



App Navigation

Dr. Sarah Abraham

University of Texas at Austin

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Multiple Screens in Apps

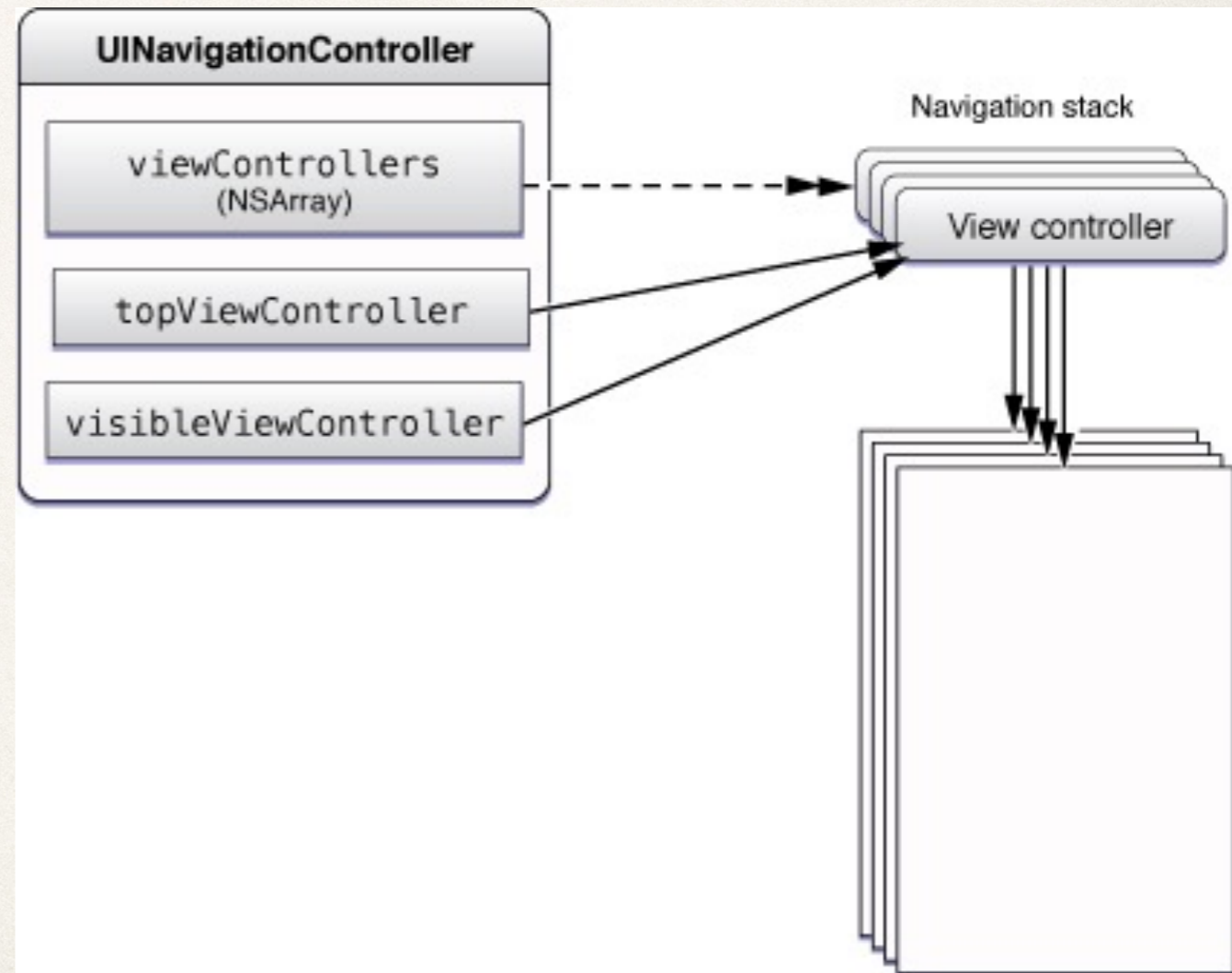
- ❖ A single screen is rarely enough to encapsulate all app functionality
- ❖ Program must know:
 - ❖ What screen displays what information
 - ❖ When to change screens
 - ❖ How to return to previous screens

