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第十六節 多頁面的Tabbed Application 應用程式

- 建立方法
  - 方法1
    1. 開啟Tabbed App新專案
    2. 打開Main.storyboard
    3. 搜尋viewController並加入
    4. 在Tab Bar Controller上按右鍵，controllers拉到想要加入的viewController
    5. 設定各畫面的class
  - 方法2
    1. 開啟Single App新專案
    2. 打開Main.storyboard
    3. 選取viewController
    4. xcode>editor>embed in>Tab Bar Controller
    5. 搜尋viewController並加入
    6. 在Tab Bar Controller上按右鍵，controllers拉到想要加入的viewController
    7. 設定各畫面的class
- 更改Tab Bar圖示
  - Tab Bar item>system item
  - or
  - 匯入圖檔>選擇image
- Tab item間資料傳送
- 用程式碼跳轉頁面
- code

```swift
class ViewController: UIViewController {
      @IBOutlet weak var myLabel: UILabel!

      override func viewDidLoad() {
            super.viewDidLoad()
            myLabel.text = "First View"
            if let secondViewController =
self.tabBarController?.viewControllers?[1] as? NewViewController {
                  // 和第二個畫面溝通
                  // 注意：此時第二個畫面還沒產生，不可直接操作第二個畫面的元
件
                  secondViewController.messageFromViewOne = "hi"
            }
      }
}
class NewViewController: UIViewController {
      var messageFromViewOne:String?

      @IBOutlet weak var myTextInput: UITextField!
```

```swift
    @IBAction func ok(_ sender: UIButton) {
        if let inputText = myTextInput.text{
            print(inputText)
            myTextInput.text = ""
            // 讓鍵盤消失
            myTextInput.resignFirstResponder()
            // self.tabBarController 代表這個頁面的上一層，也就是
tabBarController
            // .viewControllers?[0] 代表 tabBarController 下的第
一個頁面
            // as? ViewController 把第一個頁面當成 ViewController
來看
            if let firstViewController =
self.tabBarController?.viewControllers?[0] as? ViewController {
                firstViewController.myLabel.text =
inputText

                // 跳轉到第1個頁面
                self.tabBarController?.selectedIndex = 0
            }
        }
    }
    override func viewDidLoad() {
    super.viewDidLoad()
        myTextInput.text = messageFromViewOne
  }
    override func viewDidAppear(_ animated: Bool) {
        super.viewDidAppear(animated)
        // 讓鍵盤彈入
        myTextInput.becomeFirstResponder()
    }
}
```

