



UiTM Tapah Non-Resident Rental Housing Application

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ABSTRACT

Student accommodation is a vital issue in building a student's life at any university. Students and universities struggle to find the right solution for housing so that students can pursue their particular field of study and enjoy their university's life. Seemingly, the right accommodation can contribute towards students' success, students' retention rate, and students' satisfaction with their living arrangement. As it turns out, the Non-Resident students of University Teknologi MARA Perak, Tapah Branch voiced out their unhappiness to the University's Management that they are having difficulties in finding rental housing around the Tapah area. The researches believed that the students complained need to be addressed immediately. Considerately, a mobile application was developed to help them in finding off-campus rental housing around the Tapah area. Usability testing has been applied to evaluate the feedback of users regarding their satisfaction using this new mobile application. The result from the survey shows 94.4 % of the users were satisfied with the overall system. However, there are still some future works that need to be done to improve this application.

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1. Introduction

More often than not, students prefer to live on campus rather than off-campus. This is because when living on campus, a student does not need to feel anxious about their safety, budget, facilities, and others. Vice versa. Off-campus housing can be a daunting and confusing task thus create a chaotic and messy living style. When a safe and healthy living space is detrimental and a threat to a student's life, he/she cannot concentrate on vital things like coursework and fieldwork



study. Thus, the university's management and students must look into the matter of providing and getting a secured living space.

Statistically, the Malaysian Ministry of Education has disclosed that there was an increase in the number of enrolment for university students from the year of 2016 to 2017[1]. This situation continues to get worse as insinuated by Noraini et-al (2017), this increase in students' enrolment for most universities has ironically "far exceeds in-campus accommodation provided by colleges" [2]. As a result, "only the first and final year students, those physically challenged and the students who involved in sports activities will be provided with accommodation" [3], [4]. Thus, this unprecedented the scenario has indirectly forced students to rent private houses or rooms within the locality of their campuses.

Thus, it is crucial for the students to carefully choose a house to live in for a certain period. Students are mainly concern about the price, facilities offered and the location of the house, from the university. Some universities guide their students in searching for their off-campus housing either through advertisement on websites or social media. However, according to Jawatankuasa Perwakilan Non-Resident (JPNR) of Universiti Teknologi MARA, Perak Tapah Campus, a flood of websites that provide rental house information has led to confusion among students, especially non-resident students; the data provided can be untruthful. Consequently, there were few cases reported by the non-resident students regarding their safety and forgery. Besides, students need to take a longer time to search for the rental house.

This paper provides a report on the design, development and evaluation of a mobile application project that has been proposed as a solution to help the students of UiTM in Tapah Campus to search rental houses.

2. Literature Review

The mobile application has been widely used in any field in our life. The education system is no exception in using mobile-based learning as a tool for acquiring knowledge. This is because using mobile application is faster, portability, individuality and can learn anywhere and anytime. Smartphones that use iOS or Android are mobile devices that are gaining increasing popularity among users to access the internet. "It is reported that iOS and Android devices comprise more than 79% of all existing mobile devices" [5].

According to the head of JPNR unit, in the year of 2018, there were 3932 students of UiTM Tapah and 16% of them were registered as Non-Resident (NR). From the year of 2014 to 2017, there were few reports received from the NR regarding safety and forgery matters such as intrusion, lurking, and owner's scam. These reports are an indication that the social welfare of the NR is at stake and therefore severe intervention by the management, especially the JPNR is seriously needed. Through a general survey, JPNR found out that the above worrisome matters exist as a result of the NR's devotion and faith on such untrusted websites that offer information on certain housing matters around Tapah areas. These websites are full of hidden and confusing information that will lead to injustice and counterfeiting towards the NR students.

Thus, it is empirical for the university's management and the JPNR unit to come out with a solution to stop this kind of suppression towards the NR students, to rest assure that they have a peace of mind throughout their studies and their tenancies. This undertaking measure of safety assurance is very pivotal because when students are disturbed by their off-campus housing problems, other interconnected issues like financial and emotional breakdown will take place. What's worst is when these problems will directly affect their academic performance, their core vision, and their mission as a graduate [6]. Besides [7] insisted that there is a correlation between decent accommodation with students' academic performance, a safe living place is as vital as anything else that matters in a graduate life [3].

