Guided Tour Playground SwiftUI Image

A Swift Tour

Tradition suggests that the first program in a new language should print the words “Hello, world!” on the screen. In Swift, this can be done in a single line:

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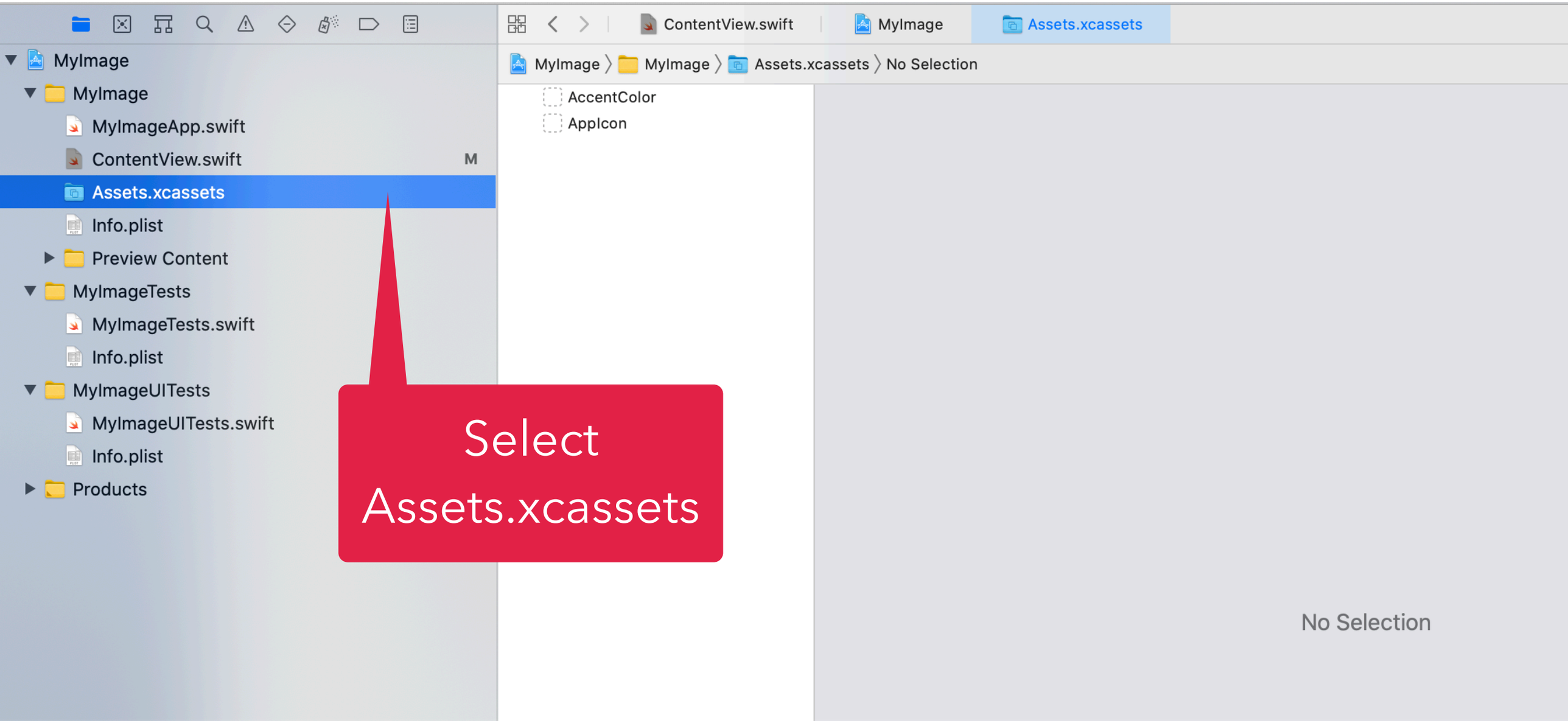
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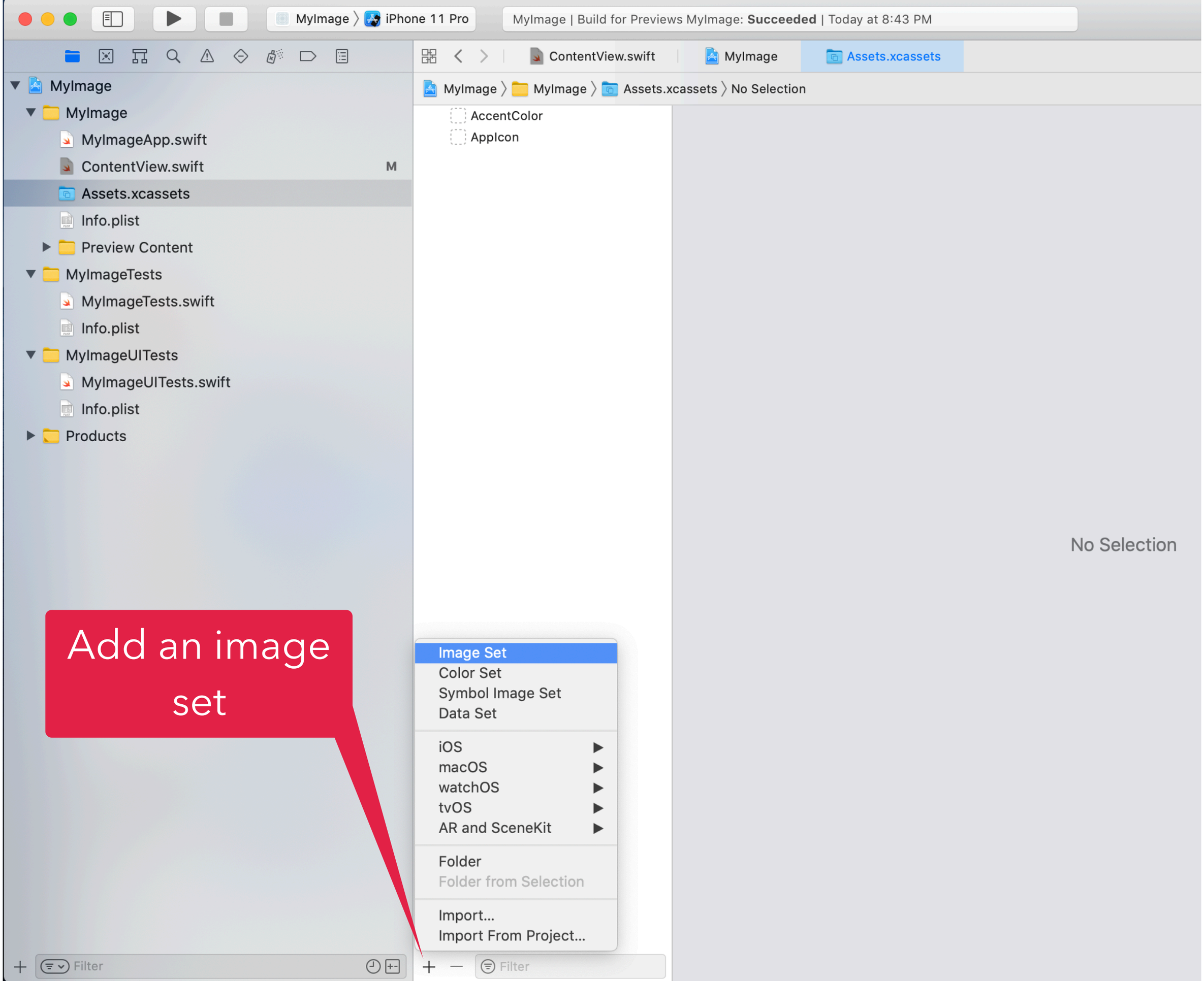
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ContentView.swift | MyImage | Assets.xcassets