- `main.storyboard`
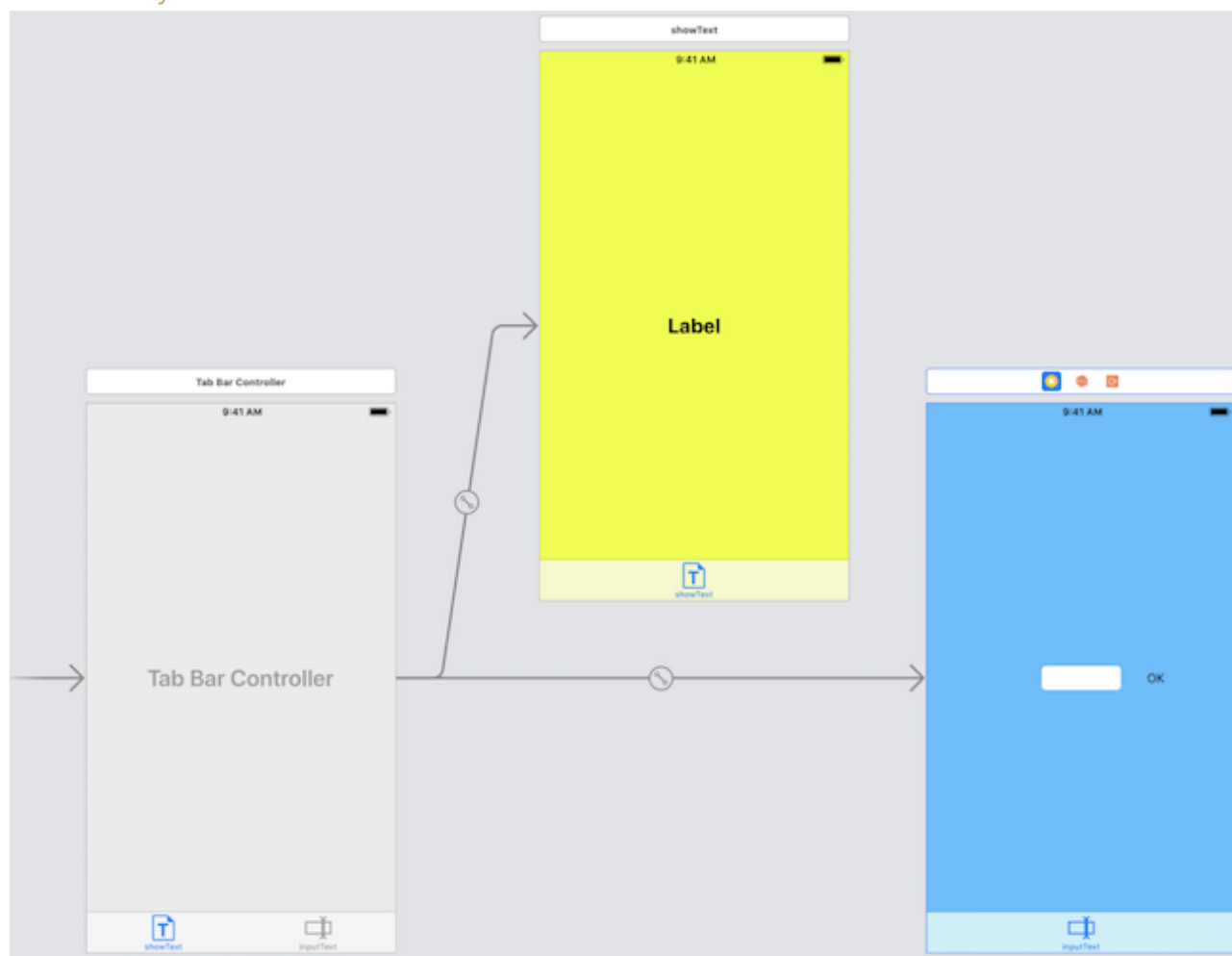
第十七節 多場景應用程式：導覽控制器

- 轉換場景的第一個方法

  1. 新增一個view controller
  2. 在view1新增一個button
  3. 按著control從button拉到view2
  4. 選擇show
  - 以下可選，差別在於back按鍵和轉場效果改為又到左
  1. 選擇第一個view controller
  2. xcode>editor>embed in>Navigation Controller

- 轉換場景的第二個方法

  1. 搜尋Navigation Controller並加入
  2. 按著control從Navigation Controller拉到view Controller
  3. 選擇 root view controller
  4. 勾選 Navigation Controller 的 is initial view controller
  5. 新增 bar button item
  6. 按著control從bar button item拉到view2
  - 以下可選，差別在於頁面標題與back按鍵的文字
  1. 新增 Navigation item 到 view2
  2. 即可更改 view2 的 title

- 轉換場景的第三個方法

    - 上下式轉場，沒有Navigation Controller的程式碼作法
    1. 設定 storyboard id
    2. 新增兩個view controller : view1、view2
    3. 在view1新增button事件加入如下：

    ```
    // 按下按鈕可跳轉到 view2
    // 1. 找到view2
    // 2. present view2

    let view2 = UIStoryboard(name: "Main", bundle:
    nil).instantiateViewController(withIdentifier: "view2的storyboard
    id")

    present(view2), animated: true, completion: nil)
    ```

    4. 在view2新增button事件加入如下：

    ```
    // 按下按鈕可回到上一層
    dismiss(animated: true, completion: nil)
    ```

- 轉換場景的第四個方法

    - 左右式轉場，有Navigation Controller的程式碼作法
    1. 設定 storyboard id
    2. 新增兩個view controller : view1、view2
    3. 選擇view1
    4. xcode>editor>embed in>Navigation Controller
    5. 在view1新增button事件加入如下：

