# Journal Lesson 1

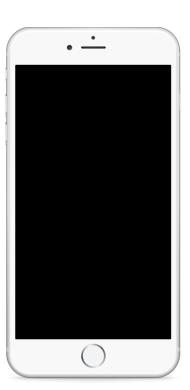


### **Description**

Run a simple iOS app, and trace its execution, starting with **main.swift**.

#### **Learning Outcomes**

- Describe the starting process of an iOS app.
- Relate app startup behavior to top level code within a main.swift file and the app delegate.
- Describe the behavior of the UIApplicationMain function.
- Relate the purpose of main.swift, the UIApplicationMain function, and the @UIApplicationMain attribute.



## Vocabulary

app entry point	top level code main.swift	
@UIApplicationMain	delegate	app delegate
UIApplication	UIApplicationDelegate	attribute

#### **Materials**

- Journal Lesson 1 Xcode project
- App Launch presentation

#### **Opening**

The "entry point" for a Swift program is the "top level code" in **main.swift**, so why is **main.swift** missing in a typical iOS Xcode project?

#### Agenda

- Using the Project Navigator (#1), observe how the project does not contain a storyboard or view controller class, but does include a **main.swift** file.
- Discuss that the Journal Lesson 1 Xcode project is a non-traditional, "empty" iOS app project.
- Run the app (\*\*R) and observe the black screen appear.
- Discuss how every Swift program has a starting point, or "application entry point," which is defined as the top-level code in a file called main.swift.
- Using the Project Navigator (#1), open main.swift and examine its contents.
- Discuss how the top level code in main.swift just calls UIApplicationMain.
- Explain how UIApplicationMain is passed command-line arguments and the class name for the project's app delegate.
- Using the Xcode Documentation and API Reference (♠ %0), examine the description of the UIApplicationMain function.
- Explain how the UIApplicationMain function instantiates a UIApplication object, assigns the app delegate to the UIApplication object delegate property, begins the main event loop, and, if configured, loads the main storyboard interface.
- Present the concept of app launch, relating the app launch process to code in the project.
- Using the Project Navigator (#1), delete the main.swift file.
- Run the app (#R) and use the Issue Navigator (#4) to observe the compilation error.
- Explain how Swift provides a @UIApplicationMain attribute that synthesizes a main entry point and eliminates the need for a **main.swift** file.
- Add the @UIApplicationMain attribute above the AppDelegate class definition.

```
@UIApplicationMain
class AppDelegate: UIResponder, UIApplicationDelegate {
...
```

- Run the app (**\*R**) and observe the black screen appear.
- Discuss how the app does not have a storyboard, yet a default black screen is displayed.

## Closing

Without a storyboard, how might you change the default background color with code?

#### **Modifications and Extensions**

- Investigate the window property of of AppDelegate to change the background color of the blank screen we see in the app.
- Add your own view controller to the project, and add the controller view as a subView of the window property.

#### Resources

The Swift Programming Language: A Swift Tour https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift\_Programming\_Language/GuidedTour.html

The Swift Programming Language: Top-Level Code https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift\_Programming\_Language/Declarations.html#//apple\_ref/doc/uid/TP40014097-CH34-ID352

UIKit Function Reference https://developer.apple.com/library/ios/documentation/ UIKit/Reference/UIKitFunctionReference/

UIApplication Class Reference https://developer.apple.com/library/ios/documentation/UIKit/Reference/UIApplication\_Class/index.html

UIApplicationDelegate Protocol Reference https://developer.apple.com/library/ios/documentation/UIKit/Reference/UIApplicationDelegate\_Protocol/index.html

Swift Blog: Files and Initialization https://developer.apple.com/swift/blog/?id=7

The Swift Programming Language: Attributes https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift\_Programming\_Language/Attributes.html

View Programming Guide for iOS: View and Window Architecture https://developer.apple.com/library/ios/documentation/WindowsViews/Conceptual/ViewPG iPhoneOS/WindowsandViews/WindowsandViews.html

Cocoa Application Competencies for iOS: Application Object http://developer.apple.com/library/ios/documentation/general/conceptual/Devpedia-CocoaApp/ApplicationObject.html

Cocoa Application Competencies for iOS: Window Object https://developer.apple.com/library/ios/documentation/General/Conceptual/Devpedia-CocoaApp/Window.html

Cocoa Application Competencies: Main Event Loop https://developer.apple.com/library/ios/documentation/General/Conceptual/Devpedia-CocoaApp/MainEventLoop.html

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**Teaching App Development with Swift**