

Navigation and Segues

Mobile Application Development in iOS

School of EECS

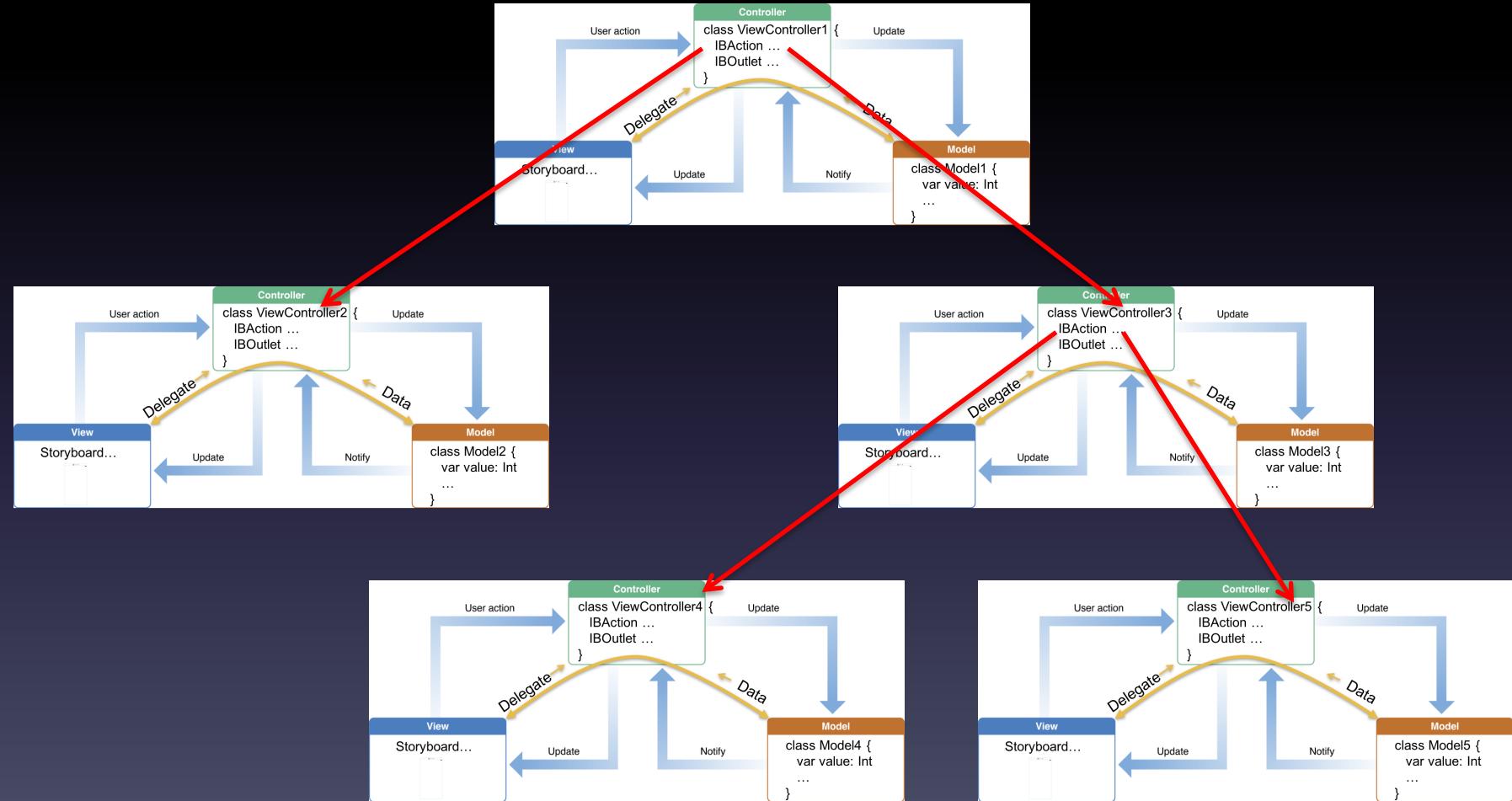
Washington State University

Instructor: Larry Holder

Outline

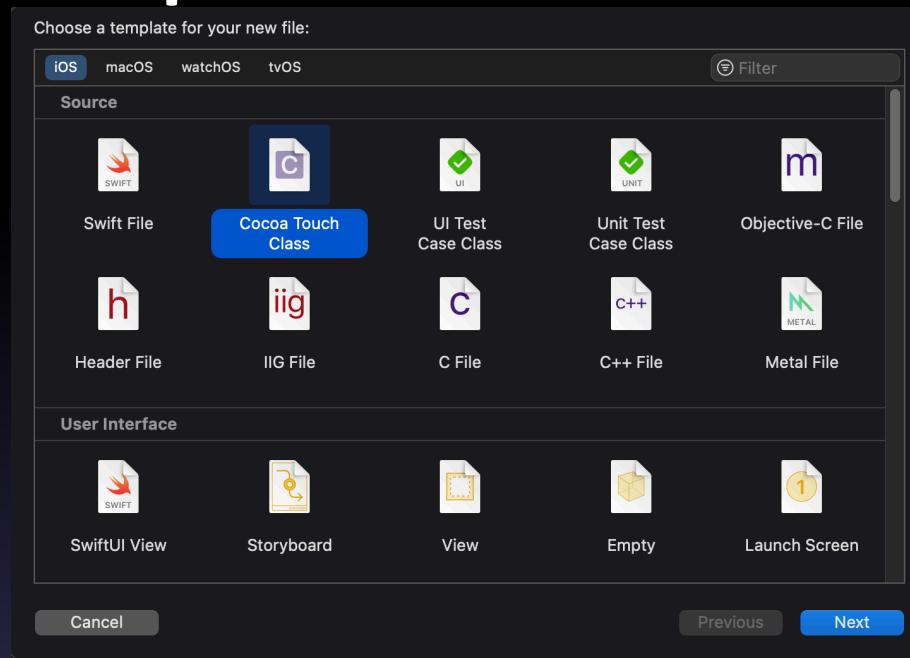
- Multiple views
- Segues
- Navigation Controller
- Tab Bar Controller