Navigation Controllers

- ❖ **Container controller** holding some number of view controllers
- ❖ Child view controllers are referenced in an internal array
 - ❖ Pushed onto view controller stack to display
 - ❖ Popped from view controller stack to remove
- ❖ Navigation bar provided to move between view controllers

Navigation Stack

- ❖ First item in stack is root view controller
- ❖ Never popped
- ❖ Back button can automatically pop top view controller



Navigation Controller Example



Album list controller



Photo album controller



Photo controller

Segues

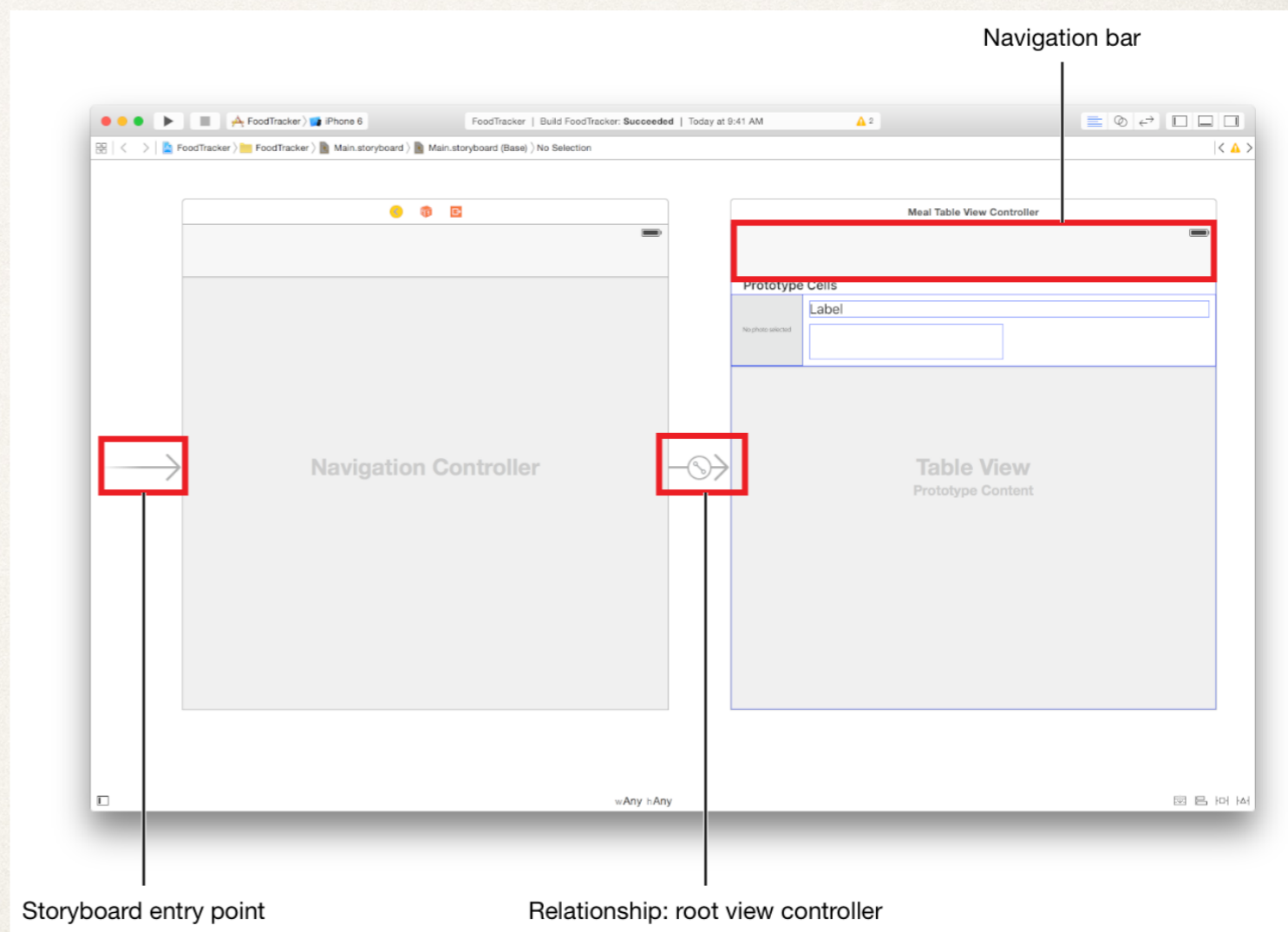
- ❖ Named connection between one part of user interface and another
- ❖ Transitions between two view controllers in the storyboard
- ❖ Created in Interface Builder or programmatically
- ❖ Automatically triggered at runtime
 - ❖ Can notify app about transition for additional control