In this study, a non-resident is referred to a student who needs to stay off-campus and rent a house for a specified period. Rental is defined as the amount of money that you pay to use something for a particular period [8]. According to [9] the rent condition of rental housing can be categorized into three categories which are: 1) the ability to own house, 2) the need to live in temporary housing for a certain period at a specific location, and 3) self- preference for renting rather than buying. Most students are in the second category because students require a short period to live in a temporary house at a specific location when they further their studies. This life condition will help students to experience a new phase of life by living apart from their family and owing temporarily a house.

Nowadays, Mobile applications or also known as mobile apps is defined as a computer program or application software to run on mobile devices such as smartphones or tablets. Figure 1 shows the trend of mobile application development in market share from the year 2012 to 2013 as reported by [10].

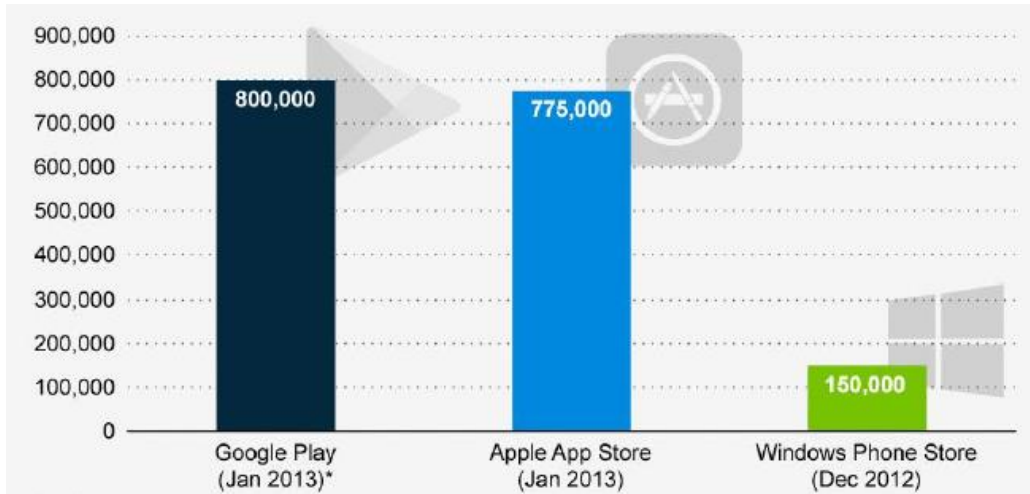


Figure 1. The trend of mobile application in market

Figure 1 indicates the current rapid growth of mobile application in the market and the expected market growth for the upcoming years resulting from an increased in the total number of smartphone users in the world. Smartphone developers feel that there is an urge to taking opportunities towards these current trends. Relatively, smartphone manufactures are now providing affordable smartphones at a cheaper rate [11]. On that account, this project aims to develop a mobile application as a platform to offer a solution to off-campus students' housing problem.

2. Research Method

A well-organized methodology plays significant roles to complete the project. A waterfall model well known as System Development Life Cycle (SDLC) used to understand the users' need and to ensure that the project is on the right track [12], the stages involved are shown in Figure 2.

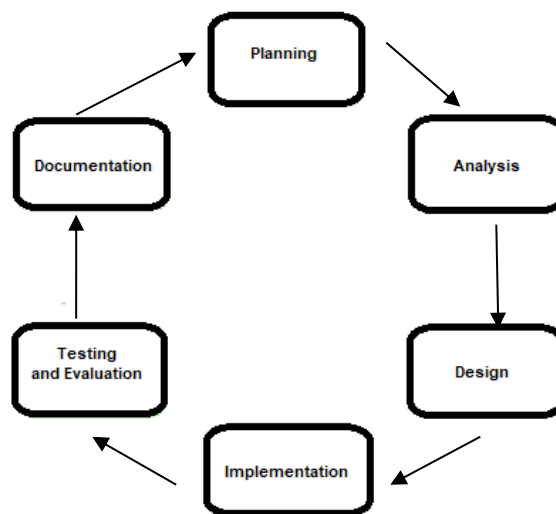


Figure 2. Graphic illustration of System Development Life Cycle (SDLC)

