

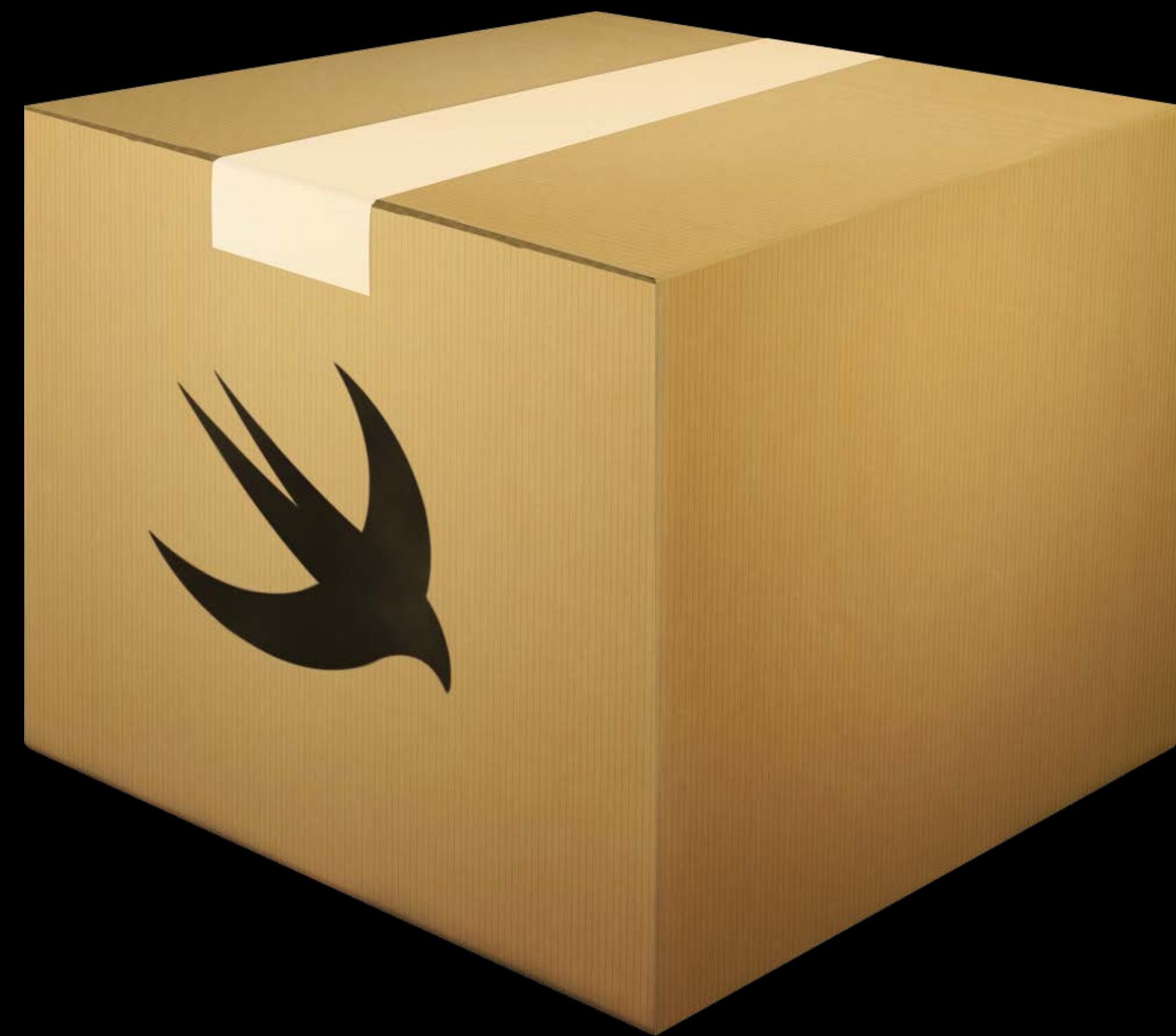
#WWDC19

# Adopting Swift Packages in Xcode

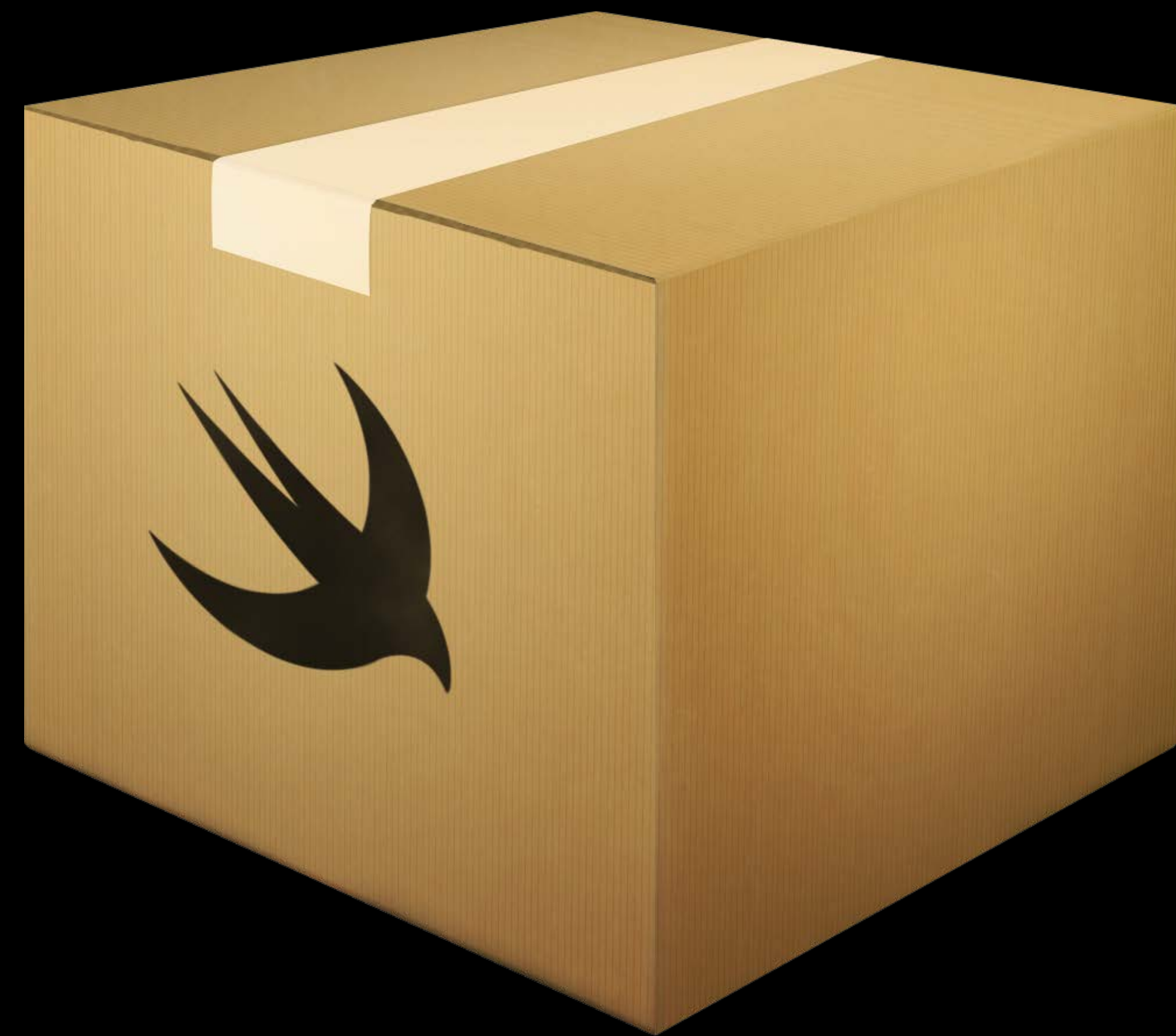
Anders Bertelrud, Xcode Engineer

Balraj Aujla, Xcode Engineer



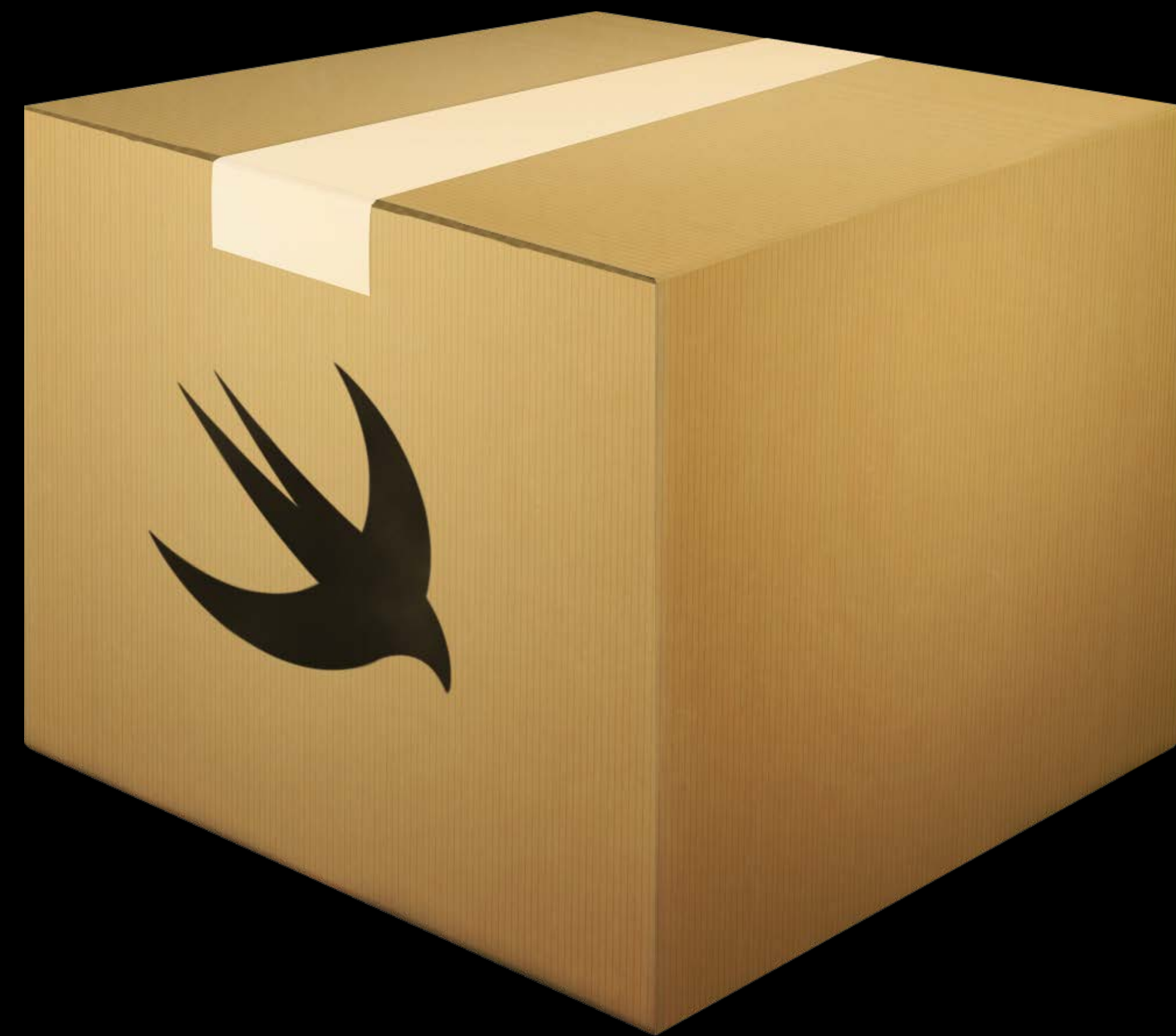


Leverage open source libraries



Leverage open source libraries

Manage version dependencies



Leverage open source libraries

Manage version dependencies

Share code among your apps



Using an open source package

Using an open source package

A closer look at packages



Using an open source package

A closer look at packages

Package resolution in more detail

Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

Resolving package conflicts

Using an open source package

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Package resolution in more detail

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Resolving package conflicts

***Demo***

Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

Resolving package conflicts

Using an open source package

**A closer look at packages**

Package resolution in more detail

Updating packages

Resolving package conflicts

# What's in a Package?



# What's in a Package?



# What's in a Package?

# What's in a Package?



Package.swift

# What's in a Package?



Package.swift



Sources

# What's in a Package?



Package.swift

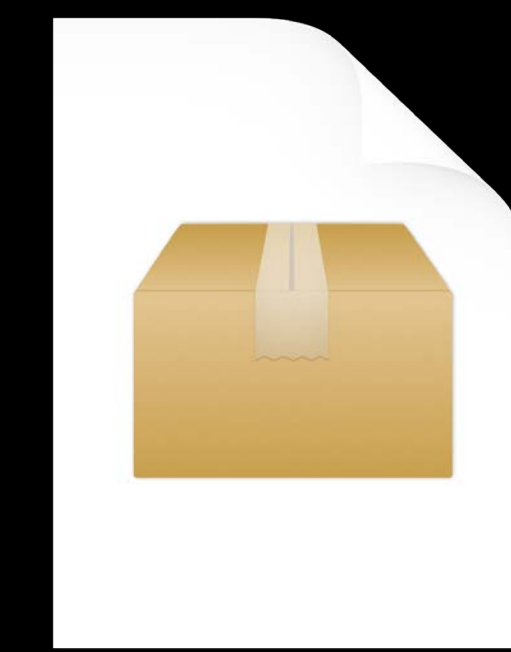


Sources



Tests

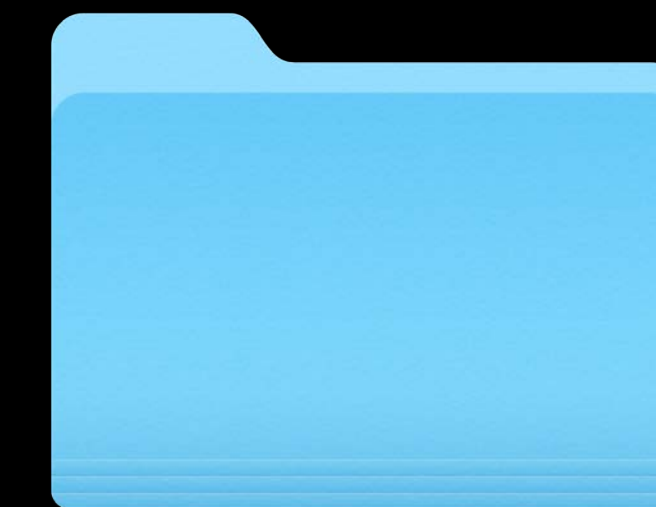
# What's in a Package?



Package.swift



Sources



CYaml

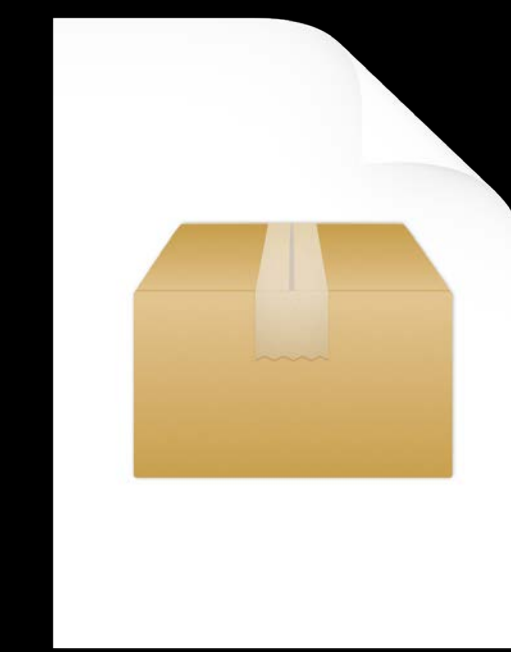


Yams



Tests

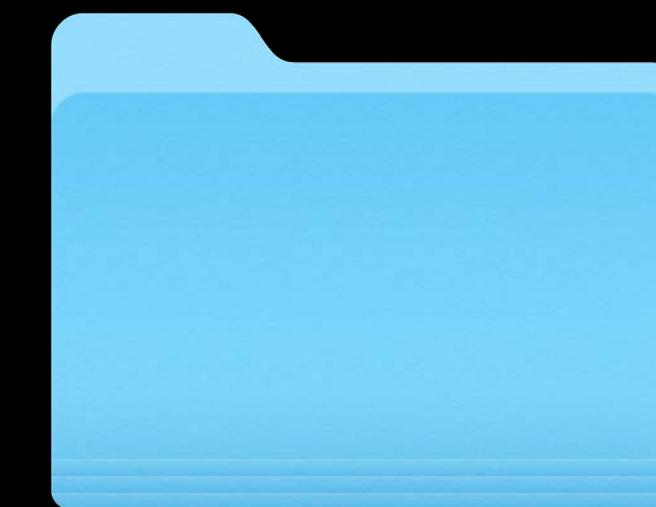
# What's in a Package?



Package.swift



Sources



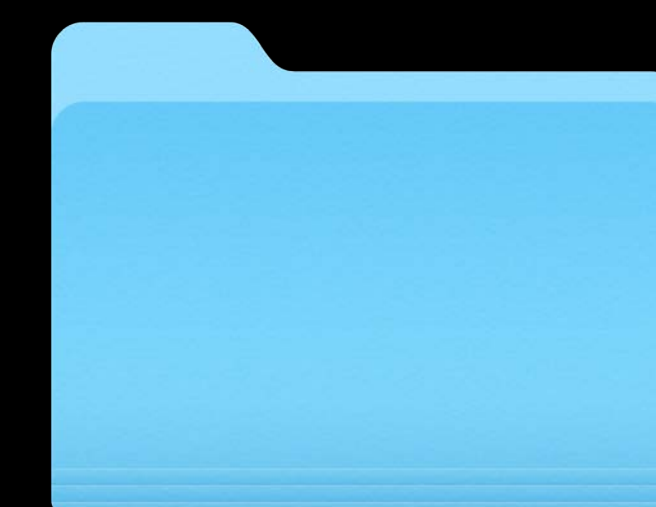
CYaml



Yams

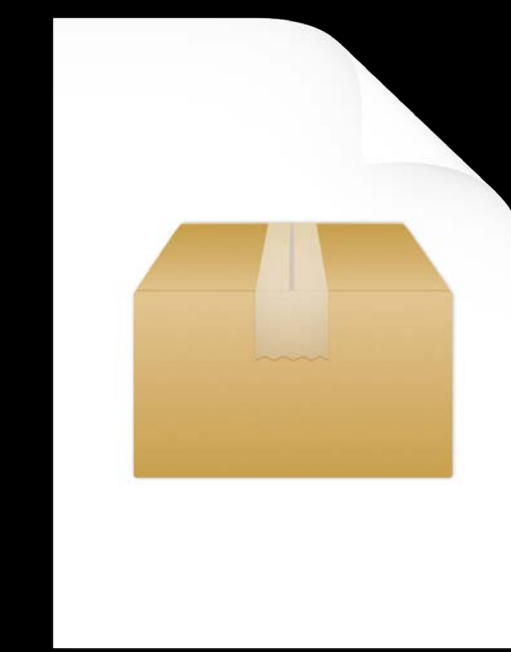


Tests



YamsTests

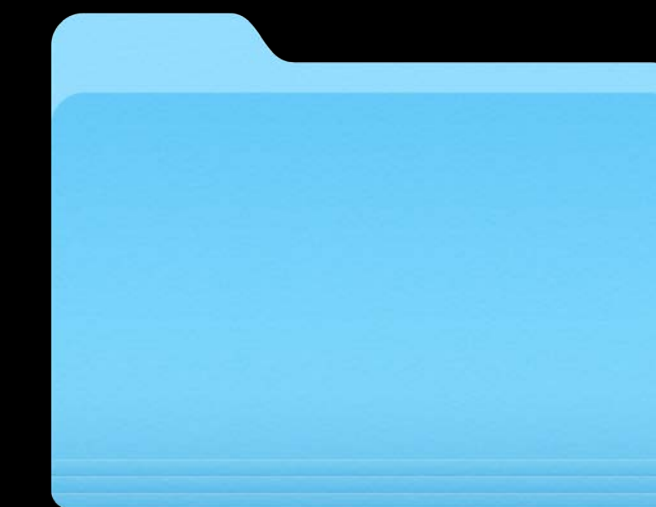
# What's in a Package?



