

**Pet Charity Mobile Application**

by

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Dissertation submitted in partial fulfilment of  
the requirements for the  
Bachelor of Information Technology with Honours

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Universiti Teknologi PETRONAS

32610 Seri Iskandar

Perak Darul Ridzuan

Malaysia

CERTIFICATION OF APPROVAL

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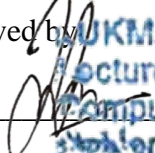
A project dissertation submitted in to the

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In partial fulfilment of the requirement for the

Bachelor of Information Technology with Honours

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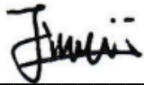
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## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



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TEOH JIN MEI

## **ABSTRACT**

In the today's advancing world of technology, mobile applications are rapidly growing in various field. This research aims to create a mobile application for NGO animal shelters to provide the public a platform that have easier access on the related information of animal shelters. In Malaysia, currently there are only website and social media to public to access on the related information that manage by the animal shelters which is rarely found out by the society. By creating the mobile application, it gathers the useful information and significance features to provide the publics have access to animal shelters. And by this mobile application can help to increase the appearance of NGO animal shelters and improve the animals environment.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Background of study

Recent years, overpopulation and abandonment of pets has been a historical and systematic problem all around the world and it has become deteriorate recently due to the economic recession and the growth of the international legal and illegal trade among which are some of the factors[1]. Like many other countries, Malaysia also having problems on homeless animals which mostly due to the not neutered stray animals overpopulated and abandoned by the owners. In order to help the homeless animals to have a temporary home with care and protection, animal shelters are provided. These homeless animals enter shelters via different ways including being found straying, born on site or others. Animal shelters are mostly supported by local government or charitable contributions which is depends on different regions, and according to the organization focus; some may be availability to all types and receive a high scale of strays, while for other organizations that were have high proportion on “no-kill” and breed-specific rescues[2]. Those animals in the shelter will be keep until they get adopted, which most shelter organizations have common goals of trying to reunite owners with lost pets, rehoming unowned animals, and providing shelter and care for a vulnerable population[3].

In Malaysia there are a few animal shelters under the animal welfare organisation. There are amount of list of it and here will be listed some animal shelters in Malaysia. The first one is Society for the Prevention of Cruelty to Animals (SPCA), it is a common non-profit animal welfare organization around the world which have 12 branches in Malaysia which have in Ipoh, Johor, Kota Bharu, Selangor and so on. One of it the SPCA Penang was founded in 1948. SPCA Penang is a ‘no kill shelter’ that help the sick, injured, and unwanted. They provide temporary care for healthy, abandoned, and unwanted animals until a home is found. SPCA also plays a role to educate the public about responsibility towards their pets help members of the public

to familiarize themselves with animal welfare and care, as well as conveying the importance of local and international animal issues to the community. Another available animal shelters in Malaysia is PAWS (PAWS Animal Welfare Society). PAWS also a non-profit animal shelter in Petaling Jaya that has been in operation since 1987 which mostly animal shelter having the same roles on receive the surrender of unwanted dogs and cats which will vaccinate, deworm, neuter, and put up for adoption. While for adoptions for those animal shelters, most of them have a few same regulations which online reservation on animals are not allowed and the organizations have rights to approve or reject for adoption request by interviewing the adopter for discretion based on some situations such as their financial situation. Besides, there will be adoption fee required, and the animal shelters will used it as donation and operating fee.

## **1.2 Problem Statement**

- Animal shelter NGOs in Malaysia was not well known by the public. There were only website and social media for them to release the information where the society are rarely search.

In the United States, about 6–8 million dogs and cats enter animal shelters every year, and 3–4 million of those animals are euthanized[4]. In the United Kingdom, there were different surveys has been carried out in 2009 and 2010 and it was estimated that there are about 90k to 130k of dogs and 131k to 156k of cats which is much more than dog move into the animal shelters each year[2]. Adoption from animal shelters is suggested to help on providing more spaces to incoming animals and avoid euthanasia. For example in United States, each year there are roughly and 2 million cats and 1 million dogs are adopted from the animal shelters, which means that nearly 25% of all owned cats and 23% of owned dogs were adopted from shelters[5]. While in Malaysia, there are also many animals in shelter are waiting for adoption where adoption animals from shelters was not well known in Malaysia, it is less concerned by the society compared to the overseas.

For animal shelters in Malaysia, the method of their online presences is through websites and social media. For example, SPCA, PAWS these organization has been founded for amount of time which they have their official websites as their online presence to post the animal shelters information such as adoption information, news, events or education regrading pets, contacts and introduction of shelters. They will also be using social media such as Facebook and Instagram to post some information regarding pets education and knowledge, available adoption animals, success adoption case and others. Such as by social media using Instagram, they are required to update frequently for attention, and it may cause some important information such as available adoption pets been push down to older post. Besides, it has been found out that the animal shelters also update more information regarding pet education or knowledge rather than the information regarding the animal shelters itself. But it might not be efficient in order to strengthen the public relation of the animal shelter. Those potential adopters are mostly from the rather small group of people who specially did the research and found out the shelters from safari, or its social media account, or from the people who know someone that is familiar with the organization[6].

Nowadays, technological developments in smart devices and the use of smart phones has become widespread, it has become necessary to present various information systems by sectors as mobile applications [7]. If there is indeed a mobile application, these might help on the social have concern on the problem statement.

### **1.3 Objectives and Scope of Study**

- To develop a mobile application for create a better platform access to animal shelter NGOs information.
- To perform user acceptance test for the developed mobile application.

With the rapid development of technology, studies on mobile devices have increased and by combining smart systems with mobile devices, mobile devices have

gained simple computer functionality and have begun to simplify human life[7]. Drawing the idea from influence of social networking sites on our day-to-day life, an application for the betterment of pets will be developed by using the concept of native application development [8]. Develop a mobile application named PetterPaw, with features suitable such as information regarding available adoption pets, adoption procedure, reservation time for visiting pets in shelters, volunteer recruitments and others, it can help on improve the online presence and public relation of the NGOs animal shelters and adoption situation.

For this proposed project will be develop a mobile application for android, it is because android is the majority of mobile devices users in Malaysia. Research found that the mobile operating system in Malaysia from May 2020 to May 2021, android operation system has hold 75.9% which is much more than the other operating system such as iOS. While the expected primary users of the application that will be engage with to get requirements and to be testers are the animal shelters members, experience adopter and public users. Requirement of the mobile application are also suggested to get from the animal shelters member and experienced adopter to get the appropriate procedure and opinion to create helpful features for the mobile application. Moreover, it is important to perform user acceptance test for the mobile application so that it is accept by the users that it is helpful.