This project starts with a planning stage then followed by an analysis stage, the requirement from the off-campus student and head of non-resident unit. The third stage is designing the interface and the database design application. Then the implementation stage is done by embedding the program and activate the database connection. The fifth stage is testing the prototype among off-campus students and selecting the landlords which can be done by the non-resident officer. Finally, the last stage is documenting the project information including result and feedback from the users during the testing stage.

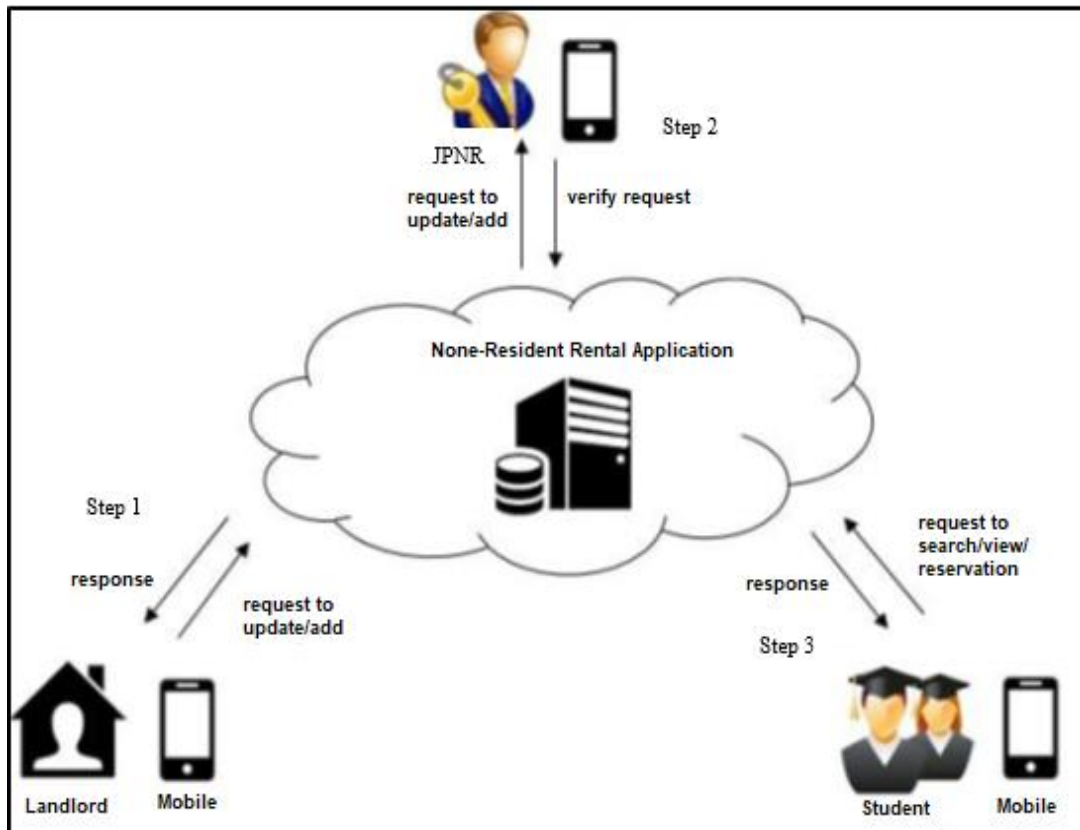


Figure 3. System architecture

The system architecture is a conceptual model that describe the structure, behaviour and overall views of the system [8]. Figure 3 illustrates the architecture of the Non-Resident Rental Housing Application that has been developed. The application and the database are deployed in a server and access by three types of users: JPNR officer, the student and the landlord. First, the landlord will register and submit their properties in the system. Second, the JPNR officer will verify the landlord's submission and release the information after investigating the actual property. This is very important to ensure only the right advertisement will be released in this application. Third, the student will search the information according to the searching criteria including the range of rental price as well as the distance from UiTM Tapah campus. These three (3) simple steps perhaps will ease and help all related parties to search rental house information.

