2019.08.02

第十二節 更多UI元件介紹

- UIAlertController
  - title
  - message
  - UIAlertAction
  - code

```
@IBAction func showAlert(_ sender: UIButton) {
    let myAlert = UIAlertController(title: "Hello", message: "How
are you", preferredStyle: .alert)

    let okAction = UIAlertAction(title: "OK", style: .default) {
        (action:UIAlertAction) in
        // 關閉畫面
        self.dismiss(animated: true, completion: nil)
    }
    // 如果只要self.dismiss()可以簡寫如下
    // let okAction = UIAlertAction(title: "OK", style: .default)

    let helloAction = UIAlertAction(title: "Say Hello", style:
.destructive) {
        (action:UIAlertAction) in
        print("Hello")
        self.dismiss(animated: true, completion: nil)
    }
    let cancelAction = UIAlertAction(title: "cancel", style:
.cancel) {
        (action:UIAlertAction) in
        print("cancel")
        self.dismiss(animated: true, completion: nil)
    }

    // 將按鈕加入UIAlertController
    myAlert.addAction(okAction)
    myAlert.addAction(helloAction)
    myAlert.addAction(cancelAction)

    // 彈出UIAlertController
    present(myAlert, animated: true, completion: nil)
}
```

- UIImage
  - UIImage 不是圖片，可以想成是相框
  - UIImage 才是圖片
  - view > content mode

        - scale to fill : 不等比例放大填滿整個畫面
        - aspect fit : 等比例放大，有一邊再放大就超過畫面即停止放大
        - aspect fill : 等比例放大，有兩邊再放大就超過畫面即停止放大
    - 用程式碼換圖

    ```
    myPet.image = UIImage(named: "MyDog")
    ```

- UIButton
    - 更換自己的圖
        1. state config > default
        2. image > 選擇一般狀態的按鈕圖
        3. state config > highlightd
        4. image > 選擇按下狀態的按鈕圖
    - 用程式碼產生按鈕

    ```
    // 做一個system style 的 UIButton
    let newButton = UIButton(type: .system)
    // 設定按鈕的 x,y,width,height
    newButton.frame = CGRect(x: 50, y: 50, width: 100, height: 50)
    // 設定按鈕各個狀態的文字
    newButton.setTitle("Press", for: .normal)
    newButton.setTitle("Pressing", for: .highlighted)
    // 將按鈕加到view
    view.addSubview(newButton)
    // 新增按鈕的事件
    newButton.addTarget(self, action:
    #selector(ViewController.hitMe(_:)), for: .touchUpInside)

    // 做一個image button
    let anotherButton = UIButton(type: .custom)
    anotherButton.frame = CGRect(x: 200, y: 200, width: 144, height:
    54)
    // 設定按鈕各個狀態的圖片
    anotherButton.setImage(UIImage(named: "PlayButton"), for:
    .normal)
    anotherButton.setImage(UIImage(named: "PlayButtonPressed"), for:
    .highlighted)
    view.addSubview(anotherButton)
    anotherButton.addTarget(self, action:
    #selector(ViewController.hitMe(_:)), for: .touchUpInside)
    ```

