GENERAL ASSEMBLY

MOBILE DEVELOPMENT

ENUM, STATIC, SWITCH

Kishin Manglani

AGENDA

- Recap
- Enums
- Static & Class
- Switch Statements

RECAP

COMPUTED PROPERTIES

- We can use computed properties when both getting and setting a variable

```
class Square {
    var sideLength = 100

    var area: Int {
        get {
            return sideLength * 2
        }
        set(newArea) {
            sideLength = newArea / 2
        }
    }
}
```

INTRO TO SWIFT

```
func someFunction(firstParameter: Int, secondParameter: Int) {
    //body
}
someFunction(2, secondParameter: 3)
```

```
func exampleFunction(firstName firstParameter: Int, secondParameter: Int) {
    //body
}
exampleFunction(firstName: 4, secondParameter: 9)
```

```
func similarFunction(firstName firstParameter: Int, secondName secondParameter: Int) {
    //body
}
similarFunction(firstName: 9, secondName: 9)
```

```
func anotherFunction(firstParameter: Int, _ secondParameter: Int) {
    //body
}
anotherFunction(2, 3)
```

STRUCTS

```
class SomeClass {
    // class definition goes here
}
struct SomeStructure {
    // structure definition goes here
}
```

ENUMS

ENUMS

```
enum Month {
    case January
    case February
    case March
    case April
    case May
    case June
    case July
    case August
    case September
    case October
    case November
    case December
}
```

```
enum Season {
    case Winter, Summer, Spring, Fall
}
```

ENUMS

```
enum Month: Int {
    case January
    case February
    case March
    case April
    case May
    case June
    case July
    case August
    case September
    case October
    case November
    case December
}
Month.January.rawValue          0
Month.February.rawValue         1
```

ENUMS

```
//Declaring an enum
enum Month: Int {
    case January = 1
    case February = 2
    case March = 3
    case April = 4
    case May = 5
    case June = 6
    case July = 7
    case August = 8
    case September = 9
    case October = 10
    case November = 11
    case December = 12
}
Month.January.rawValue                1
Month.February.rawValue               2
```

ENUMS

```
enum Month: Int {
    case January = 1
    case February
    case March
    case April
    case May
    case June
    case July
    case August
    case September
    case October
    case November
    case December
}
Month.January.rawValue          1
Month.February.rawValue         2
```

ENUMS

```
enum Coin: Int {
    case Penny = 1, Nickel = 5, Dime = 10, Quarter = 25
}
```

```
enum TaskPriority: Int {
    case Low = 0
    case Medium = 1
    case High = 2
}
```

ENUMS

- A rawType gives an enum an initializer
- We can then initialize an enum with a rawValue
- These are “failable” initializers: if something goes wrong (like the rawValue is not compatible) the initializer can return nil

```
TaskPriority(rawValue: 0)          Low

TaskPriority(rawValue: 909)        nil
```

CLASS, STRUCT, ENUM

- Enums should represent a finite number of possibilities
- We can think of these as named labels

- Structs are a base type an cannot be subclassed,
- All functions and properties pertain to the instance
- Should not manipulate properties, etc. of other objects
- Is not the complete definition or model of your app

- Classes should be the primary actor/target of your app
- They represent the data model of your app
- Manipulate other objects properties

CLASS, STRUCT, ENUM

- Remember, Classes, Structs and Enums create data types
- In other words, we can make variables or properties take on the types that we create if they are a class, struct or enum

STATIC & CLASS

STATIC & CLASS

```swift
class Dog {
    static let dogNoise = "Bark bark"
    var defaultDogAge = 0

    func makeNoise() {
        print("\(self.defaultDogAge) \(Dog.dogNoise)")
    }

    static func makeNoiseStatic() {
        print("\(Dog.dogNoise)")
    }
}

Dog.makeNoiseStatic()
var puppy = Dog()
puppy.makeNoise()
```

```
"Bark bark\n"
"0 Bark bark\n"
```

Dog
Dog

SWITCH STATEMENTS

SWITCH STATEMENTS

```
switch some value to consider {
case value 1:
    respond to value 1
case value 2,
value 3:
    respond to value 2 or 3
default:
    otherwise, do something else
}
```

