

# Introducción a iOS

Día 1

# Felipe Ruz

iOS Developer

¿Qué es iOS?

# Historia



iPhone OS

iOS

Arquitectura

# Cocoa Layered Architecture - Mac OSX

[www.knowstack.com](http://www.knowstack.com)

By: Debasis Das

**Cocoa Application** - Application User Interface Responds to User Events, Manages App Behavior

App Kit   Notification Center   Game Center   Sharing   Full Screen Mode   Cocoa Autolayout   Popovers   Software Configuration   Accessibility   Apple Script   Spotlight

**Media** Plays , records, editing audiovisual media, Rendering 2D and 3D graphics

## AV Foundation

Audio Playback, editing, Analysis & Recording

## Core Animation

2D rendering & Animation  
3D Transformations

## Core Audio

Audio Services for recording, playback and synchronization

## Core Image

Fast Image Processing  
Uses GPU Based acceleration

## Core Text

Handles Unicode Fonts & texts

## Open AL

Delivers 3D Audio  
High performance positional playbacks in games

## Open GL

Portable 3D graphics apps & Games  
Imaging functions & Effects

## Quartz

OSX Graphics, Rendering support for 2D content  
Event Routing & Cursor Management

**Core Services** - Fundamental Services for low level network communication, Automatic Reference Counting, Data Formatting, String Manipulation

## Address Book

Centralized Database for contacts & groups

## Core Foundation

declares C based programmatic interfaces  
Data Types & Data Management

## Quick Look

Enables Spotlight & finder to display thumbnail images

## Security

User Authentication, Certificates & keys, Authorization, Keychain Services etc

## Core Data

Data Model Management & Storage, Undo/Redo, Validation of property values

## Foundation

Objective C Framework for Object Behavior, Internationalization, Data Types & Data Management

## Social

Supports integration with Social Networking services

## Webkit

Display HTML Content in apps. contains WebCore and JavaScript Core

**Core OS** - Related to hardware and networking. Interfaces for running high-performance computation tasks on CPU or GPU

## Accelerate

Accelerate complex operations, improve performance using vector unit, Supports data parallelism, 3d Graphic imaging, image processing

## Directory Services

Provides access to collected information about users, groups, computers, printers in a networked environment

## Disk Arbitration

Notifies when local or remote volumes are mounted and unmounted

## Open CL

Makes the high-performance parallel processing power of GPUs available to general purpose computing

## System Configuration

Provides access to current network configuration information. Determines reachability of remote hosts. Notifies about change in network

**Kernel & Device Drivers** - Device drivers & BSD Libraries , low level components. Support for file system security, interprocess communications, device drivers

## BSD

Provides basis for file systems and networking facilities, POSIX Thread support, BSD Sockets

## File System

Supports multiple volume formats (NTFS, ExFAT, FAT etc) & File Protocols (AFP, NFS etc)

## Mach

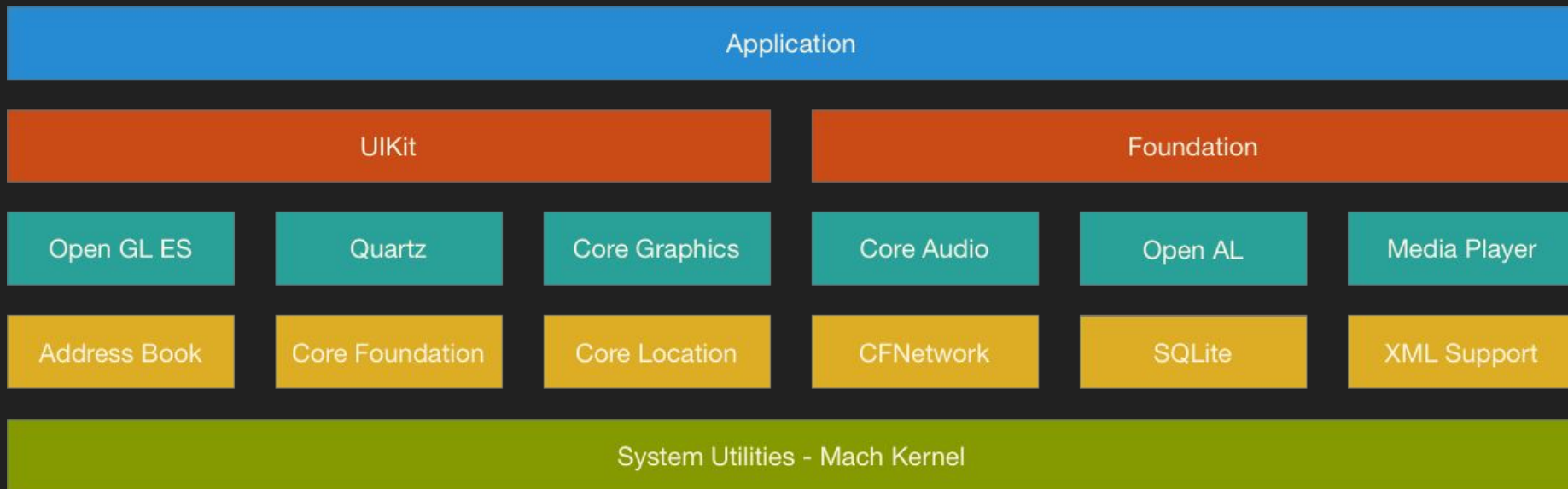
Protected Memory, Preemptive multitasking, Advanced Virtual Memory, Real Time Support

## Networking

Supports network kernel extensions (NKEs), Create network modules, Configure protocol stacks, Monitor and modify network traffic



# Arquitectura iOS



# UIKit

- Infraestructura necesaria las aplicaciones de iOS y tvOS
- Ventana y la arquitectura de vistas
- Eventos multitouch
- Otros inputs
- Soporte para animaciones
- Soporte para documentos
- Soporte para dibujo
- Soporte para imprimir
- Accesibilidad

# Foundation

- Foundation es compartido en todos los SO de Apple
- Acceso a los tipos de datos esenciales
- Colecciones
- Persistencia de datos
- Networking
- Filtros y sorting
- Clases
- Protocolos
- Procesadores de textos
- Fecha y tiempo

Dispositivos



iPhone



iPad

# iPod Touch



¿Por que iOS y no otro?



