#WWDC19

Mastering Xcode Previews

Anton Vladimirov, Developer Tools
Nate Chandler, Developer Tools

Large Title, Black

Rate This Dessert

350pt

Churro Cupcake Headline, Black

20pt

Description text for the dessert that is being judged that makes it sound like something you'd want to eat Callout, Secondary

★★★★☆

Slammin'

BG: RGB(0.3, 0.59, 1.0)

Corner Radius: 6

Rate it

9:41

Rate This Dessert

Churro Cupcake

Description text for the dessert that is being judged that makes it sound like something you'd want to eat

★★★★☆

Slammin'

Rate it

9:41

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Slammin'

Rate it


9:41
Rate This Dessert
Churro Cupcake
Description text for the dessert that is being ju...
Slammin'
Rate it

9:41 AM Mon Jun 3

100%

Rate This Dessert

Churro Cupcake

Description text for the dessert that is being judged that makes it sound like something you'd want to eat

★★★★☆

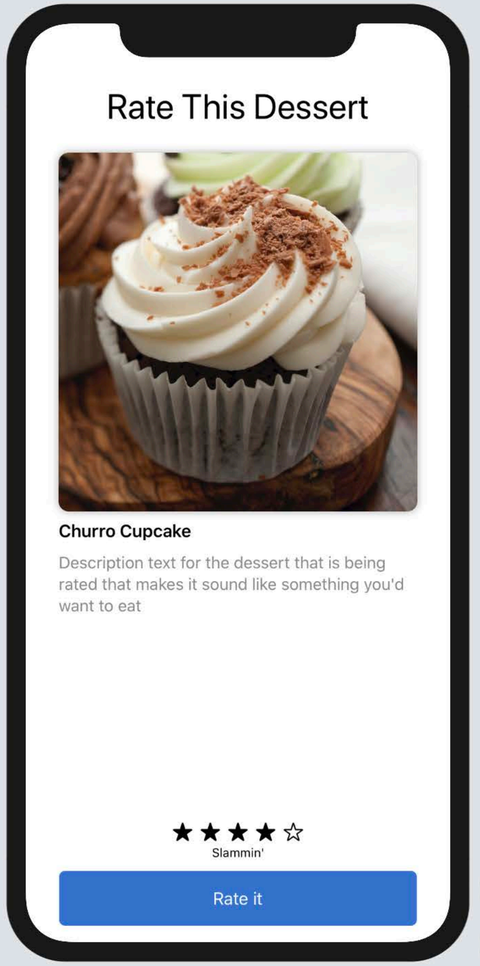
Slammin'

Rate it

DessertJustice 〉 iPhone XR | DessertJustice | Preview DessertJustice: **Succeeded** | Today at 7:31 PM