Package.swift



Sources



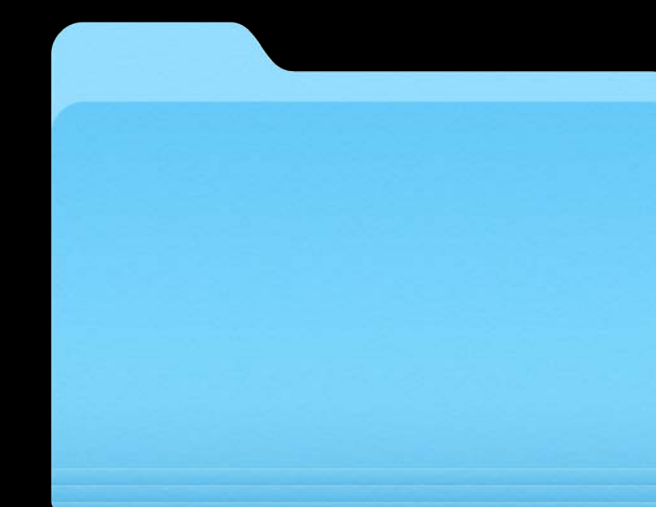
CYaml



Yams



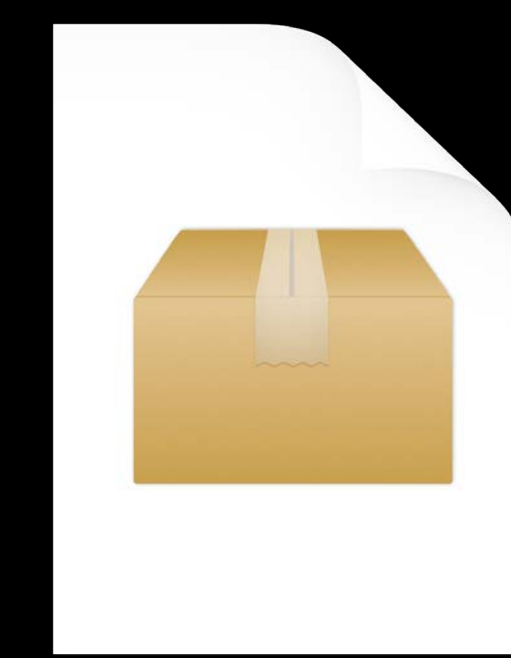
Tests



YamsTests



# What's in a Package?



Package.swift



Sources



CYaml



Yams

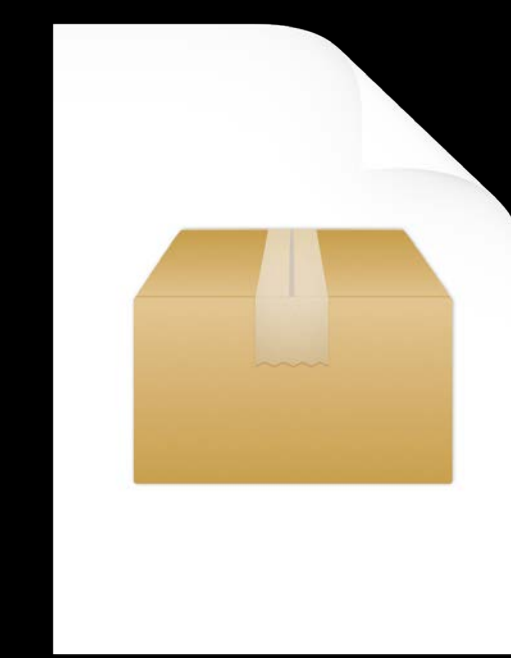


Tests



YamsTests

# What's in a Package?



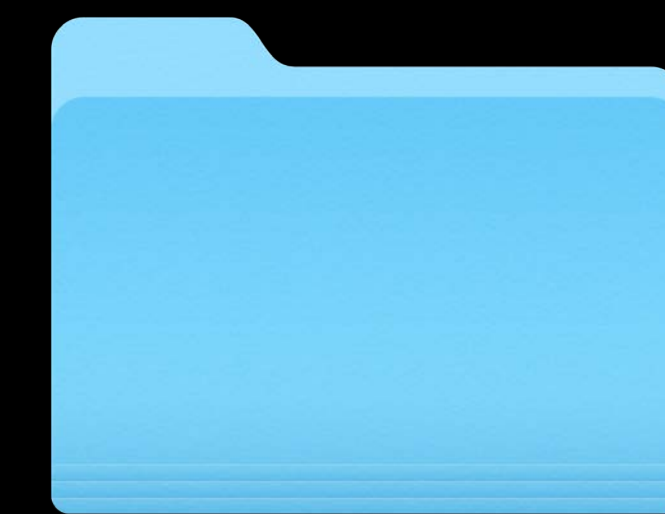
Package.swift



Sources



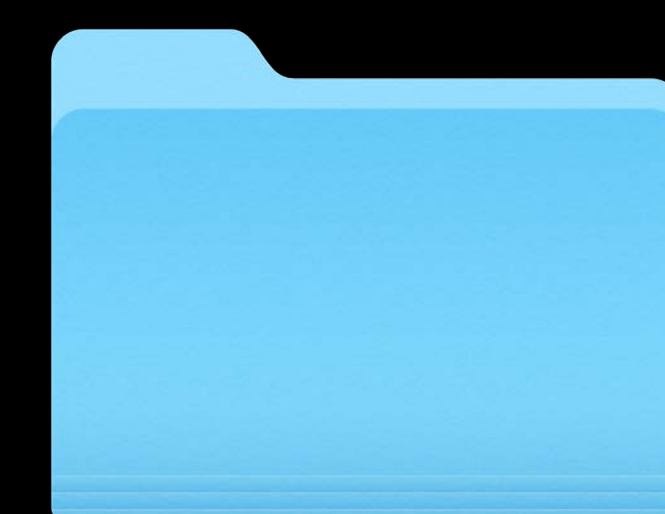
CYaml



Yams

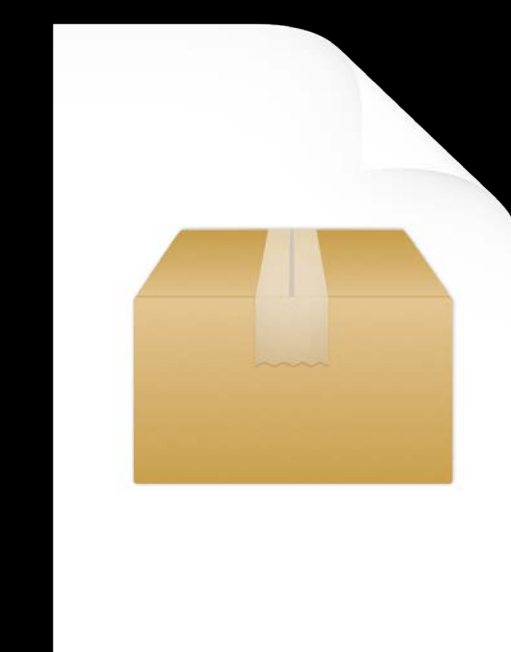


Tests



YamsTests

# What's in a Package?



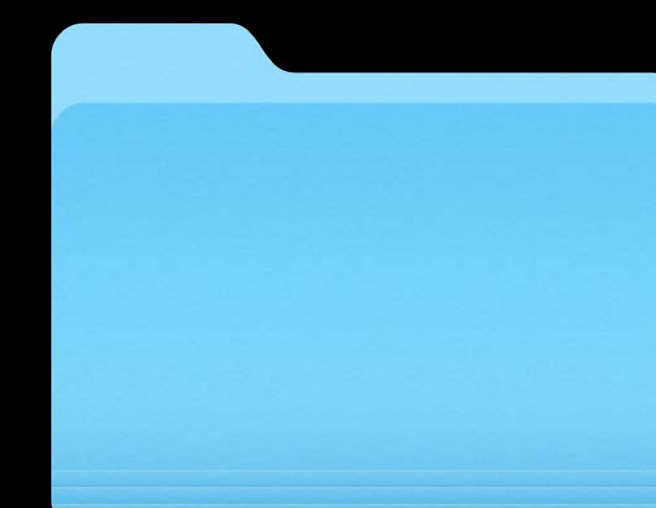
Package.swift



Sources



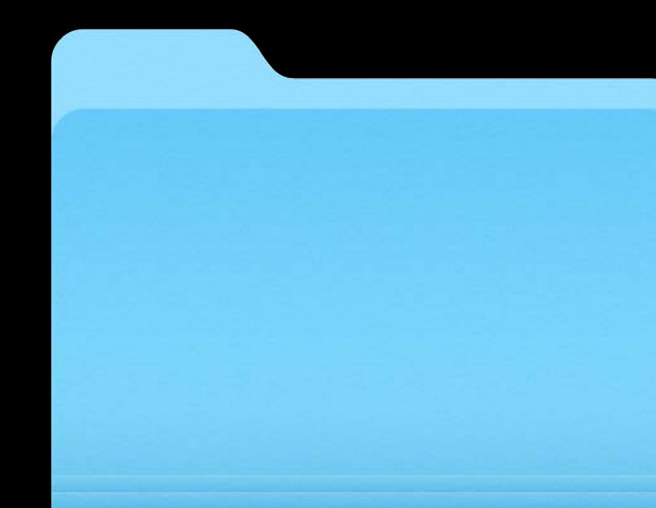
CYaml



Yams



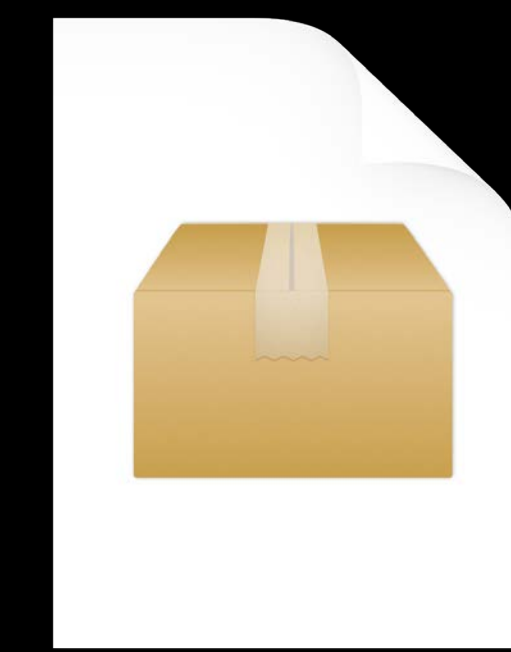
Tests



YamsTests



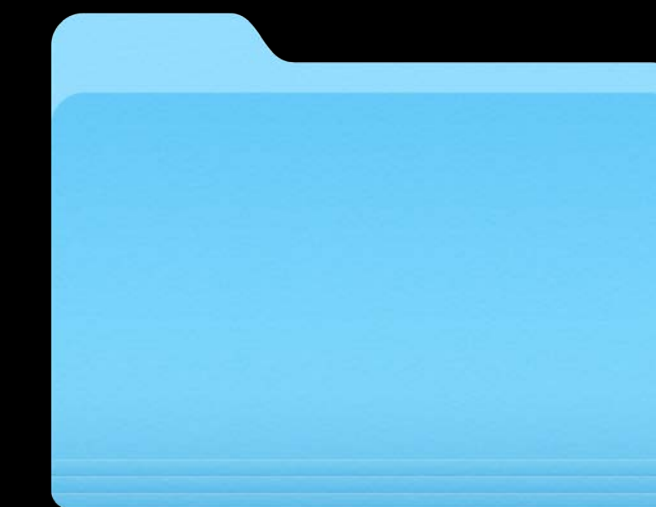
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Package.swift



Sources



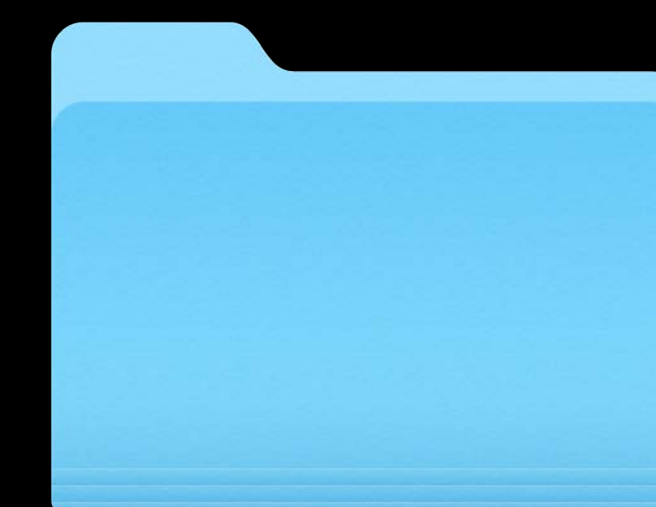
CYaml



Yams



Tests



YamsTests

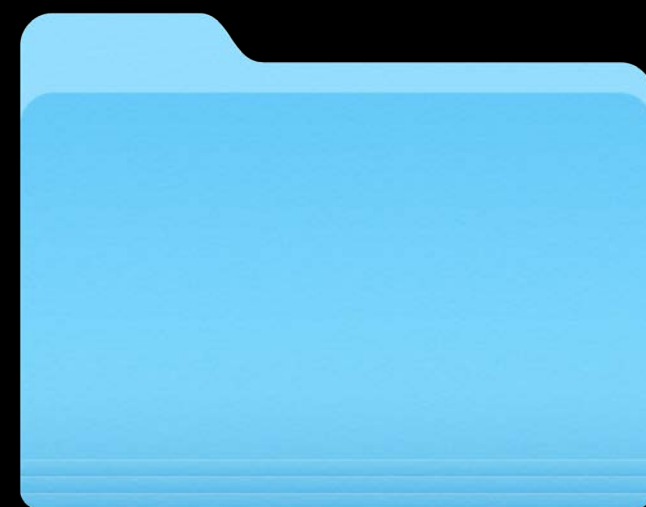
# What's in a Package?



Package.swift



Sources



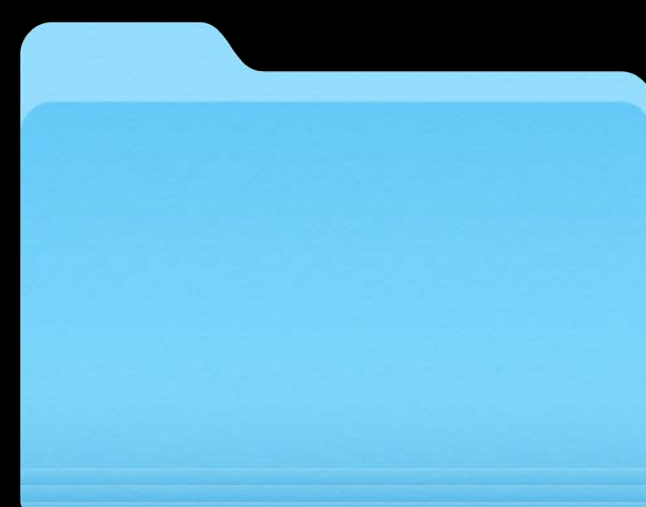
CYaml



Yams



Tests



YamsTests

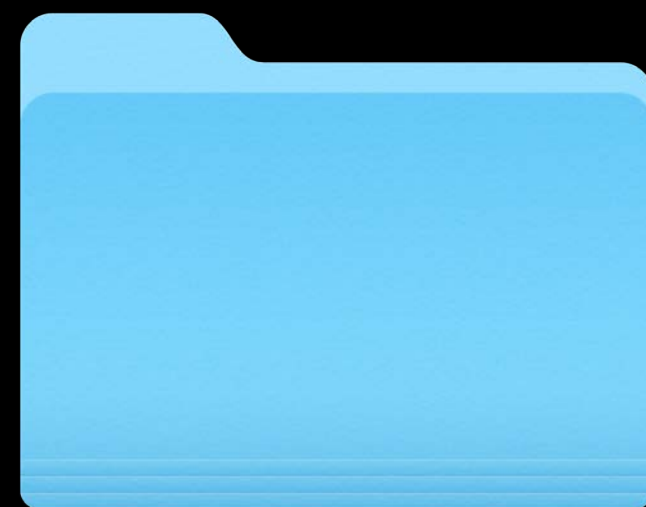
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Package.swift



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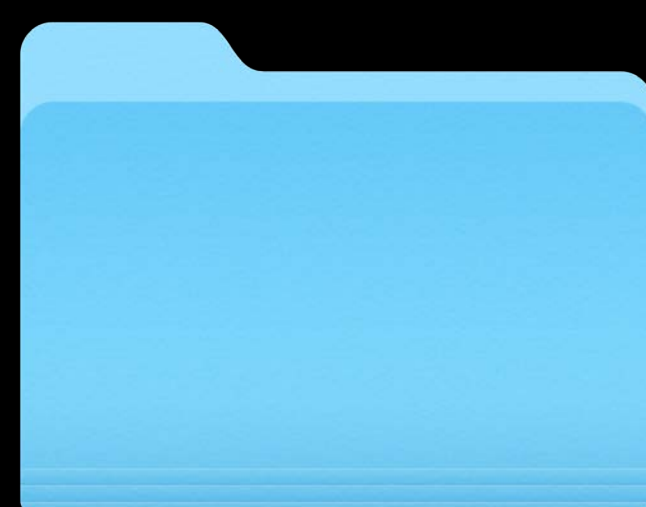
CYaml



Yams

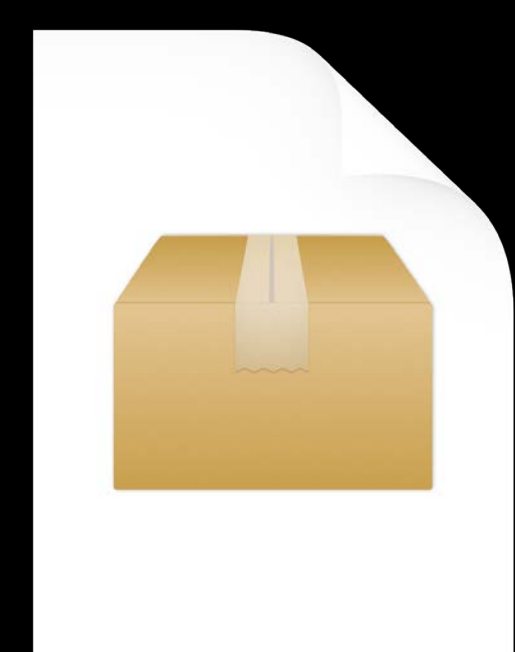


Tests



YamsTests

# What's in a Package?



Package.swift



Sources



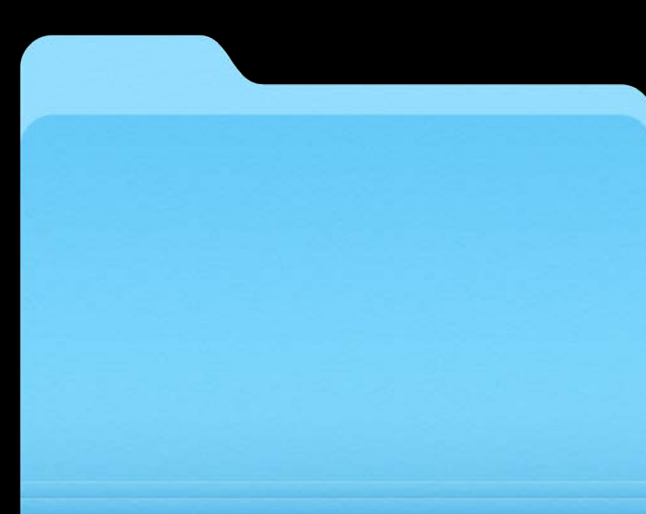
CYaml



Yams



Tests



YamsTests

```
// swift-tools-version:5.0
import PackageDescription

let package = Package(
    name: "Yams",
    products: [
        .library(name: "Yams",
                 targets: ["Yams"])
    ],
    targets: [
        .target(name: "CYaml"),
        .target(name: "Yams",
                dependencies: ["CYaml"]),
        .testTarget(name: "YamsTests",
                    dependencies: ["Yams"])
    ],
    swiftLanguageVersions: [.v4, .v4_2, .v5]
)
```

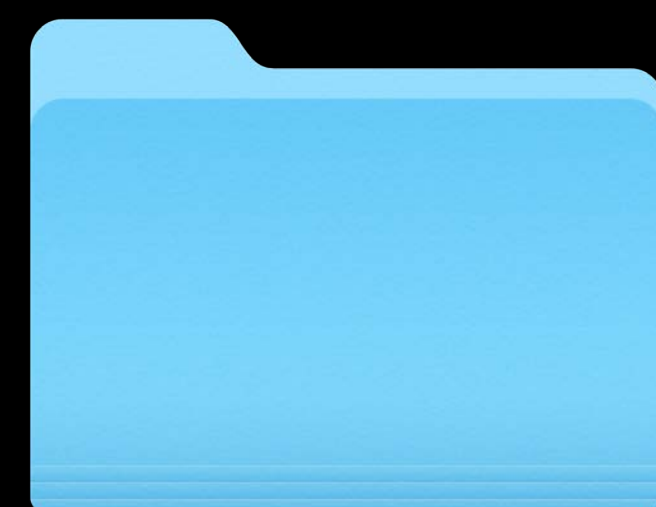
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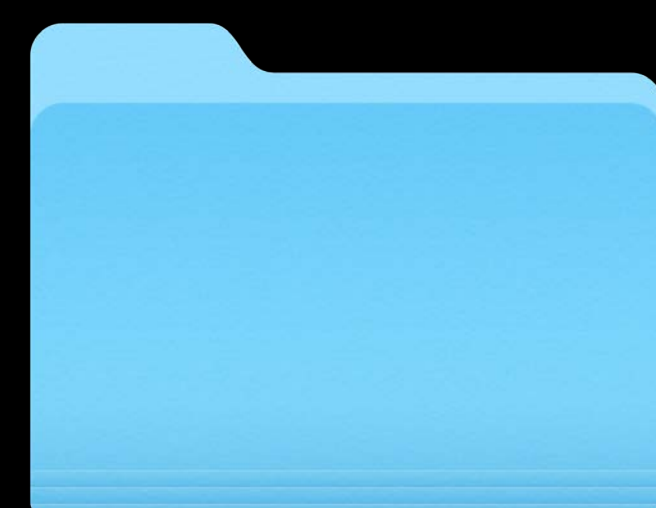
Package.swift



Sources



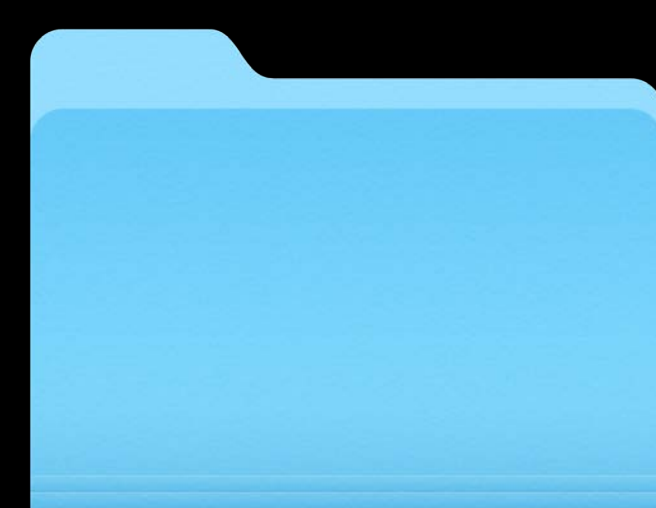
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Yams



Tests



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# What's in a Package?



Package.swift



Sources



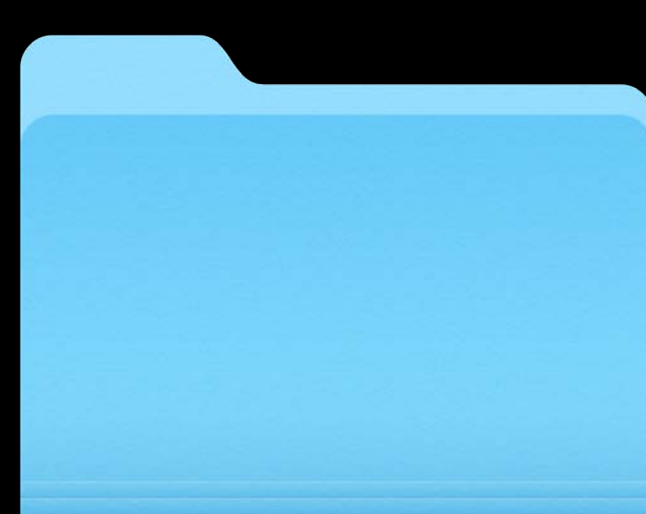
CYaml



Yams



Tests

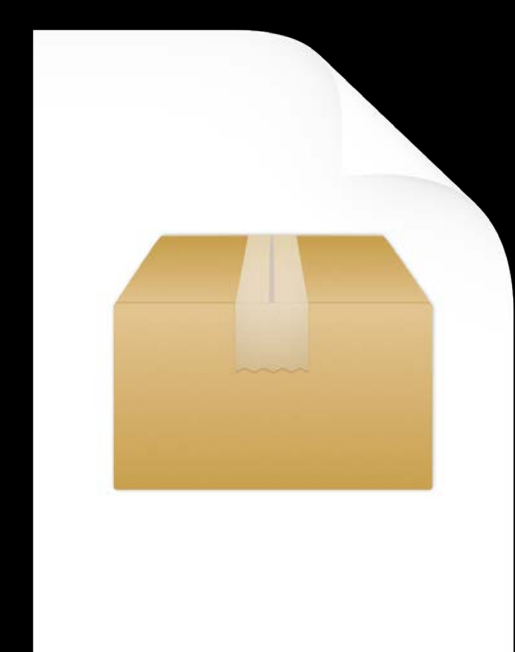


YamsTests

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    name: "Yams",
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# What's in a Package?



Package.swift



Sources



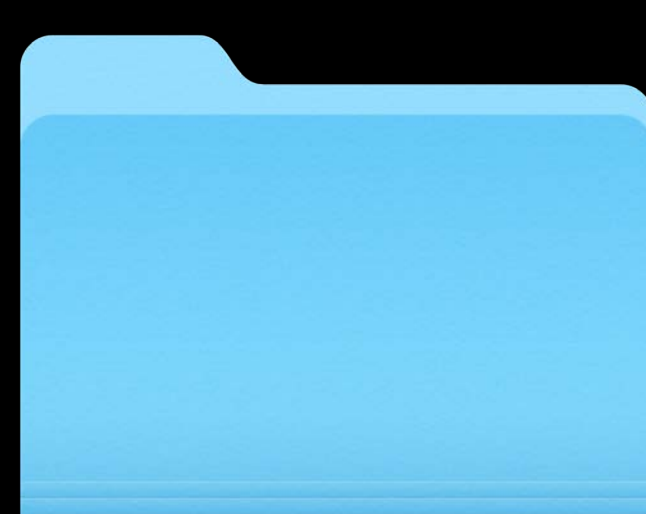
CYaml



Yams



Tests

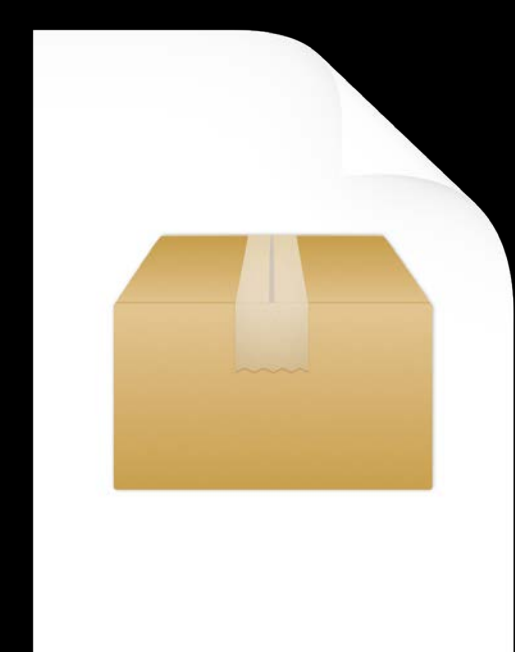


YamsTests

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```

# What's in a Package?



Package.swift



Sources



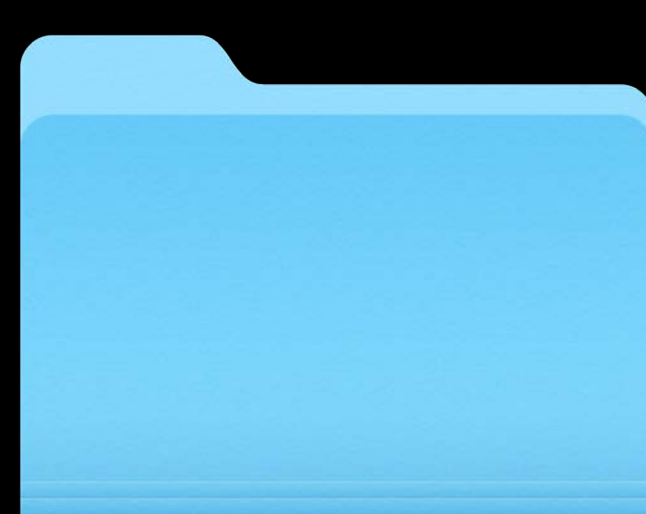
CYaml



Yams



Tests



YamsTests

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# What's in a Package?



Package.swift



Sources



CYaml



Yams



Tests



YamsTests

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        .target(name: "Yams",
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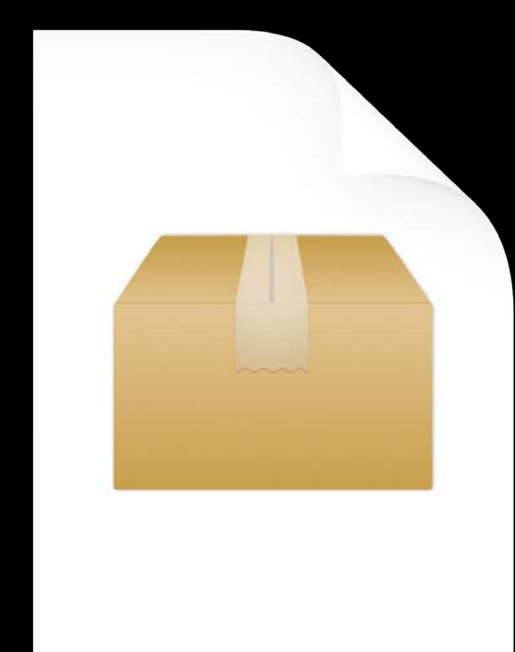
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    ],
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        .target(name: "Yams",
                dependencies: ["CYaml"]),
        .testTarget(name: "YamsTests",
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    ],
    swiftLanguageVersions: [.v4, .v4_2, .v5]
)
```

# What's in a Package?



Package.swift



Sources



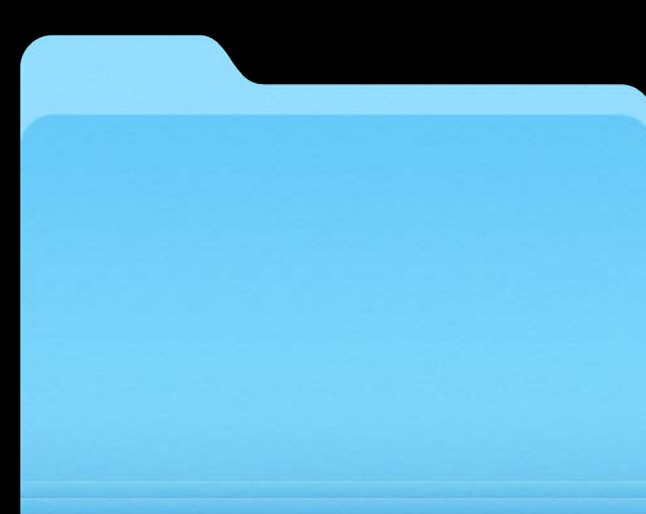
CYaml



Yams



Tests



YamsTests

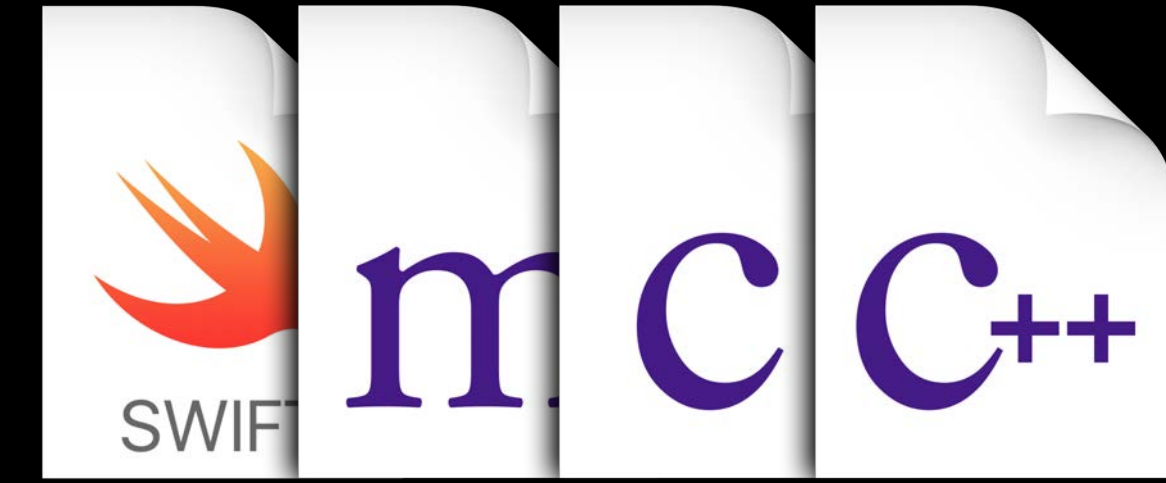
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        .target(name: "Yams",
                dependencies: ["CYaml"]),
        .testTarget(name: "YamsTests",
                    dependencies: ["Yams"])
    ],
    swiftLanguageVersions: [.v4, .v4_2, .v5]
)
```

