

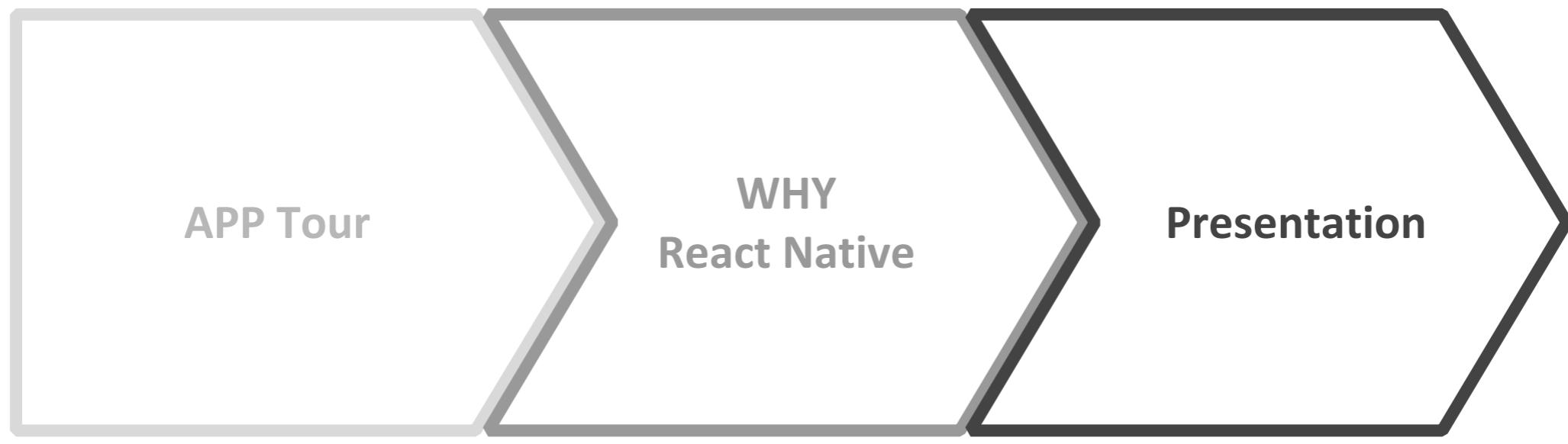
The Ultimate Guide to React Native Quiz App

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Dear Admission Officer,

I deliberated on my supplemental material, wishing to display the most genuine and complete information resembling my app. Please take some time to scroll down. I hope you will discover something you like! Thank you!



P.3

P.16

P.22



APP TOUR

What's inside the “campus” of my app?



A group of approximately 15 people, including adults and teenagers, are posing for a group photo in front of a school building. The building has large vertical yellow Chinese characters on its red brick facade that read "桃園市立介壽國民中". In the foreground, several young men are wearing black t-shirts with the text "Compassion Knowledge Honor Share" and a small illustration of a camel. The group is smiling and some are making hand gestures like thumbs up or peace signs. The background shows a parking lot, trees, and other parts of the school complex.

It all started here, from this marvelous campus and these amazing partners. When I conducted the summer camp, I saw the scarcity of money and resources of the students. I felt that I must do something for them, not financially, but through my own powers and abilities.



會考會考的數學

Mathematics Applied To Huikao (MATH)

Huikao is the name of the entrance exam in Taiwan. Visit
<https://play.google.com/store/apps/details?id=tech.alpschen.mathApp>
to try out the functions! Currently available only on Android
because the requirement for App Store is 18+.



My app features in:



FLEXIBILITY

Anytime, anywhere, anyone, any difficulty, any habit.



ALGORITHM

Adapt the difficulty based on the accuracy of the student.



MATH UPLOADER

Easily add math problems via the website. No more limits!



VIVIDNESS

Unique sound effect system stimulating the student's interest and zeal.



GRATIS

Make it affordable for rural students. Profit was not my priority.



BOOKMARK

Digitally save the student's difficult problems. No more annoying, colorful labels!



