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Mobile Homestay Booking System (jHo)

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Abstract. Homestay booking system is a mobile application that helps users to search and to book homestay for vacation. Most people prefer to stay in homestay rather than in hotel due to the flexible regulations set by homestay owners. Currently, there are many existing homestay booking systems that are available in the website, but lack of mobile application. This is troublesome for users as they are only able to access the system through their computer. Although the website is accessible through smartphones, users are not able to view the website properly, thus makes the booking process harder. Although there are some mobile applications that supports homestay booking process, however, it displays more on hotel listing rather than homestays. Therefore, a mobile homestay booking system has been developed with the capabilities to display most homestays available in Johor with details of date availability, facilities provided, nearby attraction and exact location of the homestay. The system also allows users to book any of the homestays by entering their check in date, check out date and number of guest. To improve the efficiency of the system, Google Map are implemented to help users get the information of the exact location of the homestay. The methodologies implemented in this system are Rational Unified Process (RUP) and Android Architecture. Furthermore, there are testing phases involved to ensure that the system developed are error free. Black-box and white-box testing has been performed after the system has been developed completely. The system was tested by potential users to complete the user acceptance test in order to check the system reliability, effectiveness, efficiency and capability to be used in real life.

Keywords: Mobile application, booking homestay, search homestay.

1 Introduction

The tourism industry is one of the most important industries in the world which contributed significantly to the national economy. It continues to be one of Malaysia's financial resources up till now. As reported in Utusan Melayu newspaper, the Prime Minister, Datuk Seri Najib Tun Razak said that when foreigners spend in our country, it is a form of income for our economy and catalyze economy growth especially right now when the global economic is unstable ("Sektor pelancongan antara fokus kerajaan kembangkan ekonomi tahun ini – Najib", 2016). Besides foreigners, locals also frequently holiday in Malaysia only and contribute to the tourism industry. The locals chose to have a vacation in their own country because Malaysia contains unique and special places especially in terms of the cultural, traditions, and others which no less than other countries. When traveling, the most important things that have been emphasized by tourists are the accommodation. Instead of a hotel, another type accommodation being suggested is homestay. A homestay is a place where the owner rents their place for a tourist to stay during their vacation. The homestay usually rent by the tourist with a big family or anyone that need privacy space during their holiday.

Unfortunately, the list of homestays are limited. Currently, many mobile applications are able to list out accommodations to be rented. However, the list provided in the mobile application are mostly about hotels but lack of homestays. Based on the analysis done on homestay booking website, there are many homestays that already exist but the mobile applications did not list them since they are more focused on the hotel listing.

In addition, there are only website applications, which focuses on homestays. The website can be viewed with the best display only when the user uses their computer or laptop. If the user uses their smartphone or tablet, it will give a non-satisfying interface for them to view which makes the booking process harder. Therefore, the user needs to use their computer every time they want to view the list of homestay or making a booking. However, to use the computer, they need to wait until they reach home or they need to bring their laptop everywhere they go. It is

inconvenient for the user with current technologies where everything just at our fingertips.

In this regard, there is a need to provide a mobile homestay booking system in order to simplify the searching and booking process of homestay for the users.

2 Related Works

An analysis has been done towards the existing systems, which are the manual booking system, Android Application Booking System (Airbnb Application), Hotel Booking System (Hotels.com) and web application Booking System (HomestayatJohor). Through the analysis, functionalities of the existing systems have been identified and shown in Table 1.

Table 1. Functionalities Available on The Existing System

Functionalities	Manual Booking System	Airbnb Application	Hotels.com	HomestayatJohor
Login	Facebook directly	- Facebook account - Google account - New account	Facebook account	No
Message	Facebook directly	Built in message feature	Built in message feature	No
Filters	No	Consist filters function	Consist filters function	No
Policy	No	Yes - Cancellation Policy	No	Yes - Booking Policy
Full details	No	Yes	Yes	Yes
Payment option	Bank in	Built in payment option	- Credit / Debit card - PayPal - Gift Card	By Softinn
Check date availability	No	Yes	Yes	Yes

3 Methodology

The Mobile Homestay Booking system developed using Rational Unified Process (RUP) methodology. The RUP originally develop by Rational Software is a software engineering process, and now the RUP are develop by IBM (Philippe, 2004).

Rational Unified Process is chosen because RUP can manage requirement when there are any changes done by the developer (**"**Software Development Methodologies**"**, 2016). Plus, RUP manage to reduce the development time required by reuse the components in the system (Peter, 2002). RUP consists 4 phases, inception, elaboration, construction and transition phase.