## CHAPTER 2

### LITERATURE REVIEW

In this section will describe the literature review on online presence of animal shelters in Malaysia and around the world. In Malaysia, the NGO animal shelters make their online presence on their own official websites and social media. For example, the SPCA, PAWS, Second Chance Animal Society and others, they have their official websites. In the websites, information regarding the shelters such as background, objective, events, news, contacts and information regarding the adoption details and animals. While for social media, such as Instagram and Facebook, the animal shelters have posted some information regarding the available adoption animals, success adoption story, knowledge on medication and caring of animals, the animal shelters situation, and others. Research found that the other countries have the similar online presence. The animal shelters and rescues mostly have fundamental channels such as basic webpage information to attract the potential adopters where the websites mainly display a generally passive public relationship strategy from most shelters and rescues [6]. While there are a few well-funded shelters and rescues might have a more complex system of publicity utilizing multiple media channels and social media platforms which is more easier to publicity the shelters in current society such as Instagram, Facebook[6]. Such as people would be able to see everything about the animals detailed descriptions with words, pictures and videos of the animal shelters from social media and websites[6]. Example of social media, Facebook or Instagram have comes up with connecting people across over the world which is also increase the activeness of social campaigns and helpful on the different business marketing platform [8]. The social media has basically useful on connecting potential users together at one platform where they can easily reach out to each other to provide a shelter to injured or stray dogs or cat and adopt them from the shelters[8]. As can see that the online presence of the animal shelters would help during the development of the mobile application as reference to insert the suitable and significance in the mobile application.

Besides of online presence of animal shelters and adoption, there were also research found that available IT technologies related to animal shelters and adoption. Example study from Malaysia, it was aimed to implement a mobile application that has integrated features that is useful to help the stray animals from various side[9]. The mobile application is aim to able to drastically decrease the number of stray animals and help the stray animals to have their respective owners who desire to have a pet. The mobile applications would also allow user to find lost pet, adopt pets and also provide a platform for users that interested on joining volunteer service to help animals from list provided in the system[9]. There is a mobile application available in Malaysia which called PetFinder.my. This application has features of available adoption animals with details of location, gender, and age, lost and found, vet and store information available, news and articles regarding animal welfare and other information regarding pets education. This application was used by the society as it has information regarding animal shelters, but it is only news but not the focus such as available adoption animals in the shelter. Below are figures of some features from screenshot of PetFinder.my.