    ```
    // 按下按鈕可跳轉到 view2
    // 1. 找到view2
    // 2. push view2

    let view2 = UIStoryboard(name: "Main", bundle:
    nil).instantiateViewController(withIdentifier: "view2的storyboard
    id")

    navigationController?.pushViewController(view2, animated: true)
    ```

    6. 在view2新增button事件加入如下：

    ```
    // 按下按鈕可(二擇一)
    ```

```
    // 回到上個畫面
    navigationController?.popViewController(animated: true)

    // 回到根畫面
    navigationController?.popToRootViewController(animated: true)
```

- 轉換場景的第五個方法

    1. 新增兩個view controller : view1、view2
    2. 按著control從view1拉到view2
    3. 選擇show
    4. 選擇 view1 到 view2 的 segue
    5. storyboard segue > identifier
    6. 填入 segue 的 id
    7. 在 view1 新增按鈕事件：

    ```
    performSegue(withIdentifier: "gotoview2", sender: nil)
    ```

- 從 view1 傳值到 view2

    - ViewController.swift(view1)

```
import UIKit

class ViewController: UIViewController {

    @IBOutlet weak var myTextInput: UITextField!

    @IBAction func changeView(_ sender: UIButton) {
        if let inputText = myTextInput.text {
            if inputText == "" {
                // no input, pop up an alert
                let myAlert = UIAlertController(title: "No Input",
message: "Please enter something", preferredStyle: .alert)

                let okAction = UIAlertAction(title: "OK", style:
.default, handler: nil)

                myAlert.addAction(okAction)
                present(myAlert, animated: true, completion: nil)
            } else {
                // change view

                performSegue(withIdentifier: "gotoview2", sender:
inputText)
            }
        }
    }
    override func prepare(for segue: UIStoryboardSegue, sender: Any?)
```

```
{
        // 確認 segue.identifier
        if segue.identifier == "gotoview2" {
            // 把 segue.destination 轉成 view2 的classname
            if let lightRed = segue.destination as?
LightRedViewController {
                // 傳值到view2的變數上
                lightRed.infoFromViewOne = sender as? String
            }
        }
    }
    override func viewDidLoad() {
        super.viewDidLoad()
    }
}
```

- LightRedViewController.swift(view2)

```
import UIKit

class LightRedViewController: UIViewController {

    var infoFromViewOne:String?

    @IBOutlet weak var myLabel: UILabel!

    override func viewDidLoad() {
        super.viewDidLoad()
        myLabel.text = infoFromViewOne
    }
}
```

- 從 view2 傳值到 view1

    - 概要 : delegate, protocol
    - LightRedViewController.swift(view2)

```
import UIKit

protocol LightRedViewControllerDelegate {
    func setColor(colorType:String)
}

class LightRedViewController:
UIViewController,UIPickerViewDataSource,UIPickerViewDelegate {

    var infoFromViewOne:String?
    let colorArray = ["red","green","blue"]
    var delegate:LightRedViewControllerDelegate?
```

```swift
    @IBOutlet weak var myPickerView: UIPickerView!
    @IBAction func backToViewOne(_ sender: UIButton) {
        navigationController?.popViewController(animated: true)
        let colorNumber = myPickerView.selectedRow(inComponent: 0)
        let color = colorArray[colorNumber]
        delegate?.setColor(colorType: color)
    }
    @IBOutlet weak var myLabel: UILabel!

    override func viewDidLoad() {
        super.viewDidLoad()
        myLabel.text = infoFromViewOne
        myPickerView.dataSource = self
        myPickerView.delegate = self
    }


    func numberOfComponents(in pickerView: UIPickerView) -> Int {
        return 1
    }

    func pickerView(_ pickerView: UIPickerView,
numberOfRowsInComponent component: Int) -> Int {
        return colorArray.count
    }

    func pickerView(_ pickerView: UIPickerView, titleForRow row: Int,
forComponent component: Int) -> String? {
        return colorArray[row]
    }
}
```

