

Dictionaries in Swift

Mobile Computing - iOS

Objectives

- Students will be able to
 - describe the purpose of dictionaries
 - create dictionaries in Swift
 - add and remove key-value pairs from dictionaries

Dictionaries

- A Dictionary is a mutable collection of key:value pairs. In other languages it may be known as a map, or associative array
- It is declared using [keyType:valueType]
- The properties .keys and .values produce collections of keys and values, respectively
- .count indicates the number of elements in the dictionary
- Elements can be added, deleted and modified in the usual way: see the example on the next slide
- Dictionary elements are not stored in a defined order. (It uses a hash table as its backing structure.) Hence, to iterate through elements in a key-specific order, sort the keys first and then iterate through the sorted keys.

An Example

```
import UIKit
```

```
// to create a dictionary, just declare it with type [keyType:valueType]
```

```
var emptyDictionary:[String:Double] = [:]
```

```
// a dictionary with 2 elements:
```

```
var actors:[String:Double] = ["DiCaprio":45.0,"Dwayne Johnson":52.0]
```

```
if actors.isEmpty { // check to see if a dictionary is empty  
    print("This won't print, because actors already had something")  
}
```

```
actors["Cameron Diaz"] = 18.0 // adding a key-value pair // we have added Cameron Diaz
```

```
actors["Cameron Diaz"] = 19.0 // changing a value -- the key remains Cameron Diaz
```

```
print(actors) // output: ["DiCaprio": 45.0, "Dwayne Johnson": 52.0, "Cameron Diaz": 19.0]
```

```
actors["Cameron Diaz"] = nil // removing an element -- bye, Cameron!
```

```
let query = actors["Arnold Schwarzenegger"] // query is a Double?, not a Double. Why?
```

```
for name in actors.keys { // iterate through all the keys  
    print(name, terminator:" | ") // output: Dwayne Johnson | DiCaprio |  
}
```

```
print("")
```

```
for salary in actors.values { // output: 52.0 45.0  
    print(salary)  
}
```

```
// Note that dictionaries can have any type for value, including *arrays* and other dictionaries!
```

```
// These are the populations of various countries during 4 years
```

```
var population:[String:[Double]] = ["Afghanistan":[28809167,29726803,30682500,31627506]]
```

```
population["Albania"] = [2904780,2900489,2897366,2894475]
```

```
population["Algeria"] = [36717132,37439427,38186135,38934334]
```