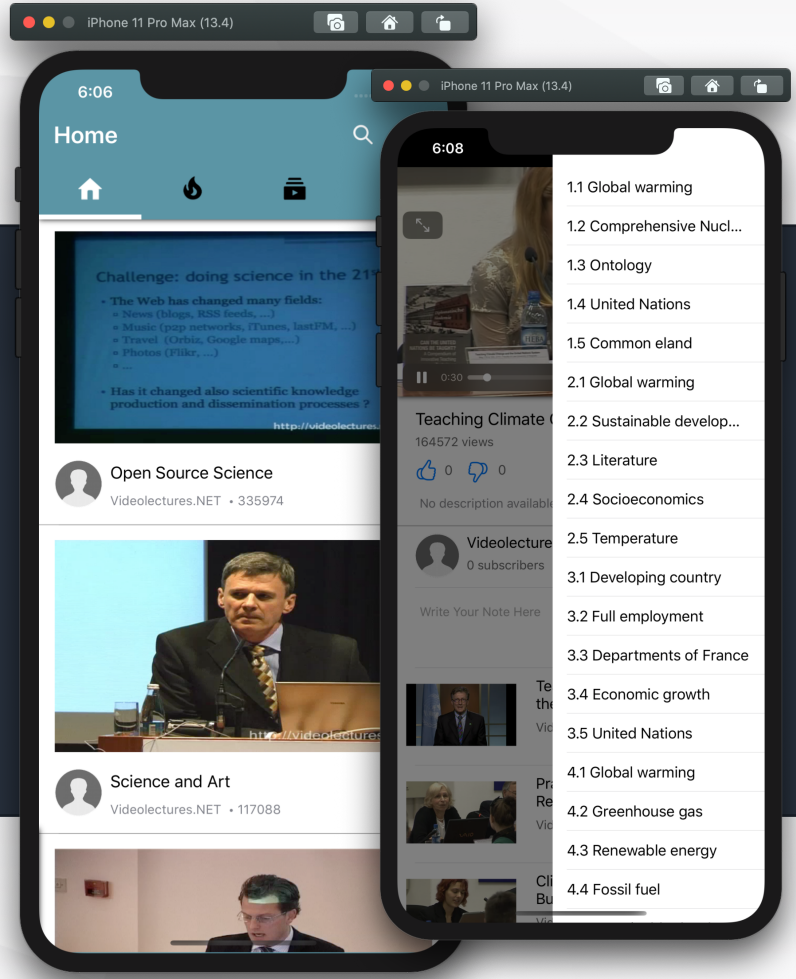
X5GON Mobile

Rethinking Mobile Learning on iOS

Team 4 : Patrick Wu, Yinrui Hu



UCL

Introduction

Abstract

X5GON is an industrial leading Open Education Resource Provider. In this project, we worked with the UCL's X5GON research team to deliver a mobile application that provides users with an authentic and mobile-friendly X5GON experience and learning materials catered to their needs.

With this project, the X5Learn system would be able to attract more customers from the mobile platform and enable its users to have all their customised X5Learn experience at hand anytime, anywhere.

Technology

- Used **Swift** as our main language, **Xcode** and its toolchains as our main SDK in our project.
- Designed our software with the classic **MVC Architecture**.
- Utilised design patterns including **Prototype Pattern, Adapter Pattern and Builder Pattern.**
- Incorporated on **SwiftSoup**, an external parser for HTML, together with our own algorithm to analyse changing API endpoints on the fly and self-adapt the code.
- Deployed **Jazzy** to generate our documentation website.
- Tested APIs and App UIs with **XCTest**
- Pipelined CI/CD with **Travis**

Main Toolchain

Swift

Xcode

Dependencies

XCTest SwiftSoup Jazzy

CI/CD Provider

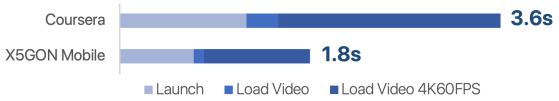
Travis CI

Code Hosting

GitHub

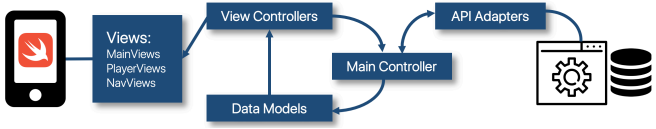
Blazing fast loading speed.

We utilised extensive pre-fetching and multi-threaded loading techniques to balance network load and enhance our performance. Delivering significantly more responsive and smoother user experience than our competitor.



MVC Architecture. Swift. The Natives and Classics.

As a typical client-based application on iOS, we adopted the MVC Architecture and Swift Development Language. See below for more details.



Achievement

ID	Description	Priority	State	Contributors
1	View all types of OER	Must	☑	Patrick
2	Suggest relevant OERs and show them below the OER that is currently on display	Must	☑	Patrick
3	Play or pause an OER video	Must	☑	Patrick
4	View a specific OER and its details when users press it	Must	☑	Patrick
5	Bookmark a specific OER	Must	☑	Patrick
6	Add notes to the OER when they are on display	Must	☑	Patrick / Felix

Achievement

ID	Description	Priority	State	Contributors
7	Show the person or organisation who uploads the OER material	Must	☑	Patrick
8	Search X5GON OER collections for keywords	Must	☑	Patrick
9	View their browsing history	Must	☑	Patrick
10	Full screen (focus) mode to view OERs	Must	☑	Patrick
11	Rate an OER by pressing the like and dislike button	Must	☑	Patrick
12	Login and logout of their accounts.	Should	☑	Patrick

Achievement

ID	Description	Priority	State	Contributors
13	Buffer users' notes for a specific OER and send them to the backend of X5GON.	Should	☑	Patrick
14	Preload the video shown on the lists for responsiveness.	Should	☑	Patrick
15	Provide different main pages, including trending, subscribed contents.	Should	☑	Patrick / Felix
16	Create a simulated backend to pre-develop certain features	Should	☑	Patrick
17	Deploy this software on different platforms, e.g. iPhone, iPad	Could	☑	Patrick
18	Allow users to report inappropriate content	Could	☑	Patrick

Achievement

ID	Description	Priority	State	Contributors
19	Continuous Integration with Travis	Could	☑	Patrick
20	Introduce unit testing to the Application	Could	☑	Felix / Patrick
21	Have captions or translations for captions	Won't		
22	Allow users to upload OER from our app	Won't		
23	Allow users to collaborative edit notes	Won't		
24	Allow commenting on OER	Won't		
25	Show users' note to other users	Won't		
26	Keep suggesting the same OER to same use	Won't		
		Key Functionalities :	100 %	
		Optional Functionalities	100 %	

*Certain modifications are made to the MoSCoW list upon mutual agreement with the client during the project.

Contribution

Part Of Project	Patrick Wu	Yinrui Hu
Client Liaison	80%	20%
Requirement Analysis	60%	40%
Research	90%	10%
UI Design	50%	50%
Prototyping	30%	70%
Programming	80%	20%
Documentation	10%	90%
Presentation	50%	50%
Blog	70%	30%
Testing	10%	90%
Bi-Weekly Reports	70%	30%
Project Website	80%	20%
Poster Design	80%	20%
Video Editing	80%	20%

	Patrick Wu	Yinrui Hu
Overall Contribution	60%	40%
Main Roles	Lead Developer, Researcher	Tester, UI Designer, Video Editor