Segue Actions

- ❖ Add segue action using control drag (connect to next view controller)
- ❖ Types of segues available:
 - ❖ Show
 - ❖ Show detail
 - ❖ Present modally
 - ❖ Popover presentation
 - ❖ Custom

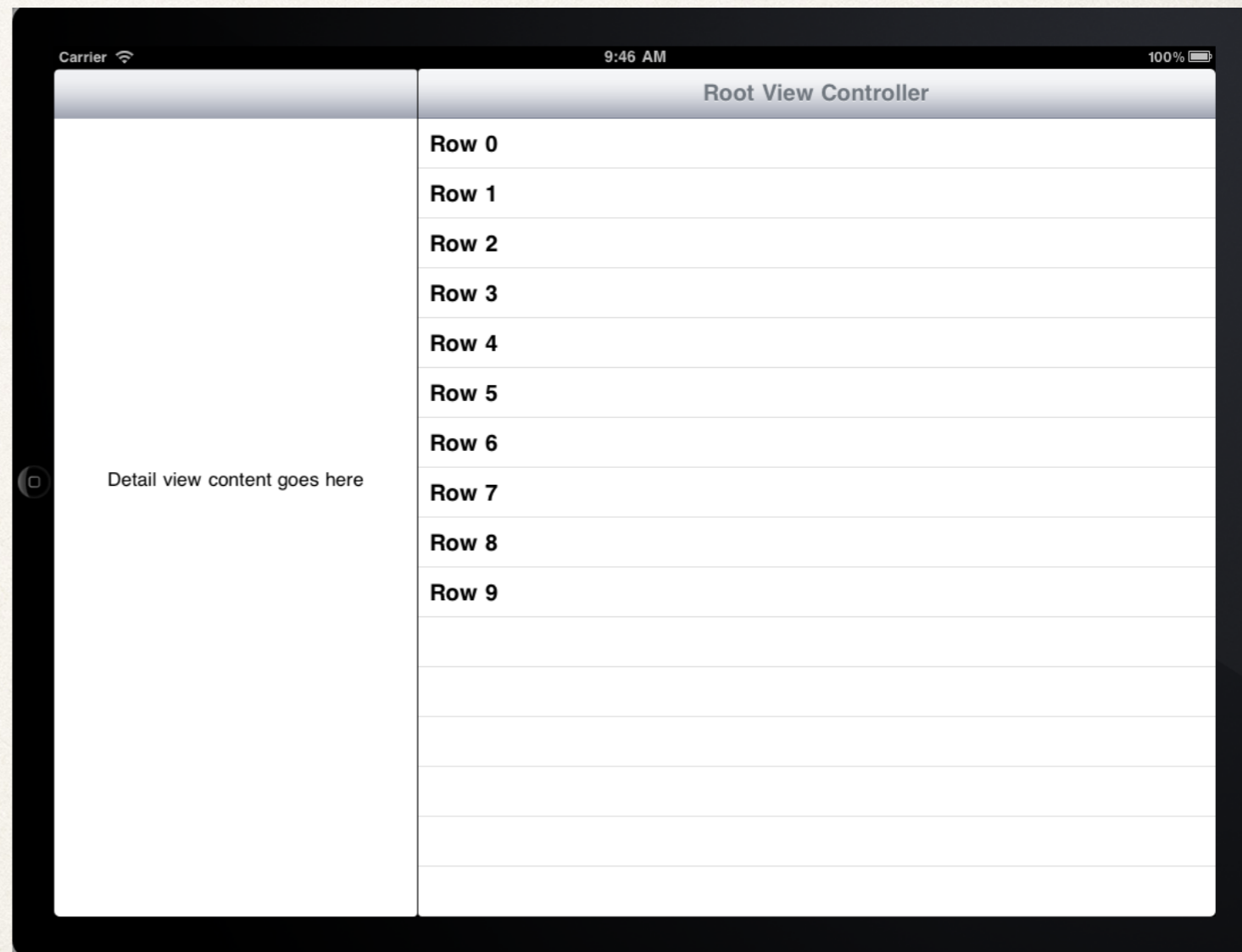
Show Segue

- ❖ Used with view controllers in a Navigation Controller container
- ❖ Allows for back button in Navigation Bar to return user to previous screen