DessertJustice 〉 Dessert 〉 ContentView.swift 〉 No Selection

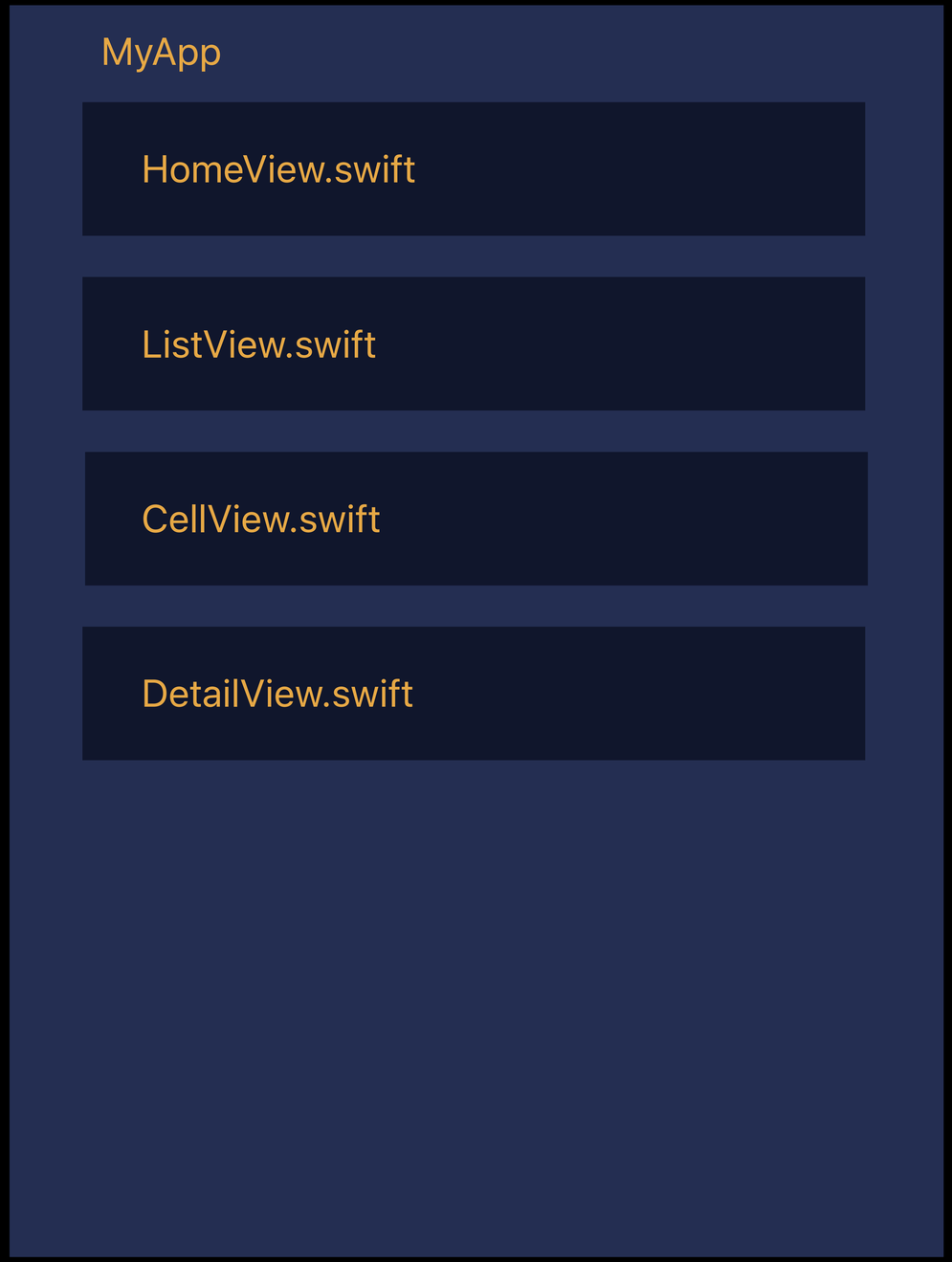
```swift

import SwiftUI

struct ContentView : View {
    let dessert: Dessert

    var body: some View {
        VStack {
            Text("Rate This Dessert")
                .font(.largeTitle)
            VStack(alignment: .leading) {
                Image(dessert.imageName)
                    .resizable()
                    .frame(width: 350, height: 350)
                    .clipShape(RoundedRectangle(cornerRadius: 10.0))
                    .shadow(radius: 4.0)
                VStack(alignment: .leading, spacing: 10) {
                    Text(dessert.name)
                        .font(.headline)
                    Text(dessert.description)
                        .lineLimit(nil)
                        .font(.callout)
                        .foregroundColor(Color.secondary)
                    }
                    .frame(minWidth: 0, maxWidth: .infinity, alignment: .leading)
            }
                .padding(.horizontal, 35.0)
            Spacer().frame(height: 20)
            Spacer()
            StarRatingView(rating: dessert.rating)
            Text("Rate it")
                .colorScheme(.dark)
                .padding(.vertical)
                .padding(.horizontal, 150)
                .background(Color(hue: 0.598, saturation: 0.749, brightness: 0.81), cornerRadius: 6)
        }
        .padding(.vertical)
    }
}

#if DEBUG
struct ContentView_Previews : PreviewProvider {
    static var previews: some View {
        ContentView(dessert: Dessert.sample)

    }
}
#endif
```



Preview

100%

How?