# Linking Package Libraries



# Linking Package Libraries





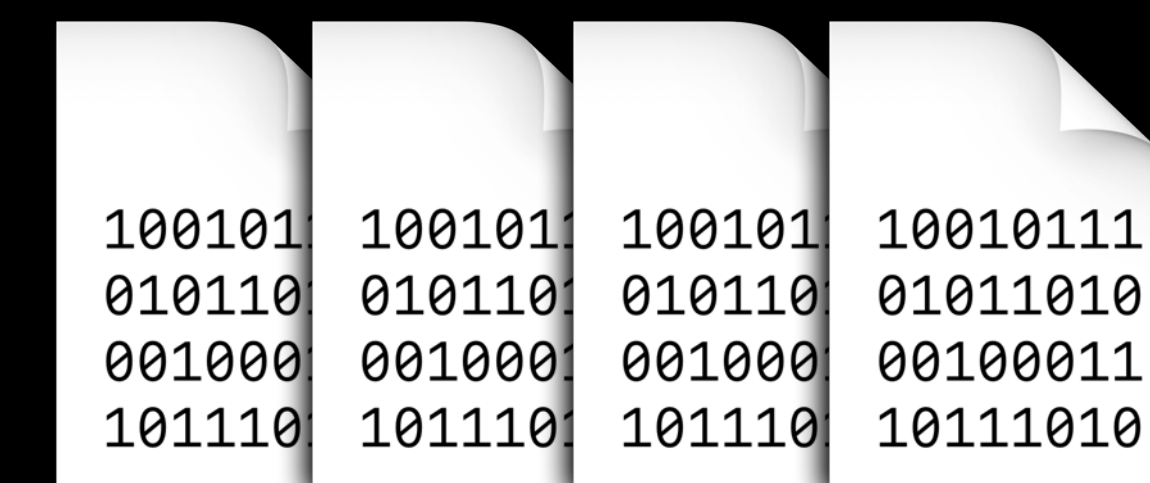
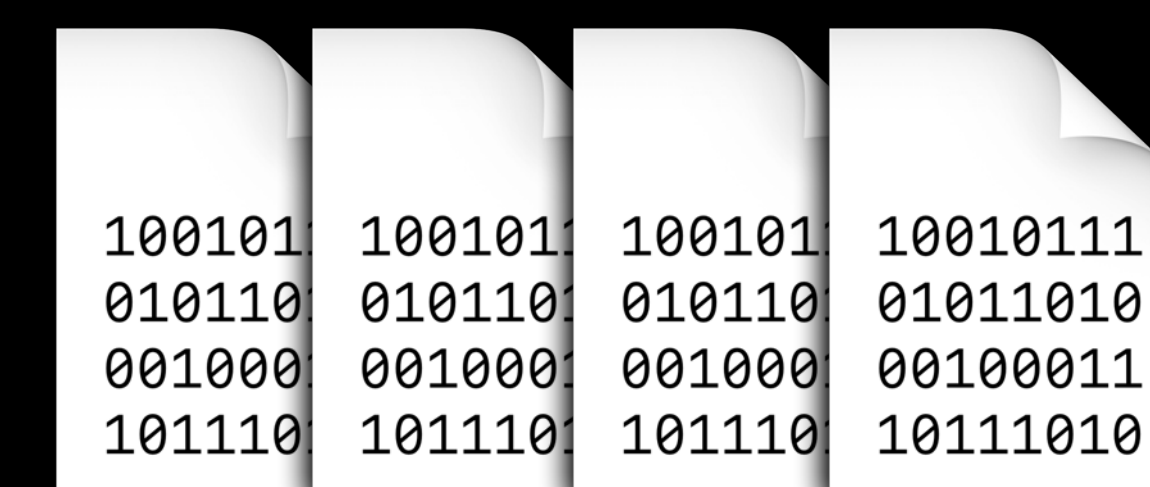
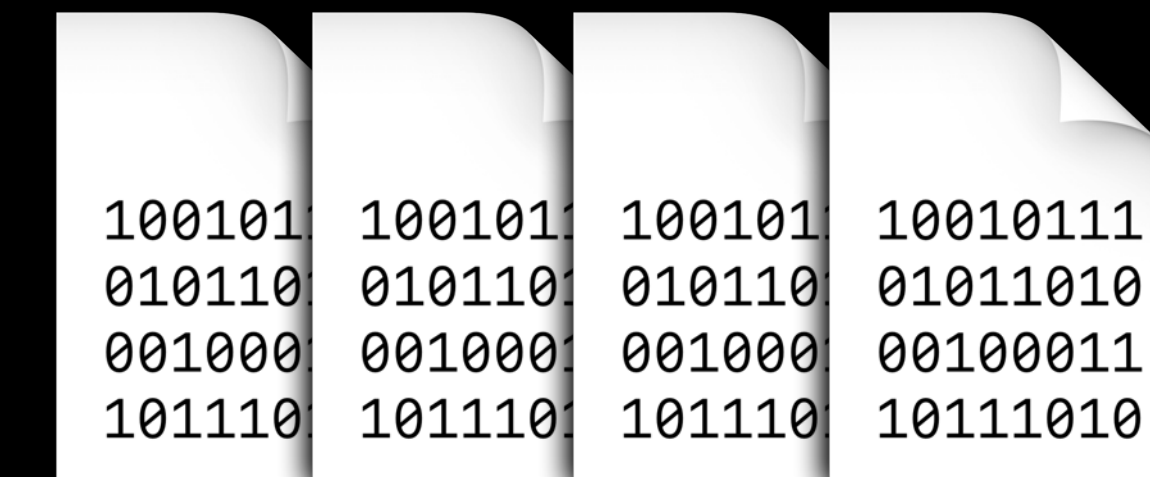
# Linking Package Libraries



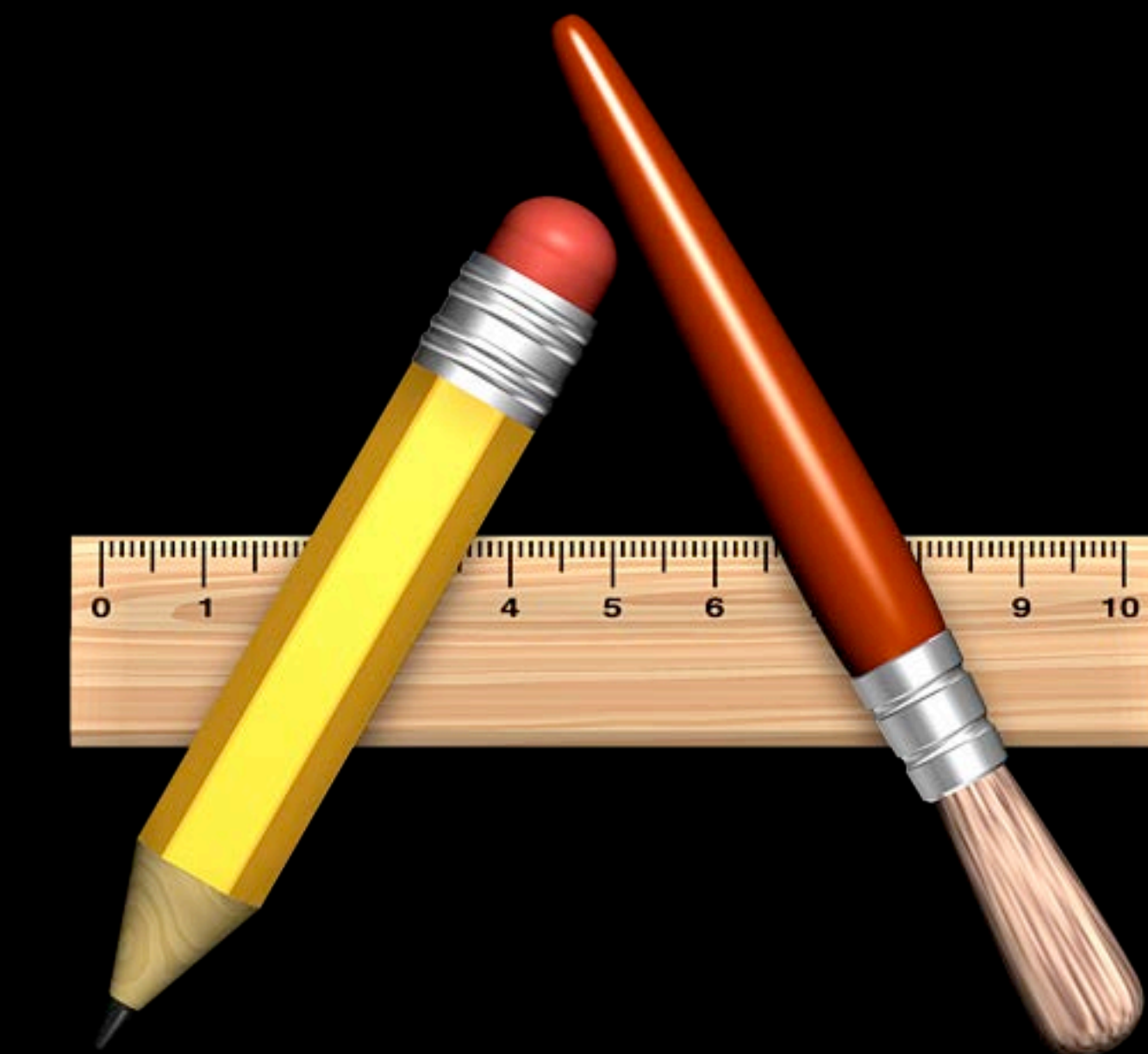
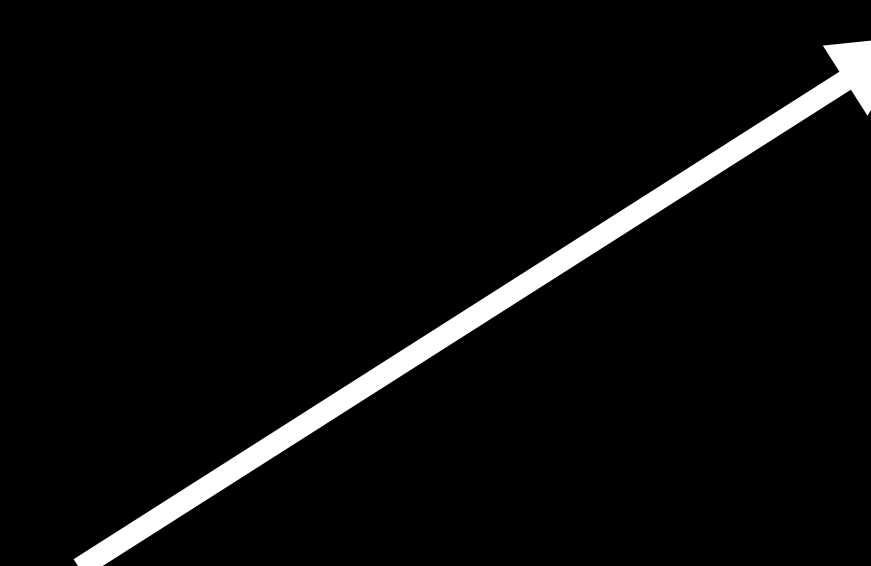
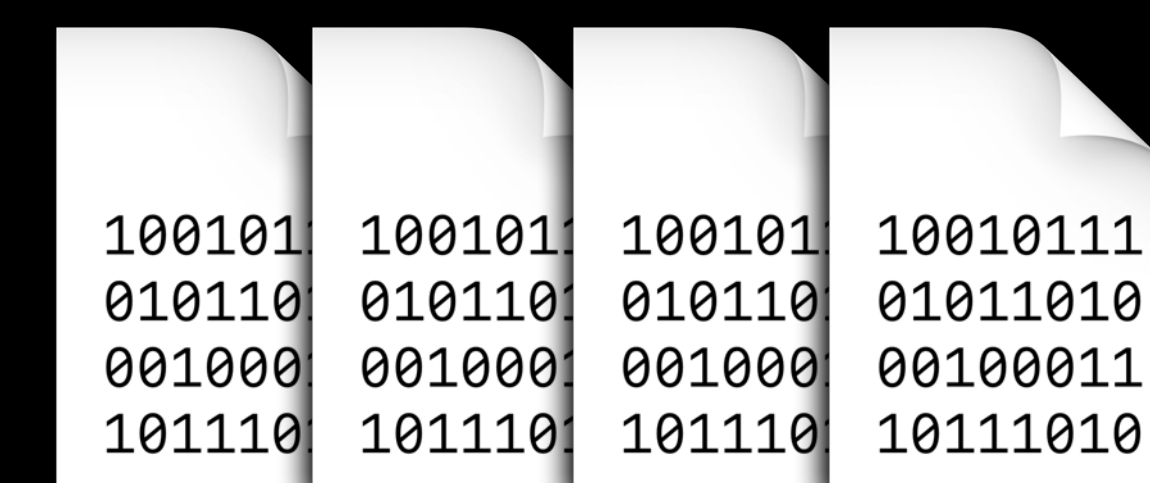
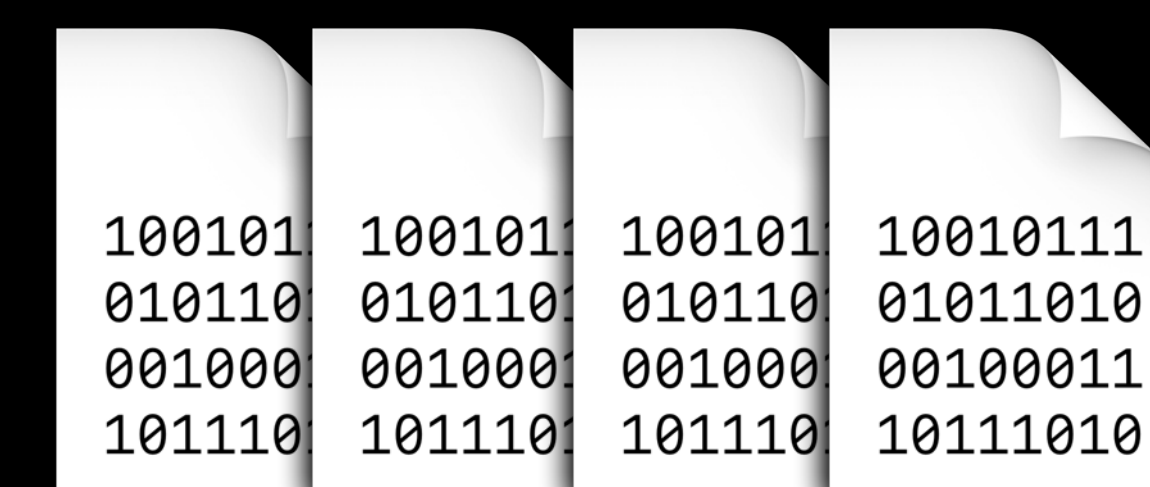
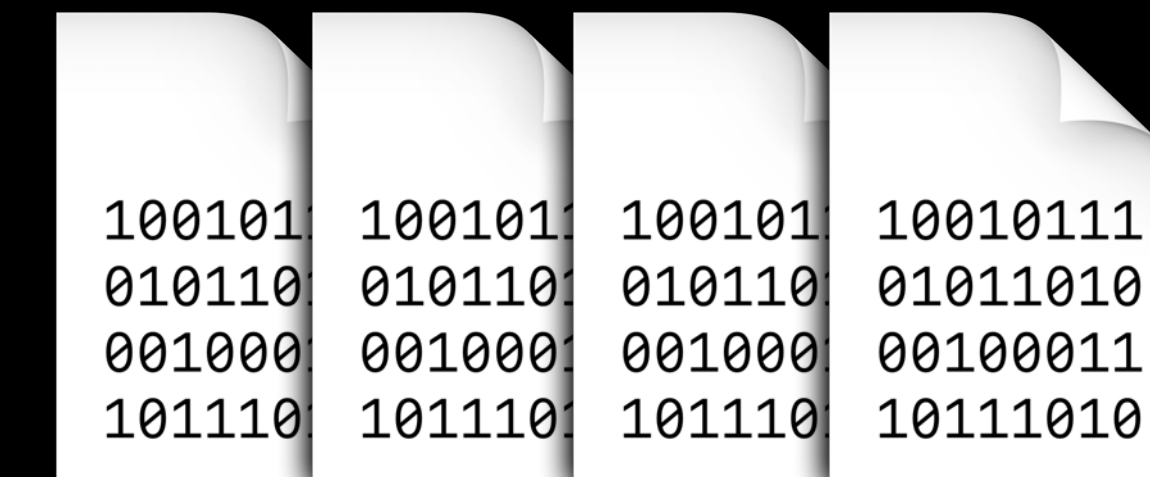
# Linking Package Libraries



# Linking Package Libraries



# Linking Package Libraries



# Package Dependencies



# Package Dependencies



## ▼ Packages (1 item)

Name	Version Rules	Location
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

# Package Dependencies



```
dependencies = [  
  .package(url: "http://github.com/WWDC19/DesignFont.git"),  
  .upToNextMajor(from: "1.0.0"),  
]
```

# Package Dependencies





# Semantic Versioning

[semver.org](https://semver.org)

1.2.4

Major Version  
Breaking changes

1.2.4

Minor Version  
Compatible additions

1.2.4

Patch Version  
Bug fixes

Using an open source package

**A closer look at packages**

Package resolution in more detail

Updating packages

Resolving package conflicts

Using an open source package

A closer look at packages

**Package resolution in more detail**

Updating packages

Resolving package conflicts

Lunch | Build Lunch: **Succeeded** | Today at 10:57 PM

Info Build Settings **Swift Packages**

**PROJECT**

- Lunch

**TARGETS**

- Lunch

**Swift Package Dependencies**

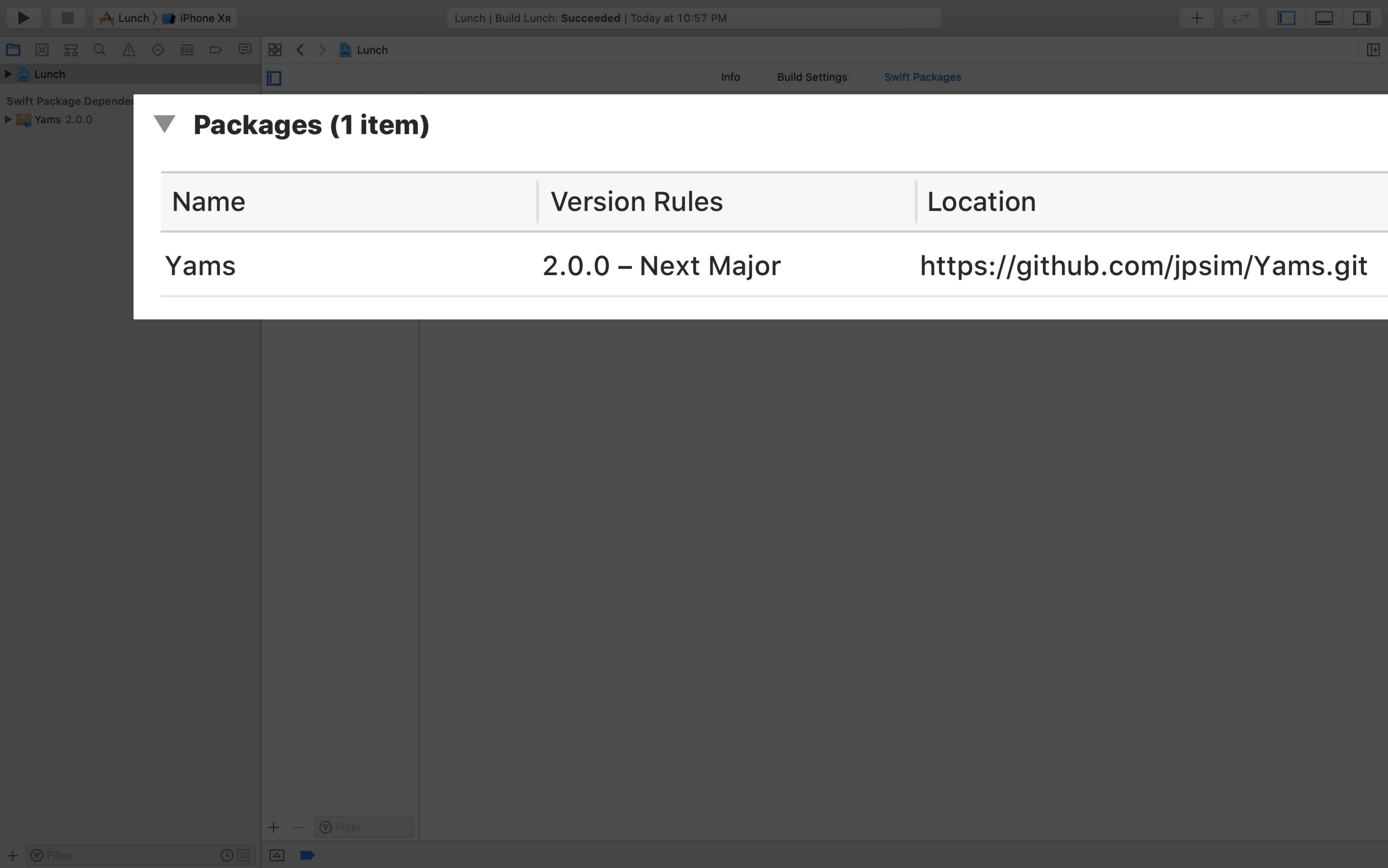
- Yams 2.0.0

**▼ Packages (1 item)**

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>

+ -

+ - Filter



▼ **Packages (1 item)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>



Lunch | Build Lunch: **Succeeded** | Today at 10:57 PM

Info Build Settings **Swift Packages**

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- Yams 2.0.0

**▼ Packages (1 item)**

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+ -

+ - Filter

Version Rules	Location
2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>

## Swift Package Dependencies

▶  **Yams 2.0.0**

+ -

+ - Filter

+ - Filter



Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0 ✓

2.0.0 up to next major

### Swift Package Dependencies

▶  Yams 2.0.0

#### ▼ Packages (1 item)

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Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>



Lunch



Yams

1.0.0

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2.0.0 up to next major

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Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0

2.1.0 ✓

2.0.0 up to next major

### Swift Package Dependencies

▶  Yams 2.1.0

#### ▼ Packages (1 item)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>



Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0

2.1.0 ✓

2.0.0 up to next major

### Swift Package Dependencies

▶  Yams 2.1.0

#### ▼ Packages (1 item)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>



Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0

2.1.0 ✓

3.0.0

2.0.0 up to next major

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▶  Yams 2.1.0

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Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0

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3.0.0

2.0.0 up to next major

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Lunch



Yams

1.0.0

1.0.1

1.0.2

2.0.0 ✓

2.0.0 up to next major

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Lunch



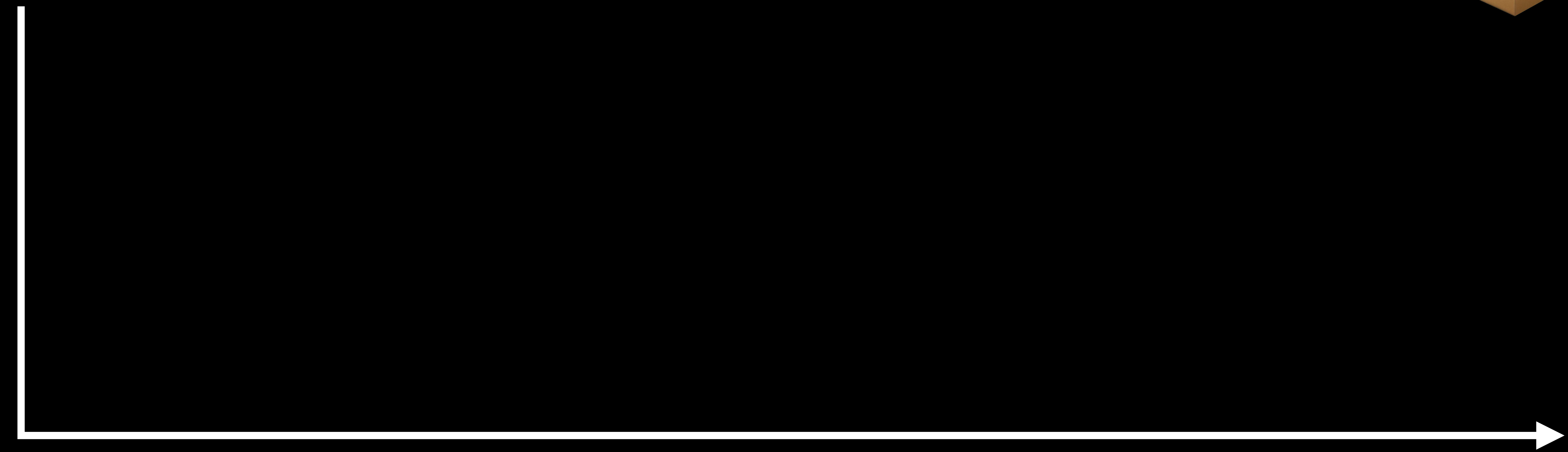
Yams

1.0.0

1.0.1

1.0.2

2.0.0 ✓



2.0.0 up to next major

### Swift Package Dependencies

▶  Yams 2.0.0

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Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>



Lunch



Yams

2.0.0 

## Swift Package Dependencies

▶  Yams 2.0.0

### ▼ Packages (1 item)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>

Lunch | Preview Lunch: Succeeded | Today at 11:32 PM

Lunch > Lunch > FoodItemListView.swift > No Selection

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift**
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0

Central Cafe

- Chirashi combo  
\$14.00
- Open-faced Croque Madame  
\$7.00
- Fried tri-tip with potato salad  
\$9.00
- Peanut curry beef  
\$9.00
- Chicken saag  
\$9.00
- Paneer saag  
\$7.00
- Chicken shawarma salad  
\$9.00

North Cafe

- Salad  
\$7.00

South Cafe

- Crispy tofu  
\$8.00
- Chinese Five Spice duck  
\$10.00
- Mushroom and Swiss burger  
\$8.00
- Miso cod lettuce wraps  
\$10.00
- Asparagus tart  
\$7.00
- Loaded potato soup

