Introduction to iOS development with Swift

Lesson 3

Adrien Humilière
Trainline

adhumi+dant@gmail.com

- Collections
- Loops
- Introduction to UIKit
- Auto Layout & Stack Views

Collections

Collection types

Arrays

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

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

Arrays

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

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

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

Arrays

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

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

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

Arrays – contains

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

Arrays types

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

Working with arrays

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

Working with arrays

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

```
names[1] = "Paul"
print(names) // ["Anne", "Paul", « Keith"]
```

Working with arrays

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

Working with arrays

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

Working with arrays

```
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
```

Dictionaries

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

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

Dictionaries

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

Add/remove/modify a dictionary

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

scores["Oli"] = 399

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

Add/remove/modify a dictionary

```
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)")
}
```

Add/remove/modify a dictionary

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

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

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

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]

print(myScore) // Optional(400)
if let myScore = scores["Luke"] {
  print(myScore) // 400
}
```

Loops

Loops

for loops

```
for index in 1...5 {
  print("This is number \(index)")
}
```

```
for _ in 1...5 {
  print("Hello!")
}
```

for loops

```
let names = ["Joseph", "Cathy", "Winston"]
for name in names {
  print("Hello \(name)")
}
```

```
for letter in "ABCDEFG".characters {
  print("The letter is \(letter)")
}
```

for loops

```
for (index, letter) in "ABCDEFG".characters.enumerated() {
  print("\(index): \(letter)")
}
```

for loops

```
let vehicles = ["unicycle" : 1, "bicycle" : 2, "tricycle" : 3]
for (vehicleName, wheelCount) in vehicles {
  print("A \(vehicleName) has \(wheelCount) wheels")
}
```

while loops

```
var numberOfLives = 3

while numberOfLives > 0 {
  playMove()
  updateLivesCount()
}
```

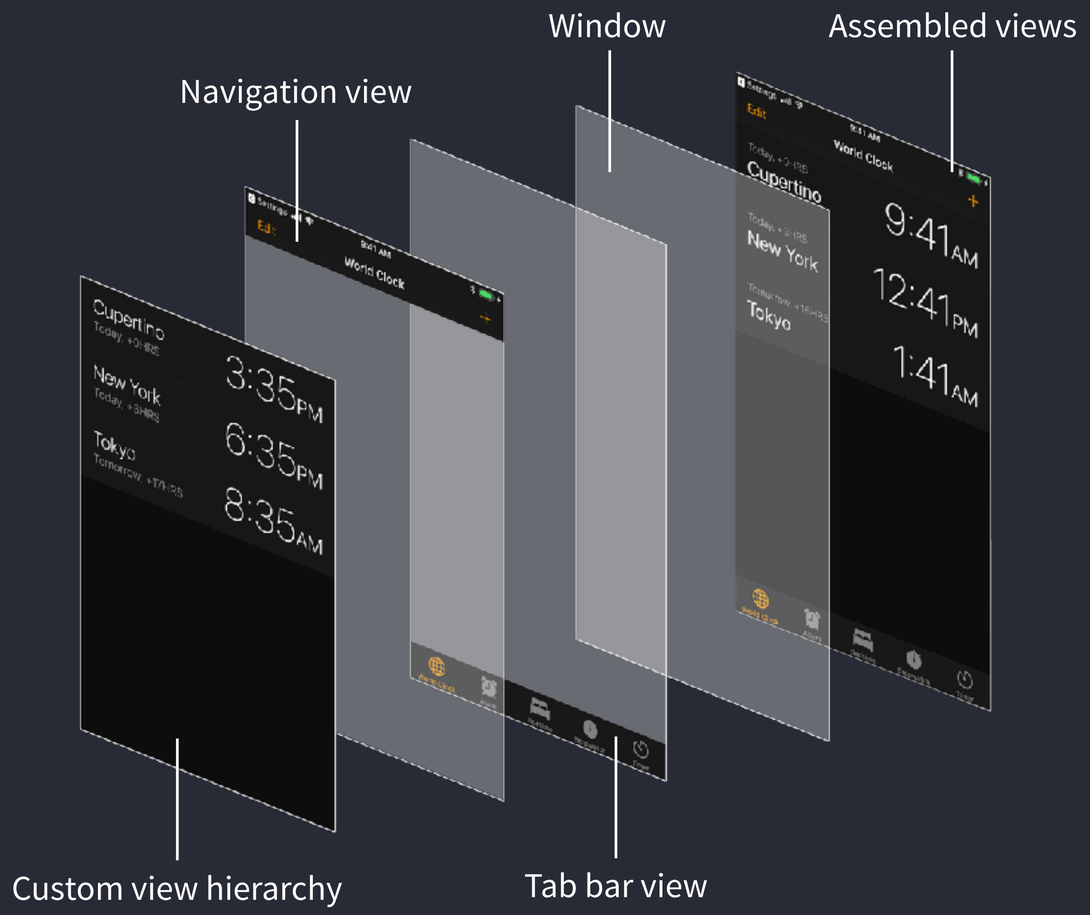
while loops

