

# Found

## Lesson 1

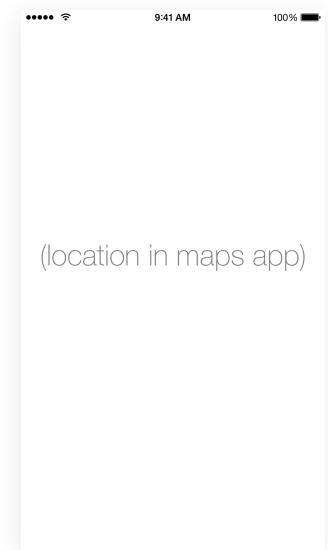


### Description

Add a button to the interface that displays a location in the Maps app.

### Learning Outcomes

- Practice creating interface elements and controller actions with Interface Builder.
- Define what a URL is, and discover how iOS behaves with certain URLs.
- Discover how to bring the Maps app to the foreground from another iOS app.
- Relate the running application to the `UIApplication` instance returned by `sharedApplication`.



### Vocabulary

URL	NSURL	UIApplication
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### Materials

- **Found Lesson 1** Xcode project

### Opening

How can we open a map location from our app?

## Agenda

- Using Interface Builder and the Object Library (⌘L), add a Button to the view labeled **Open Maps App with URL**.
- Add constraints to center the button horizontally, and to set its top vertical space relative to the main view.
- Using Interface Builder and the Assistant Editor (⌘⇧), create a connection from the button to a controller action called `openMapsAppWithURL:`.

```
@IBAction func openMapsAppWithURL(sender: UIButton) {  
    if let url =  
        NSURL(string: "http://maps.apple.com/?q=Yosemite") {  
        let app = UIApplication.sharedApplication()  
        app.openURL(url)  
    }  
}
```

- Explain the creation of an `NSURL` from a string, representing a URL or "the location of a resource", a map that one wishes to open, which iOS handles by opening the Maps app.
- Explain how the `q=` query string parameter represents a "query," and is parsed by the Maps app to search for a location on the map.
- Using the Xcode Documentation and API Reference (⌘0), explore the `UIApplication` class reference and the `openURL:` method.
- Explain how the call to `UIApplication.sharedApplication` returns a reference to the app instance itself.
- Run the app (⌘R), tap the button, and observe how the Maps app enters the foreground.

## Closing

What if the URL string is `http://maps.apple.com/?q=37.331686,-122.030656`? What do the numbers mean?

## Modifications And Extensions

- Investigate the Apple URL Scheme Reference for map links. Experiment with Apple Maps parameters such as `near=`, to see what the Maps app displays.

## Resources

Xcode Overview: Connect User Interface Objects to Code [https://developer.apple.com/library/ios/documentation/ToolsLanguages/Conceptual/Xcode\\_Overview/edit\\_user\\_interface.html#//apple\\_ref/doc/uid/TP40010215-CH6-SW3](https://developer.apple.com/library/ios/documentation/ToolsLanguages/Conceptual/Xcode_Overview/edit_user_interface.html#//apple_ref/doc/uid/TP40010215-CH6-SW3)

Cocoa Application Competencies for iOS: Target-Action <https://developer.apple.com/library/ios/documentation/General/Conceptual/Devpedia-CocoaApp/TargetAction.html>

Creating an Action Connection [https://developer.apple.com/library/ios/recipes/xcode\\_help-IB\\_connections/chapters/CreatingAction.html](https://developer.apple.com/library/ios/recipes/xcode_help-IB_connections/chapters/CreatingAction.html)

Apple URL Scheme Reference [http://developer.apple.com/library/ios/featuredarticles/iPhoneURLScheme\\_Reference/Introduction/Introduction.html](http://developer.apple.com/library/ios/featuredarticles/iPhoneURLScheme_Reference/Introduction/Introduction.html)

The Swift Programming Language: Optional Binding [https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift\\_Programming\\_Language/TheBasics.html#//apple\\_ref/doc/uid/TP40014097-CH5-ID333](https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/TheBasics.html#//apple_ref/doc/uid/TP40014097-CH5-ID333)

NSURL Class Reference [http://developer.apple.com/library/ios/documentation/Cocoa/Reference/Foundation/Classes/NSURL\\_Class/Reference/Reference.html](http://developer.apple.com/library/ios/documentation/Cocoa/Reference/Foundation/Classes/NSURL_Class/Reference/Reference.html)

UIApplication Class Reference [http://developer.apple.com/library/ios/documentation/UIKit/Reference/UIApplication\\_Class/](http://developer.apple.com/library/ios/documentation/UIKit/Reference/UIApplication_Class/)