Multiple Views

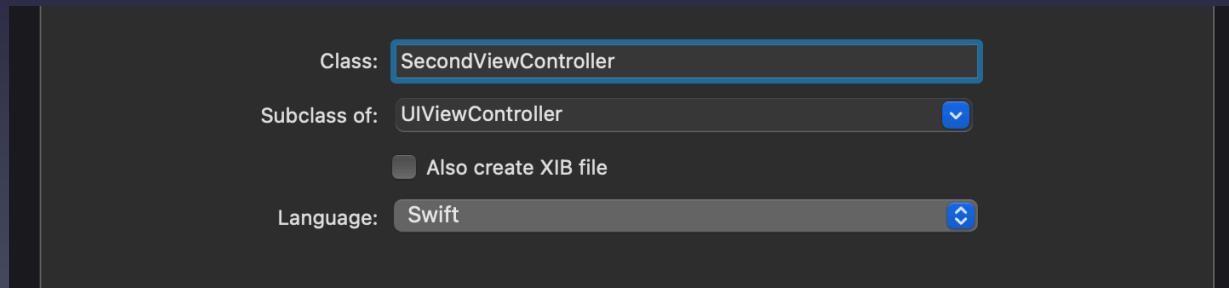


Multiple Views

1. File → New → File

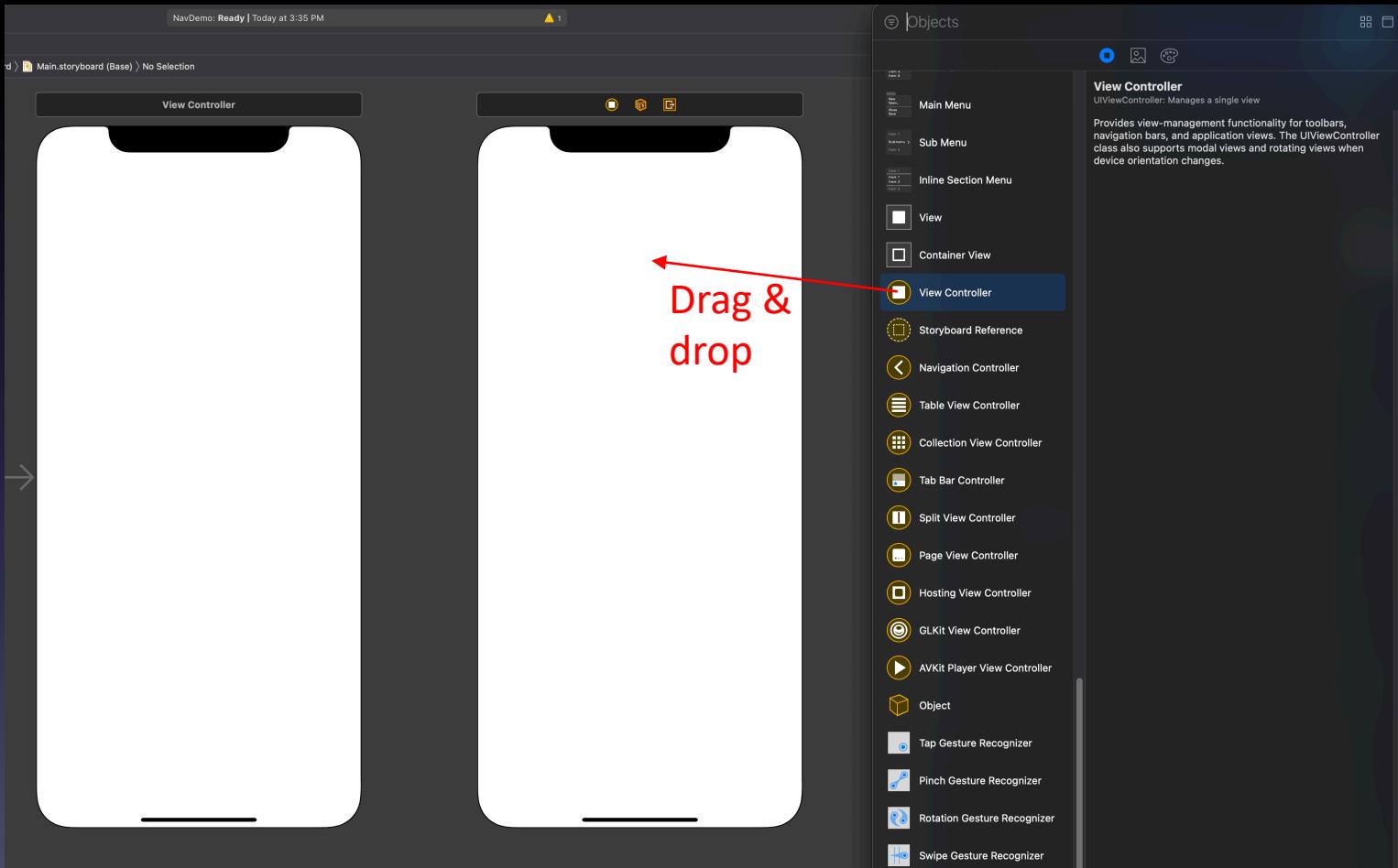


2. Rename Class & Subclass



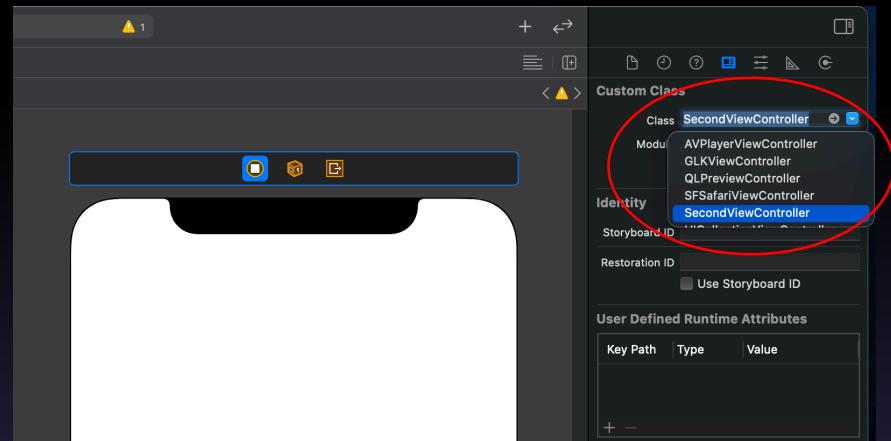
Multiple Views

3. Add View Controller to Storyboard

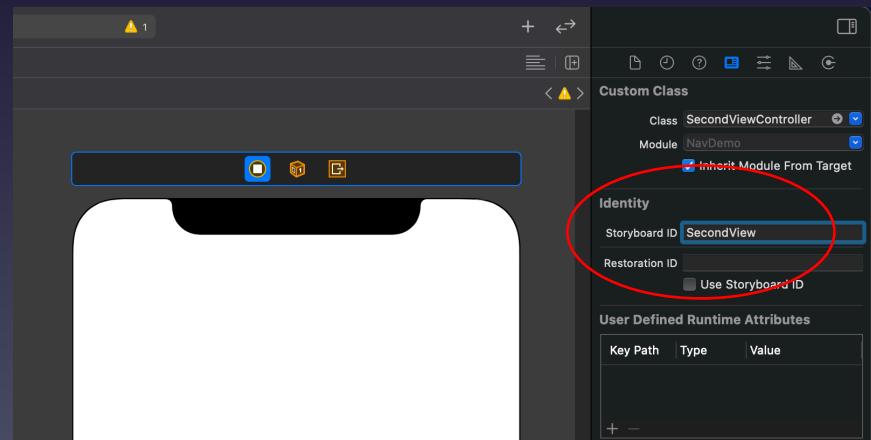


Multiple Views

4. Change View's Controller Class
 - Each view should have its own **UIViewController** class