SCRATCH PAPER

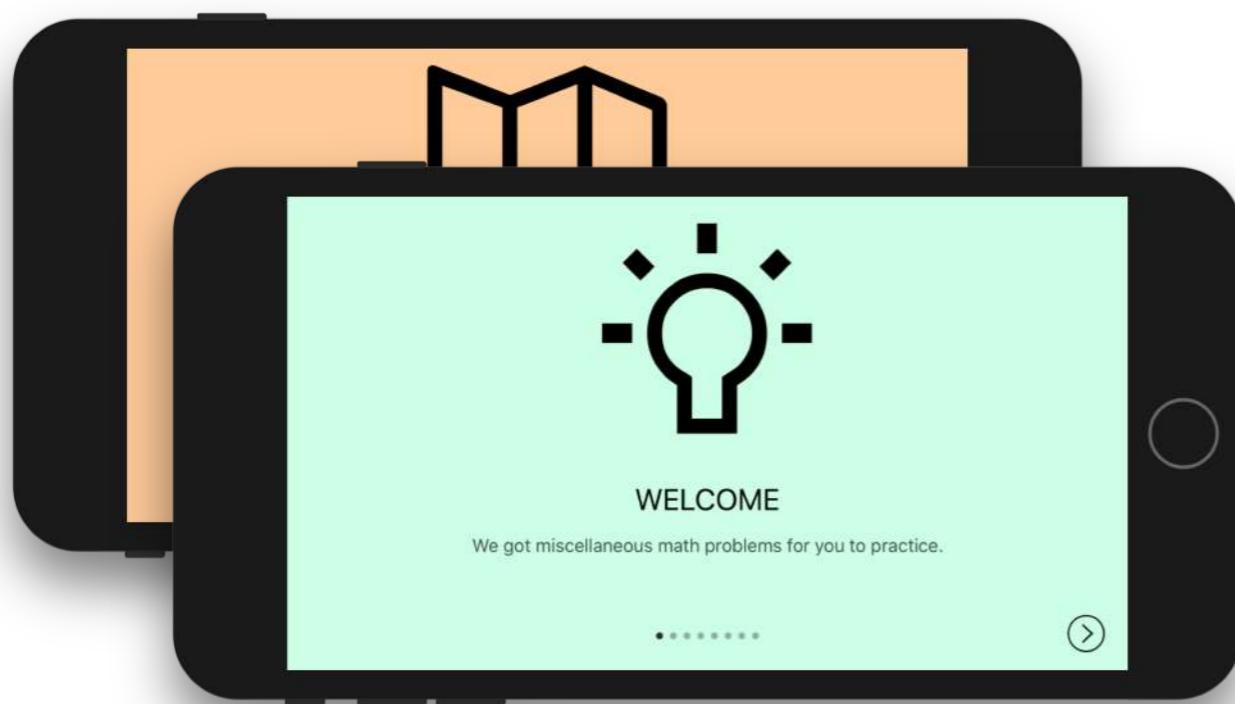
Annoyed with piles of papers and eraser residues? Write with a swipe and eraser with a press!

These were what paper-based reference books could not achieve.

I contemplated on the logo of my app. The Chinese characters, pronouncing both horizontally and vertically, make the exact same sound. However, the term “會考” gains two distinct meanings. Being the verb “will test”, it also serves as the name of the “high school entrance exam” in Taiwan, forming “the problems that will be tested in the high school entrance exam” as a whole. By the way, the little circle is the period in Chinese!



iPhone 8 Plus - 11.4



iPhone 8 Plus - 11.4

The “onboarding pages” are designed to attract the users. My app supports the interface both in English and Chinese because my potential users could be from Asia to the world. Here, I briefly mentioned the features I developed, including **different exam modes**, **virtual scratch papers**, **time limit functions**, **reviewing bookmarks**, **interesting sound effects**, and **a myriad of math problems**.



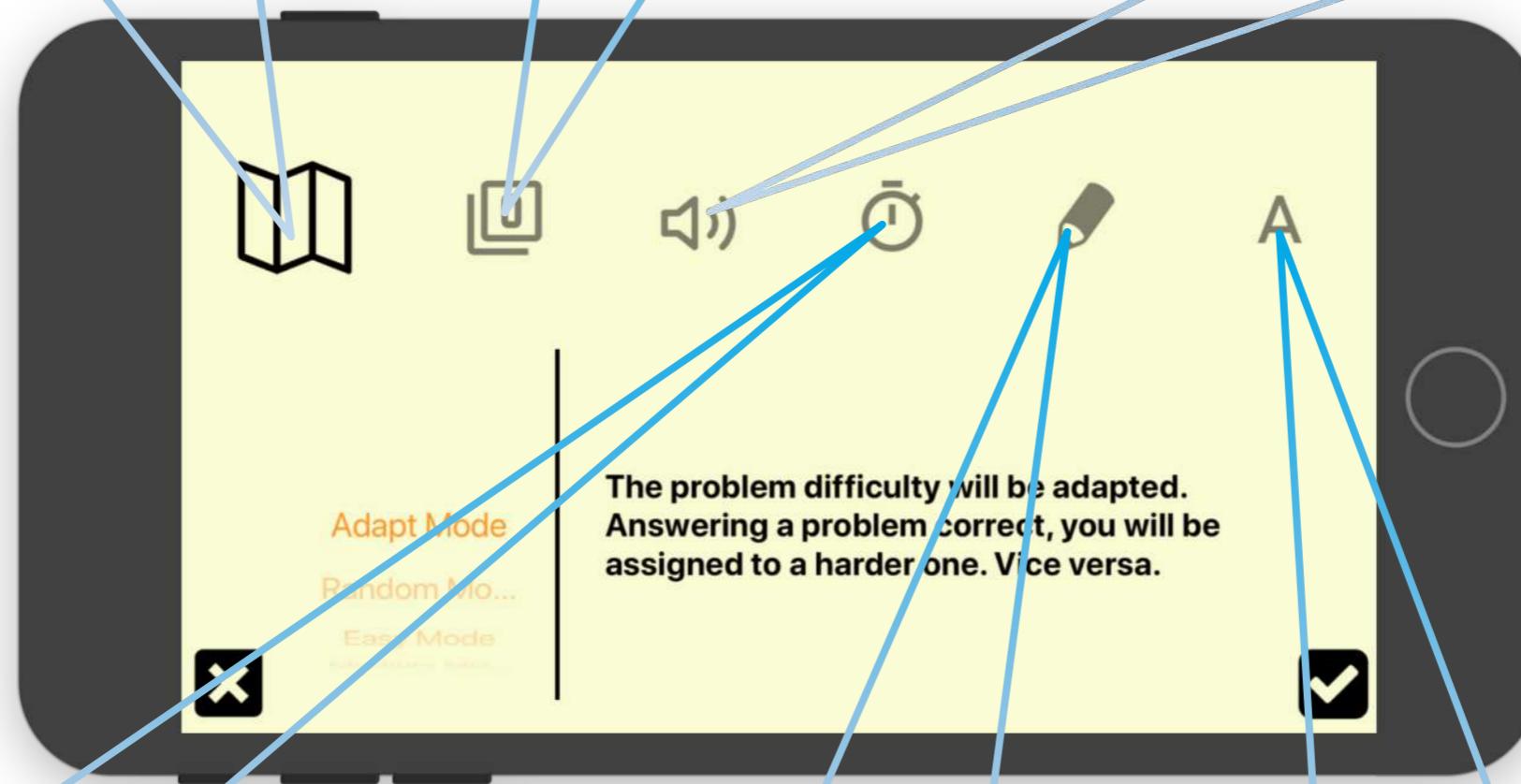
 MODES. The math problems in my app are divided into three difficulties — easy, medium, and hard. Anyone is eligible for the five modes, which is purposefully suitable for distinct levels of students.