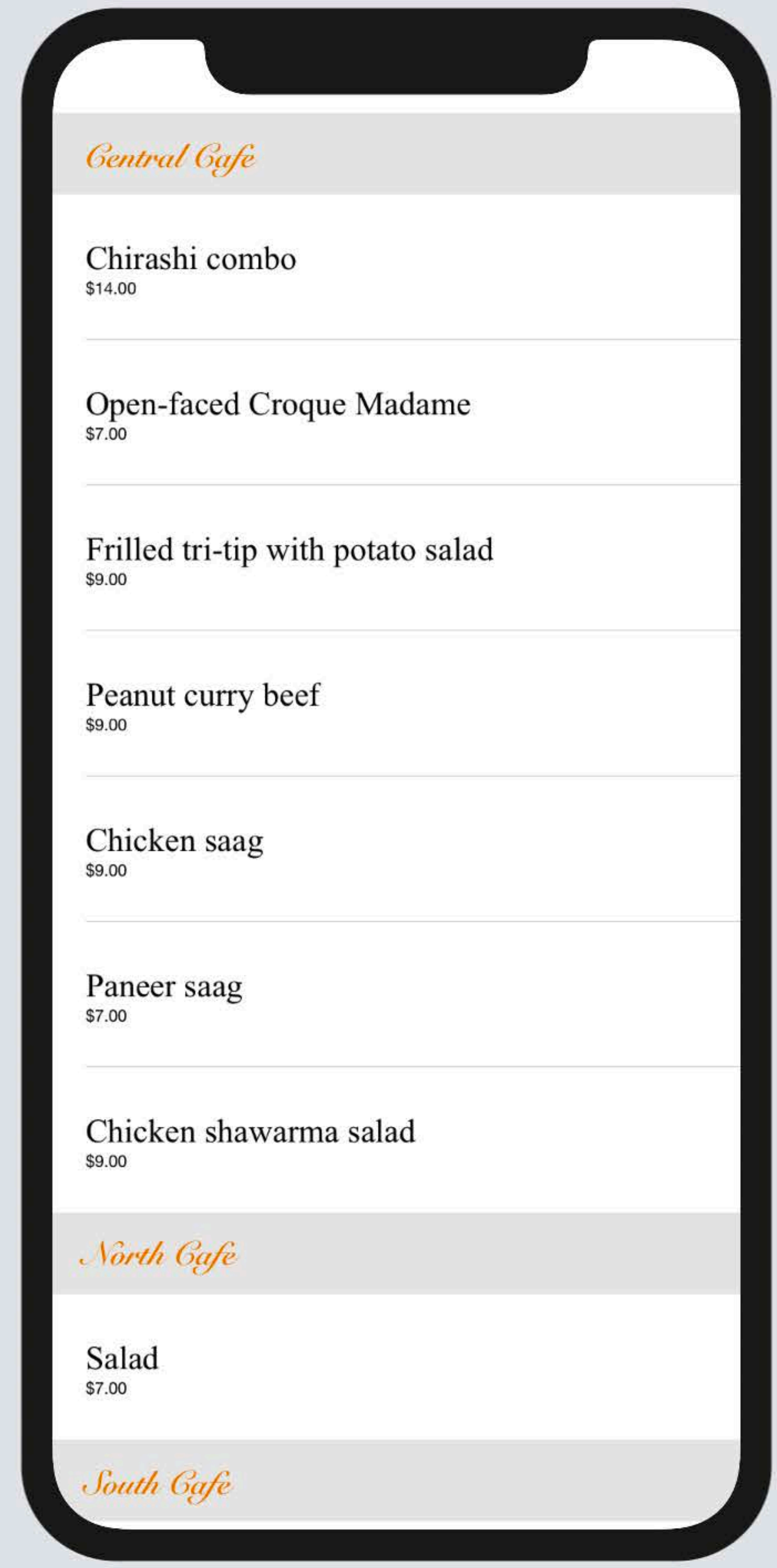
Preview

75%

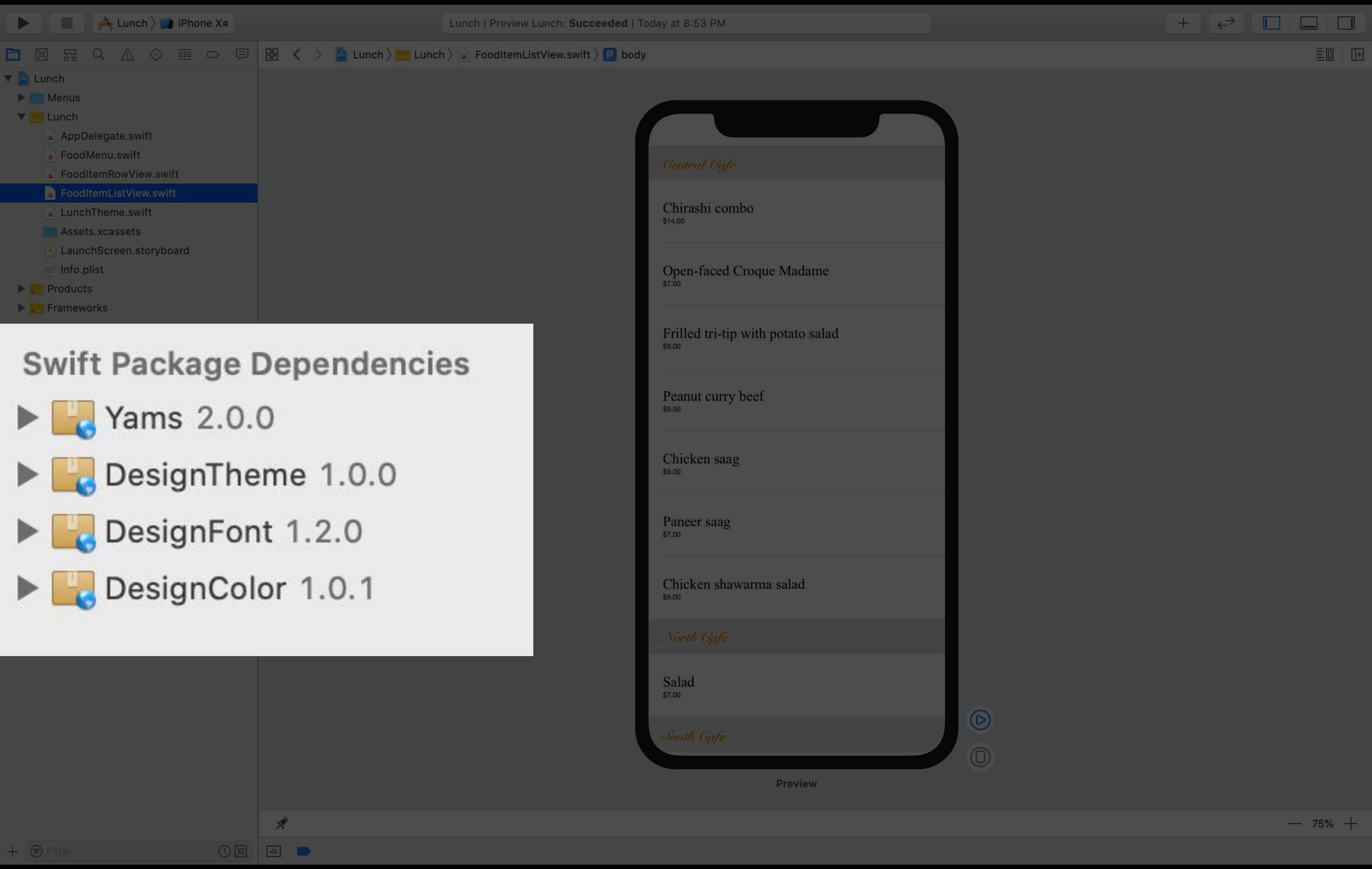


My team has added more  
packages to our app.





- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift**
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 1.0.0
  - DesignFont 1.2.0
  - DesignColor 1.0.1



Preview



## Swift Package Dependencies

- ▶  Yams 2.0.0
- ▶  DesignTheme 1.0.0
- ▶  DesignFont 1.2.0
- ▶  DesignColor 1.0.1

*Central Cafe*

Chirashi combo  
\$14.00

Open-faced Croque Madame  
\$7.00

Fried tri-tip with potato salad  
\$9.00

Peanut curry beef  
\$9.00

Chicken saag  
\$9.00

Paneer saag  
\$7.00

Chicken shawarma salad  
\$9.00

*North Cafe*

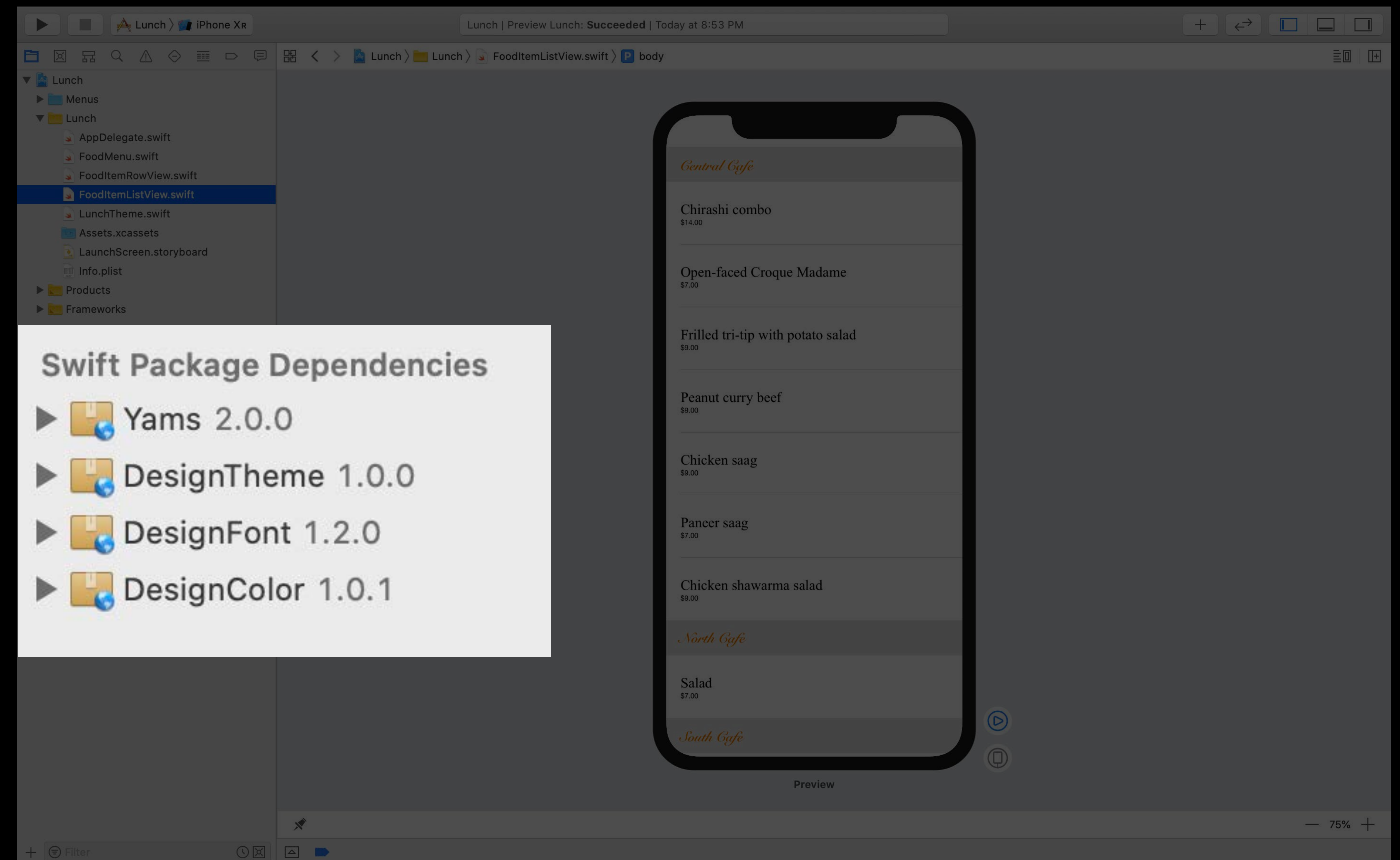
Salad  
\$7.00

*South Cafe*

Preview

75%

# Where are these packages coming from?





▼ Lunch

- AppDelegate.swift
  - FoodMenu.swift
  - FoodItemRowView.swift
  - FoodItemListView.swift**
  - LunchTheme.swift
  - Assets.xcassets
  - LaunchScreen.storyboard
  - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
- Yams 2.0.0
  - DesignTheme 1.0.0
  - DesignFont 1.2.0
  - DesignColor 1.0.1

Lunch > Lunch > FoodItemListView.swift > body

The preview shows a mobile application interface for a restaurant menu. It features three sections: 'Central Cafe', 'North Cafe', and 'South Cafe'. Each section contains a list of food items with their names and prices. The items are: Chirashi combo (\$14.00), Open-faced Croque Madame (\$7.00), Frilled tri-tip with potato salad (\$9.00), Peanut curry beef (\$9.00), Chicken saag (\$9.00), Paneer saag (\$7.00), and Chicken shawarma salad (\$9.00). The 'South Cafe' section only shows 'Salad' for \$7.00. The interface is clean and modern, with a white background and black text. The preview is shown on an iPhone XR device frame.

▼ Lunch

- AppDelegate.swift
- FoodMenu.swift
- FoodItemRowView.swift
- FoodItemListView.swift**
- LunchTheme.swift
- Assets.xcassets
- LaunchScreen.storyboard
- Info.plist
- Products
- Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 1.0.0
  - DesignFont 1.2.0
  - DesignColor 1.0.1

Lunch > Lunch > FoodItemListView.swift > body

*Central Cafe*

Chirashi combo  
\$14.00

Open-faced Croque Madame  
\$7.00

Frilled tri-tip with potato salad  
\$9.00

Peanut curry beef  
\$9.00

Chicken saag  
\$9.00

Paneer saag  
\$7.00

Chicken shawarma salad  
\$9.00

*North Cafe*

Salad  
\$7.00

*South Cafe*

Preview

- ▼ Lunch
  - ▶ Menus
  - ▼ Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - ▶ Products
  - ▶ Frameworks
- Swift Package Dependencies
  - ▶ Yams 2.0.0
  - ▶ DesignTheme 1.0.0
  - ▶ DesignFont 1.2.0
  - ▶ DesignColor 1.0.1

PROJECT

- Lunch

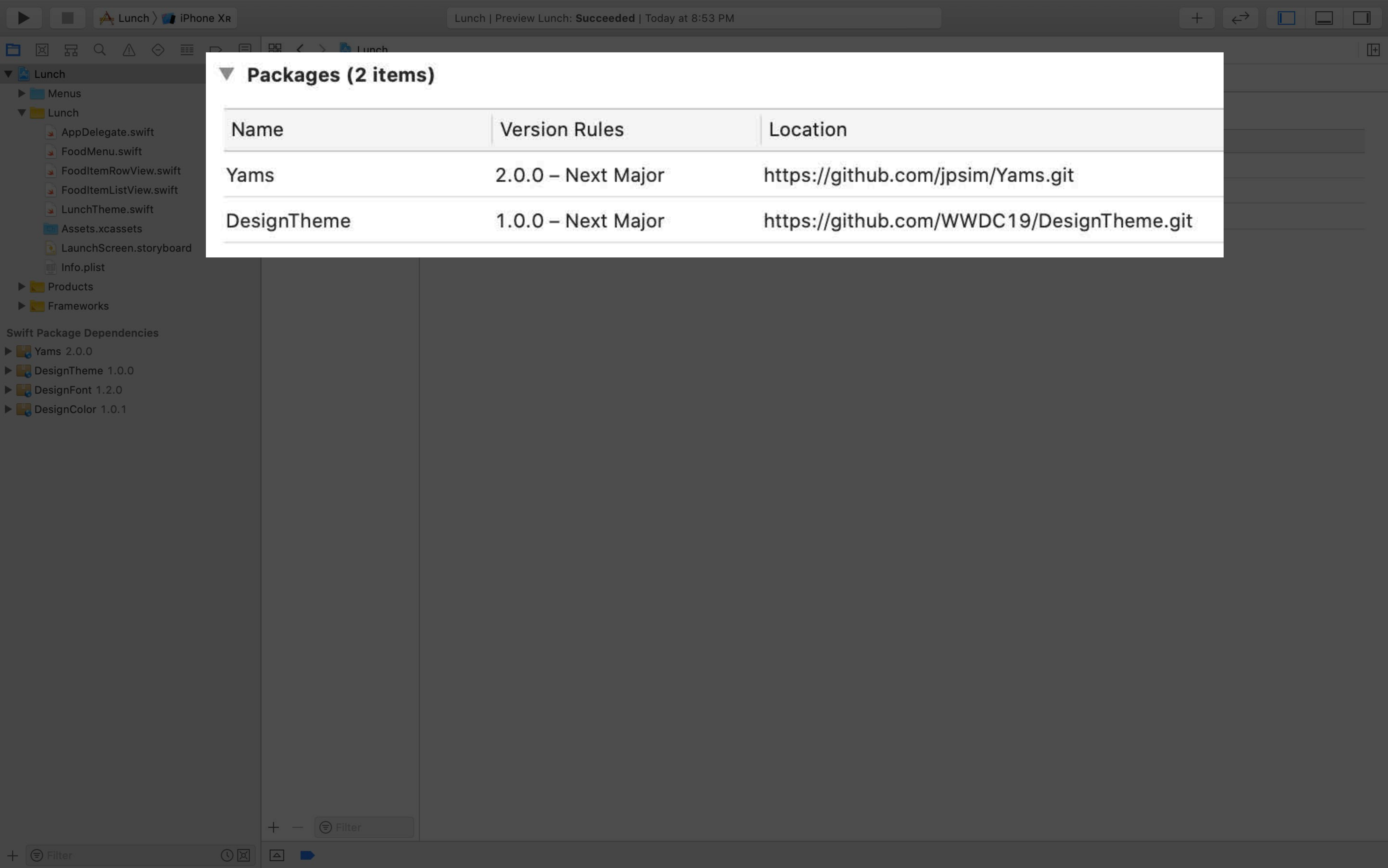
TARGETS

- Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 - Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -



▼ Packages (2 items)

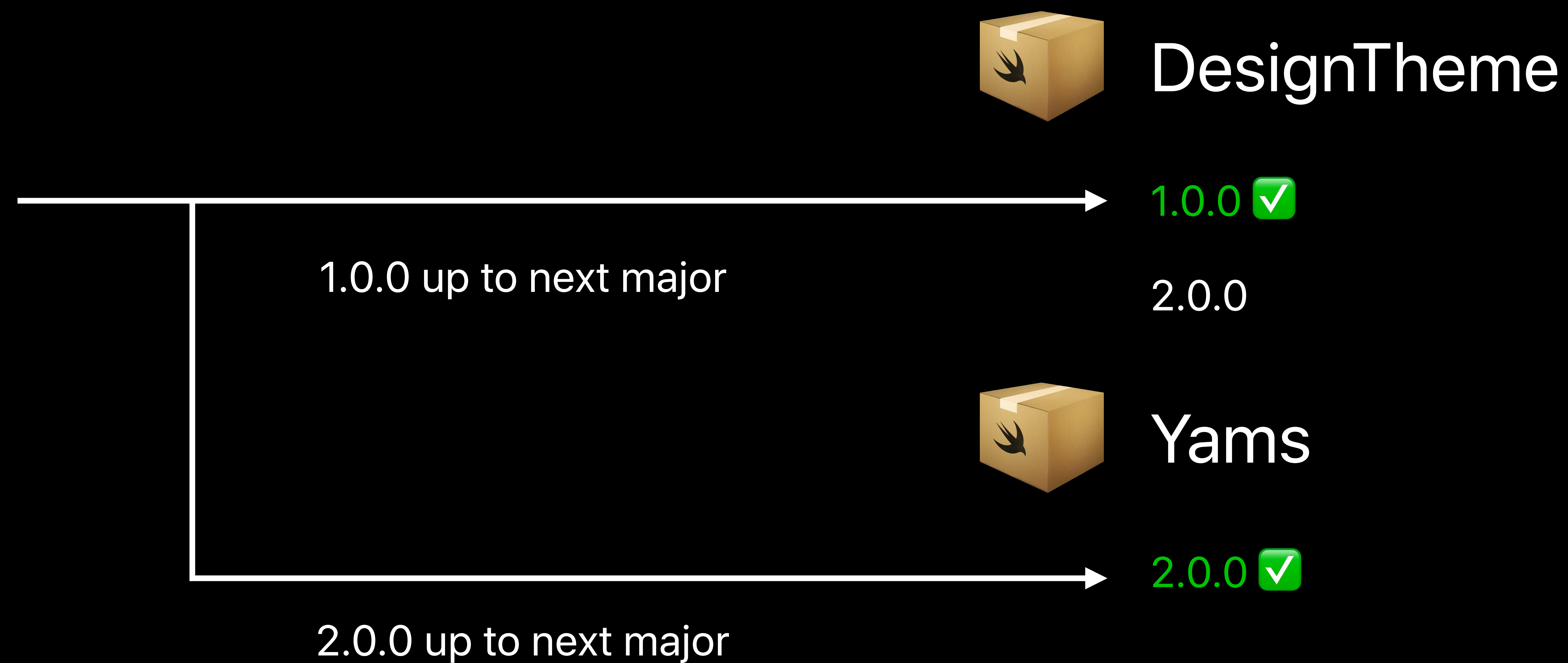
Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 - Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

▼ Packages (2 items)

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Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>



Lunch

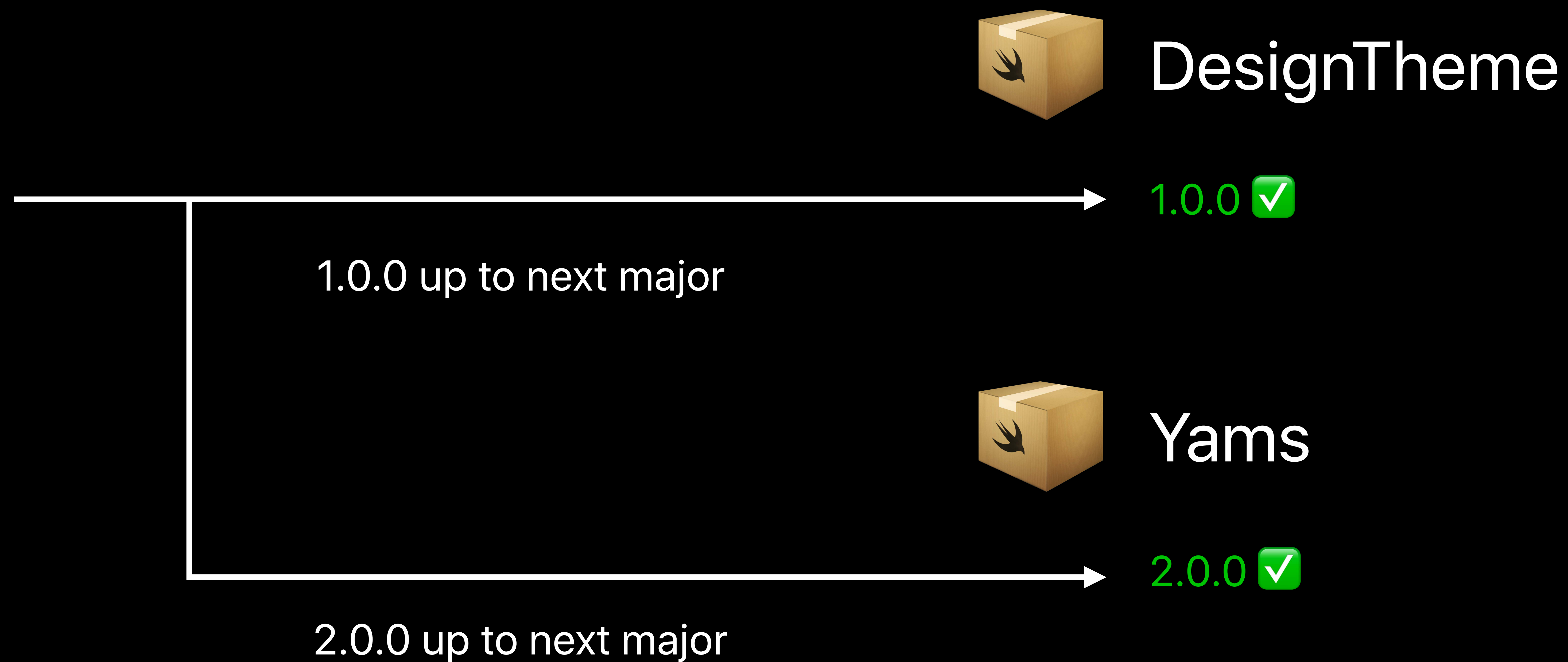


▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>





Lunch



▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

### Swift Package Dependencies

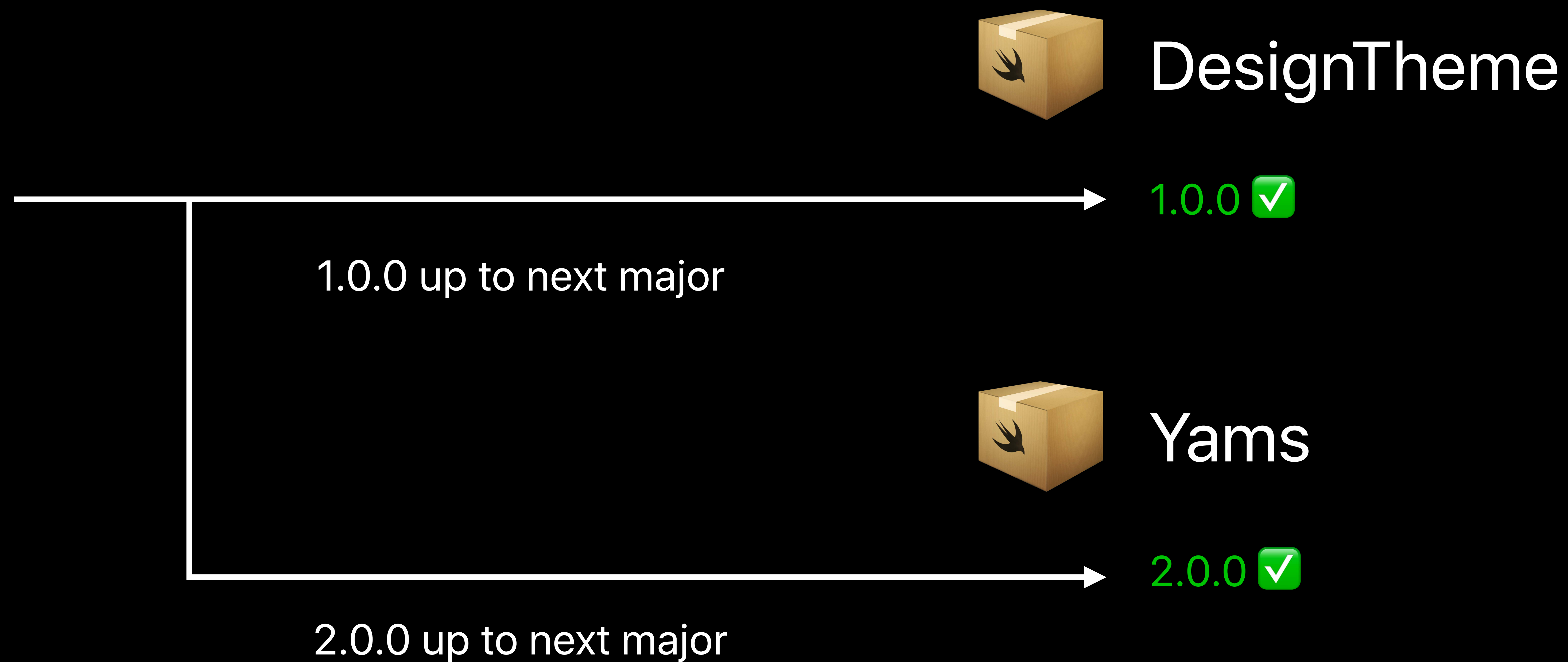
- ▶  Yams 2.0.0
- ▶  DesignTheme 1.0.0
- ▶  DesignFont 1.2.0
- ▶  DesignColor 1.0.1