3. Results and Analysis

The main point of this section is to analyze the result that corresponds to the implementation of UiTM Tapah Non-Resident Rental Housing Application toward students. The discussions will cover the Requirement analysis, Interface design and post-survey analysis.

3.1 Requirement Analysis

The collection of information and feedback is acquired through two forms of resources. The first resource is from feedback gathered from the interview conducted with the Head of the Non-Resident Unit regarding rental housing problems and information, for non-resident students. The second resource is from the pre-survey and post-survey conducted to find out the thought and feedback of the students. The pre-survey involved 70 random respondents among UiTM Tapah students to identify the problem faced by them regarding rental houses. The survey result has confirmed that the majority of UiTM Tapah students having difficulties in finding rental houses as revealed in Figure 4, which shows four main problems face by the students.

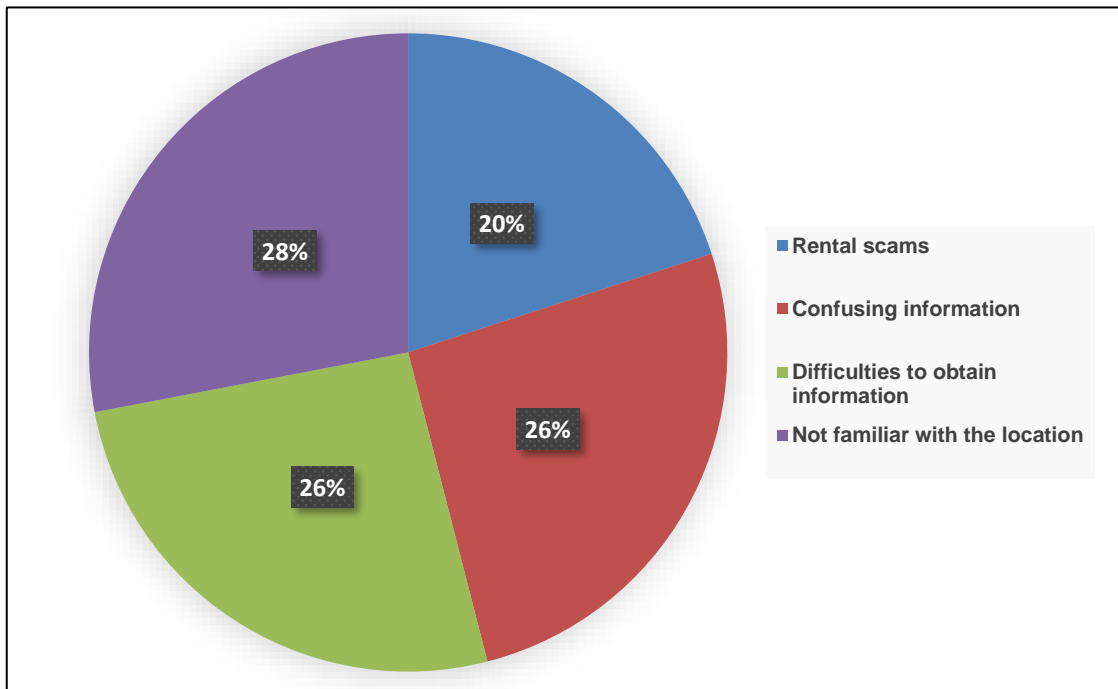


Figure 4. The problems encountered by students in finding the off-campus rental housing

Students can identify four major problems while they were finding houses for renting. The most dangerous is the existence of rental scams. Furthermore, Table 1 depicts the current approach that they used in searching rental houses.

Table 1. The approach students used to find the off-campus rental housing

Approaches	Number of respondents
Advertisement through social media	33
Browsing multiple websites	20
Searching from one place to one place	34
Others	3

Most students find the rental houses through social media advertisement such as Facebook and Whatsapp as well by physically searching areas by areas. Other approaches involved dissemination of information by the house owner at any shops nearest to the university.

