PRIFYSGOL ABERYSTWYTH UNIVERSITY

Programming Refresher

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What this session all about

- Refreshing your skills
- Going over some of the basics
- Working through materials at your own pace
- We are here to support you

- We want to know if this session works…

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Plan for Two Hour Session

15 mins Introduction & Questionnaire 1

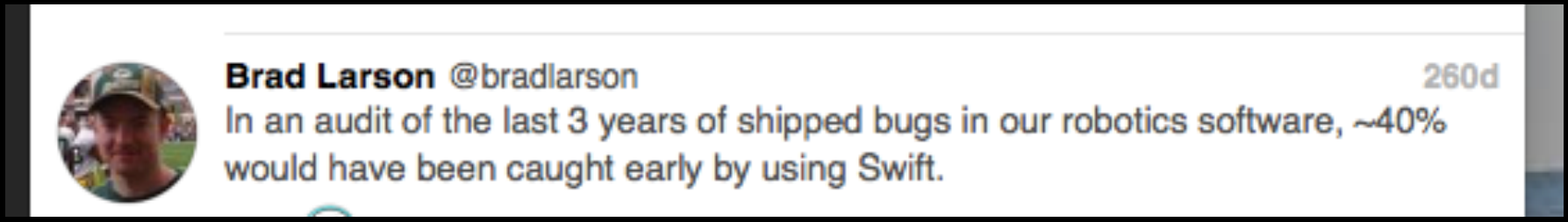
1.5 hours Swift Playgrounds

5 mins Questionnaire 2

- Times are a rough guide
- If you want to leave early, please complete Q2! 🙂

What Apple says:

Swift. A modern programming language that is safe, fast, and interactive.



http://www.sunsetlakesoftware.com/2015/11/03/what-we-learned-rewriting-our-robotic-control-software-swift

SAFE

- Strong typing
- Compile-time checking as much as possible
- Make sure that things are initialised
- Make switch statements sensible
- Make switch statements cover all possible cases
- Make sure you know what is included in an if statement
- Take nil pointers seriously

FAST

- Language that helps compiler to optimise
- Expressive - can do a lot with a few lines of code

MODERN

- Don’t make people write stuff the compiler should know:
  - Implied type declaration where possible
  - Implicit type name when type known (e.g. for enums)

- Have the features you might expect in a modern language
  - Generics - flexible functions that work with any type, subject to requirements that you define
  - Protocols - blueprint of methods, properties, etc that suit a particular task or functionality
  - Multi-paradigm - protocol-oriented, object-oriented, functional, imperative, block structured
  - Improvements on Objective-C