 SOUND EFFECTS. I know solving math problems wouldn't be an adorable process. Therefore, I added the sound effects of LOL, in an attempt to vivify the cumbersome calculations. For instance, five correct answers in a row generates a “penta kill” effect. Yet a mistake afterwards generates the annoying “shutdown” nightmare.



TOTAL QUESTIONS.
5-20 is your choice.



 TIME LIMIT. The Advanced option is really an intimidation.

 PEN COLORS. If you'd like to write in white, then choose it.

 iPARECE CHINO! No problem, you got the English interface. Spanish interface is coming soon!



Label the problem if you got stuck on it. You'll get a chance to review it later.

EXIT PROBLEM: 1/10 DIFFICULTY: ★

若二元一次聯立方程式 $\{7x-3y=8, 3x-y=8\}$ 的解為 $x=a, y=b$ ，則 $a+b$ 之值為何？

(A) 24 (B) 0 (C) -4 (D) -8

A B C D

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EXIT PROBLEM: 7/10 DIFFICULTY: ★

計算 $(2x+1)(x-1)-(x^2+x-2)$ 的結果，與下列哪一個式子相同？

(A) x^2-2x+1
(B) x^2-2x-3
(C) x^2+x-3
(D) x^2-3

TIME'S UP
Do you want to mark this problem?
NO THANKS OF COURSE

A B C D

iPhone 8 Plus - 11.4

Feel free to conceal the bar if you think the countdown intimidating.

EXIT PROBLEM: 1/10 DIFFICULTY: ★

計算多項式 $-2x \times (3x-2)^2 + 3$ 除以 $3x-2$ 後，所得商式與餘式兩者之和為何？

(A) $-2x + 3$
(B) $-6x^2 + 4x$
(C) $-6x^2 + 4x + 3$
(D) $-6x^2 - 4x + 3$

A B C D

iPhone 8 Plus - 11.4

EXIT PROBLEM: 1/10 DIFFICULTY: ★

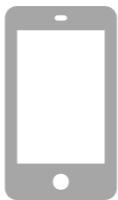
計算多項式 $-2x \times (3x-2)^2 + 3$ 除以 $3x-2$ 後，所得商式與餘式兩者之和為何？

(A) $-2x + 3$
(B) $-6x^2 + 4x$
(C) $-6x^2 + 4x + 3$
(D) $-6x^2 - 4x + 3$

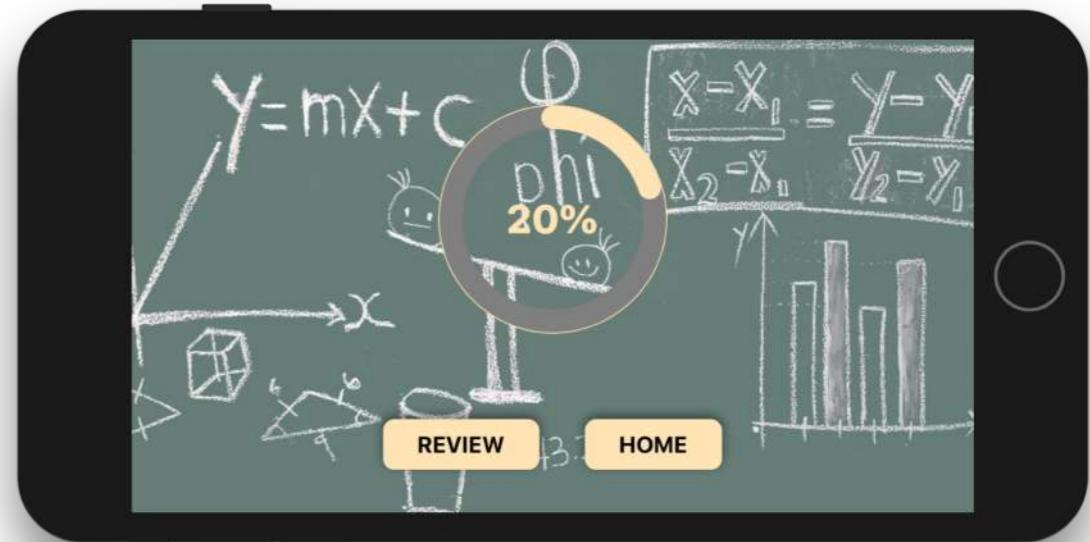
YOU WANT ME

A B C D

iPhone 8 Plus - 11.4



The algorithm animates the score with deliberation. The closer it reaches your score, the slower it progresses.