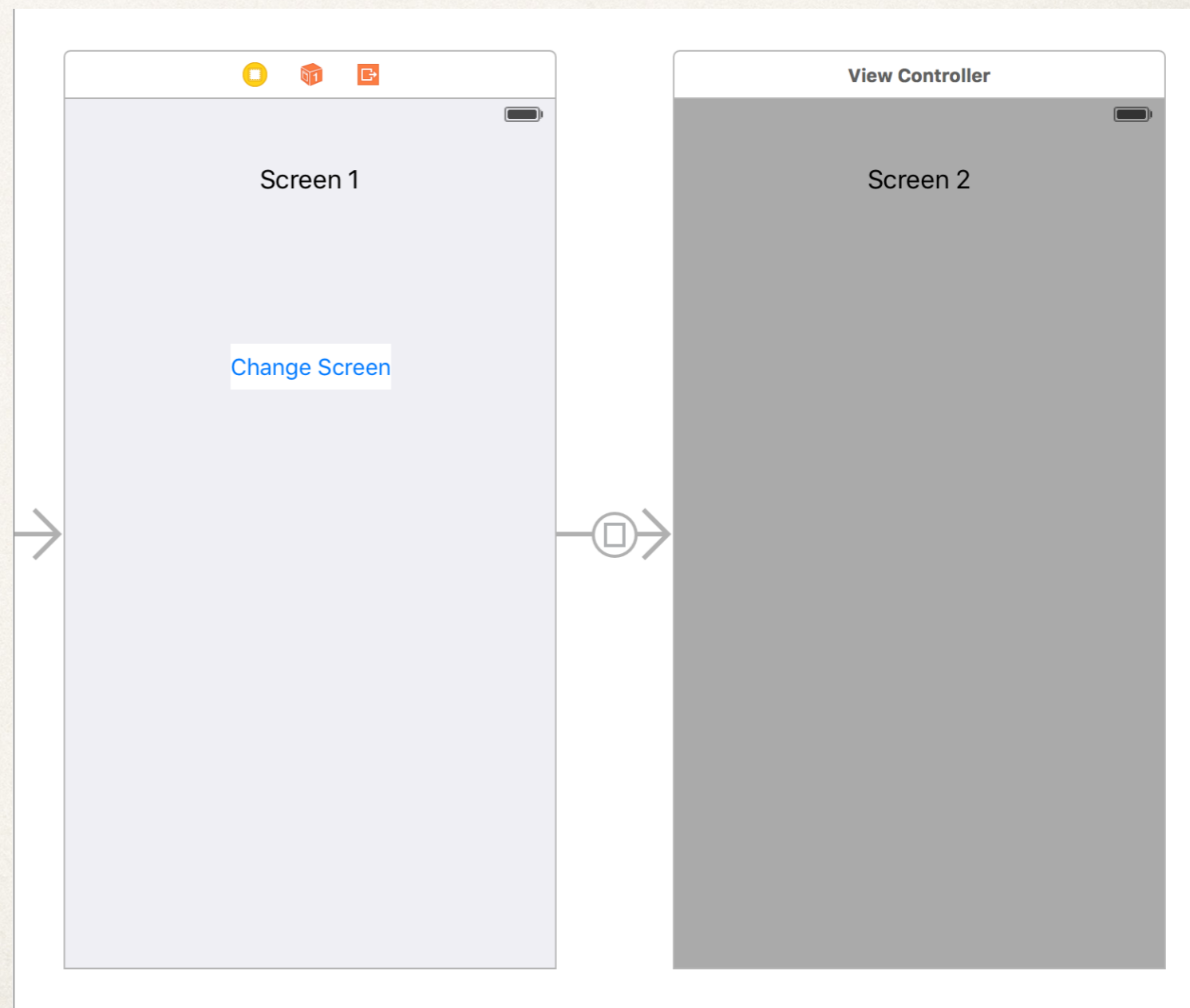
Show Detail Segue

- ❖ Used with view controllers in a Split View Controller container
- ❖ Replaces detail view side of Split View with next view controller