MyApp
HomeView.swift
ListView.swift
CellView.swift
DetailView.swift

MyApp

HomeView.swift

ListView.swift

CellView.swift

```
struct CellView : View {
    var body: some View {
        Text("Hello")
    }
}
```

DetailView.swift

MyApp

HomeView.swift

ListView.swift

CellView.swift

```
struct CellView : View {
    var body: some View {
        Text("Hello")
    }
}
```

DetailView.swift

MyApp

HomeView.swift

ListView.swift

CellView.swift

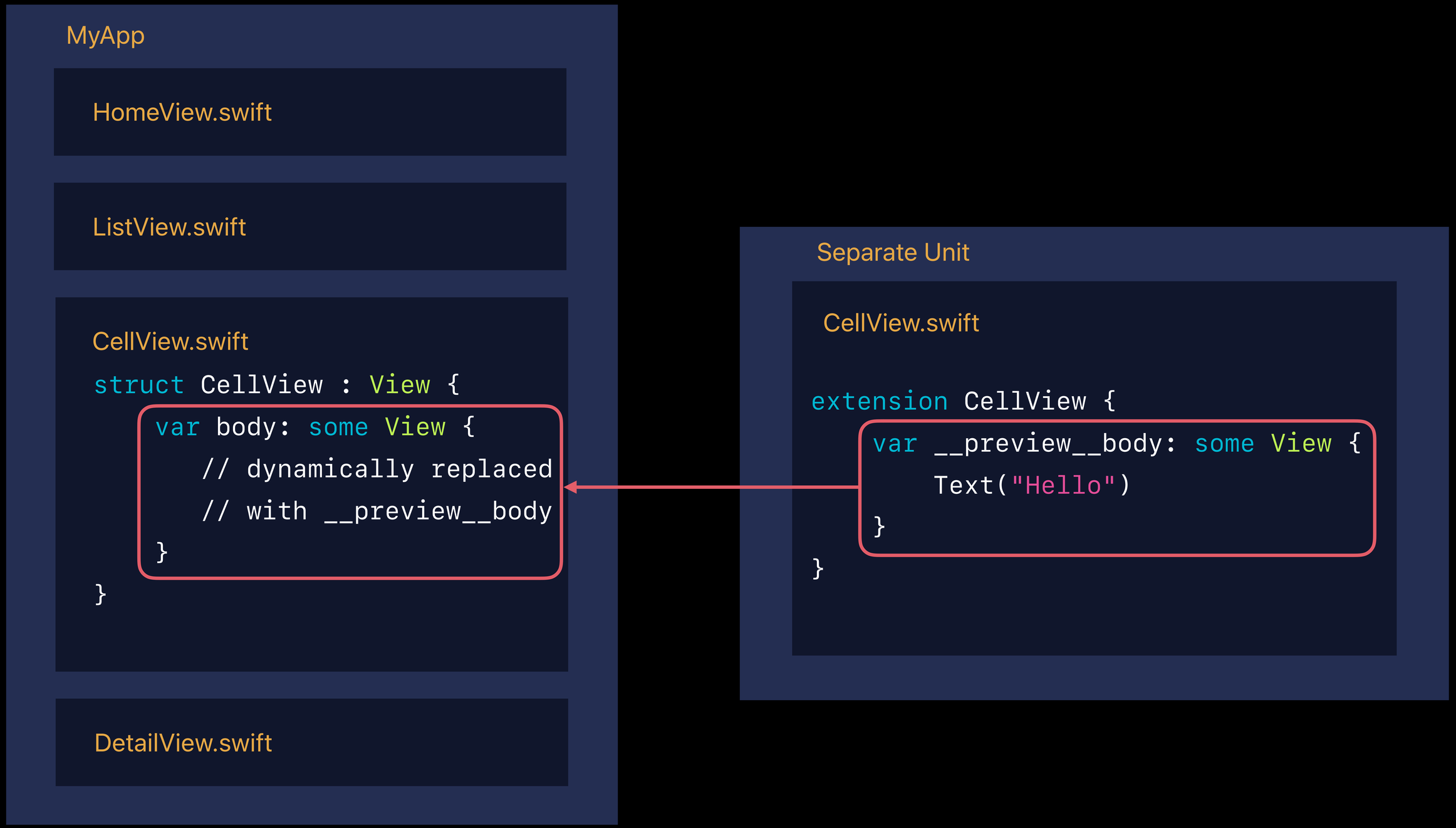
```
struct CellView : View {
    var body: some View {
        // dynamically replaced
        // with __preview__body
    }
}
```