- ViewController.swift(view1)

```swift
import UIKit

class ViewController: UIViewController,LightRedViewControllerDelegate
{
    func setColor(colorType: String) {
        if colorType == "red" {
            view.backgroundColor = .red
        } else if colorType == "green" {
            view.backgroundColor = .green
        } else if colorType == "blue" {
            view.backgroundColor = .blue
        }
    }


    @IBOutlet weak var myTextInput: UITextField!
```

```swift
    @IBAction func changeView(_ sender: UIButton) {
        if let inputText = myTextInput.text {
            if inputText == "" {
                // no input, pop up an alert
                let myAlert = UIAlertController(title: "No Input",
message: "Please enter something", preferredStyle: .alert)

                let okAction = UIAlertAction(title: "OK", style:
.default, handler: nil)

                myAlert.addAction(okAction)
                present(myAlert, animated: true, completion: nil)
            } else {
                // change view
                performSegue(withIdentifier: "gotoview2", sender:
inputText)

                // clear text
                myTextInput.text = ""
                myTextInput.resignFirstResponder()
            }
        }
    }

    override func prepare(for segue: UIStoryboardSegue, sender: Any?)
{
        // 確認 segue.identifier
        if segue.identifier == "gotoview2" {
            // 把 segue.destination 轉成 view2 的classname
            if let lightRed = segue.destination as?
LightRedViewController {
                // 傳值到view2的變數上
                lightRed.infoFromViewOne = sender as? String
                lightRed.delegate = self
            }
        }
    }

    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading 2the view.
    }
}
```

第十八節 顯示資料必學：表格視圖

- table view 包含：

  - section
  - cell

- 流程 (不含table view controller)

  - 新增 tableview

- 設定 tableview > dataSource 為 view controller
- 設定 tableview > dataDelegate 為 view controller
- view controller 服從 UITableViewDataSource,UITableViewDelegate 這兩個協定
-
- table view > prototype cell:1 > 設定 cell 的 identifier
- 若多個 section 要將 table view 的 style 改為 grouped

- 流程 (含table view controller)

  - 新增 table view controller
  - new file > cocoa touch class > table view controller
  - 將 Main.storyboard 的table view controller 連結至上步驟程式碼
  - 設定 tableViewController.swift

- 調整 prototype cell

  - Accessory : 右邊圖示
  - table view 的 row height : 每個cell的高度
  - 可以拉元件到 content view 做其他layout

