Lecture 1.1 iOS Overview

Fall 2016 (P1)
Week 1. Lecture 1.
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ICA INFORMATICA COMMUNICATIE ACADEMIE

Course planning

weeknr	Dinsdag	Donderdag
1-1	6 sept Udacity lesson 1 Post 2 Q&A vragen over deze les op het Trello-bord	**8 sept** **Stanford lecture 1: Logistics, iOS 8 Overview** **Kijkvragen**
1-2	13 sept Udacity lesson 2 Post 2 Q&A vragen over deze les op het Trello-bord	15 sept Stanford lecture 2: More Xcode and Swift, MVC Kijkvragen
1-3	20 sept Udacity lesson 3 Post 2 Q&A vragen over deze les op het Trello-bord	22 sept Stanford lecture 3: Applying MVC Kijkvragen Deadline iOS Programming: Project 1
1-4	27 sept Android Workshop	29 sept Stanford lecture 4: More Swift and Foundation Frameworks (Geen kijkvragen) Reading Assignment 1 (instructies op iTunes U, gebruik deze versie van het boek)
1-5	4 okt Udacity lesson 4A Post 2 Q&A vragen over deze les op het Trello-bord Deadline Android Final Project Stage 1	6 okt Stanford Lecture 5: Objective-C Compatibility (Geen kijkvragen) Reading Assignment 2 (instructies op iTunes U, gebruik deze versie van het boek
1-6	11 okt Udacity lesson 4B Post 2 Q&A vragen over deze les op het Trello-bord	13 okt Stanford lecture 6: Protocols and Delegation, Gesture Kijkvragen Deadline iOS Programming: Project 2
1-7	18 okt Udacity lesson 5 Post 2 Q&A vragen over deze les op het Trello-bord	20 okt Stanford lecture 7: Multiple MVCs Kijkvragen
	herfstvakantie	
1-8	1 nov Android Workshop	3 nov Stanford lecture 8: View Controller Lifecycle, Autolayout Kijkvragen
1-9	Gedurende de week Assessment iOS Programming Project 3 assessment Android Final Project Stage 2	

N

iSAS attendance bookkeeping

iOS

Simple, easy, light weight…

- **Tim Cook (9/7/2016 (yesterday))**
    - **When was iPhone 1 released?**
    - **How many iPhones sold since?**
    - **In 18 month time what is the second best-sold watch?**

iOS

Simple, easy, light weight…

- **Tim Cook (7 sept 2016)**
  - **2007**
  - **1,000,000,000**
  - **AppleWatch**

Android vs Swift

Android

- A lot of people can program in Java

- Devices are cheaper

- Devices can be easily configured for advanced users

- ...

Android vs Swift

iOS / Swift

- easy to use even for the digitally illiterate
- standardized
- easier for developers, structured interfaces
- Swift: while still somewhat immature, a very elegant language with constructs that no other language at this point can compete with (including the hassle of garbage collection ;))
- Evolving into cross-platform language (even for server programming etc)

Swift

- iOS
- macOS
- tvOS
- watchOS

API

Quite easy to develop for different devices using virtually the same code.

A lot of design patterns are built-in to help you create and maintain clean code.

Why superior?

