Swift Quiz

Vincent Pradeilles (@v_pradeilles) – PhotoRoom

Question #01

Closure, Capture List and Retain Cycle

```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}
```

```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}

// Will instances of `ViewController` leak?
```

```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}

// Will instances of `ViewController` leak?
```

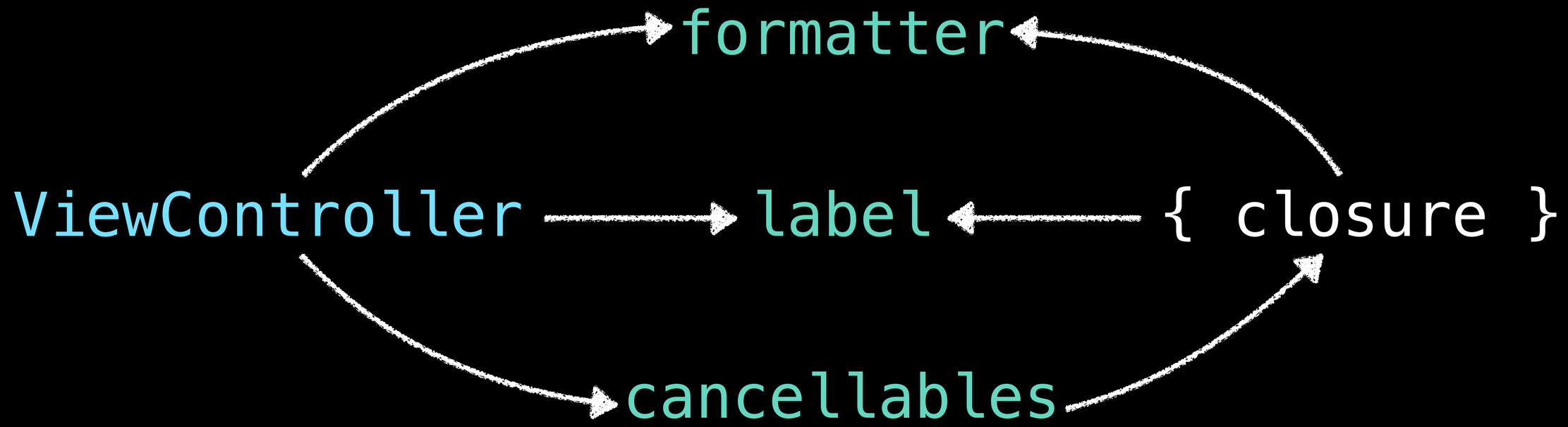
```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}

// Will instances of `ViewController` leak?
```

Yes! 

```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}

// Will instances of `ViewController` leak?
```

No! 

```
// Will instances of `ViewController` leak?
```



No cycle here ✅

```swift
class ViewController: UIViewController {

    let service = Service()
    let formatter = Formatter()
    let label = UILabel()

    var cancellables = Set<AnyCancellable>()

    override func viewDidLoad() {
        super.viewDidLoad()

        service.call().sink { [formatter, label] data in
            let formatted = formatter.format(data: data)
            label.text = "Retrieved data: \(formatted)"
        }.store(in: &cancellables)
    }
}

// Will instances of `ViewController` leak? No ❌
```

- Capturing properties rather than self inside a closure won’t create a retain cycle…
- …however, if the value of the property changes, the closure will still be using the one it had when the closure was created!

Question #02

Constant Property and Mutating Method

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

Yes! 

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

No! 

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        self.age += 1 // ❌
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

Person(age: 20)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

var person = Person(age: 20)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

var person = Person(age: 20)

person.incrementAge()
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

var person = Person(age: 20)

person =
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

var person = Person(age: 20)

person = Person(age: )
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
    }
}

var person = Person(age: 20)

person = Person(age: person.age + 1)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        person = Person(age: person.age + 1)
    }
}

var person = Person(age: 20)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        person = Person(age: self.age + 1)
    }
}

var person = Person(age: 20)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        self = Person(age: self.age + 1)
    }
}

var person = Person(age: 20)
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        self = Person(age: self.age + 1)
    }
}

var person = Person(age: 20)

person.incrementAge()
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        self = Person(age: self.age + 1)
    }
}

var person = Person(age: 20)

person.incrementAge() 🥳
```

```
struct Person {
    let age: Int

    mutating func incrementAge() {
        // Can we increment `age` here?
        self = Person(age: self.age + 1)
    }
}
```

- This technique is known as “re-assigning self”
- It can result in some tricky code, as it allows assigning a new value without having a “=” operator at the call site

Question #03

Empty Enum

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

```
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

Yes! 

```
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds?
```

No! 

