Intro to iOS

-> Lecture 01

@beknar

El Plan

- Vision
- Why SwiftUI // vs. UIKit, declarative UI, future of the Apple platform development
- Xcode 101 // panes, windows, crucial features
- SwiftUI anatomy // layout, lifecycle
- Components // Text, Image, Button, Stacks

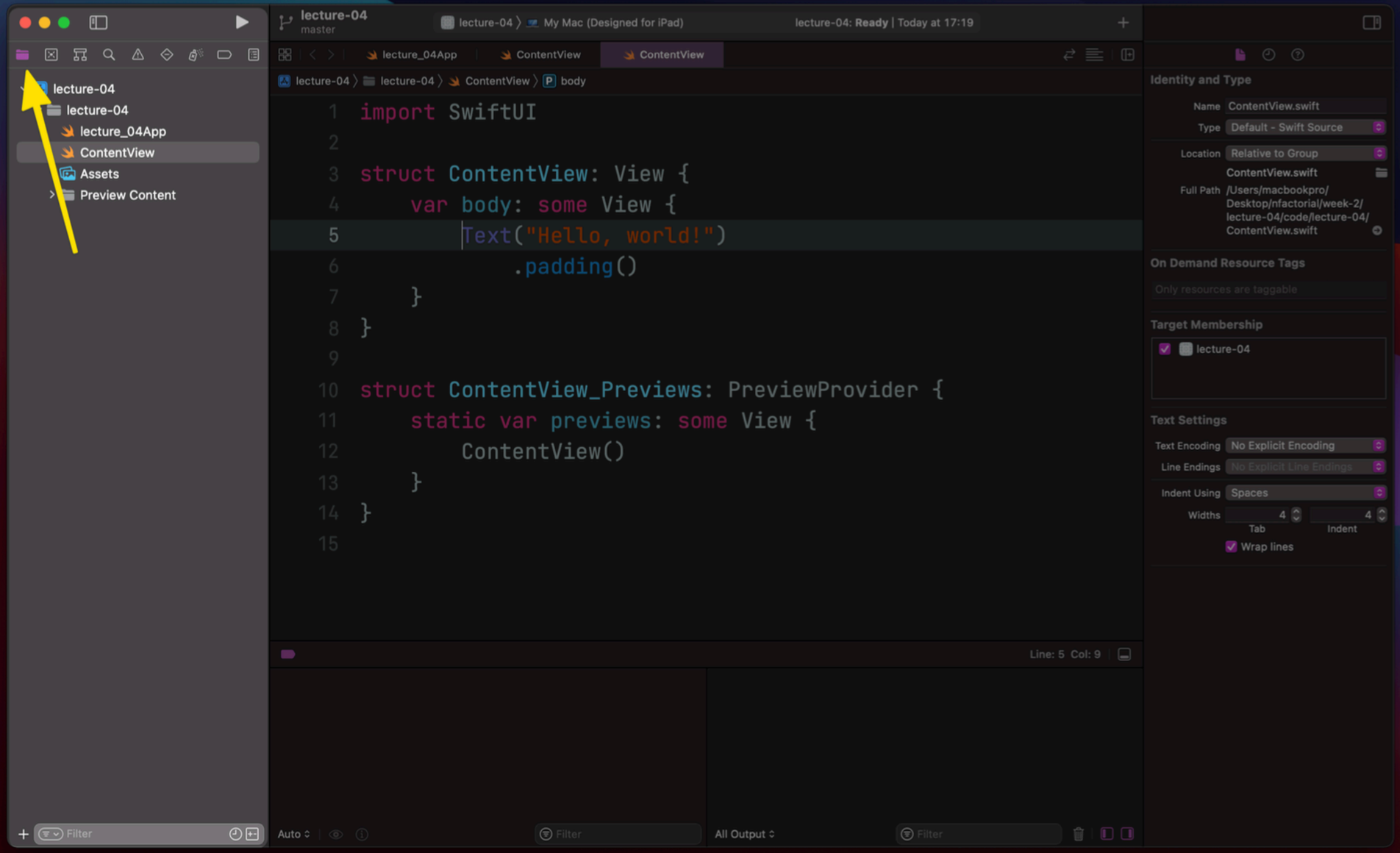
-> Vision

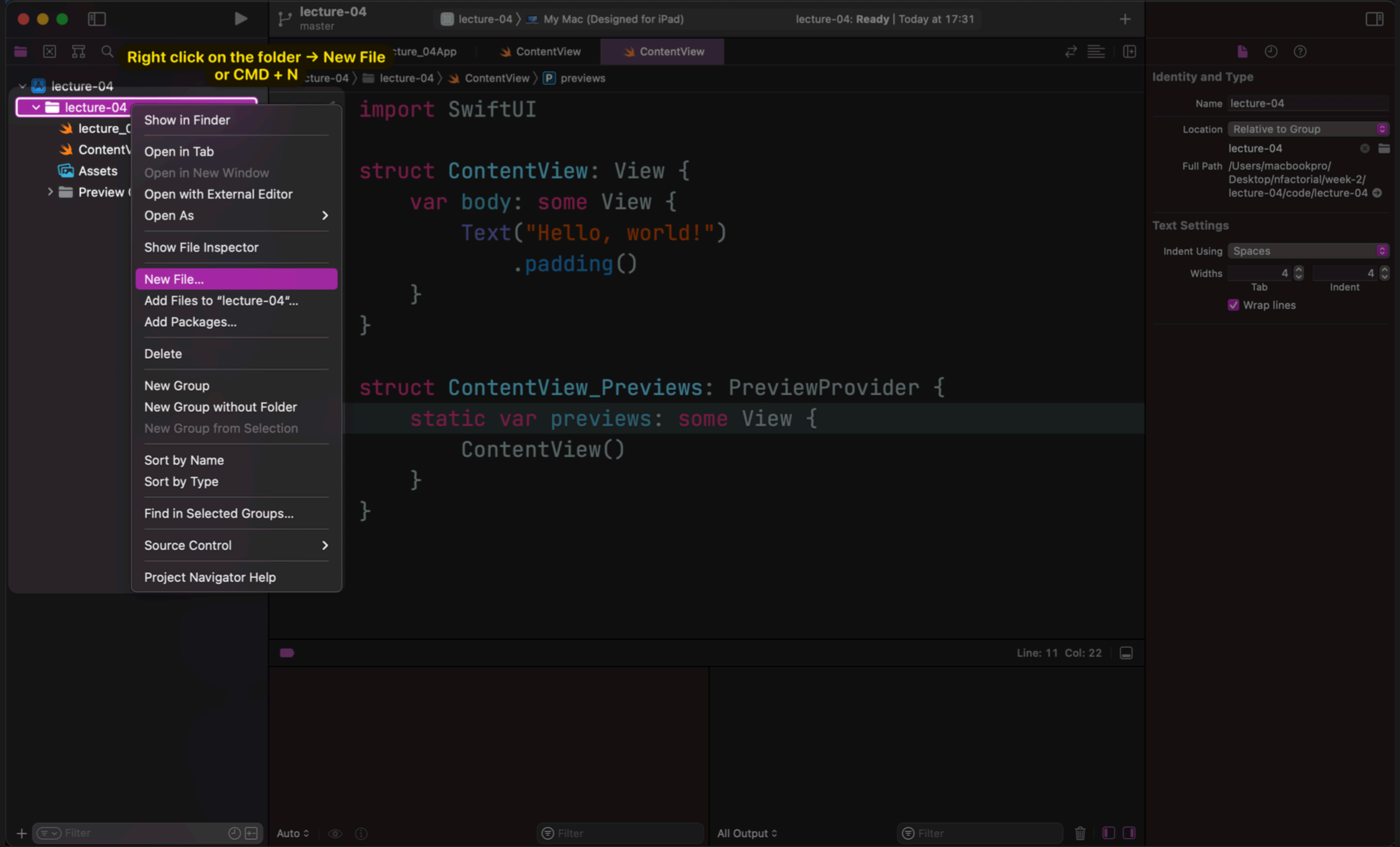
- if you have a problem, Google it first, then come to a mentor
- do not reinvent the wheel
- release early, release often
- copy-pasting is fine as long as you understand the code
- you need to have an idea by the end of week 1
- you need to start working on the release on July 12
- you need to send the app for review on July 21