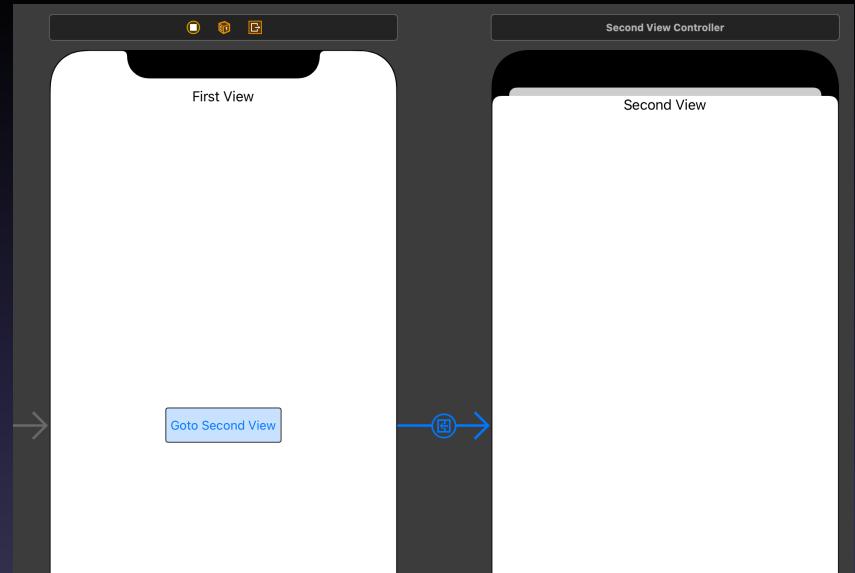


5. Change View's Storyboard ID
 - For referring to view in code



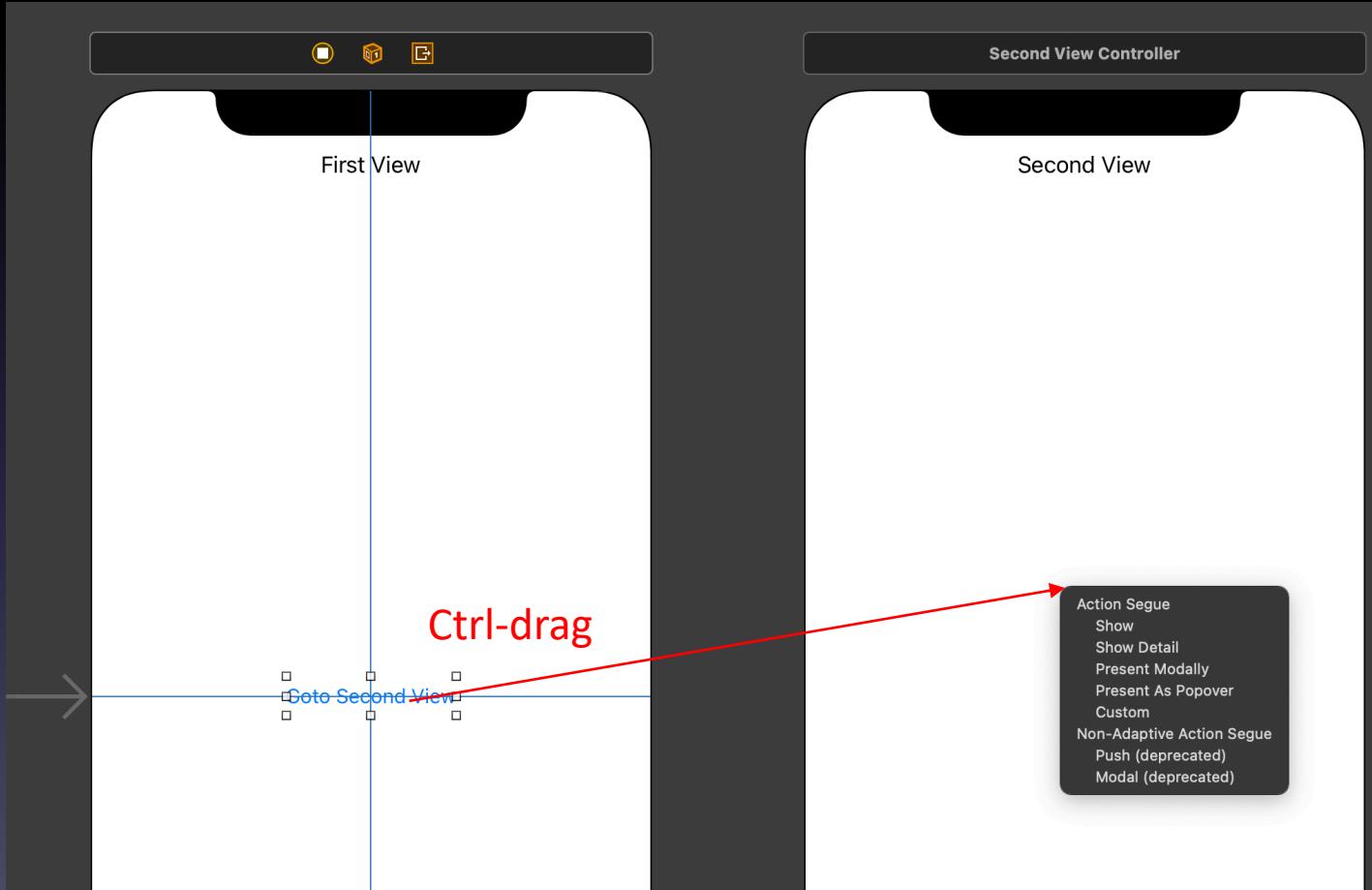
Segues

- Transition from one view to another
- Adaptive: Transition type depends on device/context
 - Show (Push)
 - Show Detail (Replace)
 - Present Modally
 - Present AsPopover
 - Custom
- Creates and adds new view instance to navigation stack