SWITCH STATEMENTS

```
var age = 30

switch age {
case 0:
    print("You are 0 years old")
case 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40:
    print("You are in your 30's")
case 40...49:
    print("you are in your 40's")
default:
    print("You are not 20 and not 30")
}
```

IF/ELSE, FOR LOOP, WHILE LOOP, SWITCH

- If else and switch are pretty similar
- If there are two cases, probably use an if
- If there are many cases, use a switch
- When iterating through an array use a for loop
- When iterating through a finite or known quantity use a for loop
- When iterating endlessly or an indefinite amount of time, use a while loop

DELEGATE

PROTOCOLS

- A group of related properties and methods that can be implemented by any class
- More flexible than a normal class interface, since they let you reuse a single API declaration in completely unrelated classes
- Also, we don’t have to override or implement a method from a superclass
- With a protocol we can make certain methods required and others optional

PROTOCOLS

- Here's an example:

```
protocol Swimmer {
    func swim()
}
```

- Notice how we do not need to provide an implementation (any code for the function) it is just the definition

PROTOCOLS

- Here's how we adopt the protocol

```
class Frog: Animal, Swimmer {
    func swim() {
        print("I'm swimming")
    }
}
```

- When adopting the protocol we need to implement the required methods

PROTOCOLS

- Here's an example of an optional method:

```
protocol Swimmer {
    func swim()
    optional func drown()
}
```

DELEGATE

- In English, delegating means doing something on behalf of someone else
- It's the same thing in iOS, a delegate object performs some task for another object
- The object uses the delegate to notify other objects of events
- A delegate is just some class that implements a protocol

DELEGATE

- The idea behind delegates is that instead of class A executing some code, it tells it's delegate to execute that code. The delegate is tied to another class (let's call it class B). In order to facilitate this, class A creates something called a protocol. This protocol has a list of methods in it (with no definition). Class A then has an instance of the protocol as a property. Class B has to implement the protocol defined in class A. Lastly, when class A is created, it's delegate property is set to class B.

http://chrisrisner.com/31-Days-of-iOS--Day-6%E2%80%93The-Delegate-Pattern/

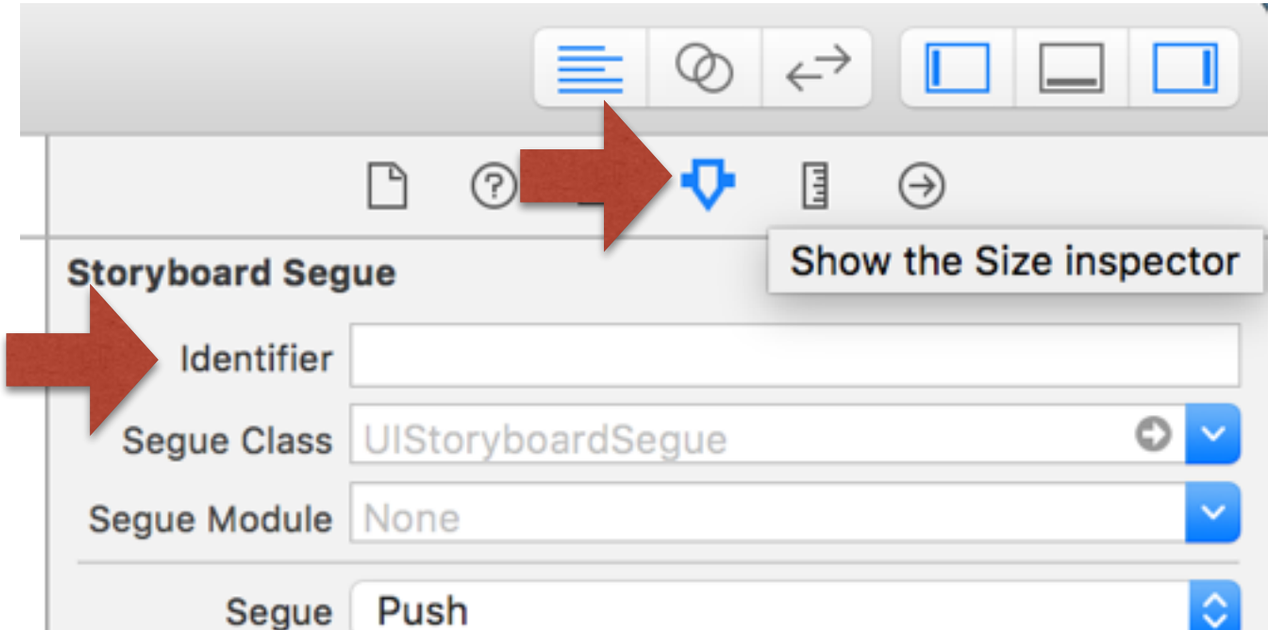
SEGUES

SEGUES

- What is a segue?
- How do we create a segue?

