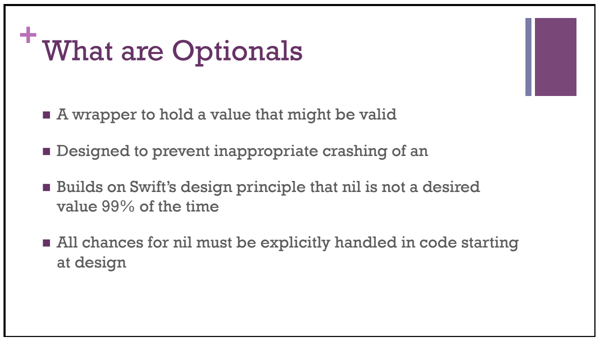
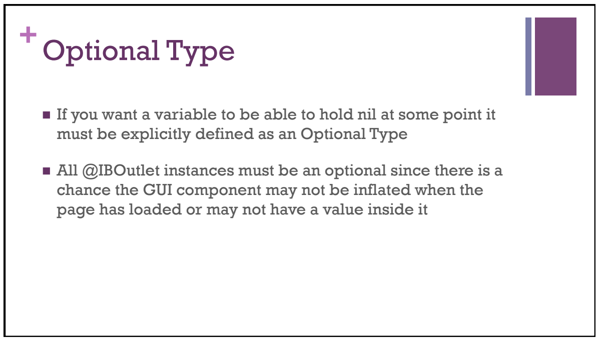
# Swift Optionals

Cody Henrichsen
October 2017



## What are Optionals

- A wrapper to hold a value that might be valid
- Designed to prevent inappropriate crashing of an
- Builds on Swift's design principle that nil is not a desired value 99% of the time
- All chances for nil must be explicitly handled in code starting at design



## Optional Type

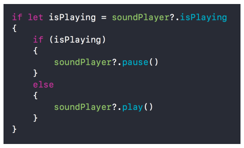
- If you want a variable to be able to hold nil at some point it must be explicitly defined as an Optional Type
- All @IBOutlet instances must be an optional since there is a chance the GUI component may not be inflated when the page has loaded or may not have a value inside it

## + Optional Value

- ?
  - Using this operator after the value indicates that the value will be "peeked at" and if the variable specified is not nil continue and evaluate the remainder of the statement. If the variable is nil do not execute the statement
- !
  - Using this operator means force unwrap the value, and proceed. If the value is nil the app will crash if not caught

## + Optional Handling

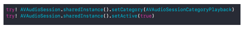
- if let
  - Assign the optional's value into the one time variable if it exists and proceed
  - Safely organizes code into an executable block



```
if let isPlaying = soundPlayer?.isPlaying
{
    if (isPlaying)
    {
        soundPlayer?.pause()
    }
    else
    {
        soundPlayer?.play()
    }
}
```

## + Optional Handling

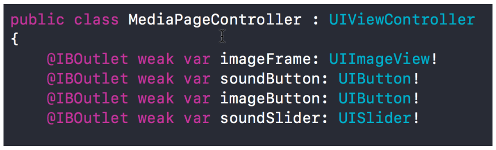
- try?
  - Attempt the following code and if it is unsuccessful return nil
- try!
  - Attempt code and if nil, crash
- guard
  - Attach an else block to an attempt of code
  - guard if let {…} else {…}



```
try! AVAudioSession.sharedInstance().setCategory(AVAudioSessionCategoryPlayback)
try! AVAudioSession.sharedInstance().setActive(true)
```

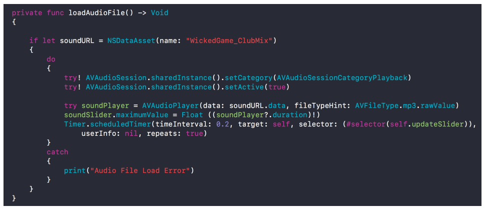
## + Optional Type Example

Value



```
public class MediaPageController : UIViewController
{
    @IBOutlet weak var imageFrame: UIImageView!
    @IBOutlet weak var soundButton: UIButton!
    @IBOutlet weak var imageButton: UIButton!
    @IBOutlet weak var soundSlider: UISlider!
```

## + Optional Value Example

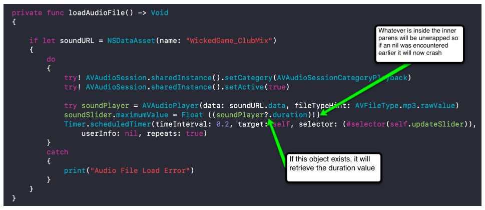


```
private func loadAudioFile() -> Void
{

    if let soundURL = NSDataAsset(name: "WickedGame_ClubMix")
    {
        do
        {
            try! AVAudioSession.sharedInstance().setCategory(AVAudioSessionCategoryPlayback)
            try! AVAudioSession.sharedInstance().setActive(true)

            try soundPlayer = AVAudioPlayer(data: soundURL.data, fileTypeHint: AVFileType.mp3.rawValue)
            soundSlider.maximumValue = Float ((soundPlayer?.duration)!)
            Timer.scheduledTimer(timeInterval: 0.2, target: self, selector: (#selector(self.updateSlider)),
                userInfo: nil, repeats: true)
        }
        catch
        {
            print("Audio File Load Error")
        }
    }
}
```

## + Optionals



```
private func loadAudioFile() -> Void
{

    if let soundURL = NSDataAsset(name: "WickedGame_ClubMix")
    {
        do
        {
            try! AVAudioSession.sharedInstance().setCategory(AVAudioSessionCategoryPlayback)
            try! AVAudioSession.sharedInstance().setActive(true)

            try soundPlayer = AVAudioPlayer(data: soundURL.data, fileTypeHint: AVFileType.mp3.rawValue)
            soundSlider.maximumValue = Float ((soundPlayer?.duration)!)
            Timer.scheduledTimer(timeInterval: 0.2, target: self, selector: (#selector(self.updateSlider)),
                userInfo: nil, repeats: true)
        }
        catch
        {
            print("Audio File Load Error")
        }
    }
}
```

Whatever is inside the inner parens will be unwrapped so if an nil was encountered earlier it will now crash

If this object exists, it will retrieve the duration value