```
var numberOfLives = 3
var stillAlive = true

while stillAlive {
  print("I still have \(numberOfLives) lives.")
  numberOfLives -= 1
  if numberOfLives == 0 {
    stillAlive = false
  }
}
```

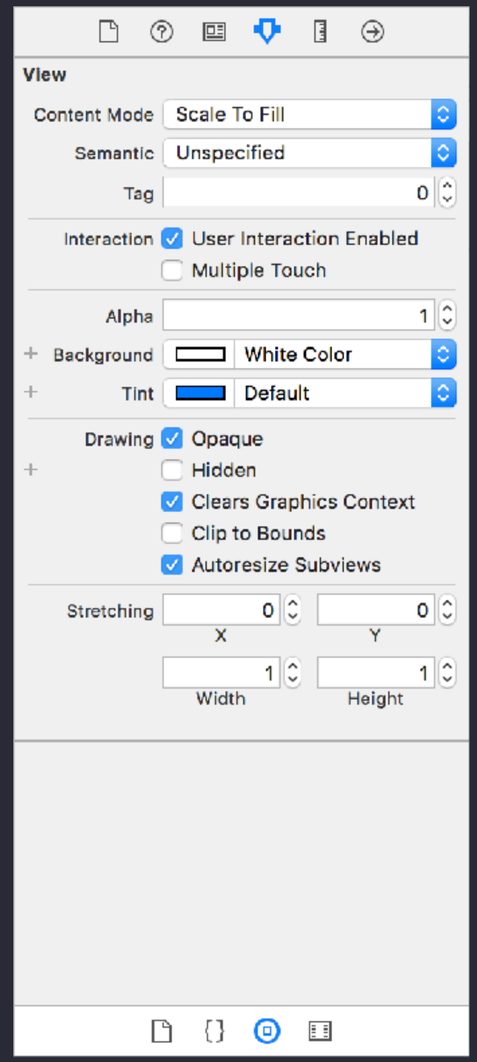
Introduction to UIKit

Common system views

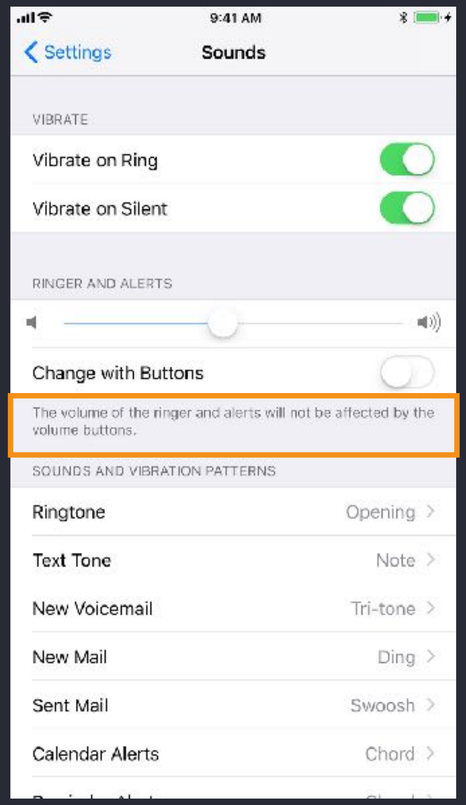


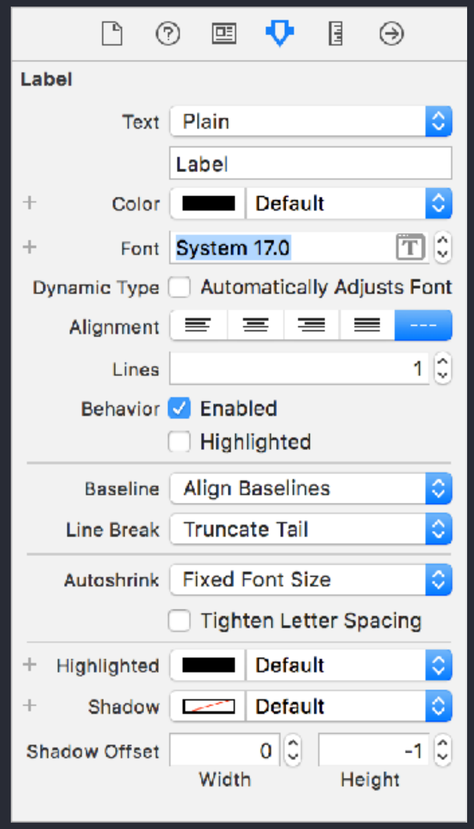
Common system views

Size	Width and height of the view
Position	Position of the view onscreen
Alpha	Transparency of the view
Background Color	Background color that will be displayed
Tag	Integer that you can use to identify view objects



Label – UILabel





Label – UILabel

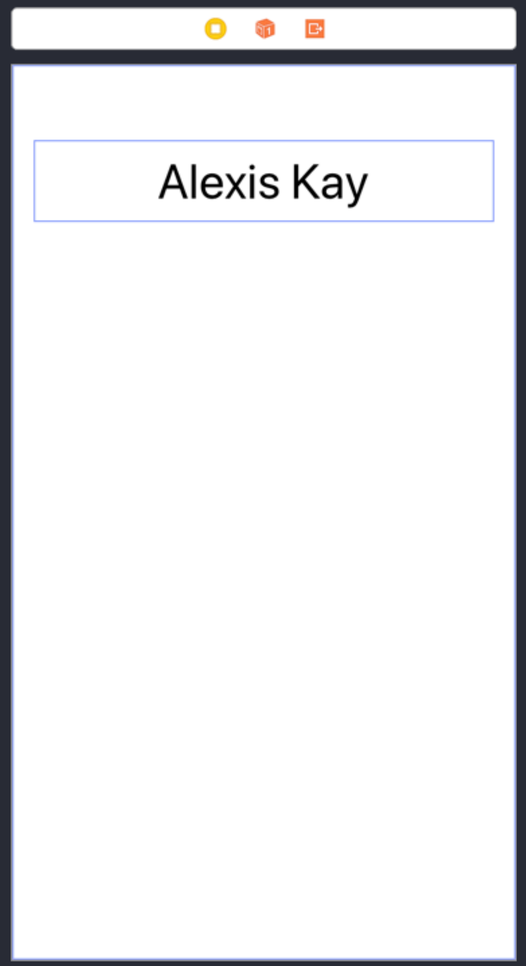


Image – UIImageView

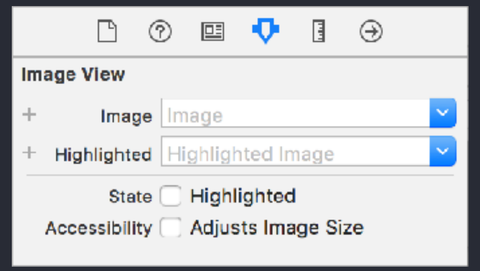
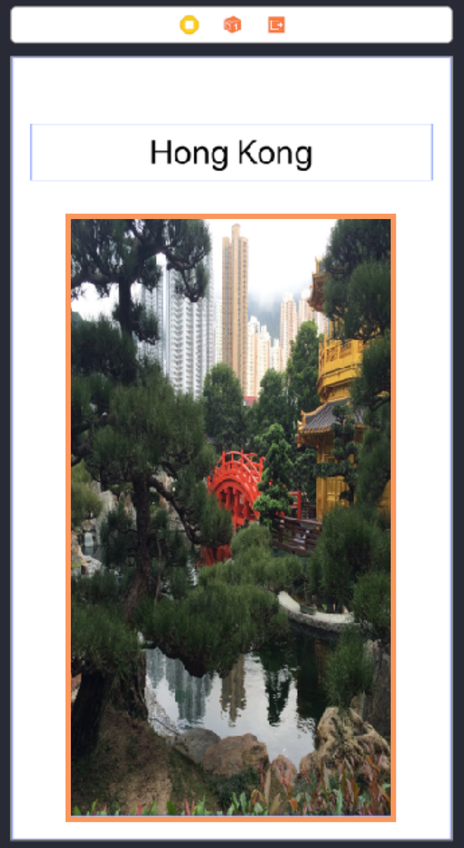
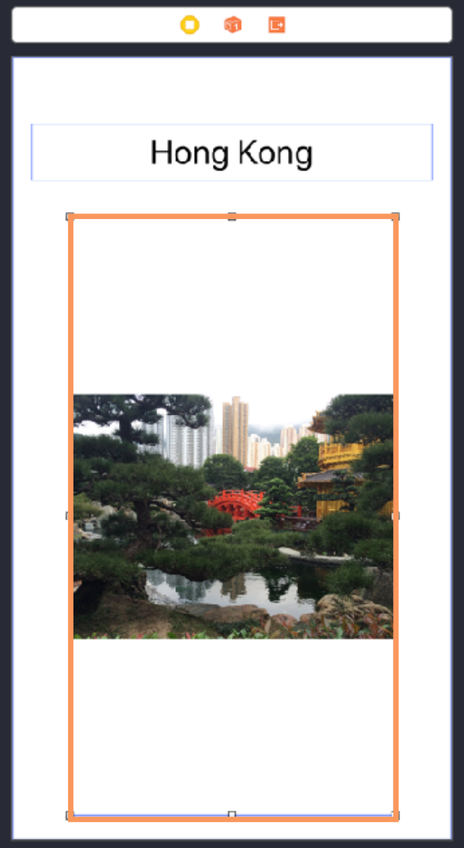


Image – UIImageView



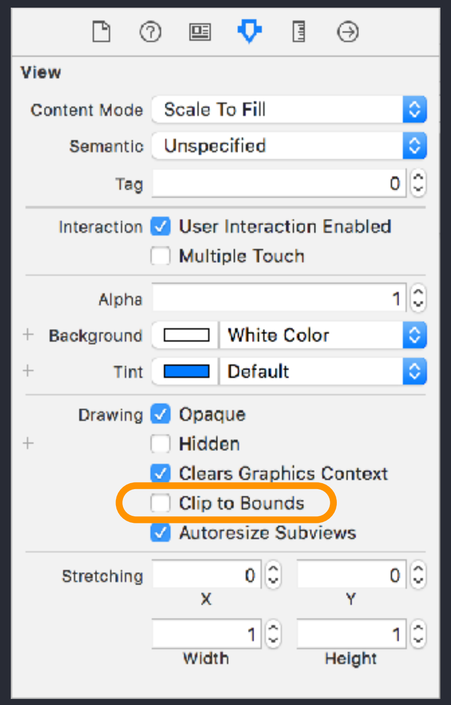
Scale To Fill



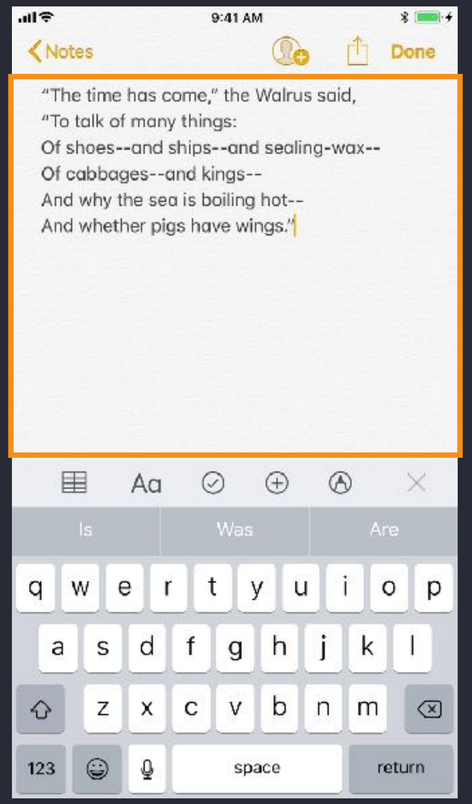