# ¿Por que iOS y no otro?

- Macbook
- Mac Mini
- Mac Pro
- iMac

# ¿Por que iOS y no otro?

- Home Pod
- Apple Watch
- Apple Tv

# Ecosistema Apple

FaceTime



Spotlight



# Handoff



AirPlay



# KeyChain





AirDrop



iMessage



HomeKit



Siri



iCloud

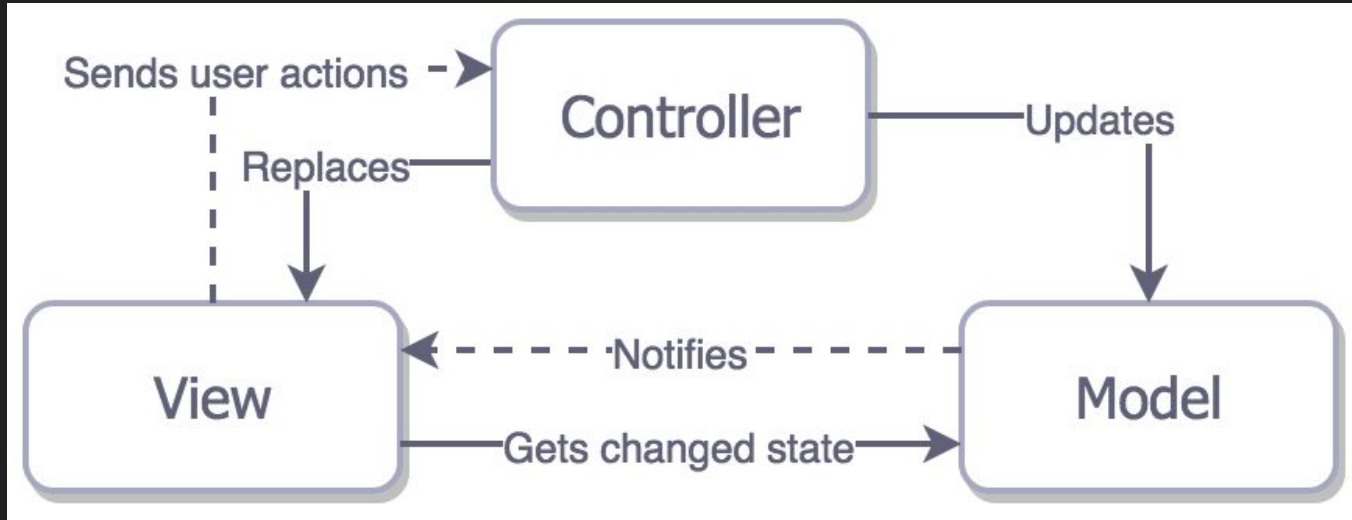


# Family Sharing



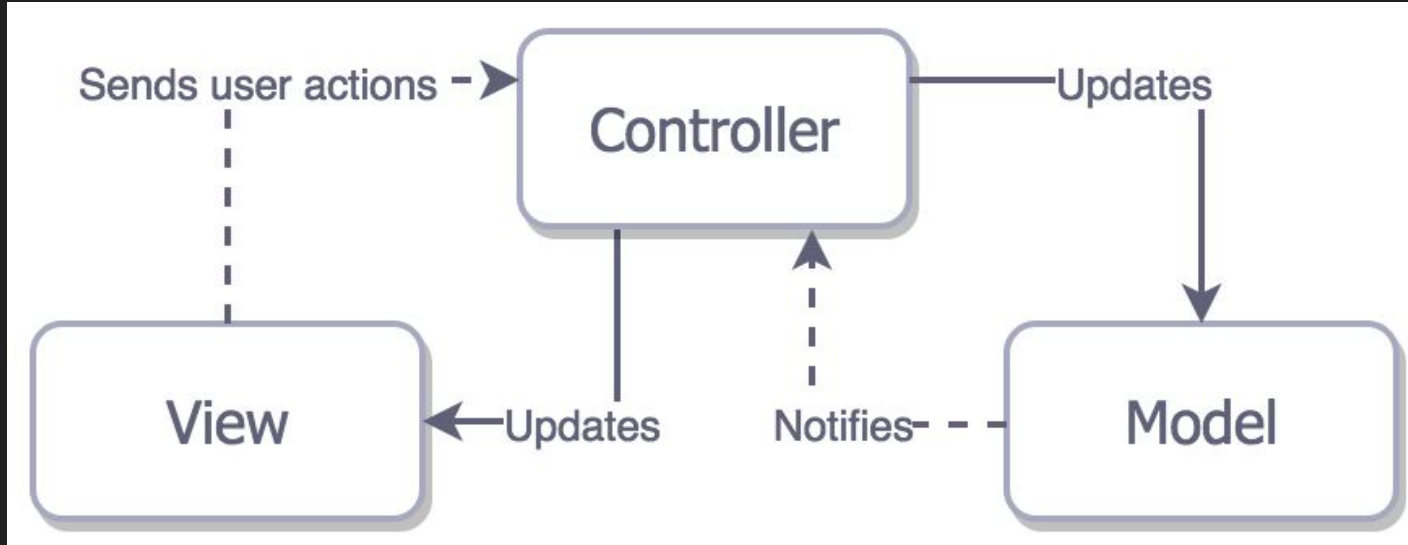
# Arquitectura de Software

# MVC

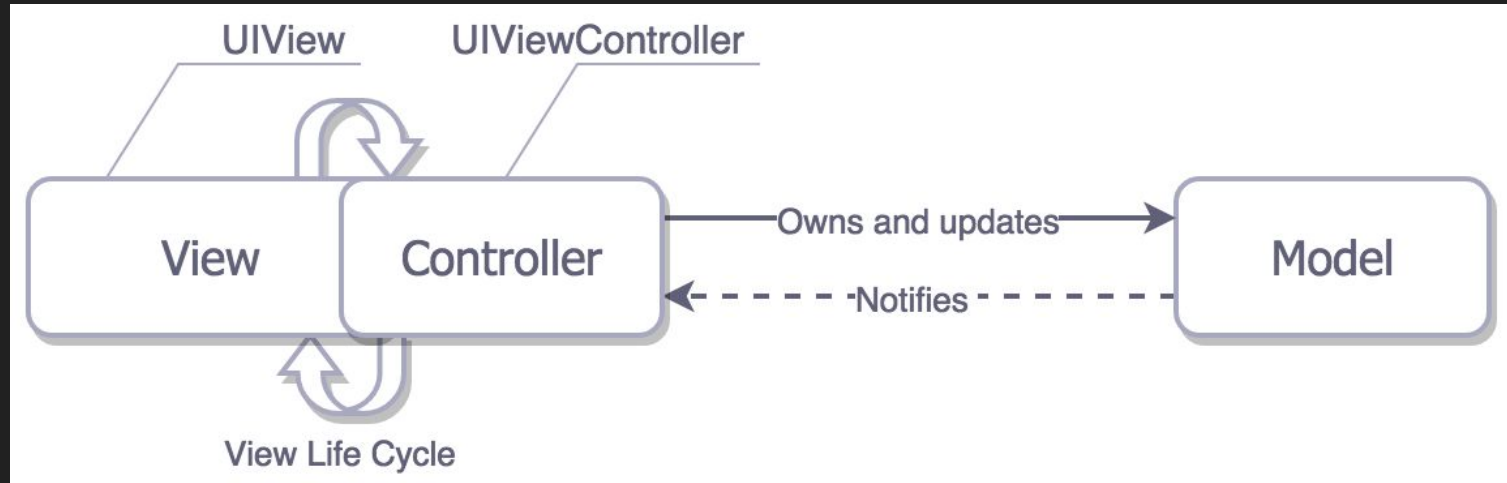




# Expected Apple's MVC



# Actual Apple's MVC





¿Es necesario un Mac para hacer iOS?

# ¿Es necesario un Mac para hacer iOS?

- Si y no
- HackingTosh
- Swift Open Source
- Frameworks para backend

# Lenguajes

# Lenguajes

- Nativos
  - Objective C
  - Swift
- No Nativos
  - Cocos2d
  - React
  - Xamarin
  - Otros

# Lenguajes Nativos



# Lenguajes Nativos

- Por que usar Swift
- En que se diferencia de Objective C

# Por que Swift



```
if ([delegate respondsToSelector:  
    @selector(application:willFinishLaunchingWithOptions:)]) {  
    [delegate application:app  
        willFinishLaunchingWithOptions:options];  
}
```



```
delegate.application?(app,  
    willFinishLaunchingWithOptions:options)
```

# Swift VS Objective-C

## Objective-C

- Semicolons required
- Types must be declared