    - 用 closure 生 button

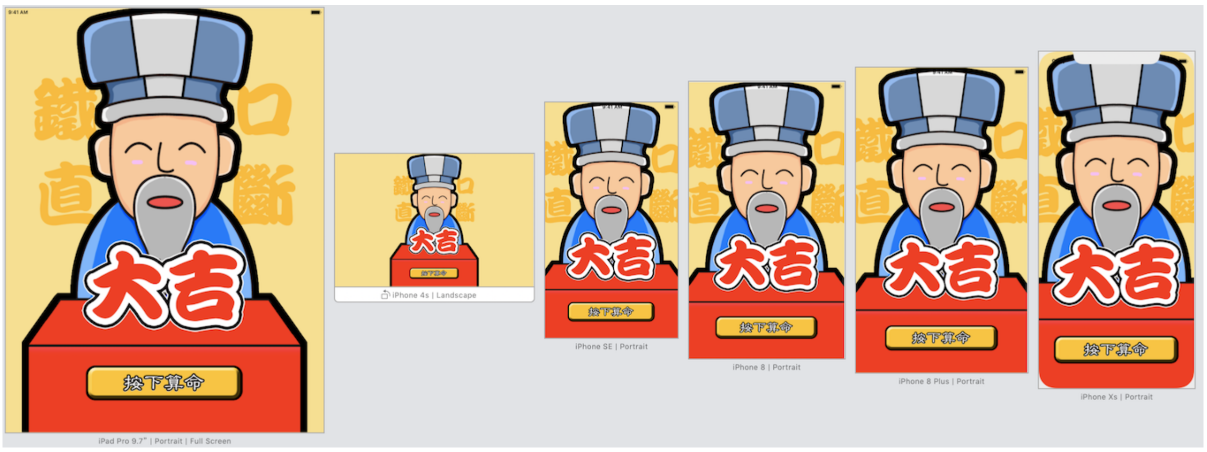
    ```
    // 好處：縮短 viewDidLoad() 的程式

    let codeButton:UIButton = {
        // 做一個system style 的 UIButton
    ```

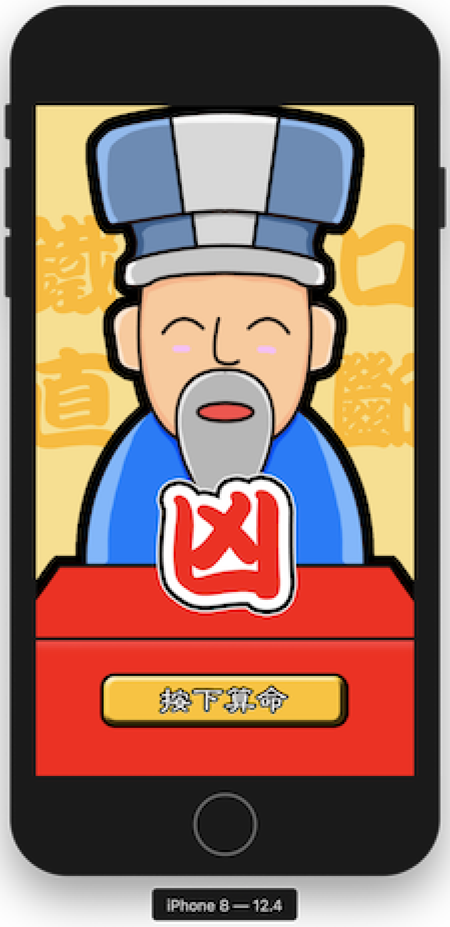
```
    let newButton = UIButton(type: .system)
    // 設定按鈕的 x,y,width,height
    newButton.frame = CGRect(x: 300, y: 50, width: 100, height: 
50)
    // 設定按鈕各個狀態的文字
    newButton.setTitle("A", for: .normal)
    newButton.setTitle("B", for: .highlighted)
    // 新增按鈕的事件
    newButton.addTarget(self, action: 
#selector(ViewController.hitMe(_:)), for: .touchUpInside)
    return newButton
}()
override func viewDidLoad() {
    super.viewDidLoad()
    view.addSubview(codeButton)
}
```

- APP : 小小算命師
  - auto layout
    - OldMan:`UIImageView`
      - x : Horizontally in Container
      - y : Vertically in Container
      - height : equal to superview
      - width : Aspect Ratio
    - helpView:`UIView`
      - x : align leading to safe area
      - y : align bottom to superview
      - height : proportional superview 240:1024
      - width : 240
    - yourFortune:`UIImageView`
      - x : Horizontally in Container
      - y : bottom space to helpView
      - height : proportional superview 228:1024
      - width : Aspect Ratio
    - viewForButton:`UIView`
      - x : align trailing to safe area
      - y : align bottom to superview
      - height : proportional superview 85:1024
      - width : 240
    - Button:`UIButton`
      - x : Horizontally in Container
      - y : bottom space to viewForButton -8
      - height : proportional superview 85:1024
      - width : Aspect Ratio
  - code

```swift
import UIKit
import GameKit
import AudioToolbox

class ViewController: UIViewController {

    override var prefersStatusBarHidden: Bool{
        return true
    }
    @IBOutlet weak var yourFortune: UIImageView!
    @IBAction func tellMeSomething(_ sender: UIButton) {
        if yourFortune.isHidden == true {
            showAnswer()
        } else {
            // 隱藏圖片
            yourFortune.isHidden = true;
        }
    }

    override func motionEnded(_ motion: UIEvent.EventSubtype,
with event: UIEvent?) {
        // 如果搖晃手機執行
        if event?.subtype == .motionShake {
            showAnswer()
        }
    }

    func showAnswer() {
        // 做一個1到6的亂數
        let answer =
GKRandomSource.sharedRandom().nextInt(upperBound: 6)+1
        // 換圖
        yourFortune.image = UIImage(named: "\(answer)")
        yourFortune.isHidden = false
        // 播放音效
        AudioServicesPlaySystemSound(1000)
    }

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

- 成品





第十三節 協定

- UIPickerView
  1. 在`main.storyboard`連結`PickerView`的`datasource`和`delegate`到`ViewController`
  2. `ViewController.swift`加入以下協定`UIPickerViewDataSource`和`UIPickerViewDelegate`
  3. 設定有幾個component
  4. 設定有每個component有幾個row
  5. 設定每個欄位的title
  6. 設定選擇這個component這個row要做的事情

```
class ViewController:
UIViewController,UIPickerViewDataSource,UIPickerViewDelegate {
    let numberArray = ["1","2","3","4","5","7","8"]
    let fruitArray = ["apple","banana","mango","watermalon"]

    // 設定有幾個component
    func numberOfComponents(in pickerView: UIPickerView) -> Int {
        // how many component in picker view
        return 2
    }