macOS
iOS
tvOS
watchOS

Darwin-based

UNIX -> FreeBSD

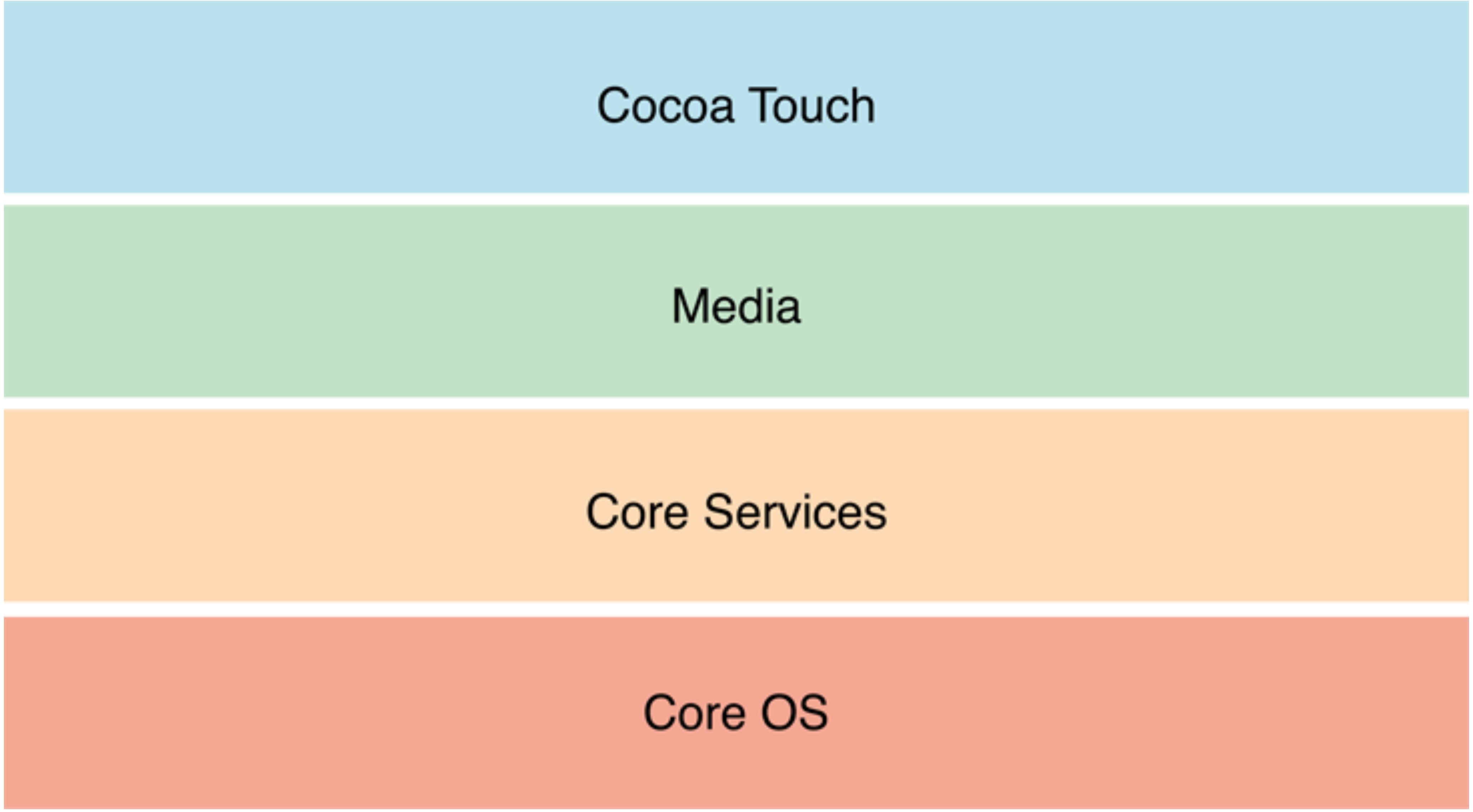
Who of you has configured a FreeBSD system?

Note: Terminal: essentially brings out a lot of Unix stuff.

Hardware etc.

We will discuss more on how the low-level stuff works in part 2 of the iOS course

iOS Layers



Cocoa Touch

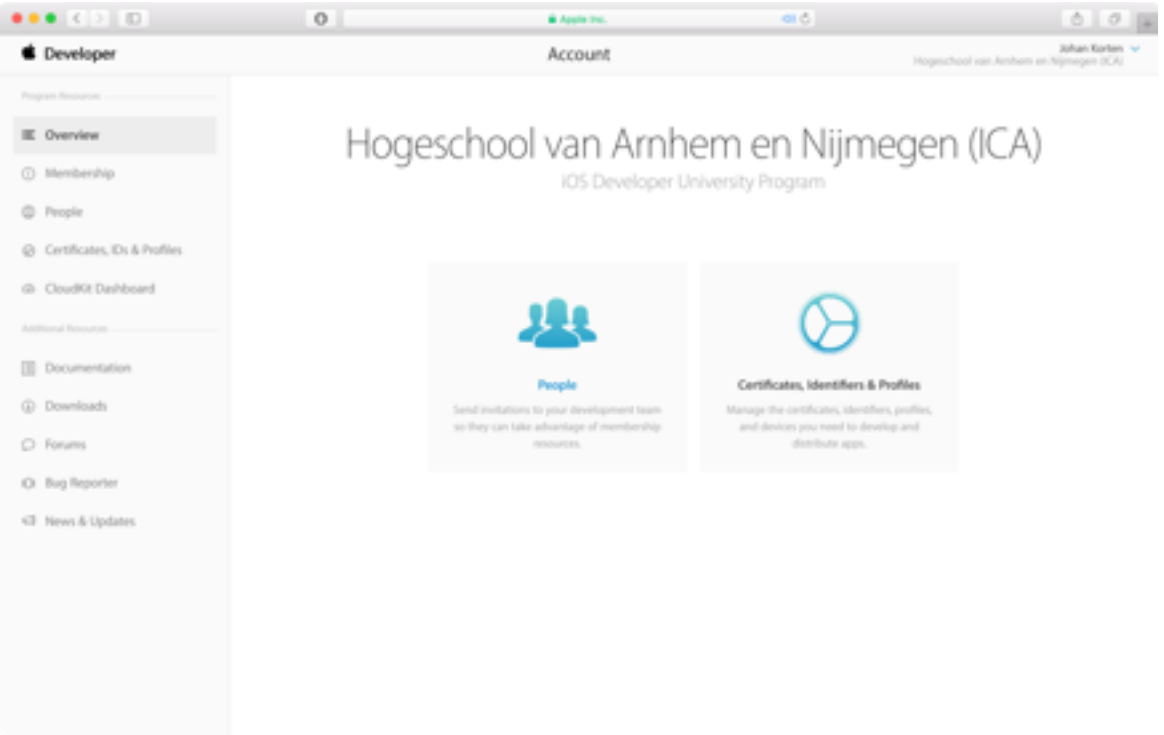
Media

Core Services

Core OS

Developer.apple.com

Identifier etc.



