# Trade up: Household Trading Mobile Application

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*Abstract*— **This paper is to investigate buying behaviour towards E-commerce and physical store, and how people manage the unused item. A household trading mobile application has been developed to help people sell, trade, and donate their extra items from their household. The first objective is to educate the people managing their extra items by using the proposed application. The second and third objective is to gain profit and do charity by using the proposed application respectively. This study used back-end and front-end development to develop the system. Contribution of this study is on the application where it can educate user behaviour, solve their problem, and gain profit, a few extra features for the admin to manage the application.**

*Keywords—Buying behaviour, e-commerce, household trading mobile.*

## I. INTRODUCTION

E-commerce platform nowadays is organizing many sales events such as Mother's Day, Father's Day, Holiday Sales and so on (Shah et al., 2023). During this time, people are buying stuffs with discounted prices which are hardly to get in normal day. There are some people that brought too much stuff and it is overloaded the space in their house or some might even buy stuff that are not going to be used for more than once. This contributes to limited spaces in the house and wasted money on stuff that only used once.

Usually, people will throw away the stuff they brought online. To overcome this issue, it is suggested that to give, trade or sell to other people if you want to earn some extra cash. This study proposed to develop a household trading mobile application. People able to share their item to be trade or sell by using the application and help other people who need the desired item.

## II. LITERATURE REVIEW

There are three domains in this topic which are Shopping, Dealing Unused Items, and Mobile Application.

### A. Shopping

Shopping, it is as known as an activity where people get the needs for themselves or someone else. How does people shop in current generation and what are the ways of it? Shopping has been evolved a lot over the past several decades. It is now providing the consumers with a lot more choices and a lot more convenience whether the consumers are shopping in store or simply going online to shop for their needs. (Nationwide, 2021). The ways of shopping are shopping in store or shopping on the internet. But due to the existence of COVID-19 in 2019, many people have shifted from shopping in store to shopping on the internet and it has gained a lot of population during it since everyone is more likely to use the delivery services instead of going in store close contacting peoples. For example, based on research it mentioned that during the COVID-19 pandemic, grocery deliverers have been a greatly impacted and in demand (Jasper et al., 2020) because no one was able to go in store grocery shopping due to COVID-19.

The in-store shopping is also known as the first shopping experience from consumers before the existence of online shopping. Consumers were able to experience different shopping experiences provided by the retailers. But some are worst experienced due to the retail environment and the types of shopping hassle it made. When come to in store shopping, consumer satisfaction is the main key indicator of having a successful business in the retail industry (Jaehoon & Guihan, 2020). Because the consumer's satisfaction is associated with the store sales. For easier understanding, if consumer's satisfaction is greatly satisfied then the sales performance of the store will be greatly impacted with positivity. There are various strategies on how to satisfy the consumer. The strategies are having attractive promotional offers, targeted marketing, and better prices compare to others retail (Jaehoon & Guihan, 2020). In additional, the strategies are not the only things that satisfy the consumer, having to the ability to try out the product themselves are also one of a satisfactory for the consumers. Consumers will be able to the experiences of the product before purchasing them. Based on a study, retail was able to get more information feedback from consumers after they tested the product, while some of the feedbacks are consist of positive and negative (Anne et al., 2019) but in the end a sale can are made from it.

The online shopping has been experienced a huge growth due to the fact of economic and convenient approach to purchasing than in-store purchasing. Based on research, 76% of population of aged between 16 to 74 has been using the internet daily, and nearly around 53% are shopping online (Nebojsa et al., 2019). When come to online shopping, trustworthy is the key for having a business online. Consumer often look for online retail that has more rating and review which also indicate that their business is genuine and gain more trust from others consumer. The strategies that online retail use is the same as the in-store strategies where are

having an attractive promotional offers, targeted marketing, and better prices compare to others retail. In additional, when online shopping it is hard for the consumers to purchase their needs because they can't try the product like in store does, while they are only able to see review of the product from other consumers that already brought the product. In exchange for losing the ability to test the product, which are special promotion that in store does not have. For example, promotional price like same day same month such as 1.1 sales, 2.2 sales etc. This promotion happens monthly that in store does not have. Based on research, it's research about how the Korean idol appear in the sales of 12.12 or 1.1 will affect the teenagers. But it was mentioned by some informants that saying it was less influential by the Korean idol rather than the discount were more interesting itself (Ririn et al., 2021).  So, to conclude this, this promotion play an important role for the online shopping industry.

