

# **Unit 2—Lesson 5:**

## **Collections**

# Collection types

Array

Dictionary

# Arrays

## Defining

```
[value1, value2, value3]
```

```
var names: [String] = ["Anne", "Gary", "Keith"]
```

# Arrays

## Defining

```
[value1, value2, value3]
```

```
var names = ["Anne", "Gary", "Keith"]
```

# Arrays

## Defining

```
var numbers = [1, -3, 50, 72, -95, 115]
```

# Arrays

## Defining

```
var numbers: [Int8] = [1, -3, 50, 72, -95, 115]
```

# Arrays contains

```
let numbers = [4, 5, 6]
if numbers.contains(5) {
    print("There is a 5")
}
```

There is a 5

# Array types

```
var myArray: [Int] = []
```

```
var myArray: Array<Int> = []
```

```
var myArray = [Int]()
```



# Working with arrays

## repeating

```
var myArray =  
  [Int](repeating: 0, count: 100)  
let count = myArray.count  
  
if myArray.isEmpty { }
```

# Working with arrays

## Accessing or setting a specific item

```
var names = ["Anne", "Gary", "Keith"]  
let firstName = names[0]  
print(firstName)
```

Anne

```
names[1] = "Paul"  
print(names)
```

["Anne", "Paul", "Keith"]

# Working with arrays

## Appending

```
var names = ["Amy"]  
names.append("Joe")  
names += ["Keith", "Jane"]  
print(names)
```

```
["Amy", "Joe", "Keith", "Jane"]
```

# Working with arrays

## Inserting

```
var names = ["Amy", "Brad", "Chelsea", "Dan"]  
names.insert("Bob", at: 0)  
print(names)
```

```
["Bob", "Amy", "Brad", "Chelsea", "Dan"]
```

# Working with arrays

## Removing

```
var names = ["Amy", "Brad", "Chelsea", "Dan"]  
let chelsea = names.remove(at:2)  
let dan = names.removeLast()  
print(names)
```

```
["Amy", "Brad"]
```

```
names.removeAll()  
print(names)
```

```
[]
```

# Working with arrays

```
var myNewArray = firstArray + secondArray
```

# Working with arrays

## Arrays within arrays

```
let array1 = [1,2,3]
let array2 = [4,5,6]
let containerArray = [array1, array2]
let firstArray = containerArray[0]
let firstElement = containerArray[0][0]
print(containerArray)
print(firstArray)
print(firstElement)
```

```
[[1, 2, 3], [4, 5, 6]]
[1, 2, 3]
1
```

# Dictionaries

*[key1 : value1, key2: value2, key3: value3]*

```
var scores = ["Richard": 500, "Luke": 400, "Cheryl": 800]
```

```
var myDictionary = [String: Int]()  
var myDictionary = Dictionary<String, Int>()  
var myDictionary: [String: Int] = [:]
```



# Add/remove/modify a dictionary

## Adding or modifying

```
var scores = ["Richard": 500, "Luke": 400, "Cheryl": 800]
```

```
scores["Oli"] = 399
```

```
let oldValue = scores.updateValue(100, forKey: "Richard")
```

# Add/remove/modify a dictionary

## Adding or modifying

```
var scores = ["Richard": 500, "Luke": 400, "Cheryl": 800]

scores["Oli"] = 399

if let oldValue = scores.updateValue(100, forKey: "Richard") {
    print("Richard's old value was \(oldValue)")
}
```

Richard's old value was 500

# Add/remove/modify a dictionary

## Removing

```
var scores = ["Richard": 100, "Luke": 400, "Cheryl": 800]
scores["Richard"] = nil
print(scores)

if let removedValue = scores.removeValue(forKey: "Luke") {
    print("Luke's score was \(removedValue) before he stopped playing")
}
print(scores)
```

```
["Cheryl": 800, "Luke": 400]
Luke's score was 400 before he stopped playing
["Cheryl": 800]
```

# Accessing a dictionary

```
var scores = ["Richard": 500, "Luke": 400, "Cheryl": 800]

let players = Array(scores.keys) //["Richard", "Luke", "Cheryl"]
let points = Array(scores.values) //[500, 400, 800]

if let lukesScore = scores["Luke"] {
    print(lukesScore)
}
```

400

```
if let henrysScore = scores["Henry"] {
    print(henrysScore)
}
```

# Unit 2—Lesson 5

## Lab: Collections



Open and complete the exercises in Lab – Collections.playground