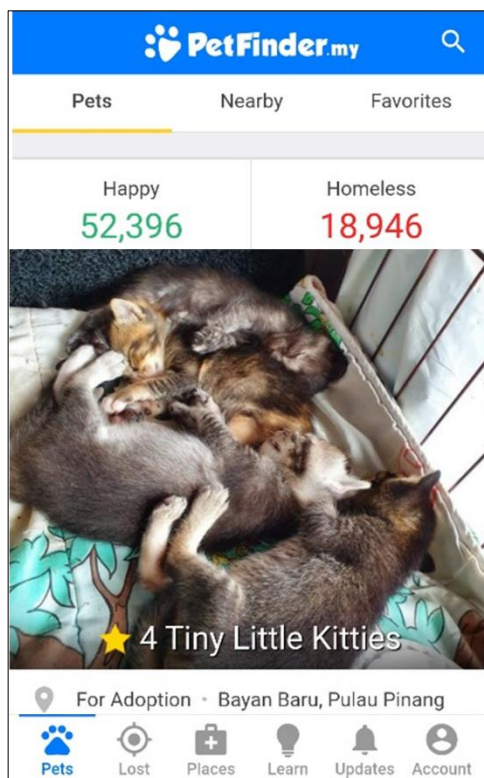


Figure 1 Available adoption animals

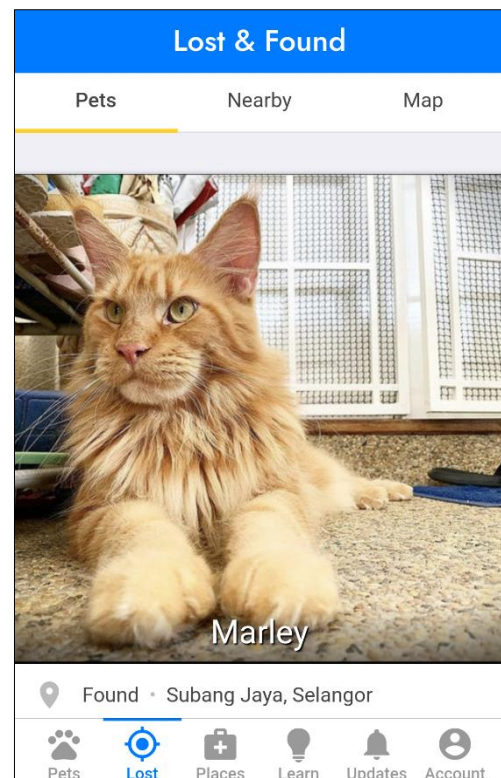


Figure 2 Lost and Found



Figure 3 Vets and store

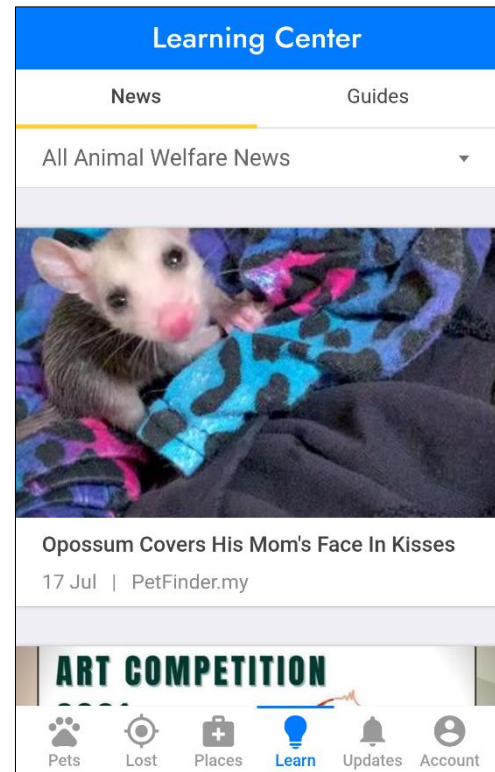


Figure 4 Learning Center

Besides Malaysia, an example study from Turkey, an Android-based mobile application for temporary animal shelter activities named as "ShelterInfo" was developed with basic features headings of City/District Selection, Closest Animal Shelter, Adoption, Information, Employees and Neutering Statistics[7]. This mobile application was not only developed for local animal protection volunteers and local governments, but also for the society who willing to have information about temporary animal shelters, people who are searching for the nearest animal shelter and wish to adopt pets from animal shelters[7]. In this study, not only mobile application but there is also a website has been created for self-registrations of the animal shelters under the responsibility of local administrations then the mobile application will be updated based on the website records[7]. By using the website, every animal shelter can create their own databases such as records of animals in the shelter, the shelter equipment's such as cages, employees details[7]. Besides application and website, there is also study make use of Machine Learning to identify the factors of adoption rate for animal

shelters. Based on Bradley and Rajendran, to identify risk factors for animal adoption and predict the length of stay for animals in shelters, machine learning is one achievable tool to use on these prediction[4]. The study has look into the animals length of stay at the shelters and the elements that affecting the rate of animal adoption which to aim the entire target of improve adoption rates of pets in animal shelters by utilizing various factors to predict the length of stay[4]. It has come out with results such as the difference of duration stay in the shelter by gender of cats or dogs, dissimilar animals for examples cats and dogs have different rate of returned to the shelters and others results[4]. The available IT Technologies from Malaysia and overseas are some good examples to refer as those are related to animal shelters, with result of which is better and which might not suggested to insert in this project.

There are some laws and regulation regarding operation of animal shelters where it will be slightly different depends on the country. For Malaysia, Malaysia Animal Act (1953) and Malaysia Animal Welfare Act (2015) stated that for NGOs involved in animal-related issues, there is licensing system where license is required, and license shall exhibit in the buildings; The owners or licensee should take duties to fulfilled animals needs on appropriate environment, diet, and protected from disease, suffering, pain, and injury; Moreover, animal testing is strictly regulated. Harsher punishments for animals cruelty and more humane ways to cull animals such as shooting for sport, use of cruel equipment, offenders under this section are legally responsible to penalty and imprisonment. Other than Malaysia, study found from Poland the help for homeless animals and the operation of animal shelters have been regulated by introducing national law, stray animal should immediately be placed in animal shelter[10]. The animal shelters should supply basic medical and veterinary care, adequate rooms for animal comfort, providing clean food and water for animals which these are basic criterion for animal shelter found from study in Poland and United State [10], [11]. The animal shelters are also required to record a registry of animals in the shelters including animal description, date of admission to the shelter with details of the person who delivered it, information about quarantine, vaccinations and veterinary procedures, date of leaving the shelter with details of the person



collecting the animal, and the date and reason of death of the animal if applicable; and such maintenance of records including information on each animal impounded was also founded from study of United State[10], [11].

In order on the operation of the animal shelters, there are procedures and processes for it and there are a lot of guidelines can be found from the internet. Research found there is a guideline provided by Royal Society for the Prevention of Cruelty to Animals (RSPCA), with solution and suggestion on the operation of animal shelters. Before deciding to build a shelter, some situations need to consider such as the current existing shelters capacity and area that shelters serve in that district, the situation of animals in that area that required helping hand in this past few years, a forecast of the population of stray animals of that area and residents financial situation of the region[12]. Before making decision on building an animal shelter, determine whether is it to build an animal shelter in that region is the right choice, with consideration of view from the local resident, local businesses and local municipality[12]. There are a number of policy decisions that need to be taken by the organisation before beginning to build a shelter for example some points that determine in the previous paragraph. Besides that, running an animal shelter required a enormous financial commitment, and a major responsibility where in the planning stage that the best care service for animals be sure to include and to make sure that money is not wasted so that the shelter to build is in the control within the bounds of the financial constraints[12]. Money should be planning to use on capital expenditure such as purchase of premises or territory, building materials, consultants' fee of architectures and other expenses required; and also the daily operating costs which is the expenses for the items and activities that required every day in the animal shelter such as food, water, veterinary, cleaning materials and so on[12]. There are also routines needed for a shelter to establish for the acknowledge animals, rehoming procedures, and daily task so that the shelter run smoothly and consistently[12]. For incoming animals, such as cats and dogs required to have examined by a vet whether that animal is it wormed and vaccinated then the animals will be required to quarantined for a minimum of 10 days; For rehoming programme such as adoption,

organization should establish a routine like ask prospective adopters fill questionnaire or interview them to ensure an appropriate match between animal and adopter[12]. Figure 5 is an example of RSCPA’s rehoming process from the RSCPA guidelines for the design and management of animal shelters.

