EE443/EE593
Mobile Application Development

Ryan Levendosky

Lecture 15:
Chapter 18: User Defaults

Outline

- Remember the last open list
- Defensive programming
- Do some polishing

Dictionaries

- A dictionary is a collection object for storing key-value pairs. You put an object into the dictionary under a reference key and then retrieve it later using that key.

```
var dict = ["Red": 0, "Green": 1, "Blue": 2]
let value = dict["Green"]
dict["Yellow"] = 3
dict.removeValue(forKey: "Red")
dict.count
```

User Defaults

- The UserDefaults object isn't a dictionary, but acts like one. When you insert values into UserDefaults, they are saved in the Library folder in your app's "sandbox" and therefore persist even after the app terminates.

```
override func tableView(_tableView: UITableView,
          didSelectRowAt indexPath: IndexPath) {
  // add this line:
  UserDefaults.standard.set(indexPath.row, forKey: "ChecklistIndex")

  let checklist = dataModel.lists[indexPath.row]
  performSegue(withIdentifier: "ShowChecklist", sender: checklist)
}
```

How To Remember The Last Open List

1) On the main screen segue, write the row index of the selected list into UserDefaults.
2) When the back button is pressed to return to the main screen, remove this value from UserDefaults again and set a value of -1 for “no value”.

   *Note: UserDefaults cannot handle optionals.
3) If the app starts up and the value from UserDefaults isn’t -1, perform segue to corresponding row.

Navigation Controller Delegate

- For notification of when the user presses the back button, you must become a delegate of the navigation controller.
- Navigation controller tells you when it pushes or pops view controllers on the navigation stack.
- A view controller can be a delegate for many objects at once.

```
class AllListsViewController: UITableViewController,
                              ListDetailViewControllerDelegate,
                              UINavigationControllerDelegate {
```

Equal or Identical

- == checks whether two variables have the same value.
- === checks whether two variables refer to the exact same object.

Example:

Two people named Joe:

joe1 === joe2 → result's false since they are not the same person

joe1.name == joe2.name → result is true since they both have the same name

Navigation Controller

```
override func viewDidAppear(_ animated: Bool) {
  super.viewDidAppear(animated)

  navigationController?.delegate = self

  let index = UserDefaults.standard.integer(
                                      forKey: "ChecklistIndex")
  if index != -1 {
    let checklist = dataModel.lists[index]
    performSegue(withIdentifier: "ShowChecklist",
                         sender: checklist)
  }
}
```

- Every view controller has a built-in navigation controller property.
- Use navigationController?.delegate to access it since navigation controller is optional.

Defensive Programming: Default Values

- Set a default value for a UserDefaults key

```
func registerDefaults() {
  let dictionary = [ "ChecklistIndex": -1 ]

  UserDefaults.standard.register(defaults: dictionary)
}
```

- This creates a new dictionary instance and adds the value -1 for the key “ChecklistIndex”.

Computed Properties

- Computed properties compute a value by providing a getter and an optional setter to retrieve and set other properties and values indirectly rather than storing values directly.

- get { } : When retrieving the value of a property this block of code will get executed.

- set { } : When setting the value of a property this part of code will get executed.

Defensive Programming: A Couple Notes

- Your code should always check for boundary cases, such as the unexpected index value incident that we had seen previously, and be able to handle them no matter how unlikely.
- iOS has a dedicated API for remembering open screens called “State Preservation and Restoration”:

  raywenderlich.com/117471/state-restoration-tutorial

Polishing: Check For First Run

- First time app run creates a default checklist for you.
- Use a Boolean key named “FirstTime” to check app start up.

- [String:Any]

  When you have a dictionary of mixed values, the compiler wants you to explicitly indicate what the dictionary type is. You declare it as [String:Any] to indicate that the value could indeed be of any type.

Organizing Source Files

- Alphabetical sorting of Project Navigator files:

  → Right click “Checklists” folder → Select “Sort by Name”

- Groups

  → Right click “Checklists” folder

  →Select “New Group” to create a group folder

  → Drop files into appropriate group folders