- 作法1:
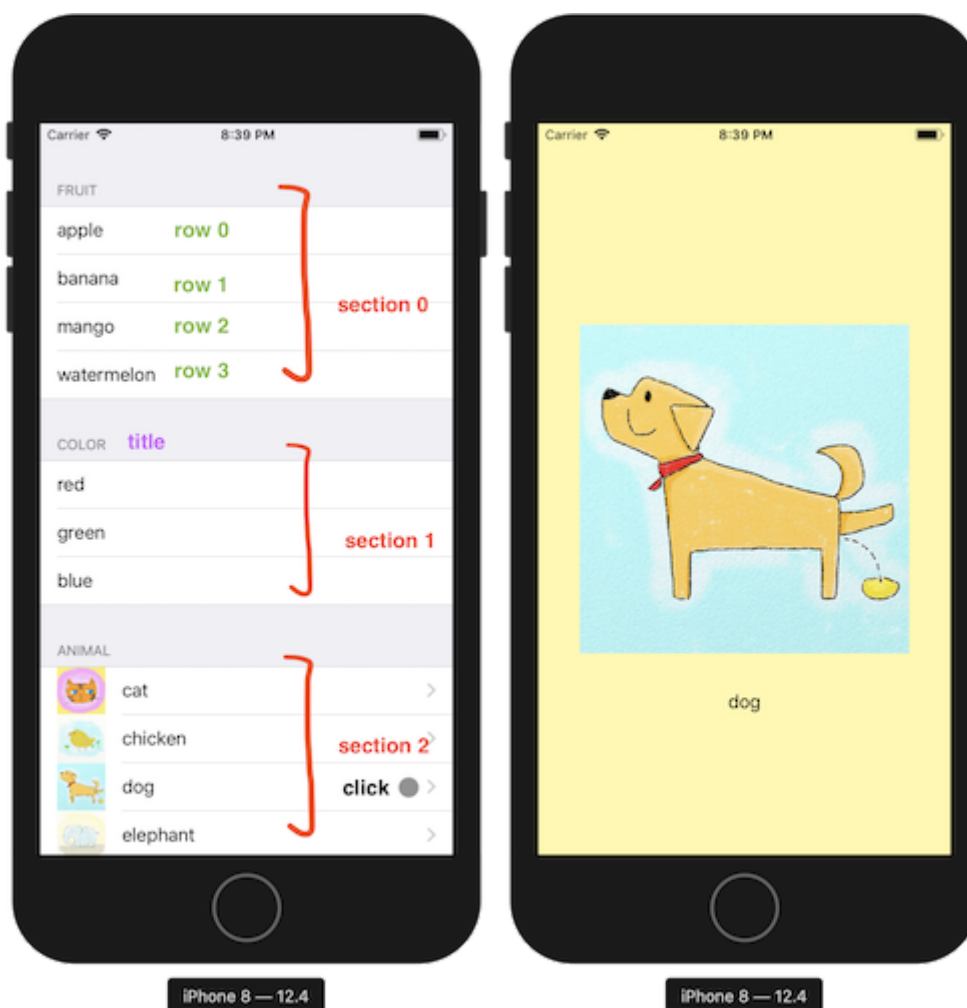
  - 成品
  - ViewController.swift

```swift
import UIKit

class ViewController:
UIViewController,UITableViewDataSource,UITableViewDelegate {

    let fruitArray = ["apple","banana","mango","watermelon"]
    let colorArray = ["red","green","blue"]
    let animalArray =
["cat","chicken","dog","elephant","fox","goat","kangaroo","monkey","mo
use","penguin","rabbit","snail"]

    @IBOutlet weak var myTableView: UITableView!
    override func viewDidLoad() {
        super.viewDidLoad()
        // Do any additional setup after loading the view.
    }

    // 幾個 section
    func numberOfSections(in tableView: UITableView) -> Int {
        return 3
    }

    // 幾個 row
    func tableView(_ tableView: UITableView, numberOfRowsInSection
section: Int) -> Int {
        if section == 0 {
            return fruitArray.count
        } else if section == 1 {
            return colorArray.count
        } else {
            return animalArray.count
        }
    }

    // 生出在這個 indexPath 的 UITableViewCell
    // indexPath.section
    // indexPath.row
    func tableView(_ tableView: UITableView, cellForRowAt indexPath:
IndexPath) -> UITableViewCell {

        // let cell = UITableViewCell()
        // 回收舊的 table view cell or 生成新的 table view cell
        let cell = tableView.dequeueReusableCell(withIdentifier:
"cell", for: indexPath)

        if indexPath.section == 0 {
            cell.textLabel?.text = fruitArray[indexPath.row]
        } else if indexPath.section == 1 {
            cell.textLabel?.text = colorArray[indexPath.row]
        } else {
            cell.textLabel?.text = animalArray[indexPath.row]
            cell.imageView?.image = UIImage(named:
```

```swift
            animalArray[indexPath.row])
                cell.accessoryType = .disclosureIndicator
            }
            return cell
        }

        // 加入每個 section 的標題
        func tableView(_ tableView: UITableView, titleForHeaderInSection
section: Int) -> String? {
            if section == 0 {
                return "Fruit"
            } else if section == 1 {
                return "color"
            } else {
                return "animal"
            }
        }

        func tableView(_ tableView: UITableView, didSelectRowAt indexPath:
IndexPath) {
            if indexPath.section == 2 {
                performSegue(withIdentifier: "showDetail", sender: nil)
            }
        }

        override func prepare(for segue: UIStoryboardSegue, sender: Any?)
{
            if segue.identifier == "showDetail" {
                // 確認目的地是否為 DetailViewController
                let dvc = segue.destination as? DetailViewController

                // 設定目的地的資料，需先找出按下之 cell 的 indexPath, row
                // 在藉由 animalArray 轉成 String
                let selectedIndexPath =
myTableView.indexPathForSelectedRow
                if let selectedRow = selectedIndexPath?.row {
                    dvc?.infoFormViewOne = animalArray[selectedRow]
                    dvc?.navigationItem.title = animalArray[selectedRow]
                }
            }
        }
    }
```

