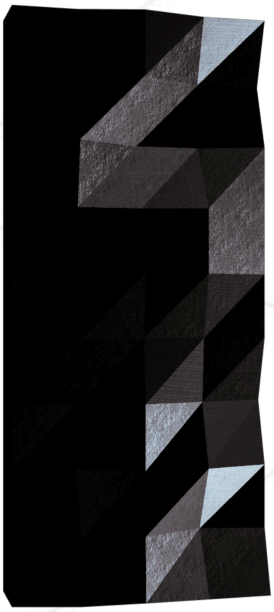


Piscine iOS Swift - Day 03

APM

Summary: This document contain the subject for Day 03 for the iOS Swift Pool from fr

Contents

I Preamble 2

II Instructions 4

III Introduction 5

IV Exercice 00 : Photos 6

V Exercice 01 : Multithreads 7

VI Exercice 02 : Alerts 8

VII Exercice 03 : ScrollView 9

VIII Exercice 04 : Zoom 10

Chapter I

Preamble

Here is an extract from Hubble's wikipedia (.fr) page:

The Hubble Space Telescope (in abbreviated HST) is a space telescope developed by NASA with the participation of the European Space Agency which has been operational since 1990. Its large mirror (2.4 meters in diameter), which allows it to reproduce images with an angular resolution of less than 0.1 seconds of arc as well as its capacity to observe at using imaging and near-infrared and ultraviolet spectroscopes enable it to out-perform for many types of observation the most powerful ground-based instruments impaired by the presence of the atmosphere earthly. The data collected by Hubble have contributed to large-scale discoveries in the field of astrophysics such as measuring the rate of expansion of the Universe, confirmation of the presence of supermassive black holes in the center of galaxies or the existence of dark matter and black energy.

The development of the Hubble telescope, which takes its name from the astronomer Edwin Hubble, began in the early 1970s, but problems of financing, technical and the destruction of the space shuttle Challenger pushed back its launch until 1990. A particularly severe optical aberration discovered shortly after it was placed in its low earth orbit at 600 km altitude. From the outset, the space telescope was designed to allow maintenance operations by space shuttle missions. The first of these missions in 1993 is used to correct the anomaly of its optical part. Four other missions in 1997, 1999, 2002 and 2009 have made it possible to modernize the five scientific instruments and to replace certain equipment which has become obsolete. The last maintenance mission, carried out in 2009, immediately before the final call off of the space shuttles, must allow the Hubble telescope to operate until the end of the 2010 decade, unless unforeseen. For observations in the infrared it must be replaced around 2018 by the space telescope James-Webb, with the superior capacities.

Chapter II

Instructions

- Only this page will serve as reference. Do not trust rumors.
- Read attentively the whole document before beginning.
- This document can change up to an hour before submission.
- Your exercises will be corrected by your piscine colleagues.
- The document can be relied upon, do not blindly trust the demos which can contain unrequired additions.
- You will have to deliver an app every day (except for Day 01) on your git repository, where you deliver the file of the Xcode project.
- Here it is the official manual of Swift and of Swift Standard Library
- It is forbidden to use other libraries, packages, pods...before Day 07
- Got a question ? Ask your peer on the right. Otherwise, try your peer on the left.
- Think about discussing on the forum Piscine of your Intra !
- Use your brain!!!

⚠ The videos on Intra were produced before Swift 3. Remove the prefix "NS" which you see in front of the class/struct/function in the code in the videos in order to use them in Swift 3.

⚠ Intra indicates the date and the hour of closing for your repositories. This date and hour also corresponds to the beginning of the peer-evaluation period for the corresponding piscine day. This peer-evaluation period lasts exactly 24h. After 24h passed, your missing peer grades will be completed with 0.

Chapter III

Introduction

The threads allow you to perform the instructions of a process by following their own call stack. Initially a process is started on a single thread, the **main thread**.

Using multiple threads allows you to parallelize the processing of multiple functions to run code in background. This point is extremely important on iOS to avoid blocking the user interface (UI) while the application is making calculations or waiting for a server to respond.

Today you will see several notions :

- How to use a **collection view**
- How to do a **multithread** on iOS
- How to create **alerts**
- How to use a **scroll view**

All ths application do, is to download images from the internet.