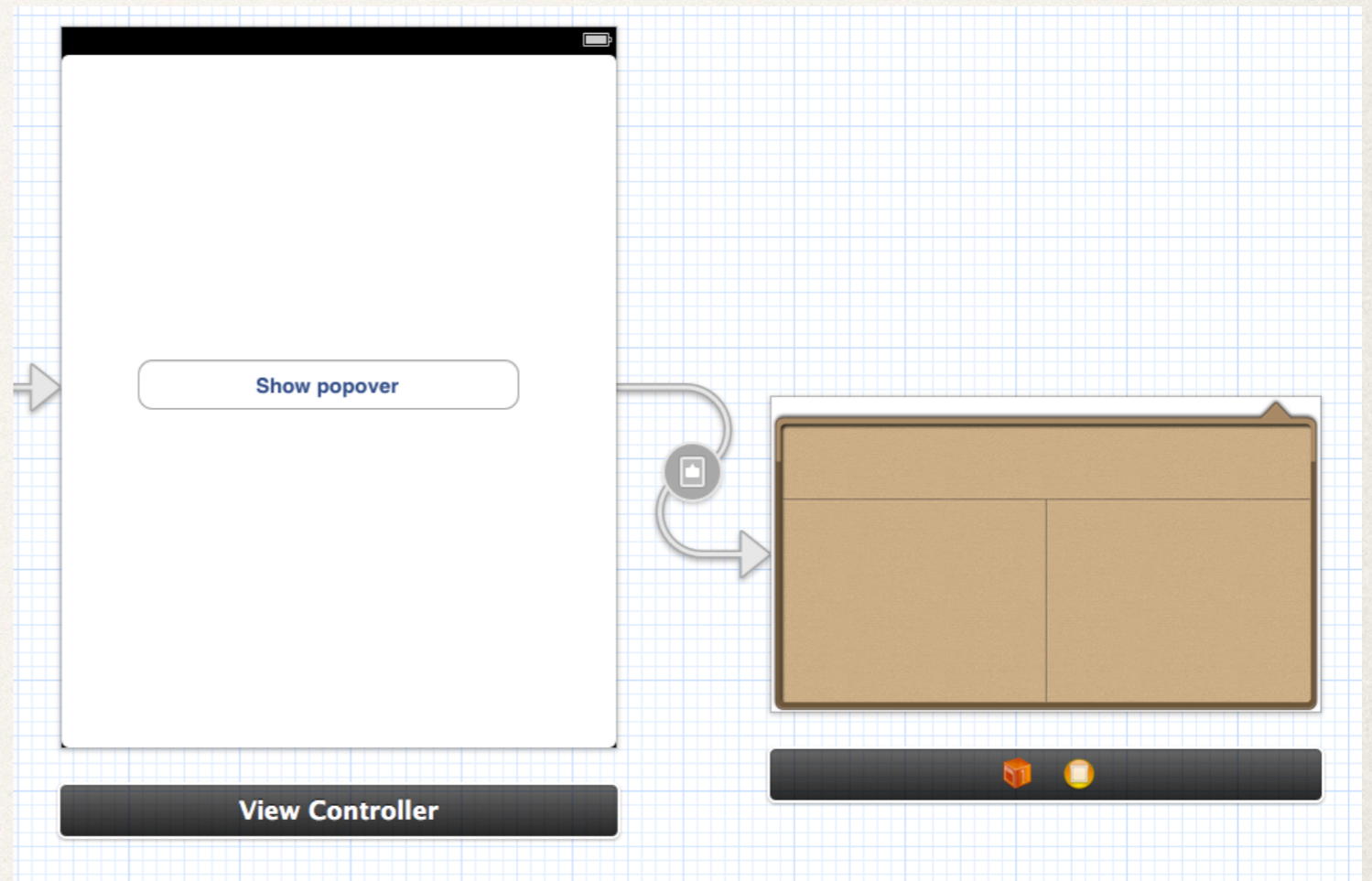
Present Modally Segue

- ❖ Used with separate view controllers outside of a controller container
- ❖ Shows destination view controller in front of previous one
- ❖ Prevents leaving partway through an action



Popover Presentation Segue

- ❖ Used to present new view controller as a smaller box over the current view controller
- ❖ Designed for the iPad
- ❖ Default on iPhone similar to “Present Modally” but can be customized



Custom Segue

- ❖ Used to make a custom segue style and transition
- ❖ Allows for deeper customization of animations and behaviors
- ❖ Builds on UIStoryboardSegue class to implement `perform` method



Segue Demo

Table Views

The image displays three mobile application screenshots side-by-side, illustrating different table views and user interfaces.

Left Screenshot (Contacts App): Shows the 'All Contacts' screen at 10:06 AM. The top bar includes 'Carrier', signal strength, and battery. Below the title bar is a search bar with a magnifying glass icon and the text 'Search'. A list of contacts is shown, including John Appleseed, Kate Bell, Anna Haro, Daniel Higgins Jr., David Taylor, and Hank M. Zakroff. A vertical alphabetical index (A-Z) is visible on the right side of the contact list.