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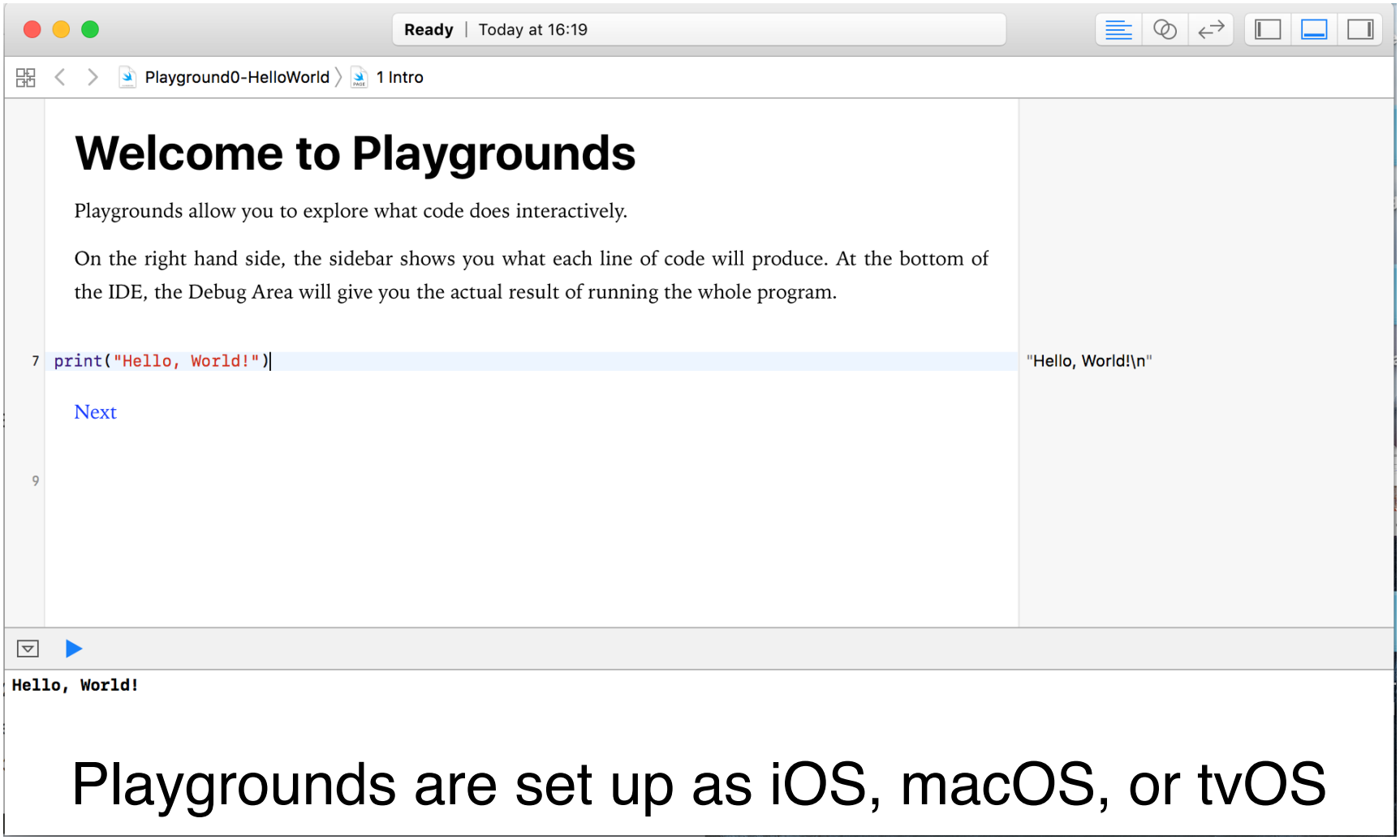
INTERACTIVE

- Great feature called Playgrounds is getting more emphasis
- Explore the code you are trying to write
- We are going to use playgrounds a lot in this session