MyImage 〉 MyImage 〉 Assets.xcassets 〉 fall-leaves

- AccentColor
- AppIcon
- fall-leaves

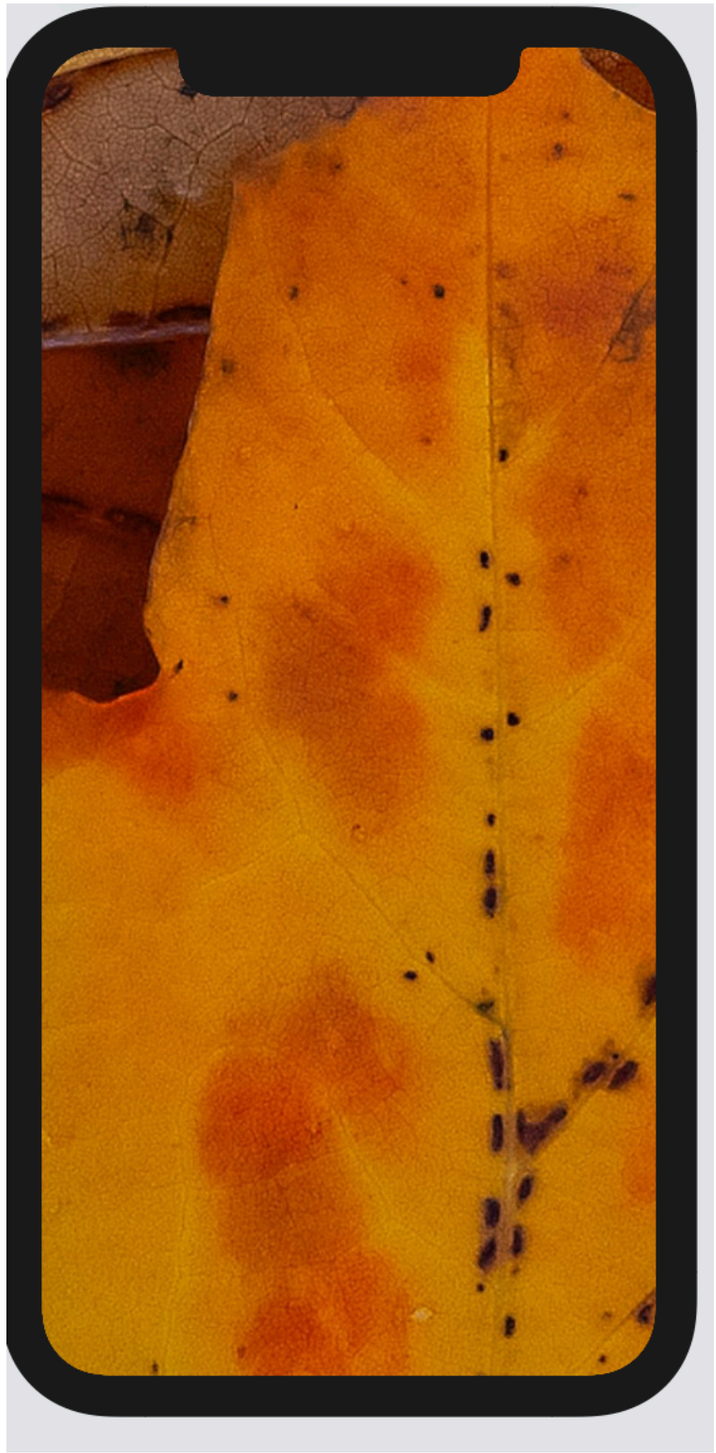
Key in Image name

fall-leaves

1x	2x	3x
	Universal	

Drag image to here

```
struct ContentView: View {
    var body: some View {
        Image("fall-leaves")
    }
}
```



```swift
struct ContentView: View {
    var body: some View {
        Image("fall-leaves")
            .resizable()
    }
}
```

```swift
struct ContentView: View {
    var body: some View {
        Image("fall-leaves")
            .resizable()
            .scaledToFit()
    }
}
```

1

```
struct ContentView: View {
    var body: some View {
        guard let img = UIImage(named: "fall-
leaves") else{
            fatalError("Unable to load!")
        }
        return Image(uiImage: img)
            .resizable()
            .scaledToFit()
    }
}
```

使用guard let錯誤處理

Assignment

```swift
var myVariable = 42      // variable (can't be nil)
let pi = 3.1415926        // constant
let (x, y) = (10, 20)    // x = 10, y = 20
let explicitDouble: Double = 1_000.000_1    // 1,000.0001
let piText = "Pi = \(pi)"     // String interpolation
var optionalString: String? = "optional"    // Can be nil
optionalString = nil
```

Assign nil to an optional string
允許未定義

Type of optional string
String?

```swift
import UIKit

var str = "Hello, playground"
var myVariable = 42      // variable (can't be nil)
let pi = 3.1415926        // constant
let (x, y) = (10, 20)    // x = 10, y = 20
let explicitDouble: Double = 1_000.000_1     // 1,000.0001
let piText = "Pi = \(pi)"     // String interpolation
var optionalString: String? = "optional"     // Can be nil
optionalString = nil
```

```
"Hello, playground"
42
3.1415926
1000.0001
"Pi = 3.1415926"
"optional"
nil
```

An array of String

```
//Array
var shoppingList = ["catfish", "water", "lemons"]
shoppingList[1] = "bottle of water"      // update
print(shoppingList.count)   // size of array (3)
shoppingList.append("eggs")
shoppingList += ["Milk"]
```

