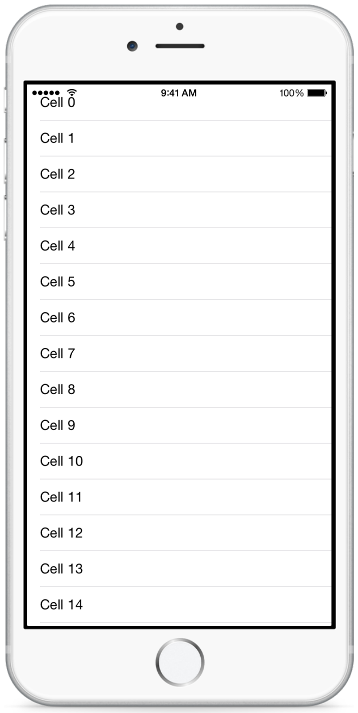
Journal
Lesson 5

Description

Add a `JournalEntry` model to the project.



Learning Outcomes

- Practice analyzing model requirements and implementing a class.
- Practice declaring stored properties and computed properties.
- Describe the purpose of initialization.
- Apply an `NSDateFormatter` to customize the string representation of a date and time.
- Describe how protocols describe behavior to which class implementations can conform.
- Apply the `Printable` protocol to control the string representation of an object.

Vocabulary

model	property	default property value
`NSDate`	`NSDateFormatter`	initializer
protocol	protocol adoption	computed property

Materials

- **Journal Lesson 5** Xcode project
- **Initialization** presentation

Opening

What model do we need in our app?

Agenda

- Discuss the need for a `JournalEntry` model to represent a journal entry with a date and contents.
- Add a new (⌘**N**) `JournalEntry` class to the project.

```
import Foundation

class JournalEntry {

   let date: NSDate
   let contents: String
   let dateFormatter = NSDateFormatter()

}
```

- Discuss how the `dateFormatter` property relies on a default value, but that the `date` and `contents` properties will require an initializer.
- Using the Documentation and API Reference (⇧⌘**0**), explore the `NSDate` and `NSDateFormatter` class references.
- Add an initializer to the `JournalEntry` class.

```
init(date: NSDate, contents: String) {
   self.date = date
   self.contents = contents
}
```

- Present the concept of initialization.
- Discuss how, when a `JournalEntry` is instantiated, the default `NSDateFormatter` value is assigned, the initializer prepares both the `date` and `contents` properties, and configures the `dateFormatter`.
- Experiment with the `JournalEntry` model by printing a `JournalEntry` object in `viewDidLoad`.

```
override func viewDidLoad {
   super.viewDidLoad()
   let entry = JournalEntry(date: NSDate(), contents: "A happy day!")
   println("Entry: \(entry)")
}
```

- Run the app (⌘**R**), and observe the console output (⇧⌘**C**) display name of the app module followed by the type, `Journal.JournalEntry`.
- Discuss the goal of seeing the date and time of the `JournalEntry` when using string interpolation with the object itself.
- Using the Documentation and API Reference (⇧⌘**0**), explore the `Printable` protocol reference.
- Update the `JournalEntry` class with a `Printable` protocol adoption and a `description` computed property.

```
class JournalEntry: Printable {
   ...
   var description: String {
      return dateFormatter.stringFromDate(date)
   }
   ...
```

- Explain how adopting the `Printable` protocol and conforming with a `description` property enables customization of the textual representation of an object.
- Run the app (⌘**R**), and observe the console output (⇧⌘**C**) display the formatted date and time of the `JournalEntry` object.
- Remove the `JournalEntry` instantiation and the `println` call from `viewDidLoad`.

```
override func viewDidLoad() {
   super.viewDidLoad()
}
```

Closing

How many `NSDateFormatter` objects would be created in our app if the `JournalEntry` `description` computed property instantiated an `NSDateFormatter` rather than using a default property value for the `dateFormatter` property?

Modifications and Extensions

- Enhance the implementation of the `JournalEntry` `description` method to include a truncated portion of its `contents`, or **(Empty)** if the `contents` string is empty.

Resources

Cocoa Core Competencies: Model Object https://developer.apple.com/library/ios/documentation/General/Conceptual/DevPedia-CocoaCore/ModelObject.html

The Swift Programming Language: Classes and Structures https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/ClassesAndStructures.html

The Swift Programming Language: Properties https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/Properties.html

The Swift Programming Language: Initialization https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/Initialization.html

Swift Standard Library Reference: Printable https://developer.apple.com/library//ios/documentation/General/Reference/SwiftStandardLibraryReference/Printable.html

The Swift Programming Language: Protocols https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/Protocols.html

NSDate Class Reference https://developer.apple.com/library/ios/documentation/Cocoa/Reference/Foundation/Classes/NSDate_Class/

NSDateFormatter Class Reference https://developer.apple.com/library/ios/documentation/Cocoa/Reference/Foundation/Classes/NSDateFormatter_Class/