SpaceAdventure
Lesson 2

Description

Prompt the user to enter his or her name, and print a greeting using the name. Prompt the user to make a choice, and display appropriate output for the choice made.

```
Welcome to our solar system!
There are 8 planets to explore.
You are currently on Earth, which has a circumference of 24859.82 miles.
What is your name?
Jane
Nice to meet you, Jane. My name is Eliza, I'm an old friend of Siri.
Let's go on an adventure!
Shall I randomly choose a planet for you to visit? (Y or N)
Y
Ok! Traveling to...
```

Learning Outcomes

- Practice calling functions, and assigning the return value of a function to a constant.
- Observe how an app may consist of multiple source code files.
- Relate decision making to Boolean logic and flow control constructs with `if` and `else`.

Vocabulary

function call	Swift Standard Library	Project Navigator
source file	compile	console
return value	boolean logic	flow control
branching	`if/else`	assignment operator
comparison operator		

Materials

- **SpaceAdventure Lesson 2** Xcode project

Opening

How might we obtain the space traveler's name? How can we get our program to make a decision based on what the traveler chooses?

Agenda

- Discuss the need to ask the user their name, to capture what they type, and to print it back on the console.
- Implement an idiomatic approach to capturing console input from the user with a provided utility function, `getln`.

```
println("What is your name?")
let name = getln()
println("Nice to meet you, \(name). My name is Eliza, I'm an old
   friend of Siri.")
```

- Explain how, unlike `println`, which is part of the Swift Standard Library, the `getln` function is a "helper" function provided as a convenience with this particular Xcode project.
- Using the Project Navigator (⌘1), locate and select the **HelperFunctions.swift** file.
- Explain how Xcode will compile all of the Swift source files within the Xcode project before running the application.
- Discuss how the `getln` function retrieves keyboard input from the console, and returns what the user has typed as a `String` value.
- Run the program (⌘R), interact with the console (⇧⌘C), and observe the output.
- Discuss the requirement of suggesting an adventure, and asking the traveler if he or she would like the program to choose a random planet to visit.

```
println("Let's go on an adventure!")
println("Shall I randomly choose a planet for you to visit? (Y or
   N)")
let decision = getln()
```

- Discuss the need for the program to make a decision on what to do, based on what the traveler types, stored in the constant `decision`.
- Implement a decision using an `if` statement and an `else` clause.

```
if decision == "Y" {
   println("Ok! Traveling to...")
   // TODO: travel to random planet
} else {
   println("Ok, name the planet you would like to visit...")
   // TODO: let the user select a planet to visit
}
```

- Explain how the `if` statement evaluates a Boolean condition, and executes a set of statements when the condition is true; and how the `else` clause indicates statements that should execute when the condition is false.
- Discuss the difference between the assignment operator (=) and the comparison operator (==).
- Run the program(⌘R), interact with the console (⇧⌘C), and enter `Y` or `N` to observe the respective output.

Closing

What if we want to stay home and type, `I want to stay home`, instead of `Y` or `N`?

Modifications And Extensions

- Who (or what) is Eliza?
- Explore the Swift Standard Library documentation and identify what "free functions" and algorithms the library provides.
- Extract the repetitive user input capturing code into a function that accepts a `prompt` argument, prints the `prompt`, captures what the user types, and returns what the user types as a `String` value.

Resources

The Swift Programming Language: About Swift https://developer.apple.com/library/prerelease/ios/documentation/Swift/Conceptual/Swift_Programming_Language/

The Swift Programming Language: A Swift Tour https://developer.apple.com/library/prerelease/ios/documentation/Swift/Conceptual/Swift_Programming_Language/GuidedTour.html

The Swift Programming Language: The Basics https://developer.apple.com/library/prerelease/ios/documentation/Swift/Conceptual/Swift_Programming_Language/TheBasics.html

Swift Standard Library Reference https://developer.apple.com/library/ios/documentation/General/Reference/SwiftStandardLibraryReference/

Xcode Basics: About the Navigator Area https://developer.apple.com/library/ios/recipes/xcode_help-general/Chapters/AbouttheNavigatorArea.html

About the Project Navigator https://developer.apple.com/library/ios/recipes/xcode_help-structure_navigator/articles/About_the_Project_Navigator.html

The Swift Programming Language: Conditional Statements https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/ControlFlow.html#//apple_ref/doc/uid/TP40014097-CH9-ID127