- Header files
- Pointers
- KVO and custom setters

VS

## Swift

- Types are inferred
- Functions are first class objects
- Collections are typed using generics
- Simpler string manipulation
- Memory is managed automatically

# Distribución de usuarios

- Porcentaje de usuarios que usan iOS en el mercado mobile (~15%)
- Porcentaje de usuarios que usan iPhone
- Revenue de iOS por las empresas que se dedican a las Apps
- Dispositivos más usados

Xcode

# Xcode

- Tipos de proyectos
- Barras de herramientas
- Estructura de carpetas
- Tipos de archivos
- Primera vista a los componentes generales
  - Info.plist
  - StoryBoards
  - Xib
  - Assets

Choose a template for your new project:

iOS

watchOS

tvOS

macOS

Cross-platform

Filter

### Application

1

Single View App



Game



Augmented  
Reality App



Document  
Based App



Master-Detail App



Page-Based App



Tabbed App



Sticker Pack App



iMessage App

### Framework & Library



Cocoa Touch  
Framework



Cocoa Touch  
Static Library



Metal Library

Cancel

Previous

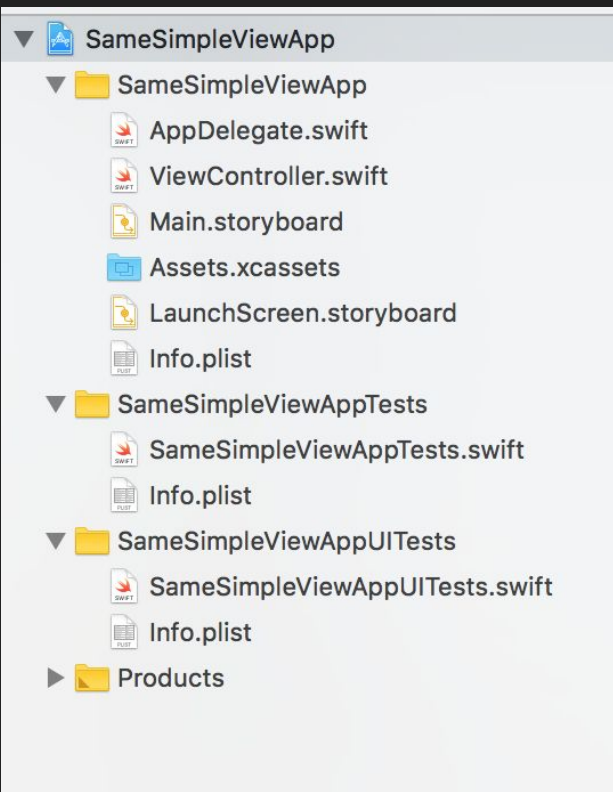
Next

# Tipos de proyectos

- Single View App
- Game
- Augmented Reality App
- Document Based App
- Master-Detail App
- Page Based App
- Tabbed App