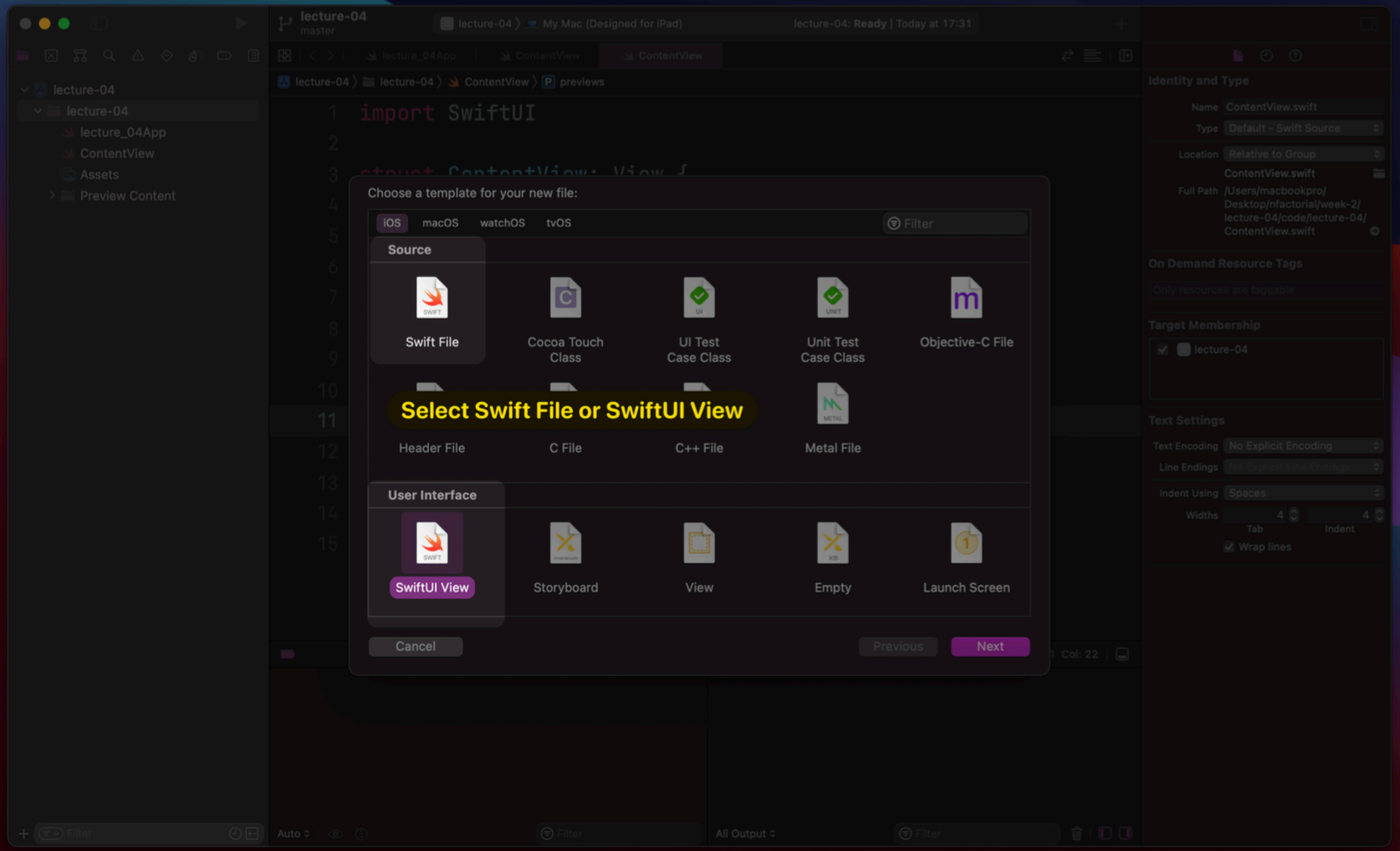
-> Why SwiftUI

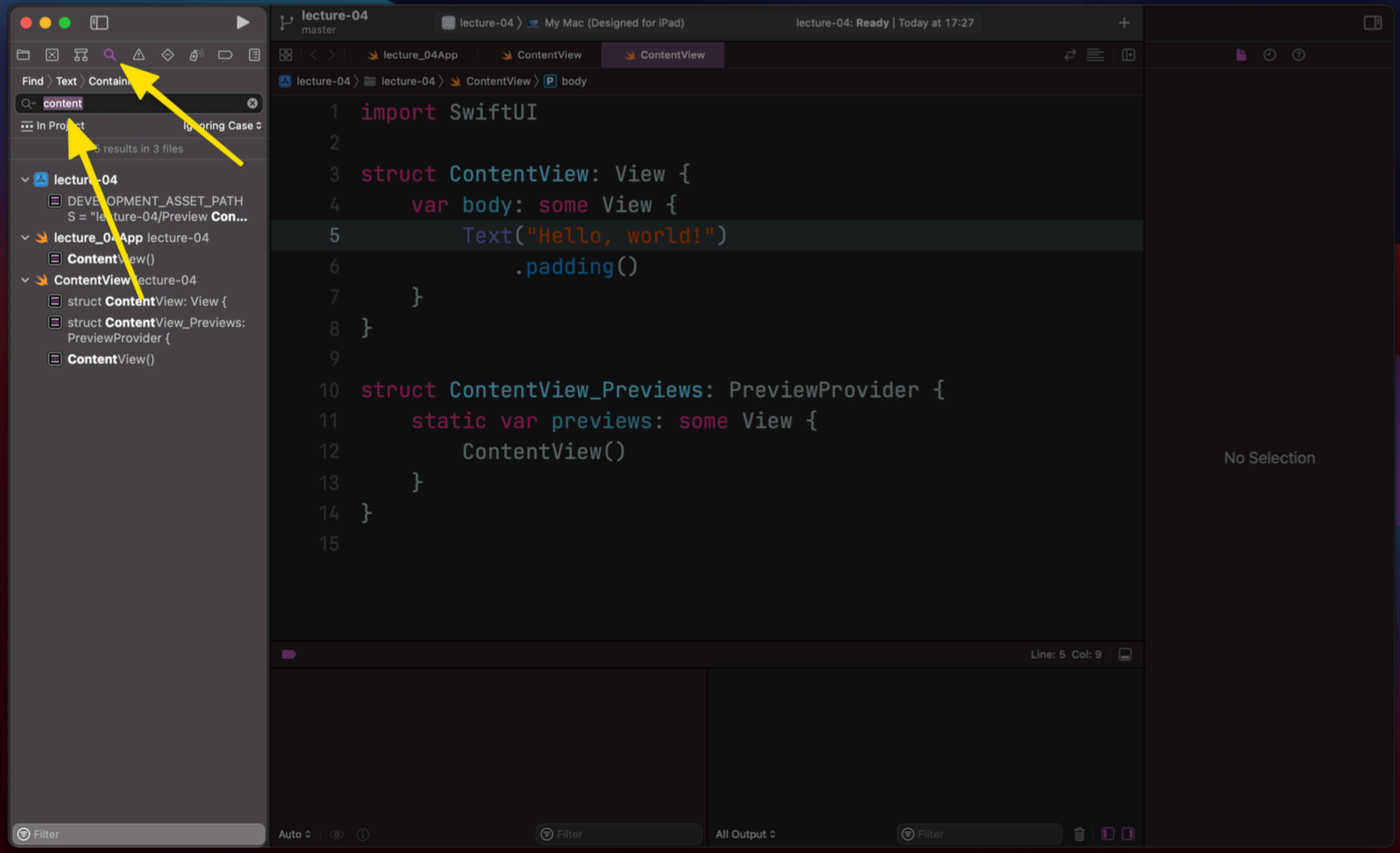
- SwiftUI is 100% future of app development for Apple platforms
- But if you want to make app development career today you 100% need some UIKit knowledge
- SwiftUI is interoperable with UIKit, i.e. you can mix your SwiftUI code with UIKit and vice-versa
- SwiftUI is cross-platform (iOS, macOS, watchOS, tvOS)
- Declarative UI is about saying what we want, instead of saying how we want it:
  - Declarative – framework is smart, it guesses how to do on its own
  - Imperative – framework is stupid, you tell it how to do things

