

FYP18016

A Smart Phone Application to support
Peer Learning

Detailed Project Plan

Supervisor: Dr. Chim T. W.

Tang Sze Ho, Dicky

3035277444

Table of Contents

| | |
|------------------------------|---|
| 1. Introduction..... | 3 |
| 2. Objectives..... | 4 |
| 3. Scope..... | 5 |
| 4. Methodologies..... | 6 |
| 5. Risks and challenges..... | 7 |
| 6. Schedule..... | 8 |
| 7. References..... | 9 |

1.Introduction

Few decades ago, traditional phones had function of making a call only and few people had a telephone because of its expensive price. In the digital era, smartphone becomes a small portable computer, the public uses smartphone for entertainment, online communication and surfing the Internet.

According to Thematic Household Survey Report No.64, which is held by the government, 88.6% of people aged 10 or above have smartphone in Hong Kong [1]. Especially in university, a place full of teenagers, everyone must have one or more smartphone. Therefore, smartphone provides an efficient communication platform for university students.

University let students get in touch with various kind of subjects, like Computer Science, Philosophy, Statistics and so forth. Students take their interested elective course and develop own knowledge. However, workload is always the most difficult obstacle in front of colleagues. Many colleagues choose discussing with classmates or friends through smartphone to gather the opinion. How about all of you and your fellows have no idea about the solution?

Besides, some students may feel embarrassing to speak to unfamiliar classmates or meet new friends within lecture. Orientation camp helps freshmen a lot to broaden their social circle. Can we provide an alternative way to alleviate?

2.Objectives

The main purpose of this project is to design a smartphone application that allows HKU CS students ask questions and communication to facilitates the interaction between colleagues and relieve the tutors' burden.

Since Computer Science gains popularity in recent year, more and more students choose computer science as major or minor subject. This application provides an easy to use platform. The application will be like a forum. Through smartphone, students can browse the posts everywhere and every time. No matter the questions related to academy or daily life, colleagues can post their troubles on the suitable category and wait for responses. This project hopes students effectively enhance their concept related to CS or coding skills by asking and answering. Moreover, the application will be a potential way to make friends. Users may assemble the classmates and attend the lecture together.

React Native will be used to design the application such that both android user and iOS user can enjoy the service and have a user-friendly outlook to attract colleagues keep using it.

3.Scope

The interim goal of the project is to design a user interface prototype application and fulfilling the basic test cases requirement.

In this prototype application, user allows to log in, browse the post under different category, create a discussion post and add category to the post and leave a comment to others' post.

A simple introduction about the application and tutorial for new user know the operation easily will be designed too if time allows.

The final goal of the project is to develop more functions on the application. For example, user can give rating to others' comments, high rating for useful sharing and low rating for offensive comments. High rating user will have priority to put their posts on top of post list. Or allowing users post audio or gif file to discuss will be more interactive.

4. Methodologies

The main components of this project are the Frontend User interface and the backend storage. User Interface gives basic idea to the user how to use the application and backend storage stores the posts and comments in the application.

Frontend: React Native

Cross platform application will be more favourable as some students may use android smartphone while some may use iOS smartphone.

React Native is a JavaScript-based framework for designing mobile application. React Native is based on React, however, it mainly focuses on mobile application platform [2]. Since the coding used in developing either platform can be shared to other platform, developers can easily develop both platforms concurrently. Moreover, React Native will report the error and help you handle the error intelligently. Therefore, React Native will be a good choice for designing User Interface without complicated animation in cross platform application.

Backend database storage: MySQL

MySQL is fast and easy-to-use Relational DataBase Management System. Developers can implement their database in the form of tables, columns and ordered by indexes. MySQL provides comprehensive referential integrity to ensure the relationship must be formed by existing row. Since our university has provided the phpMyAdmin account, which is also one of MySQL administration tools. MySQL will be an easy-to-implement database storage.

Furthermore, the application should be dynamic so Node.js will be used. Node.js is an open source runtime environment for developing server-side application to make the application more interactive with user immediately.

5. Risks and challenges

Constant update to the platform

Sometimes when Android/iOS OS updates their internal APIs, the developers may need to work around the latest update to be available in latest OS version. Or few bugs happened in specific version, but developers need to update the whole applications to all users.

Account Security

If there is no encryption method to protect user account information, attackers can modify the cookies or environment variables to see the password and usernames easily. With time limitation, it may be quite difficult to implement two-factor authentication.

Proficiency on React Native

Using React Native to develop a mobile apps is the new attempt. Although Reach Native uses JavaScript as programming language, the style has a little bit difference to own previous experience. Therefore, time needed to familiar with React Native is a kind of uncertainty.

Supporting Language

Since there are students from different countries in HKU, providing various language version will be more user-friendly. However, developing the application in various language must consume more time. With time limitation, this application will only use English, which should be the most common language between colleagues.

6. Schedule

| | |
|-----------|---|
| September | Initial project planning on frontend/backend design. Constructing the detailed project plan And the project website. |
| October | Study the programming on frontend software Study on related work and drawing the interface prototype |
| November | Implementing the User Interface design and have a user acceptance test. |
| December | Collect the participants' feedback and improve the UI. Implementing the backend design and basic function of the application |
| January | Interim report and deliver a demo version prototype Combining frontend/backend design |
| February | Compiling the final product Do Second User acceptance test |
| March | Collect the participants' feedback and improve the products' functions. Debugging and final adjustment |
| April | Final implementation and detailed final report submission and presentation |
| May | Final year project exhibition |

7. References

[1] Census and Statistic Department. (22 Mar 2018) “Thematic Household Survey Report No.64” [Online] Available: https://www.censtatd.gov.hk/hkstat/sub/sp140_tc.jsp?productCode=B1130201 [Accessed 28 September 2018].

[2] O'Reilly Media. What Is React Native? - Learning React Native [Online] - <https://www.oreilly.com/library/view/learning-react-native/9781491929049/ch01.html> [Accessed 28 September 2018].