# Single View App

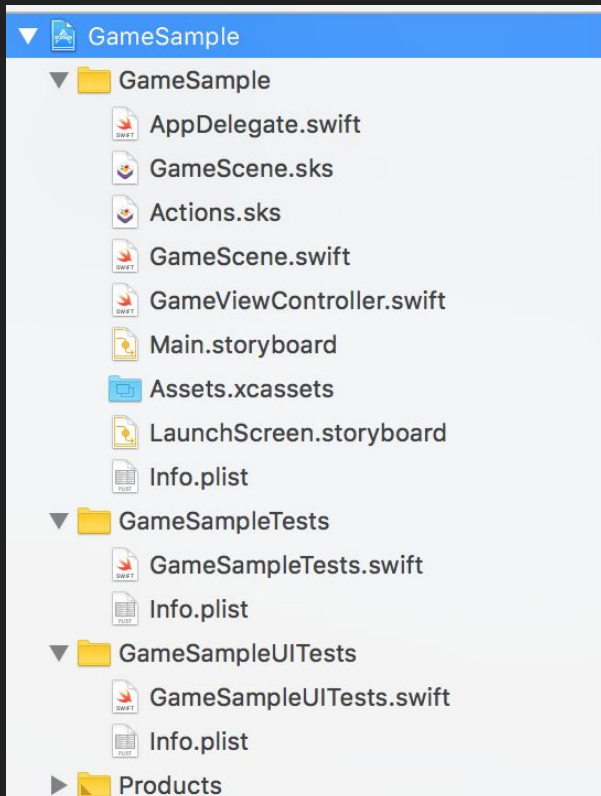


Carrier

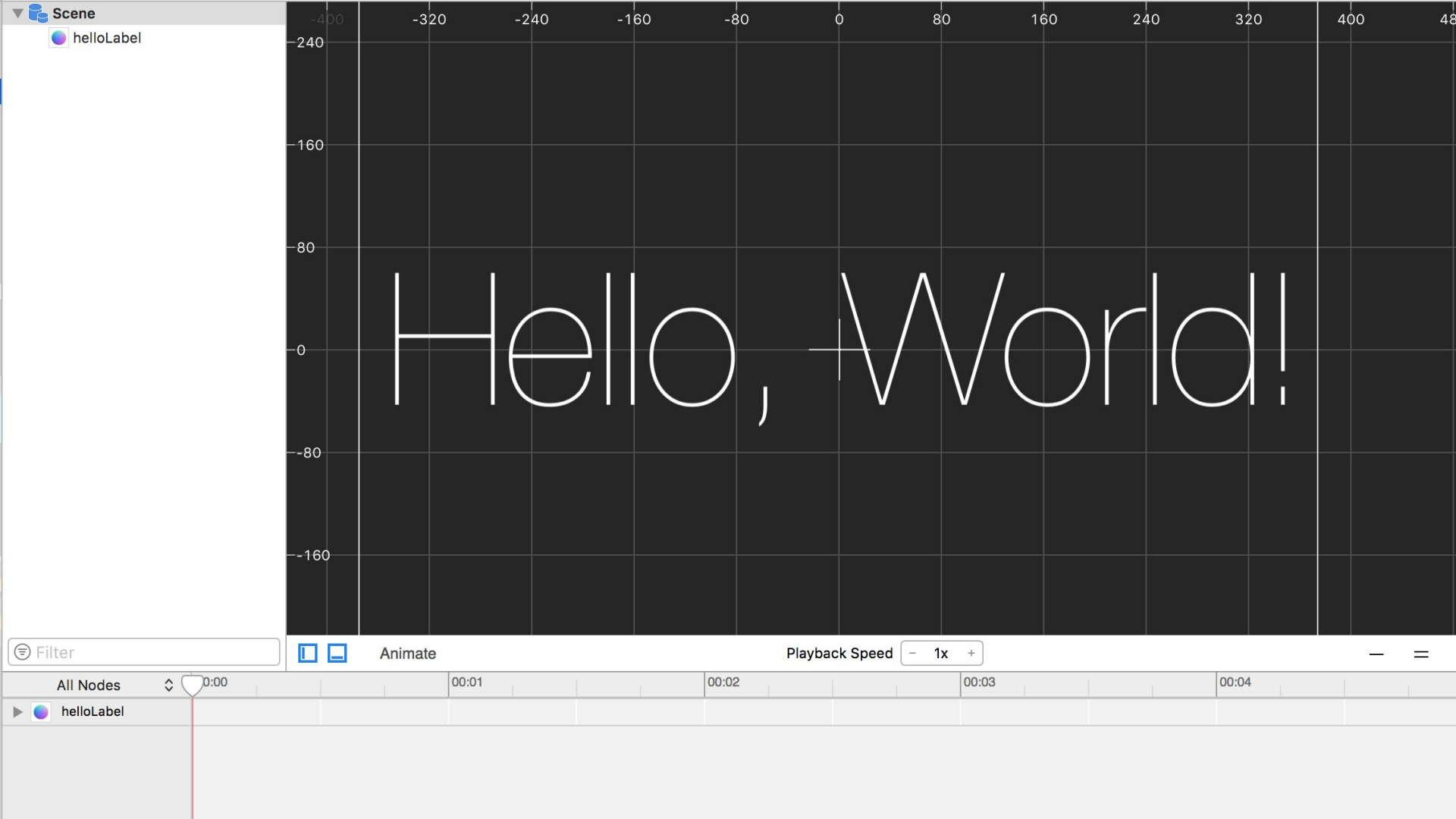
12:55 AM



# Game



Hello, World!



helloLabel

Hello, World!

Filter



Animate

Playback Speed

- 1x +

All Nodes

0:00

00:01

00:02

00:03

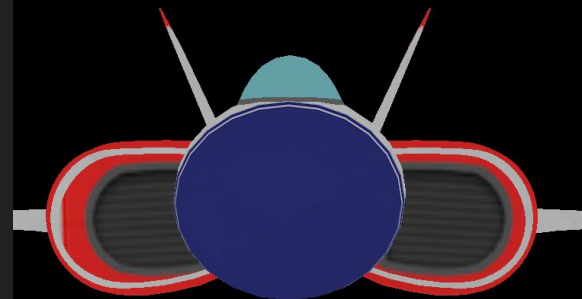
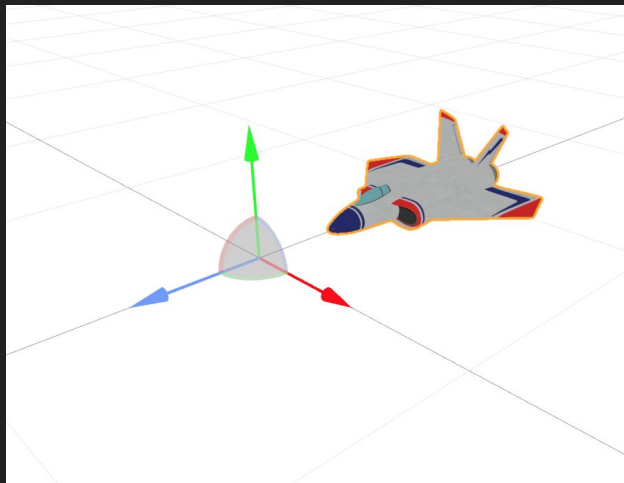
00:04