Playgrounds



Playgrounds are set up as iOS, macOS, or tvOS

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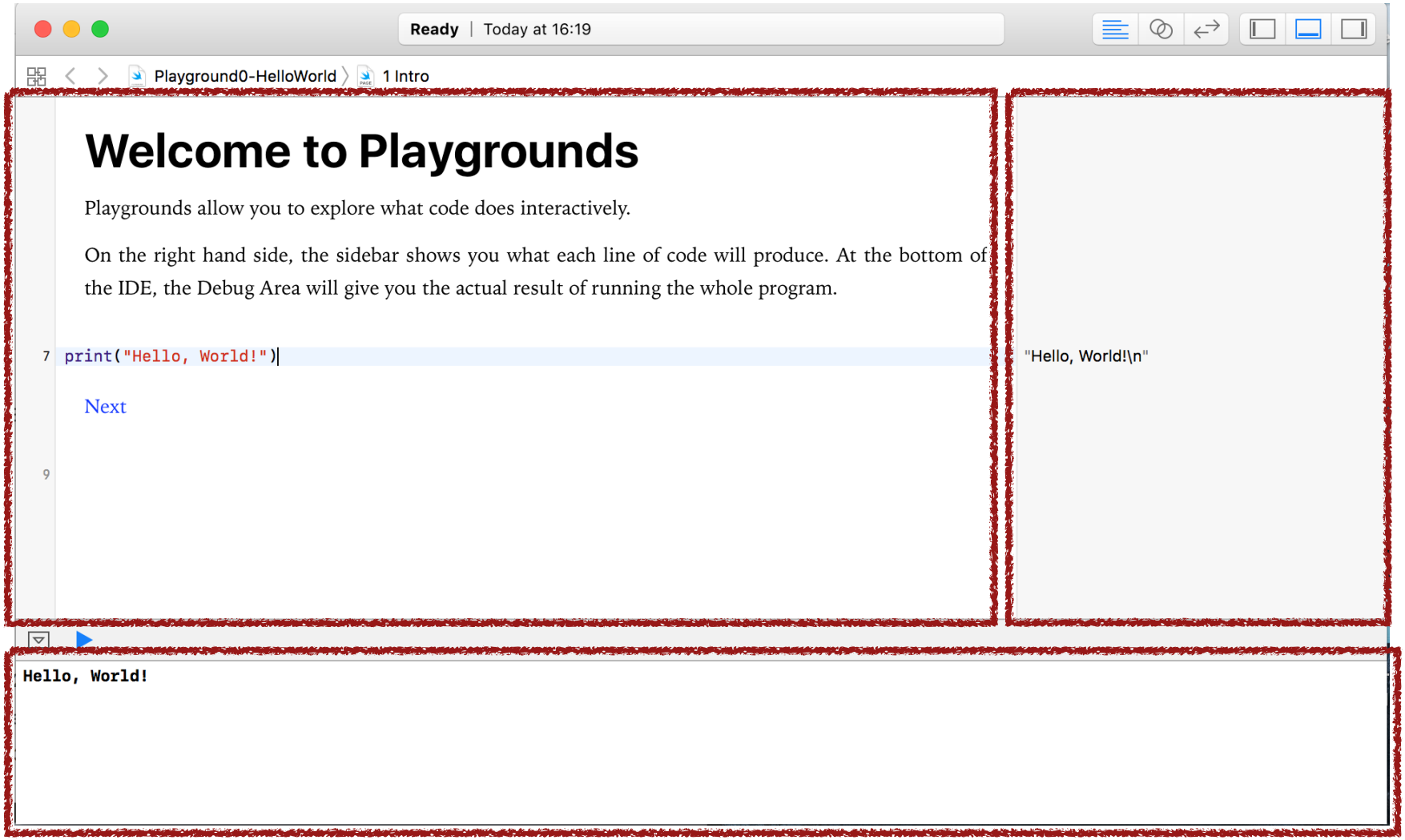
Playgrounds