DetailView.swift

Separate Unit

CellView.swift

```
extension CellView {
    var __preview__body: some View {
        Text("Hello")
    }
}
```


MyApp
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var body: some View {
// dynamically replaced
// with __preview__body
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}
DetailView.swift
Separate Unit
CellView.swift
extension CellView {
var __preview__body: some View {
Text("Hello")
}
}

```
struct AnimalCellPreview : PreviewProvider {
    static var previews: some View {
        AnimalCell(.redFox)
    }
}
```

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struct AnimalCellPreview : PreviewProvider {
    static var previews: some View {
        AnimalCell(.redFox)
    }
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```

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struct AnimalCellPreview : PreviewProvider {
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    }
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```

```
struct AnimalCellPreview : PreviewProvider {
    static var previews: some View {
        AnimalCell(.redFox)
    }
}
```

```
 struct AnimalCell : View {
     let model: AnimalCellModel

     var body: some View {
         HStack {
             Text(model.image)
             HStack {
                 Text(model.commonName)
                 Text(model.family)
                 Text(model.scientificName)
             }
         }
     }
 }

struct AnimalCellPreview : PreviewProvider {
    static var previews: some View {
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struct AnimalCell : View {
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    var body: some View {
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                Text(model.commonName)
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                Text(model.scientificName)
            }
        }
    }
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struct AnimalCellPreview : PreviewProvider {
    static var previews: some View {
        AnimalCell(.redFox)
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```
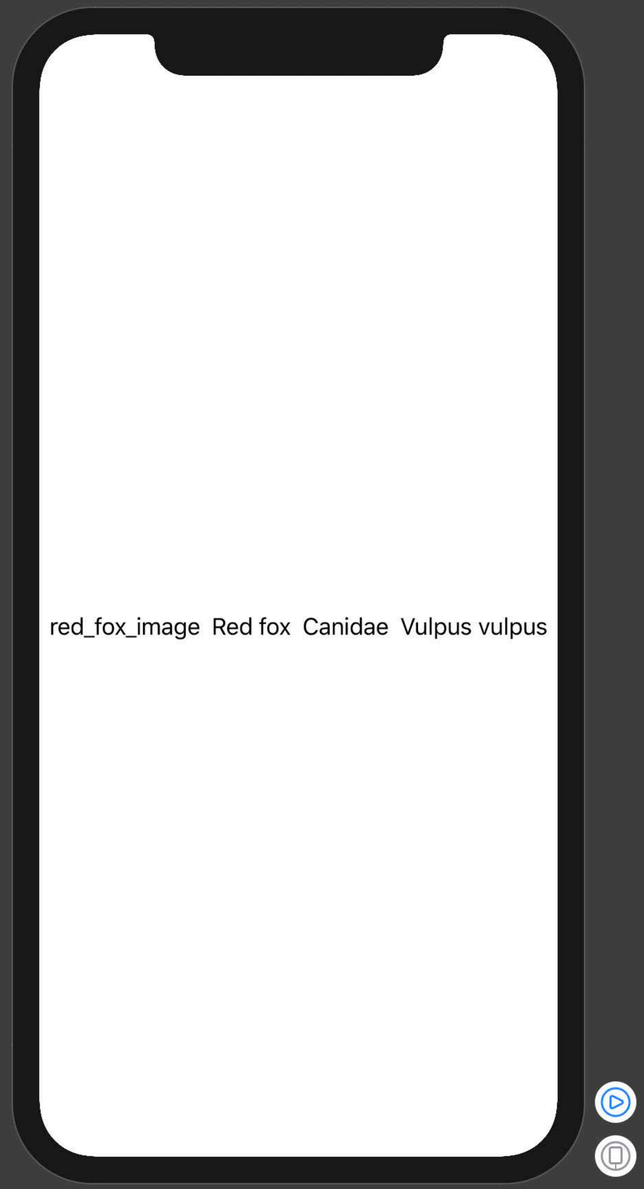



9:41

Menagerie

Cheetah
Felidae
Acinonyx jubatus

Jaguar
Felidae
Panthera onca

Tiger
Felidae
Panthera tigris

Leopard
Felidae
Panthera pardus

Snow Leopard
Felidae
Panthera uncia

Lion
Felidae
Panthera leo

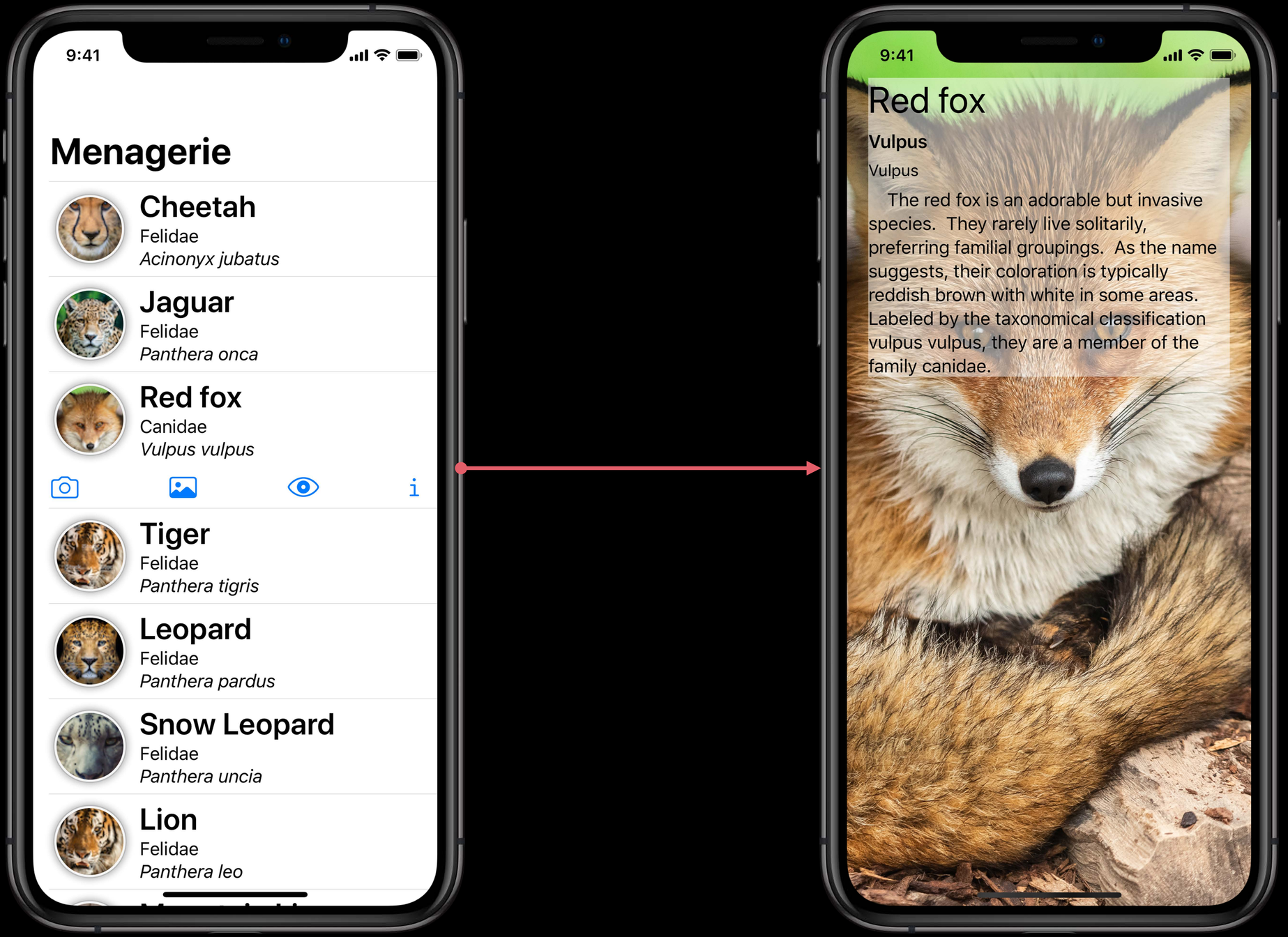
Mountain Lion
Felidae
Puma concolor

Demo

Anton Vladimirov, Developer Tools
Nate Chandler, Developer Tools


9:41
Menagerie
Cheetah
Felidae
Acinonyx jubatus
Jaguar
Felidae
Panthera onca
Red fox
Canidae
Vulpus vulpus
Tiger
Felidae
Panthera tigris
Leopard
Felidae
Panthera pardus
Snow Leopard
Felidae
Panthera uncia
Lion
Felidae
Panthera leo


9:41
Red fox
Vulpus
Vulpus
The red fox is an adorable but invasive species. They rarely live solitarily, preferring familial groupings. As the name suggests, their coloration is typically reddish brown with white in some areas. Labeled by the taxonomical classification vulpus vulpus, they are a member of the family canidae.


9:41
Menagerie
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Demo

Nate Chandler, Developer Tools