helloLabel

# AR App

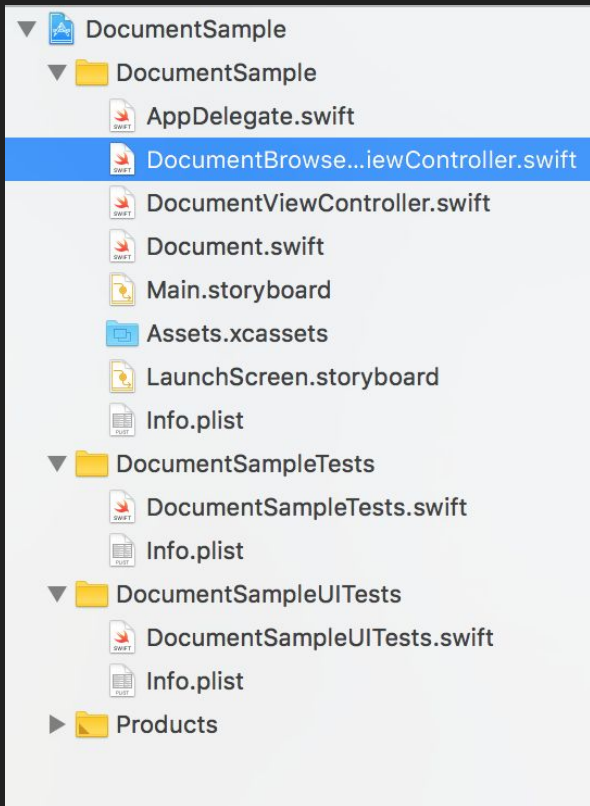
- ▼ SampleARApp
  - ▼ SampleARApp
    - AppDelegate.swift
    - ▼ art.scnassets
      - ship.scn
      - texture.png
    - ViewController.swift
    - Main.storyboard
    - Assets.xcassets
    - LaunchScreen.storyboard
    - Info.plist
  - ▼ SampleARAppTests
    - SampleARAppTests.swift
    - Info.plist
  - ▼ SampleARAppUITests
    - SampleARAppUITests.swift
    - Info.plist
  - Products



+ GL 0fps

2 2.85K

# Document Based App



## DocumentSample

Search

### No Recents

See recently opened documents here, or use the Browse tab to see all documents and folders.