Append an item to it

shopList is an object
Its size is shoppingList.count

```
12 var shoppingList = ["catfish", "water", "lemons"]
13 shoppingList[1] = "bottle of water"      // update
14 print(shoppingList.count)    // size of array (3)
15 shoppingList.append("eggs")
16 shoppingList += ["Milk"]
17
```

```
["catfish", "wat...
"bottle of water"
"3\n"
["catfish", "bott...
["catfish", "bott...
```

An array of integers

```
// Array slicing
var fibList = [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 5]
print(fibList[4..<6])
print(fibList[0..<(fibList.endIndex-1)]) // all except last
item
print(Array(fibList[0..<4]))
```

// [3, 5]. Note: the end range value is exclusive

// Subscripting returns the Slice type, instead of the Array type.
// You may need to cast it to Array in order to satisfy the type checker

```
19 var fibList = [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 5]                [0, 1, 1, 2, 3, 5,...
20 print(fibList[4..<6])                                             "[3, 5]\n"
21 print(fibList[0..<(fibList.endIndex-1)]) // all except            "[0, 1, 1, 2, 3, 5...
       last item
   print(Array(fibList[0..<4]))                                      "[0, 1, 1, 2]\n"
23                                                                   [{lowerBound 1...
```

```
// Variants of creating an array. All three are equivalent.
var emptyArray1 = [String]()
var emptyArray2: [String] = []
var emptyArray3: [String] = [String]()
```

```
32  let anArray = Array(1...8)
33  print(anArray)
34  var ages = [ 21, 55, 19, 47, 22, 37,
        88, 71 ]
35  ages.count
36  ages.last
37  ages[3]
38  ages.append(99)
39  ages.insert(44, at:4)
40  ages.sort()
41  ages.reverse()
42  ages.shuffle()
```

```
[1, 2, 3, 4, 5, 6, 7, 8]
"[1, 2, 3, 4, 5, 6, 7, 8]\n"
[21, 55, 19, 47, 22, 37, 88, 71]
8
71
47
[21, 55, 19, 47, 22, 37, 88, 71, 99]
[21, 55, 19, 47, 44, 22, 37, 88, 71, 99]
[19, 21, 22, 37, 44, 47, 55, 71, 88, 99]
[99, 88, 71, 55, 47, 44, 37, 22, 21, 19]
[47, 88, 71, 99, 44, 37, 19, 22, 55, 21]
```

Playground_SwiftUI

```
//: A UIKit based Playground for presenting

import UIKit
import PlaygroundSupport
import SwiftUI

struct ContentView: View {
    var body: some View {
        Text("SwiftUI in a Playground!")
    }
}

let viewController =
    UIHostingController(rootView: ContentView())
// Present the view controller in the Live View
window
PlaygroundPage.current.liveView = viewController
```

```swift
import UIKit
import PlaygroundSupport
import SwiftUI

struct ContentView: View {
    var body: some View {
        VStack{
            Text("SwiftUI in a Playground!")
            Spacer()
            Text("SwiftUI in a Playground!")
        }
    }
}

let viewController =
    UIHostingController(rootView: ContentView())
// Present the view controller in the Live View window
PlaygroundPage.current.liveView = viewController
```

SwiftUI in a Playground!

SwiftUI in a Playground!

MyPlayground_swiftUI

```swift
import UIKit
import PlaygroundSupport
import SwiftUI

struct ContentView: View {
    var body: some View {
        VStack{
            Text("SwiftUI in a Playground!")
            Spacer()
            Text("SwiftUI in a Playground!")
            Spacer()
            Button("Click Me"){
                print("Hello World")
            }

        }
    }
}

let viewController =
    UIHostingController(rootView: ContentView())
// Present the view controller in the Live View window
PlaygroundPage.current.liveView = viewController
```

SwiftUI.VSt...
SwiftUI.Tup...
SwiftUI.Text
SwiftUI.Sp...
SwiftUI.Text
SwiftUI.Sp...
SwiftUI.But...
()
SwiftUI.Tup...
SwiftUI.VSt...
<_TtGC7S...

