Unit 2—Lesson 5: Collections

Keynote à Tonton

Collection Types

Containers that can store multiple values

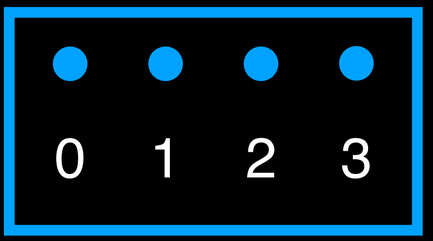
Like a “group of variables“

Structures for ordered and unordered groups of values

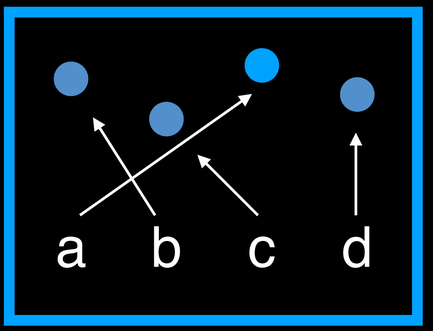
Set, **Array** and **Dictionary**

Collection Types

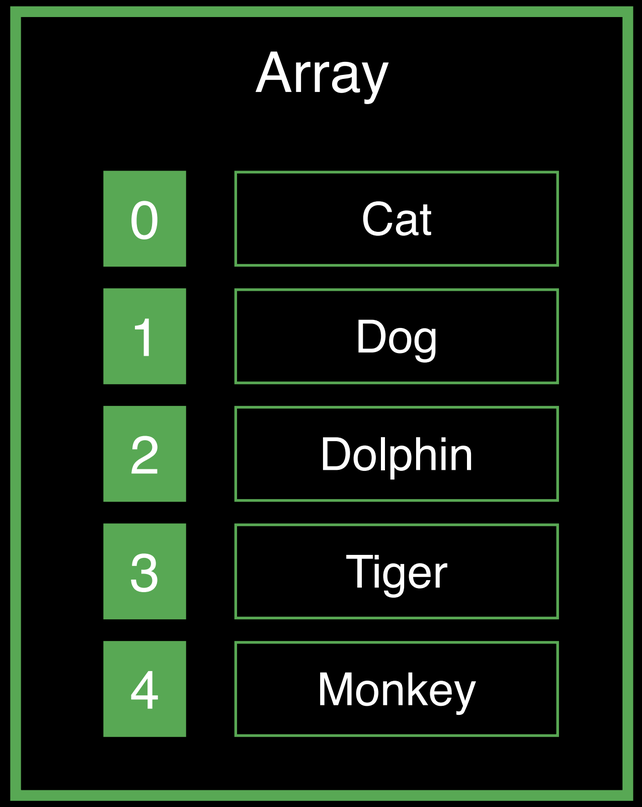
Array is an ordered collection of values accessible by index

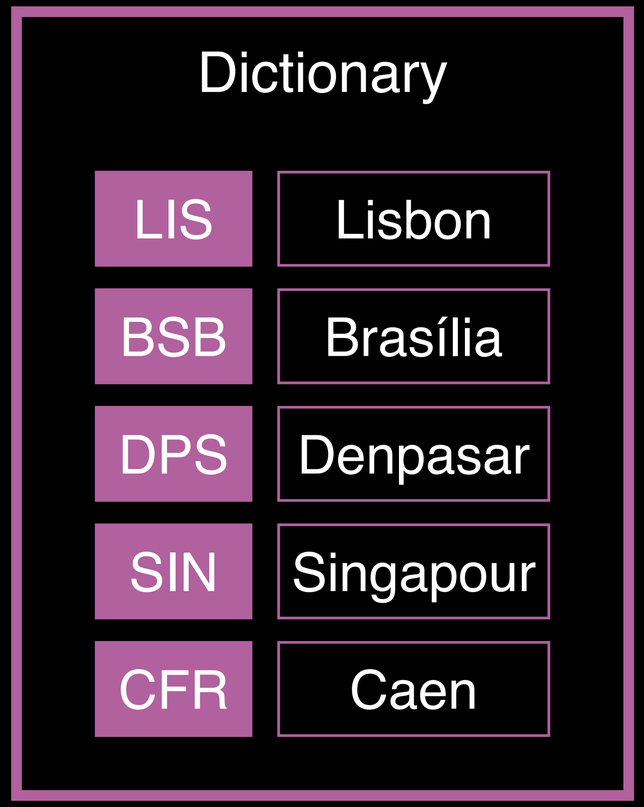


Dictionary is an unordered collection of key-value associations



Collection Types





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
contains

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

```
There is a 5
```

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]
```

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)

var lukeOldValue = scores.removeValue(forKey: “Luke")
print(lukeOldValue)
print(scores)
```

```
["Cheryl": 800, "Luke": 400]
Optional(400)
["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 myScore = scores["Luke"] {
  print(myScore)
}
```

```
400
```

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

Unit 2—Lesson 5
Lab: Collections

Open and complete the exercises in `Lab - Collections.playground`