Chapter IV

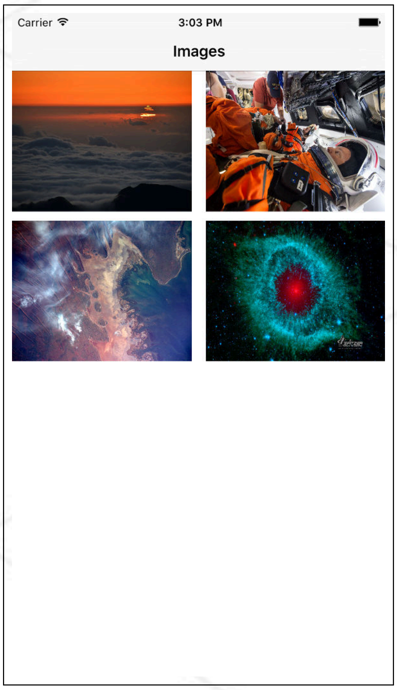
Exercice 00 : Photos

	Exercice : 00
Photos	
Files to turn in : `Swift Standard Library, UIKit`	
Authorised functions : `n/a`	
Notes : `n/a`	

The **collection view** is a tool that allows to display data, different from a **table view** but their use is almost identical.

Create a **collection view** that displays at least 4 photos of the web of your choice. The 4 photos must be displayed in full in the **collection view**.

Take big pictures so that downloads take time. You can search for pictures on the site of the nasa for example.



Chapter V

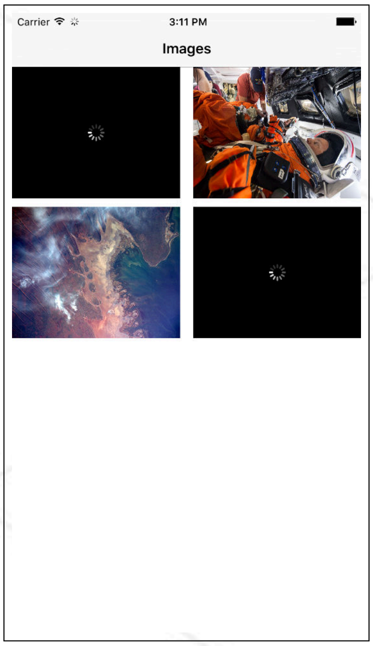
Exercice 01 : Multithreads

	Exercice : 01
Multithreads	
Files to turn in : `Swift Standard Library, UIKit`	
Authorised functions : `n/a`	
Notes : `n/a`	

You noticed that the time the images are downloading, the UI is blocked and iOS does not respond. Calls on the **main thread** interfere with the user experience. To remedy this problem, you will make these calls asynchronous.

Also add an **activity monitor** to each view of the **collection view** that must rotate when the image is downloaded and disappears when the image is displayed.

You must also run the network activity indicator when the application uses the network and stop it when it no longer uses it.

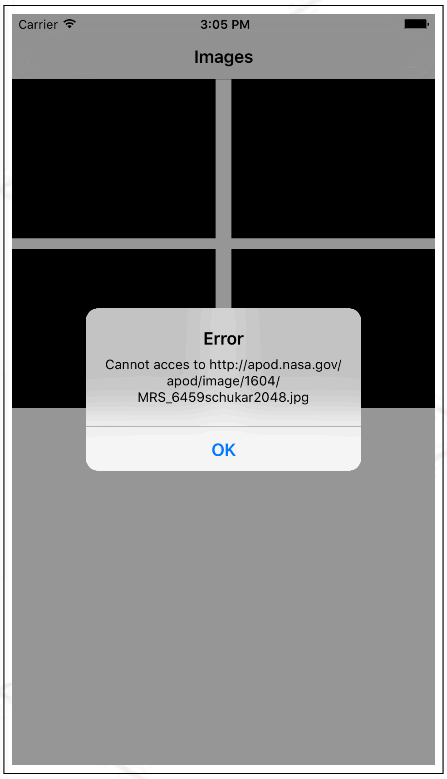


Chapter VI

Exercice 02 : Alerts

	Exercice : 02
Alerts	
Files to turn in : `Swift Standard Library, UIKit`	
Authorised functions : `n/a`	
Notes : `n/a`	

If there is a problem during the download of the photo, you have to make appear a simple **alert** which explains the problem with a button "Ok" to make disappear the **alert**.