若a、b為兩質數且相差2，則 $ab+1$ 之值可能為下列何者?

(A) 16元 (B) 27元 (C) 30元 (D) 48元

已知某文具店販售的筆記本每本售價均相等且超過10元，小錦和小勳在此文具店分別購買若干本筆記本。若小錦購買筆記本的花費為36元，則小勳購買筆記本的花費可能為下列何者?

(A) 16元 (B) 27元 (C) 30元 (D) 48元

YOUR ANS ? CORRECT ... ⌂ ? ⌚ ⌚

iPhone 8 Plus - 11.4

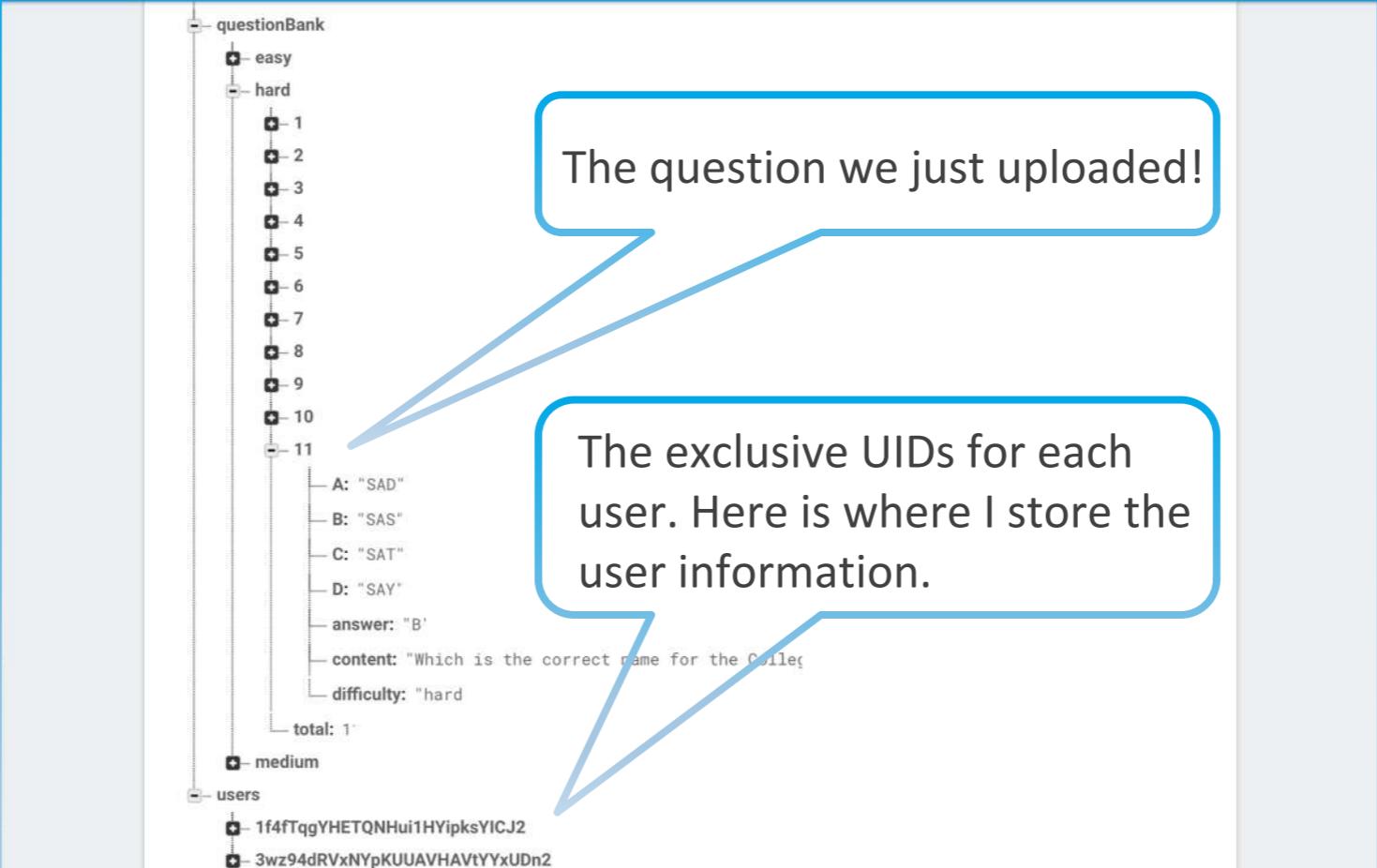
The REVIEW function is my emphasis. The problems that were labeled by the users will be redisplayed in this section. They can choose to hide the answers if distracted. With a view to strengthen the users' abilities on the difficult problems, I suppose this feature would benefit a myriad of students.





For teachers, please visit forms.alpschen.tech to upload your math questions. Your data will then be wrapped into JSON format and sent to my database. This website is written with ReactJS & Heroku.

The screenshot shows a web browser window with the URL forms.alpschen.tech. The main content asks, "Which is the correct name for the College Board exam?" with options (A) SAD, (B) SAS, (C) SAT, and (D) SAY. Below the question, it says "正確答案 : B" and "難度 : hard". On the left, there's a sidebar with "選項 Options" showing radio buttons for A (SAD), B (SAS), C (SAT), and D (SAY). Under "正確答案 Correct Option", radio buttons A, C, and D are unselected, while B is selected. Under "難度 Difficulty", radio buttons for 簡單 (Simple), 中等 (Medium), and 困難 (Hard) are shown, with Hard selected. At the bottom, there's a "Photo(if required)" section with a "Choose File" button and a note about white background, and a "提交" (Submit) button. A modal dialog titled "確認題目" (Confirm Question) is displayed over the page, containing the same question and options. It also shows the correct answer B and difficulty level hard. Two buttons at the bottom of the modal are "確認送出" (Confirm Send) and "取消" (Cancel). A large white circle highlights the "JSON" word in the modal's title bar. A white arrow points from the "JSON" circle to the "確認送出" button.