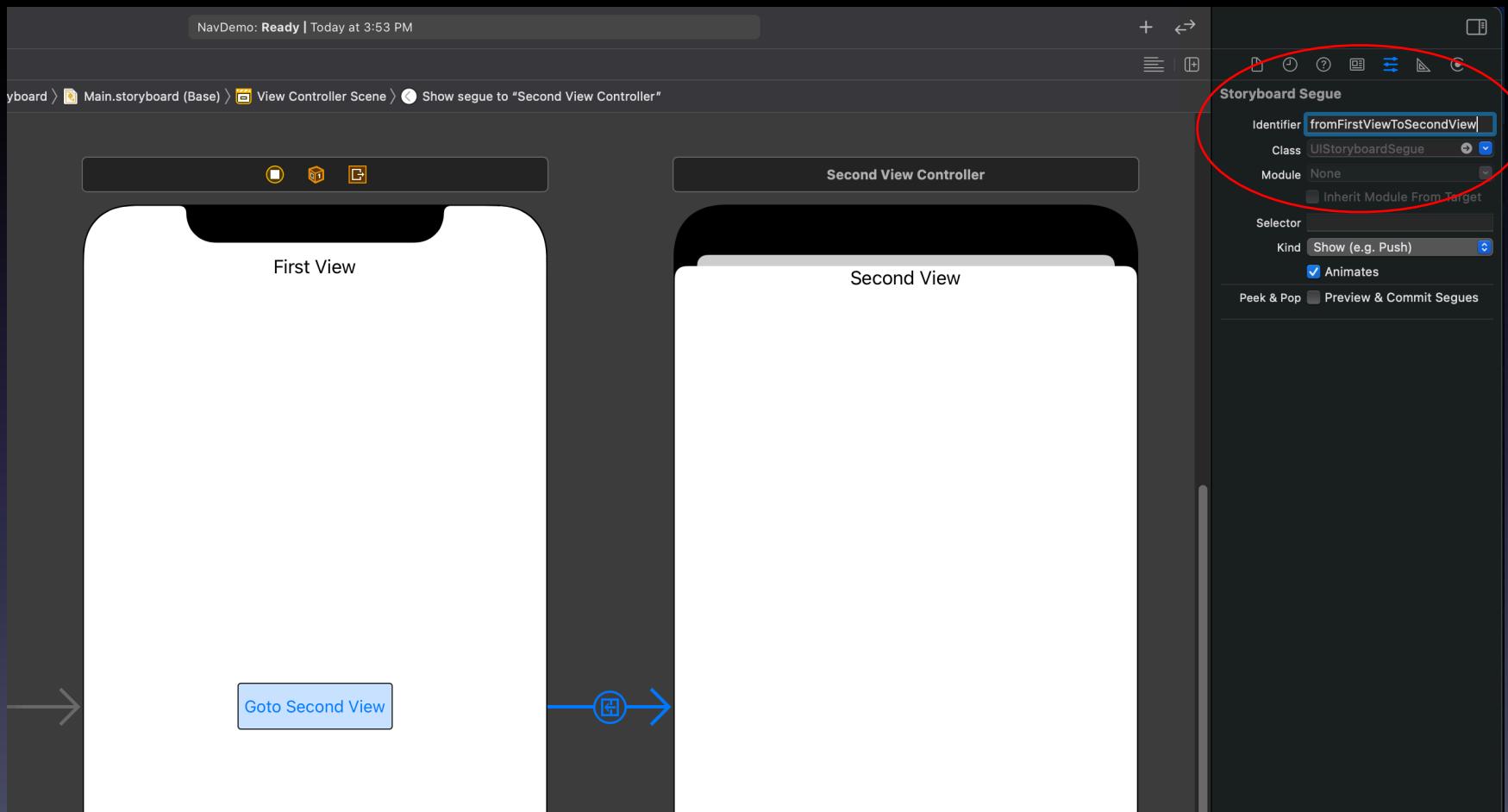
Storyboard Segues

1. Ctrl-Drag from button to second view.



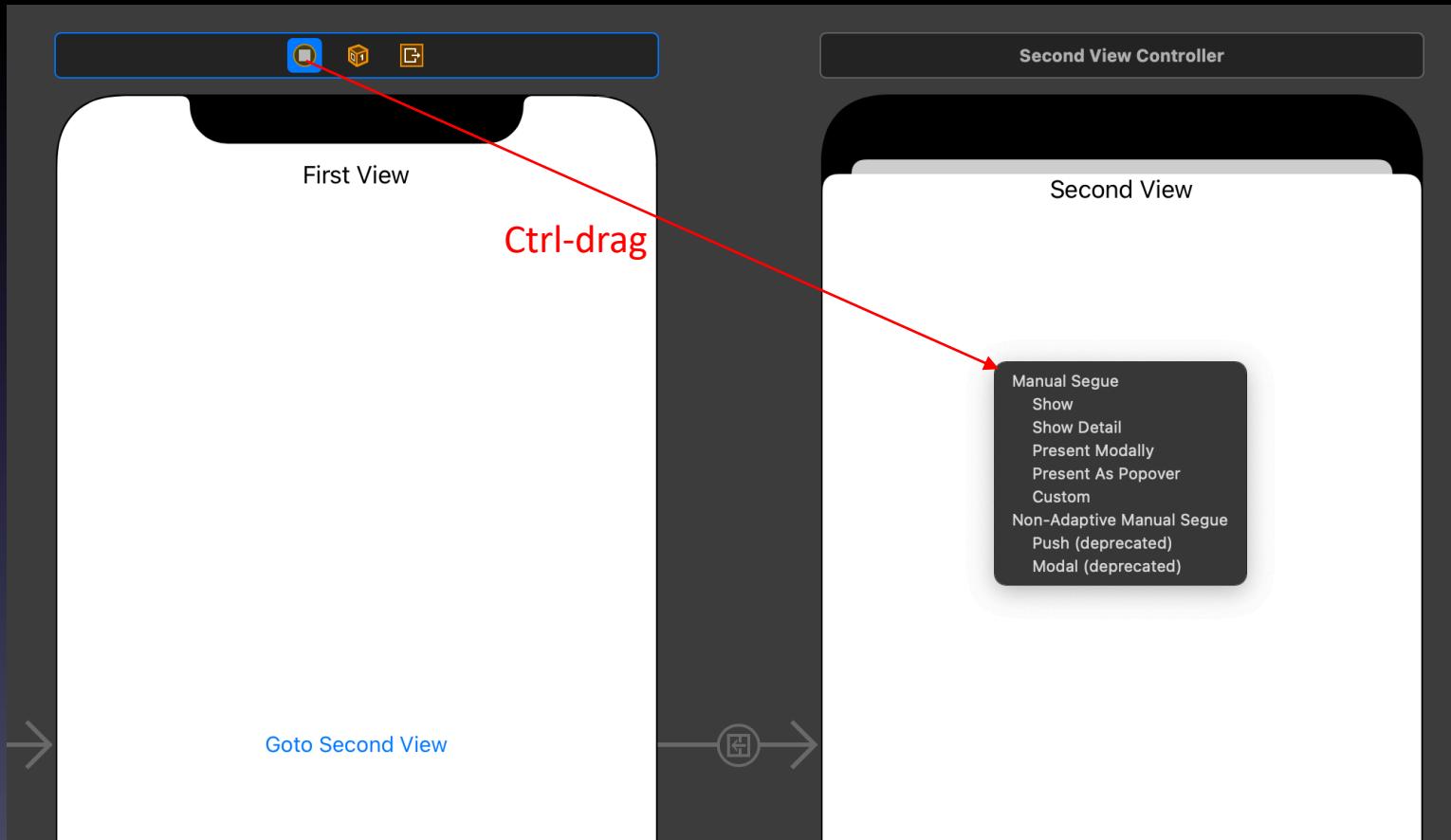
Storyboard Segues

2. Give Segue an identifier.



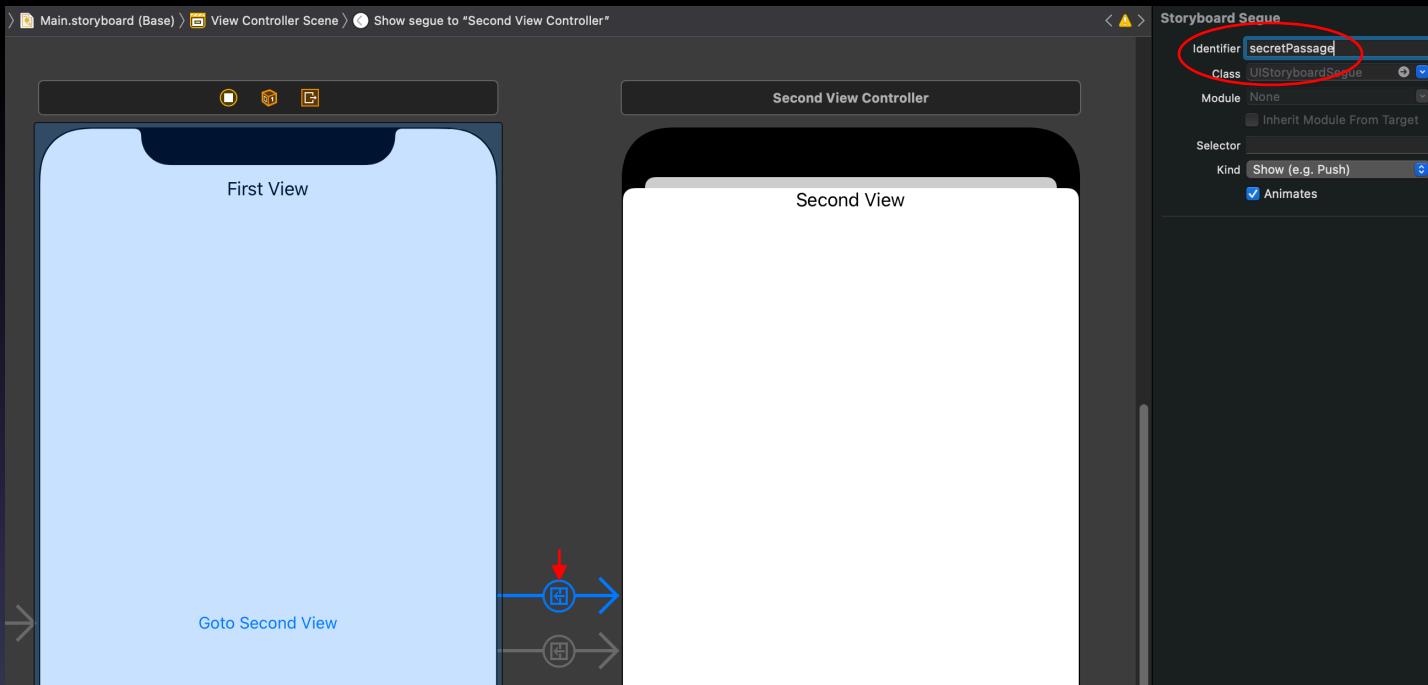
Programmatic Segues

1. Segue from View Controller to View Controller.



Programmatic Segues

2. Give segue an identifier.



3. Use `performSegue` to invoke.

```
performSegue(withIdentifier: "secretPassage", sender: nil)  
// sender could also be self
```

