GENERAL ASSEMBLY

MOBILE DEVELOPMENT

LESSON 03
INTRODUCTION TO SWIFT

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LESSON 02 REVIEW

WHAT DID WE LEARN IN LESSON

- Label everything in the Xcode window
- Storyboards vs. Xibs
  - Review of Storyboards
  - Review of Xibs (pronounced nibs)
- Learn about View Controllers (High-level)
  - Add multiple View Controllers to the storyboard
  - Link multiple View Controllers together with segues

HOMEWORK REVIEW

QUESTIONS

- What are the benefits of using xibs over storyboards?
- What are the benefits of using storyboards over xibs?
- Give a real world example when you would use a nib over a storyboards and vice-versa.
- What are Segues?
- What is a navigation controller?
- How do you use a navigation controller?

- Let’s do one more thing with Interface Builder: TextFields!

LEARNING OBJECTIVES

LEARNING OBJECTIVES

- Nomenclature
- State of Mind
- Swift and Playgrounds
  - Playgrounds Demo #1: Fundamental Data Types
  - Playgrounds Demo #2: Printing to the Console
  - Playgrounds Demo #3: Operators
  - Playgrounds Demo #4: Control Flow
- In-class assignment
- Homework

NOMENCLATURE

NOMENCLATURE (PT. 1)

Source Code: A collection of computer instructions written using some human-readable computer language.

NOMENCLATURE (PT. 2)

Syntax: The set of rules that defines the combinations of symbols that are written inside your source code files.

INTRO TO SWIFT

STATE OF MIND

PROGRAMMING IS LIKE COOKING

- Xcode is your kitchen.
- The Swift programming language is your cabinet full of simple ingredients.
- Your source code is the recipe, which you make from scratch!
- When you cook, you want to do one step at a time, to make sure you don’t make a mistake.
- When you program, you want to do many steps at once.
  - Programming is like hyper-efficient cooking

PROGRAMMING IS LIKE COOKING

- When you cook, you want to do one step at a time, to make sure you don't make a mistake.
- When you program, you want to do many steps at once, to maximize efficiency.
  - After all, isn't that what computers are for?

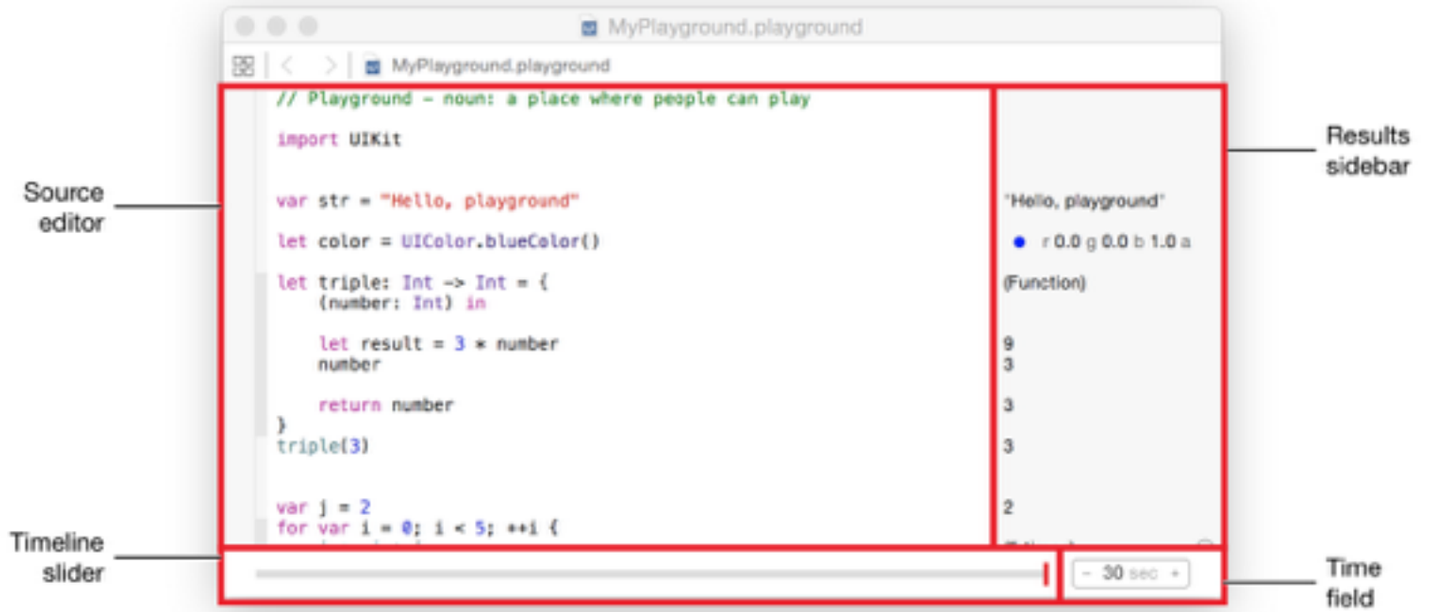
Programming is like hyper-efficient cooking