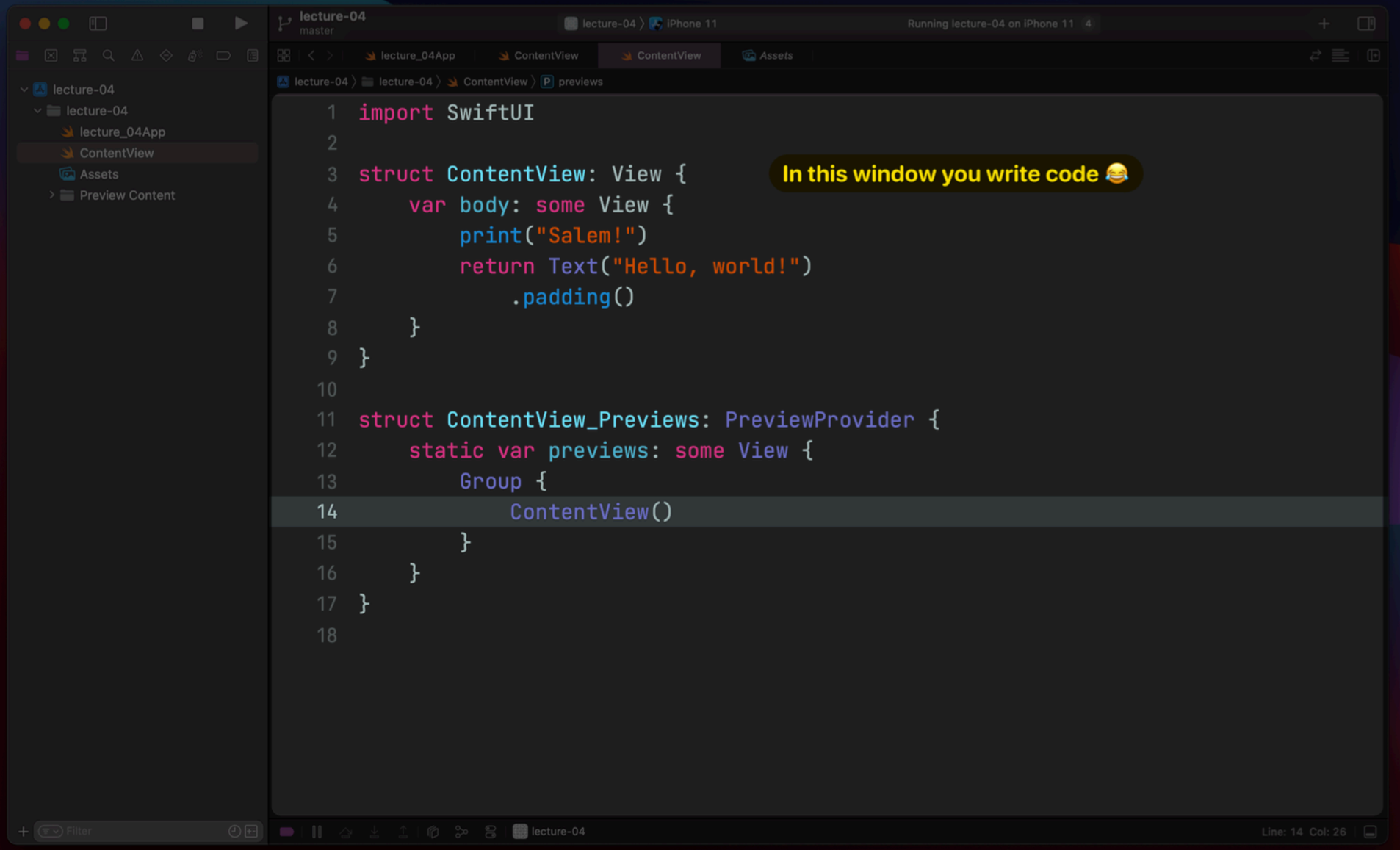
-> Xcode 101

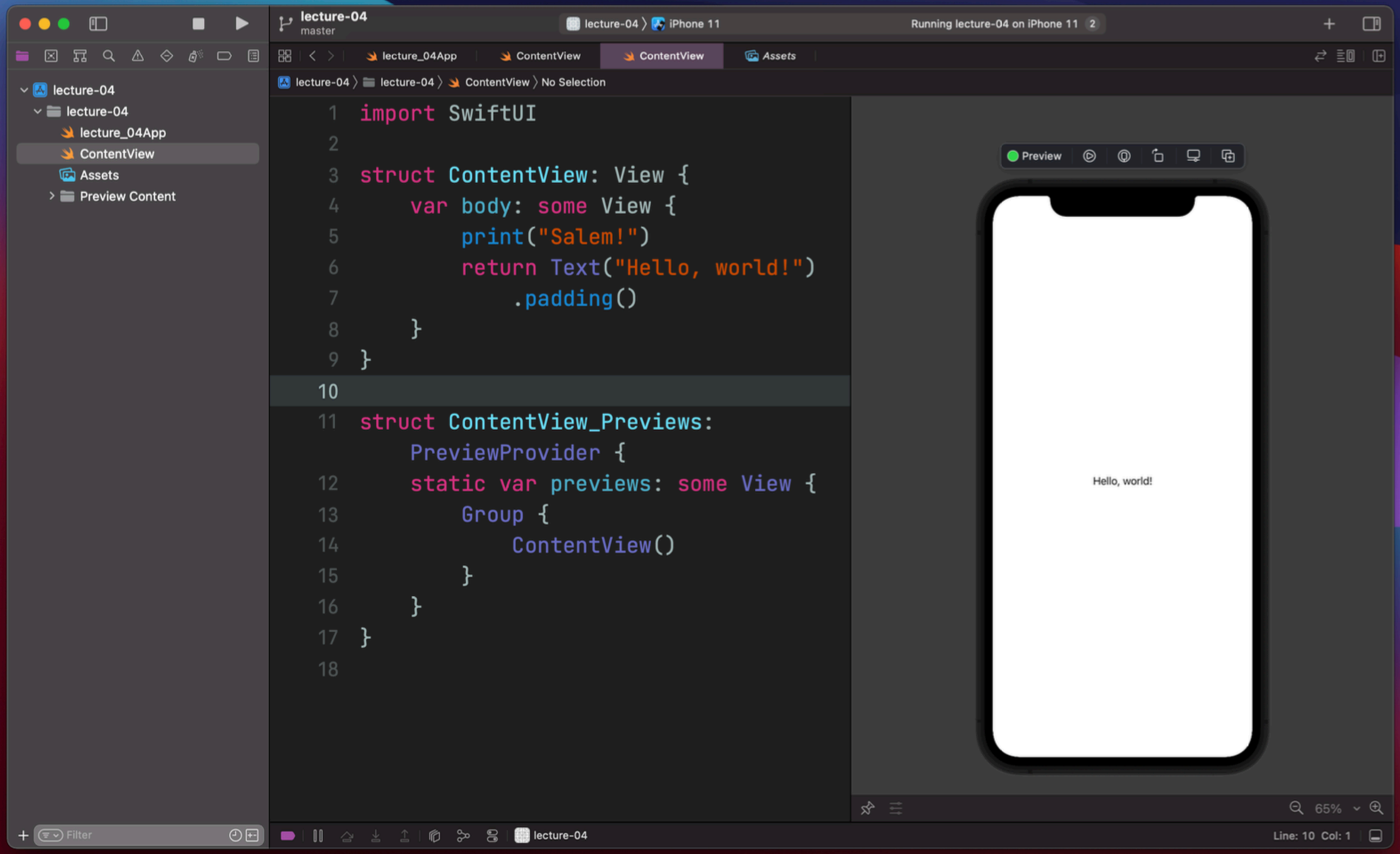

lecture-04
master
lecture-04 〉 My Mac (Designed for iPad)
lecture-04: Ready | Today at 17:19
lecture_04App
ContentView
ContentView
lecture-04 〉 lecture-04 〉 ContentView 〉 body
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
1 import SwiftUI
2
3 struct ContentView: View {
4 var body: some View {
5 Text("Hello, world!")
6 .padding()
7 }
8 }
9
10 struct ContentView_Previews: PreviewProvider {
11 static var previews: some View {
12 ContentView()
13 }
14 }
15
Line: 5 Col: 9
Identity and Type
Name ContentView.swift
Type Default - Swift Source
Location Relative to Group
ContentView.swift
Full Path /Users/macbookpro/Desktop/nfactorial/week-2/lecture-04/code/lecture-04/ContentView.swift
On Demand Resource Tags
Only resources are taggable
Target Membership
lecture-04
Text Settings
Text Encoding No Explicit Encoding
Line Endings No Explicit Line Endings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Filter
Auto
Filter
All Output
Filter