Preparing for Segue

- Perform tasks before destination view loaded
 - Destination view class instance already initialized (but not view elements)
 - Usually for passing data to destination view

```
// In first ViewController
override func prepare(for segue: UIStoryboardSegue, sender: Any?) {
    if (segue.identifier == "fromFirstViewToSecondView") { // Check for correct segue
        let secondVC = segue.destination as! SecondViewController
        secondVC.messageFromFirstViewLabel.text = "Hello from First View" // Crash!
        secondVC.messageFromFirstViewString = "Hello from First View" // Works!
    }
}
```

- Warning
 - Destination view elements not initialized
 - Each segue creates new instance of destination view

Preparing for Segue

```
// In SecondViewController

var messageFromFirstViewString: String?

@IBOutlet weak var messageFromFirstViewLabel: UILabel!

override func viewDidLoad() {
    super.viewDidLoad()
    // Do any additional setup after loading the view.
    if let str = messageFromFirstViewString {
        messageFromFirstViewLabel.text = str
    } else {
        messageFromFirstViewLabel.text = "No message from first view"
    }
}
```

Unwinding from Segue

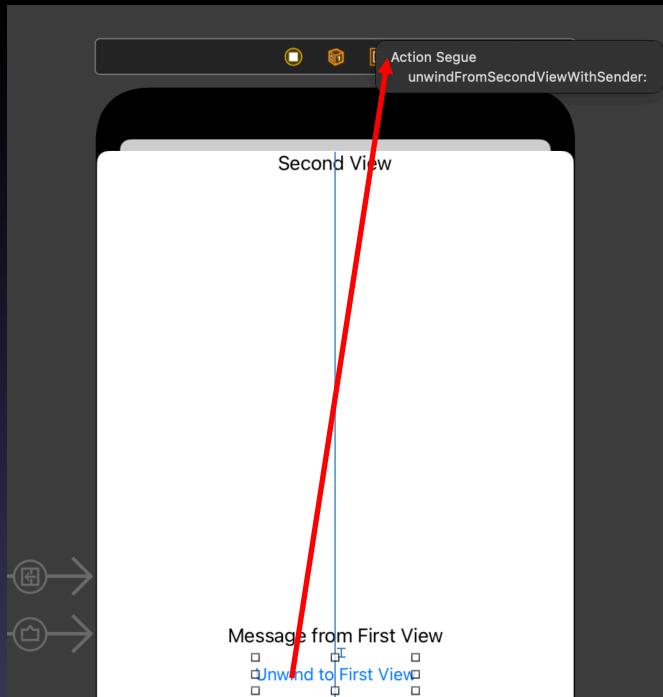
- Perform tasks as you pop view off navigation stack
- Returns to instance of previous view (data intact)
- Source view's data available during unwind

Step 1: In previous ViewController, create `@IBAction func` taking `UIStoryboardSegue` parameter.

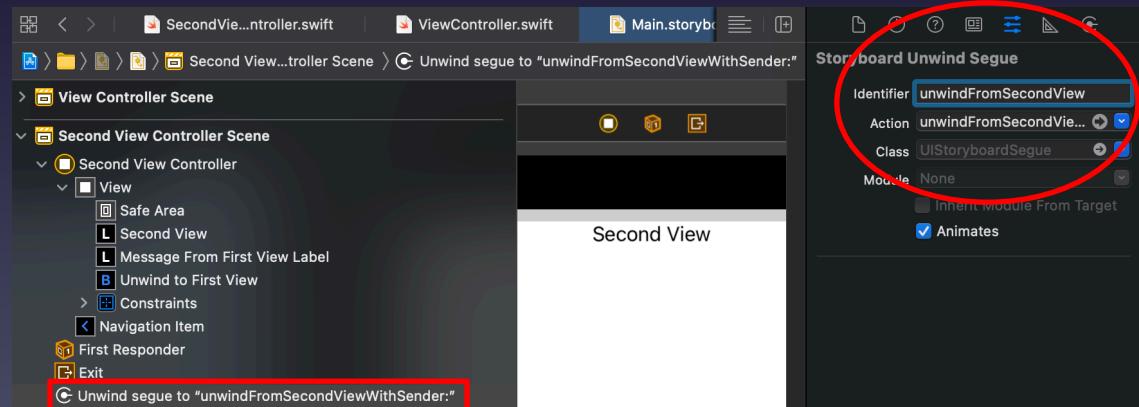
```
@IBAction func unwindFromSecondView (sender: UIStoryboardSegue) {  
    let secondVC = sender.source as! SecondViewController  
    if let str = secondVC.secondViewText {  
        print("Second View Text: \(str)")  
    }  
    // Can access source's view elements too, but poor practice  
}
```