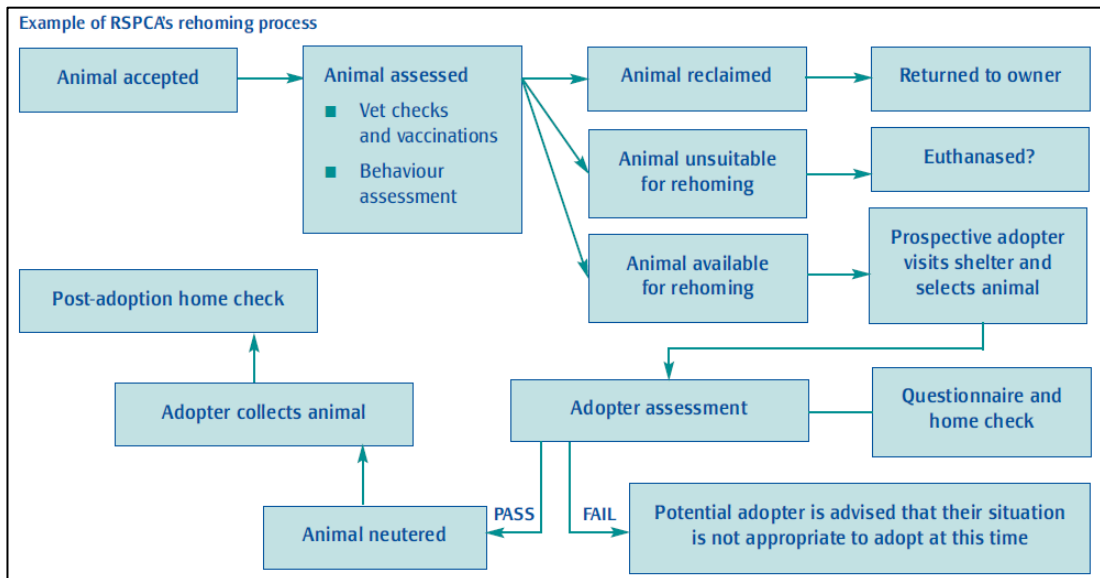


Figure 5 Example of RSCPA’s rehoming process

There are also other routines such as daily activities check all cages and inspect animals, prepare food and feed animals, cleaning kennels, cattery and feeding utensils and other activities for taking good care of the animals; Record keeping by essential forms such as animal acceptance form which required to complete upon an animal’s arrival, animal assessment record which required to accomplish throughout the animal stay and adoption forms which including the pre-home check and adoption agreement[12]. Above point are some points regarding the procedure and process of animal shelter refer from guideline of RSPCA, and it will depend on the organization to plan on their routine to help the animal shelter run smoothly. By understanding the processes and procedure of the NGO animal shelters, it gave a clear understanding of animal shelters which is helpful when design the flow of the application.

In the literature review have research do from different perspective of animal shelter, which is the online presence of animal shelters, available IT technologies related with animal shelters, law and regulation related with animal shelter and processes and procedures of animal shelter. All the research found will be helpful as reference on developing a suitable and functional mobile application for the animal shelter.

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Prototyping Methodology**

In this project, the methodology to be used is Prototyping Methodology. Despa (2014) theorize that prototyping is a methodology that evolved out of the need to better define specifications and it entails building a demo version of the software product that includes the critical functionality[13]. Prototyping methodology is a systems development method in which a prototype is built, tested, and then reworked as necessary until an acceptable outcome is achieved from which the complete system or product can be developed. This methodology is appropriate in situation of when the project requirements details are still not known in advance. It is an iterative, trial-and-error process that takes place between the developers and the users. This methodology is suitable for this project because the firstly the detail requirements of the project still yet to be confirmed. This methodology also suitable for unique or innovative projects where no previous examples exist where this project research found that in Malaysia there is only similar mobile application, but it was no related to NGO animal shelters.

The prototype will first be developed then if there is other details or requirements needed to add by user, the design and prototype of mobile application can be edit where this methodology allows a repetition in design, prototyping, customer evaluation, review, and refinement before it goes to the testing step as shown in Figure 6.

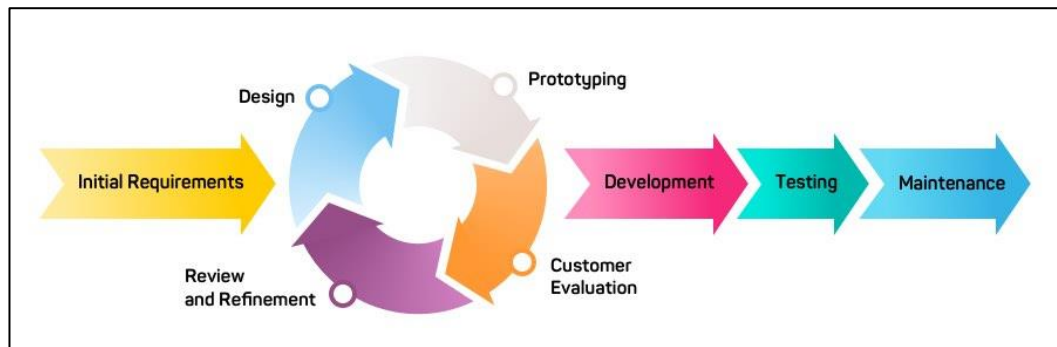


Figure 6 Prototyping Methodology

The prototype is used to refine specifications as it acts as baseline for communication between project team and project owner where the project was not aim to be developed further to an actual software product and required to build quick which usually they overlook programming best practices[13]. As for this project, there is only two semester time which have 7 months to complete where the mobile application is built in model of prototype and required to fast in this shortest time. Requirements information will be got from the members of NGO animal shelters where their opinion and knowledge are required in order which features is suitable to insert in this project so that it is helpful for them and the public users. Although research regarding information on processes, procedures, and regulation has made where it might be more accurate to get from the person in charge or staff from the NGO animal shelters. Then after got the initial requirements, prototype will be built, and feedback will be required from the animal shelters in order to improve and insert additional requirements.

### 3.2 Technology and tools

For development for this project, below are the list of tools that needed to run this project throughout the phase




Tools	Description
	<u>Android studio</u> <ul style="list-style-type: none"><li>- A tool use to build and test application in emulator</li></ul>
Language	
	<u>Java</u> <ul style="list-style-type: none"><li>- Use for developing the functions and back-end code</li></ul>
	<u>Extensible Markup Language (XML)</u> <ul style="list-style-type: none"><li>- Use for developing user interface in android studio</li></ul>

Table 1 Technology and Tools

For this project, the selected operation system to use is Android. Develop an android mobile application has been selected firstly it is because, android operation system device is the major used in Malaysia. And in Malaysia, android devices users are the majority mobile devices users because android devices price is more affordable compared to others such as iOS devices. So, there are more smartphone and devices manufacturers use android as operating system for their devices. From the statistics found from website Statcounter in Figure 7, it shows that the mobile operating system market share in Malaysia from June 2020 to June 2021. In the figure we can see that Android is the most used mobile operation system and it has a huge gap between the other operation system such as iOS and others.