Aspect Fit

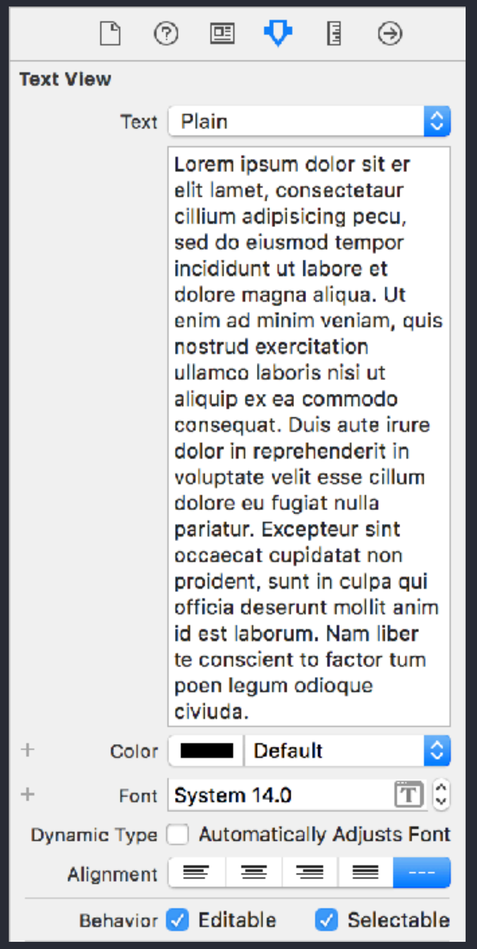
Aspect Fill

Label – UILabel

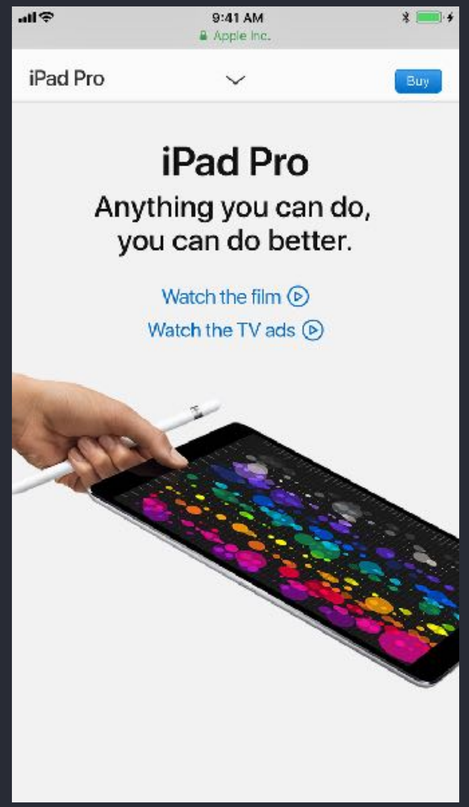


Text – UITextView





Scroll view – UIScrollView



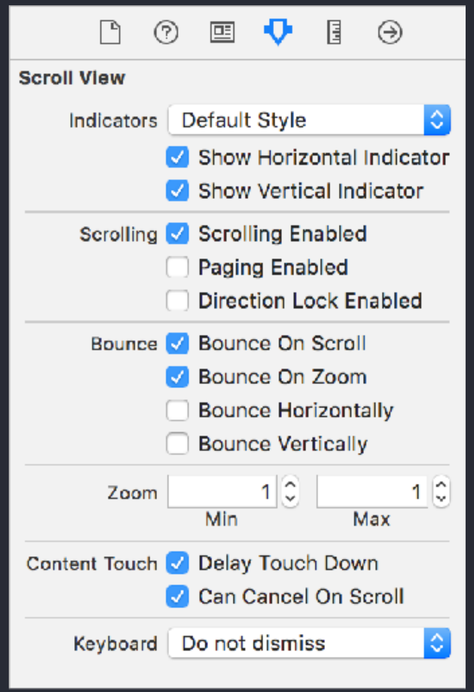
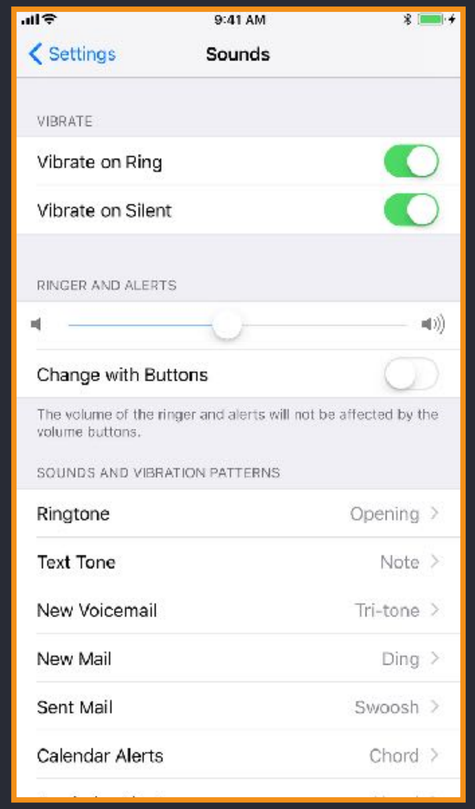
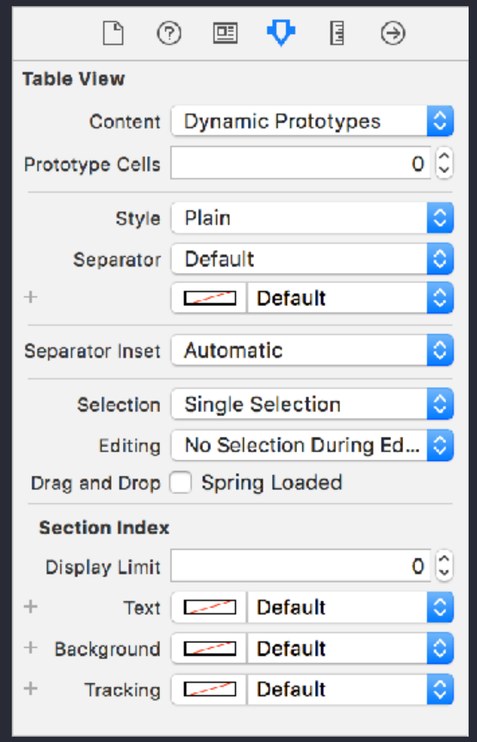
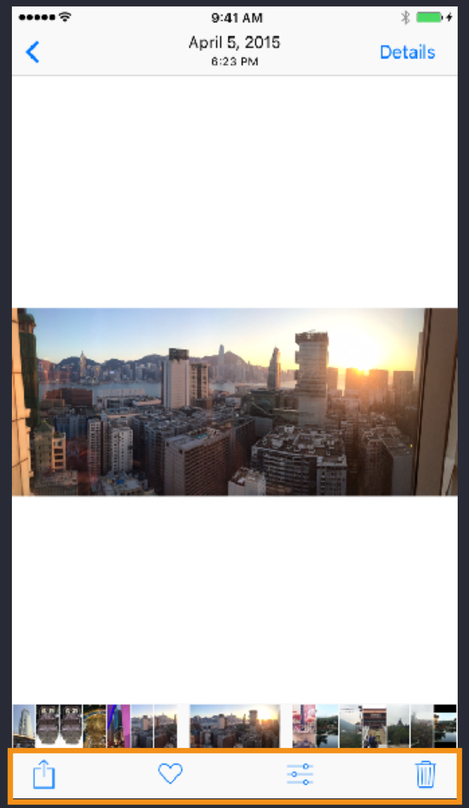


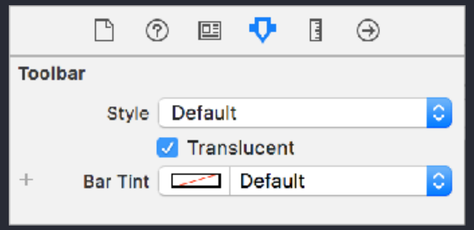
Table – UITableView



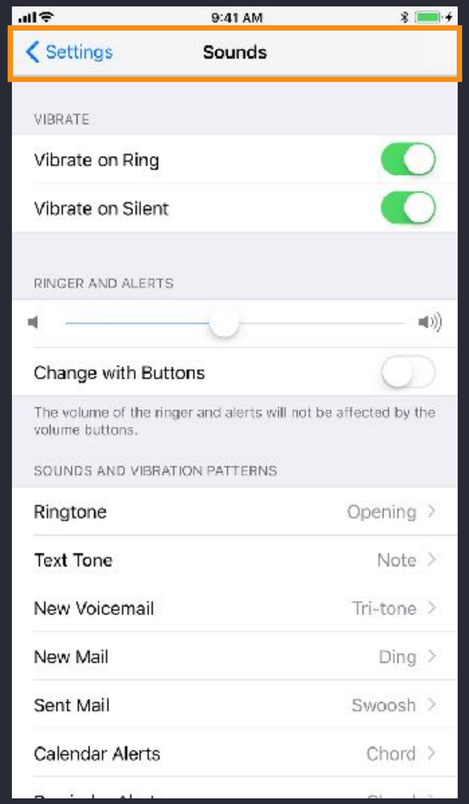


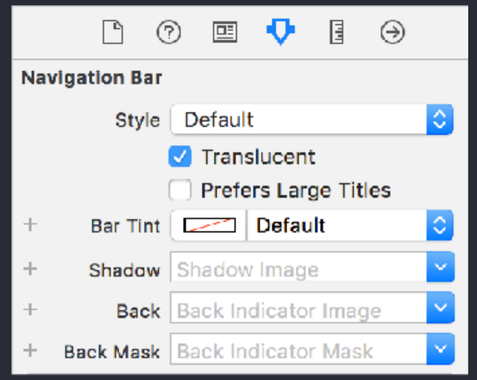
Toolbars – UIToolbar



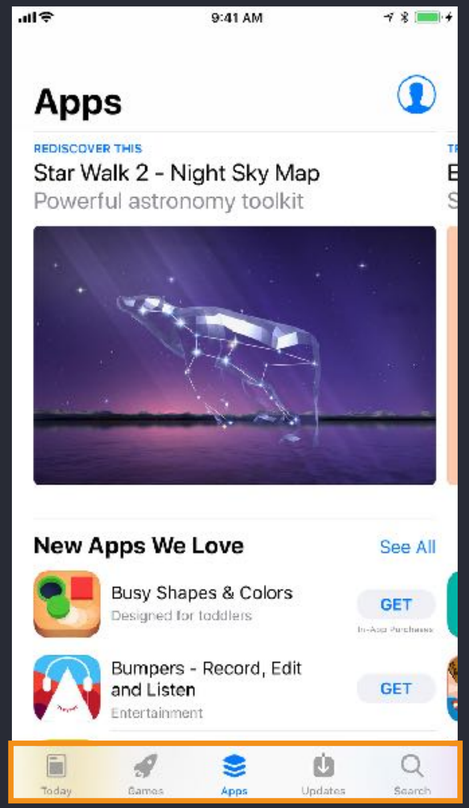


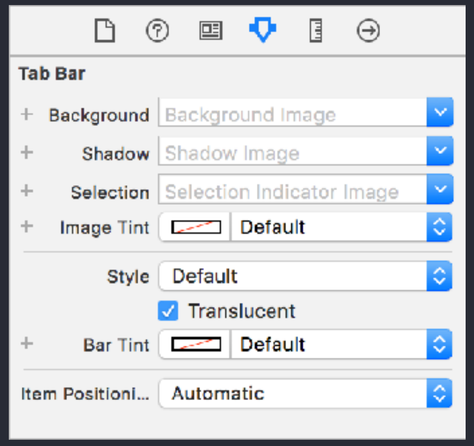
Navigation bar – UINavigationBar



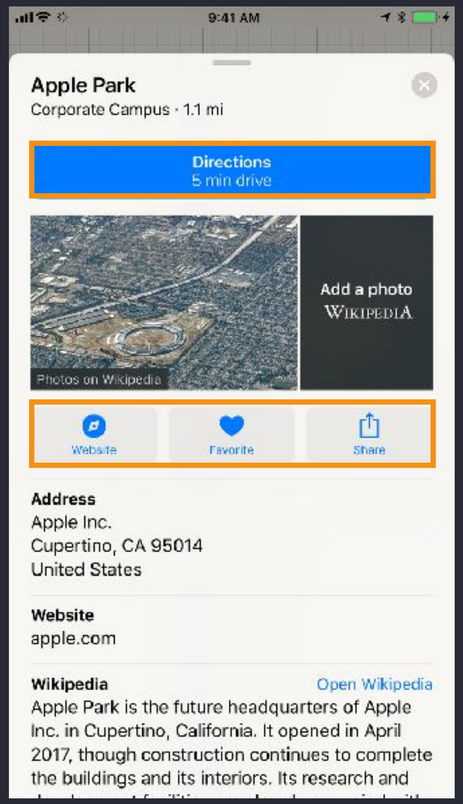


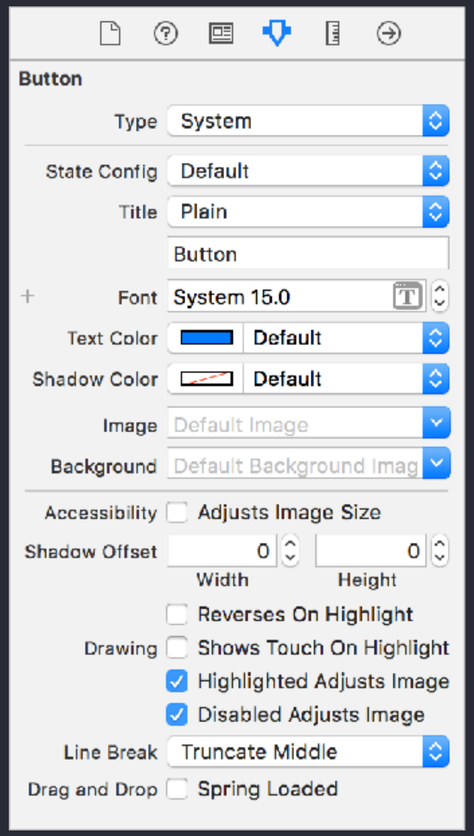
Tabs – UITabBar



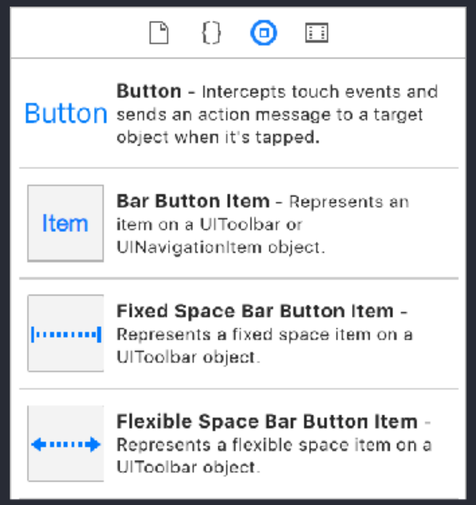


Buttons – UIButton



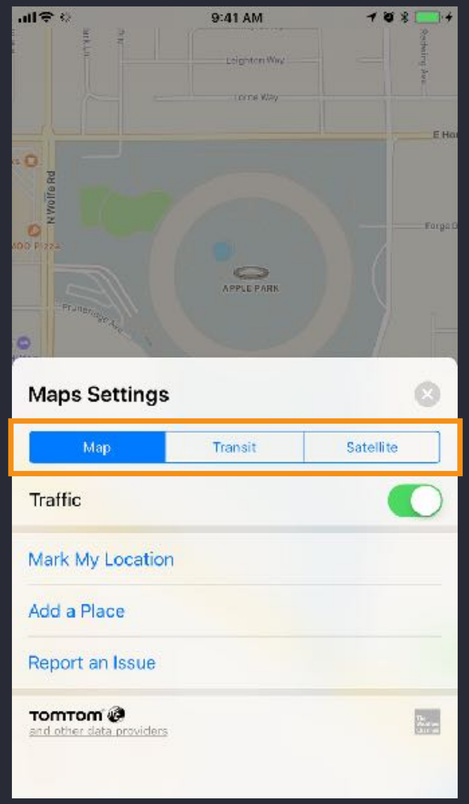


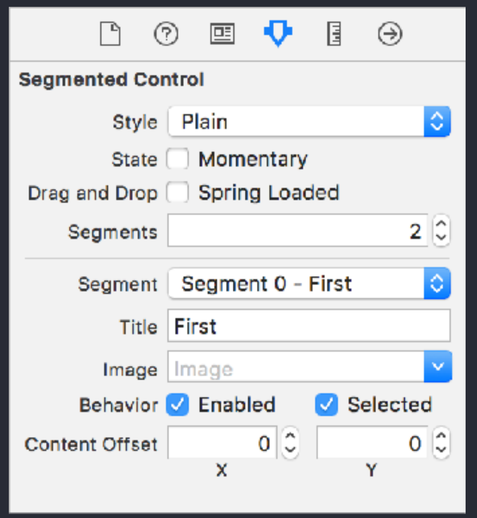
Buttons – UIButton



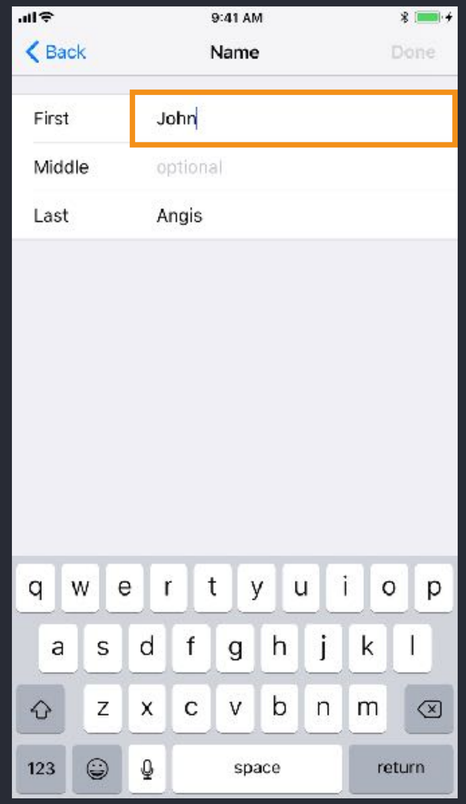