SEGUES

- Can set a specific identifier/name for a segue
- We can then call the identifier in our code
- To set the name, select the Segue in storyboard and specify a name in the Attributes inspector under “Identifier”



SEGUES

- Now to perform the segue we call a special function that's built right into our view controller (it inherits it from UIViewController)
- Here, "segueName" is the name that we specified in our Storyboard, when we selected our segue and set a name
- A very common error is misspelling the name!

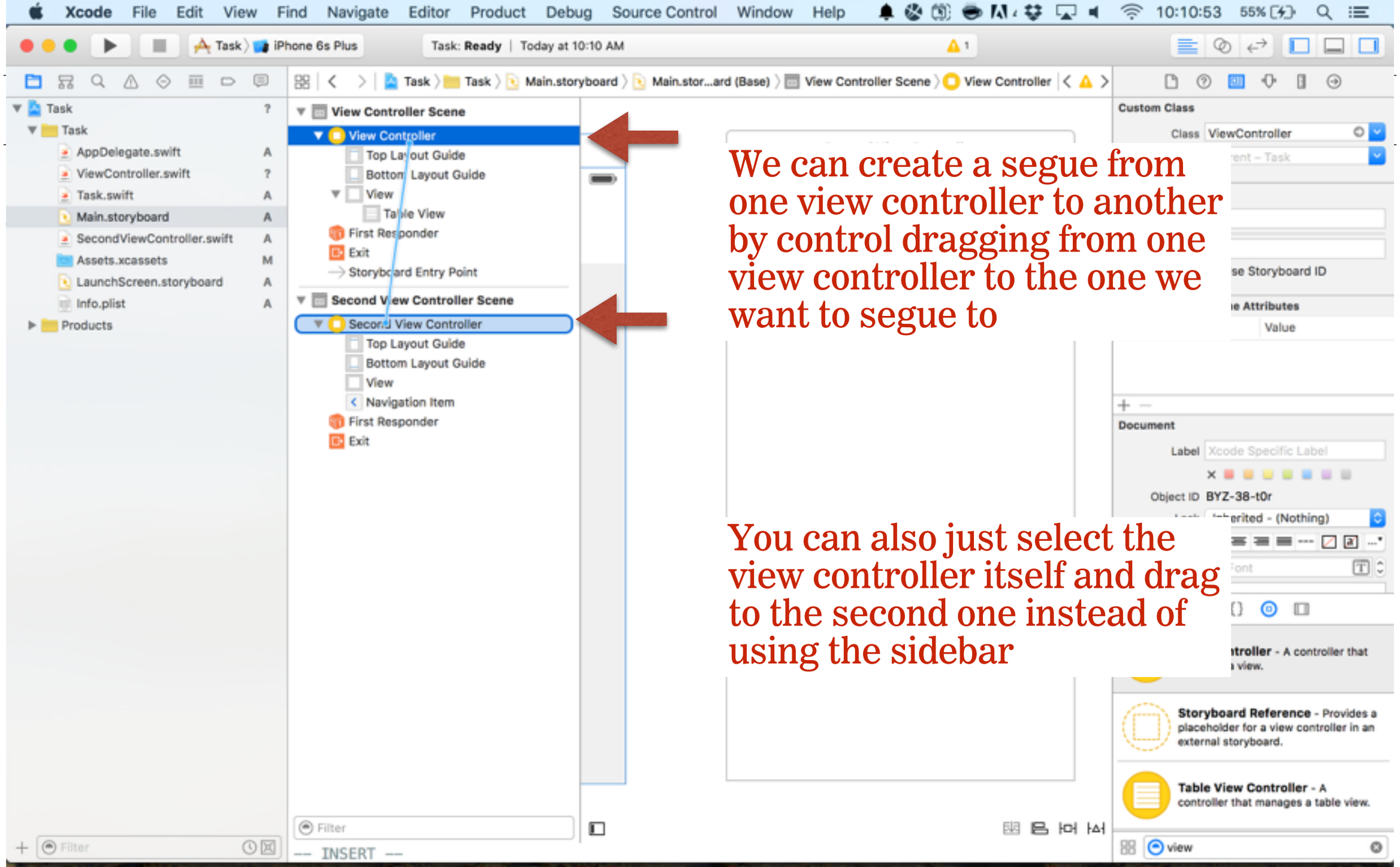
```
performSegueWithIdentifier("segueName", sender: self)
```