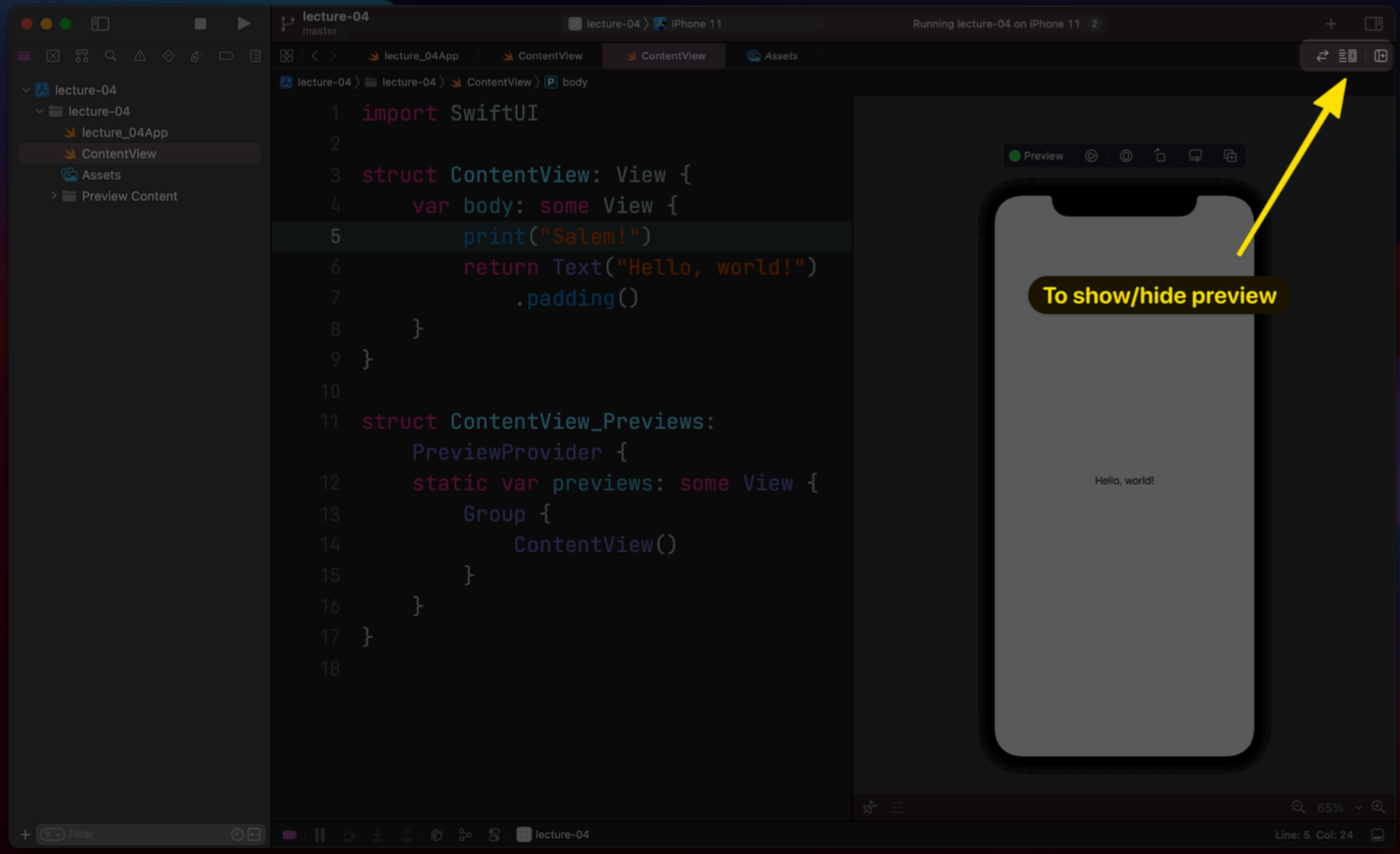

Right click on the folder → New File
or CMD + N
lecture-04
master
lecture-04 〉 My Mac (Designed for iPad)
lecture-04: Ready | Today at 17:31
ContentView
ContentView
lecture-04
lecture-04
Assets
Show in Finder
Open in Tab
Open in New Window
Open with External Editor
Open As
Show File Inspector
New File...
Add Files to "lecture-04"...
Add Packages...
Delete
New Group
New Group without Folder
New Group from Selection
Sort by Name
Sort by Type
Find in Selected Groups...
Source Control
Project Navigator Help
ContentView 〉 previews
import SwiftUI
struct ContentView: View {
var body: some View {
Text("Hello, world!")
.padding()
}
}
struct ContentView_Previews: PreviewProvider {
static var previews: some View {
ContentView()
}
}
Identity and Type
Name lecture-04
Location Relative to Group
lecture-04
Full Path /Users/macbookpro/Desktop/nfactorial/week-2/lecture-04/code/lecture-04
Text Settings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Line: 11 Col: 22
Auto
All Output
Filter


lecture-04
master
lecture-04 〉 My Mac (Designed for iPad)
lecture-04: Ready | Today at 17:31
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
lecture-04 〉 lecture-04 〉 ContentView 〉 previews
1 import SwiftUI
Choose a template for your new file:
iOS
macOS
watchOS
tvOS
Filter
Source
Swift File
Cocoa Touch Class
UI Test Case Class
Unit Test Case Class
Objective-C File
Header File
C File
C++ File
Metal File
Select Swift File or SwiftUI View
User Interface
SwiftUI View
Storyboard
View
Empty
Launch Screen
Cancel
Previous
Next
Identity and Type
Name ContentView.swift
Type Default - Swift Source
Location Relative to Group
ContentView.swift
Full Path /Users/macbookpro/Desktop/nfactorial/week-2/lecture-04/code/lecture-04/ContentView.swift
On Demand Resource Tags
Only resources are taggable
Target Membership
lecture-04
Text Settings
Text Encoding No Explicit Encoding
Line Endings No Explicit Line Endings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Auto
All Output
Col: 22


lecture-04
master
lecture-04 〉 My Mac (Designed for iPad)
lecture-04: Ready | Today at 17:27
lecture_04App
ContentView
ContentView
lecture-04 〉 lecture-04 〉 ContentView 〉 P body
Find 〉 Text 〉 Contain
content
In Project
Ignoring Case
results in 3 files
lecture-04
DEVELOPMENT_ASSET_PATHS = "lecture-04/Preview Con...
lecture_04App lecture-04
ContentView()
ContentView lecture-04
struct ContentView: View {
struct ContentView_Previews: PreviewProvider {
ContentView()
import SwiftUI
struct ContentView: View {
var body: some View {
Text("Hello, world!")
.padding()
}
}
struct ContentView_Previews: PreviewProvider {
static var previews: some View {
ContentView()
}
}
No Selection
Line: 5 Col: 9
Filter
Auto
Filter
All Output
Filter


lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
Assets
lecture-04 〉 lecture-04 〉 ContentView 〉 previews
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
In this window you write code 😂
import SwiftUI
struct ContentView: View {
var body: some View {
print("Salem!")
return Text("Hello, world!")
.padding()
}
}
struct ContentView_Previews: PreviewProvider {
static var previews: some View {
Group {
ContentView()
}
}
}
Filter
lecture-04
Line: 14 Col: 26


lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
Assets
lecture-04 〉 lecture-04 〉 ContentView 〉 No Selection
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
Filter
1 import SwiftUI
2
3 struct ContentView: View {
4 var body: some View {
5 print("Salem!")
6 return Text("Hello, world!")
7 .padding()
8 }
9 }
10
11 struct ContentView_Previews:
PreviewProvider {
12 static var previews: some View {
13 Group {
14 ContentView()
15 }
16 }
17 }
18
Preview
Hello, world!
65%
lecture-04
Line: 10 Col: 1


lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
Assets
lecture-04 〉 lecture-04 〉 ContentView 〉 body
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
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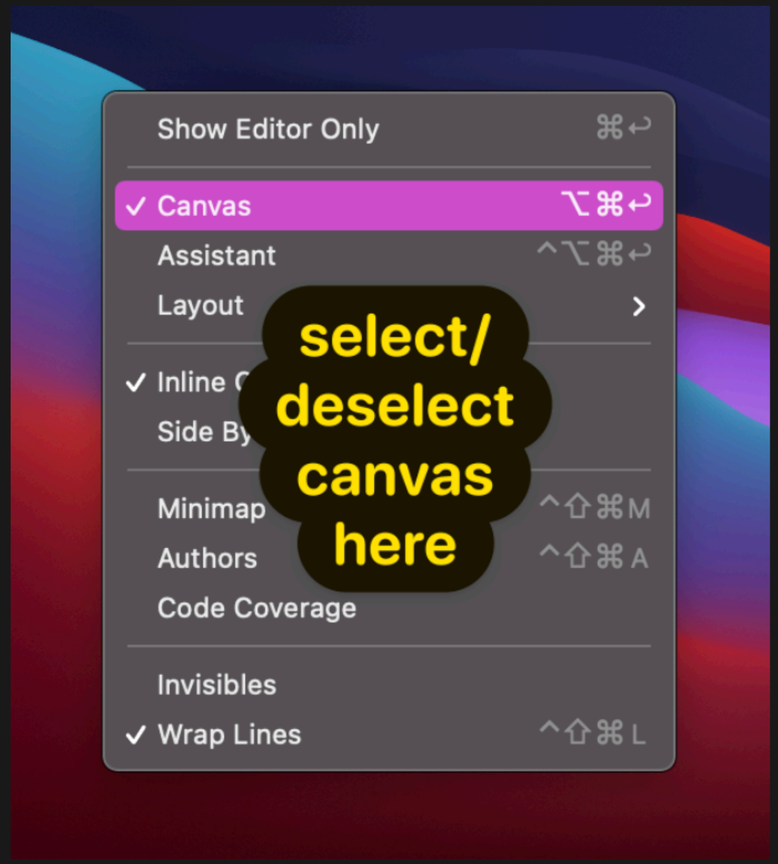
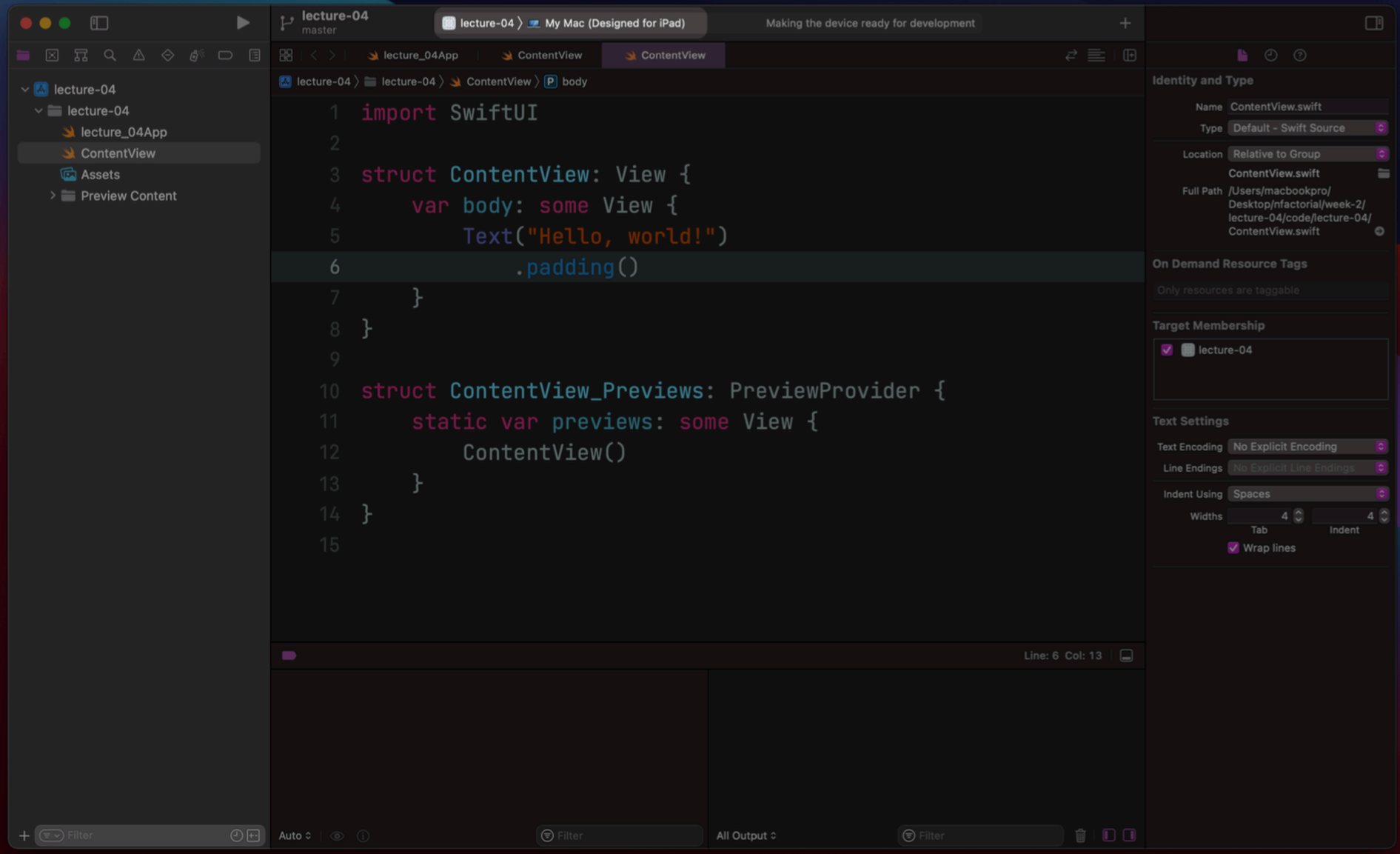
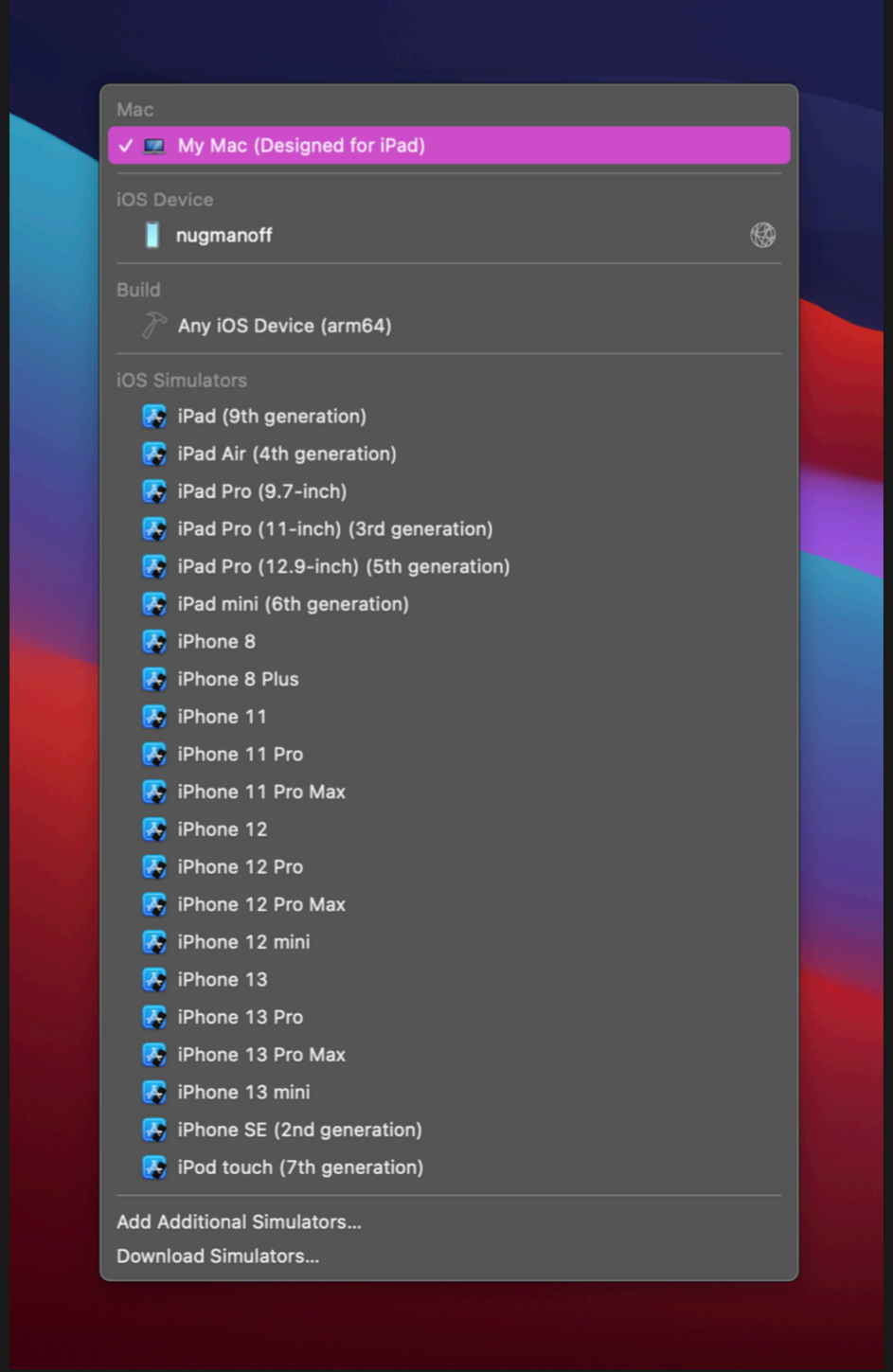
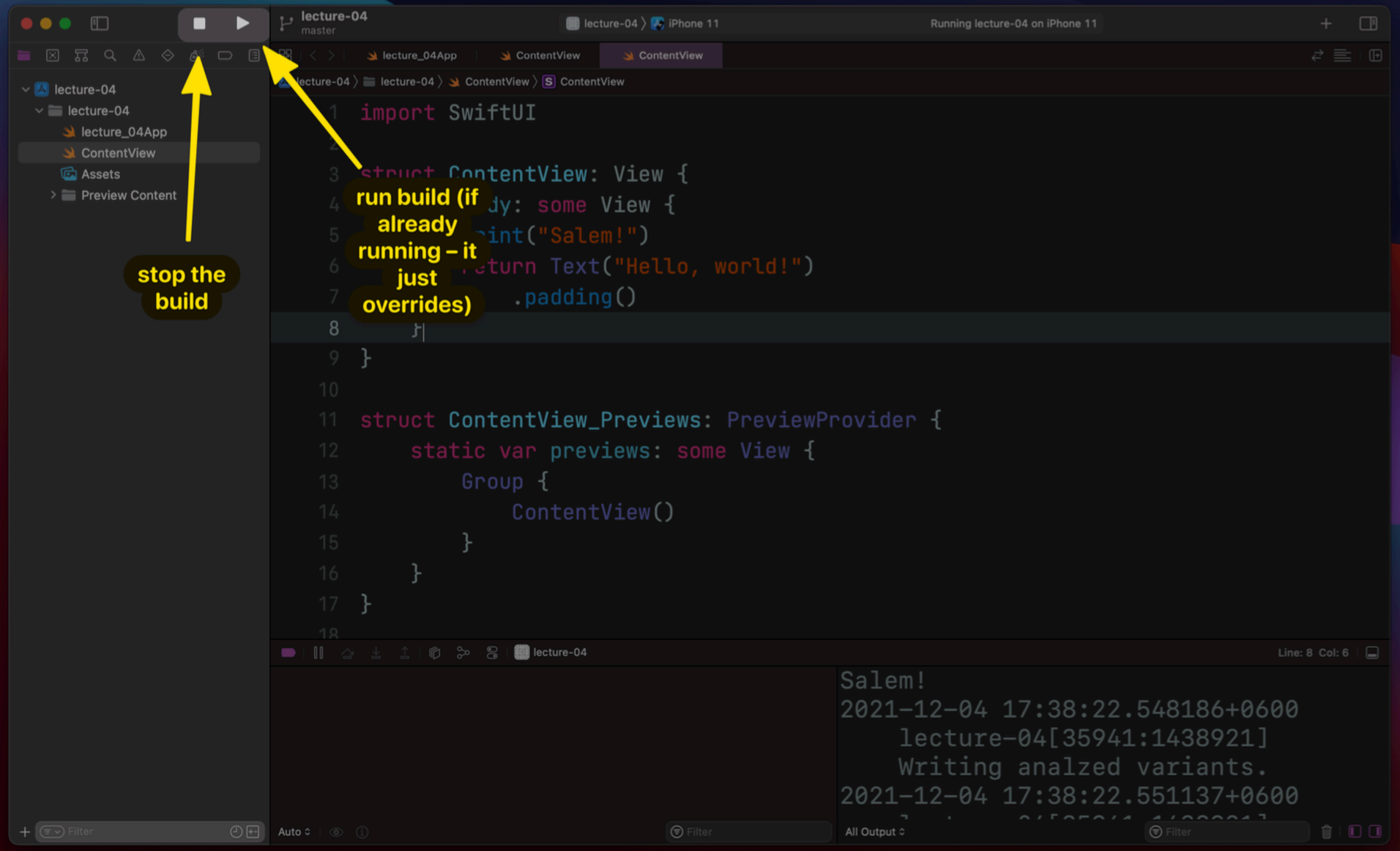