```
@IBAction func buttonTapped(_ sender: Any)
    // Code to respond to button
}
```

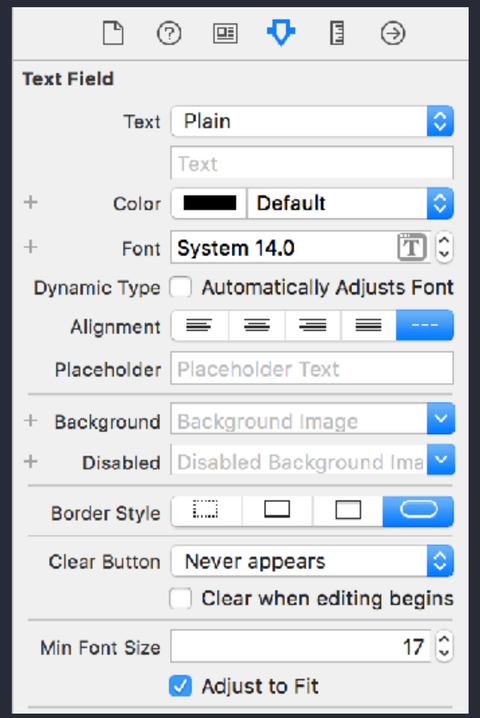
Segmented control – UISegmentedControl



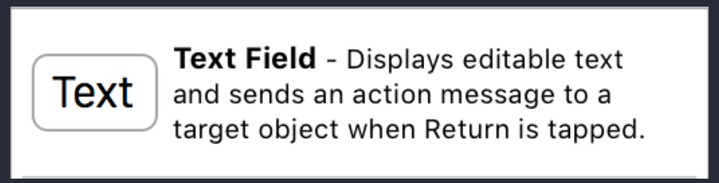


Text fields – UITextField





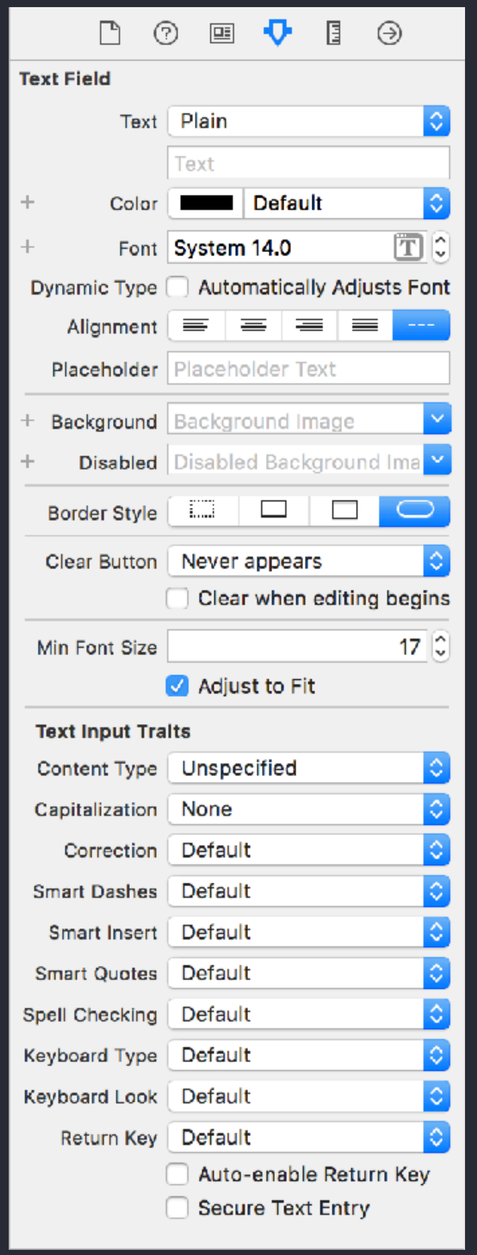
Text fields – UITextField



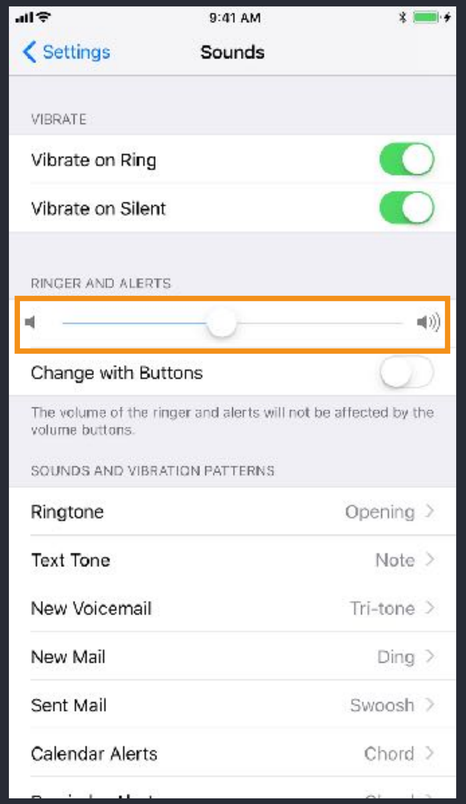