```
// AnimalCellModel -- AnimalCell's View Model

struct AnimalCellModel {
    let commonName: String
    let class: String
    let scientificName: String
    let image: String?
}
```

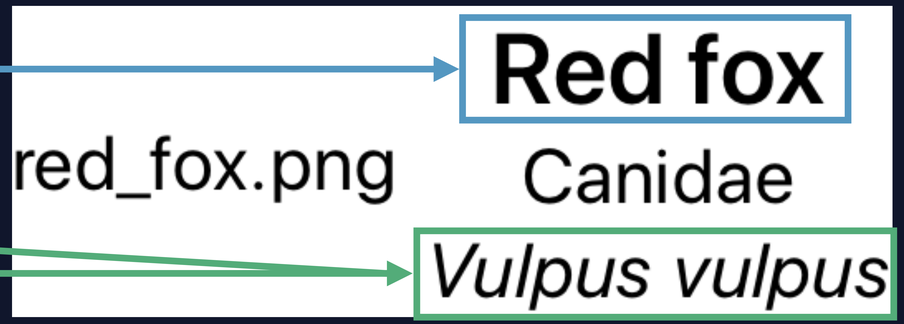
```
// AnimalCell

struct AnimalCell : View {
    let model: AnimalCellModel
    var body: some View {
        HStack {
            Image(model.image)
            VStack {
                Text(model.commonName).font(.title).fontWeight(.bold)
                Text(model.familyName)
                Text(model.scientificName).italic()
            }
        }
    }
}
```

```
// AnimalCellPreviews

struct AnimalCellPreviews : PreviewProvider {
    static let models: [AnimalCellModel]
    static var previews: some View {
        ForEach(models.identified(\.self)) { model in
            AnimalCell(model: model)
        }
    }
}
```

```
// Animal

class Animal {
    let commonName: String
    let class: String
    let genus: String
    let species: String
    weak var clade: Clade?
    let genome: Genome
    let imageName: String
}
```

```
// Animal

class Animal {
    let commonName: String
    let class: String
    let genus: String
    let species: String
    weak var clade: Clade?
    let genome: Genome
    let imageName: String
}
```

```swift
// Animal

class Animal {
    let commonName: String
    let class: String
    let genus: String
    let species: String
    weak var clade: Clade?
    let genome: Genome
    let imageName: String
}
```



```
extension AnimalCellModel {
    init(for animal: Animal) {
        self.commonName = animal.commonName
        self.scientificName = "\(animal.genus) \(animal.species)"
        ...
    }
}
```

