COMP7704 Dissertation

Interim report

Name: LUO Xianyang 3035237420

Supervisor: Dr. T.W. Chim

Dissertation Title: A smart phone application for valet parking

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In this report, I would first give a short introduction about the background and motivation of this application and then come to the detail descriptions of the work we've done till now

1. Background and Aim

This dissertation aims at developing a smart phone app based on the iOS platform. The app helps car drivers to require a valet parking service.

Nowadays a lot of people will go to clubs for after work drinks, dinners and having fun with friends. Since Hong Kong is an International and fast-tempo city, it's very common for people to go to places like Lan Kwai Fong after a day's work of at weekend.

It is convenient for customers to drive their own cars to the club. But as a mater of fact that Hong Kong is one of the most crowded city in the world, it is not easy for car drivers to find a parking lot fast. So there is a service called Valet Parking.

Valet parking is a parking service offered by some restaurants, clubs and other businesses. A person called valet will park and return the customers' cars, which makes it different from "self-parking". The main advantage of valet parking is convenience. Customers do not have to find a place by themselves and do not have to walk a long way from the parking lot to the restaurants or something. All they need to do is just dropping their cars at drop-off point.

However, there are also some problems with valet parking in such a fast-tempo city and such a high-tech era. A lot of service can be done just by a small smart phone. People can buy clothes, rent a hotel, pay with Apple Pay via their phone. Apps have made people's life more and more convenient. So I think it will make it efficient for customers to require a valet service when they just come out their home or office via a smart phone application. All the customers have to do is just sign up a membership and type in some basic information such as name, model of car, color of car. When a customer wants to require a valet parking service, he or she can choose when to drop off, where he or she wants to go, estimated hour(s) parking duration, telephone number and so on. When he or she arrives at the drop-off point, a valet will be there waiting. And when the customer finishes the dinner or party, he or she can tap the "Get Car" button using the app in advance. Customer can also choose where to return the car and a valet will do it. What's more, the customer can pay the fee via the app instead of cash.

This application can work on two main mobile phone Systems: Android and iOS. I will complete the iOS version and my teammate XU Xiaodong will complete the Android version. With this application, the user interface will be more friendly, all orders will be recorded by the server so that there will not be physical confirmation of service.

2. Current Progress

In this part, I will describe the details about our application. For each function part, images will be shown first and then the descriptions.

1) User Interface for iOS

I. Log in and sign up

Here are the three images for this part.

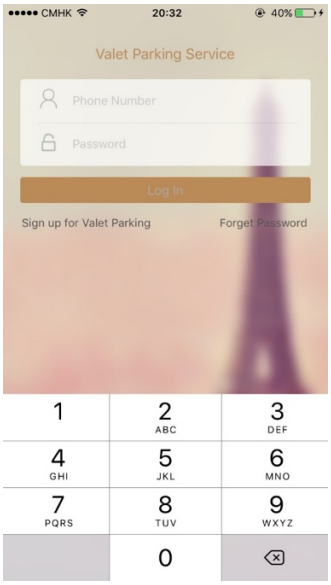

Figure 1. Log in

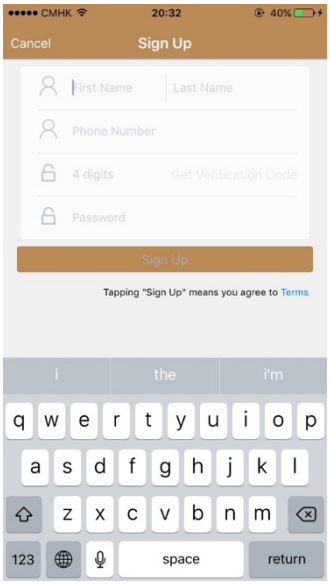

Figure 2. Sign up

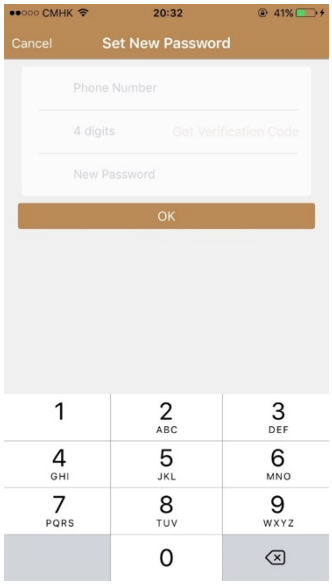

Figure 3. Set new password

Figure 1 is the login interface, which is also the initial interface of our app. Users of our application have two kinds of roles, one is valet, and the other is customer. If the user has used our app then he needs to input phone number and password to log in.