Unwind Segue

2. Ctrl-drag from button to Exit. 
Select unwind func just created.

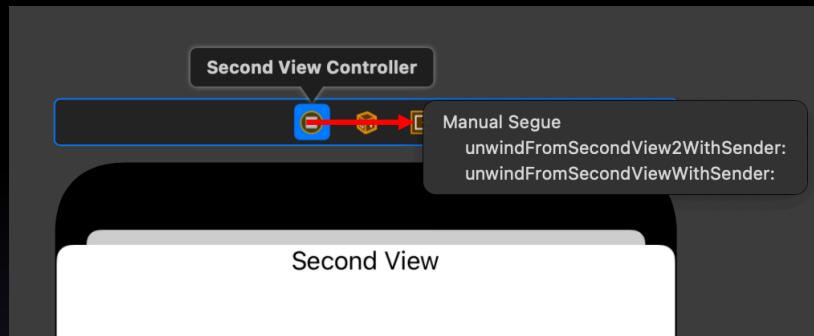


3. Give segue an Identifier.

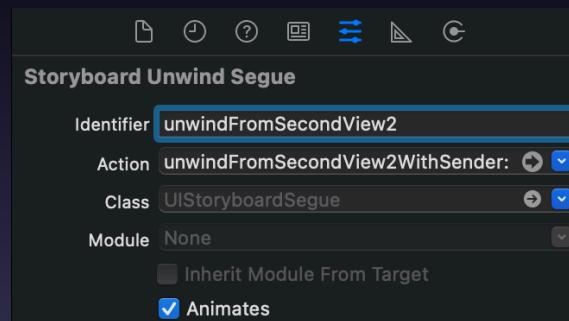


Unwind Segue: Programmatically

1. Create unwind segue



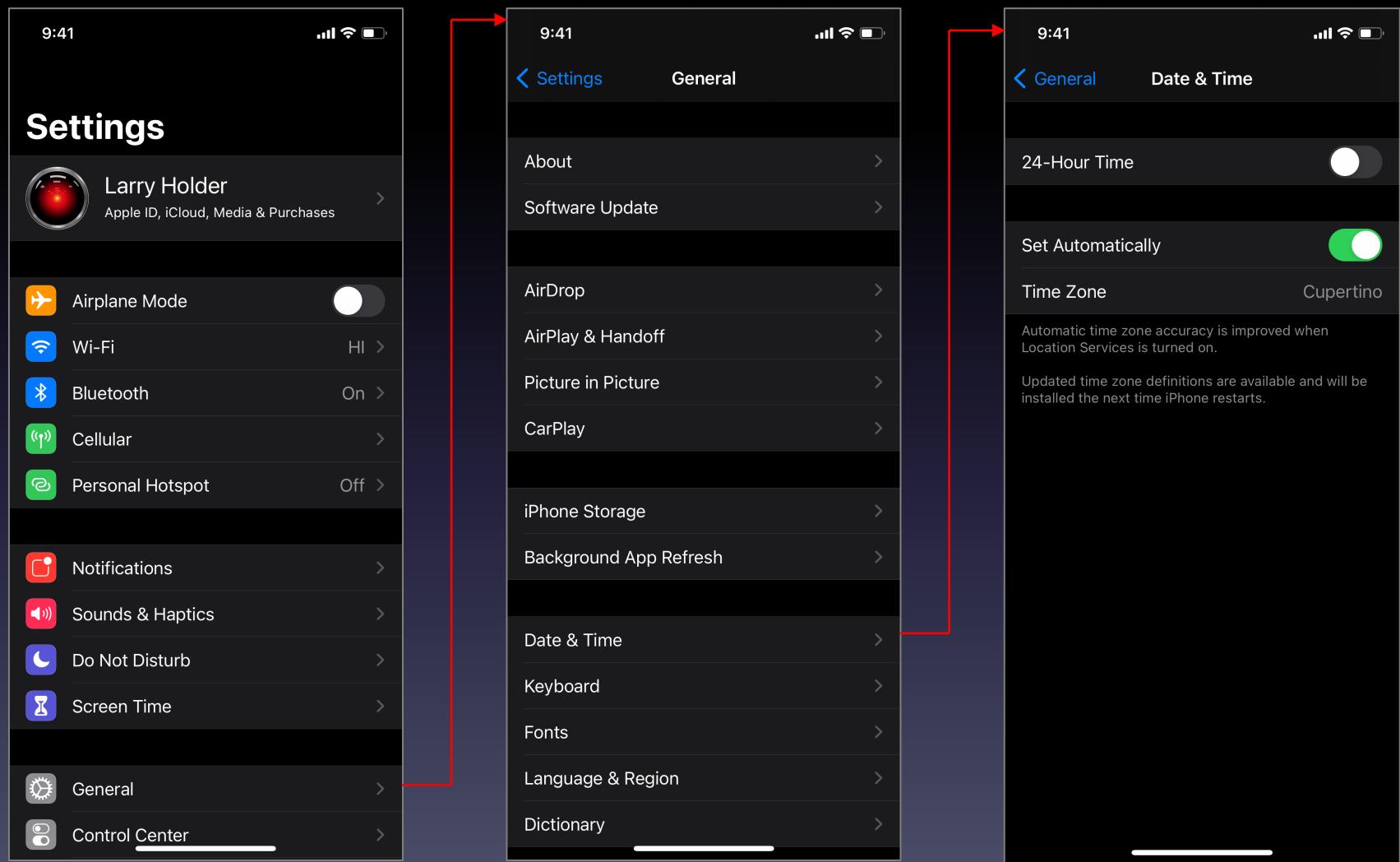
2. Identify segue



3. Perform segue

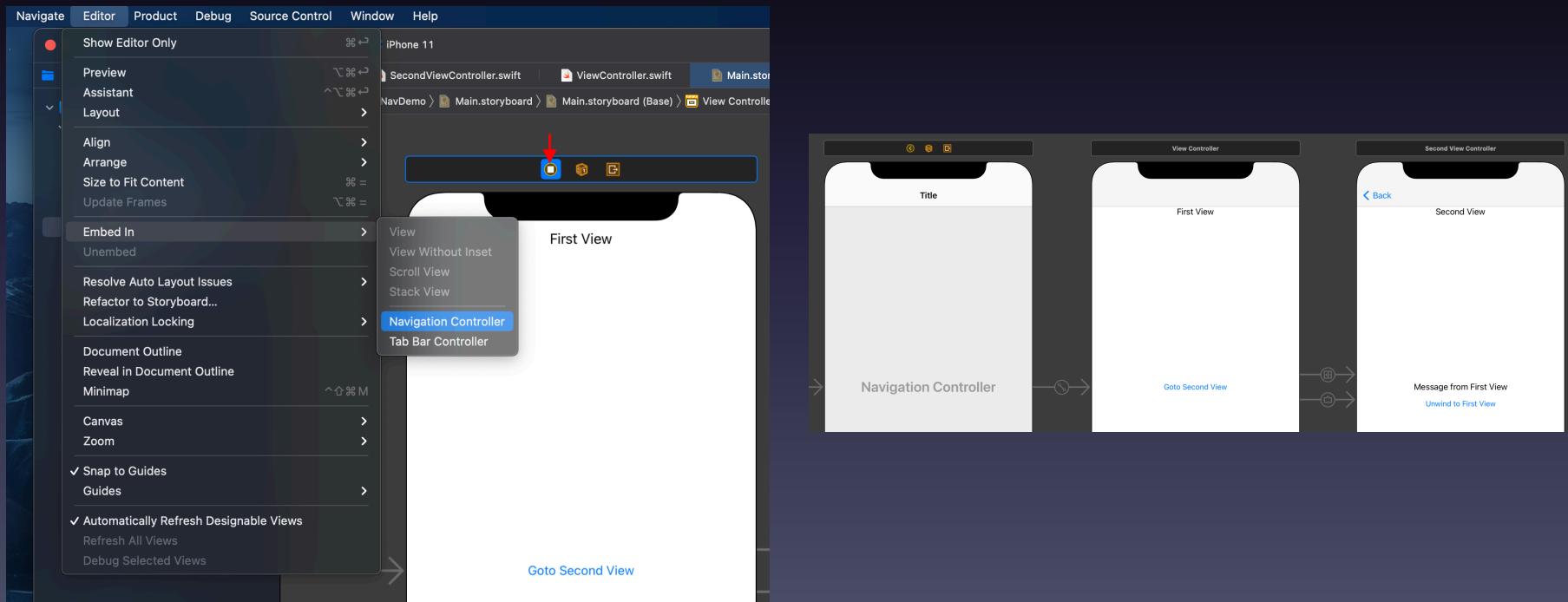
```
@IBAction func unwindToFirstView2Tapped(_ sender: UIButton) {  
    performSegue(withIdentifier: "unwindFromSecondView2", sender: self)  
}
```