3.2 Interface Design

This application has three (3) different user types that are student, landlord and administrator. Every user has his/her role in this application. Table 2 depicts the description of every user type in this application.

Table 2. Off-campus rental by the type of user

Type of user	Description
Student	Student of UiTM Tapah campus
Landlord	The property or house owner who want to offer hous rental service to the students.
Administrator	One of Non-Resident staff who will manage the implementation of system and monitor the use of this system.

Figure 5 shows the interfaces of the application to display the rental house information. Every interface labelled by number according to the flowchart of this application.

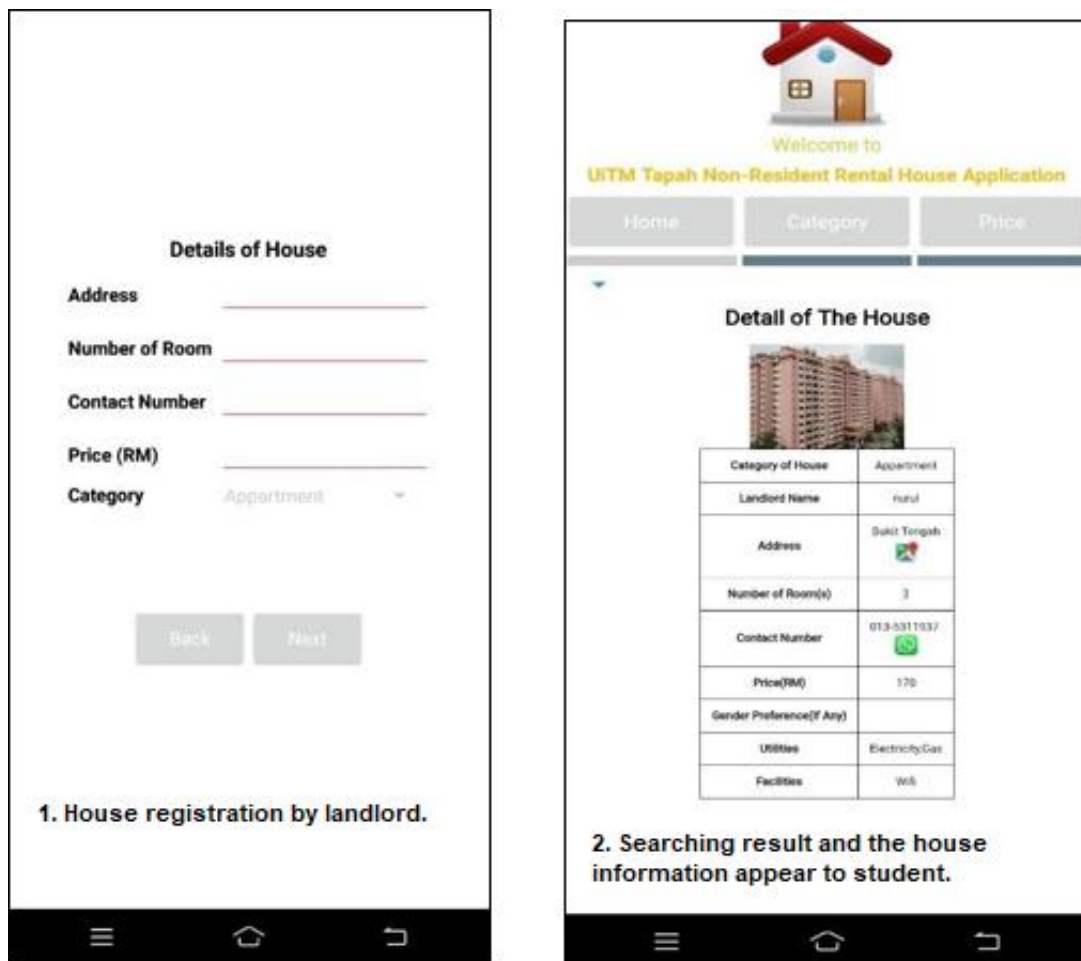


Figure 5. Interfaces for House Information

First, the registered landlords need to register their properties that can be rented by students. Second, the registered students are then able to search for the house information including house address, the number of rooms, facilities, price, landlords contact numbers and gender preference. Third, the administrator can monitor the activities in this application as seen in Figure 6.