```
@IBAction func keyboardReturnKeyTapped(_
sender: UITextField) {
    if let text = sender.text {
        print(text)
    }
}
```

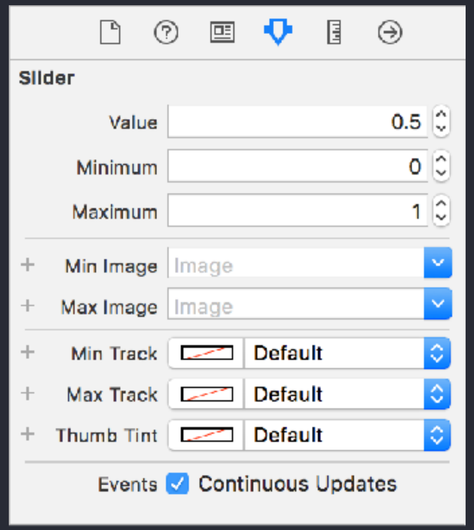
UITextField

Placeholder Text	Text displayed when the text field is empty
Text	Text displayed by the text field
Capitalization	How the keyboard deals with capitalization
Correction	Enables or disables autocorrect
Keyboard	Which keyboard is displayed—for example, email, web, or default
Return Key	Text on the return key
Secure	Specific text fields that don't display their contents, commonly used for passwords

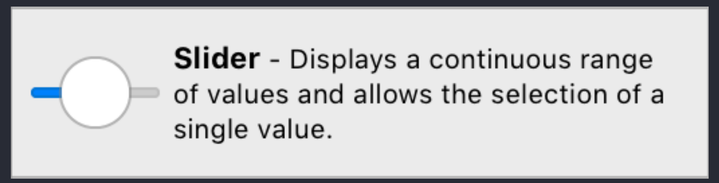


Sliders – UISlider





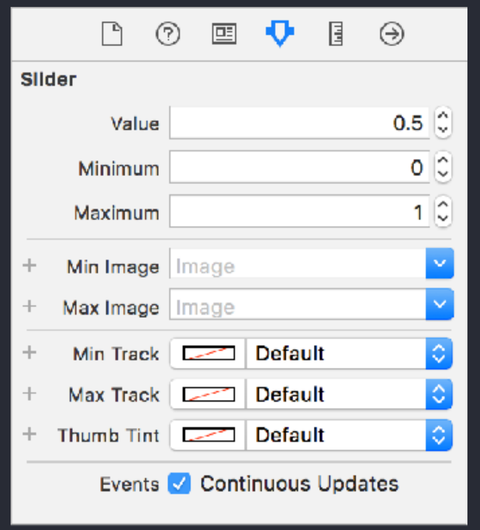
Sliders – UISlider



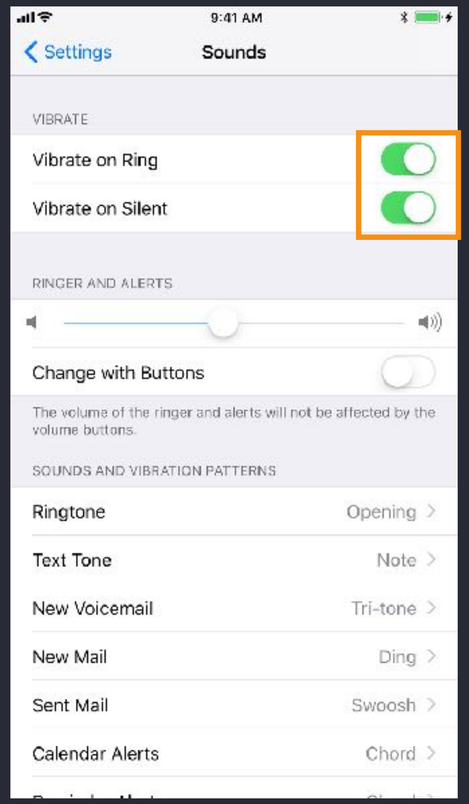