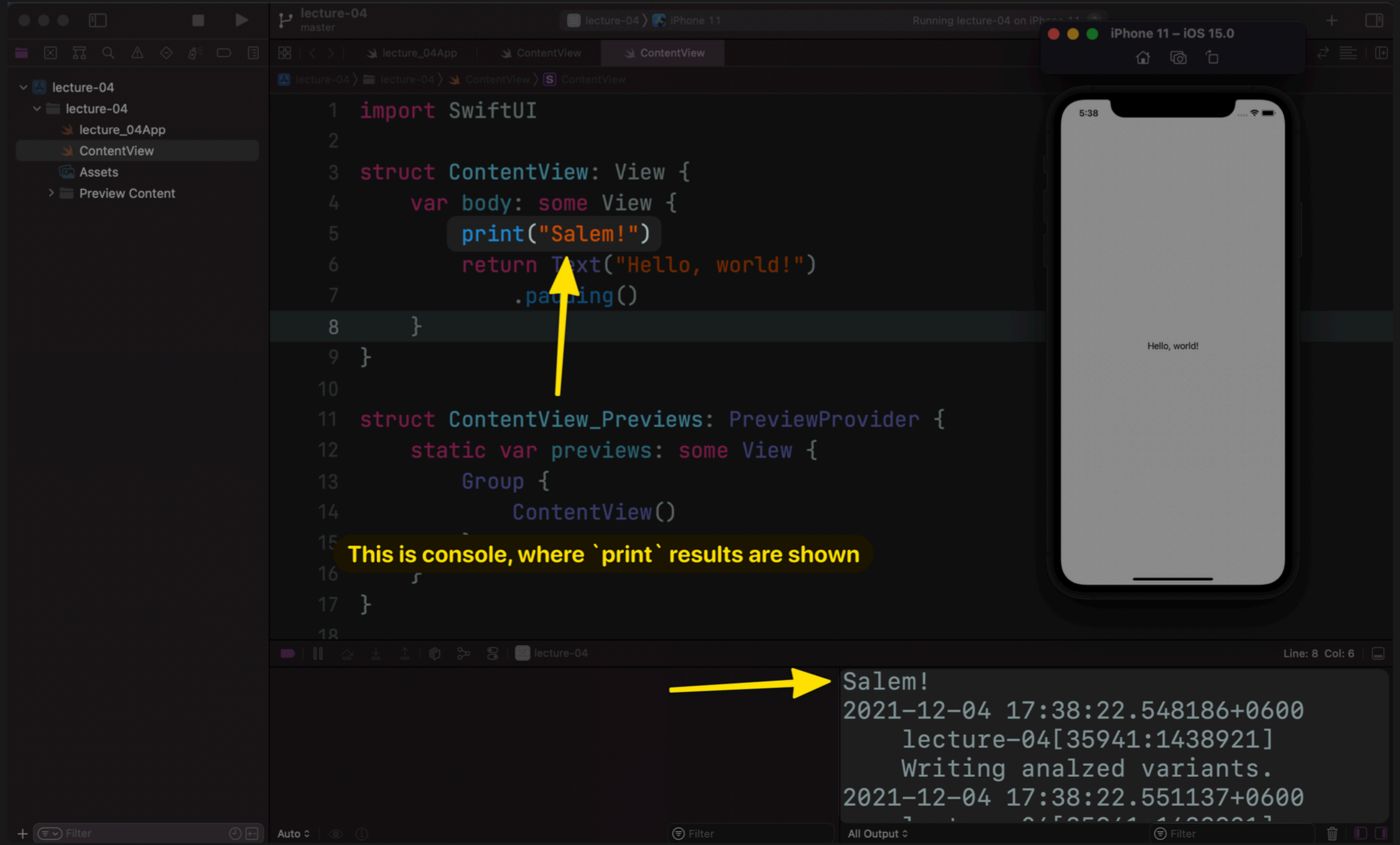
3 struct ContentView: View {
4 var body: some View {
5 print("Salem!")
6 return Text("Hello, world!")
7 .padding()
8 }
9 }
10
11 struct ContentView_Previews:
PreviewProvider {
12 static var previews: some View {
13 Group {
14 ContentView()
15 }
16 }
17 }
18
Preview
To show/hide preview
Hello, world!
65%
Filter
lecture-04
Line: 5 Col: 24

