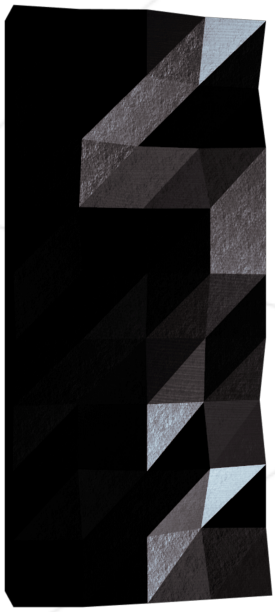

3D, fingerprints and other things

Swifty Protein

Summary: This project aims to introduce you to more advance Mobile Frameworks and app.

Version: 3

Contents

I	Forewords	2
II	Introduction	3
III	Goals	4
IV	General instructions	5
V	Mandatory part	6
VI	Bonus	8
VII	Turn-in and peer-evaluation	9

Chapter I

Forewords

Here's what wikipedia has to say about Pikachu :

Pikachu are a species of Pokémon, fictional creatures that appear in an assortment of comic books, animated movies and television shows, video games, and trading card games licensed by The Pokémon Company, a Japanese corporation. The Pikachu design was conceived by Ken Sugimori. Pikachu first appeared in Pokémon Red and Green in Japan, and later in the first internationally-released Pokémon video games Pokémon Red and Blue for the original Game Boy. Pikachu is considered to be the most emblematic pokemon from the starter pack.

Like other species of Pokémon, Pikachu are often captured and groomed by humans to fight other Pokémon for sport. Pikachu are one of the most well-known varieties of Pokémon, largely because a Pikachu is a central character in the Pokémon anime series. Pikachu is regarded as a major character of the Pokémon franchise as well as its mascot, and has become an icon of Japanese pop culture in recent years.

Chapter II

Introduction

The research lab `Noachlly Global Pharmacetics Drugs & Medicine Inc.` needs a protein visualizer to make the world understand its researches. `Noachlly Global Pharmacetics Drugs & Medicine Inc.` works with the mondial protein's database : the famous PDB (Protein Data Bank).

You have to use access to this database to build an app which lets you visualize proteins models according to standardized representation.

This requires you to use the framework imposed by `Noachlly Global Pharmacetics Drugs & Medicine Inc.` : SceneKit.

It is a high-level 3D graphics framework that helps you create 3D animated scenes and effects in your apps. It incorporates a physics engine, a particle generator, and easy ways to script the actions of 3D objects so you can describe your scene in terms of its content — geometry, materials, lights, and cameras — then animate it by describing changes to those objects.

`Noachlly Global Pharmacetics Drugs & Medicine Inc.` recruited you knowing that you already know Swift, but they ask you and allow you to go further with this application.

Heal the world, make it a better place. For you. For me. For the entire universe.
Michel Jacques, CEO, Noachlly Global Pharmacetics Drugs & Medicine Inc.

Chapter III

Goals

This project aims to make you familiar with :

- 3D rendering in mobile app (Scene Kit...)
- How fingerprints sensor API works (TouchID, biometricmanager...)
- social Sharing mobile API
- SearchBar
- Basic understanding of biochemy

Chapter IV

General instructions

- You must choose between iOS and Android
- This project will be evaluated only by humans
- This project must be written using the latest SDK/IDE/languages versions (Swift/Xcode - Kotlin/Android Studio....)
- This project must use the RCSB website for .pdb files
- This project must use modern layout (Auto-Layout, contraints)

Chapter V

Mandatory part

Here's what you must do :

Before begining the core of the projet add an icon to your application AND a Launchscreen and make sure the launchscreen stays some time so we can appreciate it !

Login View Controller:

- A user must be able to login with a fingerprint sensor (TouchID on iOS, biometricmanager on android) using a button
- If login fails you must display a popup warning authentication failed
- If the Phone is not compatible the button should be hidden
- The LoginViewController should ALWAYS be displayed when launching the app meaning if you press the Home button and relaunch the app whitout quitting it, it should show the LoginViewController !

Protein List View Controller:

- You must list all the ligands provided in ligands.txt (see resources)
- You should be able to search a ligand through the list
- If you cannot load the ligand through the website display a warning popup
- When loading the ligand you should display a spinning wheel or any clean loading animation.

Protein View Controller:

- For this part you can use SceneKit on iOS, filament on android or even raw Metal/Vulkan anything integrated in a classic app is OK. (No full GameEngine!)
- Display the ligand model in 3D
- You must use CPK coloring

- You should at least represent the ligand using Balls and Sticks model
- When clicking on an atom display the atom type (C, H, O, etc.)
- Share your modelisation through a ‘Share‘ button
- You should be able to ‘play‘ (zoom, rotate...) with the ligand.

Chapter VI

Bonus

Here's some ideas:

- Use of custom cells
- Design
- Custom popup
- Other modelisation available
- Custom message when sharing your screenshot
- ....

Chapter VII

Turn-in and peer-evaluation

Turn your work in using your `GiT` repository, as usual. Only work present on your repository will be graded in defense.