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>



Lunch



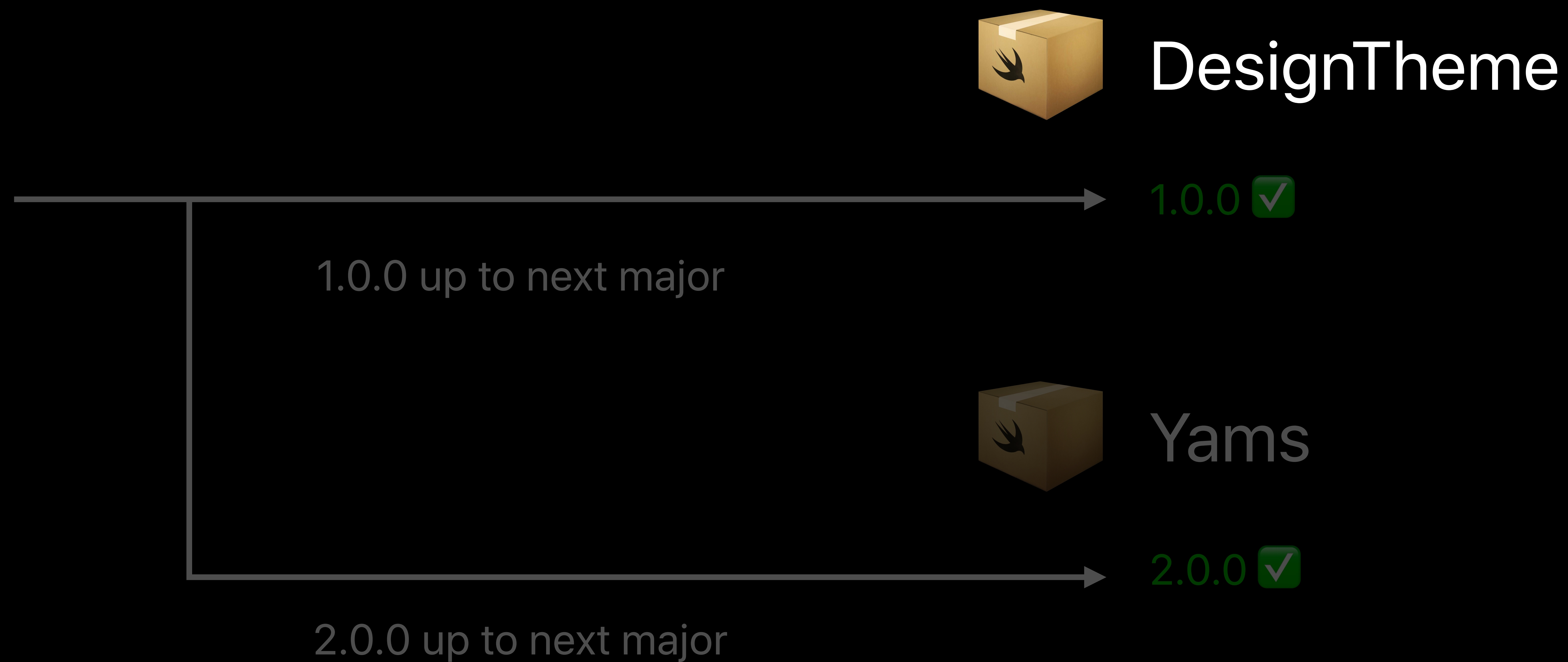


▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>



Lunch



Lunch | Preview Lunch: **Succeeded** | Today at 8:53 PM

Info Build Settings **Swift Packages**

**PROJECT**

- Lunch

**TARGETS**

- Lunch



**Swift Package Dependencies**

- Yams 2.0.0
- DesignTheme 1.0.0
- DesignFont 1.2.0
- DesignColor 1.0.1

**▼ Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>


+ - Filter





  **DesignTheme 1.0.0**

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

▼  **DesignTheme 1.0.0**

-  **README.md**
-  **Package.swift**
- ▶  **Sources**
- ▶  **Tests**

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
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+ -

Lunch | Preview Lunch: **Succeeded** | Today at 8:53 PM

Lunch

Info Build Settings Swift Packages

DesignTheme 1.0.0

README.md

**Package.swift**

Sources

Tests

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
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+ - Filter

Lunch | Preview Lunch: **Succeeded** | Today at 8:53 PM

Lunch

Info Build Settings Swift Packages

DesignTheme 1.0.0

README.md

**Package.swift**

Sources

Tests

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ - Filter

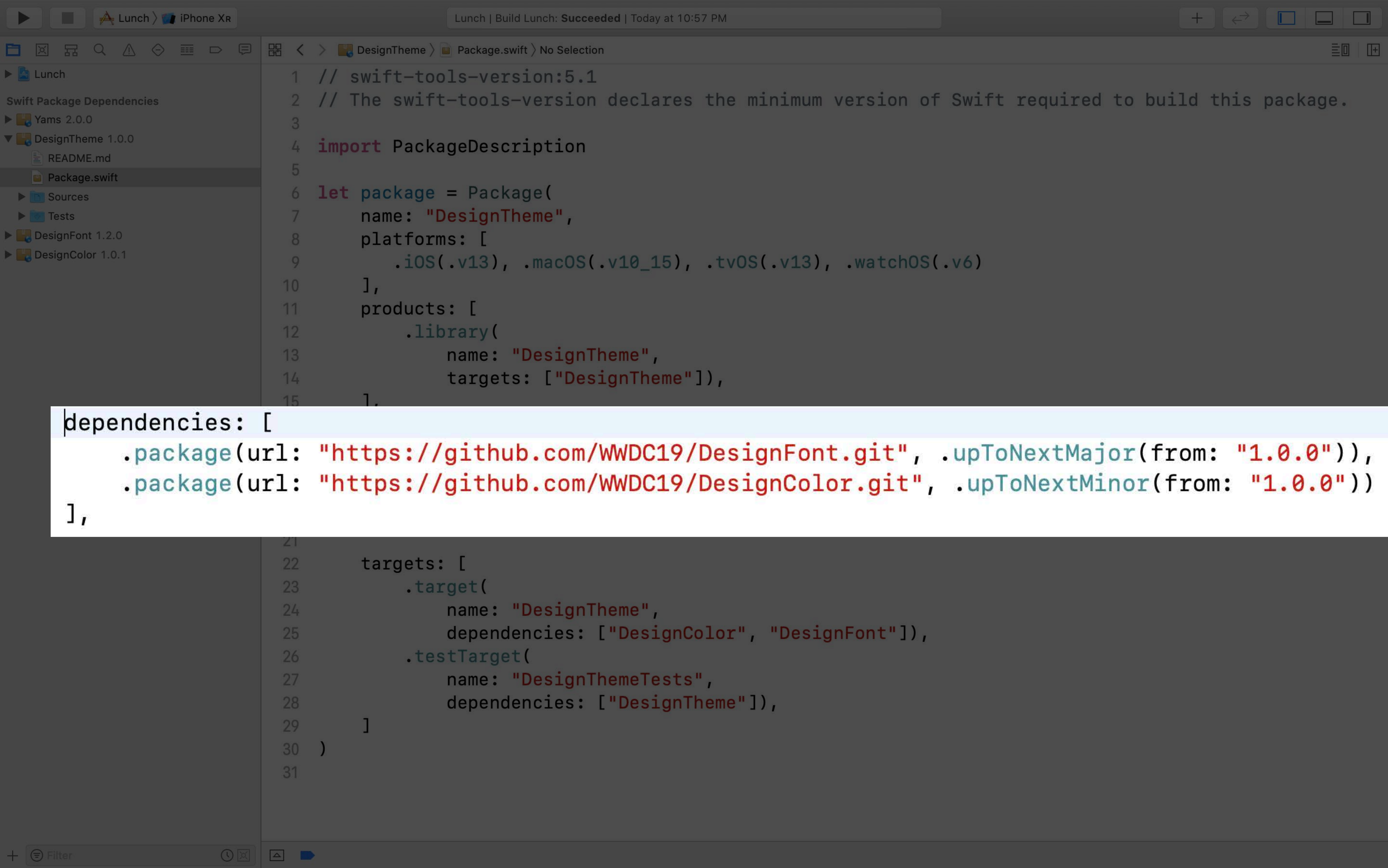
+ Filter

Lunch | Build Lunch: Succeeded | Today at 10:57 PM

DesignTheme > Package.swift > No Selection

```
1 // swift-tools-version:5.1
2 // The swift-tools-version declares the minimum version of Swift required to build this package.
3
4 import PackageDescription
5
6 let package = Package(
7     name: "DesignTheme",
8     platforms: [
9         .iOS(.v13), .macOS(.v10_15), .tvOS(.v13), .watchOS(.v6)
10    ],
11    products: [
12        .library(
13            name: "DesignTheme",
14            targets: ["DesignTheme"]),
15    ],
16
17    dependencies: [
18        .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),
19        .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))
20    ],
21
22    targets: [
23        .target(
24            name: "DesignTheme",
25            dependencies: ["DesignColor", "DesignFont"]),
26        .testTarget(
27            name: "DesignThemeTests",
28            dependencies: ["DesignTheme"]),
29    ]
30 )
31
```

Filter







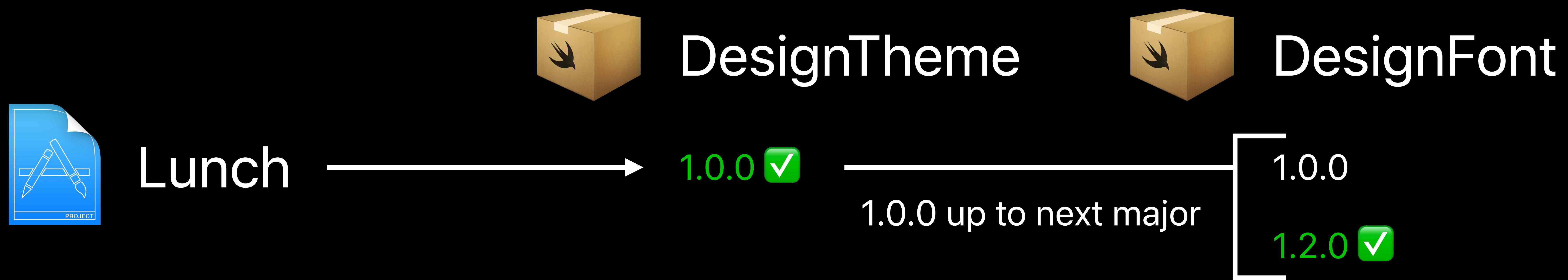
Lunch



DesignTheme

1.0.0 ✓

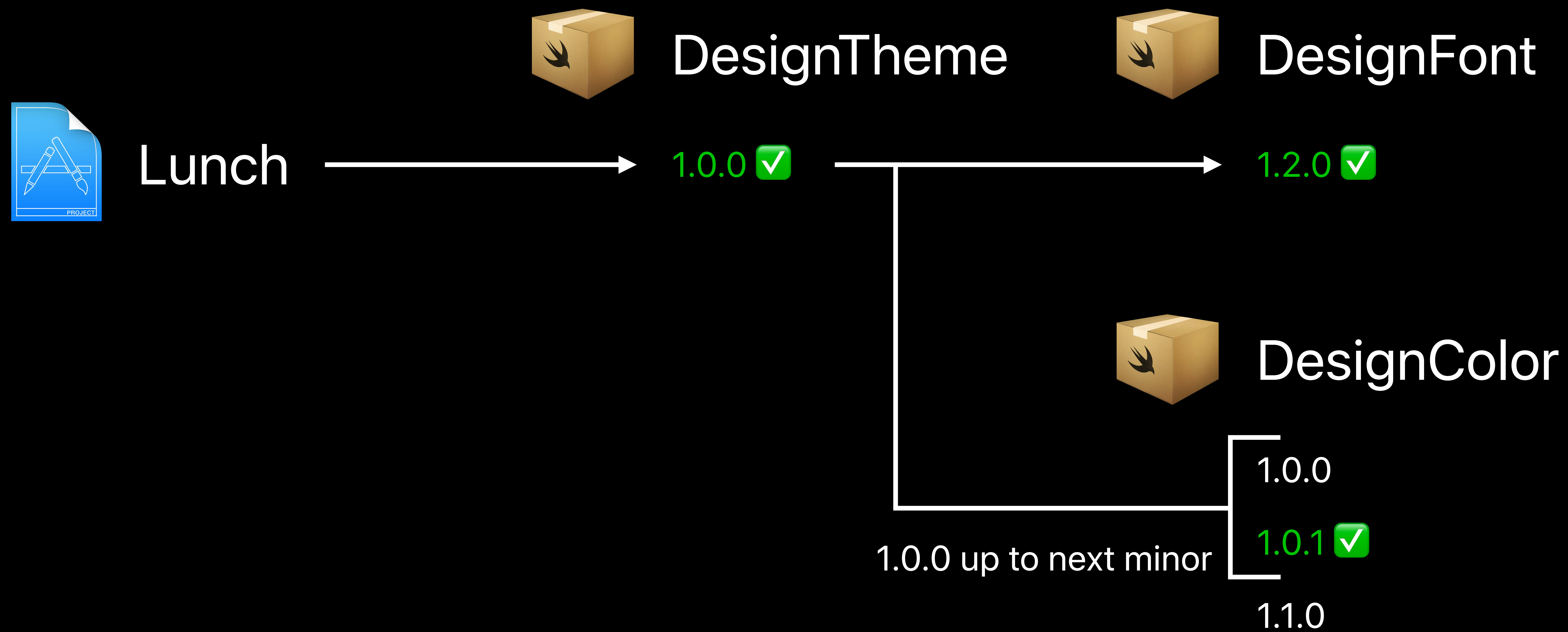
```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```



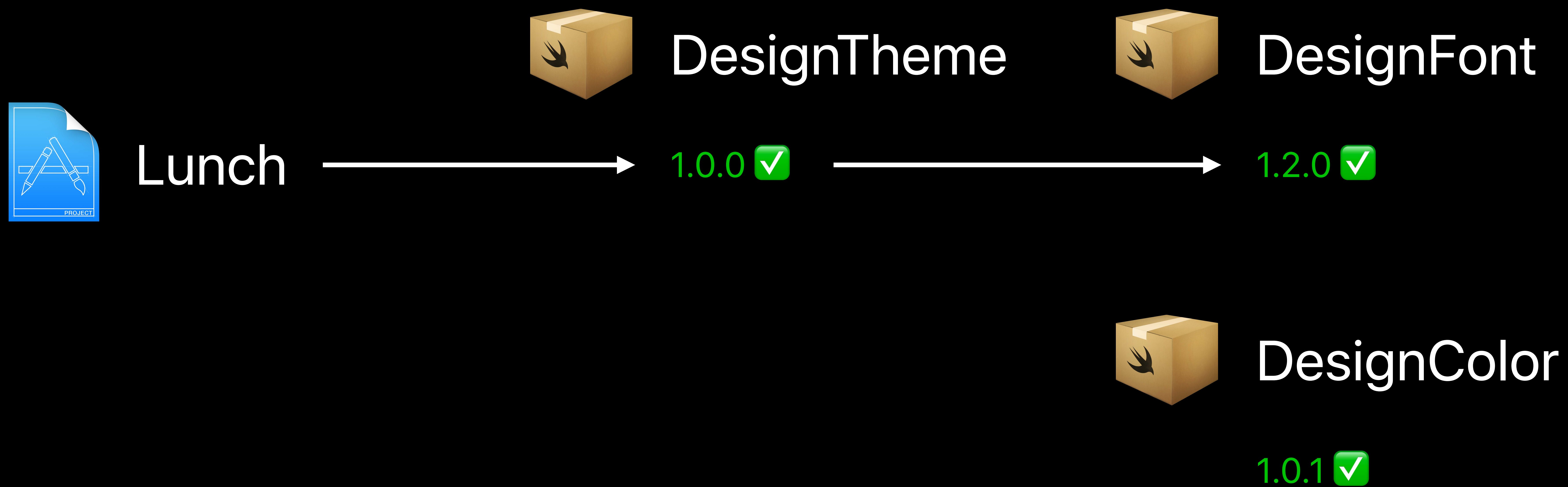
```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```



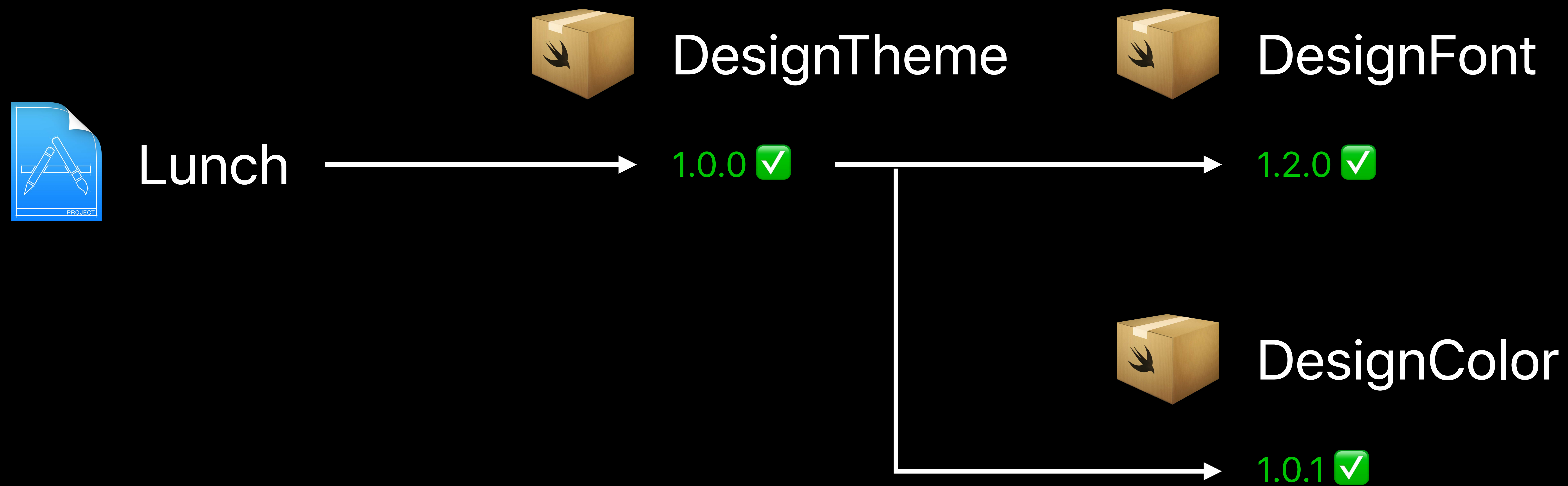
```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```



```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```



```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```



```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "1.0.0")),  
  .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))  
],
```

# Importing Package Dependencies