2500+ lines of codes

That's a lot of programming functions, classes, variables

100+ hours of learning

And a lot of efforts

∞ debugging trials

And ... that's beyond a lot.



I crave to optimize my app, to make it more comprehensive, and genuinely effective for my users. I certainly wish that my tiny contributions could change a student's life!



SUBJECTS

Add in distinct domains: Chinese, English, Science, and Social Studies. Expand the scale and question bank of my database.



POINTS

Vivify the tedious math solving process. The points could be gained from well performances and could be used to purchase hints or something attractive. Perhaps some skins?



ANALYSIS

Analyze the students' weaknesses and generate relevant questions. This will require the deployment of algorithms.



TOPICS

Categorize every problem in topics. For instance, trigonometry. Develop functions for students to directly opt for the topics they crave to improve on.



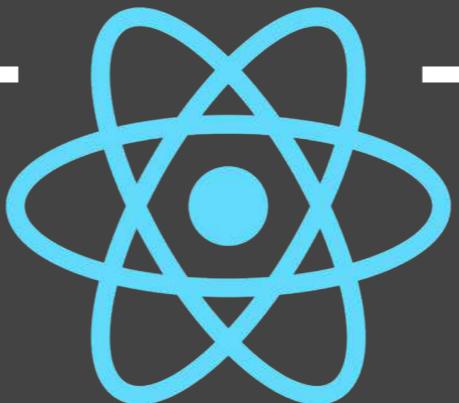
STATISTICS

I crave to delve into the field of big data, creating statistics of all my users. Therefore, the teachers could receive my data and comprehend the needs of students.



UI OPTIMIZATION

Ornament the interface of my app. A better user experience will not only attract users, but also bring comfort while they play with it. To achieve this, I have to dig through animations and aesthetics!



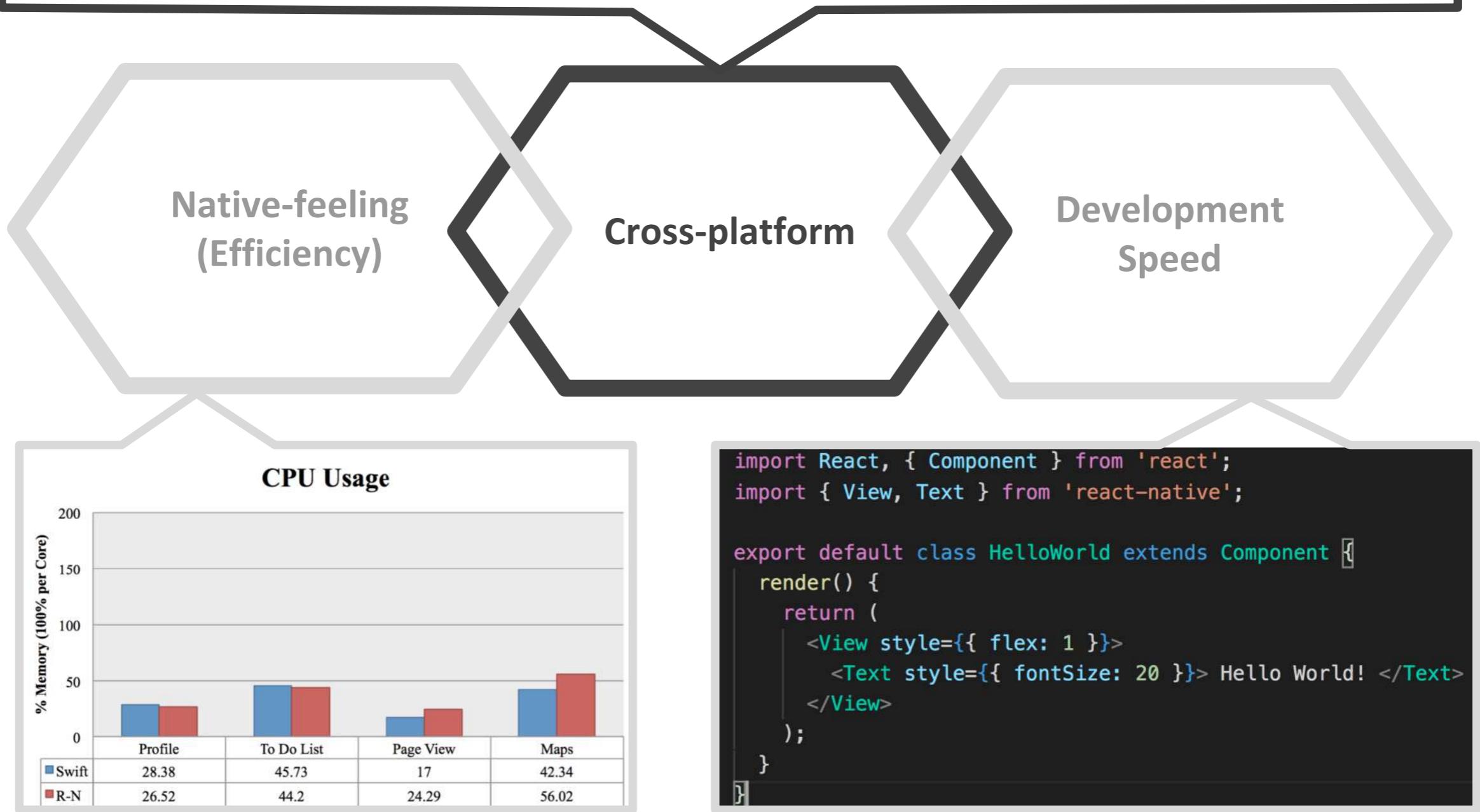
WHY RN

What's so special about React Native?