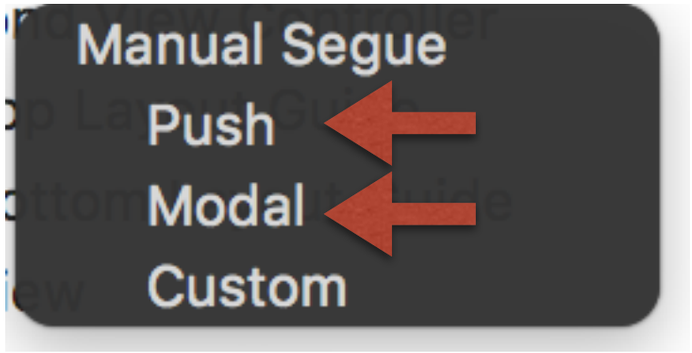
SEGUES

- Why might we want to perform a segue in code using performSegueWithIdentifier instead of performing it in Storyboard like we have been doing so far?
- When segues are performed in Storyboard, when a button was pressed for example, the only action/code the button executed was the segue
- When performing a segue in code, we can perform the segue along with additional code
- For example, we can perform the segue, and create an object or make a network request

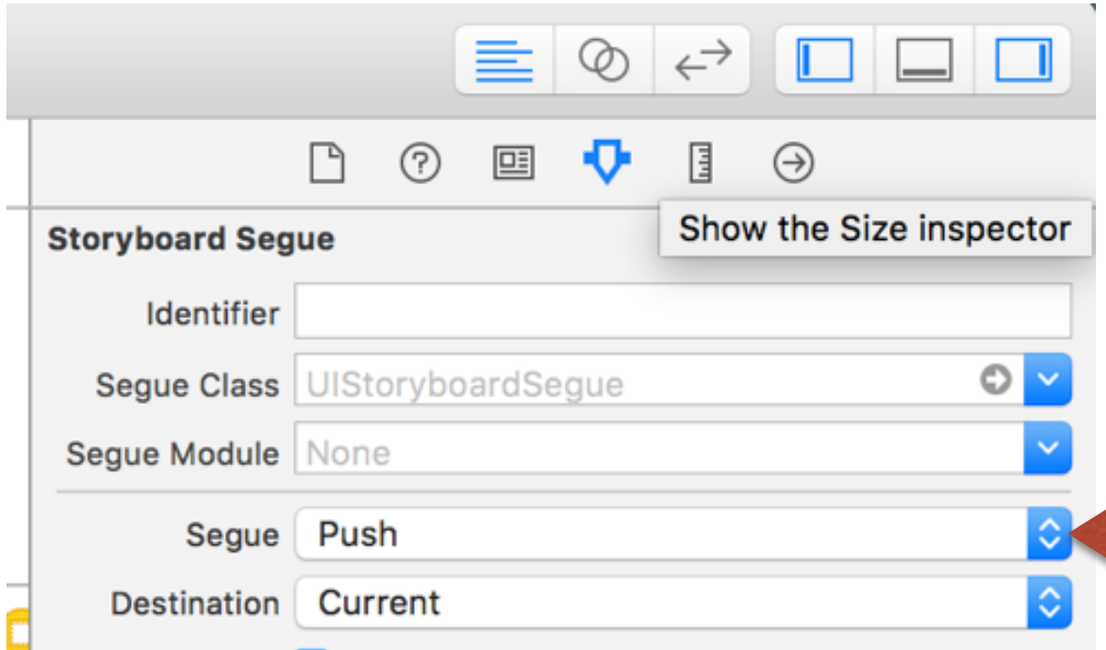
SEGUES

- What is an IBAction?
- How do we create an IBAction?
- Now we can create an IBAction and call performSegueWithIdentifier in that IBAction
- That will only perform the segue, but we can also add additional code to the same IBAction
- Or, we can call performSegueWithIdentifier in our didSelectRowAtIndexPath method if our view controller implements the UITableViewDelegate protocol