If it is the first time for our customer using this App, which means he or she does not have an account, then he needs to sign up using its phone number. By pressing “Sign up for Valet Parking” button, which is below the “Log in” button, can user enter the sign up view. User needs to input some basic information here including name, phone number, verification code and password. Pressing “Sign up” button means user agrees with our terms and conditions which can be seen from “Terms and Conditions” button. If user forgets its password, he can press the “Forget Password” button in initial view of our app and the application will jump into Figure 3 for him to set up its new password.

Every time a user signs up for new account or set up new password, he has to use his phone to receive verification code. Only after receiving the verification numbers and verifying successfully can he sign up or set up new password.

II. Valet Service

Here are the three images for this part.

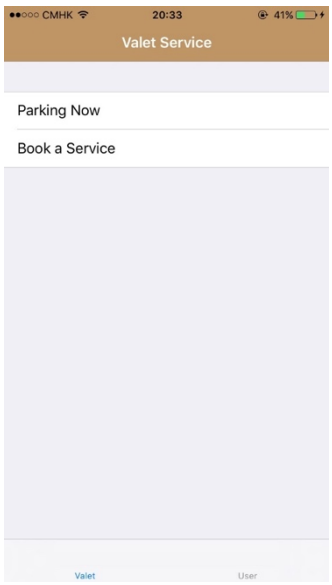

Figure 4. Valet Service

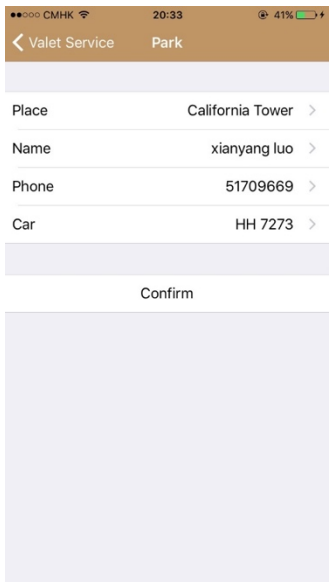

Figure 5. Park info

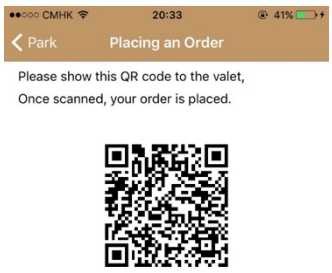

Figure 6. Place an order

After a user logging in or signing up successfully, “Valet Service” (Figure 4) view, which is the first tab of our app, will show. There is a tableview here containing two major services of our application. User can choose “Parking now” or “Book a Service” here. For “Parking Now”, user can enjoy our service immediately if he is nearby a parking station. For “Book a Service”, user can choose a time and a place to enjoy our service.

If the user chooses “Parking Now”, figure 5 will be pushed out. There is a table view in figure 5 where user needs to input or choose basic parking information including parking place(can be chosen from a table), name to contact, phone to contact and the car he wants to park. User can change this information easily by pressing each row. If the user does not have a car yet, a “Add a Car” view(as shown in Figure 10) will pop up for user to add a car.

If all the information is set up, user can press “Confirm” button and “Placing an Order” view will be pushed out, shown in Figure 6. User can change any information he wants by pressing “Back” button on the left of the navigation bar can confirm again. There is a QR code containing the parking information in Figure 6. By scanning this QR-code, our valet can get the parking information of the user, confirm this order and gets the car from the user.

III. Personal information and settings

Here are the four images for this part.