Error

Cannot acces to http://apod.nasa.gov/apod/image/1604/MRS_6459schukar2048.jpg

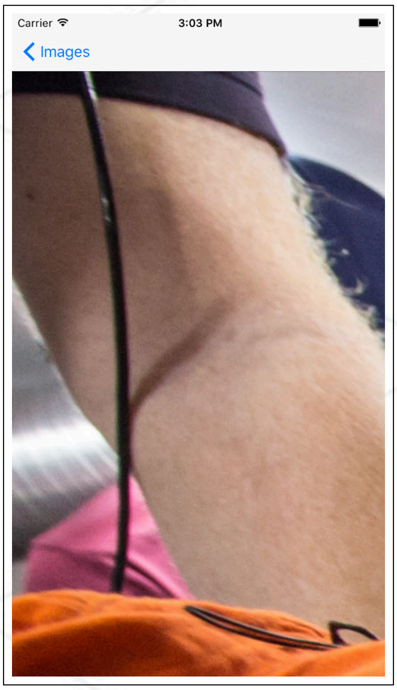
Chapter VII

Exercice 03 : ScrollView

	Exercice : 03
ScrollView	
Files to turn in : `Swift Standard Library, UIKit`	
Authorised functions : `n/a`	
Notes : `n/a`	

Add a **navigation bar** with a title for each view.

Create a new view containing a **scroll view**. When you click on a cell in the **collection view**, you will need to display the **scroll view** with the large image. We must be able to move the image.



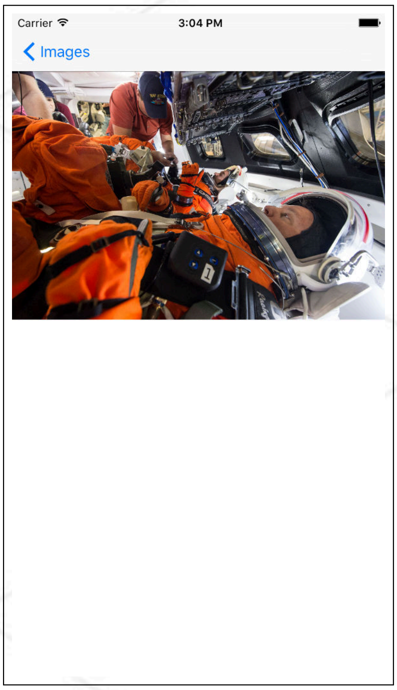
Chapter VIII

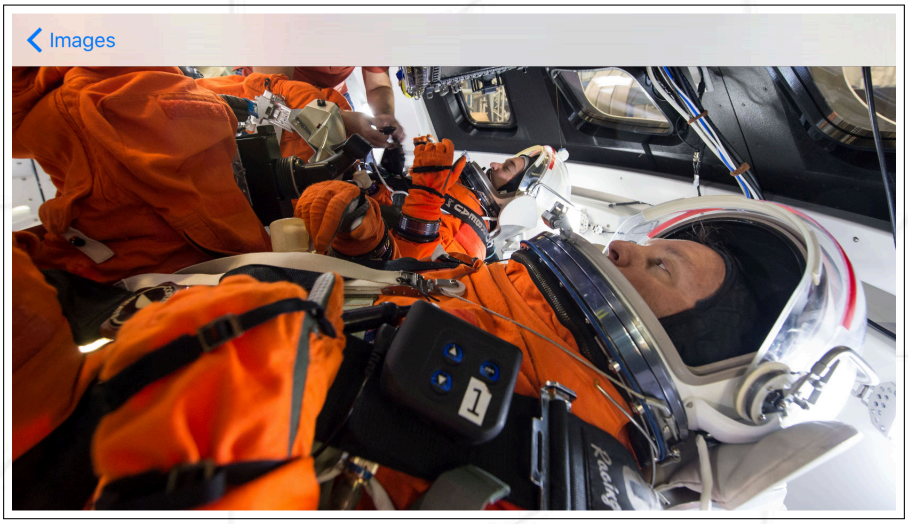
Exercice 04 : Zoom

	Exercice : 04
Zoom	
Files to turn in : `Swift Standard Library, UIKit`	
Authorised functions : `n/a`	
Notes : `n/a`	

To move the image is good, to be able to zoom is better. Make it possible to zoom in and zoom out of the image.

It is also necessary that the image holds perfectly in width with the maximum zoom out, and that whatever the device and its orientation!




Images