```
import Yams
```



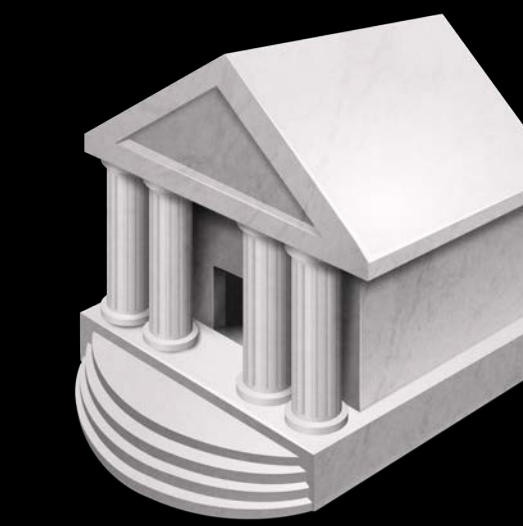
DesignFont



DesignTheme



DesignFont



DesignTheme



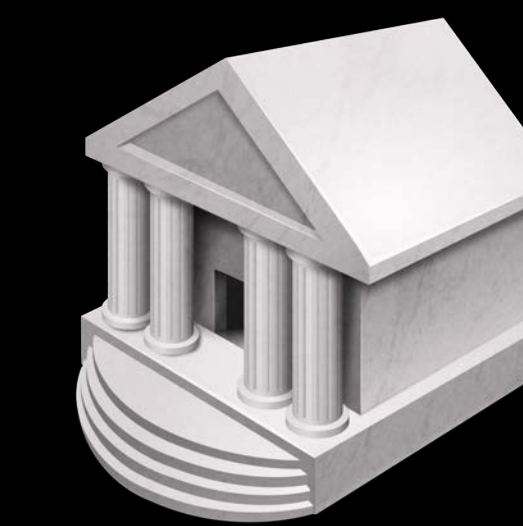
DesignColor



Yams



DesignColor



Yams

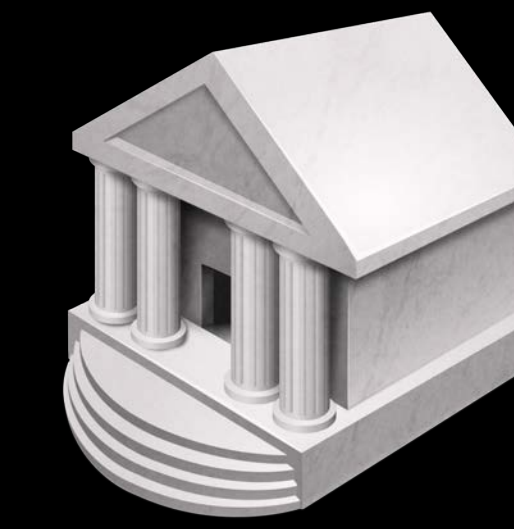




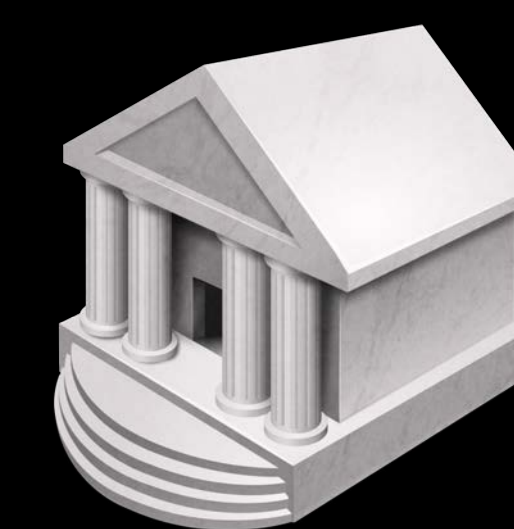
Lunch



import

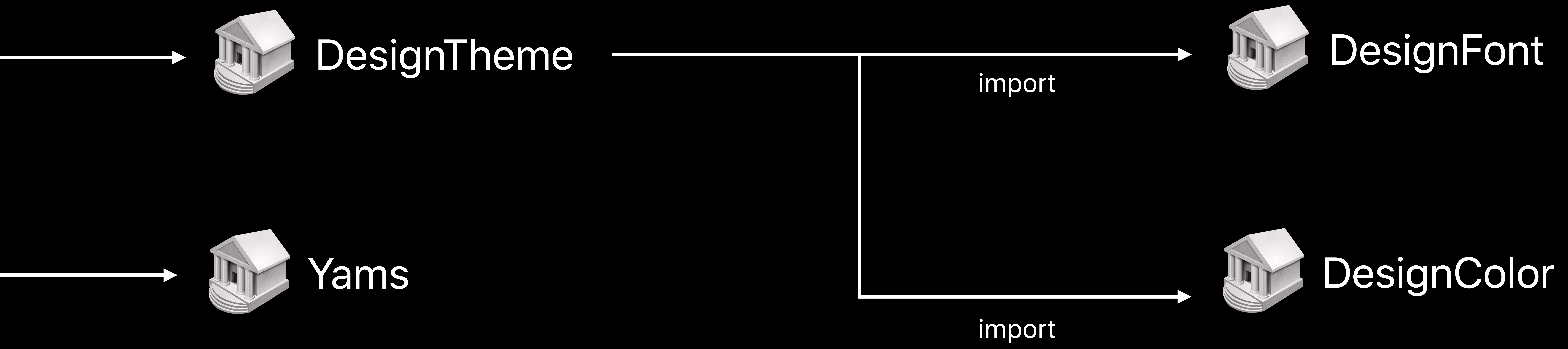


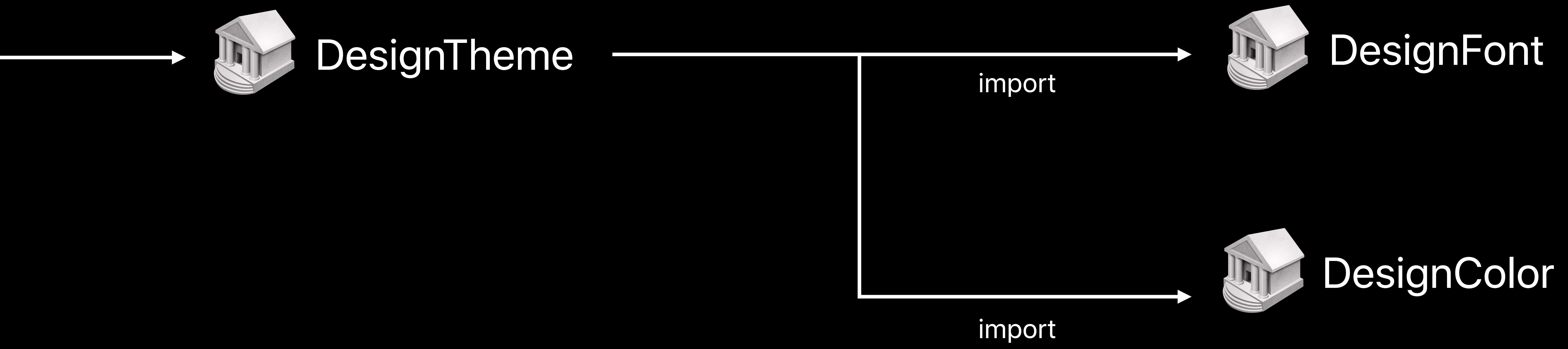
DesignTheme



Yams

import







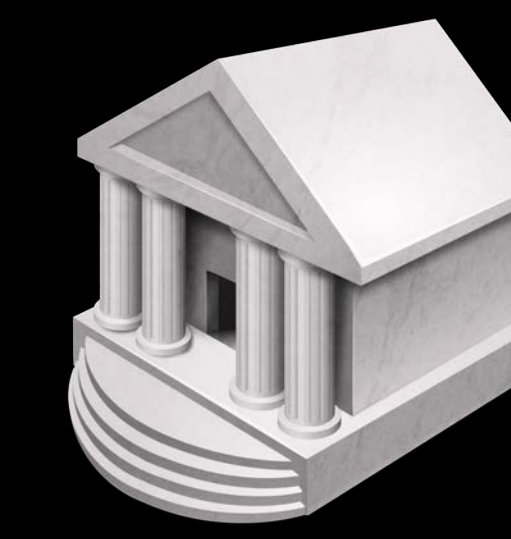
Lunch

import



DesignTheme

import



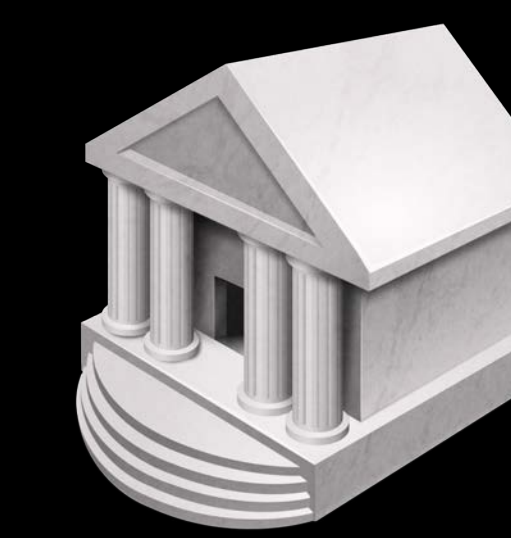
DesignFont

import

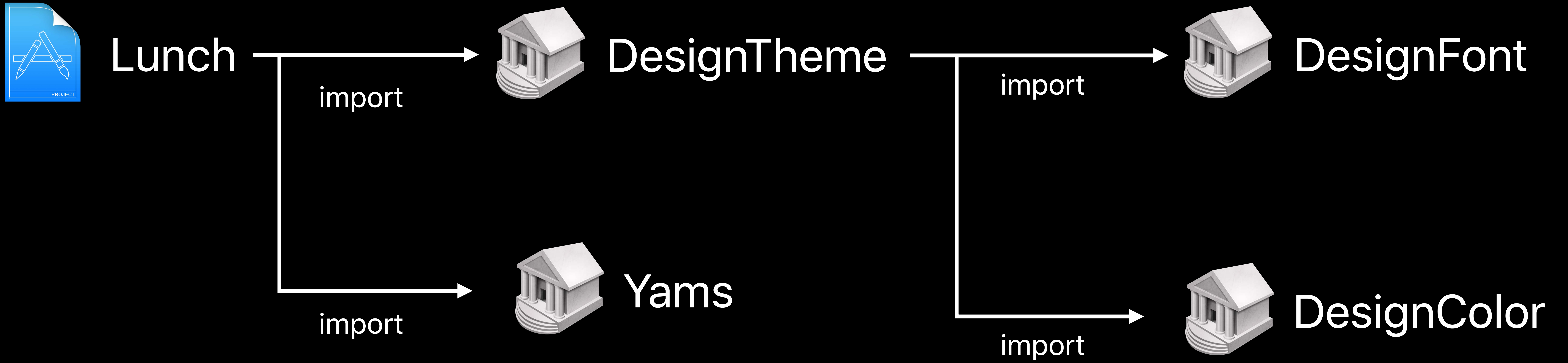


Yams

import



DesignColor





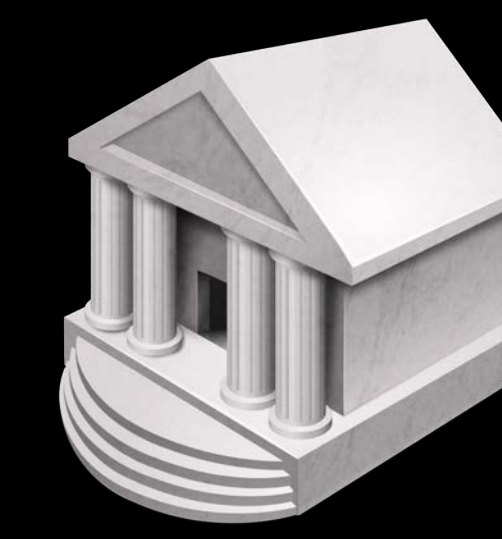
Lunch

import



DesignTheme

import



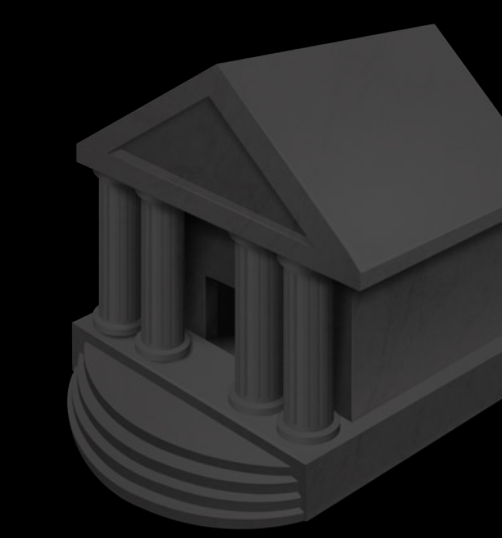
DesignFont

import

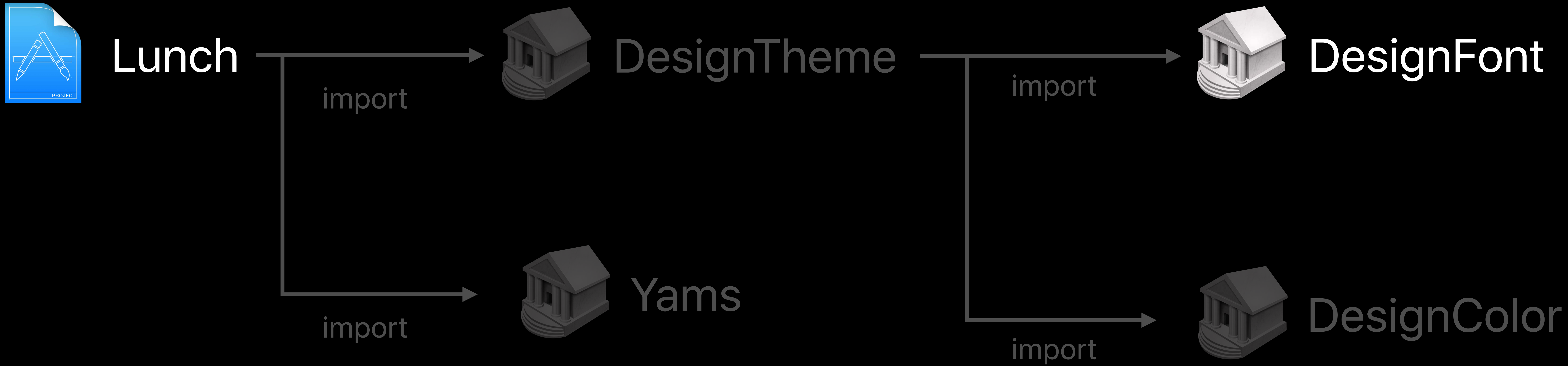


Yams

import



DesignColor





Lunch



DesignTheme



DesignFont



Lunch



DesignTheme



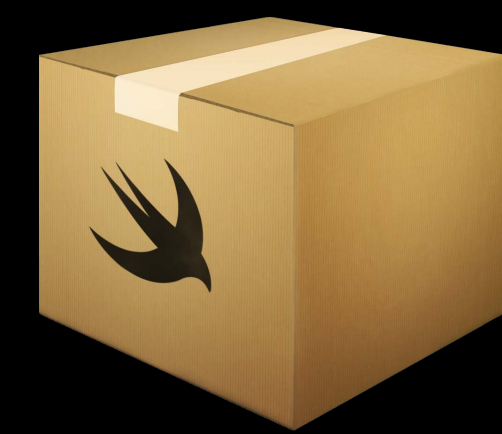
DesignFont



DesignFont



Lunch



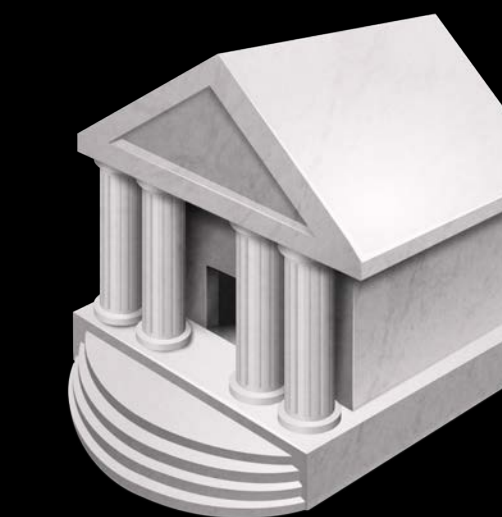
DesignTheme



DesignFont



import



DesignFont





Lunch



DesignTheme



import



DesignFont



Lunch



DesignTheme



import



DesignFont



Lunch



DesignTheme



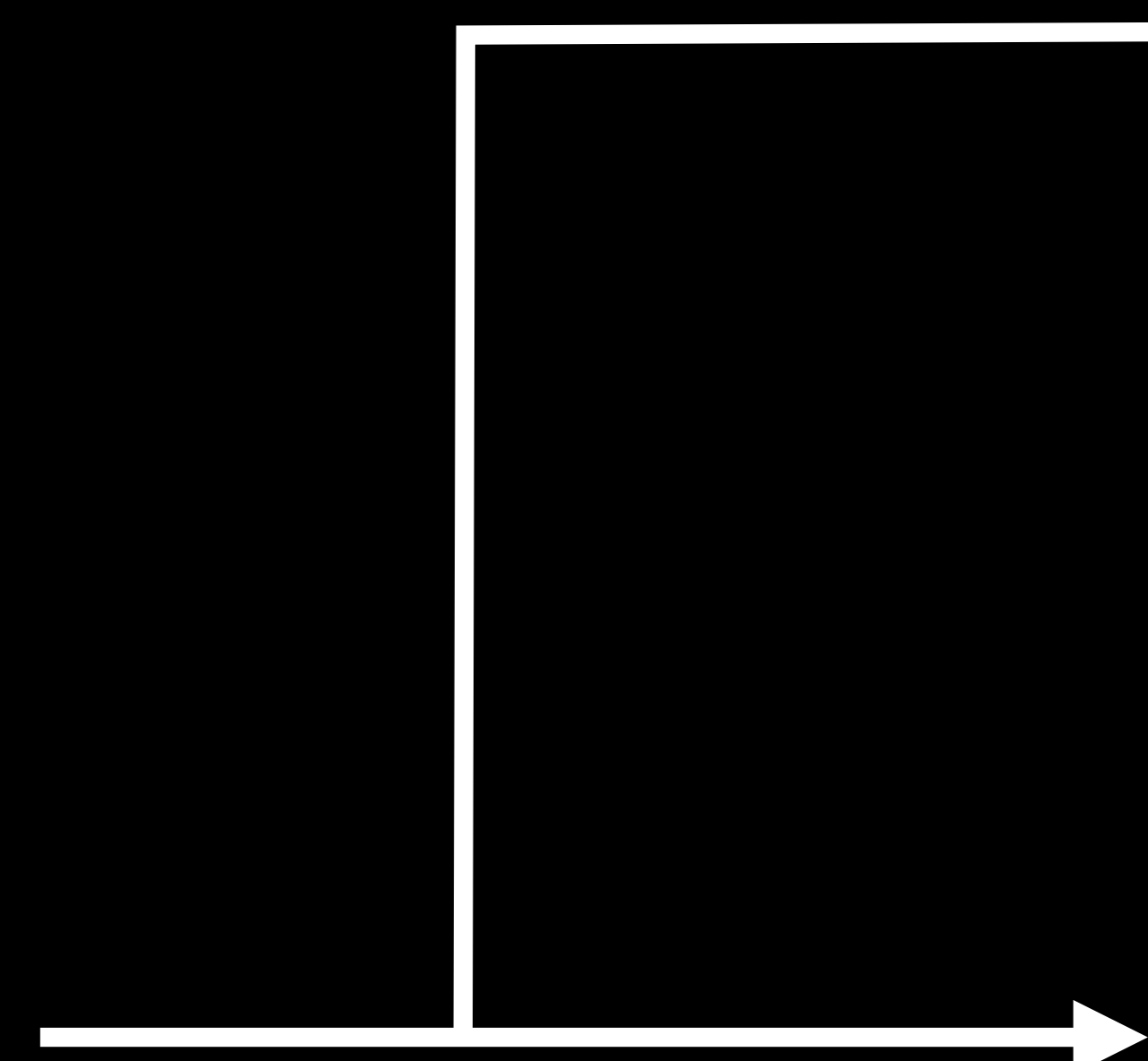
DesignFont



DesignFont



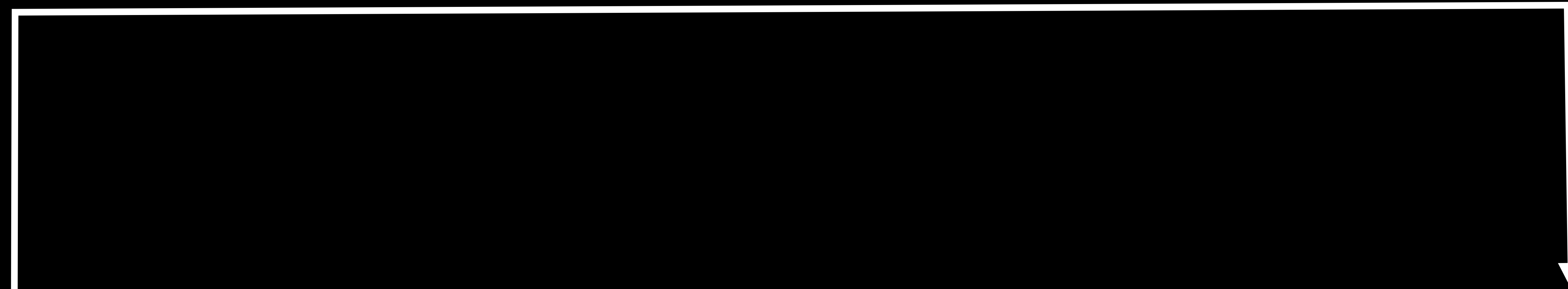
Lunch



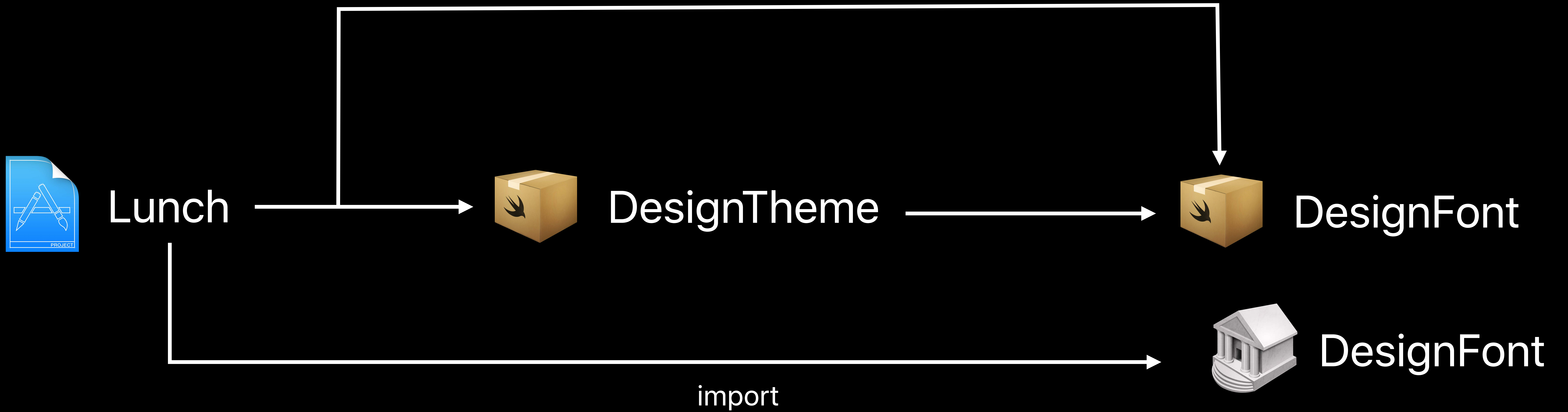
DesignTheme



DesignFont

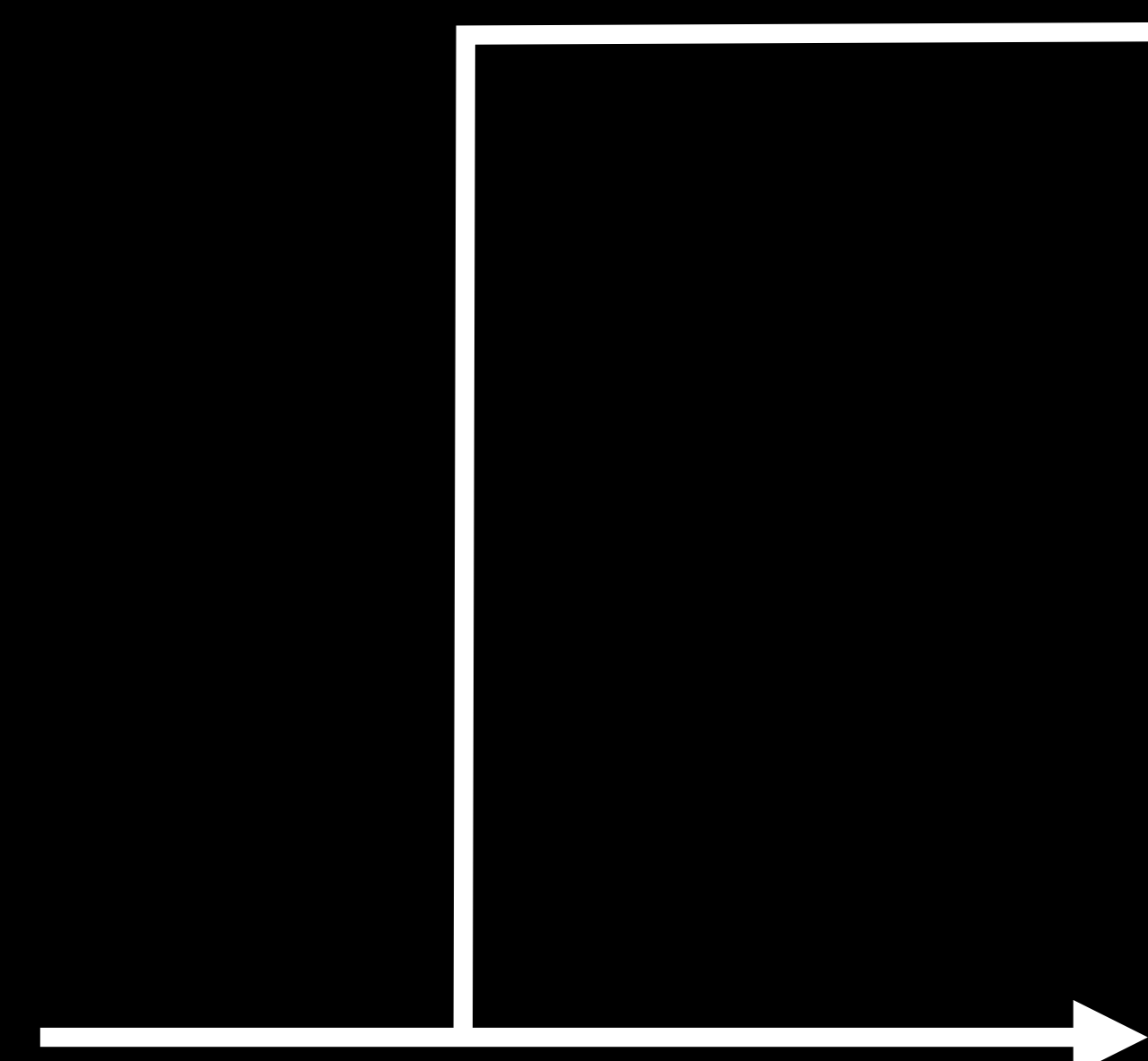


DesignFont





Lunch



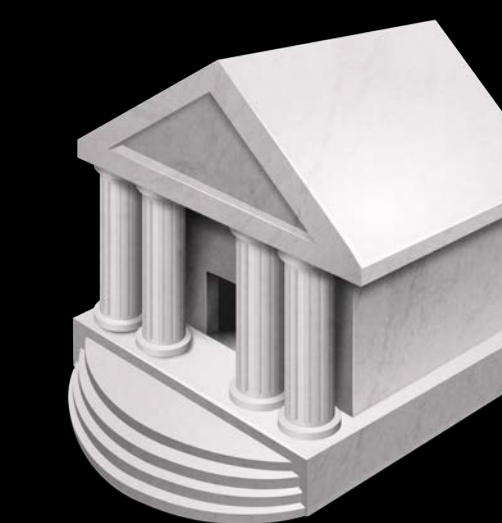
DesignTheme



DesignFont



import



DesignFont

Using an open source package

A closer look at packages

**Package resolution in more detail**

Updating packages

Resolving package conflicts

Using an open source package

A closer look at packages

Package resolution in more detail

**Updating packages**

Resolving package conflicts



There is a new version of DesignFont!

Lunch | Preview Lunch: **Succeeded** | Today at 11:32 PM

Info Build Settings **Swift Packages**

**PROJECT**

- Lunch

**TARGETS**

- Lunch

**Swift Package Dependencies**

- Yams 2.0.0
- DesignTheme 1.0.0
- DesignColor 1.0.1
- DesignFont 1.2.0

**▼ Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

+ - Filter

Lunch | Preview Lunch: **Succeeded** | Today at 11:32 PM

Info Build Settings Swift Packages

PROJECT  
Lunch

Swift Package Dependencies  
Yams 2.0.0  
DesignTheme 1.0.0

**DesignFont 1.2.0**

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ - Filter

Lunch | Preview Lunch: **Succeeded** | Today at 11:32 PM

Info Build Settings **Swift Packages**

**PROJECT**

- Lunch

**TARGETS**

- Lunch

**Swift Package Dependencies**

- Yams 2.0.0
- DesignTheme 1.0.0
- DesignColor 1.0.1
- DesignFont 1.2.0

**▼ Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

+ - Filter

New

Add Files to "Lunch"... ⌘⌘A

Open... ⌘O

Open Recent

Open Quickly... ⇧⌘O

Close Window ⇧⌘W

Close Tab ⌘W

Close Other Editors ⇧⌘⇧⌘W

Close "Lunch.xcodeproj" ⇧⌘W

Close Project ⇧⇧⌘W

Save ⌘S

Duplicate... ⇧⌘S

Revert to Saved...

Unlock...

Export...

Open in New Tab

Open in New Window

Show in Finder

Open with External Editor

Swift Packages

Save As Workspace...

Project Settings...

Page Setup... ⇧⌘P

Print... ⌘P

Lunch | Preview Lunch: Succeeded | Today at 11:32 PM

Info Build Settings Swift Packages

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 - Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

+ - Filter

+ Filter

New

Add Files to "Lunch"... ⌘⌘A

Open... ⌘O

Open Recent

Open Quickly... ⌘⇧O

Close Window ⌘⇧W

Close Tab ⌘W

Close Other Editors ⌘⇧⌘W

Close "Lunch.xcodeproj" ⌘⇧W

Close Project ⌘⇧⇧W

Save ⌘S

Duplicate... ⌘⇧S

Revert to Saved...

Unlock...

Export...

Open in New Tab

Open in New Window

Show in Finder

Open with External Editor

Swift Packages

Save As Workspace...

Project Settings...

Page Setup... ⌘⇧P

Print... ⌘P

Lunch | Preview Lunch: Succeeded | Today at 11:32 PM

Info Build Settings Swift Packages

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	https://github.com/jpsim/Yams.git
DesignTheme	1.0.0 - Next Major	https://github.com/WWDC19/DesignTheme.git

+ -

Add Package Dependency...

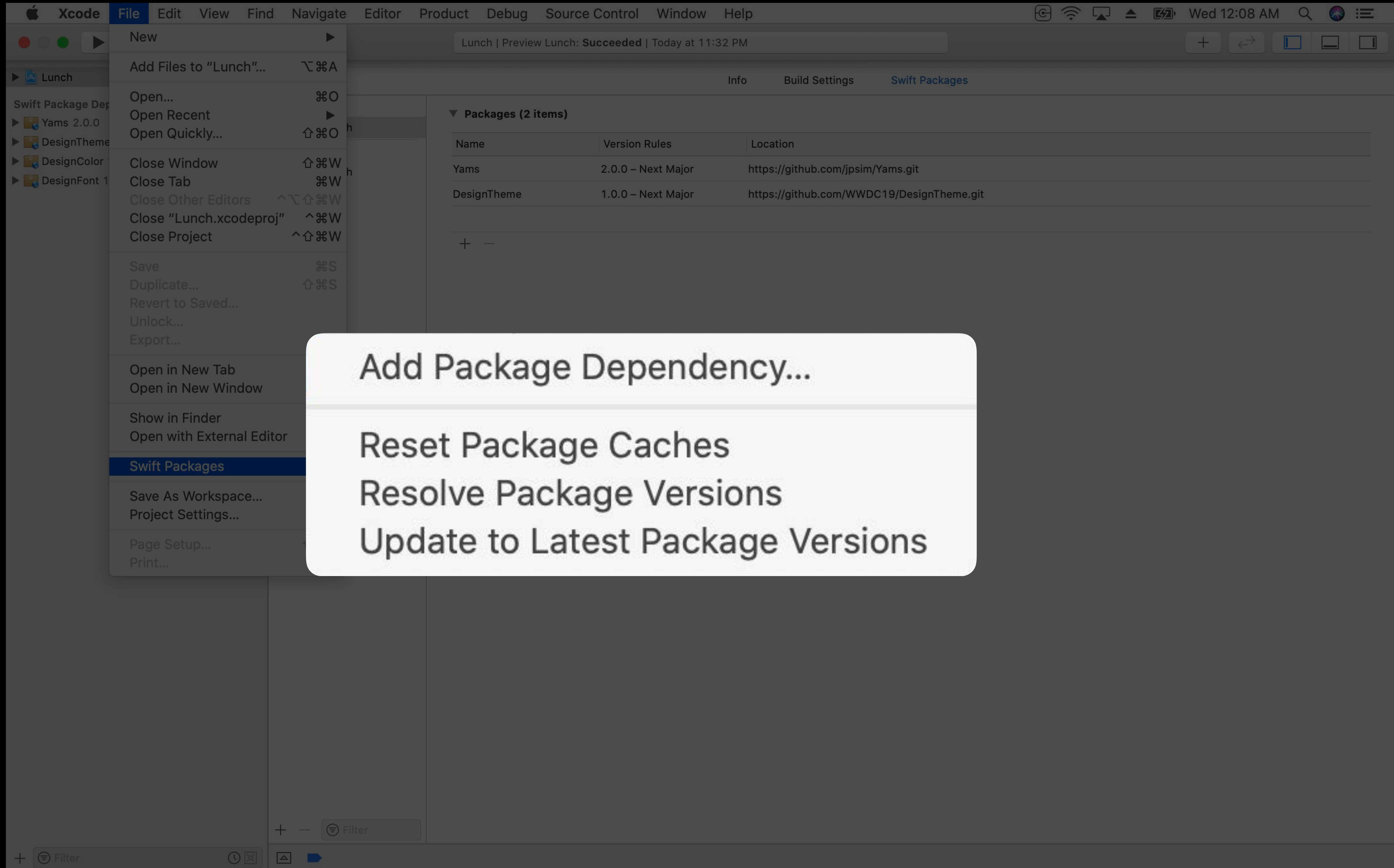
Reset Package Caches

Resolve Package Versions

Update to Latest Package Versions

+ - Filter

+ Filter

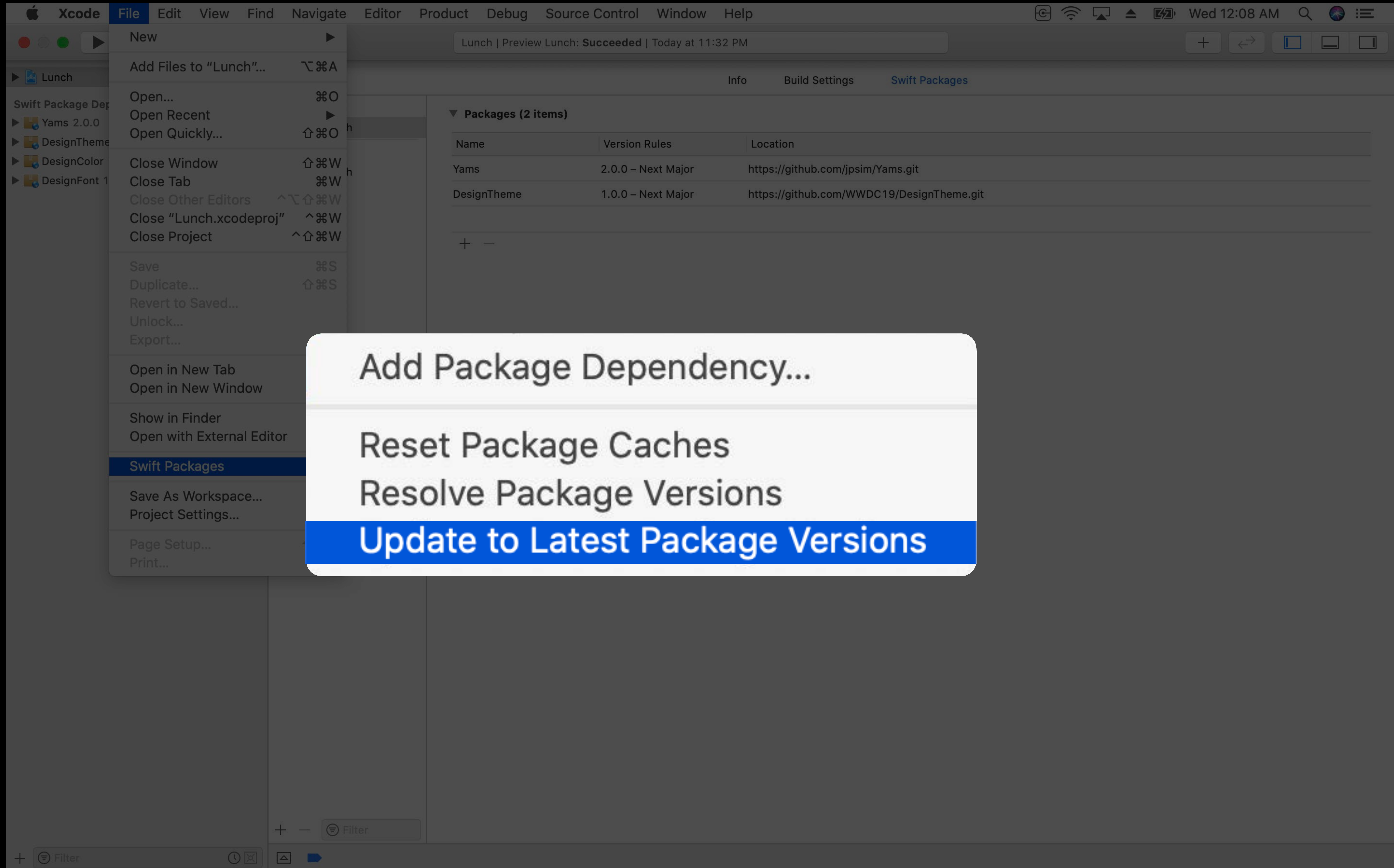


Add Package Dependency...

Reset Package Caches

Resolve Package Versions

Update to Latest Package Versions



Add Package Dependency...

Reset Package Caches

Resolve Package Versions

Update to Latest Package Versions

Lunch | Preview Lunch: Succeeded | Today at 11:32 PM

Info Build Settings Swift Packages

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 - Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help

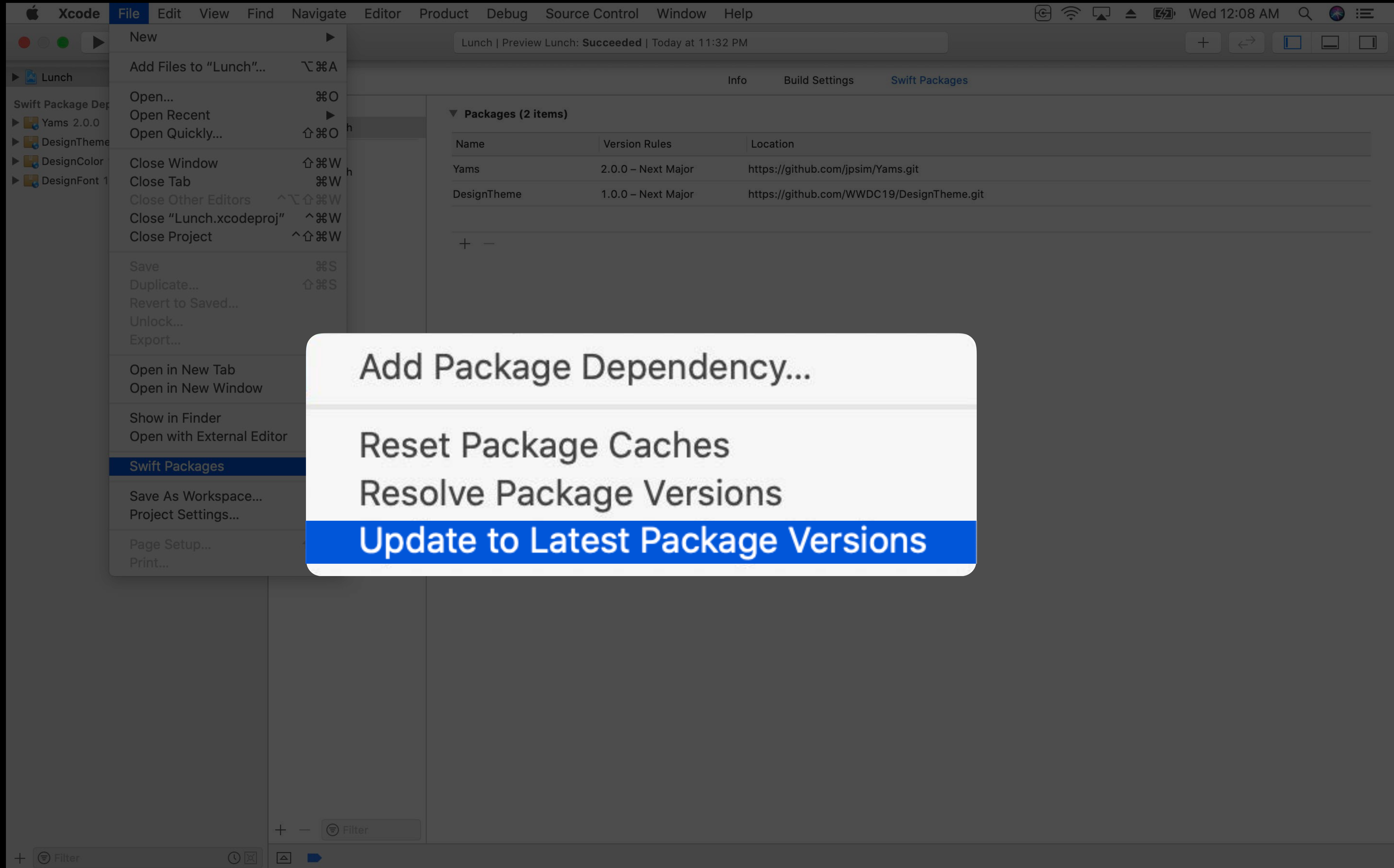
Wed 12:08 AM

- New
- Add Files to "Lunch"...
- Open...
- Open Recent
- Open Quickly...
- Close Window
- Close Tab
- Close Other Editors
- Close "Lunch.xcodeproj"
- Close Project
- Save
- Duplicate...
- Revert to Saved...
- Unlock...
- Export...
- Open in New Tab
- Open in New Window
- Show in Finder
- Open with External Editor
- Swift Packages
- Save As Workspace...
- Project Settings...
- Page Setup...
- Print...

+ - Filter

+ Filter





Add Package Dependency...

Reset Package Caches

Resolve Package Versions

**Update to Latest Package Versions**

Lunch | Preview Lunch: Succeeded | Today at 11:32 PM

Info Build Settings Swift Packages

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
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+ -

Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help

Wed 12:08 AM

New

Add Files to "Lunch"...

Open...

Open Recent

Open Quickly...

Close Window

Close Tab

Close Other Editors

Close "Lunch.xcodeproj"

Close Project

Save

Duplicate...

Revert to Saved...

Unlock...

Export...

Open in New Tab

Open in New Window

Show in Finder

Open with External Editor

Swift Packages

Save As Workspace...

Project Settings...

Page Setup...

Print...

+ - Filter

+ Filter

**Swift Package Dependencies**

- ▶ Yams 2.0.0
- ▶ DesignTheme 1.0.0
- ▶ DesignColor 1.0.1
- ▶ DesignFont 1.2.1

PROJECT

Lunch

TARGETS

Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

Lunch | Preview Lunch: **Succeeded** | Yesterday at 11:32 PM

Info Build Settings Swift Packages

PROJECT  
Lunch

Swift Package Dependencies  
Yams 2.0.0  
DesignTheme 1.0.0

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

+ - Filter

+ - Filter

▶  **DesignFont 1.2.1**

What does updating  
package version do?



Lunch.xcodeproj



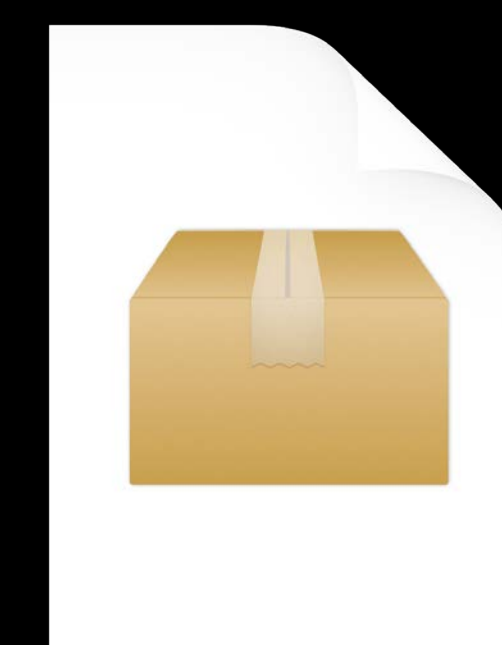
project.xcworkspace



xcshareddata



swiftpm



Package.resolved



Lunch.xcodeproj



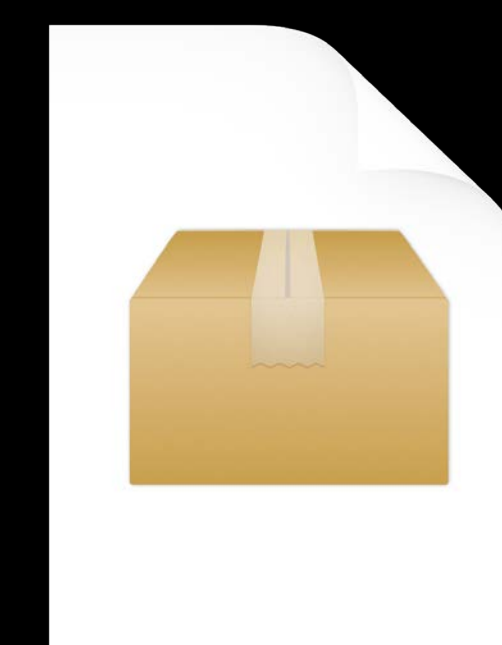
project.xcworkspace



xcshareddata



swiftpm



Package.resolved



Lunch.xcodeproj



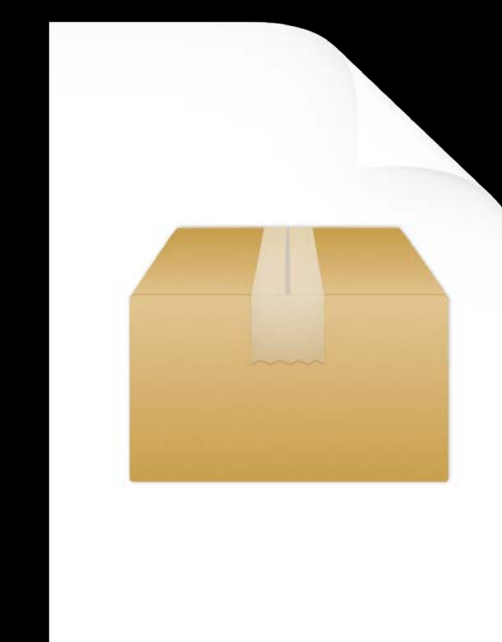
project.xcworkspace



xcshareddata



swiftpm



Package.resolved

**Swift Package Dependencies**

- ▶ Yams 2.0.0
- ▶ DesignTheme 1.0.0
- ▶ DesignColor 1.0.1
- ▶ DesignFont 1.2.1

PROJECT

Lunch

TARGETS

Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -



**Lunch**

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

+ Filter

**PROJECT**

- Lunch

**TARGETS**

- Lunch

+ - Filter

**Source Control**

- Commit... ⌘⌘C
- Push...
- Pull... ⌘⌘X
- Fetch and Refresh Status
- Cherry-Pick...
- Stash Changes...
- Discard All Changes...
- Add Selected Files
- Discard Changes in Selected Files...
- Mark Selected Files as Resolved
- Create Git Repositories...
- Clone...

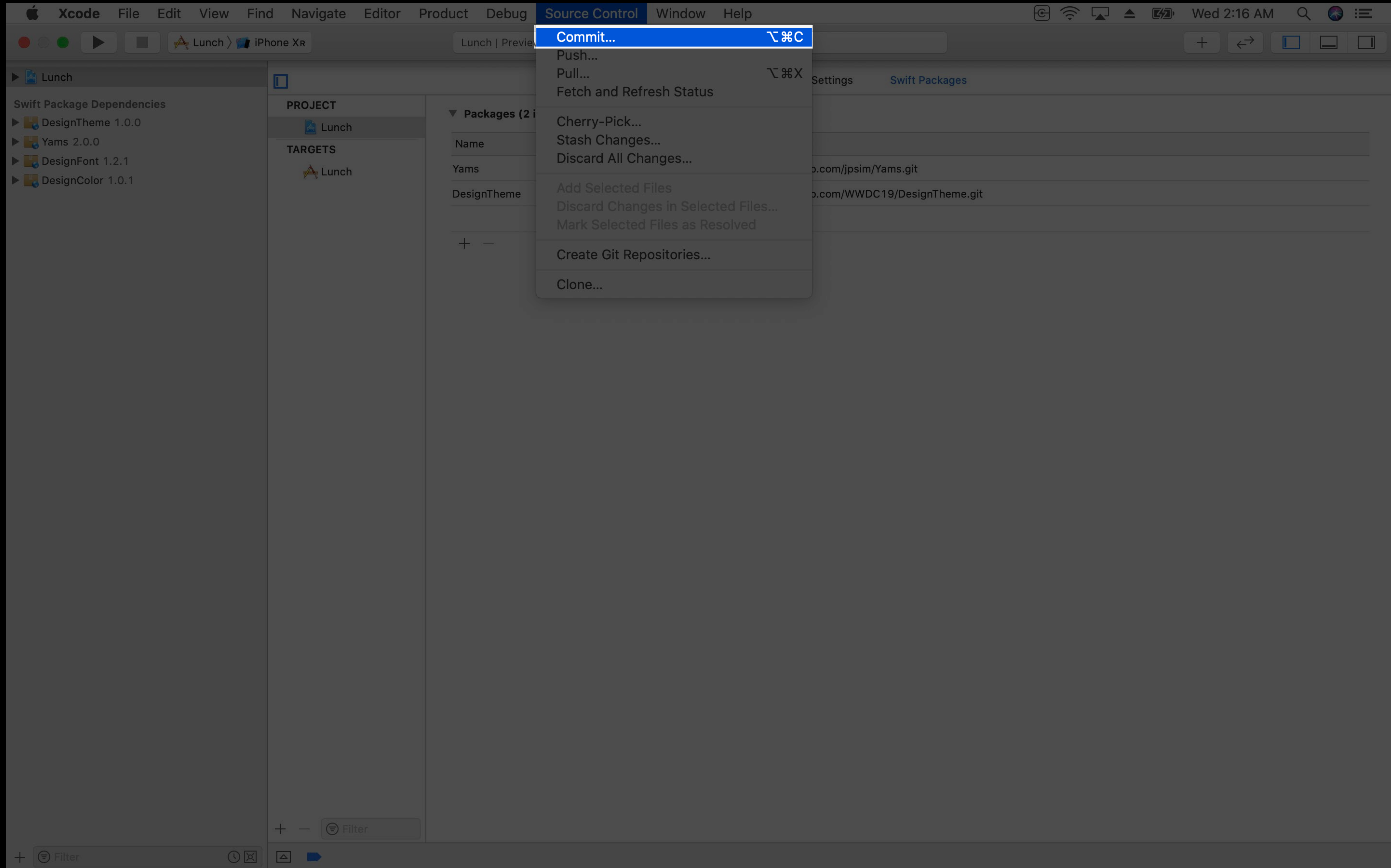
**Package (2)**

Name
Yams
DesignTheme

+ -

Settings **Swift Packages**

- ...com/jpsim/Yams.git
- ...com/WWDC19/DesignTheme.git



Hierarchical Flat

IDEWorkspaceChecks.plist ?

Package.resolved M

Filter