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds? ✅
```

```
struct Person {
    let age: Int
}

([] as [Person]).allSatisfy { $0.age > 18 }
```

```
struct Person {
    let age: Int
}

// this evaluates to `true`
([] as [Person]).allSatisfy { $0.age > 18 }
```

```swift
enum Empty { }

func magic<T>(_ empty: Empty) -> T { }

// Do you think this code builds? ✅
```

```
enum Empty { }
```

```
enum Never { }
```

```swift
enum Never { }

func handle<Value>(result: Result<Value, Never>) {
    switch result {
    case .success(let value):
        print(value)
//    case .failure(let error):
//        no need to implement an
//        impossible code path
    }
}
```

```
fatalError()
```

Summary

Unconditionally prints a given message and stops execution.

Declaration

```
func fatalError(_ message: @autoclosure () -> String = String(),
file: StaticString = #file, line: UInt = #line) -> Never
```

Parameters

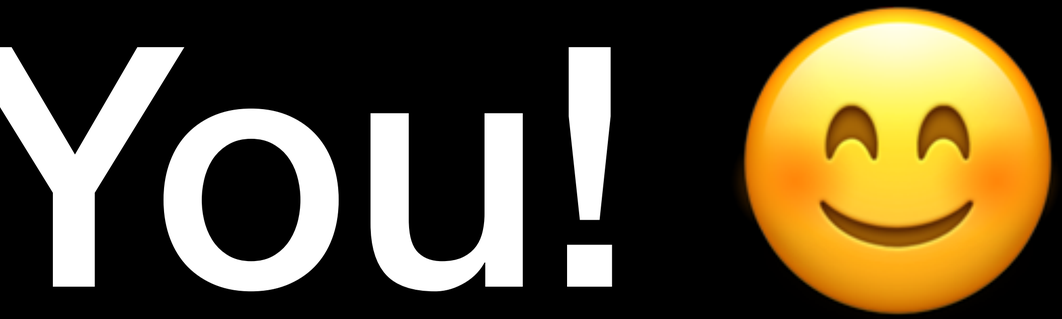
`message`	The string to print. The default is an empty string.
`file`	The file name to print with `message`. The default is the file where `fatalError(_:file:line:)` is called.
`line`	The line number to print along with `message`. The default is the line number where `fatalError(_:file:line:)` is called.

Open in Developer Documentation

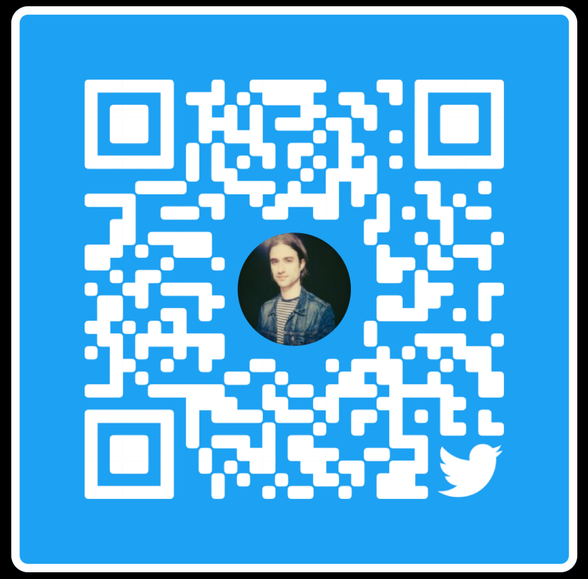
`fatalError()`

```
enum Never { }
```

- Never is a type that lets us represent impossible codepaths
- The Swift compiler is smart enough to understand it and adapt the errors and warnings it will emit in consequence
- Never can also be helpful when prototyping and trying to make new code build successfully 👌

Thank You! 

Twitter



YouTube