Navigation Controller



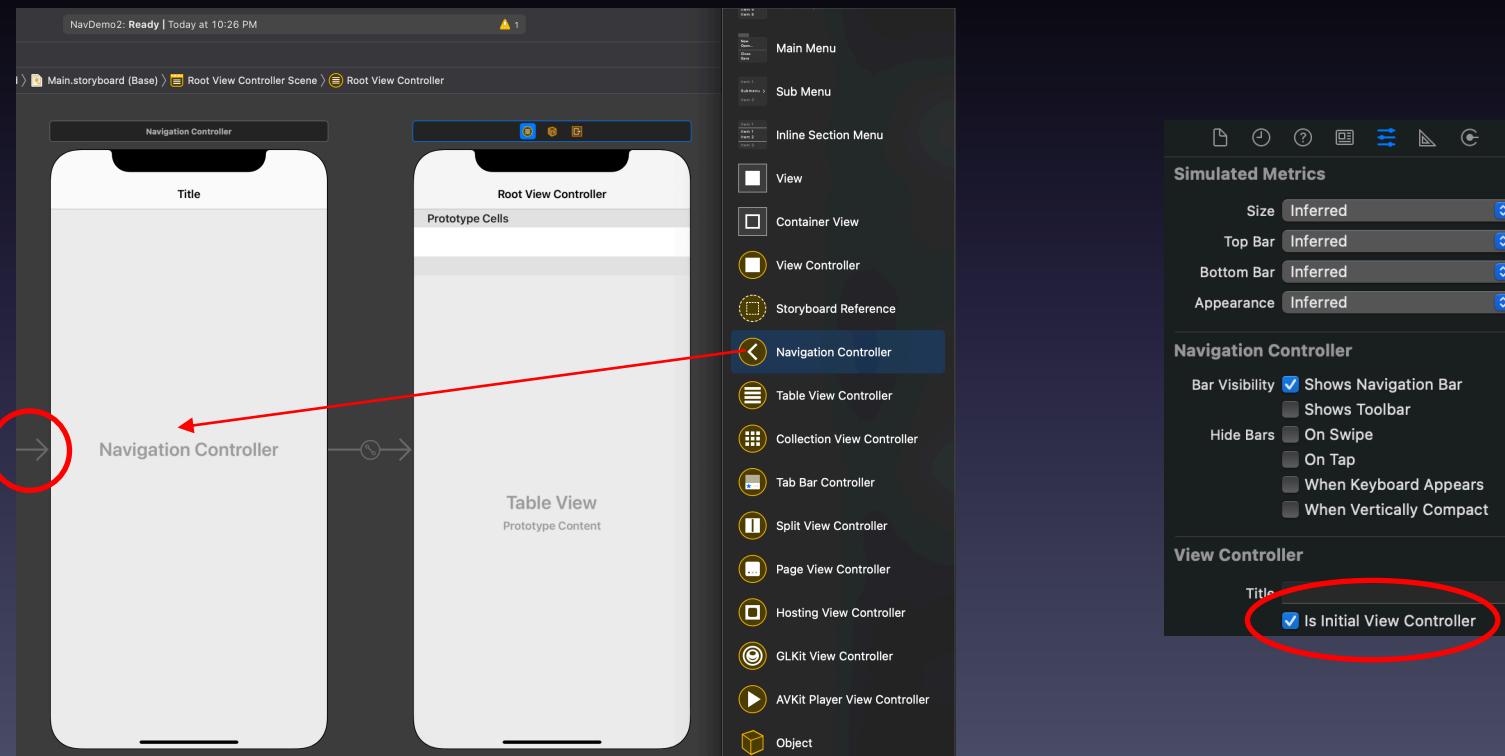
Navigation Controller: Method 1

- Select first view controller
- Editor -> Embed In -> Navigation Controller



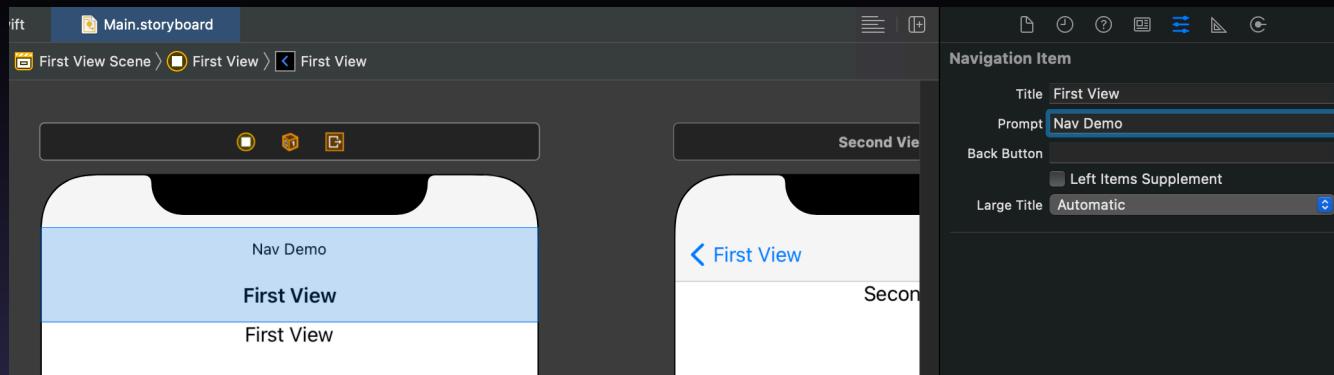
Navigation Controller: Method 2

- Add Navigation Controller to Storyboard
- Includes TableView as Root View Controller (but can replace)



Navigation Bar

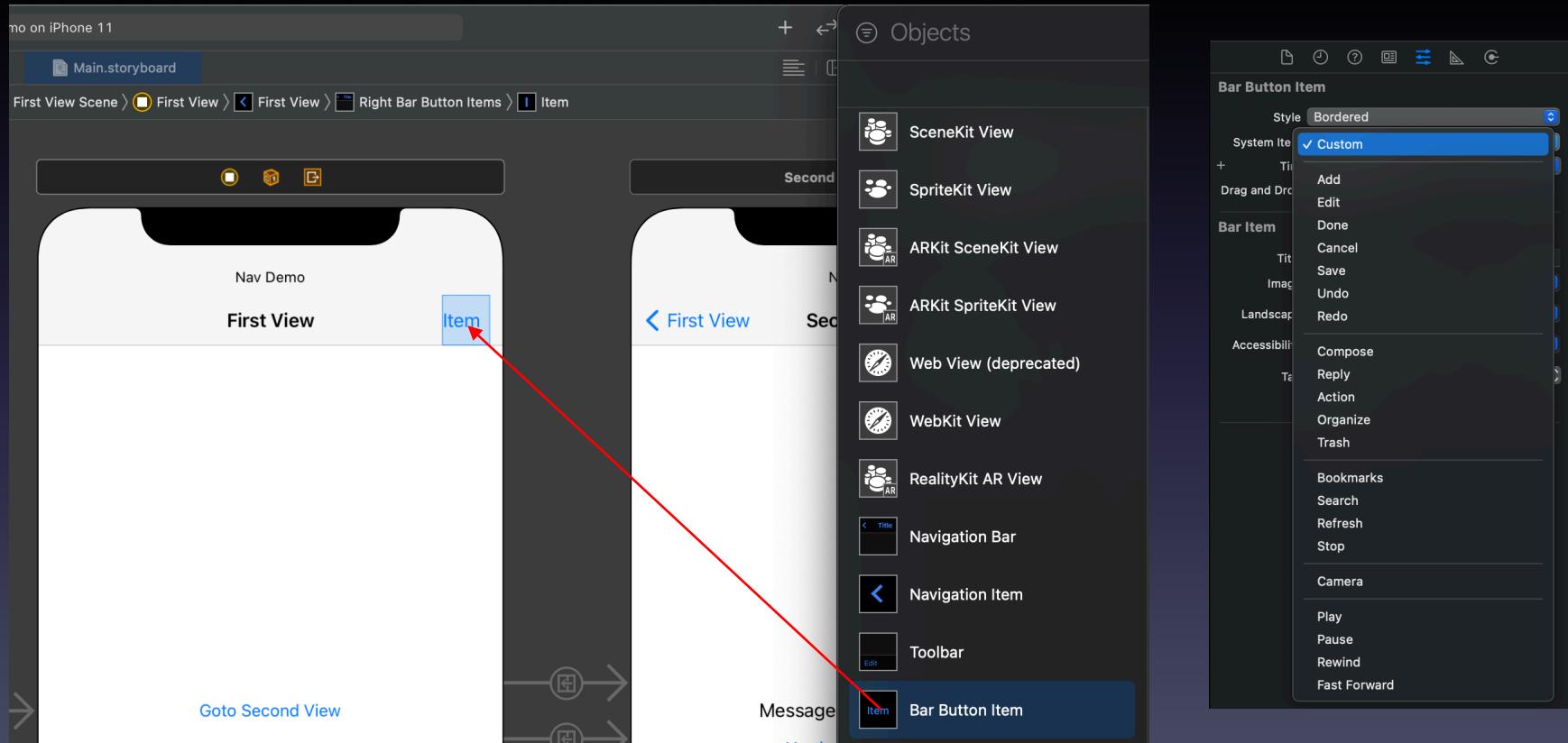
- Set Title and Prompt



```
// In FirstViewController's viewDidLoad (programmatically)
navigationItem.title = "First View"
navigationItem.prompt = "Nav Demo"
```