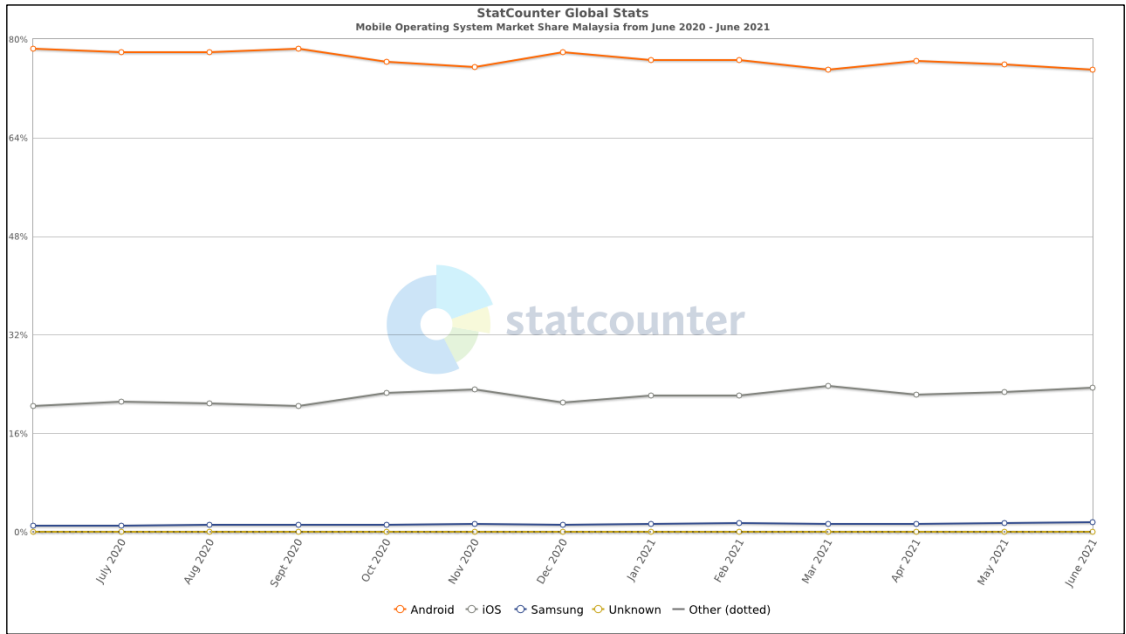


Figure 7 Mobile Operating System Market Share Malaysia

### 3.3 Gantt Chart

Task Name	May	June	July	August	September	October	November	December
<b>Planning</b>								
Selection and research on project title	█							
Research work on supported information	█	█	█	█				
Interim Report	█	█	█	█				
Dissertation Report					█	█	█	█
User Requirements				█	█	█		
<b>Designing</b>								
Application features				█	█	█		
User Interface				█	█	█		
<b>Developing</b>								
Development prototype of application				█	█	█	█	
<b>Testing</b>								
Testing by potential user							█	█
<b>Maintenance</b>								
Maintenance based on feedback from user							█	█

Table 2 Gantt Chart



### 3.4 Design

#### 3.4.1 Functional requirement

1. Main Page (with all features for selection)
2. Pets page
  - That allows users to see available pets for adoption
3. Appointment page
  - Allows users to make appointment for visit shelters for pet adoption
4. Information and events page
  - Allow users to view animal shelter related information and upcoming events
5. Application page

Allow users to apply for activities such as volunteers services in animal shelters

#### 3.4.2 Data flow diagram

Below diagram Figure 8 is the design of data flow diagram of the mobile application as how the data flows between this mobile application functions.

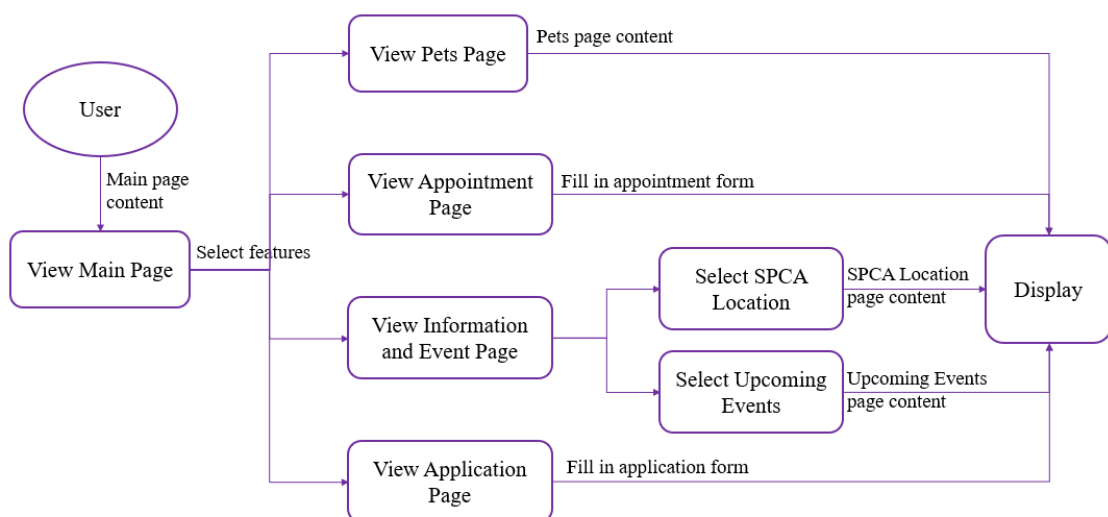


Figure 8 Data Flow Diagram

### **3.5 Development**

The development of flow for PetterPaw process to determine the page and functions as below:

#### **3.5.1 View and update the available pets for adoption in animal shelters**

In PetterPaw pet page, users can view the pets that currently available at the shelters. The detail of each pet is shown such as name, gender, age, vaccination status and other details for user to understand and search for pets that suitable for adoption for them. In this prototype mobile application user can select the shelters to see the specific shelter available pets.

#### **3.5.2 Appointment visit for pet adoption**

As the rules of every animal shelter, reservation for animals by online for adoption is not allowed and interview or survey is required to see the qualifications for adopting pets. So, this feature is created for convenience on visiting animal shelters on time wanted and have interview or survey at the same time if interested to adopt a pet. Users will be required to fill in the appointment form with their name, contact number, age, then select the shelter location, date, and time to visit.

#### **3.5.3 View information and upcoming events of the shelter**

In Information and event page have two selection which is to view shelter information such as SPCA Location in Malaysia and Upcoming events. In SPCA Location in Malaysia shows the details and contact of that animal shelters while Upcoming events will display some events such as volunteer service briefing date, time, and venue.

#### **3.5.4 Application**

Application feature is a page with an application form that allow users to apply for volunteer or as a member of the animal shelters. Users will be required to

select shelters, select the application to done then fill in their name, contact number, email. For application for volunteer will required to choose date and time, while for application for member will required to select as ordinary, life or junior membership.

### **3.6 Testing**

This application has run on the emulator of Android Studio and has been monitored closely to make sure that the functions running well and present the required and useful output for users.

### **3.7 Maintenance**

After the testing with users, some final maintenance might be required such as to improve the final user interface for better view and understanding to increase the usability of the mobile application.