“

*As mobile developers...
we are faced with the quandary of
supporting two different platforms.
iOS and Android...*

APPS COULD EITHER BE NATIVE OR HYBRID. Native apps — written with Swift, Objective-C, and JAVA — feature an extraordinary user experience with high executive efficiency. Yet every coin has two sides, in order to fulfill the two platforms — iOS and Android — the development period will be prolonged. Contrarily, Hybrid apps — HTML+CSS+JS — advertise with the reusability of codes. However, while diminishing the development complexity, the app efficiency should be paid off. Remarkably, React Native is standing out with possessing the cross-platform characteristic and native-feeling simultaneously. Miraculous, isn't it? Let's get a deeper look!





	Native App	Hybrid App	React Native App
Native Experience	extraordinary	poor	well
Executive Efficiency	high speed rail	bare foot	car
Update Complexity	very high	low	medium
Language	Swift / OC / JAVA	HTML+CSS+JS	JS+JSX
Period	long	short	quite short
APP Submit	App Store	App Store	App Store



ESSENCE OF REACT NATIVE — JAVASCRIPT + JSX

JavaScript is the most popular programming language in the world, and with the collaboration of JSX syntactic sugar, its capability is brought to the fullest.

```
4  export default class HelloWorld extends React.Component {  
5    render() {  
6      return (  
7        <View>  
8          <Text> Hello World! </Text>  
9        </View>  
10      );  
11    }  
12  }
```

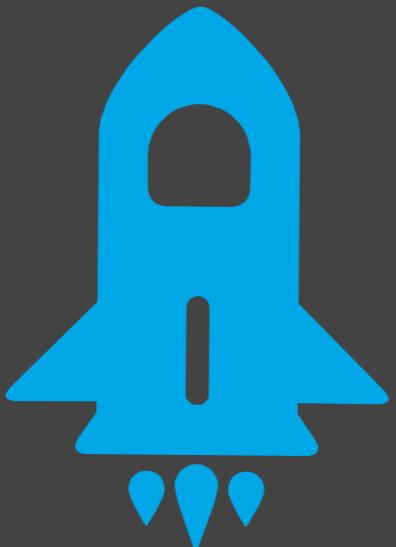
JSX Syntax — neat

```
14  var HelloWorld = React.createClass({  
15    displayName: 'HelloWorld',  
16    render: function() {  
17      return React.createElement(View, null,  
18        React.createElement(Text, null, 'Hello World!')  
19      );  
20    }  
21  });
```

Original Syntax — chaos



Reliable, Prevailing
Multinational enterprises deploy React Native
in their apps. Indeed, it is the trend.



PRESENTATION

It was difficult but different.

“

Professor Fuh at National Taiwan University was impressed on my work, and provided a chance for me to demonstrate my app and talent. He requested me to be the presenter at six distinct companies, and also at NTU for the research students. I hold this experience is particularly remarkable for me, while gaining the opportunity to soak myself in the atmosphere of profession and seriousness. My perspectives were undoubtedly widened and my courage were ascended to a greater extent. I really appreciate and cherish these valuable lessons!

Test Research, Inc. (3030.TW)

Performing my debut, I was particularly nervous. I presented this initial presentation in Chinese, yet I suppose improvements could be made. A director suggested me to diminish the intricate proper nouns and syntaxes in my presentation, which brought about my success in the latter companies. Learning in teaching is indeed a crucial and effective technique. On the other hand, I was strongly impressed by another director's preoccupation. His sight never drifted away from the beginning to the end. His zeal and interest motivated me to show off my best and my extreme.