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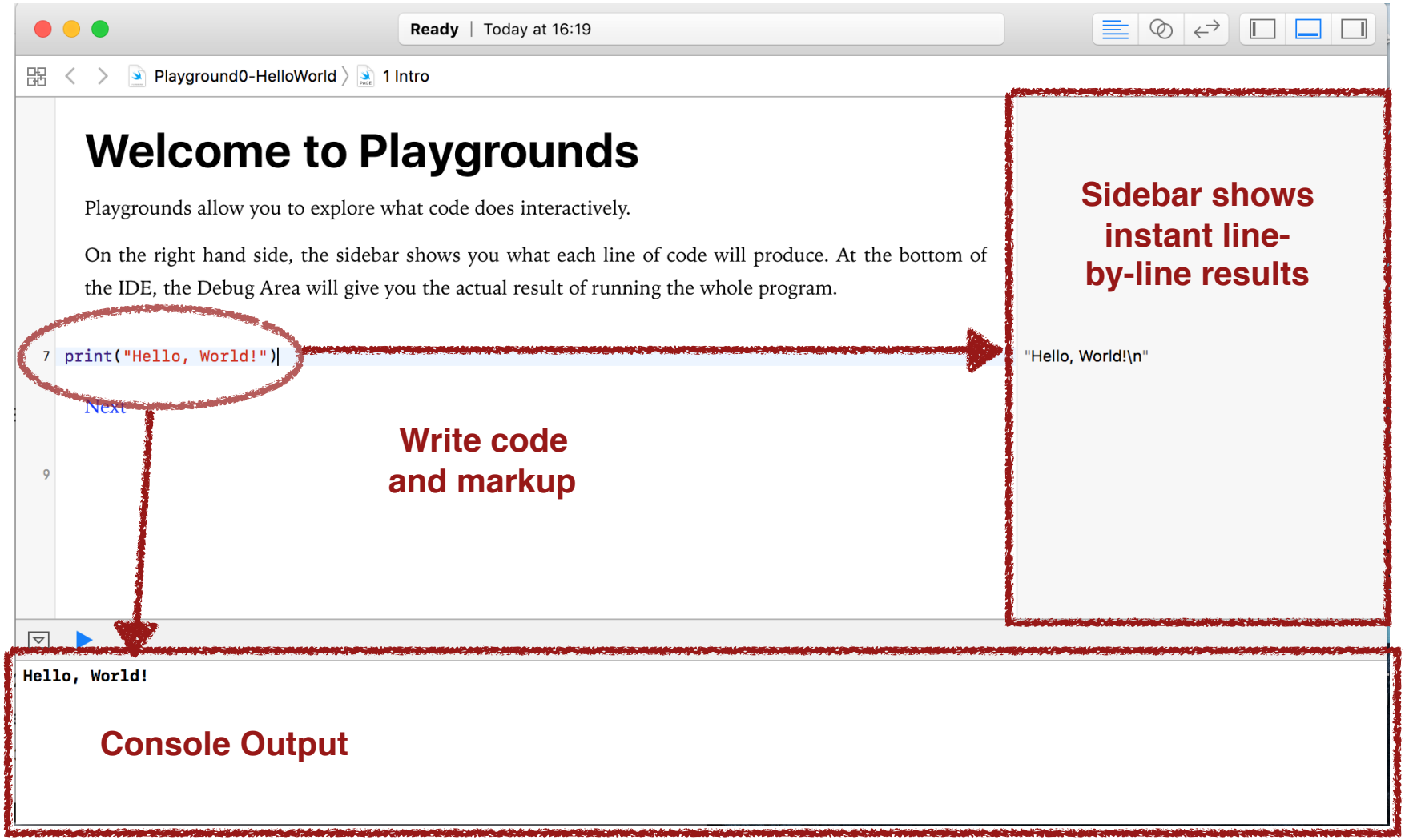
Playgrounds