```
extension AnimalCellModel {
    init(for animal: Animal) {
        self.commonName = animal.commonName
        self.scientificName = "\(animal.genus) \(animal.species)"
        ...
    }
}
```

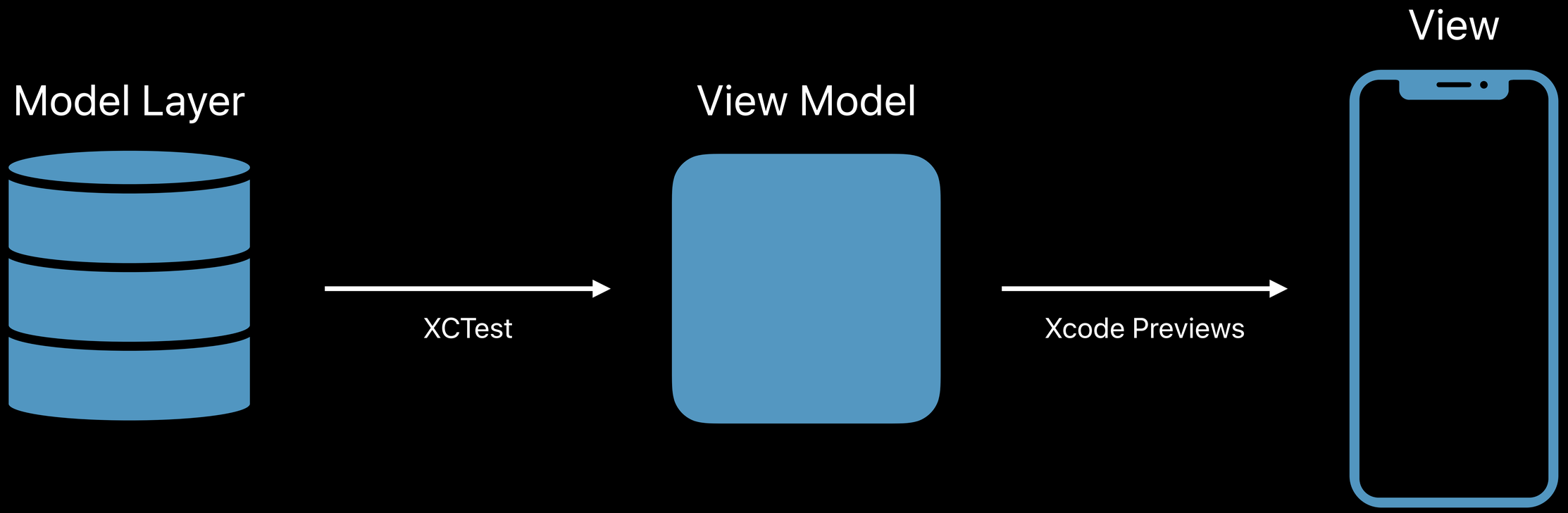
```
extension AnimalCellModel {
    init(for animal: Animal) {
        self.commonName = animal.commonName
        self.scientificName = "\(animal.genus) \(animal.species)"
        ...
    }
}
```

```
class AnimalCellModelTest : XCTestCase {
  func testRedFox() {
    let fox: Animal = ...
    let foxModel = AnimalCellModel(for: fox)
    XCTAssertEqual(foxModel.commonName, "Red fox")
    XCTAssertEqual(foxModel.scientificName, "Vulpus vulpus")
    ...
  }
}
```

```
extension AnimalCellModel {
    init(for animal: Animal) {
        self.commonName = animal.commonName
        self.scientificName = "\(animal.genus) \(animal.species)"
        ...
    }
}
```

```
class AnimalCellModelTest : XCTestCase {
  func testRedFox() {
    let fox: Animal = ...
    let foxModel = AnimalCellModel(for: fox)
    XCTAssertEqual(foxModel.commonName, "Red fox")
    XCTAssertEqual(foxModel.scientificName, "Vulpus vulpus")
    ...
  }
}
```

Application Architecture



Application Lifecycle

```
class AppDelegate : UIApplicationDelegate {
    func application(
        _ application: UIApplication,
        didFinishLaunchingWithOptions options: [UIApplication.LaunchOptionsKey : Any]?
    )
        -> Bool
}
```

```
class SceneDelegate : UIResponder, UIWindowSceneDelegate {
    func scene(
        _ scene: UIScene,
        willConnectTo session: UISceneSession,
        options connectionOptions: UIScene.ConnectionOptions
    )
}
```

Multitasking and the Application Lifecycle WWDC 2019

Summary

Write a preview

Use preview pinning

Use development assets

Use previews in your UIKit/AppKit/WatchKit code

More Information

developer.apple.com/wwdc19/233

Integrating SwiftUI	Thursday, 3:00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