Native App

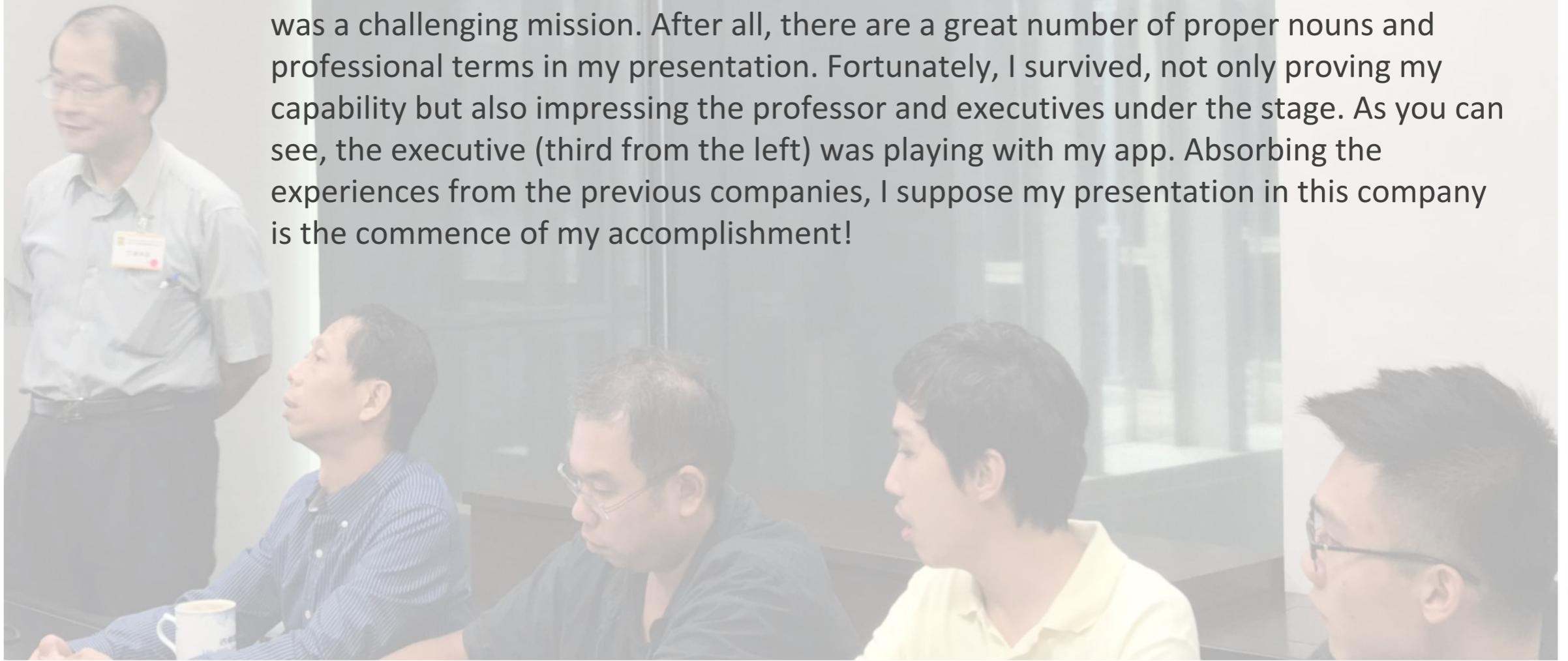
Institute for Information Industry Taipei, Taiwan

Failure is the mother of success. Here, I underwent the biggest setback in my journey. The doctor wasn't satisfied with my app's features, so what I did was listening carefully to his advices. Of course, people gain disparate perspectives, and extracting the essence of every advice would provide me with the optima. I strongly thanked him after the presentation, for encouraging me with the "frustration", and motivating me to review the mistakes I made. Without his reminder, my app would never be so well developed.



Egis Technology Inc. (6462.TW)

A week before this presentation, Professor Fuh (first from the left) suddenly requested me, "Present in English in the next company." Initially, I thought he was merely joking, yet he was actually serious. He wanted to cultivate my braveness and ability. Indeed, it was a challenging mission. After all, there are a great number of proper nouns and professional terms in my presentation. Fortunately, I survived, not only proving my capability but also impressing the professor and executives under the stage. As you can see, the executive (third from the left) was playing with my app. Absorbing the experiences from the previous companies, I suppose my presentation in this company is the commence of my accomplishment!



IV

LITE-ON Technology Corporation (2301.TW)

LITE-ON is an illustrious company in Asia, whose scale emphatically astonished me. The most impressive incident happening on the day was that I saw a director filming my presentation! I regarded his action as an affirmation. Sure enough, he actively told me after the lecture that he really admired my contents and my pronunciations. He wanted to show them to his son. “Thank you, director. That is really encouraging!” I am grateful for him.

V

D8AI Inc.

Here, I reached the culmination in my journey. First of all, the number of spectators was the most. Directors, executives, employees, and research students filled the entire room. Yet I was no longer nervous. I possessed the confidence to loudly and accurately introduce my portfolio. Secondly, the audiences had a solid background. The CEO (first from the left) is a super prominent leader in the technological field in Asia. The director (second from the left) is an extraordinary coder and organizer. He is also from my high school! They all gave me inspirational and marvelous compliments at the end. One said he almost forget I am merely a high school student, the other claimed that he admired my entire presentation, so neat, so well-organized, and so straightforward. He patted on my shoulder and smiled, “Venture bravely in the world of coding. You really have the talent!”

VI

```
import React, { Component } from 'react';
import { View, Text, StyleSheet } from 'react-native';

export default class HelloWorld extends Component {
  constructor(props) {
    super(props);
    this.state = {
      text: ''
    };
  }
  render() {
    return (
      <View style={styles.helloWorld}>
        <Text style={{ fontSize: 20 }}> Hello World </Text>
      </View>
    );
  }
}

const styles = StyleSheet.create({
  helloWorld: {
    flex: 1,
    alignItems: 'center'
  },
  helloWorldText: {
    fontSize: 20
  }
});
```

Jorjin (4980.TW)

At this final company, I not only presented my portfolio, but also comprehended dope experiments by the professor's research student. I witnessed him training his machine, and, astonishingly, the apparatus understood what he said! In the future, I, similarly, crave to domesticate my own smart robot, giving it a sincere heart. Finally, at Jorjin, I presented and I learnt at the same time.