  - DetailViewController.swift

```swift
import UIKit

class DetailViewController: UIViewController {

    var infoFormViewOne:String?
```

```
    @IBOutlet weak var myImageView: UIImageView!

    @IBOutlet weak var myLabel: UILabel!
    override func viewDidLoad() {
        super.viewDidLoad()

        myLabel.text = infoFormViewOne
        if let okFileName = infoFormViewOne {
            myImageView.image = UIImage(named: okFileName)
        }
    }
}
```

- 作法2

- 成品
- AnimalTableViewController.swift

```
import UIKit

class AnimalTableViewController: UITableViewController {
    // 隱藏狀態列
    //  override var prefersStatusBarHidden: Bool{
    //          return true
    //  }
```

```swift
    let animalArray =
["cat","chicken","dog","elephant","fox","goat","kangaroo","monkey","mo
use","penguin","rabbit","snail"]

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

    // MARK: - Table view data source

    override func numberOfSections(in tableView: UITableView) -> Int {
        // #warning Incomplete implementation, return the number of
sections
        return 1
    }

    override func tableView(_ tableView: UITableView,
numberOfRowsInSection section: Int) -> Int {
        // #warning Incomplete implementation, return the number of
rows
        return animalArray.count
    }


    override func tableView(_ tableView: UITableView, cellForRowAt
indexPath: IndexPath) -> UITableViewCell {
        if let cell = tableView.dequeueReusableCell(withIdentifier:
"cell", for: indexPath) as? SpecialTableViewCell {

            // Configure the cell...
            cell.specialLabel.text = animalArray[indexPath.row]
            cell.specialImageView.image = UIImage(named:
animalArray[indexPath.row])

            return cell

        } else {
            let cell = UITableViewCell()
            cell.textLabel?.text = animalArray[indexPath.row]
            cell.imageView?.image = UIImage(named:
animalArray[indexPath.row])

            return cell
        }


    }

    //  當使用者按下在 indexPath 的 cell 時，要做的事
    override func tableView(_ tableView: UITableView, didSelectRowAt
indexPath: IndexPath) {
        performSegue(withIdentifier: "showDetail", sender: nil)
    }
```

```
        //  準備傳給下個 view 的資訊
        override func prepare(for segue: UIStoryboardSegue, sender: Any?)
    {

            if segue.identifier == "showDetail" {
                // 確認目的地是否為 DetailViewController
                let dvc = segue.destination as? DetailViewController

                // 設定目的地的資料，需先找出按下之 cell 的 indexPath, row
                // 在藉由 animalArray 轉成 String
                let selectedIndexPath =
    self.tableView.indexPathForSelectedRow
                if let selectedRow = selectedIndexPath?.row {
                    dvc?.infoFormViewOne = animalArray[selectedRow]
                    dvc?.navigationItem.title = animalArray[selectedRow]
                }
            }
        }
    }
```

- SpecialTableViewCell.swift

```
import UIKit

class SpecialTableViewCell: UITableViewCell {
    @IBOutlet weak var specialImageView: UIImageView!

    @IBOutlet weak var specialLabel: UILabel!
    override func awakeFromNib() {
        super.awakeFromNib()
        // Initialization code
    }

    override func setSelected(_ selected: Bool, animated: Bool) {
        super.setSelected(selected, animated: animated)

        // Configure the view for the selected state
    }

}
```

- 作法1 & 作法2 的 `Main.storyboard`