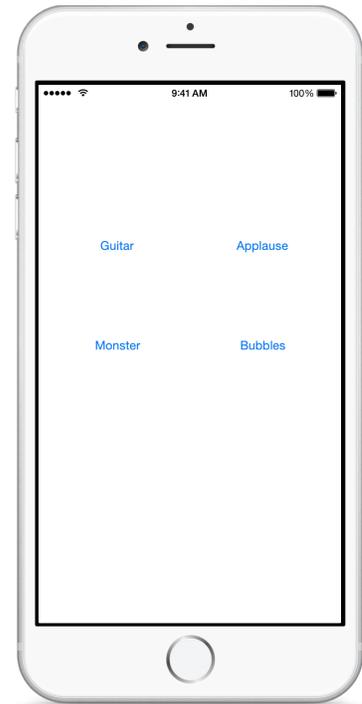# NoiseMaker
Lesson 1

Description

Add four buttons to the interface, and add four audio file assets to the project.

Learning Outcomes

- Practice adding interface elements to the main view and establishing Auto Layout constraints.
- Practice connecting buttons to controller actions.
- Discover how to add multimedia assets to an Xcode project.

Vocabulary

Interface Builder	Object Library	Button
controller action	method	@IBAction
.wav file	Project Navigator	

Materials

- **NoiseMaker Lesson 1** Xcode project
- **NoiseMaker Sound Files** archive

Opening

You should be comfortable with adding buttons to the interface, but how do you think we can add sound files to our app?

Agenda

• Using the Interface Builder Object Library (⌥⌘L), drag four Buttons onto the main view, and change the labels contents to **Guitar**, **Applause**, **Monster**, and **Bubbles**.

• Use the Align control (⊟) to add constraints for horizontal alignment relative to the middle of the main view, and Control-drag upwards from each button to the main view to add constraints for vertical spacing.

• Run the app (⌘R), and observe the buttons in the interface.

• Using the Assistant Editor (⌥⌘↩), connect each button to a controller action in the `ViewController` class.

```
@IBAction func playGuitar(sender: UIButton) {
    // play guitar sound
}

@IBAction func playApplause(sender: UIButton) {
    // play applause sound
}

@IBAction func playMonster(sender: UIButton) {
    // play monster sound
}

@IBAction func playBubbles(sender: UIButton) {
    // play bubbles sound
}
```

• Discuss the main ingredient for playing sounds in an iOS app: sound files.

• Using the Project Navigator (⌘1), drag the four audio files **guitar.wav**, **applause.wav**, **monster.wav**, and **bubbles.wav** to the **Supporting Files** group.

• Ensure that **Copy items if needed** is checked and that **NoiseMaker** is checked in the **Add to Targets:** list.
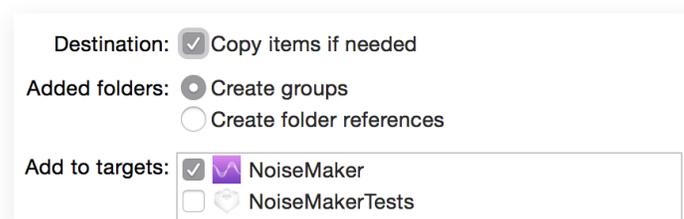
- Discuss how Xcode copies the files into the project, and observe that the files appear in the Project Navigator (⌘1).
- To ensure that computer audio volumes are appropriate, click on an audio file in the Project Navigator (⌘1), experiment with playing the sound within the Xcode interface, and verify that you can hear the sound.

Closing

What are **.wav** files? If we had a lot of big audio files in our app, how might this affect how long it takes to download our app from the App Store, and how much space our app occupies on a device?

Modifications and Extensions

- To maintain organization, add a new group (folder) to the Project Navigator to group the audio files.
- Compare what one sees in the Project Navigator to what one sees in the filesystem via the OS X Finder. Clarify where the added audio files are located within the project directory structure.

Resources

Xcode Overview: Build a User Interface https://developer.apple.com/library/ios/documentation/ToolsLanguages/Conceptual/Xcode_Overview/edit_user_interface.html

UIKit User Interface Catalog: Button https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/UIKitUICatalog/UIButton.html

Cocoa Core Competencies: Controller Object http://developer.apple.com/library/ios/documentation/General/Conceptual/DevPedia-CocoaCore/ControllerObject.html

Cocoa Core Competencies: Target-Action http://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