SwiftUI in a Playground!
SwiftUI in a Playground!
Click Me

Hello World

A Swift Tour

Tradition suggests that the first program in a new language should print the words “Hello, world!” on the screen. In Swift, this can be done in a single line:

Guided Tour

Simple Values

Guided Tour
Simple Values

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Enumerations and Structures | Objects and Classes.xcplaygroundpage | *Simple Values.xcplaygroundpage* | Functions and Closures

GuidedTour 〉 Simple Values

A Swift Tour

Tradition suggests that the first program in a new language should print the words “Hello, world!” on the screen. In Swift, this can be done in a single line:

```
5 print("Hello, world!")
6 print("Hello, HHualien!")
```

```
5  print("Hello, world!")
6
```

```
15  var myVariable = 42
16  myVariable = 50
17  let myConstant = 42
18
```

變數可以改變內容

常數不可以改變內容

代表整數

```
23  let implicitInteger = 70
24  let implicitDouble = 70.0
25  let explicitDouble: Double = 70
26
```

明顯宣告為
double實數

```
32  let label = "The width is "
33  let width = 94
34  let widthLabel = label + String(width)
35
```

將整數轉換為字串

```swift
let apples = 3
let oranges = 5
let appleSummary = "I have \(apples) apples."
let fruitSummary = "I have \(apples + oranges) pieces of fruit."

```

將整數轉為字串，內插在列印字串中

運算後，在將整數轉為字串，內插在列印字串中

將常數quotation設定為
一段跨行的文字

```
51  let quotation = """
52  I said "I have \(apples) apples."
53  And then I said "I have \(apples +
        oranges) pieces of fruit."
54  """
55
```

將整數轉為字串，內
插在字串中

將常數quotation設定為
一段跨行的文字

```
58  var shoppingList = ["catfish", "water",
        "tulips"]
59  shoppingList[1] = "bottle of water"
60
61  var occupations = [
62      "Malcolm": "Captain",
63      "Kaylee": "Mechanic",
64    ]
65  occupations["Jayne"] = "Public Relations"
66
```

改變字串陣列中的第二個元素

字典陣列
Key:value

附加字串到陣列
shoppingList中

```
69  shoppingList.append("blue paint")
70  print(shoppingList)
71
```

```swift
var oc = [String: Float]()
oc["key"] = 1.0
let va = oc["key"]!
print(va)
```

空的字串陣列

```swift
74 let emptyArray = [String]()
75 let emptyDictionary = [String: Float]()
76
```

空的字典陣列

```
79  shoppingList = []
80  occupations = [:]
81
82
```

空的字典陣列

```
5  let individualScores = [75, 43, 103, 87, 12]
6  var teamScore = 0
7  for score in individualScores {
8      if score > 50 {
9          teamScore += 3
10     } else {
11         teamScore += 1
12     }
13 }
14 print(teamScore)
15
```

列舉陣列individualScores中的元素，依序代入score，執行迴圈

宣告為optional字串
可以被指定內容，但不是必須被指定

```
20 var optionalString: String? = "Hello"
21 print(optionalString == nil)
22
23 var optionalName: String? = "John Appleseed"
24 var greeting = "Hello!"
25 if let name = optionalName {
26     greeting = "Hello, \(name)"
27 }
28
```

是否無定義

當let指令成功設定name，if條件才會成立，代表optionalName有定義

```swift
let nickname: String? = nil
let fullName: String = "John Appleseed"
let informalGreeting = "Hi \(nickname ?? fullName)"

```

如果nickname沒有被指定，以fullname取代

2.1

根據變數vegetable內容不同的狀況，執行不同指令

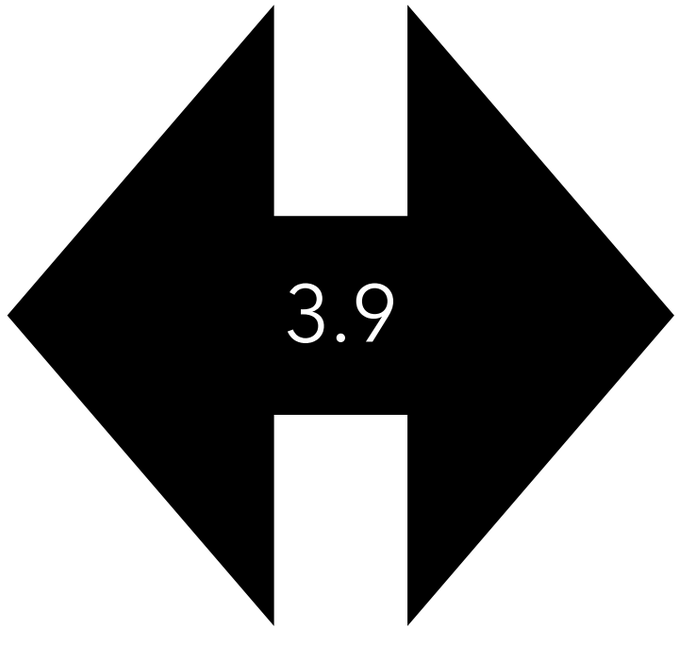
```
43  switch vegetable {
44      case "celery":
45          print("Add some raisins and make ants
                on a log.")
46      case "cucumber", "watercress":
47          print("That would make a good tea
                sandwich.")
48      case let x where x.hasSuffix("pepper"):
49          print("Is it a spicy \(x)?")
50      default:
51          print("Everything tastes good in
                soup.")
52  }
```