SWIFT AND PLAYGROUNDS

INTRO TO SWIFT

PLAYGROUNI

- *Source editor:* Type in swift code and view inline quick look views.
- *Results sidebar:* See the results of evaluating code in the source editor.
- *Timeline slider:* Playback the evaluation of the playground updating any results views.
- *Time field:* Set the total seconds that the playground executes each run.



More info here: https://developer.apple.com/library/ios/recipes/Playground_Help/Chapters/AboutPlaygrounds.html

DEMO 1 REVIEW: FUNDAMENTAL DATA

- Comments on one line (// Your comment goes here)
- Comments on multiple lines (/* Your comment goes here */)
- Constants (let)
- Variables (var)
- Type (e.g., String, Bool, Int, Float, etc.)
  - The type of a constant or variable can be inferred from it's initialized value
    - let number = 5 // Inferred to be a constant with type Int
    - var letter = "A" // Inferred to be a variable with type String

DEMO 1 REVIEW: MUTABILITY VS

Constants (let) are immutable, meaning that when you set a value to a constant, it stays, well, constant.

Variables (var) are mutable, meaning that you can change it’s value.

DEMO 2 REVIEW: PRINTLN AND STRING

- Use println() whenever you want to print something into the console.
  - println(“Hello”)
- Use String Literal syntax \() whenever you want to print out the value of a variable or constant inside of another string.
  - println(“Hello, \(name)”) // Where name is a variable or constant

DEMO 2 REVIEW: PRINTLN AND STRING

```
//1: Print the following statement
println("My name is Arthur")

//2a: Declare a constant of type String with your name
let name = "Arthur"

//2b: Print your name
println(name)

//3a: Print the string declared name inside of another string
println("My name is \(name)")

//3b:
// \() is known as String literal. It prints out the value of a
    constant or variable that is lodged between the parenthesis.
```

DEMO 3 REVIEW: BASIC OPERATORS

- Assignment Operator: =
- Arithmetic Operators
  - Addition: +
  - Subtraction: -
  - Multiplication: *
  - Division: /
- Remainder Operator (modulo): %
- Increment Operator: ++
- Decrement Operator: —
- Comparison Operators
  - Is Equal To: ==
  - Is Not Equal To: !=
  - Greater Than: >
  - Greater Than or Equal To: >=
  - Less Than: <
  - Less Than or Equal To: <=

DEMO 3 REVIEW: CONTROL FLOW (IF

- Conditional statements allow you to execute different pieces of code under certain conditions.

```
// Define a constant named 'volume', and set its initial value to
    11.
let volume = 11;

// Print out a statement that depends on the value of volume.
if volume >= 5 && volume <= 10 {
    println("The volume is between 5 and 10")
} else if volume == 11 {
    println("The volume has been turned up to 11!")
} else {
    println("The volume is some other number that is less than 5
        or greater than 11.")
}
```