```
@IBAction func sliderValueChanged(_
sender: UISlider) {
    print(sender.value)
}
```

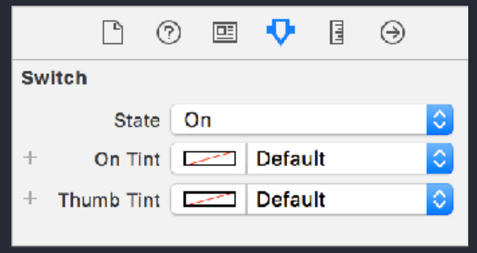
Sliders – UISlider

Minimum Value	Lowest number value the slider may represent
Maximum Value	Highest number value the slider may represent
Current	Starting number value the slider will represent
Min Image	Optional image on the minimum end of the slider
Max Image	Optional image on the maximum end of the slider

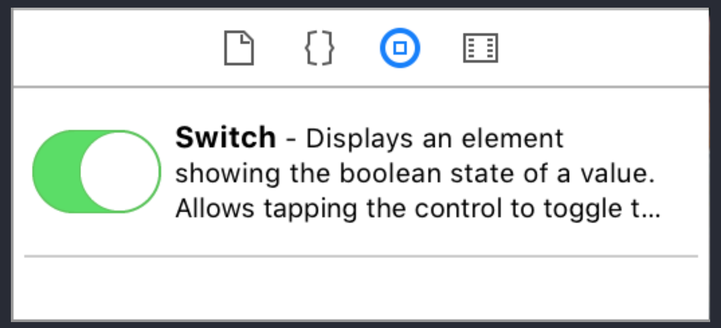


Switches – UISwitch



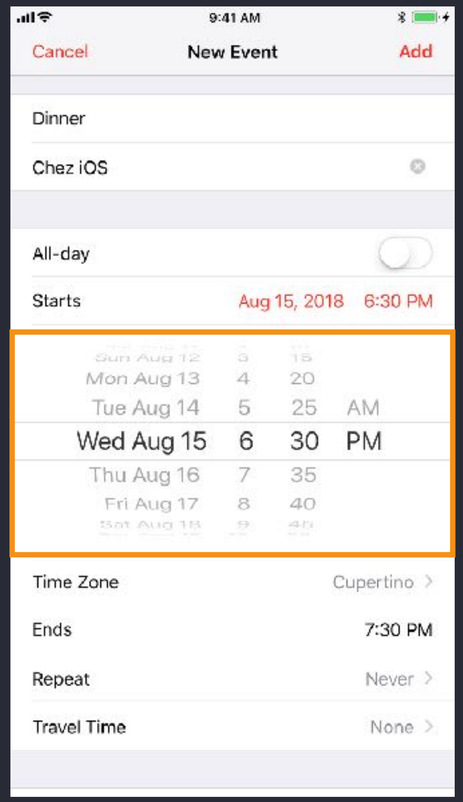


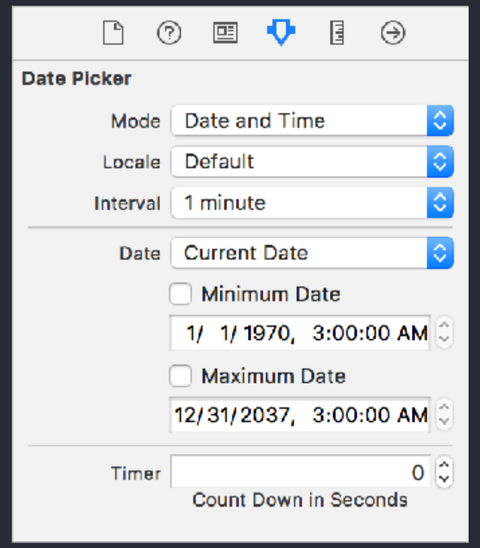
Switches – UISwitch



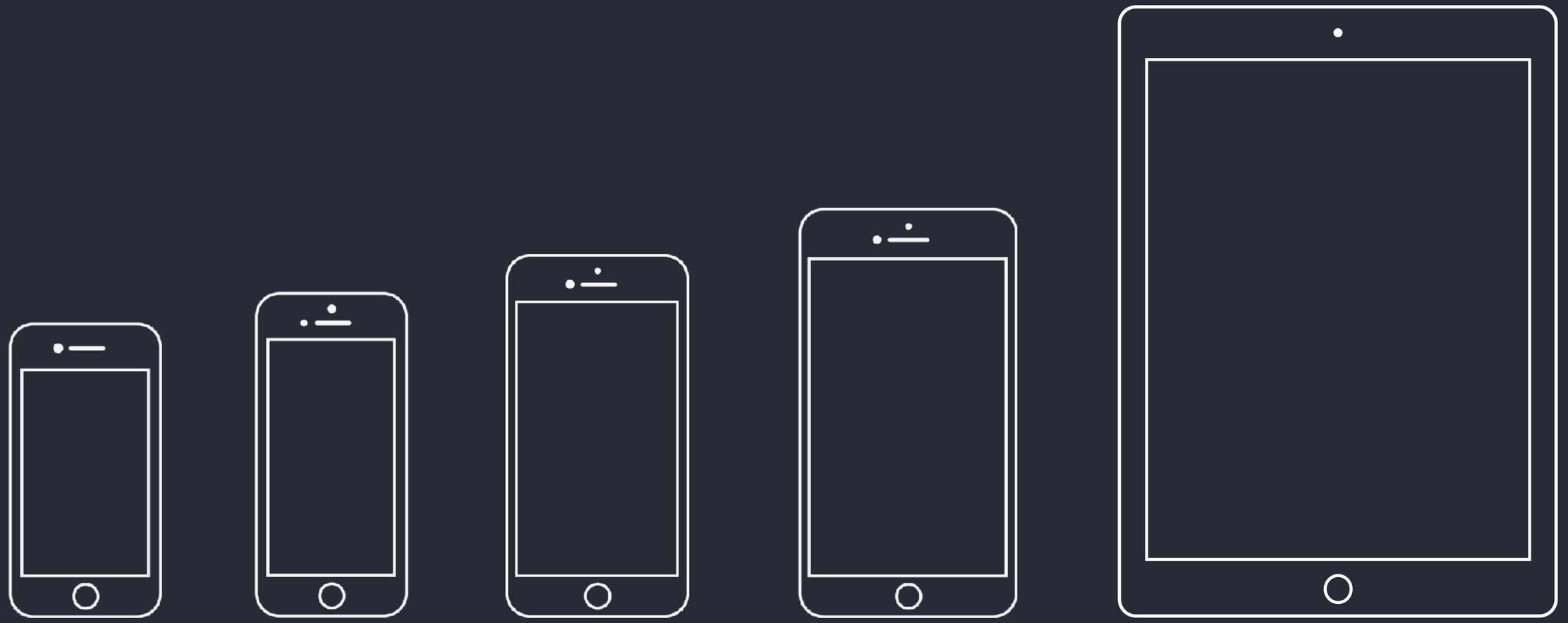