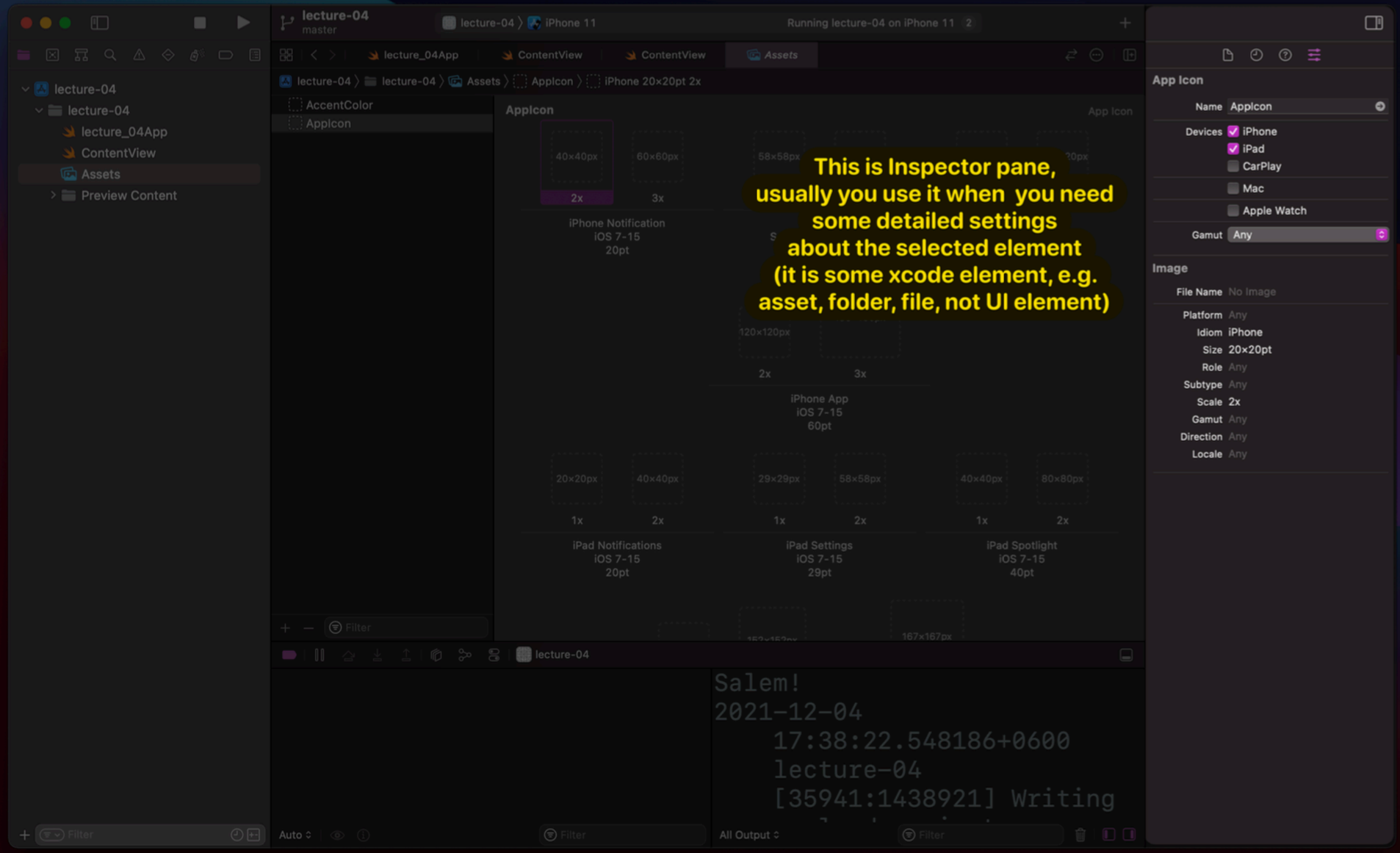

Show Editor Only ⌘↩
✓ Canvas ⌥⌘↩
Assistant ^⌥⌘↩
Layout
✓ Inline
Side By
Minimap ^⇧⌘M
Authors ^⇧⌘A
Code Coverage
Invisibles
✓ Wrap Lines ^⇧⌘L
select/ deselect canvas here


lecture-04
master
lecture-04 〉 My Mac (Designed for iPad)
Making the device ready for development
lecture_04App
ContentView
ContentView
lecture-04 〉 lecture-04 〉 ContentView 〉 body
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
1 import SwiftUI
2
3 struct ContentView: View {
4 var body: some View {
5 Text("Hello, world!")
6 .padding()
7 }
8 }
9
10 struct ContentView_Previews: PreviewProvider {
11 static var previews: some View {
12 ContentView()
13 }
14 }
15
Line: 6 Col: 13
Identity and Type
Name ContentView.swift
Type Default - Swift Source
Location Relative to Group
ContentView.swift
Full Path /Users/macbookpro/Desktop/nfactorial/week-2/lecture-04/code/lecture-04/ContentView.swift
On Demand Resource Tags
Only resources are taggable
Target Membership
lecture-04
Text Settings
Text Encoding No Explicit Encoding
Line Endings No Explicit Line Endings
Indent Using Spaces
Widths 4 4
Tab Indent
Wrap lines
Auto
Filter
All Output
Filter

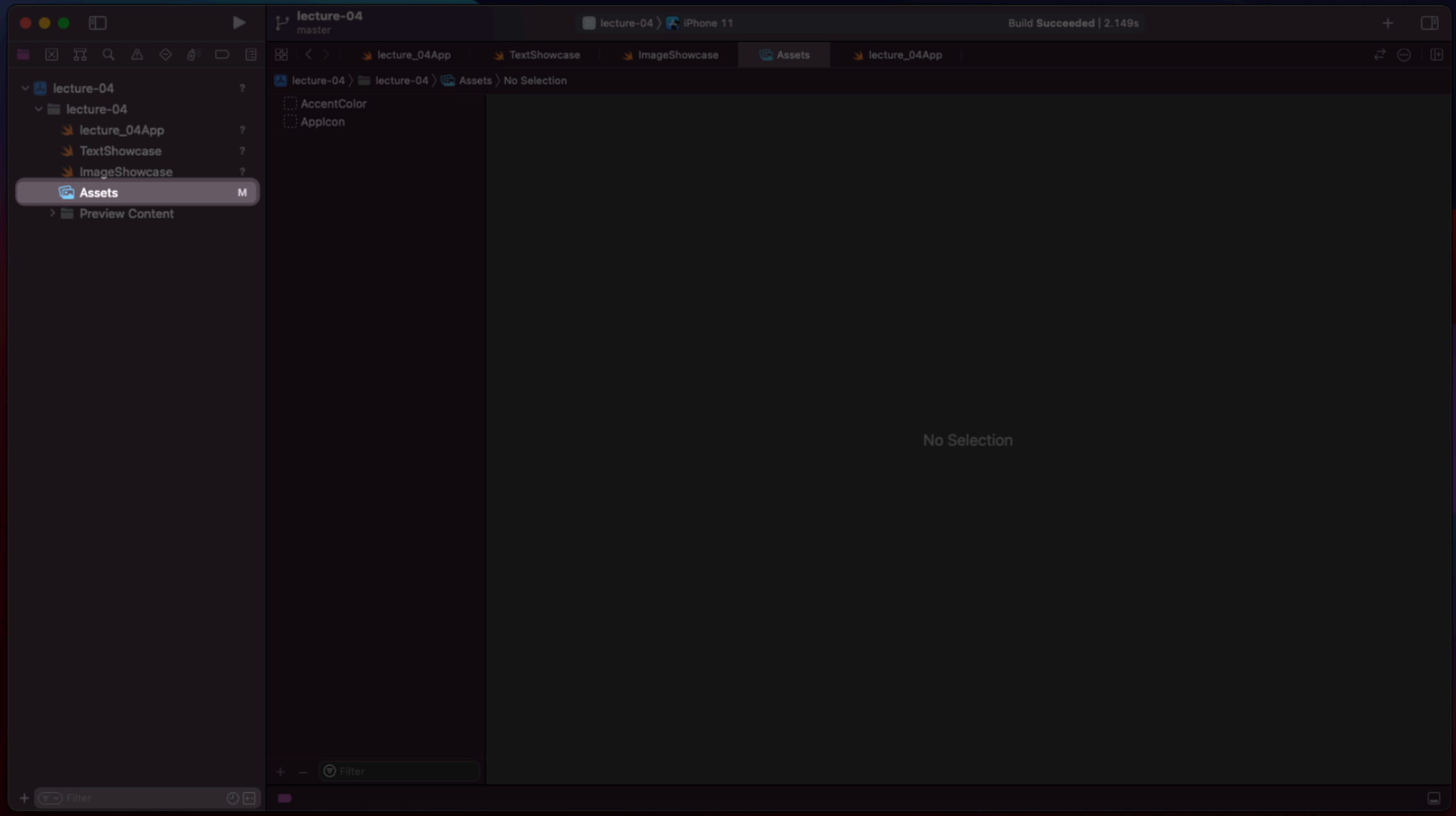

Mac
My Mac (Designed for iPad)
iOS Device
nugmanoff
Build
Any iOS Device (arm64)
iOS Simulators
iPad (9th generation)
iPad Air (4th generation)
iPad Pro (9.7-inch)
iPad Pro (11-inch) (3rd generation)
iPad Pro (12.9-inch) (5th generation)
iPad mini (6th generation)
iPhone 8
iPhone 8 Plus
iPhone 11
iPhone 11 Pro
iPhone 11 Pro Max
iPhone 12
iPhone 12 Pro
iPhone 12 Pro Max
iPhone 12 mini
iPhone 13
iPhone 13 Pro
iPhone 13 Pro Max
iPhone 13 mini
iPhone SE (2nd generation)
iPod touch (7th generation)
Add Additional Simulators...
Download Simulators...