## CHAPTER 4

### RESULT AND DISCUSSION

#### 4.1 PetterPaw User Interface

The user interface is design and created based on the user and developer suggestion. As the mobile application features and design must be useful, usability, accessibility and create a good user experience while using the mobile application. PetterPaw is fully designed with Android Studio, written in the language of XML.

##### 4.1.1 System Output

The screenshots of the output of each screen of PetterPaw will be shown in below diagrams.

- Main page



Figure 9 Main page

In Figure 9 show the main page of PetterPaw with four buttons of each feature. By clicking the button, user can go to the features they wanted.

- Pets page



Figure 10 Pets for adoption

In Figure 10 shows the current pets that available in the animal shelters for adoption. The pets picture, name, gender, birth date, vaccination status, and adoption fee will be display for user to search for the suitable pets for them to adopt.

- Appointment page

The screenshot shows a mobile application interface for 'PetterPaw'. At the top, there is a purple header with the text 'PetterPaw'. Below the header, the app's logo (two paw prints) and the name 'PetterPaw' are displayed, followed by the subtitle 'Appointment for visit pet adoption'. The form contains several input fields: 'Name', 'Age', and 'Phone No.', each with a horizontal line for text entry. Below these is a 'Select shelter:' dropdown menu with 'SPCA Ipoh' selected. The 'Select date:' section features a calendar grid with the month 'Oct' selected, and the dates '26', '27', and '28' visible, with the year '2021' shown to the right. The 'Select time:' section has two columns of numbers: the first column shows '7', '8', and '9'; the second column shows '31' and '32'. To the right of these numbers are the labels 'AM' and 'PM'. At the bottom of the form is a purple 'SUBMIT' button. The entire form is set against a light gray background.

Figure 11 Appointment for visit pet adoption

In Figure 11 shows the appointment page for PetterPaw where user can make appointment through the application to visit the animal shelters for pet adoption. Users will be required to fill in their name, age, phone number, then select shelter to visit, and select date and time to visit.

- Information and event page

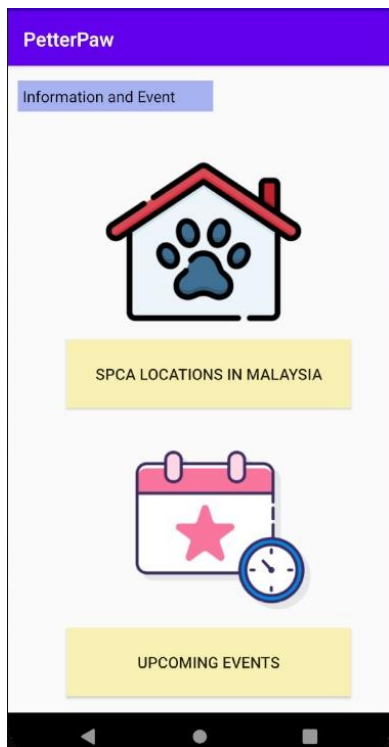


Figure 12 Information and event



Figure 13 SPCA Locations in Malaysia



Figure 14 Upcoming events

In Figure 12 show the main page of the Information and Event while Figures 13 and 14 show the page when user click on button SPCA Locations in Malaysia and Upcoming Events respectively.

- Application

The image shows a mobile application interface for 'PetterPaw'. At the top is a purple header with the text 'PetterPaw'. Below the header is the PetterPaw logo, which consists of two black paw prints flanking the text 'PetterPaw'. The form contains several fields: 'Select shelter:' with a dropdown menu showing 'SPCA Ipoh'; 'Application for:' with a dropdown menu showing 'Become a volunteer'; 'Name' with a text input field; 'Phone No.' with a text input field; 'Select date:' with a date picker showing 'Oct 29 2020'; and 'Select time:' with a time picker showing '11:00 AM'. At the bottom of the form is a purple 'SUBMIT' button. The entire form is set against a light gray background.

Figure 15 Application form for volunteers/membership

From Figure 15 above, it is application page for user to apply for volunteer or membership. Users will be required to select the shelter to apply then select the activities to be done, fill in the name, phone number, while for become a volunteer will required to select date and time.



## 4.2 UAT Survey Result

After completed the testing with the potential users, a questionnaire survey has been done to collected data and information regarding the user acceptance to the mobile application from the users. Below are some responses and recommendation from the users.