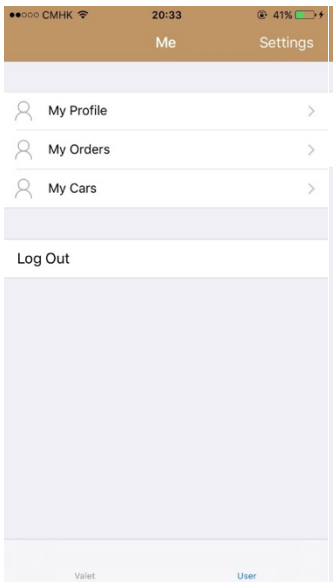

Figure 7. Me

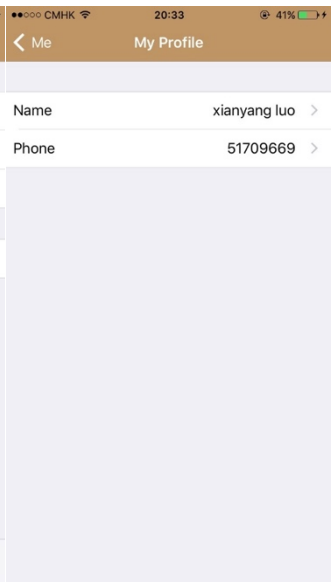

Figure 8. My Profile

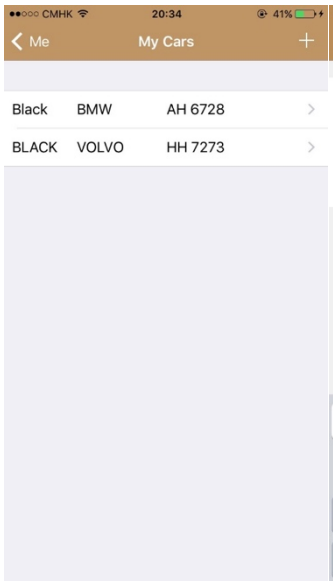

Figure 9 My Cars

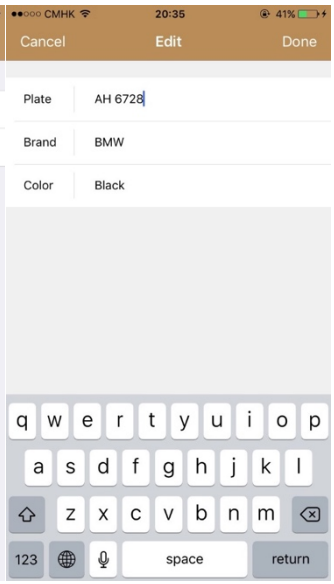

Figure 10. Edit a Car

As shown in figure 7, the second tab of our app is the personal information and settings. There is a table view with four rows here. They are “My Profile”, “My Orders”, “My Cars” and “Log Out. And there is a “Setting” button on the right of navigation bar.

If “My Profile” is clicked, “My Profile” view will be pushed out like figure 8 shows. There is some information here. For now, we have name and phone number of this user and more information will be added. User can also change its info here anytime

If “My Orders” is clicked, then a table view shows all the historical order of the user will be pushed out. User can check and review his historical order

If “My Cars” is clicked, then “My Cars” view will be pushed out like figure 9 shows. If the user has not added a car yet, then figure 10 will automatically pop up for user to add a car. Basic information

like plate, brand and color is needed to add a car. When the “Done” button is pressed in figure 10, the car is saved and will be shown in figure 9.

2) Database and model

For now, I have designed our database locally using CoreData in iOS. There are three models now which are User, Car and Order. The class diagram is shown below.

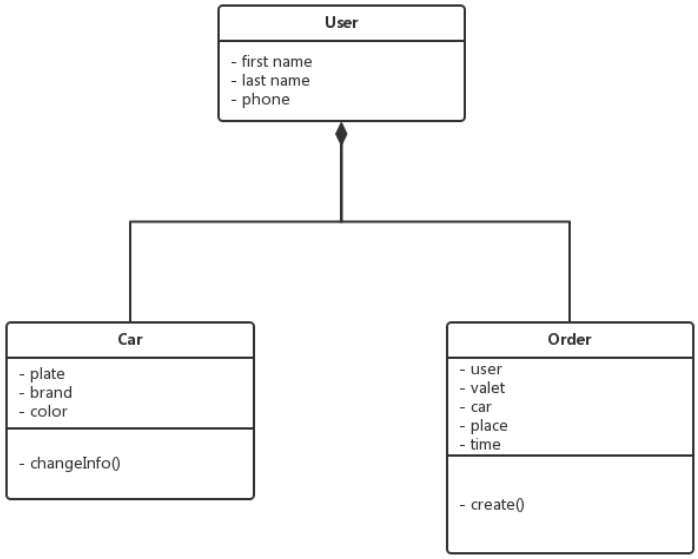

Figure 11. Class Diagram

3. Future Plan

1) iOS User Interface

I will discuss with employee in Lan Kwai Fong to make it more user friendly. It will take approximately 2 weeks to do it. And I will finish all the user interface work in 1 month.

2) Server side

I have deployed our server on the virtual machine of CS department. The development environment is PHP + Apache + MySQL. I will start develop our server after discussing with Lan Kwai Fong. The server will be finished in 1 month

3) Test

After I finish all the iOS user interface work and server side work, we will start test this app in real world. At that time, we will find our problems and improve the whole system.