

A bit about extensions

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As an introduction...

Extension = extra associated to your Apps

- Executed by iOS independently of the main Application
 - ▶ **Has its own confinement**
- requires the application to be installed
 - ▶ **Even if it is an empty one**
 - ▶ **Disappear with the application**

Some types of extensions

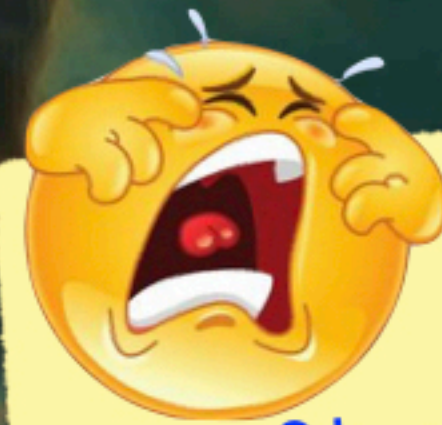
- Today
 - ➡ Rapid update in the notification center
- Share
 - ➡ Post something to share content
- Action
 - ➡ Manipulate or access to the application content
- Photo editing
 - ➡ Edit photo or video
- Custom Keyboard
 - ➡ Replace the keyboard by another usable by all applications
- etc.

Today extension as an example

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Has its own UIViewController

- Answers to the UINavigationControllerProviding protocol
- viewDidLoad()
 - ▶ For static content (that will never change)



Aaaarg...

Storyboard is strongly recommended there!!!



But...

Programmatic construction seems to be possible

A bit about NCWidgetProviding

📱 Handling dynamic updates

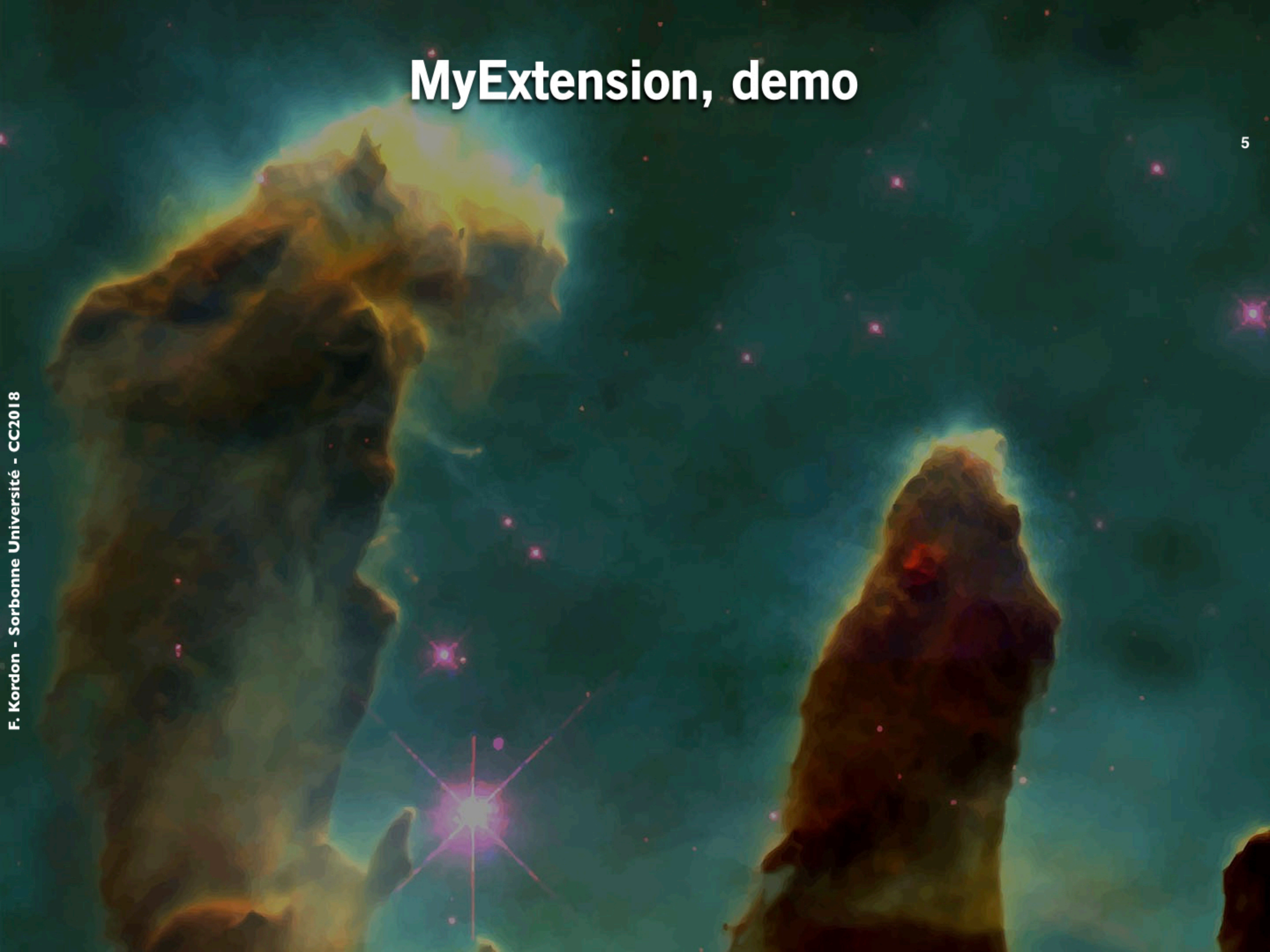
```
func widgetPerformUpdate  
    (completionHandler: @escaping (NCUpdateResult) -> Void)
```

