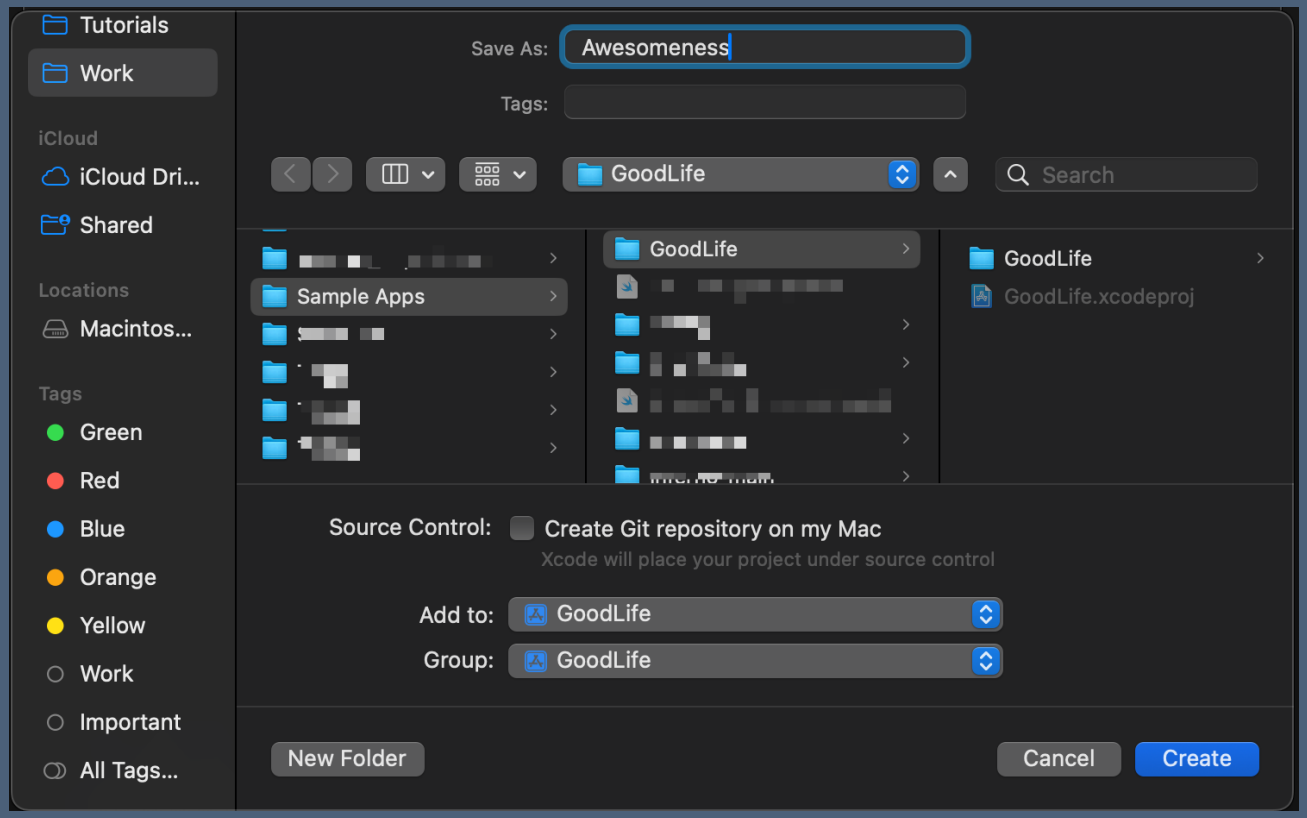
Create a new package



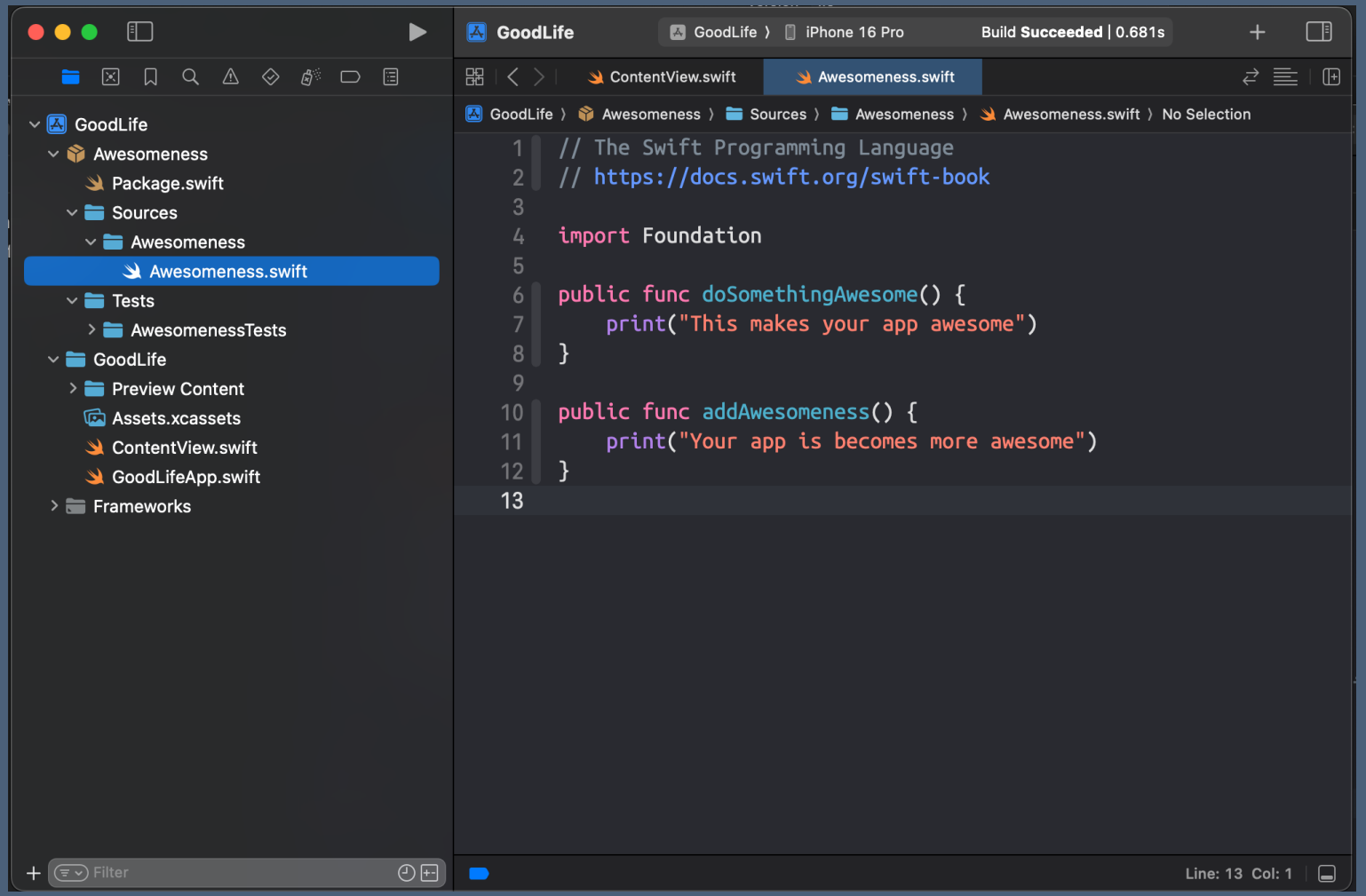
Create a new package



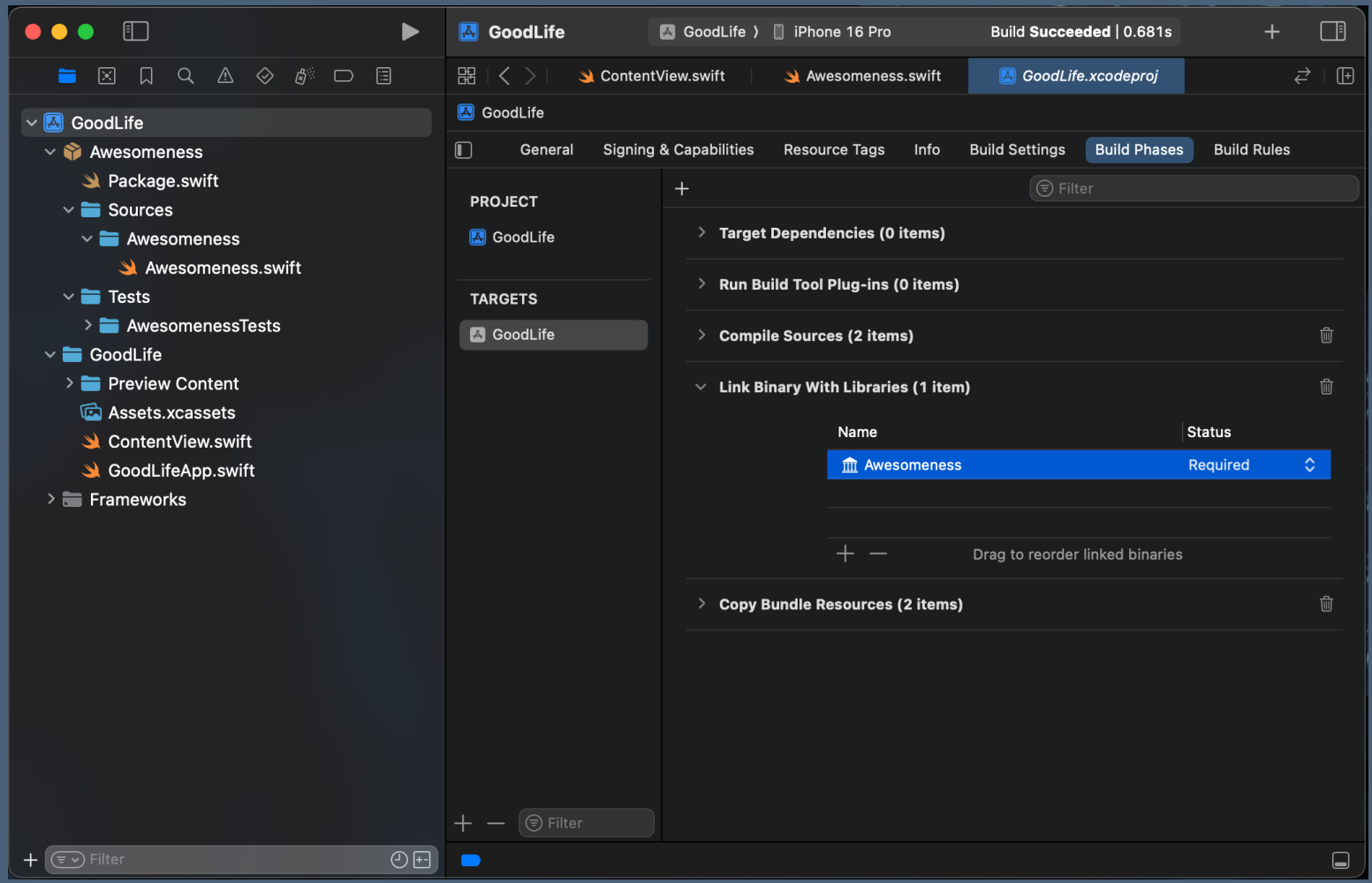
Create a new package



