

# Found

## Lesson 2

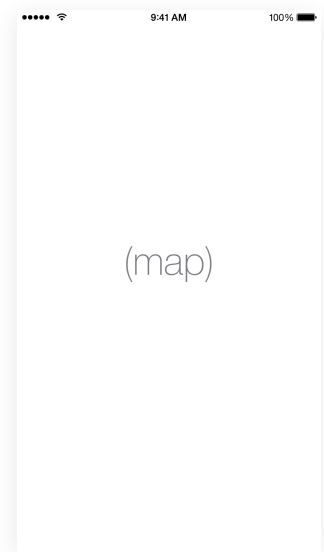


### Description

Add a Map View to the interface, and utilize the Map Kit framework in the project.

### Learning Outcomes

- Discover the Map View interface component.
- Describe the concept of frameworks, compilation and linking.
- Practice adding framework dependencies to an Xcode project.



### Vocabulary

|                             |             |               |
|-----------------------------|-------------|---------------|
| framework                   | Map Kit     | Xcode console |
| Map View                    | compilation | linking       |
| Xcode Project configuration |             |               |

### Materials

- **Found Lesson 2** Xcode project
- **Compilation and Linking** presentation

## Opening

What is the Map Kit framework, and what can we do with it?

## Agenda

- Using the Xcode Documentation and API Reference (⇧⌘0), search for Map Kit Framework and explore some of the resulting documentation.
- Explain how Map Kit provides an easy way to embed maps in one's own app.
- Using Interface Builder, delete the Button from the interface.
- Using the Object Library (⇧⌘L), add a Map View to interface. Adjust its top edge to leave room for the iOS status bar, and add constraints with the menu item *Editor > Resolve Auto Layout Issues > Add Missing Constraints*.
- In the `ViewController` class, delete the `openMapsAppWithURL:` method.
- Run the app (⌘R), and observe the crash.
- Discuss the console error **Could not instantiate class named MKMapView**, motivating the need to link the Map Kit framework.
- Present the concepts of compilation and linking.
- Using the Project Navigator (⌘1), select the **Found** project, add **MapKit.framework** to the project **Linked Frameworks and Libraries**, and observe the framework appear in the Project Navigator.
- Run the app (⌘R), and observe the map appear. Tap and drag the map to scroll, and ⇧-click with the mouse to zoom in and out of the map.

## Closing

What are some of the Map View attributes we see in the Attributes Inspector?

## Modifications And Extensions

- Investigate the `MKMapView` class reference, and instead of using Interface Builder, add an `MKMapView` to the main view with code in the controller. Explain why you must import the Map Kit framework.

## Resources

Cocoa Core Competencies: Framework <http://developer.apple.com/library/ios/documentation/general/conceptual/DevPedia-CocoaCore/Framework.html>

Xcode Overview: Build a User Interface [https://developer.apple.com/library/ios/documentation/ToolsLanguages/Conceptual/Xcode\\_Overview/edit\\_user\\_interface.html](https://developer.apple.com/library/ios/documentation/ToolsLanguages/Conceptual/Xcode_Overview/edit_user_interface.html)

Map Kit Framework Reference [https://developer.apple.com/library/ios/documentation/MapKit/Reference/MapKit\\_Framework\\_Reference/index.html](https://developer.apple.com/library/ios/documentation/MapKit/Reference/MapKit_Framework_Reference/index.html)

Maps for Developers <https://developer.apple.com/maps/>

Location and Maps Programming Guide: Displaying Maps <https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/LocationAwarenessPG/MapKit/MapKit.html>