```
@IBAction func switchToggled(_ sender:
UISwitch) {
    if sender.isOn {
        print("The switch is on!")
    } else {
        print("The switch is off.")
    }
}
```

Date pickers – UIDatePicker

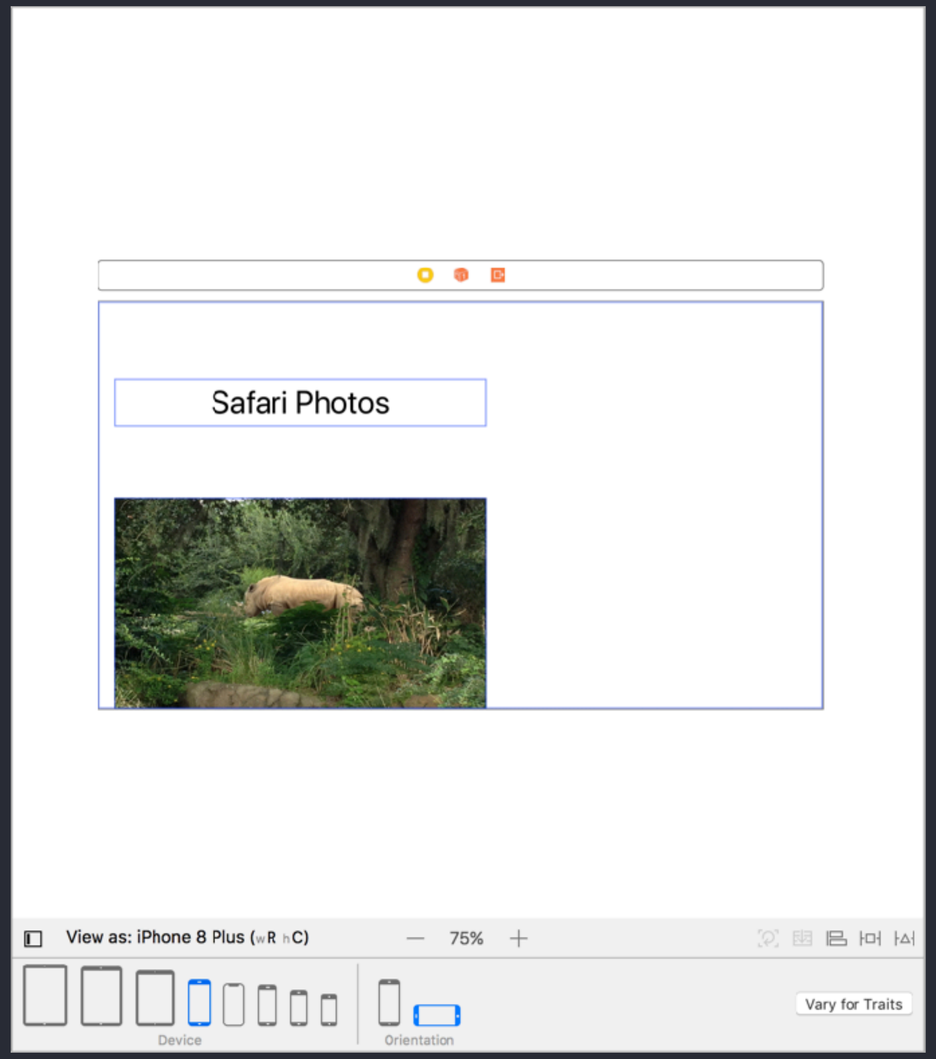




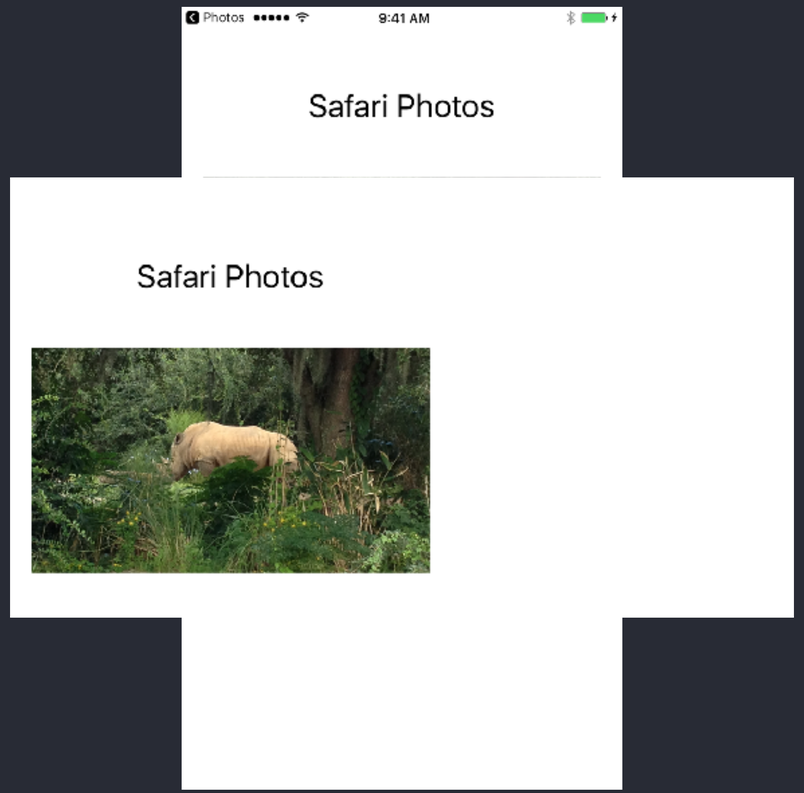
Auto Layout & Stack Views



Interface Builder



Why Auto Layout?

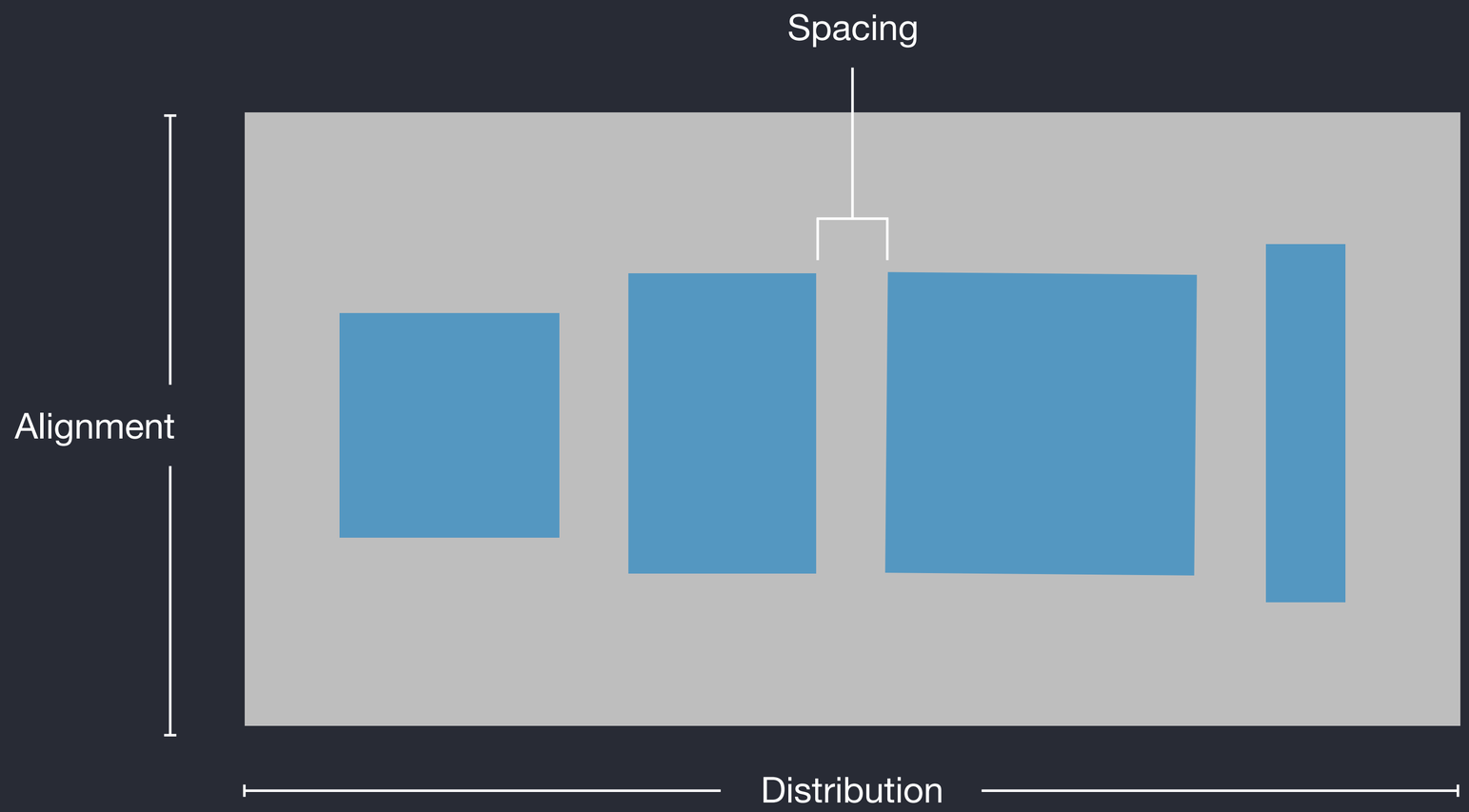


Demo

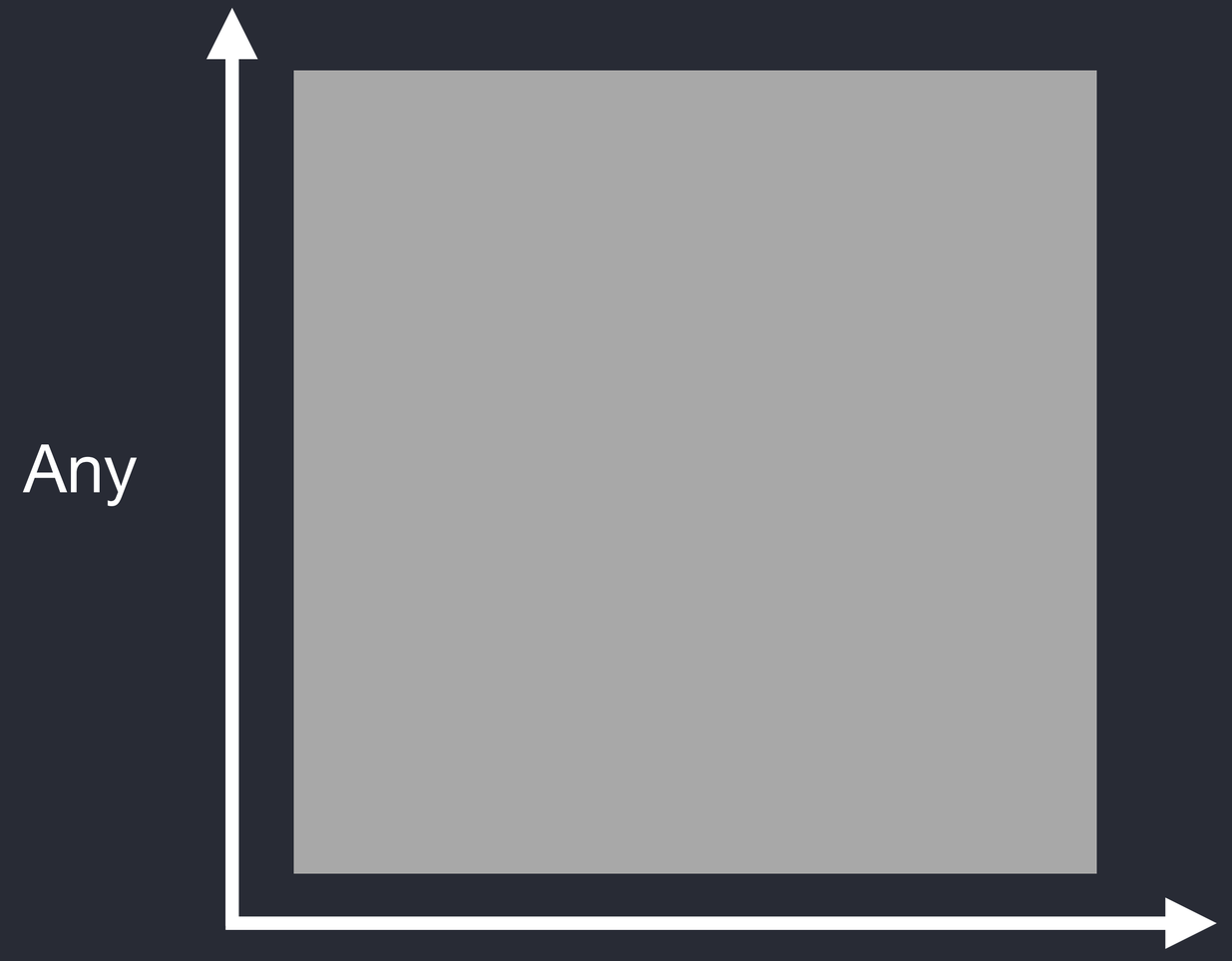
Stack views


Johnny Appleseed
Enjoys Snorkeling
Loves to Play Board Games
Learning to Build iOS Apps
Just Started Coin Collecting

Stack views



Size classes