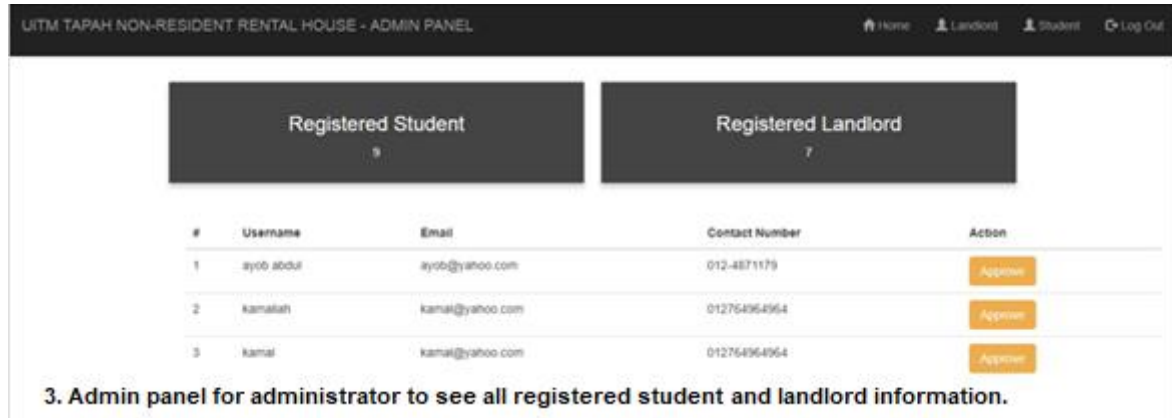


Figure 6. Interface for the Admin Panel

3.2 Post-survey analysis

For this project, a post-survey has been conducted to evaluate users' satisfaction toward the development of this mobile application. The post-survey is based on usability testing where the respondents are 55 from students, 15 from landlords and 1 JPNR officer of UiTM as an administrator. All the respondents can represent the actual use of this application since the purpose of usability testing is to gather feedback from the real users of the targeted group to accomplish a specific task [13]. Usability testing also important for future enhancement as well as a significant part in the success of a mobile apps innovation [14],[15]. The testing steps and descriptions are shown in Table 2.

Table 3. Testing steps

Steps	Descriptions
1	Explanation of the mobile application and testing objectives to users
2	Two ways of set up: <ul style="list-style-type: none"> i. Users download and install app files on their mobile phones. ii. User test the application on the developer's laptop and phone
3	Answering an online survey to give feedback regarding the application
4	Evaluating the survey result

Figure 7 shows that more than 30 of the respondents, which represent 43% from the pie strongly agree that UiTM Tapah Non-Resident Student Rental Application delivers secure and relevant information to students. Meanwhile, almost half of the respondents agreed that the application provides the information that is needed and relatable.