Middle Screenshot (Filters App): Shows a 'Filters' screen at 7:37 AM. The top bar is red and contains 'Cancel', 'Filters', and 'Search' buttons. The main content area includes a 'Price' section with four radio buttons labeled '\$', '\$\$', '\$\$\$', and '\$\$\$\$'. Below that is a 'Most Popular' section with an 'Open Now' toggle set to '7:36 AM' and a refresh button. The 'Distance' section has five radio buttons: 'Auto' (checked), '0.3 miles', '1 mile', '5 miles', and '20 miles'.

Right Screenshot (Twitter App): Shows the 'Home' screen at 7:36 AM. The top bar is blue and contains a search icon, a home icon, and a refresh icon. The main content area displays a list of tweets. The first tweet is from Gabby Stern (@gabbystern) retweeted by Wall Street Journal, with the text 'Why Brazilians & expats fill their suitcases when in the US: Tips for coping w/ Brazil's crazy prices on.wsj.com/1J36C6o via @WSJexpat'. The second tweet is from Cara Delevingne (@Caradelevin...) with the text 'I miss you Gaga aka Angela Delevingne 1912-2014 ❤️ instagram.com/p/yFJ7HcjKCz/'. The third tweet is from KATY PERRY (@katyperry) with the text 'Hey @JJWatt what do you think of our @ESPMag cover? TOUCHDOWN?!' and several heart emojis. The bottom navigation bar includes icons for 'Timelines', 'Notifications', 'Messages', and 'Me'.