- 🔊 Always end by calling the transmitted completion handler
- 🔊 Three possible values
 - ▶ `.failed` a problem was encountered (nothing is displayed)
 - ▶ `.noData` no update to be provided
 - ▶ `.newData` there were some updates

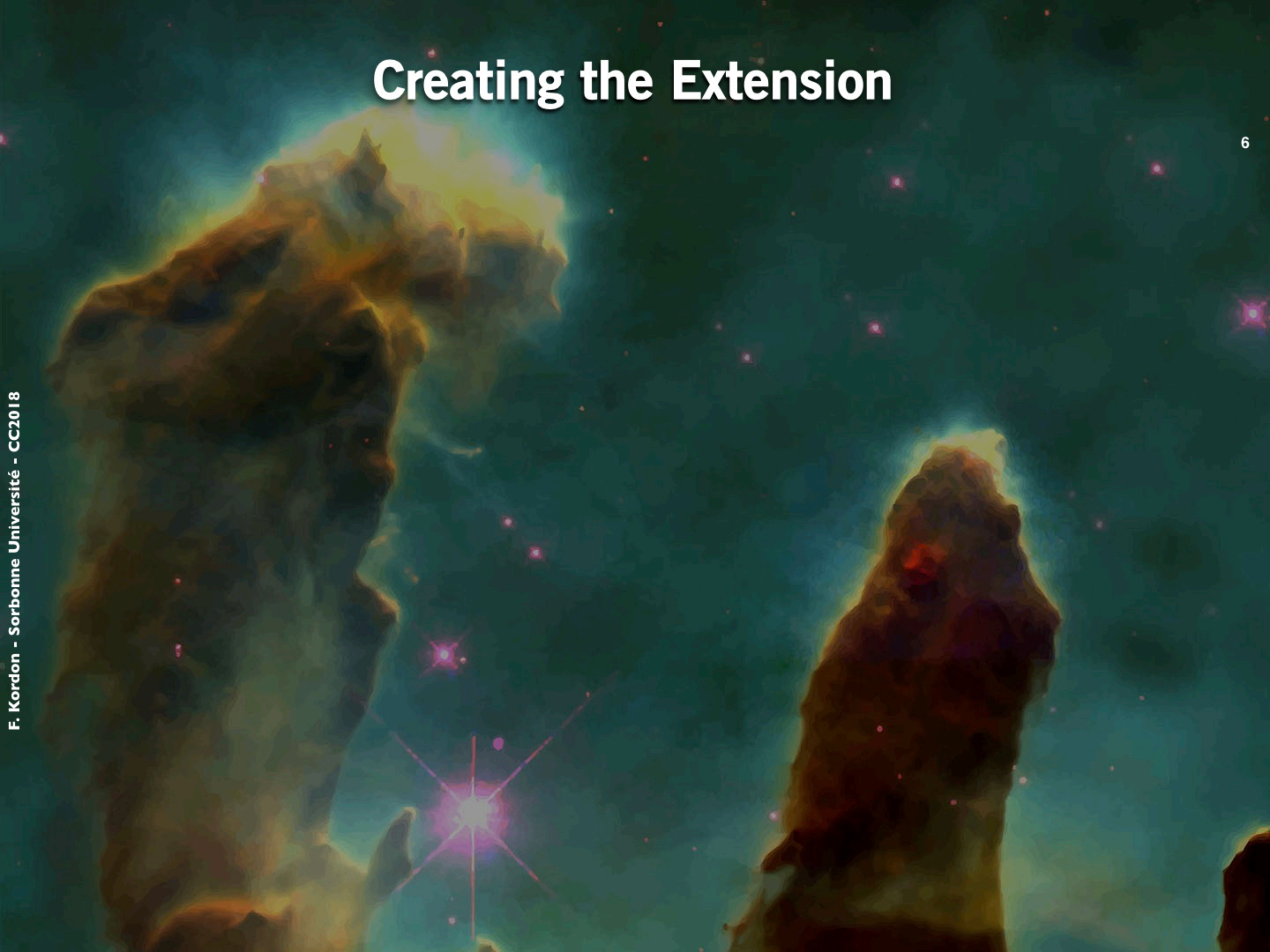
📱 Other Stuff

- 🔊 Properties
 - ▶ `NCWidgetDisplayMode` (`.compact` or `.extended`)
 - ▶ `widgetAllowsEditing`
- 🔊 Some methods
 - ▶ Method `widgetActiveDisplayModeDidChange(_:withMaximumSize:)`
 - ▶ `widgetDidBeginEditing()`
 - ▶ `widgetDidEndEditing()`