During inception phase, for this project, all the data related to existing systems have been collected and analysed. Moreover, questionnaires have been distributed to targeted user to get essential information for developing Mobile Homestay Booking system.

Based on all information collected from inception phase, the information used to obtaining functional and non- functional requirement in elaboration phase. Result from the requirements are shown by illustrate use case diagram, sequence diagram and activity diagram.

Then, in construction phase, the system is developed and each function was tested to find bugs and errors. The testing involved are black-box testing, and white-box testing.

For transition phase, beta-testing was done on the Mobile Homestay Booking system by doing user acceptance testing on the system. This phase required to make sure the system fulfilled the user requirement and are ready to be release.

4 Result

4.1 Requirement Analysis

The development of the Mobile Homestay Booking system is completed and the objectives of this project have been achieved. The system develop based on the use case of the system as shown in Figure 1 and the behaviour and interaction of the system are shown in Figure 2 show one of the sequence diagrams of the system.

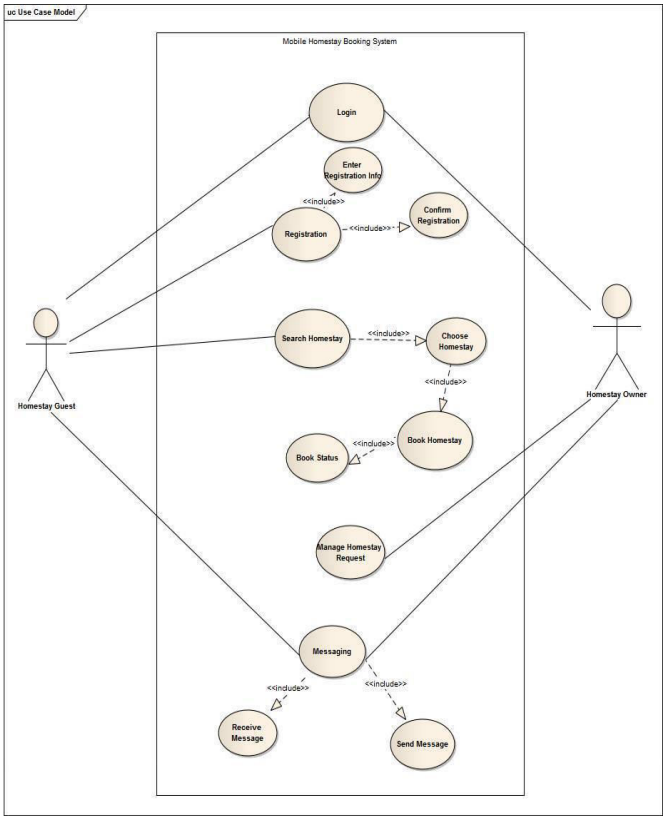

Figure 1. Overview Mobile Homestay Booking System Use Case

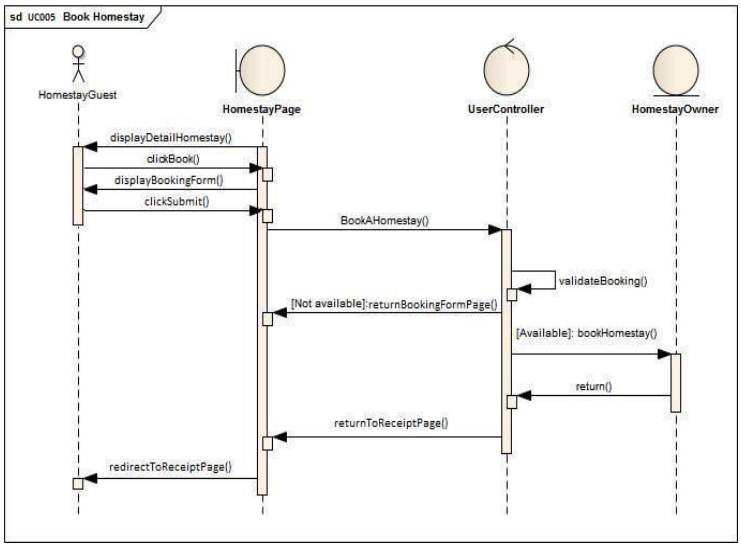

Figure 2. Sequence Diagram for Book Homestay

4.2 System Architecture

The system architecture of Mobile Homestay Booking system is based on Android Architecture. The architecture used roughly divided into five sections and four main layers (Linux Kernel, Native Layer, Application Framework Layer, and Application Layer) as shown below in Figure 3.