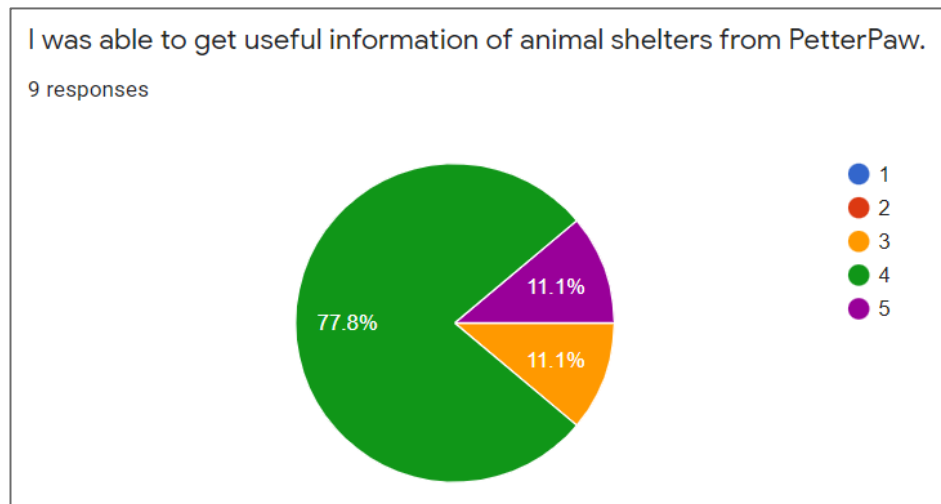


Figure 16 UAT Survey Question 1

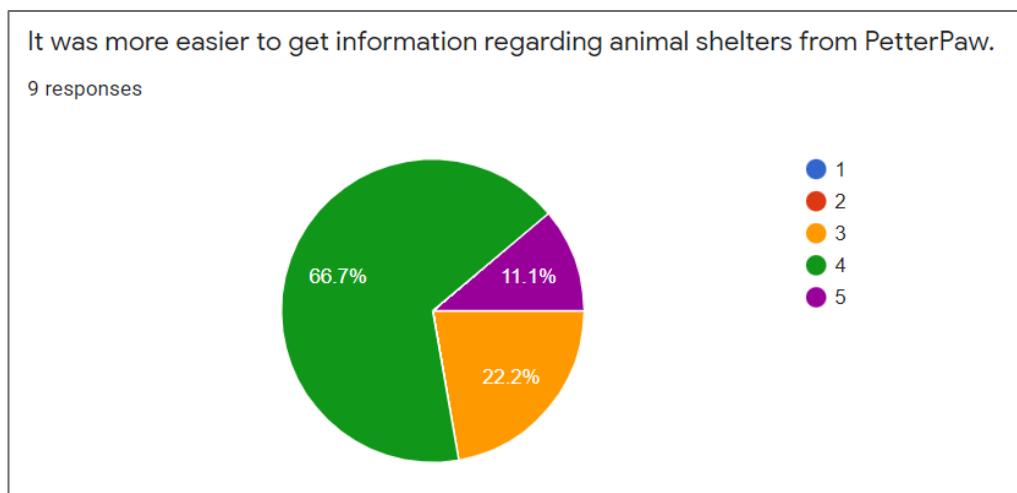


Figure 17 UAT Survey Question 2

From the responses, the questions ask from above diagram which is the rating from 1 to 5 of strongly agree to strongly disagree respectively, whether the user able to get useful information of animal shelters from PetterPaw and is it more easier to get information regarding animal shelters from PetterPaw. As from the 9 responses in

Figure 16, 77.8% were agree with it, 11.1% were strongly agree with it, and 11.1% were slightly agree with it. While for question shown in Figure 17, 66.7% agree with it is more easier to get information regarding animal shelters from PetterPaw, 22.2% slightly agree and 11.1% strongly agree with it. From these two questions shows that PetterPaw have achieve the objectives of create a better platform to access to information of animal shelters and where most of the responses were agree with it.

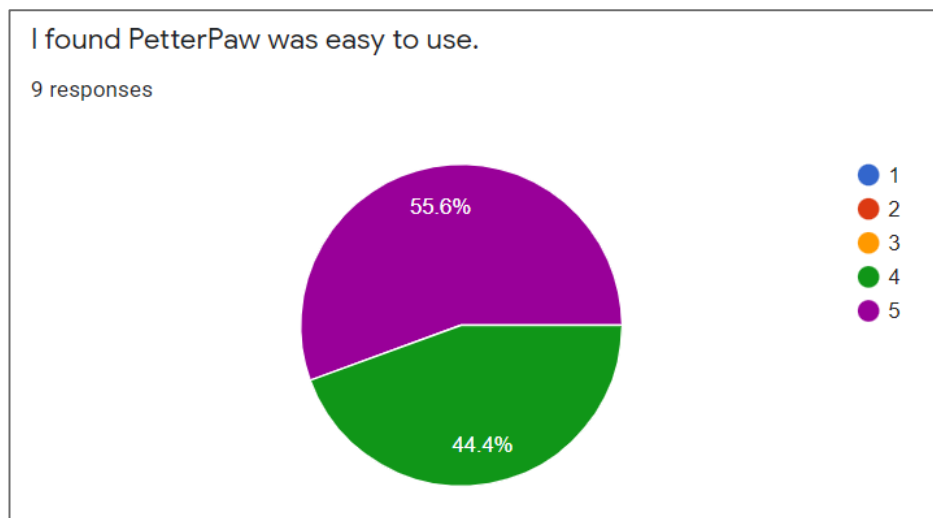


Figure 18 UAT Survey Question 3

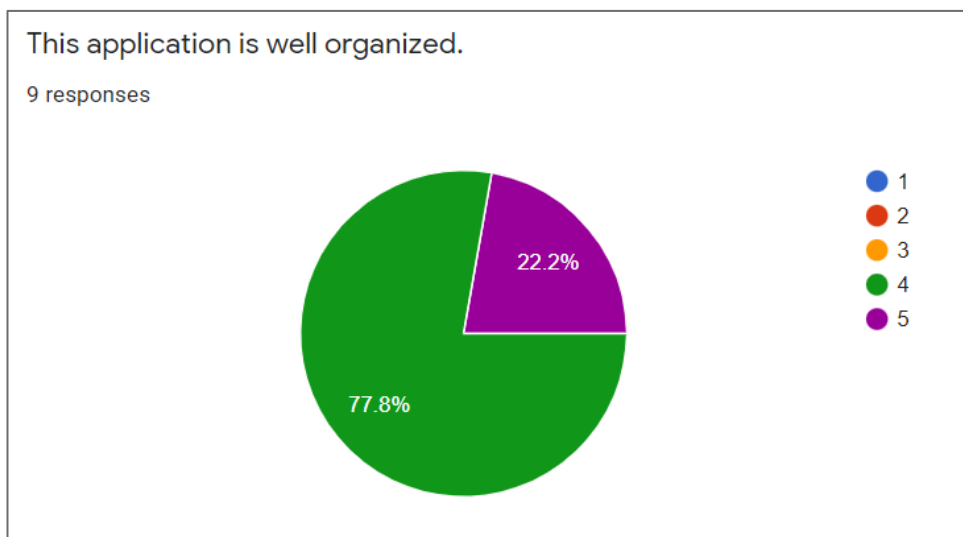


Figure 19 UAT Survey Question 4

As referred to the pie charts above, Figure 18 shows that 55.6% of responses are strongly agree and 44.4% responses are agreed with PetterPaw is easy to use. While for Figure 19, 77.8% are agree and 22.2% responses are strongly agreed that this application is well organized. This shows a good user experience for the users during the UAT which is an important part of developing a mobile application. The user experience would affect that the users to recommend this application to others. From survey result as above, there are 55.6% responded maybe and 44.4% responded yes for recommend this application to friends that interested to animal shelters. There were more maybe response which the application still need more improvements and enhancement to attract and give impact to the community.