    // 設定有每個component有幾個row
    func pickerView(_ pickerView: UIPickerView,
numberOfRowsInComponent component: Int) -> Int {
        if component == 0 {
            return numberArray.count
        } else {
            return fruitArray.count
        }
    }

    // 設定每個欄位的title
    func pickerView(_ pickerView: UIPickerView, titleForRow row: Int,
forComponent component: Int) -> String? {
        if component == 0 {
            return numberArray[row]
        } else {
            return fruitArray[row]
        }
    }

    // 設定選擇這個component這個row要做的事情
    func pickerView(_ pickerView: UIPickerView, didSelectRow row: Int,
inComponent component: Int) {
        if component == 0{
            print("number: \(numberArray[row])")
        } else {
            print("fruit: \(fruitArray[row])")
        }
    }

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

- 協定 portocol
  - 服從協定要實作協定中的方法

```
protocol SoyMilkGetable {
    func giveMeSoyMilk()
}

class Brunch:SoyMilkGetable{
    func giveMeSoyMilk() {
        print("Soy Milk")
    }


}

let aBrunch = Brunch()
aBrunch.giveMeSoyMilk()

protocol MoneyTransferProtocol {
    func giveMoney()
}

class RichPeople:MoneyTransferProtocol{
    func giveMoney() {
        print("Give you 100 dollars")
    }
}
class PoorGuy {
    var helper:MoneyTransferProtocol?
    func needMoney(){
        helper?.giveMoney()
    }
}

class NormalPeople:MoneyTransferProtocol{
    func giveMoney() {
        print("Give you 10 dollars")
    }
}

let aPoorGuy = PoorGuy()
let aRichPeople = RichPeople()
let aNormalPeople = NormalPeople()
aPoorGuy.helper = aNormalPeople
aPoorGuy.needMoney()
```

- 上述PickerView運作邏輯類似於下

```
protocol PickerViewDataSource{
    func howManyComponent()
    func howManyRow()

}
```

```
protocol PickerViewDelegate {
    func titleToShow()
    func didSelect()
}
class ViewController:PickerViewDataSource,PickerViewDelegate{
    func howManyComponent() {
        print("2")
    }
    func howManyRow() {
        print("10")
    }

    func titleToShow() {
        print("Hello")
    }
    func didSelect() {
        print("Select")
    }
}

class PickerView {
    var dataSource:PickerViewDataSource?
    var delegate:PickerViewDelegate?

    func howManyComponentIhave() {
        dataSource?.howManyComponent()
    }
    func howManyRowIhave() {
        dataSource?.howManyRow()
    }

    func whatToShow() {
        delegate?.titleToShow()
    }
    func afterSelect() {
        delegate?.didSelect()
    }
}
let aPickerView = PickerView()
let aViewController = ViewController()
aPickerView.dataSource = aViewController
aPickerView.delegate = aViewController

aPickerView.howManyComponentIhave()
aPickerView.howManyRowIhave()

aPickerView.whatToShow()
aPickerView.afterSelect()
```

- protocol oriented programming
    - 優點
        1. 可以服從多個協定

2. 保證一定會實作
3. 某幾個子類別有相同的方法

- protocol vs object

```
// protocol oriented programming
protocol ManKindType{
    var health:Int{ get set }
}
protocol Attackable {
    func attack(target:Hurtable)
}
protocol Hurtable:ManKindType {
    func getHurt()
}
class Man:ManKindType,Hurtable{
    var health:Int
    init(){
        health = 10
    }
    func getHurt() {
        health -= 10
    }
}
class BatMan:ManKindType,Hurtable,Attackable{
    var health: Int
    init(){
        health = 1000
    }
    func getHurt() {
        health -= 5
    }
    func attack(target:Hurtable) {
        print("attack with fist")
        target.getHurt()
    }
}
class SuperMan:ManKindType,Hurtable,Attackable{
    var health: Int
    init() {
        health = 10000
    }
    func getHurt() {
        health -= 1
    }
    func attack(target:Hurtable) {
        print("attack with eye laser")
        target.getHurt()
    }
}
// object oriented programming
class Man{
    var health:Int
    init(){
        health = 10
    }
    func getHurt() {
        health -= 10
    }
}
class BatMan:Man{
    override init(){
        super.init()
        health = 1000
    }
    override func getHurt() {
        health -= 5
    }
    func attack() {
        print("attack with fist")
    }
}
class SuperMan:Man{
    override init() {
        super.init()
        health = 10000
    }
    override func getHurt() {
        health -= 1
    }
    func attack() {
        print("attack with eye laser")
    }
}
```

- view life cycle
    - loadView : 用程式碼產生畫面
    - viewDidLoad : 讀入畫面之後執行
    - viewWillAppear : 畫面即將顯示到螢幕上
    - viewDidAppear : 畫面已經顯示到螢幕上
    - viewWillDisappear : 畫面即將離開螢幕
    - viewDidDisappear : 畫面已經離開螢幕
- 開啟APP後會做的事
    1. app:did finish launching
    2. view Did Load
    3. view Will Appear
    4. view Did Appear
    5. app:did become active