Table View Controller

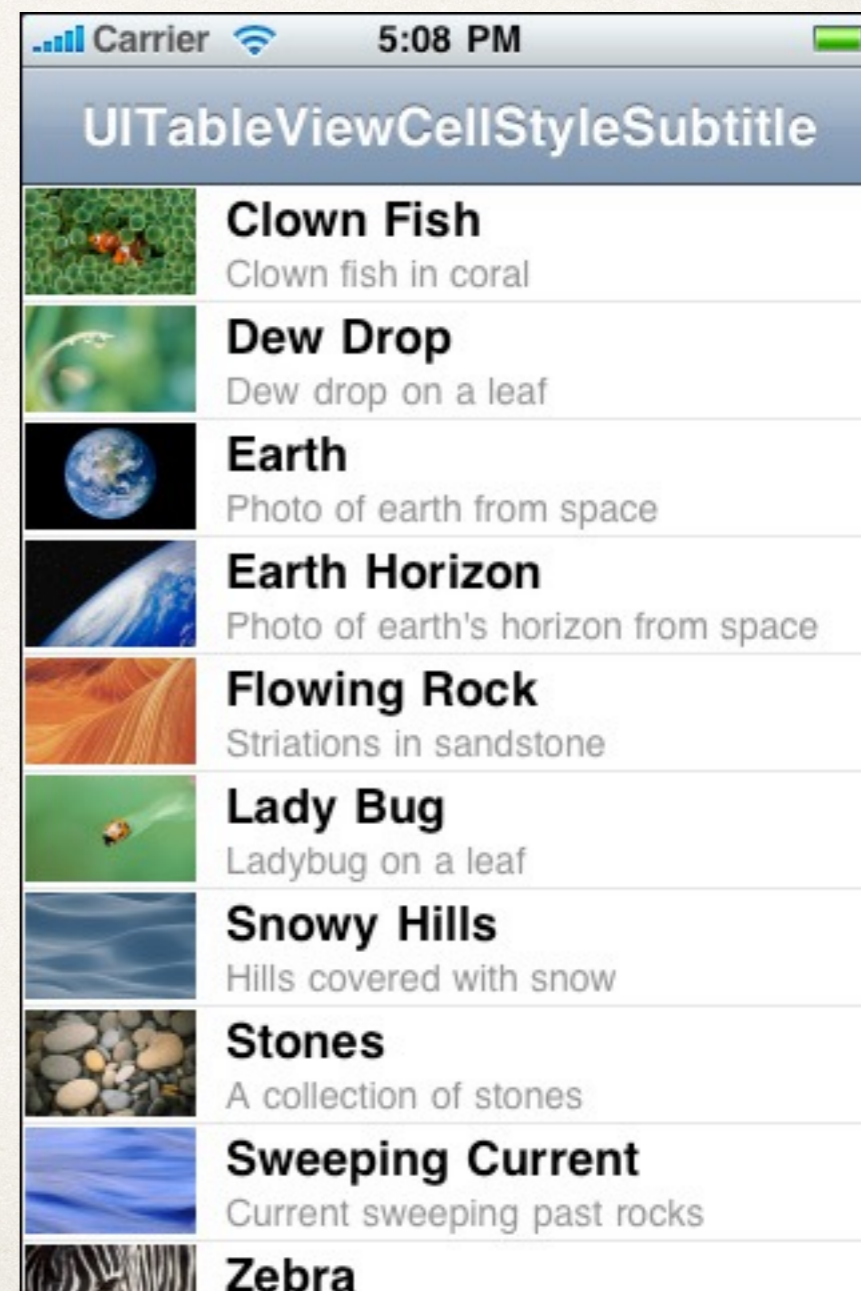
- ❖ Derive new class from UITableViewController
 - ❖ Generates method signatures for required methods and (commented out) optional methods
 - ❖ Fleshing out necessary methods allows for table to display data
- ❖ Programmer must consider:
 - ❖ How to structure the data model for table view to access it
 - ❖ How to display the data using table view

UITableViewController

- ❖ Assumes most of the view consists of a Table View
 - ❖ Automatically loads the Table View into the storyboard (accessible through tableView property)
 - ❖ Automatically sets the Table View data source and delegate to `self`
 - ❖ Handles first appearance/loading of table view (`ViewWillAppear` and `ViewDidAppear`)
 - ❖ Handles resizing of table view when keyboard is activated
- ❖ Use a standard UIViewController and manually add in a Table View if more flexibility is needed