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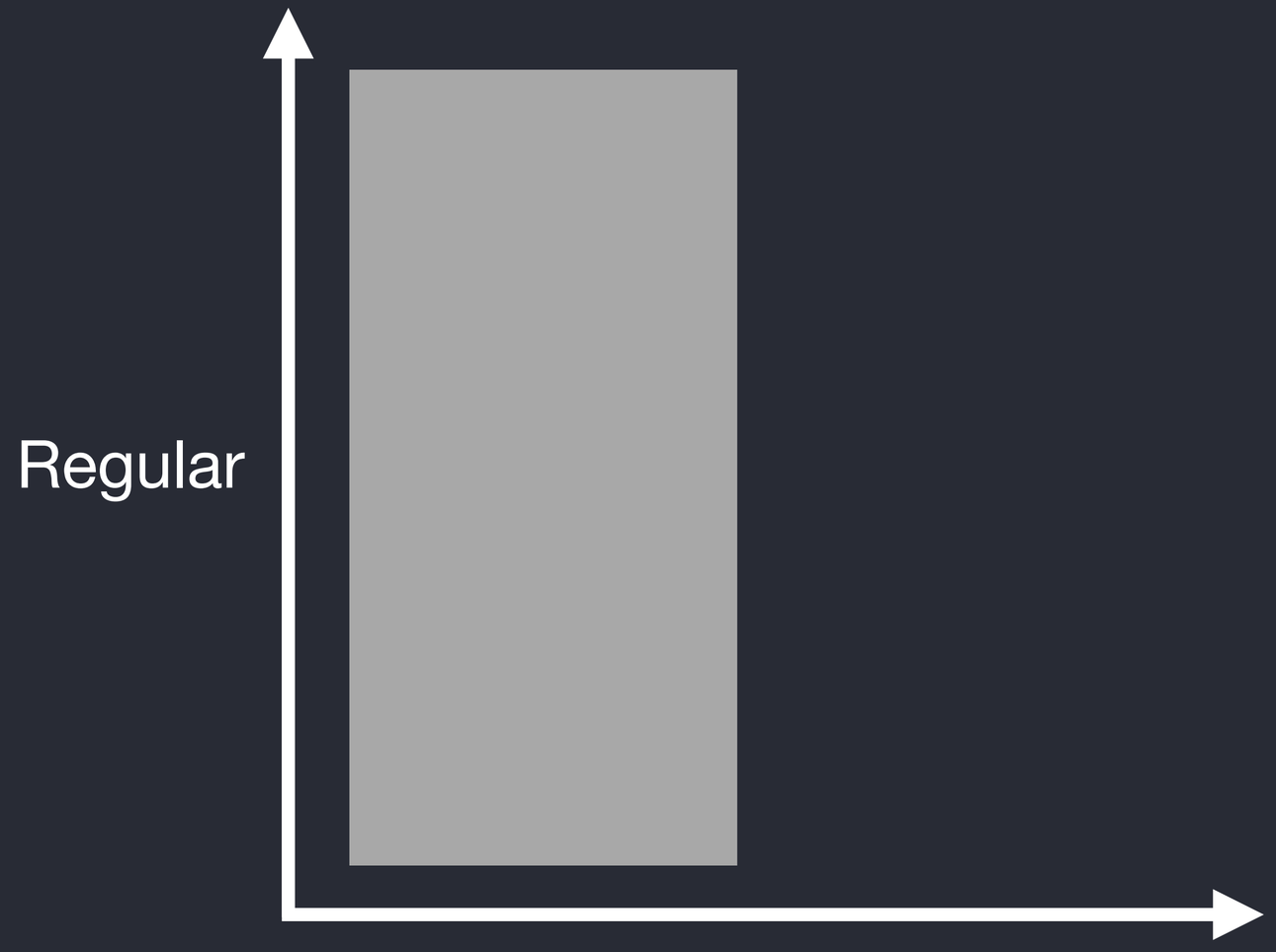

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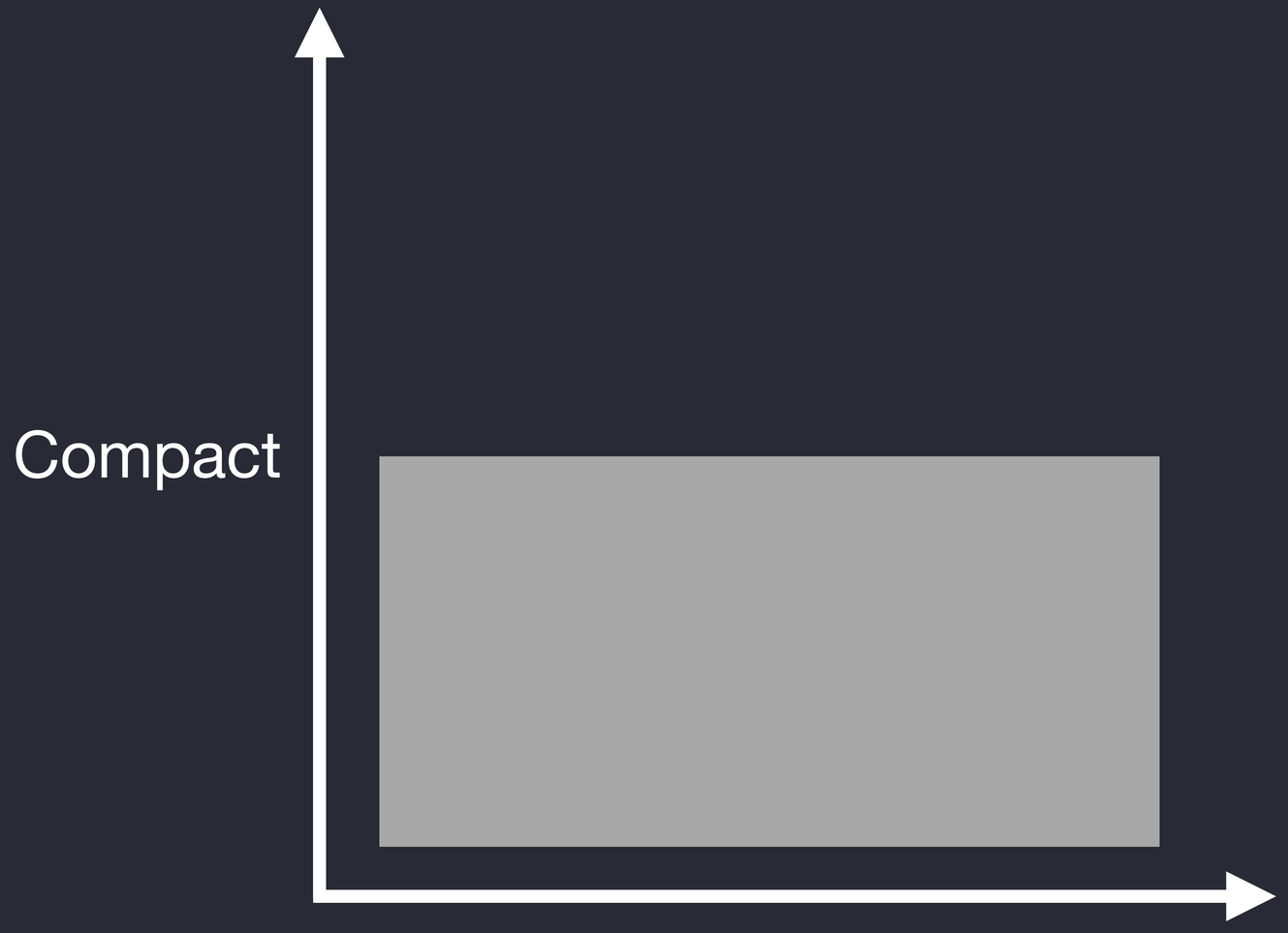

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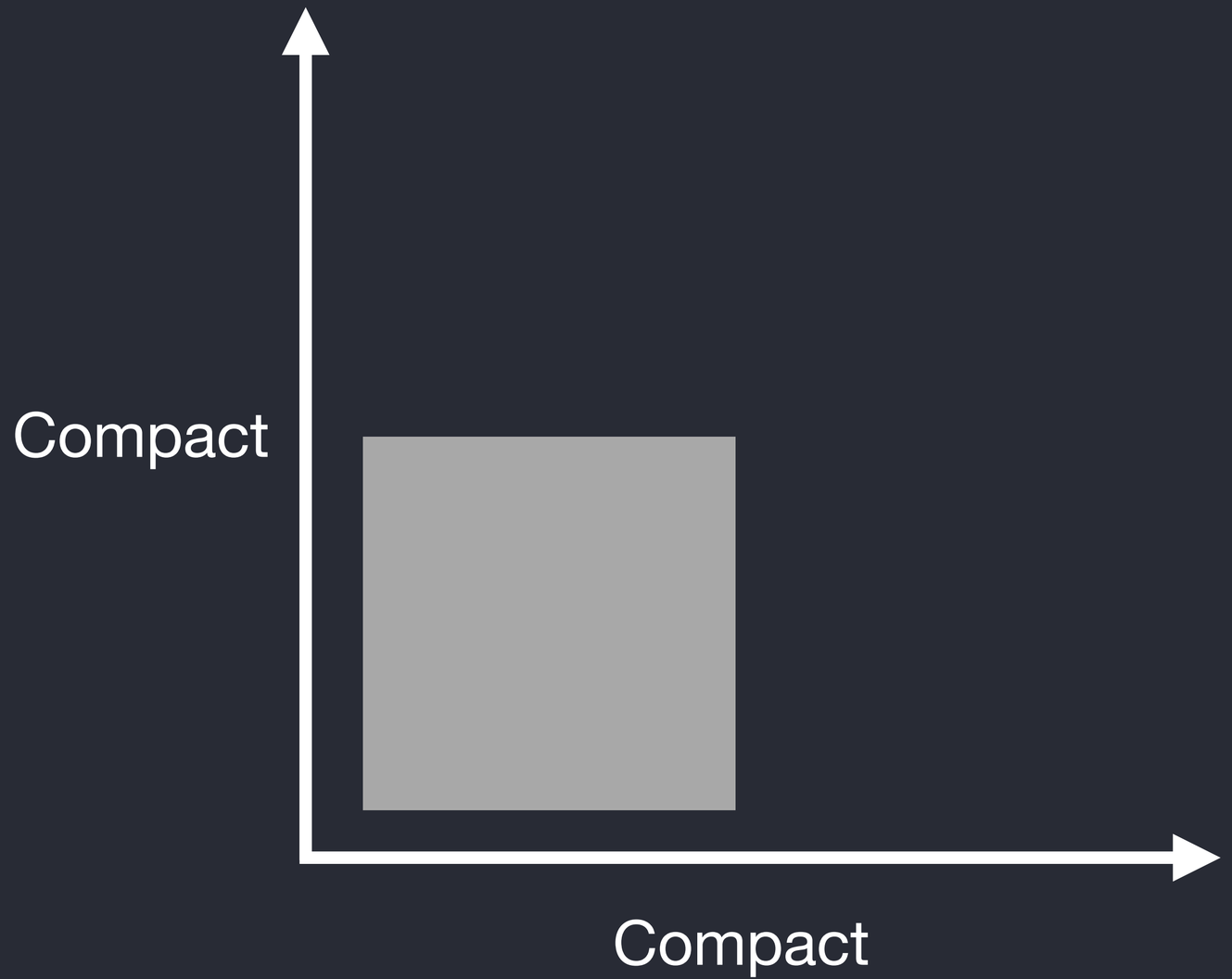

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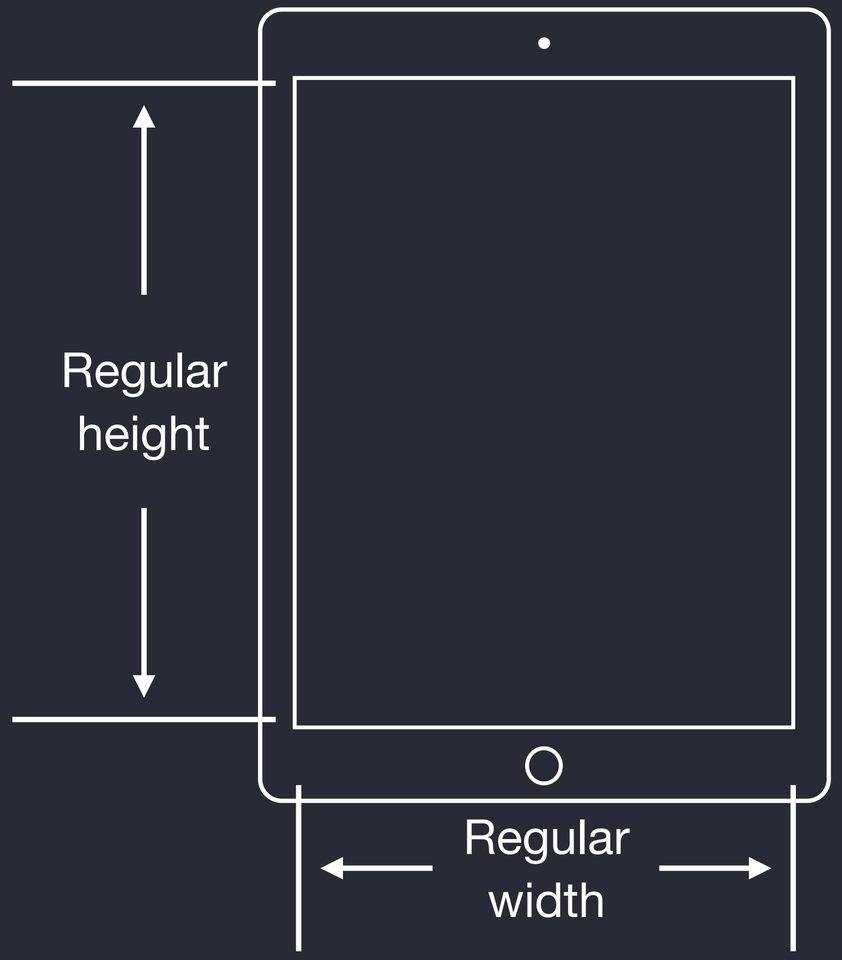

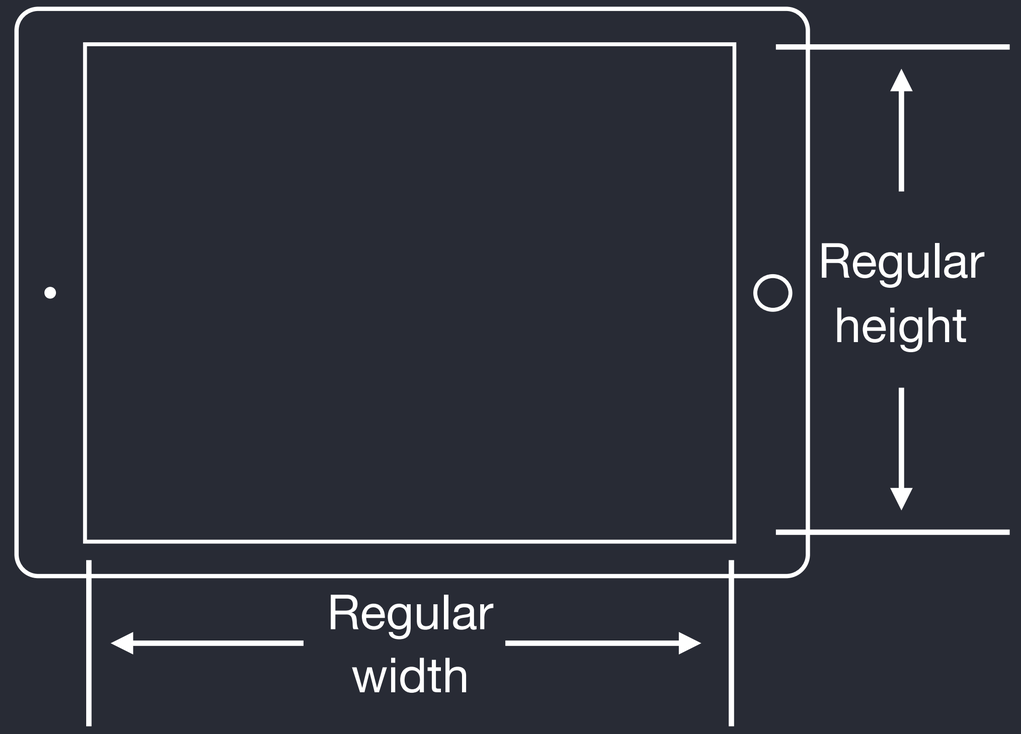

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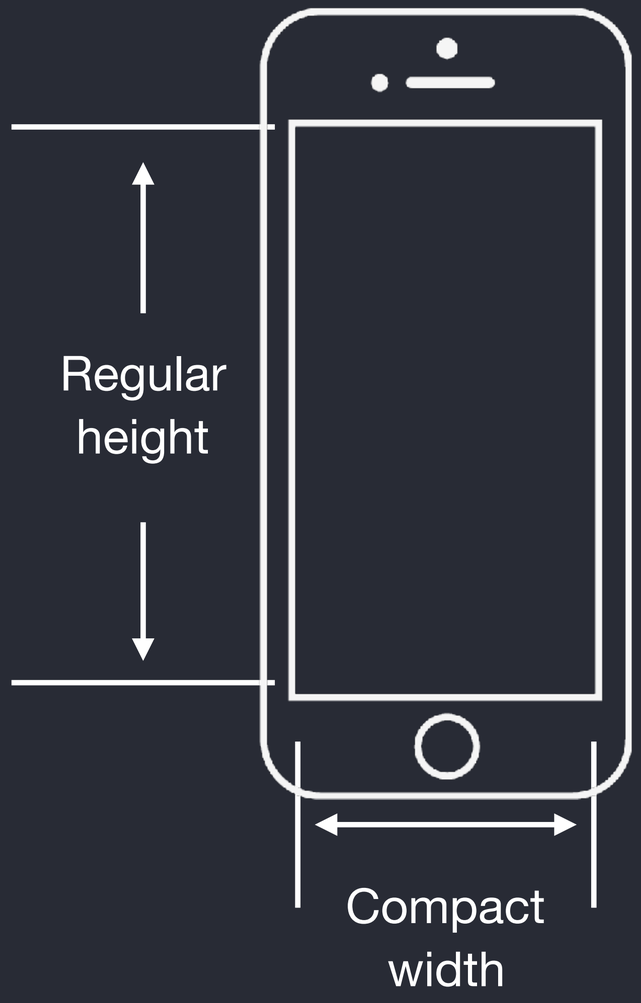

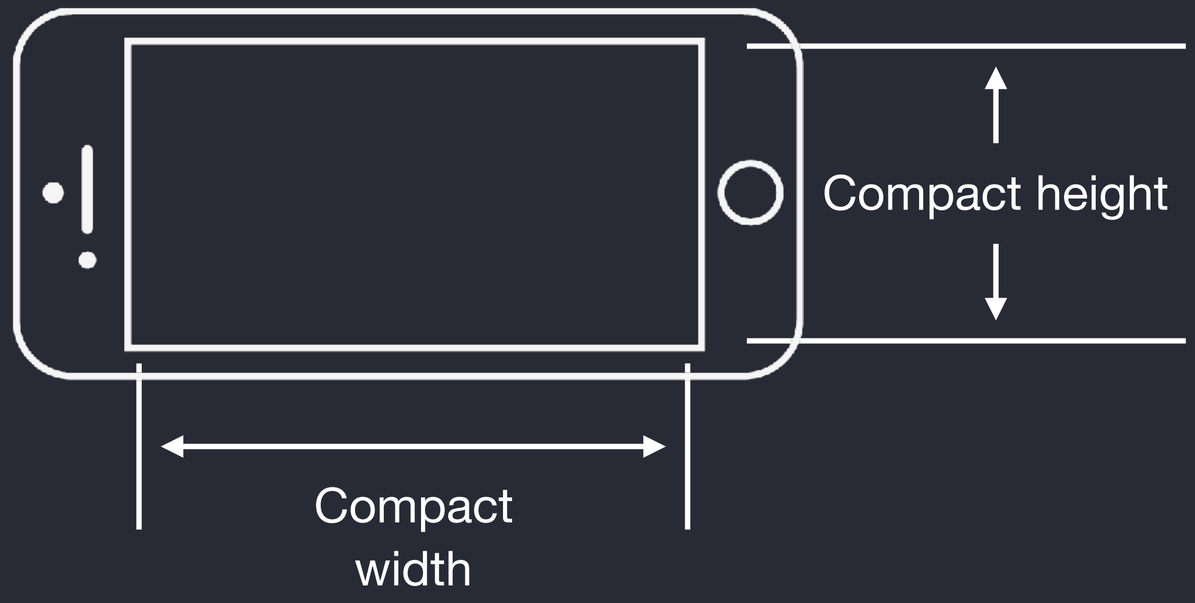

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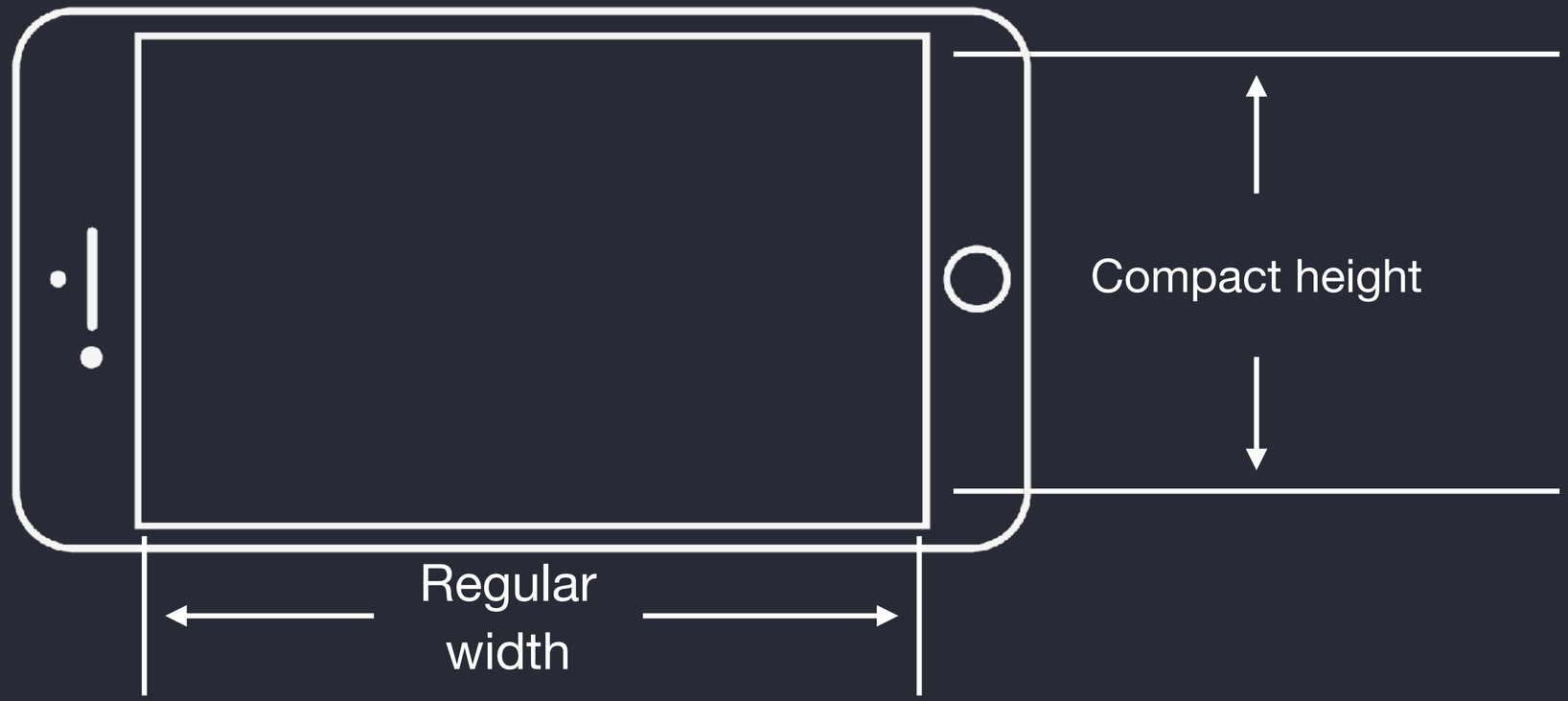

The End.