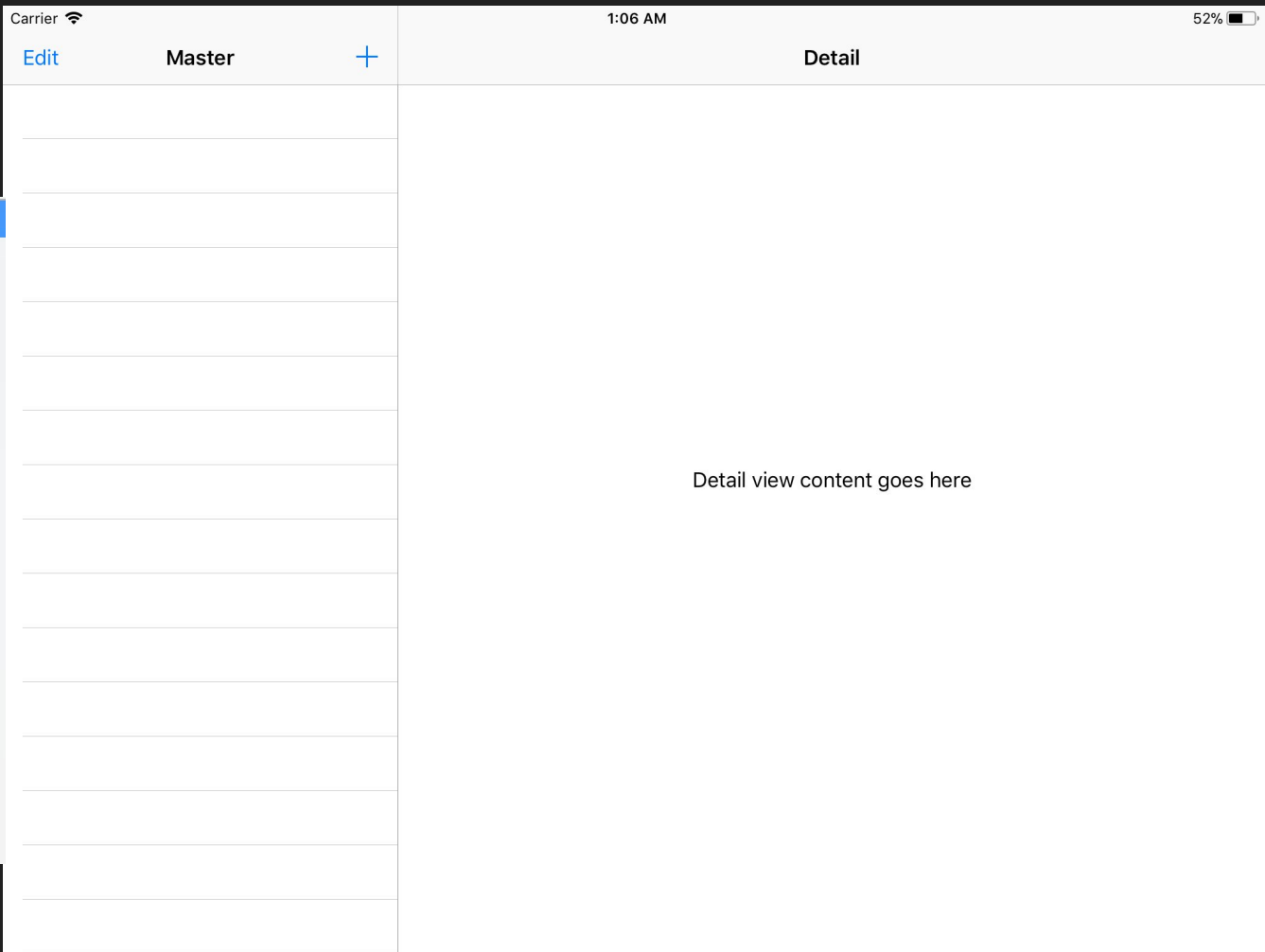


Recents

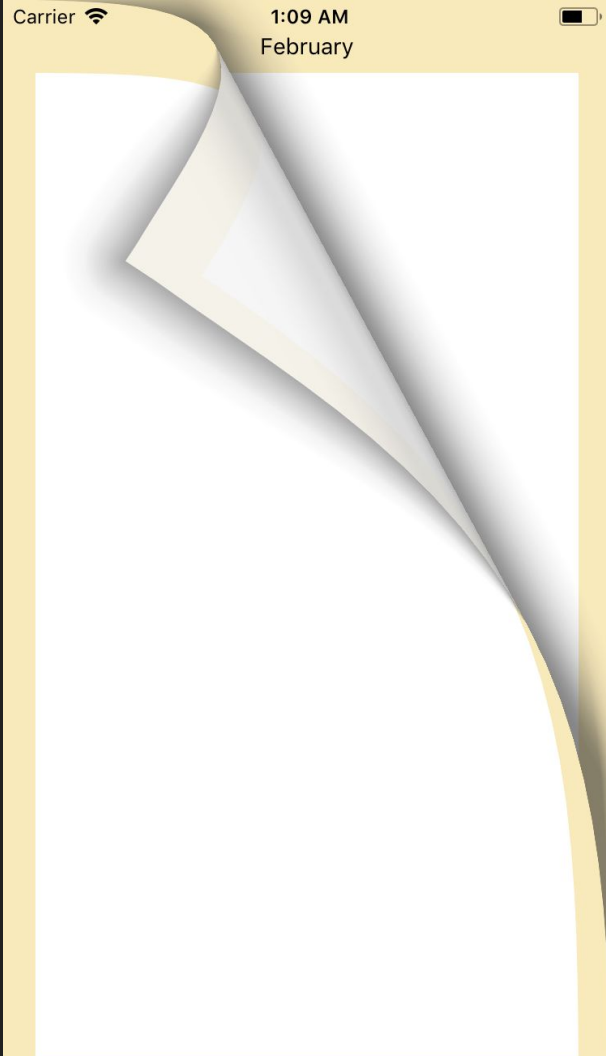
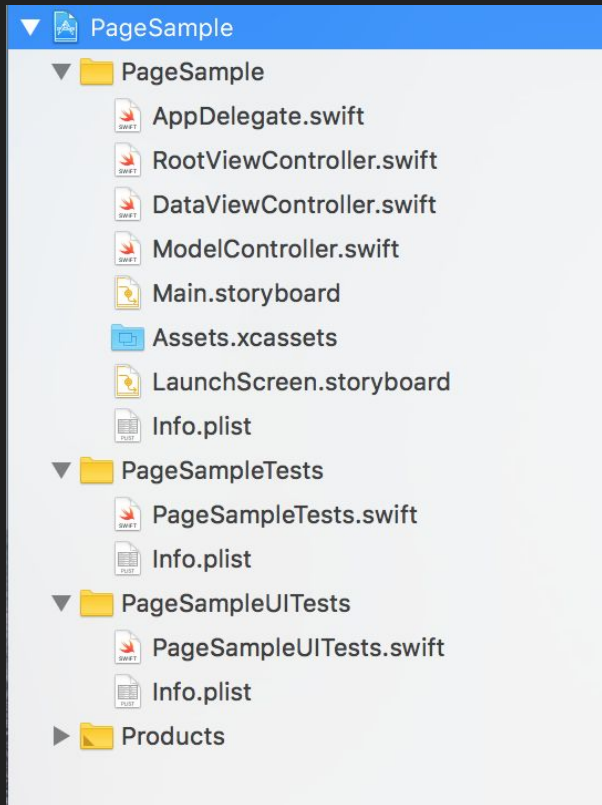


Browse

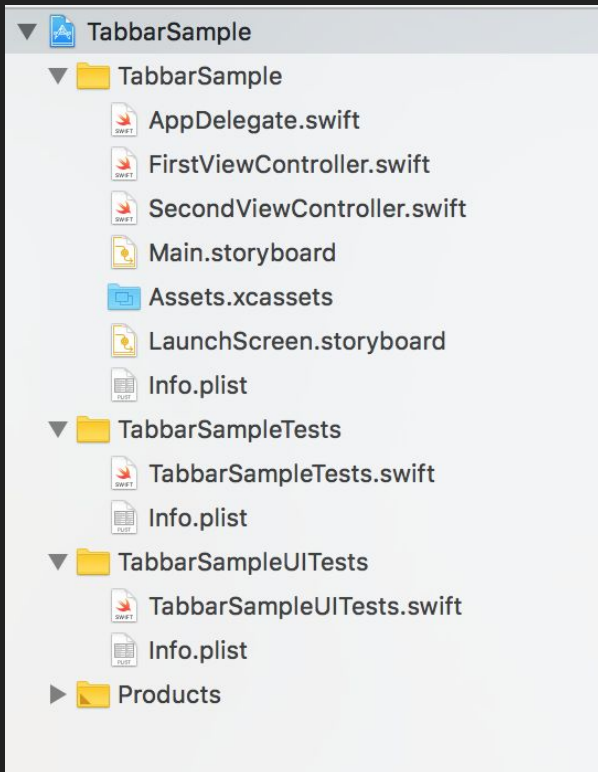
# Master-Detail



# Page Based



# Tabbar





# Conociendo Xcode

# Debugger

# Debugger

- ¿Que es?
- Para qué sirve

Debugger en acción

# Control de versión

# Control de versión

- Commit
- Pull
- Push
- Fetch

# Simuladores

# Simuladores

- Que es un simulador
- Que tipo de dispositivos puedo simular
- Que funciones tiene un simulador
- Limitaciones



Demostración en Xcode

Developer Mode

# Developer Mode

- ¿Que es?
- Funciones
- Como limitó la red
- Renderización de vistas
- Animaciones