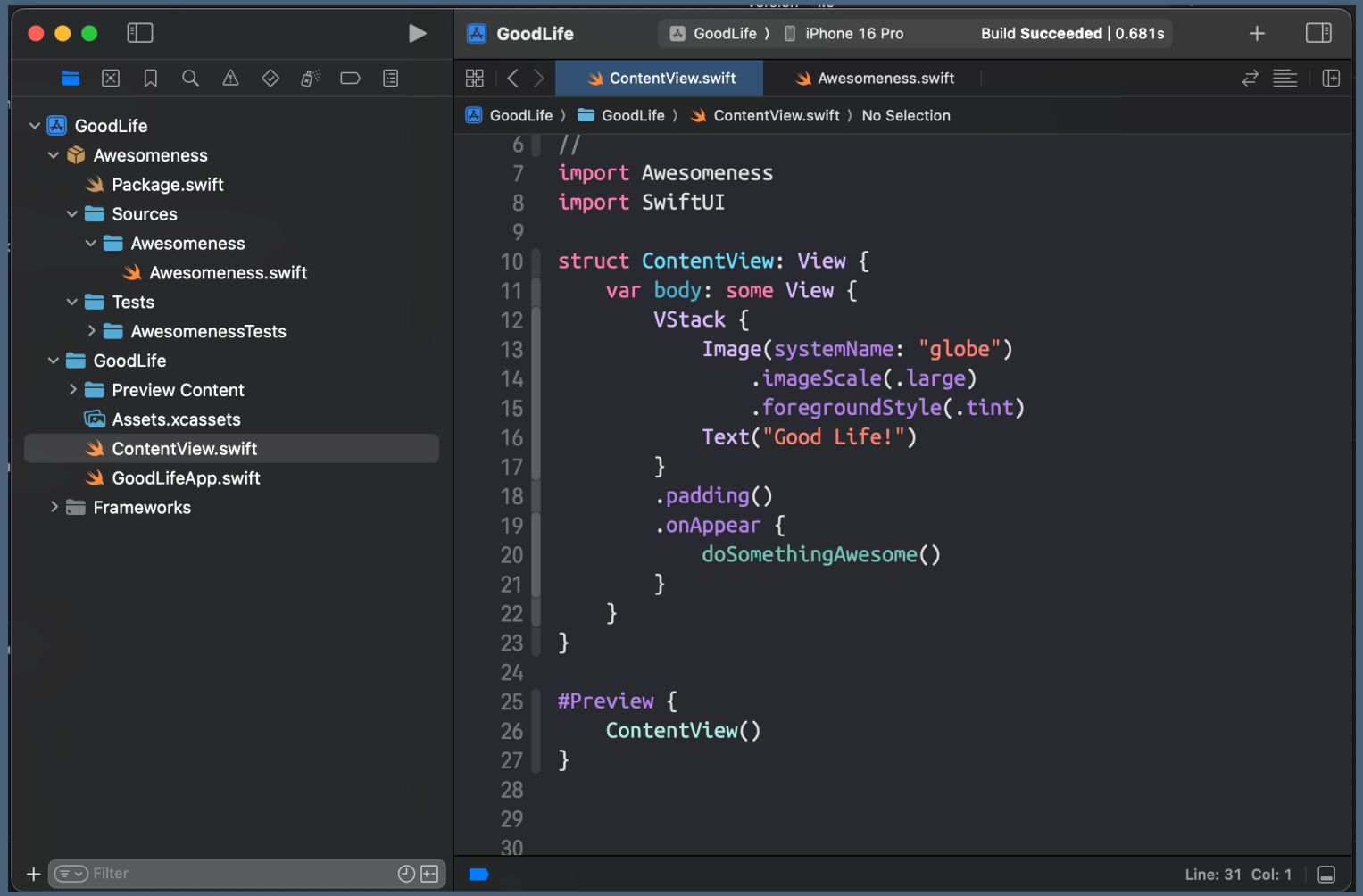
Add your code to package



Add the library



Using the package in your project



Modular architecture demystified

- **What** - Networking, Analytics, UIComponents
- **Why** - Reduced built time, isolated tests per module, improved collaboration
- **When** - You can always start simple
- More Modules != Better Modularization

Where to go from here?

- Version management
- Dependency graph resolution
- Binary distribution
- Static and Dynamic linking
- Sharing your package
- Create your first package

Questions?

Thank you!