內定的其他狀況

vegetable = "cucumber"

vegetable ="green pepper"

vegetable ="tomato"



```swift
let interestingNumbers = [
    "Prime": [2, 3, 5, 7, 11, 13],
    "Fibonacci": [1, 1, 2, 3, 5, 8],
    "Square": [1, 4, 9, 16, 25],
]
var largest = 0
for (_, numbers) in interestingNumbers {
    for number in numbers {
        if number > largest {
            largest = number
        }
    }
}
print(largest)
```

```
83  var n = 2
84  while n < 100 {
85        n *= 2
86  }
87  print(n)
88
89  var m = 2
90  repeat {
91        m *= 2
92  } while m < 100
93  print(m)
94
```

```
97  var total = 0
98  for i in 0..<4 {
99      total += i
100 }
101 print(total)
102
```

Functions and Closures

Use `func` to declare a function. Call a function by following its name with a list of arguments in parentheses. Use –> to separate the parameter names and types from the function's return type.

```
func greet(person: String, day: String) -> String {
    return "Hello \(person), today is \(day)."
}
greet(person: "Bob", day: "Tuesday")
```

By default, functions use their parameter names as labels for their arguments. Write a custom argument label before the parameter name, or write _ to use no argument label.

```
func greet(_ person: String, on day: String) -> String {
    return "Hello \(person), today is \(day)."
}
greet("John", on: "Wednesday")
```

Use a tuple to make a compound value — for example, to return multiple values from a function. The elements of a tuple can be referred to either by name or by number.

```
func calculateStatistics(scores: [Int]) -> (min: Int, max: Int, sum: Int) {
    var min = scores[0]
    var max = scores[0]
    var sum = 0

    for score in scores {
        if score > max {
            max = score
        } else if score < min {
            min = score
        }
        sum += score
    }

    return (min, max, sum)
}
let statistics = calculateStatistics(scores: [5, 3, 100, 3, 9])
print(statistics.sum)
// Prints "120".
print(statistics.2)
// Prints "120".
```

Functions can be nested. Nested functions have access to variables that were declared in the outer function. You can use nested functions to organize the code in a function that's long or complex.

```
func returnFifteen() -> Int {
    var y = 10
    func add() {
        y += 5
    }
    add()
    return y
}
returnFifteen()
```

Functions are a first-class type. This means that a function can return another function as its value.

```
func makeIncrementer() -> ((Int) -> Int) {
    func addOne(number: Int) -> Int {
        return 1 + number
    }
    return addOne
}
var increment = makeIncrementer()
increment(7)
```

A function can take another function as one of its arguments.

```
func hasAnyMatches(list: [Int], condition: (Int) -> Bool) -> Bool {
    for item in list {
        if condition(item) {
            return true
        }
    }
    return false
}
func lessThanTen(number: Int) -> Bool {
    return number < 10
}
var numbers = [20, 19, 7, 12]
hasAnyMatches(list: numbers, condition: lessThanTen)
```

Functions are actually a special case of closures: blocks of code that can be called later. The code in a closure has access to things like variables and functions that were available in the scope where the closure was created, even if the closure is in a different scope when it's executed — you saw an example of this already with nested functions. You can write a closure without a name by surrounding code with braces (`{}`). Use `in` to separate the arguments and return type from the body.

```
numbers.map({ (number: Int) -> Int in
    let result = 3 * number
    return result
})
```

You have several options for writing closures more concisely. When a closure's type is already known, such as the callback for a delegate, you can omit the type of its parameters, its return type, or both. Single statement closures implicitly return the value of their only statement.

```
let mappedNumbers = numbers.map({ number in 3 * number })
print(mappedNumbers)
// Prints "[60, 57, 21, 36]".
```

You can refer to parameters by number instead of by name — this approach is especially useful in very short closures. A closure passed as the last argument to a function can appear immediately after the parentheses. When a closure is the only argument to a function, you can omit the parentheses entirely.

```
let sortedNumbers = numbers.sorted { $0 > $1 }
print(sortedNumbers)
// Prints "[20, 19, 12, 7]".
```