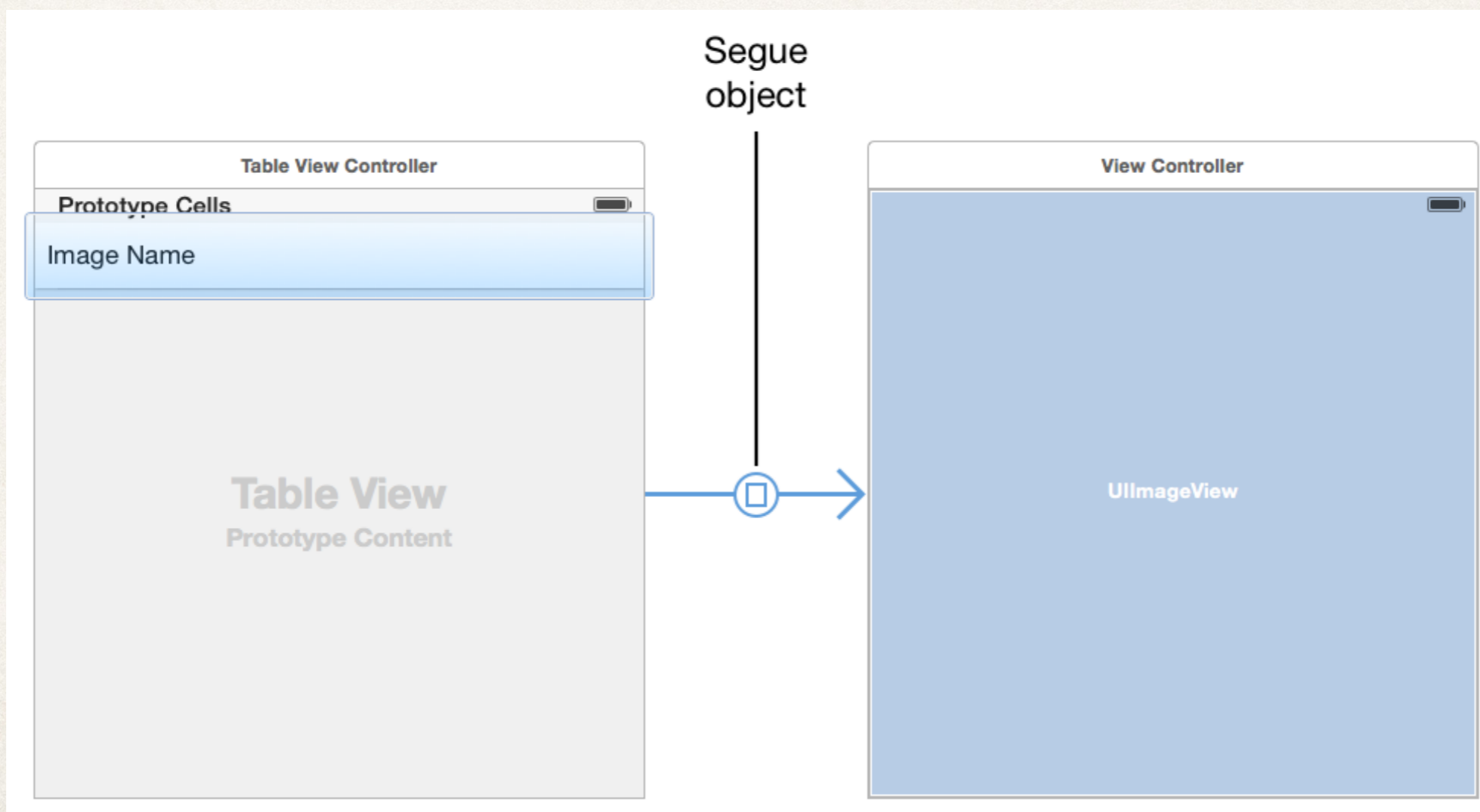
TableView Cells

- ❖ TableView generates list of cells to display data
- ❖ Provides basic predefined cell styles
- ❖ Several styles available depending on basic uses
- ❖ Customization also possible and almost always used



Combining Transitions

- ❖ Table views, navigation controllers, and segues can be combined in various ways
- ❖ What's happening in this example?



Quiz Question!

- ❖ Which of these segues is designed to present a view controller outside of the controller container?
 - Show Segue
 - Show Detail Segue
 - Present Modally Segue
 - Popover Presentation Segue