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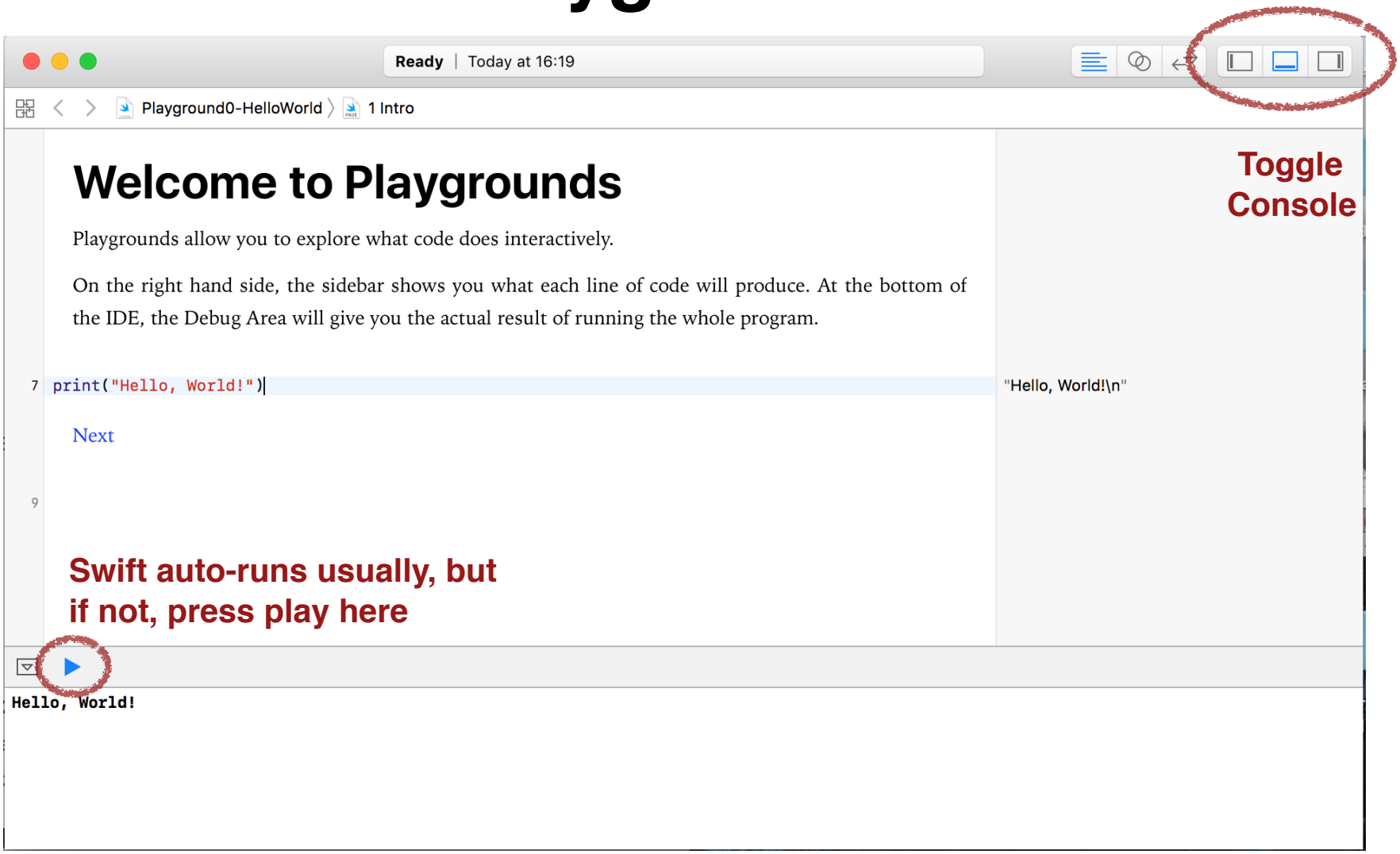
Playgrounds



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Playgrounds

List of Playgrounds

Filename	Purpose
P0-HelloWorld	Welcome to Playgrounds
P1-Types	Declaring values
P2-Strings	A closer look at Characters and Strings
P3-ControlStructures	Controlling the flow of a program using loops
P4-EnumSwitch	Declaring enums and using switch statements
P5-Functions	Making programs more useful with functions
P6-Collections	Looking at array, sets and dictionaries

- Files are provided - work through each one
- Playgrounds will guide you through exercises
- Use the booklet to help you (PDF in materials)

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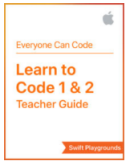
Swift Books



Swift Playgrounds: Learn to Code 1 & 2
Teacher Guide
Apple Education >
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Intro to App Development with Swift
Apple Education >
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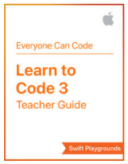

Swift Playgrounds: Learn to Code 3
Teacher Guide
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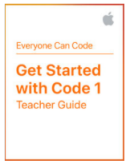

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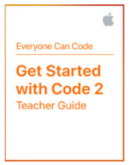

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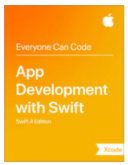

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Web Resources

Swift Programming Reference:

https://developer.apple.com/library/content/documentation/Swift/Conceptual/Swift_Programming_Language/

Ray Wenderlich's Tutorials:

https://www.raywenderlich.com/category/swift

Apple Developer Swift Resources:

https://developer.apple.com/swift/

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