MyExtension, demo

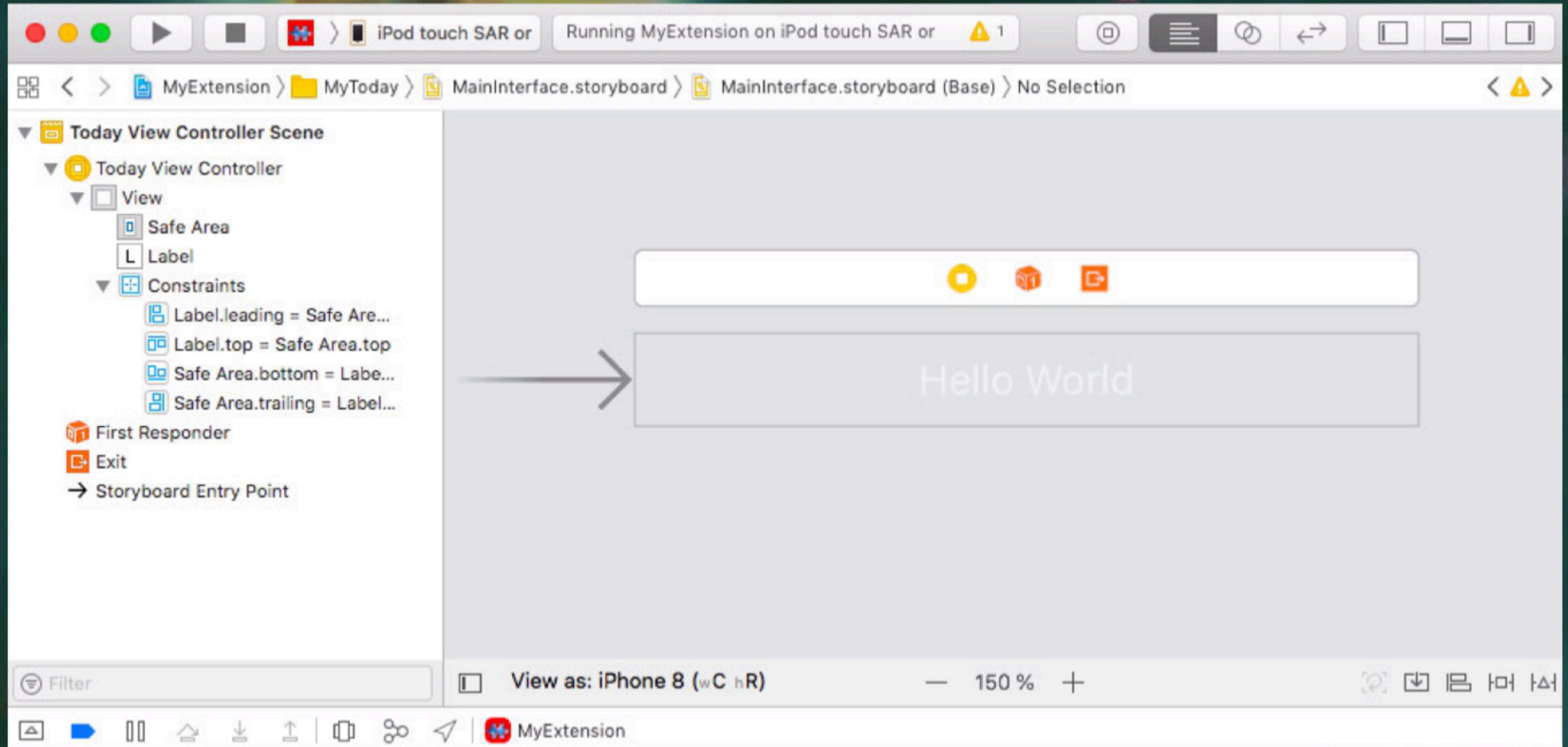


Creating the Extension



The (default) StoryBoard

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MyToday's ViewController

```
//  
// TodayViewController.swift  
// MyToday  
//  
// Created by Fabrice Kordon on 02/12/2018.  
// Copyright © 2018 Sorbonne Université. All rights reserved.  
//  
  
import UIKit  
import NotificationCenter  
  
class TodayViewController: UIViewController, NCWidgetProviding {  
  
    @IBOutlet weak var label: UILabel!  
  
    override func viewDidLoad() {  
        super.viewDidLoad()  
        // Executed only once!  
        label.textColor = UIColor.blue  
    }  
  
    func widgetPerformUpdate  
        (completionHandler: (@escaping (NCUpdateResult) -> Void)) {  
        let f = DateFormatter()  
        f.dateFormat = "HH:mm:ss"  
        label.text = "👁️: Hello, time is now \(f.string(from: Date()))"  
        completionHandler(NCUpdateResult.newData)  
    }  
}
```


As a conclusion...

Not so complex...

- And useful...
 - ▶ Well known Today's extensions : calendar, weather, etc.
- But some other extensions are
 - ▶ Keyboard, Photo editing, etc.

Caution

- Many issues with Apple's policy for extensions
 - ▶ Only limited interaction is permitted
- Well known Apps rejected because of this policy
 - ▶ No button (or in some very clear conditions)
 - ▶ No calculator
 - ▶ etc.
- ▶ Check before submitting...