Apple Inc.

Developer

Account

Johan Korten
Hogeschool van Arnhem en Nijmegen (ICA)

Program Resources

- Overview
- Membership
- People
- Certificates, IDs & Profiles
- CloudKit Dashboard

Additional Resources

- Documentation
- Downloads
- Forums
- Bug Reporter
- News & Updates

Hogeschool van Arnhem en Nijmegen (ICA)

iOS Developer University Program

People

Send invitations to your development team so they can take advantage of membership resources.

Certificates, Identifiers & Profiles

Manage the certificates, identifiers, profiles, and devices you need to develop and distribute apps.

Interface Builder

Demo

Note: I use XCode 8 so some functions are not as advanced in most of your versions.

Interface Builder

Demo

Note: I use XCode 8 so some functions are not as advanced in most of your versions.

ctrl+drag

Verschil action en outlet
Alternatieven…

Interface Builder

Size classes

Smart icons etc.

ctrl+drag

Verschil action en outlet
Alternatieven…

Interface Builder

Size classes

Smart icons etc.

ctrl+drag

Verschil action en outlet
Alternatieven…

UIKit

```
import UIKit
```

Code complete UI laten zien

Zo werkt dat dus in Swift.

Hoe veel imports heb je vaak nodig in Java?

Rudiments of Objective-C

Older Swift versions:

- lot of NSsomething (NSString vs String)

Newest version: a lot of NS stuff is rewritten for Swift now

We still can bridge with Objective C and even other languages like C (and that is very useful now and then!)

Memory basics

Cleaning up the heap (41.50)

- All instances and classes live in the heap

- Managed memory

- Difference: Automatic Reference Counting (ARC) vs. Garbage Collection

- Later Hegarty will explain more about possible memory issues

- iOS is very smart, will also differentiate between states of apps (more details will follow later)

let and var

First of all: Swift (2.2) reference:

https://developer.apple.com/library/ios/documentation/Swift/Conceptual/Swift_Programming_Language/OptionalChaining.html

Code complete UI laten zien

Zo werkt dat dus in Swift.

Hoe veel imports heb je vaak nodig in

let and var

var: as one would expect

let: like ’final’ in Java

Code complete UI laten zien

Zo werkt dat dus in Swift.

Hoe veel imports heb je vaak nodig in Java?

two questions about properties

Playground: nieuwe playground (Optionals)

var str = "Hello, playground"

let str = "Hello, playground"

let str
var str

var s : String
print(var)

given:

let name = ”John”

Strongly typed or not?

optional or not

Q: can a let properties be an optional?

the optional controversy I

what is an optional:

- some type

- Hegarty: *(Optional: either not set (nil) or something (not nil -> so: some specific type)* (around 57:00)

Big change in 1.2 -> 2.x

Construction helps to unify operations

the optional controversy II

Swift is maturing:

- items that can't be nil can't also be asked if they are nil
- safety is improving
- better (built-in) type checking in API's

More on optionals and Swift:

Tip: https://www.natashatherobot.com/swift-3-implicitly-unwrapped-optionals/

See also:

https://developer.apple.com/videos/play/wwdc2016/402/

Next week

XCode, Swift, intro MVC

Virtual Machine

VMWare sneller ws. dan Virtual Box

Tip van de dag van Dion en Kevin: https://www.youtube.com/watch?v=JYegaG2sSfk

Groepen Onderzoek

tvOS / Johan Korten

Arthur van Rijsewijk
Wesley Egbertsen
Tom Kaal
Dennis Dulos

react native / Robert

Casper Bartholomaus
Els den Engelse
Dion Koers
Kevin van Huët
Peter Feij

offline db's / Johan Korten

Joeri Smits
Coen Smid
Ivo Brands
Rob Aben
Niels Bokmans

phonegap / Robert

Gert van der Kolk
Thomas Peters
Wilko Zonnenberg
Thomas Blom
Stefan Simon

continous integration / Lars Tijsma

Wesley Brul
Hans van Luttikhuizen
Remco van Ommeren
Tijmen van Groezen
Safi Rasuli

two factor auth. / Theo Teunissen DT

Frans Geenen
Menno Dolstra
Maykel Reintjes
Jaimy Bergsma

augmented reality / Theo Teunissen DT

Jens Cobussen
Matthieu de Wit