We can create a segue from one view controller to another by control dragging from one view controller to the one we want to segue to
You can also just select the view controller itself and drag to the second one instead of using the sidebar



Remember, we can only add a “Push” segue if our view controller is inside of a UINavigationController. We’ll use the Push segue, so make sure to embed inside of a UINavigationController



If you create a “Push” segue or a “Modal” segue and need to change it, you can do so in the Attributes inspector after selecting the Segue in Storyboard

SEGUES

- So performSegueWithIdentifier is called and the view controller “prepares” for the segue
- In fact, there is another method in UIViewController called prepareForSegue
- In this method, we can get a “reference”/instance of the view controller to be displayed
- Once we have a reference to this new instance, we can set properties we want on the view controller
- Since we created the view controller, we can add custom properties of some custom types we created

SEGUES

- To view the error if/when your app crashes, scroll to the top of the console (the panel at the bottom)
- Some common errors:
  - “`has no segue with identifier`” - there is a typo somewhere in your identifier name either in Storyboard or in your view controller
  - “`Push segues can only be used when the source controller is managed by an instance of UINavigationController.`” Embed the view controller inside of a Navigation Controller

ANYOBJECT

ANYOBJECT

- This is a type that can actually hold any type

```
var helloWorld: AnyObject = "hello world"
helloWorld = 2
helloWorld = false

var helloString = "hello world"
helloString = false
```

ANYOBJECT

- Why use this?
- In certain scenarios it gives us a lot of flexibility
- As a parameter type in a function, we can now have the function take in AnyObject and perform almost anything on it
- One problem with AnyObject is not all objects have the same functionality, so in order to have the variable do something we need to convert the variable to another type
- Ideally a more specific type with more functionality

CASTING

CASTING

- Casting allows us to convert a variable from one type to another
- It is most commonly used with AnyObject, but can be used in other instances as well
- We typically use the as keyword when casting from one type to another

```
var helloWorld: AnyObject = "hello world"
var helloString = helloWorld as! String
```

CASTING

- If a function expects us to pass in a String, we cannot pass in AnyObject, so in that case we must cast it from AnyObject to a String, then we can pass it in to the function
- If the casting fails, the app can crash

```
var helloWorld: AnyObject = 2
var helloString = helloWorld as! String
```

CASTING

- When using prepareForSegue we want to cast the destinationViewController to a subclass of UIViewController that we created
- That way we can access and set it's properties

```
override func prepareForSegue(segue: UIStoryboardSegue, sender: AnyObject?) {
    if (segue.identifier == "todo") {
        let indexPath = sender as! NSIndexPath
        let todoViewController = segue.destinationViewController as! SecondViewController
        todoViewController.todo = todos[indexPath.row]
    }
}
```

CASTING

- Swift wants to make sure that we have actually defined the properties we pass in
- To tell Swift that we will actually pass in values, we can use the exclamation mark (force) or a question mark (an optional)

```
class SecondViewController: UIViewController {
    var todo: Todo!
    var todo2: Todo?
}
```

VIEW CONTROLLER LIFECYCLE

VIEW CONTROLLER LIFECYCLE

- The view controller has a lifecycle
- Practically, this means that it is loaded into memory and there are additional functions that are called
- We can override and insert code into these functions to “make stuff happen” when we want it to
- Some of these methods include: viewDidLoad, viewWillAppear, viewDidAppear, viewWillDisappear, etc.

VIEW CONTROLLER LIFECYCLE

- Today, we will use viewWillAppear
- This is a great opportunity to setup the user interface with some data
- Example:

```
override func viewWillAppear(animated: Bool) {
    //code
}
```

- Behind the scenes, the UIViewController super class automatically calls this method. Our only job is to override it and put code we want to execute inside of it

LAB