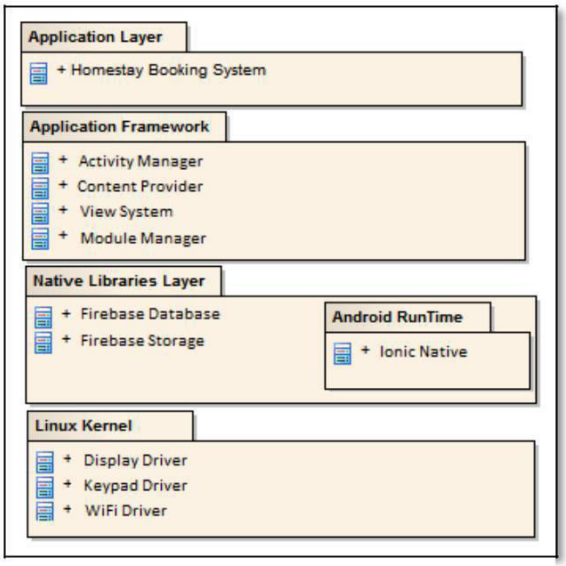

Figure 3. Mobile Homestay Booking System Architecture

The Linux Kernel layer is an abstraction hardware layer for Mobile Homestay Booking System. This makes a mobile be ported to a variety of different devices. Meanwhile, the Native Libraries are libraries that are pre-installed on a mobile device by each vendor and are written in HTML language. It allows graphic, all sort of image formats and using Firebase database.

For Application Framework, it is a high-level layer, which provides a developer with a space for a Mobile Homestay Booking system development. The highest level is the application layer, which is the end user android application for the user.

4.3 System Interfaces

Figure 4 shows some of the interfaces for Mobile Homestay Booking system that have been successfully developed.

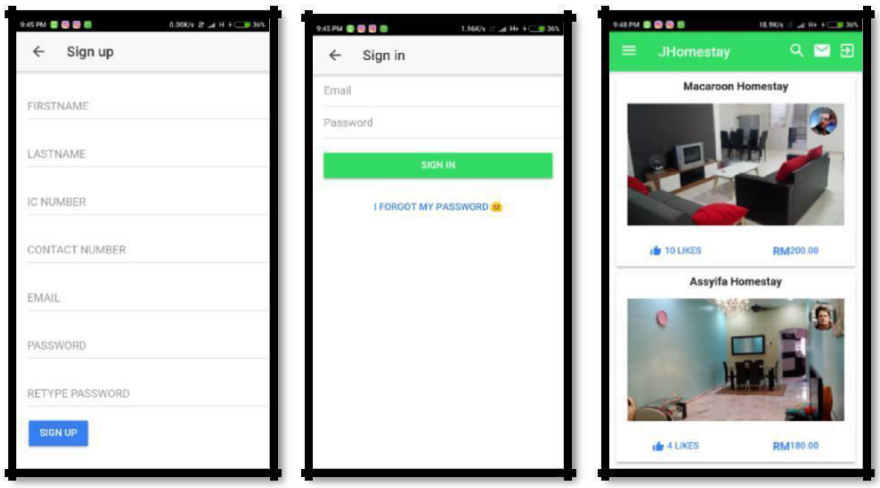

Figure 4. Registration Interface of Mobile Homestay Booking System

5 Discussion

During the phase of developing Mobile Homestay Booking System, there are some challenges faced in order to make the development of the system success. First of all, Google Map implementation. Google Map is used to show homestay location to the guest. The problem occurs when the Google Map only show on Mobile simulator meanwhile if the system package is built, the Google Map not shown. After a few searching, then the problem occur could be solved. Next, the problem occur is the messaging page. There are many ways to implement message function into the Mobile Homestay Booking System but to find the exact ways, it takes longer time and makes other works pending. Luckily, after spending quite a number of time, finally, I manage to implement the message function into the system.

6 Conclusion

This project has successfully developed a Mobile Homestay Booking System. This system allows the user to get more list of homestay and make a booking for the homestay that they want. It is expected that this system will improve more in the future. This project is completed in two semesters and if needed, the future works will be carried out to enhance the efficiency of the Mobile Homestay Booking System.

This system will improve by adding payment method in future. Currently, the system did not handle anything that involves money. All are between owner and guest. Therefore, in future, this function could be added to make the system can handle the booking payment and the full payment of the homestay. Plus, this system now just focusses on a homestay in Johor. For future improvement, it would be the best if the scope covers all the homestay all around Malaysia.

Then, the system will be improving by implementing an intelligent technique. The technique can improvise in giving accurate searching result and make the system function faster.

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