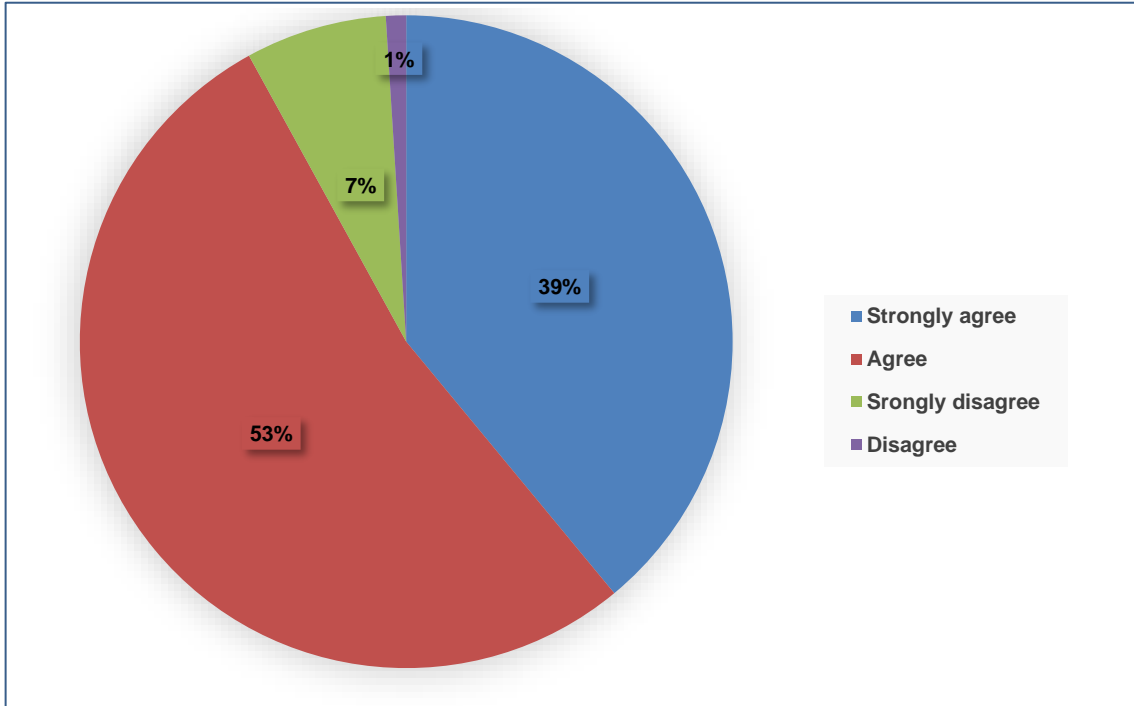


Figure 7. Results of survey on application information

As for the landlord, a significant number of respondents agree that this mobile application is an effective approach for them to advertise their rental houses as depicted in Figure 8.

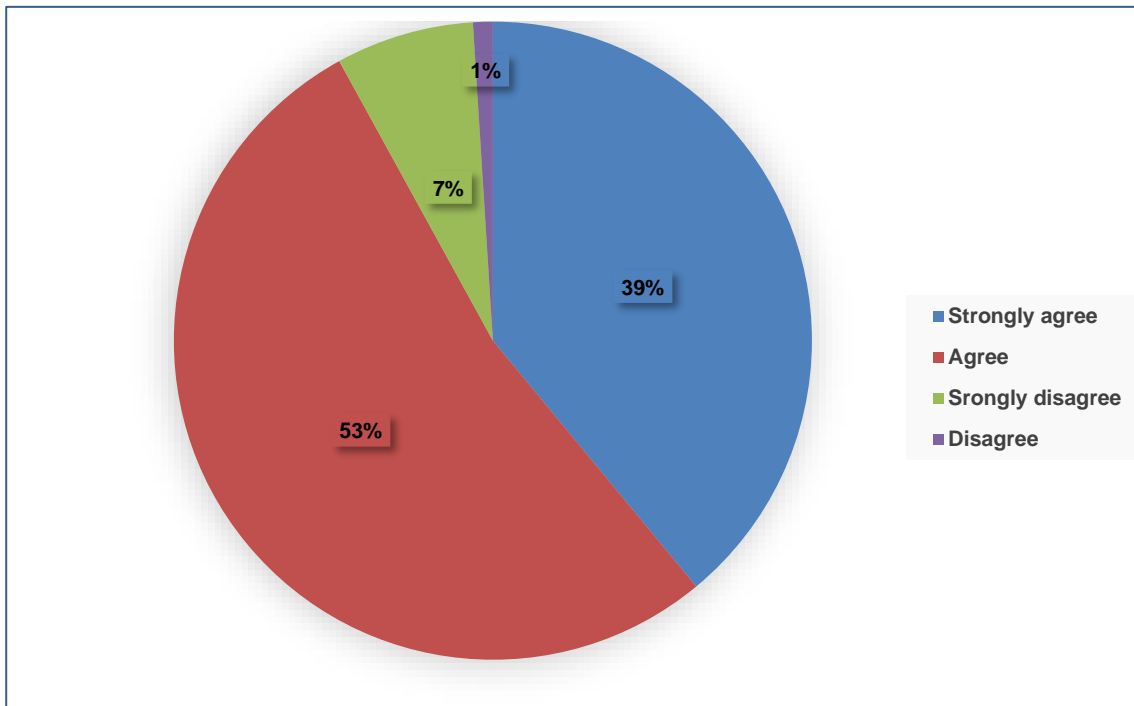


Figure 8. Results of survey on landlords' perceptions towards rental house advertisement