Department of Computer Science and Information Engineering

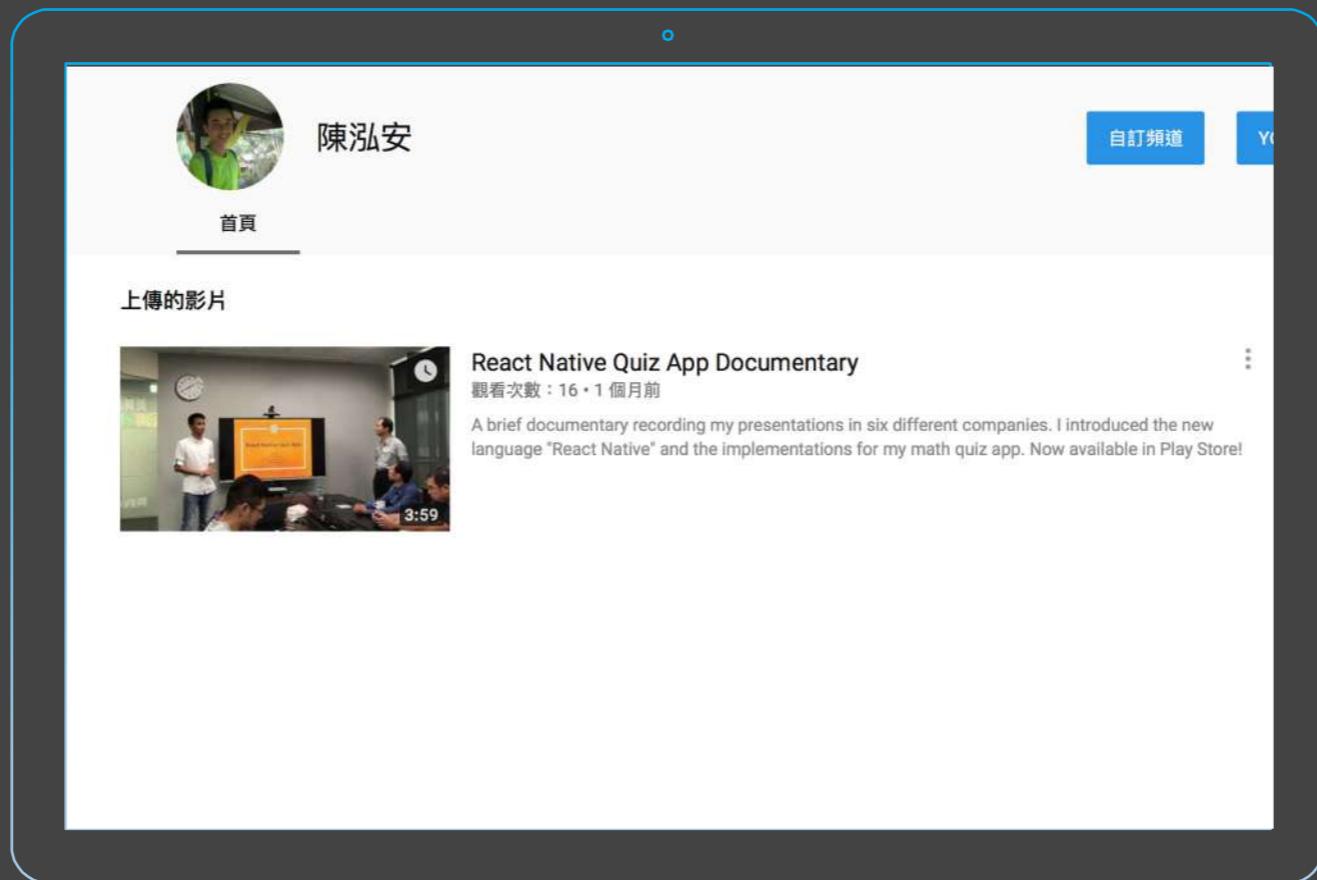
National Taiwan University

In addition to the companies, Professor Fuh also wanted his research students to comprehend React Native and its usages. At the day, the audiences consisted of a wide variety, such as the doctoral students, the graduate students, and some students studying in UC Berkeley and UBC. On the occasion, I acquainted lots of superb students, and we still keep in touch now! Presenting to these outstanding students is, undoubtedly, a valuable training for my braveness and an exceptional award of recognition.



Finally, I made a short video to display some fragments of my presentations. I deliberately included a fun plot. Please visit <https://youtu.be/8Y3C4779Cww> to view my work!

Ultimately, I want to say that I have really matured through this precious experience. Thank Professor Fuh for giving me the opportunity to demonstrate my work and make me distinct from all the high school students in Taiwan!



References

My Github Page

- <https://github.com/AlpsChen/math-app>

React Native official site

- <https://facebook.github.io/react-native/docs/getting-started.html>

Excellent YouTube tutorial channel

- <https://youtu.be/1tgWuND9Vfg>

NPM official site

- <https://www.npmjs.com>

Firebase

- <https://firebase.google.com>

References

Expo official site

- <https://docs.expo.io/versions/latest/>

React Native Elements

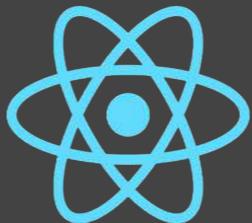
- https://react-native-training.github.io/react-native-elements/docs/getting_started.html

Top 15 React Native Libraries

- <https://www.quora.com/What-is-the-back-end-for-apps-built-with-react-native>

Git Tutorial

- https://backlog.com/git-tutorial/tw/intro/intro2_1.html



Learn Once, Write Everywhere, and Use Forever!

```
<Text  
|   style={'thankfully'}  
>  
|   THANK YOU!  
</Text>
```