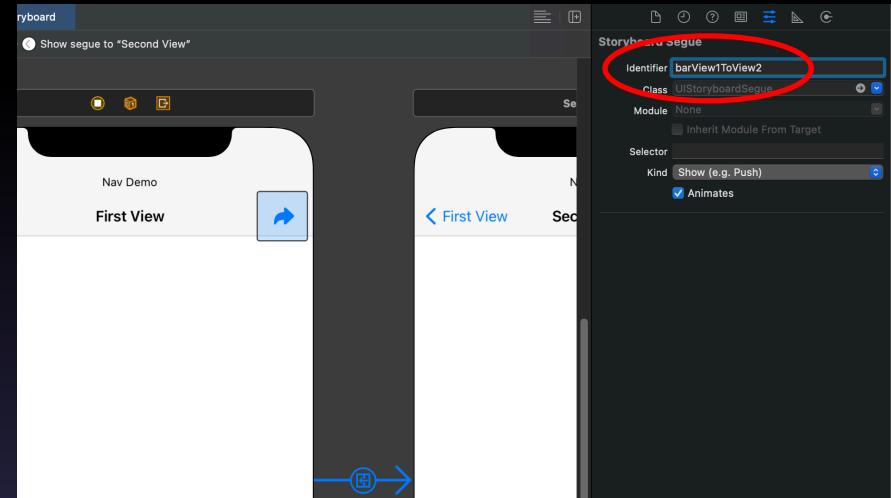
Navigation Bar Buttons

- Add bar buttons using Storyboard



Navigation Controller: Passing Data Forward

- Add segue identifier

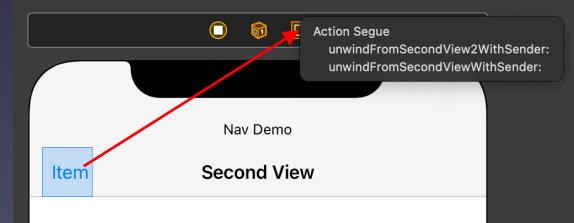
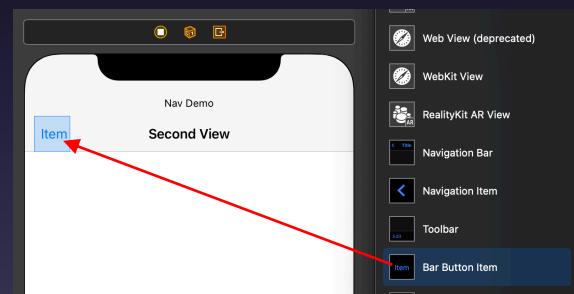
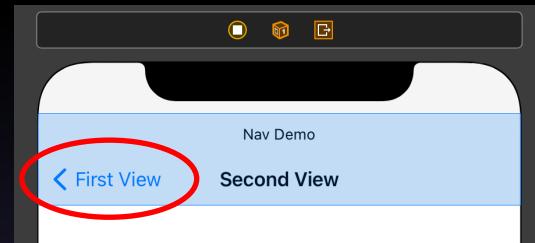


- Use prepare for segue

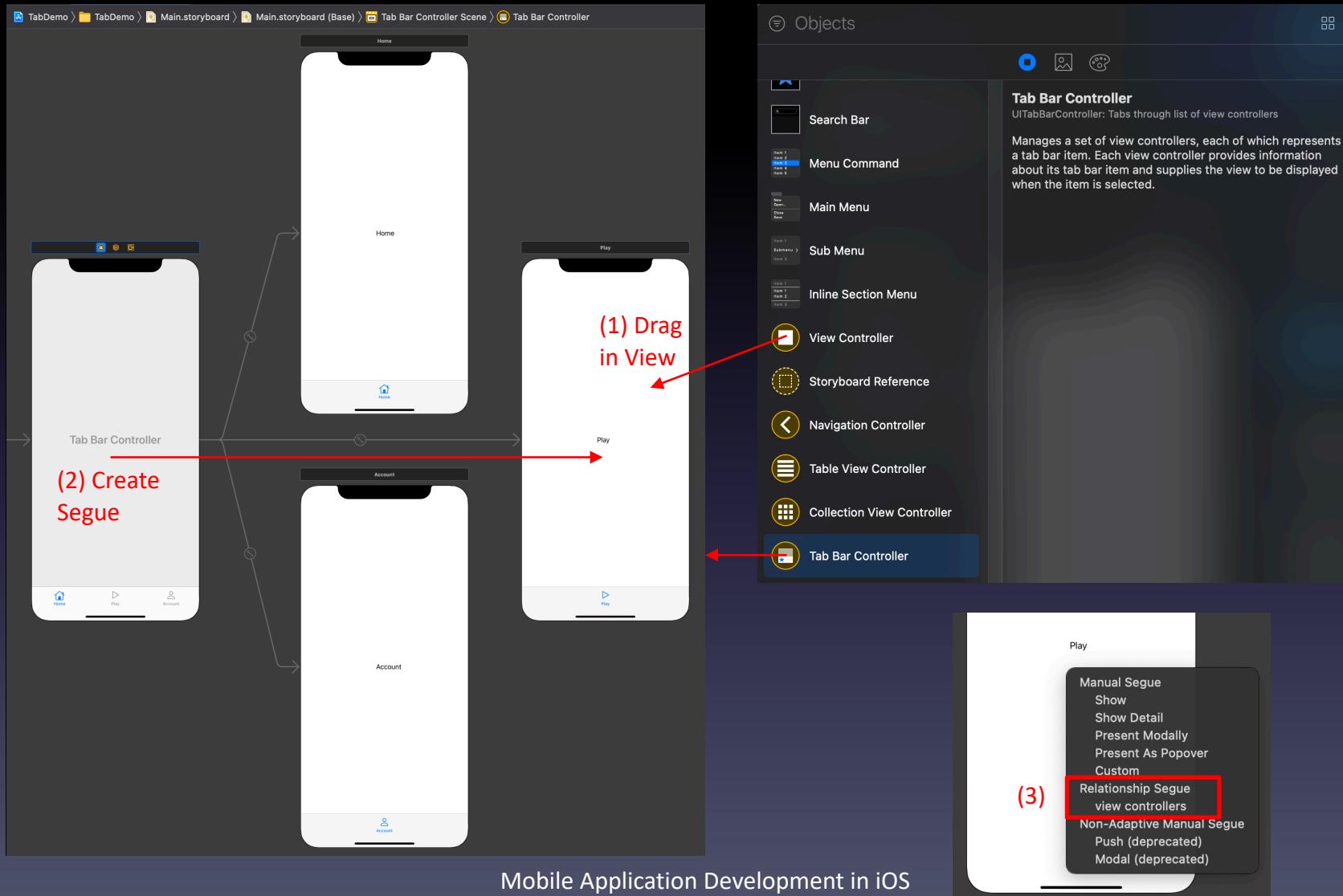
```
override func prepare(for segue: UIStoryboardSegue, sender: Any?) {  
    if (segue.identifier == "barView1ToView2") {  
        let secondVC = segue.destination as! SecondViewController  
        secondVC.messageFromFirstViewString = "Hello from View 1 (Bar)"  
    }  
}
```

Navigation Controller: Passing Data Back

- Problem
 - Back button does not trigger `prepareForSegue`
 - Back button does not trigger unwind segue
 - No `IBAction` allowed
- Solution
 - Replace Back button with another Bar Button Item
 - Use unwind segue (which calls `prepareForSegue`)
 - Or, connect to `IBAction` and perform unwind segue



Tab Bar Controller



Resources

- Segues
 - developer.apple.com/library/archive/featuredarticles/ViewControllerPGforiPhoneOS/UsingSegues.html
- Navigation Controller
 - developer.apple.com/documentation/uikit/uinavigationcontroller
- Tab Bar Controller
 - developer.apple.com/documentation/uikit/uitabbarcontroller