More interesting, 94.4% of the 71 respondents are willing to recommend the application to their friends as presented in Figure 9.

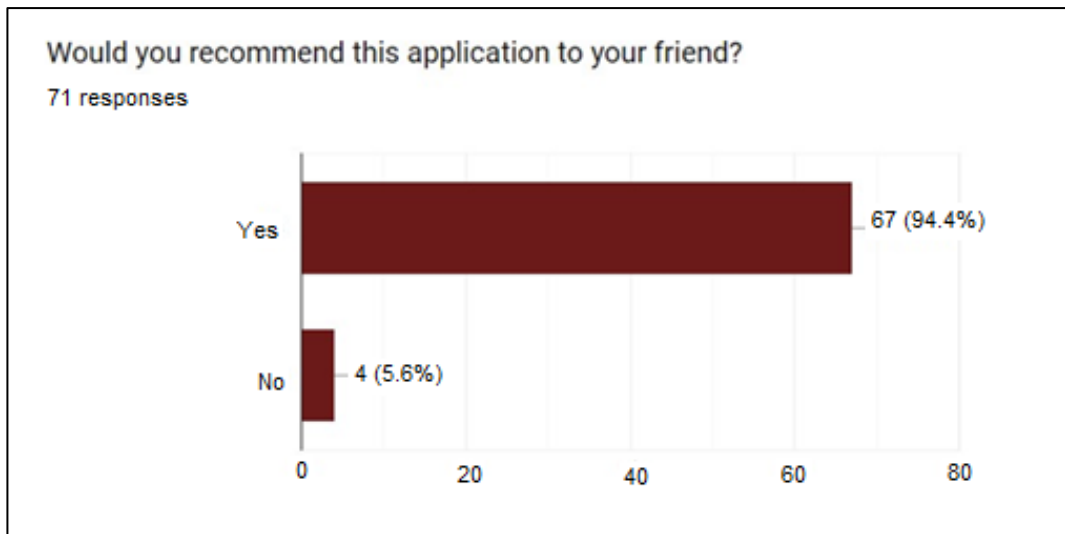


Figure 7. Feedback from all respondents on recommending the application to their friends

This can be an indicator that the respondents agree to use this application and it has succeeded in providing the rental housing information needed by students and at the same time provides a trustful platform to the users. Additionally, testing has also been done on the JPNR officer who is appointed to test the usability of administrator module of the application. The researcher went to the non-resident office and had given some explanation then allowed the officers explore the application. At the end of the session, the JPNR officer provided a positive feedback about the application, including:

- i. The application has helped the officer to monitor the landlords' advertisement.
- ii. The officer able to easily track the off-campus students rental addresses.
- iii. The application utilization can minimize the related risks and issues of off-campus students and landlords towards rental housing. However, the officer has also mentioned an improvement that is needed especially in the reporting module. The researchers should take this suggestion as a future enhancement for the application.

4. Conclusion

The main contribution of UiTM Tapah Non-Resident Rental Housing Mobile Application is to assist students, especially non-resident students in finding rental housing around the locality (Tapah) of their campus. Thus, this project offers a systematic rental housing application for students to find a rental house and for landlords to advertise their rental house. The application has solved most of the problems encountered by students regarding rental houses searching and profitably help landlords in their marketing and renting mission. Above all, based on the respondents' feedback, the application was functioning well and accomplishing the mission. Indeed, the respondents also agreed that the application is suitable to be deployed and used by the UiTM Tapah students.

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