DEMO 4 REVIEW: CONTROL FLOW (WHILE

- Evaluates a condition while its true.

```
// Declare a variable and set its initial value to zero.
var num = 0
/*
Perform an action and increment num by one after each action until
    the condition is satisfied.
*/
while num < 100 {
    println(num)
    num = num + 1
}
```

DEMO 4 REVIEW: CONTROL FLOW (FOR-

- For-In loops with closed range operator (…)
- Used when iterating over a collection of data.

```
// Prints 1 to 10
for i in 1...10 {
    println(i)
}
```

DEMO 4 REVIEW: CONTROL FLOW (FOR-

- For-In loops with half-open range operator (..<)
- Used when iterating over a collection of data.

```
// Prints 1 to 9
for i in 1..<10 {
    println(i)
}
```

GETTING STARTED

KEY OBJECTIVE(S)

Complete the Lesson03.playground file.

TIMING

45 min 1. Code with partner

15 min 2. Debrief

DELIVERABLE

To the best of your ability, complete the provided playground file.
If you hit a question you don’t feel comfortable with, ask an instructor.

BONUS: OPERATORS (CONTINUED)

OPERATORS

- Operators perform an action on elements, like let or var.
  - Unary operators operate on one element
  - Binary operators operate on two elements
  - Ternary operators operate on three elements.

UNARY OPERATORS

- Unary Operators (That you already know)
  - You already know about ++ and —

```
1 var x = 5                    5
2 ++x                          6
3
4 var y = 5                    5
5 --y                          4
```

UNARY OPERATORS

- Negative Operator
  - Converts positive to negative and vice versa

```
1 let x = 1                    1
2 -x                           -1
```

UNARY OPERATORS

- Logical Negation or Logical NOT Operator
  - Converts true to false and vice versa

```
1 let x = true
2 !x
```

```
true
false
```

BINARY OPERATORS

- Binary Operators (that you already know)
  - The arithmetic operators (+, -, *, /)
  - The comparison operators (>, >=, <, <=)

BINARY OPERATORS

- Logical AND Operator
  - &&
  - Chains two conditions together. Both must be true for if statement to be true.

```
let x = 5
let y = 10

if (x >= 5) && (y >= 10) {
    println("Both conditions are true")
} else {
    println("At least one condition is
        false")
}
```

```
5
10


"Both conditions are true"
```

BINARY OPERATORS

- Logical OR Operator
  - ||
    - | is called the pipe. To create it, click Shift and \ button at the same time.
  - Chains two conditions together. Only one must be true for if statement to be true.

```
let x = 5
let y = 10

if (x >= 5) || (y <= 10) {
    println("At least one condition is true")
} else {
    println("Both conditions are false")
}
```

```
5
10


"At least one condition is true"
```

TERNARY OPERATOR

- Ternary Conditional Operator (By Example)

```
1  let x = 5
2  let stringTrue = "Condition is true."
3  let stringFalse = "Condition is false."
4
5  if (x > 0) {
6      stringTrue
7  } else {
8      stringFalse
9  }
10
11 // Same thing as the if-else conditional
12 (x > 0) ? stringTrue : stringFalse
13
14 let z = (x > 0) ? stringTrue : stringFalse
15
16 z
17
```

```
5
"Condition is true."
"Condition is false."


"Condition is true."


"Condition is true."

"Condition is true."

"Condition is true."
```

TERNARY OPERATOR

```
if (condition) {
      condition is true
} else {
      condition is false
}


(condition) ? condition is true : condition is false
```

HOMEWORK

HOMEWORK

- At your own pace, read the following:
  - Chapter 3 in the Gitbook:
    - Link: Chapter 3 in MOB Gitbook
  - The Basics Chapter in Apple's Swift book
    - Link: The Basics in the Official Swift Book
  - (BONUS) Control Flow chapter in Apple's Swift book
    - Link: Control Flow in the Official Swift Book