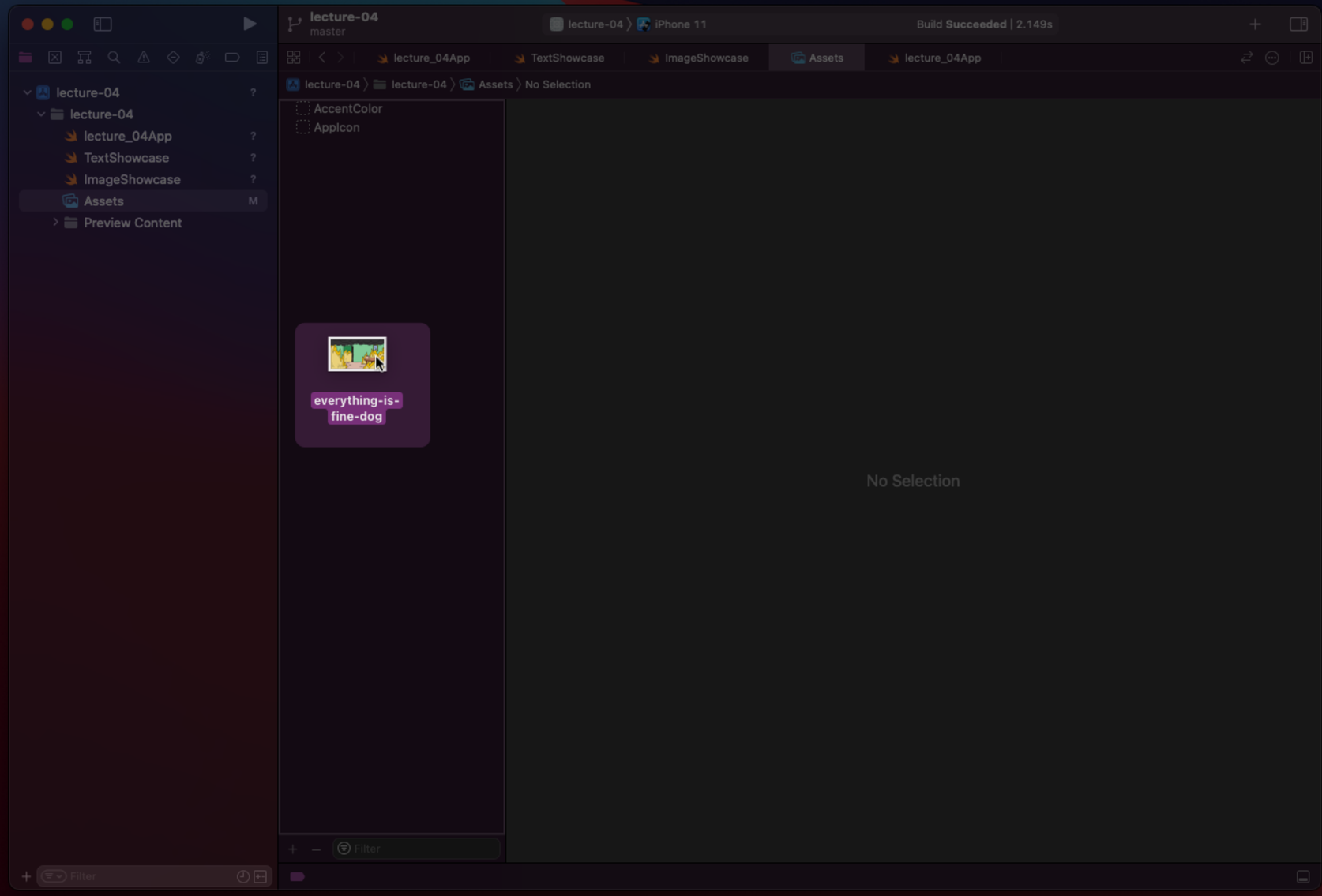

lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
lecture-04 〉 lecture-04 〉 ContentView 〉 ContentView
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
stop the build
run build (if already running – it just overrides)
import SwiftUI
struct ContentView: View {
dy: some View {
int("Salem!")
eturn Text("Hello, world!")
.padding()
}
}
struct ContentView_Previews: PreviewProvider {
static var previews: some View {
Group {
ContentView()
}
}
}
lecture-04
Line: 8 Col: 6
Salem!
2021-12-04 17:38:22.548186+0600
lecture-04[35941:1438921]
Writing analzed variants.
2021-12-04 17:38:22.551137+0600
Auto
All Output
Filter


lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
lecture-04
lecture-04
lecture_04App
ContentView
Assets
Preview Content
import SwiftUI
struct ContentView: View {
var body: some View {
print("Salem!")
return Text("Hello, world!")
.padding()
}
}
struct ContentView_Previews: PreviewProvider {
static var previews: some View {
Group {
ContentView()
}
}
}
This is console, where `print` results are shown
iPhone 11 – iOS 15.0
5:38
Hello, world!
Line: 8 Col: 6
Salem!
2021-12-04 17:38:22.548186+0600
lecture-04[35941:1438921]
Writing analzed variants.
2021-12-04 17:38:22.551137+0600
Auto
All Output
Filter


This is Inspector pane,
usually you use it when you need
some detailed settings
about the selected element
(it is some xcode element, e.g.
asset, folder, file, not UI element)
lecture-04
master
lecture-04 〉 iPhone 11
Running lecture-04 on iPhone 11
lecture_04App
ContentView
ContentView
Assets
lecture-04 〉 lecture-04 〉 Assets 〉 AppIcon 〉 iPhone 20×20pt 2x
AccentColor
AppIcon
AppIcon
App Icon
40×40px
60×60px
2x
3x
iPhone Notification
iOS 7-15
20pt
58×58px
120×120px
2x
3x
iPhone App
iOS 7-15
60pt
20×20px
40×40px
1x
2x
iPad Notifications
iOS 7-15
20pt
29×29px
58×58px
1x
2x
iPad Settings
iOS 7-15
29pt
40×40px
80×80px
1x
2x
iPad Spotlight
iOS 7-15
40pt
167×167px
lecture-04
Salem!
2021-12-04
17:38:22.548186+0600
lecture-04
[35941:1438921] Writing
App Icon
Name AppIcon
Devices iPhone
iPad
CarPlay
Mac
Apple Watch
Gamut Any
Image
File Name No Image
Platform Any
Idiom iPhone
Size 20×20pt
Role Any
Subtype Any
Scale 2x
Gamut Any
Direction Any
Locale Any

=> How to add image?


lecture-04
master
lecture-04 〉 iPhone 11
Build Succeeded | 2.149s
lecture_04App
TextShowcase
ImageShowcase
Assets
lecture_04App
lecture-04 〉 lecture-04 〉 Assets 〉 No Selection
lecture-04
lecture-04
lecture_04App
TextShowcase
ImageShowcase
Assets M
Preview Content
AccentColor
AppIcon
No Selection
Filter
Filter


lecture-04
master
lecture-04 〉 iPhone 11
Build Succeeded | 2.149s
lecture_04App
TextShowcase
ImageShowcase
Assets
lecture_04App
lecture-04 〉 lecture-04 〉 Assets 〉 No Selection
lecture-04
lecture-04
lecture_04App
TextShowcase
ImageShowcase
Assets
M
Preview Content
AccentColor
AppIcon
everything-is-fine-dog
No Selection
Filter
Filter

-> SwiftUI anatomy


```
struct ContentView: View {
    var body: some View {
        Text("Hello, world!")
            .padding()
    }
}
```

They all need to conform to `View` protocol

```
struct ContentView: View {
    var body: some View {
        Text("Hello, world!")
            .padding()
    }
}
```

This variable is protocol's only requirement,
It returns `View`s content (i.e. body)

^Views usually have lightweight init ->

And configured through modifiers (methods) ->

```
struct ContentView: View {
    var body: some View {
        Text("Hello, world!")
            .padding()
    }
}
```

-> Let’s code components 🚀

Q/A

Rakhmet 💚