```
9      "revision":
      "2eca5fa086e84313ffb622b9ce
      1e974b73fece46",
10     "version": "1.0.1"
11   }
12 },
13 {
14   "package": "DesignFont",
15   "repositoryURL":
      "https://github
      .com/WWDC19/DesignFont.git",
16   "state": {
17     "branch": null,
18     "revision":
      "073ddce1946066cf890edc3afe
      6459bbb28c6e15",
19     "version": "1.2.1"
20   }
21 },
22 {
23   "package": "DesignTheme",
24   "repositoryURL":
      "https://github
      .com/WWDC19/DesignTheme.git",
25   "state": {
```

```
9      "revision":
      "2eca5fa086e84313ffb622b9ce
      1e974b73fece46",
10     "version": "1.0.1"
11   }
12 },
13 {
14   "package": "DesignFont",
15   "repositoryURL":
      "https://github
      .com/WWDC19/DesignFont.git",
16   "state": {
17     "branch": null,
18     "revision":
      "647fda631a35e6bf8325011bdd
      7a4922dd922c71",
19     "version": "1.2.0"
20   }
21 },
22 {
23   "package": "DesignTheme",
24   "repositoryURL":
      "https://github
      .com/WWDC19/DesignTheme.git",
25   "state": {
```

Enter commit message here

Push to remote: origin/master

Cancel Commit 1 File

```
Package.resolved > No Selection  
Hierarchical Flat  
IDEWorkspaceChecks.plist ?  
Package.resolved M  
9      "revision":  
      "2eca5fa086e84313ffb622b9ce  
      1e974b73fece46",  
10     "version": "1.0.1"  
11     }  
12   },  
13   {  
14     "package": "DesignFont",  
15     "repositoryURL":  
      "https://github  
      .com/WWDC19/DesignFont.git",  
16     "state": {  
17       "branch": null,  
18     "revision":  
      "073ddce1946066cf890edc3afe  
      6459bbb28c6e15",  
19     "version": "1.2.1"  
20     }  
21   },  
22   {  
23     "package": "DesignTheme",  
24     "repositoryURL":  
      "https://github  
      .com/WWDC19/DesignTheme.git",  
25     "state": {  
9      "revision":  
      "2eca5fa086e84313ffb622b9ce  
      1e974b73fece46",  
10     "version": "1.0.1"  
11     }  
12   },  
13   {  
14     "package": "DesignFont",  
15     "repositoryURL":  
      "https://github  
      .com/WWDC19/DesignFont.git",  
16     "state": {  
17       "branch": null,  
18     "revision":  
      "647fda631a35e6bf8325011bdd  
      7a4922dd922c71",  
19     "version": "1.2.0"  
20     }  
21   },  
22   {  
23     "package": "DesignTheme",  
24     "repositoryURL":  
      "https://github  
      .com/WWDC19/DesignTheme.git",  
25     "state": {
```

Enter commit message here

Push to remote:

Cancel Commit 1 File

Lunch | Preview Lunch: **Succeeded** | 5/28/19 at 11:32 PM

Hierarchical Flat

Package.resolved

```
9      "revision":
      "2eca5fa086e84313ffb622b9ce
      1e974b73fece46",
10     "version": "1.0.1"
11   }
12 },
13 {
14   "package": "DesignFont",
15   "repositoryURL":
      "https://github
      .com/WWDC19/DesignFont.git",
16   "state": {
17     "branch": null,
18     "revision":
      "073ddce1946066cf890edc3afe
      6459bbb28c6e15",
19     "version": "1.2.1"
20   }
21 },
22 {
23   "package": "DesignTheme",
24   "repositoryURL":
      "https://github
      .com/WWDC19/DesignTheme.git",
25   "state": {
```

1 1/1

Lunch > master > Local Revision

Lunch > master > 5/29/19 Demo 9425e74 (HEAD)

Enter commit message here

Push to remote: origin/master

Cancel Commit 1 File and Push

Lunch | Preview Lunch: **Succeeded** | 5/28/19 at 11:32 PM

Hierarchical Flat

Package.resolved

```
9      "revision":
      "2eca5fa086e84313ffb622b9ce
      1e974b73fece46",
10     "version": "1.0.1"
11   }
12 },
13 {
14   "package": "DesignFont",
15   "repositoryURL":
      "https://github
      .com/WWDC19/DesignFont.git",
16   "state": {
17     "branch": null,
18     "revision":
      "073ddce1946066cf890edc3afe
      6459bbb28c6e15",
19     "version": "1.2.1"
20   }
21 },
22 {
23   "package": "DesignTheme",
24   "repositoryURL":
      "https://github
      .com/WWDC19/DesignTheme.git",
25   "state": {
```

1 1/1

Lunch > Y master > Local Revision

Lunch > Y master > 5/29/19 Demo 9425e74 (HEAD)

Enter commit message here

Push to remote: Y origin/master

Cancel Commit 1 File and Push

Why do we need `Package.resolved`?



Lunch



DesignFont 1.2.1



Lunch



DesignFont 1.2.1



Lunch



DesignFont 1.2.1

Package.resolved 





Lunch



DesignFont 1.2.1



Lunch



DesignFont 1.2.1



Lunch



DesignFont 1.2.0

Package.resolved **✗**

Check in your Package.resolved

Keep packages up to date

Using an open source package

A closer look at packages

Package resolution in more detail

**Updating packages**

Resolving package conflicts

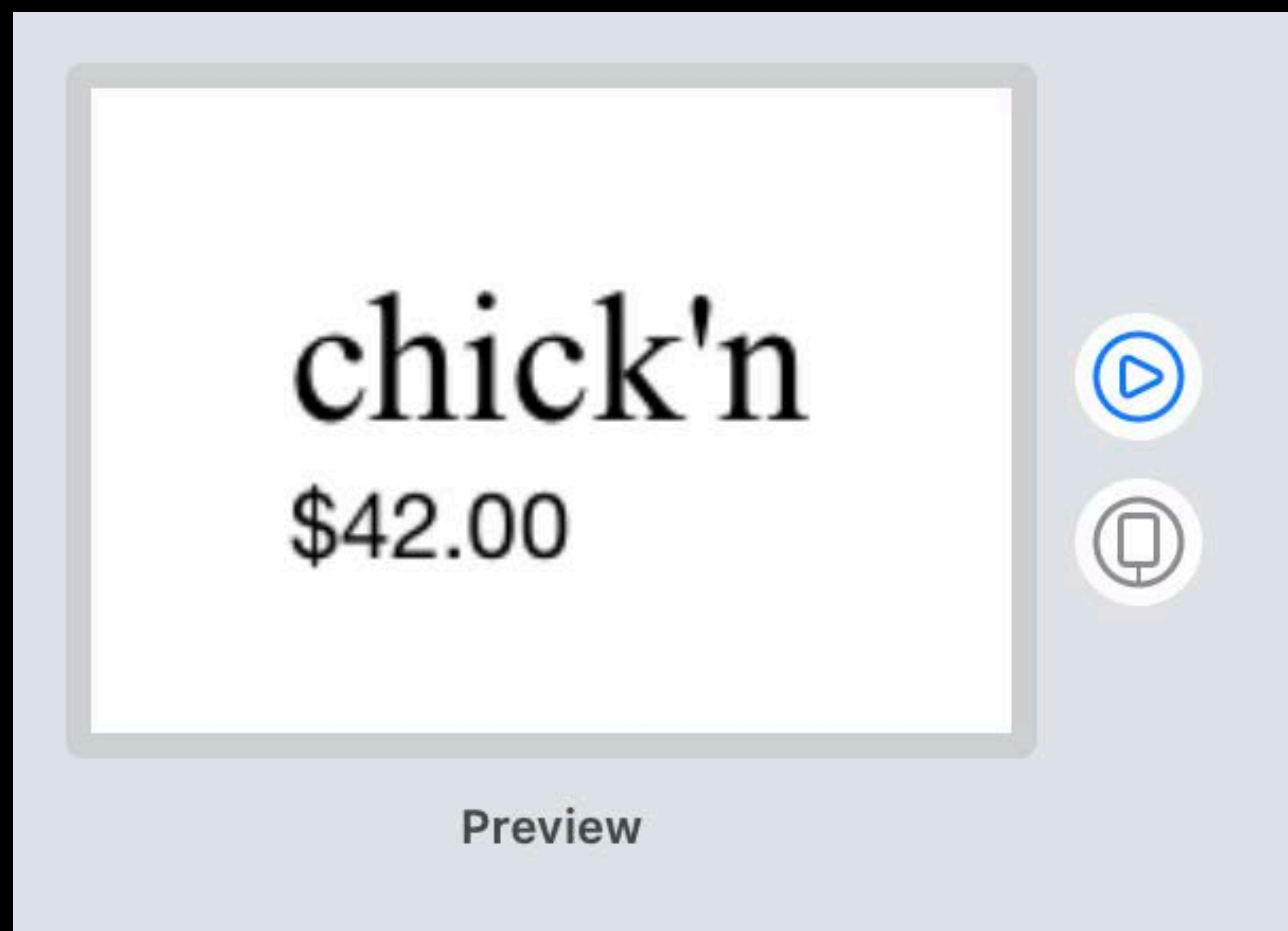
Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

**Resolving package conflicts**



DesignFont 2.0.0



Lunch



2.0.0 up to next major



DesignFont

2.0.0

**Swift Package Dependencies**

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Choose Package Repository:

Search or enter package repository URL

	Last Updated	Owner
Forecast	Yesterday, 10:10 PM	WWDC19
DesignColor		WWDC19
<b>DesignFont</b>	<b>Today, 2:47 AM</b>	<b>WWDC19</b>
DesignTheme		WWDC19
LookUp		WWDC19
piiper		WWDC19
StealTheGlass		WWDC19
unagi		WWDC19

**DesignFont**

Swift 0 0 0 [README](#)

Cancel Previous **Next**

Preview area for the selected package, showing a large empty space.



**Lunch**

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Choose Package Options:

Repository: <https://github.com/WWDC19/DesignFont.git>

Rules:  Version: Up to Next Major  <

Branch:

Commit:

Preview area for the package options dialog.

**Swift Package Dependencies**

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Add Package to Lunch:

**Package Resolution Failed**  
"DesignFont.git" could not be resolved:

- ✓ Add Package
  - ✓ Fetching https://github.com/WWDC19/DesignTheme.git 0.8 seconds
  - ✓ Fetching https://github.com/jpsim/Yams.git 0.7 seconds
  - ✓ Fetching https://github.com/WWDC19/DesignFont.git 0.7 seconds
  - ✓ Fetching https://github.com/WWDC19/DesignColor.git 0.7 seconds
  - ! Resolving package dependencies 0.1 seconds
    - The package dependency graph can not be resolved, possibly because of these requirements:  
https://github.com/WWDC19/DesignFont.git - 2.0.0..<3.0.0

! The package dependency graph can not be resolved, possibly because of these requirements:

! Activity Log Complete 5/29/19, 2:55 PM 4.5 seconds  
2 errors

Cancel Previous Next

Preview area showing a list of items, currently empty.

Lunch | Preview Lunch: **Succeeded** | Yesterday at 11:32 PM

Add Package to Lunch:

**Package Resolution Failed**  
"DesignFont.git" could not be resolved:

- ✓ Fetching https://github.com/WWDC19/DesignTheme.git 0.8 seconds
- ✓ Fetching https://github.com/jpsim/Yams.git 0.7 seconds
- ✓ Fetching https://github.com/WWDC19/DesignFont.git 0.7 seconds

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

PROJECT

- Lunch

TARGETS

- Lunch

Resolving package dependencies 0.1 seconds

The package dependency graph can not be resolved, possibly because of these requirements:

https://github.com/WWDC19/DesignFont.git - 2.0.0..<3.0.0

**The package dependency graph can not be resolved, possibly because of these requirements:**

**Activity Log Complete** 5/29/19, 2:55 PM 4.5 seconds

2 errors

Cancel Previous Next

Filter



Lunch



DesignFont

~~2.0.0~~ X

2.0.0 up to next major

! Resolving package dependencies 0.1 seconds ! 1

The package dependency graph can not be resolved, possibly because of these requirements:

```
https://github.com/WWDC19/DesignFont.git - 2.0.0..<3.0.0
```

▶ ! The package dependency graph can not be resolved, possibly because of these requirements:

! Activity Log Complete 5/29/19, 2:55 PM 4.5 seconds  
2 errors

# Debugging Package Resolution



Lunch

—————>  
1.0.0 up to next major



DesignTheme

1.0.0 ✓  
2.0.0

—————>  
1.0.0 up to next major



DesignFont

1.0.0  
1.2.0  
1.2.1 ✓  
2.0.0



Lunch

1.0.0 up to next major



DesignTheme

1.0.0 ✓

2.0.0



DesignFont

1.0.0

1.2.0

~~1.2.1~~

~~2.0.0~~

1.0.0 up to next major

2.0.0 up to next major



```

! Resolving package dependencies 0.1 seconds
The package dependency graph can not be resolved, possibly because of these requirements:
https://github.com/WWDC19/DesignFont.git - 2.0.0..<3.0.0
! The package dependency graph can not be resolved, possibly because of these requirements:
! Activity Log Complete 5/29/19, 2:55 PM 4.5 seconds
2 errors
  
```



You can only have one version of a package in a workspace.



```

! Resolving package dependencies 0.1 seconds
The package dependency graph can not be resolved, possibly because of these requirements:
https://github.com/WWDC19/DesignFont.git - 2.0.0..<3.0.0
! The package dependency graph can not be resolved, possibly because of these requirements:
! Activity Log Complete 5/29/19, 2:55 PM 4.5 seconds
2 errors
  
```



DesignTheme

2.0.0



DesignTheme

2.0.0



?

33 lines (27 sloc) | 1.03 KB

Raw Blame History   

```
1 // swift-tools-version:5.1
2 // The swift-tools-version declares the minimum version of Swift required to build this package.
3
4 import PackageDescription
5
6 let package = Package(
7     name: "DesignTheme",
8     platforms: [
9         .iOS(.v13), .macOS(.v10_15), .tvOS(.v13), .watchOS(.v6)
10    ],
11    products: [
12        .library(
13            name: "DesignTheme",
14            targets: ["DesignTheme"]),
15    ],
16
17    dependencies: [
18        .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "2.0.0")),
19
20        // DesignColor occasionally adjusts the provided color in minor updates. Resolving from up to next minor version in order
21        .package(url: "https://github.com/WWDC19/DesignColor.git", .upToNextMinor(from: "1.0.0"))
22    ],
23
24    targets: [
25        .target(
26            name: "DesignTheme",
27            dependencies: ["DesignColor", "DesignFont"]),
28        .testTarget(
29            name: "DesignThemeTests",
30            dependencies: ["DesignTheme"]),
31    ]
32 )
```



33 lines (27 sloc) 1.03 KB

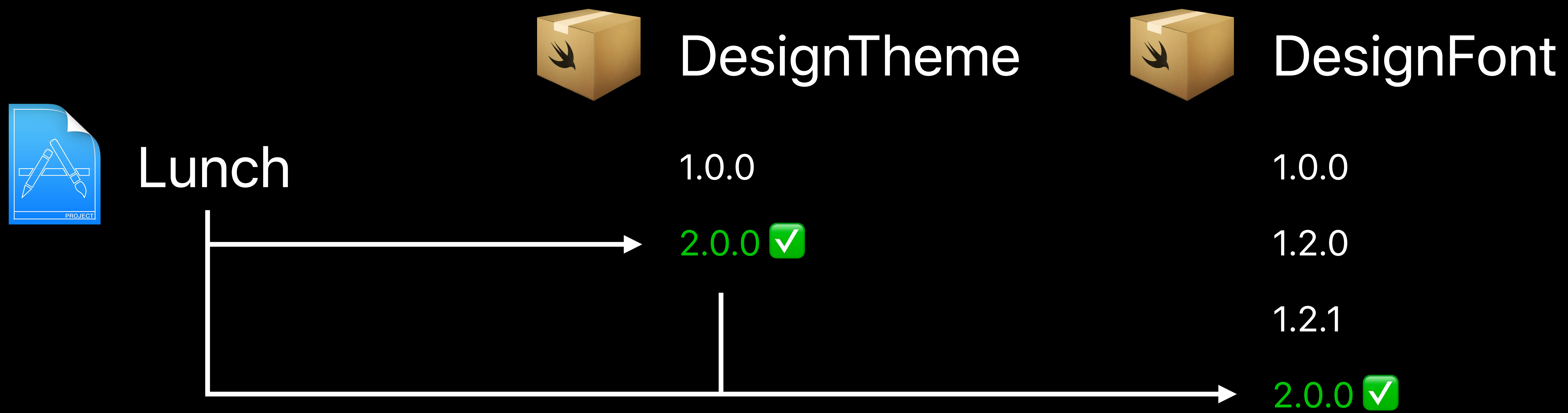
Raw Blame History

```
1 // swift-tools-version:5.1
2 // The swift-tools-version declares the minimum version of Swift required to build this package.
3
4 import PackageDescription
5
6 let package = Package(
7     name: "DesignTheme",
8     platforms: [
9         .iOS(.v13), .macOS(.v10_15), .tvOS(.v13), .watchOS(.v6)
10    ],
11    products: [
12        .library(
13            name: "DesignTheme",
14            targets: ["DesignTheme"]),
15    ],
16
```

```
dependencies: [
    .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "2.0.0")),
```

```
22 ],
23
24 targets: [
25     .target(
26         name: "DesignTheme",
27         dependencies: ["DesignColor", "DesignFont"]),
28     .testTarget(
29         name: "DesignThemeTests",
30         dependencies: ["DesignTheme"]),
31 ]
32 )
```





```
dependencies: [  
  .package(url: "https://github.com/WWDC19/DesignFont.git", .upToNextMajor(from: "2.0.0")),
```

# Updating Version Rules



- Swift Package Dependencies
- ▶ DesignTheme 1.0.0
  - ▶ Yams 2.0.0
  - ▶ DesignFont 1.2.1
  - ▶ DesignColor 1.0.1

- PROJECT
- Lunch
- TARGETS
- Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

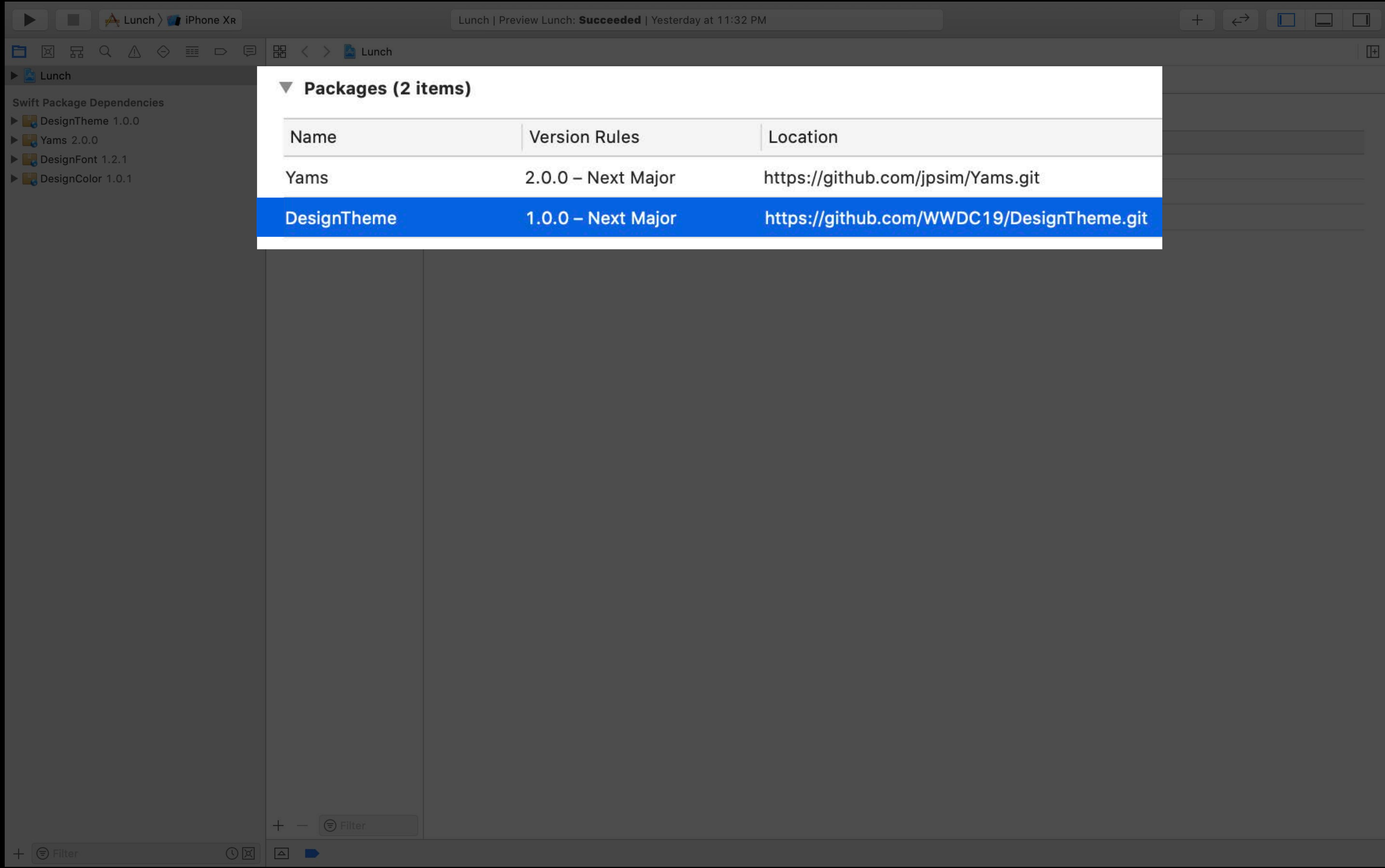
Lunch | Preview Lunch: **Succeeded** | Yesterday at 11:32 PM

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	1.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>



▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
<b>DesignTheme</b>	<b>1.0.0 – Next Major</b>	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

- Swift Package Dependencies
- ▶ DesignTheme 1.0.0
  - ▶ Yams 2.0.0
  - ▶ DesignFont 1.2.1
  - ▶ DesignColor 1.0.1

+ - Filter

+ Filter

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

PROJECT

- Lunch

TARGETS

- Lunch

Repository: <https://github.com/WWDC19/DesignTheme.git>

Rules:

- Version: Up to Next Major  < 2.0.0
- Branch:
- Commit:

Cancel Done

ckages

Theme.git

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

PROJECT

- Lunch

TARGETS

- Lunch

Repository: <https://github.com/WWDC19/DesignTheme.git>

Rules:

- Version: Up to Next Major  < 3.0.0
- Branch:
- Commit:

Cancel Done

ckages

DesignTheme.git

Swift Package Dependencies

- DesignTheme 1.0.0
- Yams 2.0.0
- DesignFont 1.2.1
- DesignColor 1.0.1

PROJECT

- Lunch

TARGETS

- Lunch

Repository: <https://github.com/WWDC19/DesignTheme.git>

Rules:

- Version: Up to Next Major  < 3.0.0
- Branch:
- Commit:

Cancel Done

ckages

DesignTheme.git

**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

PROJECT

Lunch

TARGETS

Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 - Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 - Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

### Swift Package Dependencies

- ▶  DesignTheme 2.0.0
- ▶  Yams 2.0.0
- ▶  DesignFont 2.0.0
- ▶  DesignColor 1.0.1

Swift Packages (2 items)

Name	Version Rules	Location
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>



**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

**PROJECT**

Lunch

**TARGETS**

Lunch

▼ **Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

Lunch | Build Lunch: **Failed** | Today at 3:50 AM

Info Build Settings **Swift Packages**

**PROJECT**

- Lunch

**TARGETS**

- Lunch

**Swift Package Dependencies**

- DesignTheme 2.0.0
- Yams 2.0.0
- DesignFont 2.0.0
- DesignColor 1.0.1

**▼ Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

+ - Filter

**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

**PROJECT**

Lunch

**TARGETS**

Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

1.2.4

Major Version  
Breaking changes

**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

**PROJECT**

Lunch

**TARGETS**

Lunch

▼ **Packages (2 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -



Lunch



DesignTheme



DesignFont

1.0.0

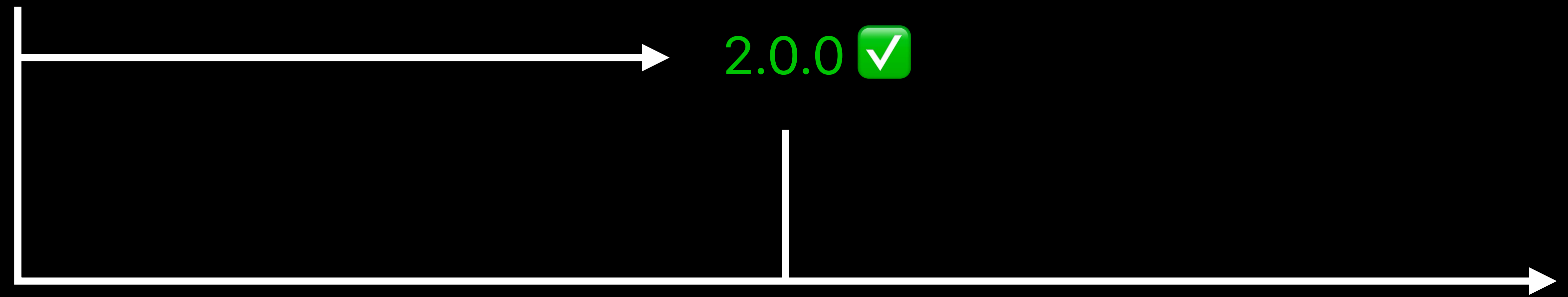
1.0.0

2.0.0 ✓

1.2.0

1.2.1

2.0.0 ✓



**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

PROJECT

Lunch

TARGETS

Lunch

▼ Packages (2 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>

+ -

**Swift Package Dependencies**

- DesignTheme 2.0.0
- Yams 2.0.0
- DesignFont 2.0.0
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Choose Package Repository:

Search or enter package repository URL

	Last Updated	Owner
WWDC19 (GitHub)		
Forecast	Yesterday, 10:10 PM	WWDC19
DesignColor		WWDC19
<b>DesignFont</b>		<b>WWDC19</b>
DesignTheme		WWDC19
LookUp		WWDC19
piiper		WWDC19
StealTheGlass		WWDC19
unagi		WWDC19

**DesignFont**

Loading...

Cancel Previous **Next**



**Lunch**

Swift Package Dependencies

- DesignTheme 2.0.0
- Yams 2.0.0
- DesignFont 2.0.0
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Choose Package Options:

Repository: <https://github.com/WWDC19/DesignFont.git>

Rules:  Version: Up to Next Major  <

Branch:

Commit:

**Lunch**

Swift Package Dependencies

- DesignTheme 2.0.0
- Yams 2.0.0
- DesignFont 2.0.0
- DesignColor 1.0.1

**PROJECT**

- Lunch

**TARGETS**

- Lunch

### Add Package to Lunch:

Choose package products and targets:

Package Product	Kind	Add to Target
<input checked="" type="checkbox"/> DesignFont	Library	Lunch ↕

Cancel Previous Finish

Main workspace area with horizontal lines for code or content.

**Swift Package Dependencies**

- ▶ DesignTheme 2.0.0
- ▶ Yams 2.0.0
- ▶ DesignFont 2.0.0
- ▶ DesignColor 1.0.1

**PROJECT**

Lunch

**TARGETS**

Lunch

▼ **Packages (3 items)**

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>
DesignFont	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignFont.git">https://github.com/WWDC19/DesignFont.git</a>

- Swift Package Dependencies
- DesignTheme 2.0.0
  - Yams 2.0.0
  - DesignFont 2.0.0
  - DesignColor 1.0.1

▼ Packages (3 items)

Name	Version Rules	Location
Yams	2.0.0 – Next Major	<a href="https://github.com/jpsim/Yams.git">https://github.com/jpsim/Yams.git</a>
DesignTheme	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignTheme.git">https://github.com/WWDC19/DesignTheme.git</a>
DesignFont	2.0.0 – Next Major	<a href="https://github.com/WWDC19/DesignFont.git">https://github.com/WWDC19/DesignFont.git</a>

+ -


Lunch | Preview Lunch: Succeeded | Today at 11:56 AM

Lunch > Lunch > FoodItemRowView.swift > body

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 2.0.0
  - DesignColor 1.0.1
  - DesignFont 2.0.0

```
1 //
2 // FoodItemRowView.swift
3 // Lunch
4 //
5 // Copyright © 2019 Apple Inc. All rights reserved.
6 //
7
8 import SwiftUI
9
10
11 struct FoodItemRowView : View {
12     var foodItem: FoodItem
13
14     var body: some View {
15
16         let formatter = NumberFormatter()
17         formatter.numberStyle = .currency
18         let price = formatter.string(from: foodItem.price as
19                                     NSNumber)
20
21         return VStack(alignment: .leading) {
22             lunchTheme.foodItem(text: Text(verbatim:
23                                     foodItem.name))
24             lunchTheme.price(text: Text(verbatim: price ?? ""))
25         }
26     }
27 }
28 struct FoodItemRow_Previews : PreviewProvider {
29     static var previews: some View {
30         return FoodItemRowView(foodItem: FoodItem(name:
31                                     "chick'n", price: 42)).previewLayout(.fixed(width:
32                                     100, height: 70))
33     }
34 }
```

Preview



Multiple 31x12.5 — 300% +

Lunch | Preview Lunch: Succeeded | Today at 11:57 AM

Lunch > Lunch > FoodItemRowView.swift > No Selection

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 2.0.0
  - DesignColor 1.0.1
  - DesignFont 2.0.0

```
1 //
2 // FoodItemRowView.swift
3 // Lunch
4 //
5 // Copyright © 2019 Apple Inc. All rights reserved.
6 //
7
8 import SwiftUI
9 import DesignFont
10
11 struct FoodItemRowView : View {
12     var foodItem: FoodItem
13
14     var body: some View {
15
16         let formatter = NumberFormatter()
17         formatter.numberStyle = .currency
18         let price = formatter.string(from: foodItem.price as
19             NSNumber)
20
21         return VStack(alignment: .leading) {
22             lunchTheme.foodItem(text: Text(verbatim:
23                 foodItem.name))
24
25             lunchTheme.price(text: Text(verbatim: price ?? ""))
26         }
27     }
28 }
29
30 struct FoodItemRow_Previews : PreviewProvider {
31     static var previews: some View {
32         return FoodItemRowView(foodItem: FoodItem(name:
33             "chick'n", price: 42)).previewLayout(.fixed(width:
34             100, height: 70))
35     }
36 }
```

Preview

chick'n  
\$42.00

300%

Lunch | iPhone XR | Lunch | Preview Lunch: Succeeded | Today at 11:57 AM

Lunch > Lunch > FoodItemRowView.swift > No Selection

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift**
    - FoodItemListView.swift
    - LunchTheme.swift
  - Assets.xcassets
  - LaunchScreen.storyboard
  - Info.plist
- Products
- Frameworks

Swift Package Dependencies

- Yams 2.0.0
- DesignTheme 2.0.0
- DesignColor 1.0.1
- DesignFont 2.0.0

```
1 //
2 // FoodItemRowView.swift
3 // Lunch
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5 // Copyright © 2019 Apple Inc. All rights reserved.
6 //
7
8 import SwiftUI
9
10
11 struct FoodItemRowView : View {
12     var foodItem: FoodItem
13
14     var body: some View {
15
16         let formatter = NumberFormatter()
17         formatter.numberStyle = .currency
18         let price = formatter.string(from: foodItem.price as
19                                     NSNumber)
20
21         return VStack(alignment: .leading) {
22             lunchTheme.foodItem(text: Text(verbatim:
23                                     foodItem.name))
24
25             lunchTheme.price(text: Text(verbatim: price ?? ""))
26         }
27     }
28 }
29
30 struct FoodItemRow_Previews : PreviewProvider {
31     static var previews: some View {
32         return FoodItemRowView(foodItem: FoodItem(name:
33                                 "chick'n", price: 42)).previewLayout(.fixed(width:
34                                 100, height: 70))
35     }
36 }
```

**import DesignFont**

Preview

chick'n  
\$42.00

300%

Lunch | Preview Lunch: Succeeded | Today at 11:57 AM

Lunch > Lunch > FoodItemRowView.swift > No Selection

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 2.0.0
  - DesignColor 1.0.1
  - DesignFont 2.0.0

```
1 //
2 // FoodItemRowView.swift
3 // Lunch
4 //
5 // Copyright © 2019 Apple Inc. All rights reserved.
6 //
7
8 import SwiftUI
9 import DesignFont
10
11 struct FoodItemRowView : View {
12     var foodItem: FoodItem
13
14     var body: some View {
15
16         let formatter = NumberFormatter()
17         formatter.numberStyle = .currency
18         let price = formatter.string(from: foodItem.price as
19             NSNumber)
20
21         return VStack(alignment: .leading) {
22             lunchTheme.foodItem(text: Text(verbatim:
23                 foodItem.name))
24
25             lunchTheme.price(text: Text(verbatim: price ?? ""))
26         }
27     }
28 }
29
30 struct FoodItemRow_Previews : PreviewProvider {
31     static var previews: some View {
32         return FoodItemRowView(foodItem: FoodItem(name:
33             "chick'n", price: 42)).previewLayout(.fixed(width:
34             100, height: 70))
35     }
36 }
```

Preview

chick'n  
\$42.00

300%



Lunch | Preview Lunch: Succeeded | Today at 11:57 AM


Lunch > iPhone Xr

Lunch > Lunch > FoodItemRowView.swift > body

- Lunch
  - Menus
  - Lunch
    - AppDelegate.swift
    - FoodMenu.swift
    - FoodItemRowView.swift
    - FoodItemListView.swift
    - LunchTheme.swift
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - Products
  - Frameworks
- Swift Package Dependencies
  - Yams 2.0.0
  - DesignTheme 2.0.0
  - DesignColor 1.0.1
  - DesignFont 2.0.0

```
1 //
2 // FoodItemRowView.swift
3 // Lunch
4 //
5 // Copyright © 2019 Apple Inc. All rights reserved.
6 //
7
8 import SwiftUI
9 import DesignFont
10
11 struct FoodItemRowView : View {
12     var foodItem: FoodItem
13
14     var body: some View {
15         let designFont = DesignFont()
16         let formatter = NumberFormatter()
17         formatter.numberStyle = .currency
18         let price = formatter.string(from: foodItem.price as
19             NSNumber)
20
21         return VStack(alignment: .leading) {
22             lunchTheme.foodItem(text: Text(verbatim:
23                 foodItem.name))
24             Text(verbatim: price ??
25                 "").font(designFont.georgia(size: 12))|
26         }
27     }
28 }
29
30 struct FoodItemRow_Previews : PreviewProvider {
31     static var previews: some View {
32         return FoodItemRowView(foodItem: FoodItem(name:
33             "chick'n", price: 42)) previewLayout: fixed(width:
34             320)
35     }
36 }
```

Preview



Text 32.5x1... 300%

chick'n  
\$42.00

Preview



chick'n  
\$42.00

Preview



Using an open source package

Using an open source package

A closer look at packages

Using an open source package

A closer look at packages

Package resolution in more detail

Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

Using an open source package

A closer look at packages

Package resolution in more detail

Updating packages

Resolving package conflicts

Tons of packages  
already on Github today!



# More Information

[developer.apple.com/wwdc19/408](https://developer.apple.com/wwdc19/408)

---

Creating Swift Packages

Thursday, 9:00

---

Swift Packages Lab

Thursday, 12:00

---

Swift Packages Lab

Friday, 12:00

---

 WWDC19