Demostración en iPhone

Swift

# Swift

- Primitivos
- Funciones
- Constructores
- Protocolos
- Closures
  - Síncronas
  - Asíncronas
- Variables opcionales

Demostración en Xcode

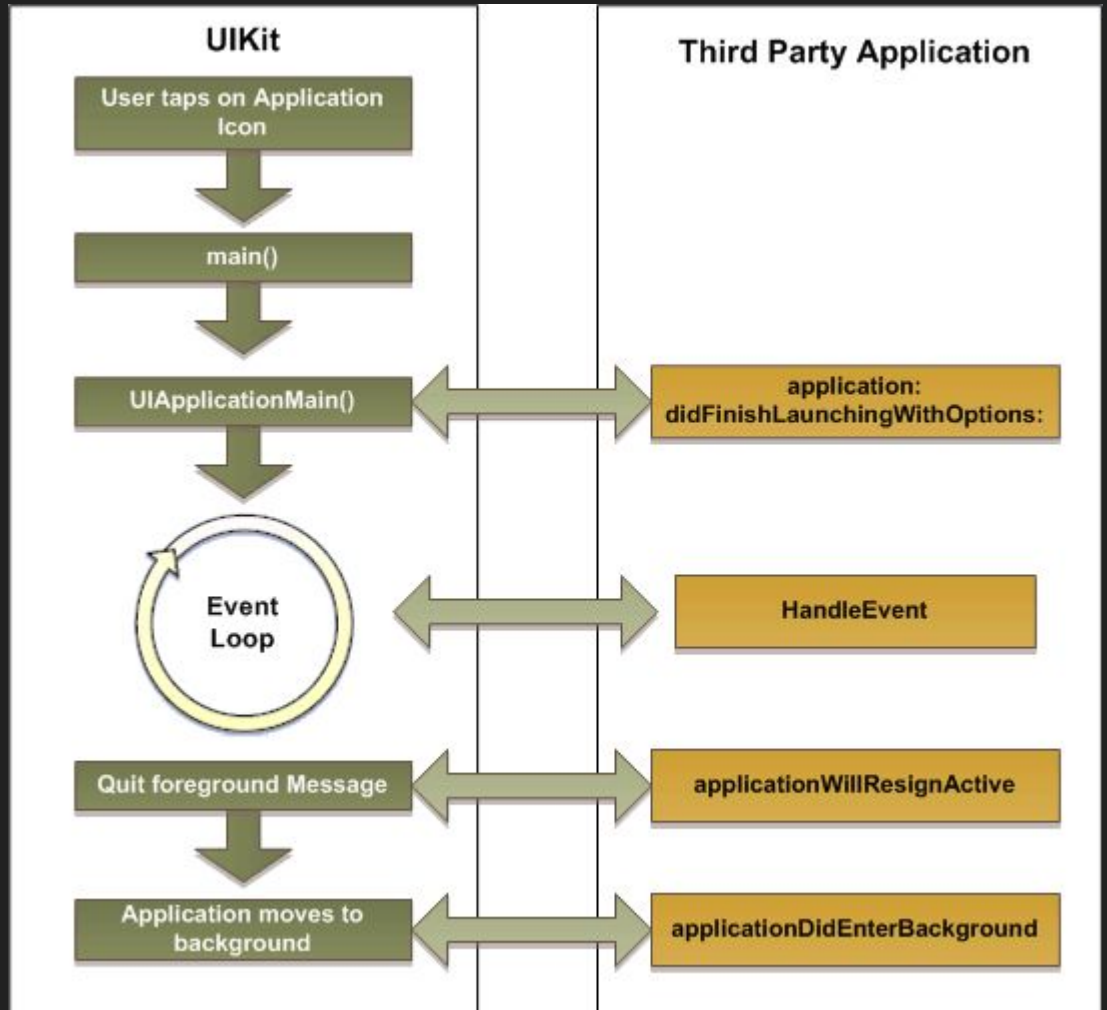
Ciclo de vida



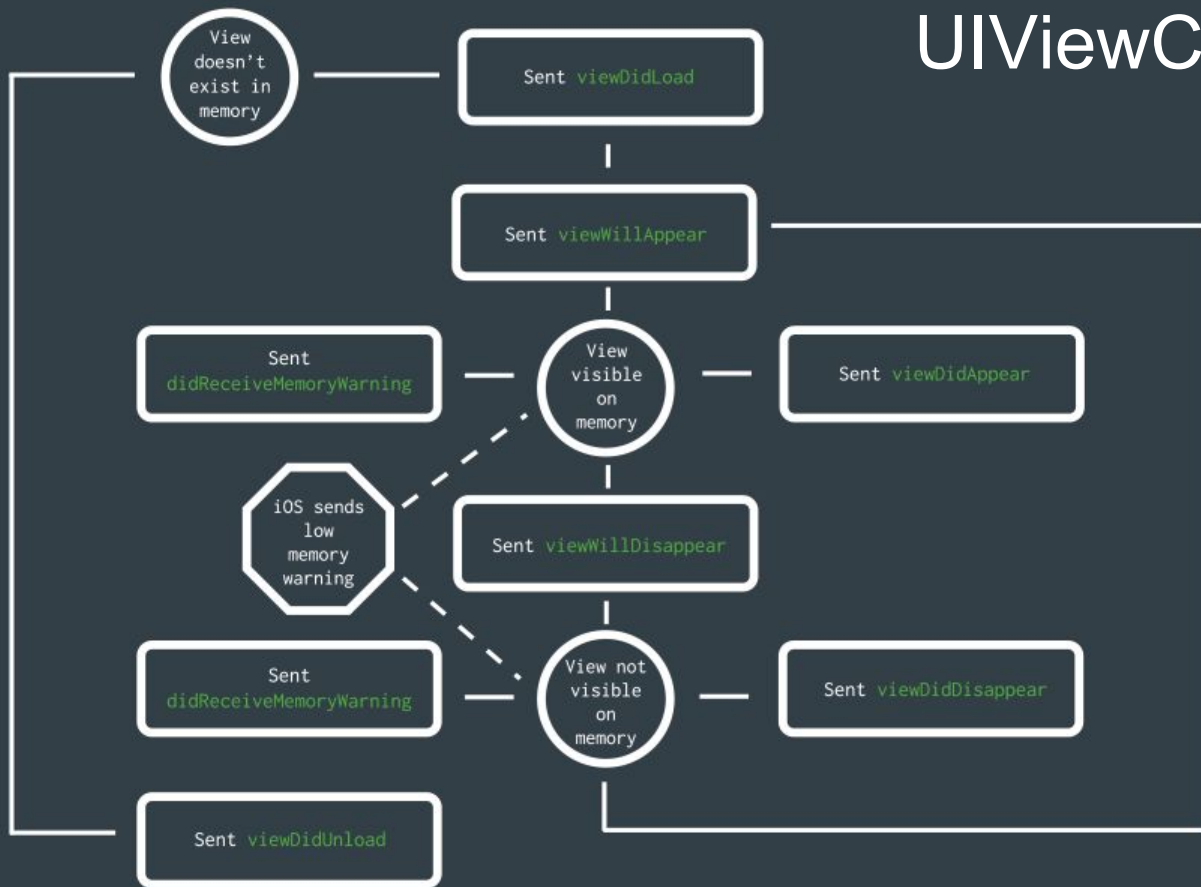
# Ciclo de vida

- Ciclo de vida de la App
- Ciclo de vida de un UIView
- Ciclo de vida de un UIViewController

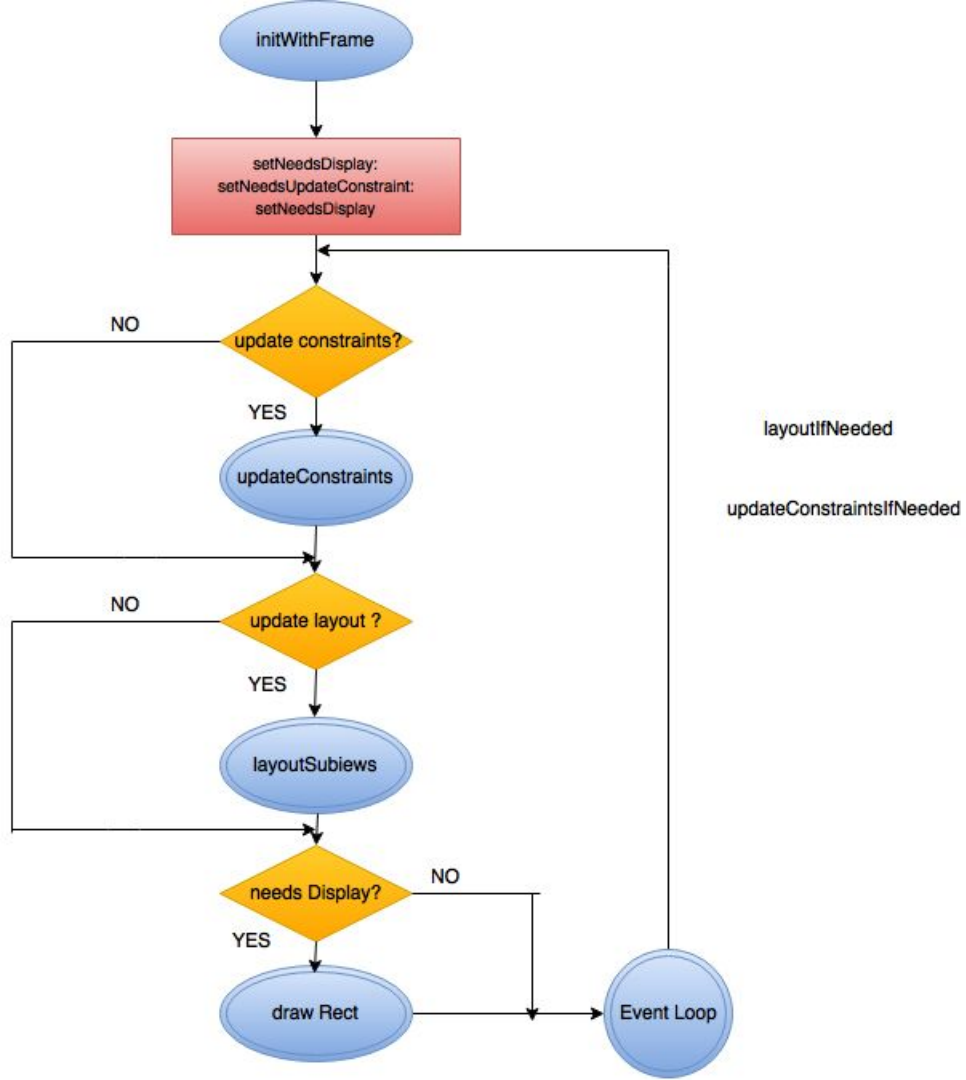
# Ciclo de vida App



# UIViewController



# UIView



# Componentes de UI

# Componentes de UI

- UIButton
- UILabel
- UITextField
- UIImageView

Demostración en Xcode

Herramientas



# Herramientas

- Xcode
- Cocoapods

# Cocoapods

- Administrador de dependencias para Swift y Objective C
- Xcode 8+
- Ruby
- Podfile

```
$ sudo gem install cocoapods
```

# Podfile

```
1 platform :ios, '11.0'
2 use_frameworks!
3
4 def common_pods
5   pod 'Alamofire', '~> 4.5'
6 end
7
8 def mocking_pods
9   pod 'Mockingjay', :git => 'https://github.com/feliperuzg/Mockingjay.git', :branch => 'noXCTests'
10 end
11
12 target 'CleanExample' do
13   common_pods
14   mocking_pods
15 end
16
17 target 'CleanExampleTests' do
18   common_pods
19   mocking_pods
20 end
21
22 target 'CleanExampleUITests' do
23   common_pods
24   mocking_pods
25 end
```

# Referencias de Desarrollo

# Referencias de Desarrollo

- Documentación de Apple

<https://developer.apple.com/swift/resources/>

- Api Design

<https://swift.org/documentation/api-design-guidelines/>

- iOS Human Interfaces

<https://developer.apple.com/ios/human-interface-guidelines>

# ¿Preguntas?

fin