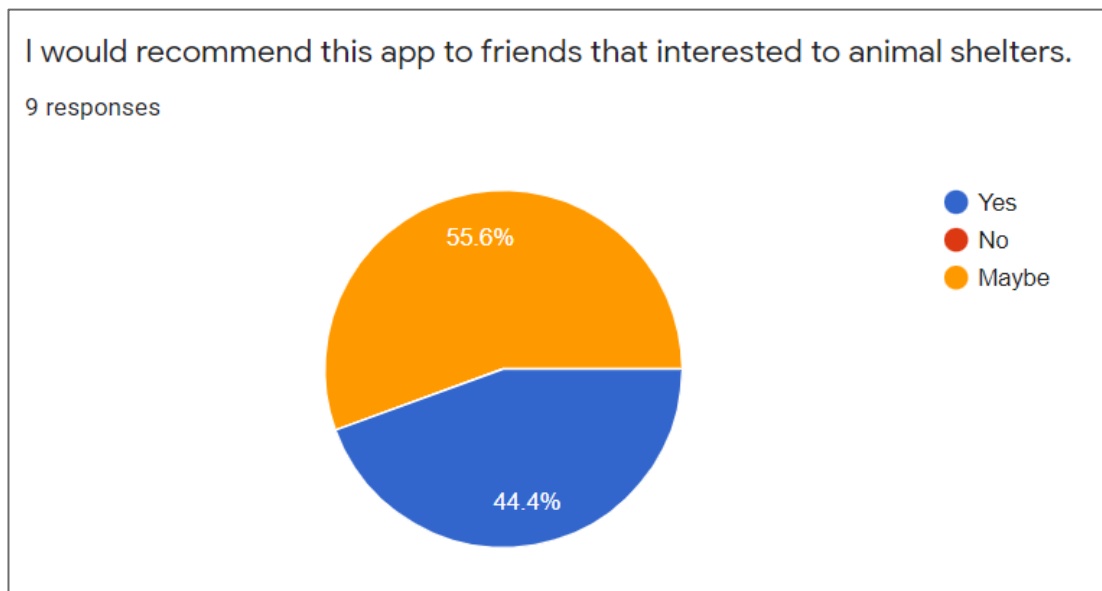


Figure 20 UAT Survey Question 5

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATION**

This project is aimed to create a mobile application as a better platform access to animal shelter NGOs information by the society. As there are a lot of animal shelters in Malaysia but not well known by the public which they need more help from the society to maintain the shelters. As currently the trend of mobile application can be seen that people nowadays mostly using mobile device and having an application would be an easy access for the people. As for the result of this application, it shows that it has achieve the objectives stated. This application features and functions have helps user to access to animal shelters with a better platform which compare to websites. The Pets page which displays the available pets for adoption and the information and upcoming events features that display some useful information regarding the animal shelters helps user to get information without searching on websites. While appointment and application were the features that is similar to the websites when users were interested to have pet adoption and apply for volunteers for animal shelters.

Throughout this project, even it has achieved the stated objectives, but there is still various part to make improvement and enhancement to create a better application for animal shelters. It is recommended that more information regarding different animal shelters should be collected to insert different features that is more helpful for animal shelters as different animal shelters have different operation routine and procedure. Besides that, even the user experience is good based on the testing, but there was also suggestion to improve the user interface to more attractive such that might required more feedback and suggestion from professional to enhance the overview of this mobile application.

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## Appendices

### A. UAT Survey Questions – Feedback and recommendation

Additional feedback and recommendation for improvement.

9 responses

Improve design to more attractive

To add more ngo animal shelter for improvement

No

Easier to get information by app

Add more information

Having more different animal shelters

-

Add more features to improve

Good

## B. Coding

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    btnPets = (Button) findViewById(R.id.btnPets);
    btnInfo = (Button) findViewById(R.id.btnInfo);
    btnAppoint = (Button) findViewById(R.id.btnAppoint);
    btnApply = (Button) findViewById(R.id.btnApply);
    btnPets.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) { openPets(); }
    });
    btnInfo.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) { openInfomain(); }
    });
    btnAppoint.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) { openAppoint(); }
    });
    btnApply.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) { openApply(); }
    });
}

public void openPets()
{
    Intent intent = new Intent( packageContext: this, Pets.class);
    startActivity(intent);
}

public void openInfomain()
{
    Intent intent1 = new Intent( packageContext: this, Infomain.class);
    startActivity(intent1);
}

public void openAppoint()
{
    Intent intent4 = new Intent( packageContext: this, Appointment.class);
    startActivity(intent4);
}

public void openApply()
{
    Intent intent5 = new Intent( packageContext: this, Application.class);
    startActivity(intent5);
}
```

Main page



```

public class Appointment extends AppCompatActivity implements AdapterView.OnItemClickListener {

    EditText edit_name, edit_age, edit_phone;
    Button btnSubmit;

    FirebaseDatabase rootNode;
    DatabaseReference reference;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_appointment);

        edit_name = findViewById(R.id.edit_Name1);
        edit_age = findViewById(R.id.edit_age);
        edit_phone = findViewById(R.id.edit_phone);
        btnSubmit = findViewById(R.id.btnAppoint);

        btnSubmit.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                rootNode = FirebaseDatabase.getInstance();
                reference = rootNode.getReference("users");

                String name = edit_name.getText().toString();
                String age = edit_age.getText().toString();
                String phone = edit_phone.getText().toString();

                AppointForm appointForm = new AppointForm(name, age, phone);

                reference.setValue(appointForm);
            }
        });

        Spinner spinnerLocation = findViewById(R.id.appoint_spinner1);
        ArrayAdapter<CharSequence>adapter = ArrayAdapter.createFromResource(context: this,
            R.array.location, android.R.layout.simple_spinner_item);
        adapter.setDropDownViewResource(android.R.layout.simple_spinner_item);
        spinnerLocation.setAdapter(adapter);
        spinnerLocation.setOnItemClickListener(this);
    };

    @Override
    public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {
        String selectedLocation = adapterView.getItemAtPosition(i).toString();
        Toast.makeText(context: this, selectedLocation, Toast.LENGTH_SHORT).show();
    }

    @Override
    public void onNothingSelected(AdapterView<?> adapterView) {

    }
}

```

Appointment page

```

public class Infomain extends AppCompatActivity {
    Button btnloc;
    Button btnloc2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_infomain);

        btnloc = (Button) findViewById(R.id.btnloc);
        btnloc2 = (Button) findViewById(R.id.btnloc2);

        btnloc.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) { openLocation(); }
        });
        btnloc2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) { openEvents(); }
        });
    }

    public void openLocation()
    {
        Intent intent2 = new Intent( packageContext: this, Info.class);
        startActivity(intent2);
    }
    public void openEvents()
    {
        Intent intent3 = new Intent( packageContext: this, Infoevent.class);
        startActivity(intent3);
    }
}

```

Information and events page