### B. Dealing Unused Items

When comes to dealing with unused items, many people tend to dispose it away without thinking of any way of making it more efficient for the unused item. In this research, unused item is considered junks. The junks can be the item in the household or item that never been use for a long time. When it comes to disposing the junk away usually is the method throwing it away to the waste. Based on research, there was a pharmacy trying to minimize the emission of active pharmaceutical ingredients by deposing unused pharmaceutical to household waste (Qingwei et al., 2020). To conclude how they dealt with it is using the method throwing as well. In another research, it's mentioned that most consumers in US around the age of 55 and over are likely using the same method of throwing (Norum, 2015) their unused items while around the age of 18 to 34 will still think of another way of dealing it which is by donating them. It is known that the younger generation will still think of ways of dealing it without throwing it to waste.

### C. Mobile Application

There are many kinds of mobile application such as for entertainment, productivity, etc. Nowadays, using mobile devices is like a daily activity for people. For example, whenever we wake up the first thing, we do are using our mobile devices to know what happen around the world. Application that can enable us to know what is happening around the world are mostly Facebook, Twitter, etc. These applications are also known as social media where it allows us to connect with everyone around the globe. In additional, mobile devices are being positioned as a key tool for new ways of learning new things (Inmaculada García-Martínez, 2019). Mobile devices are still accessible to the browser, but a lot of company now develop their own mobile application for mobile devices. Company such as Facebook, YouTube, and etc. It is used to ease of users from accessing the browser with just a tap to access their platform by using their mobile application. Based on research, it mentioned that the mobile application is much quicker than using the website (Deshdeep, 2021). This indicate that users will experience a smoother and faster performance when using a mobile application for their daily work.

### D. Similar System

Carousell is well known of its marketplace because of its simple method. Just a snap of the item and it is ready to be sell, while buying is as simple as having a conversation. The company was first launched in Singapore in August 2012 and the goal of it is to make secondhand product the first choice when people are buying stuff. The company also has leading investor which are Telenor Group, Rakuten Ventures, and etc (Carousell, n.d.). So, the idea that Carousell did was to create a platform for users to do so. In a blog by Tech Crunch, it mentioned that Carousell has claim to reach more than 350 million users per month. (Russell, 2019)

In Malaysia, there is also a leading marketplace which is Mudah.my. It offers features that help people to buy and sell of their preloved goods with the Mudah.my convenient platform. Not only Mudah is able to sell or buy small product like shoes, book, or cloths, it is having the features for users to buy or sell their car as well (Carousell, n.d.). It is founded in November 2007, and it is also part of Carousell, but it is a partnership formed between the leading investor in Singapore. (Mudah.my, n.d.) In the way of how Mudah.my is doing their business, they create a platform for users to easily buy and sell their preloved goods via the web based and application. In a news by The Star, they mentioned that over half of millions of users in Mudah.my, there are 1.6 millions of users that selling their products with their website (Star, 2017).

## III.    PROBLEM STATEMENT

In this current generation, e-commerce platform is doing a lot of sales events such as same date and month, Holiday sales and so on. During this time, people are buying stuffs with discounted prices which are hardly able to get in normal day. Throughout the time there are some people that brought too much stuff and it is overloaded the space in the house or some might even buy stuff that are not going to be used for more than once or worst never. This makes waste of the spaces in the house and wasted money buying extra items or junks.

Some people might not have the fortune like most people and could not afford the things they need. So, throwing away unused items is like throwing money away for them and it is just a trash to others. This happens the most consumers around the age of 55 and over (Norum, 2015), and they are wasting their money.

Some item is luxury and only used more than once, but instead of throwing away, some will consider recycling it (Linda & Hanna, 2015). But recycling luxury item still seem like throwing it away because you do not get anything in return. Instead, the brand that recycle their own product will turn it into another new product, so it means that they are earning without buying material.

Recently, there were floods occurred in multiple location in Malaysia such as Klang Valley, Malacca and etc, it has also been warned earlier before the floods (Panapitiya et al., 2022). People had organized a charity donation of money to the area that affected by the floods. People donated but why people are throwing away their items while not donating it to the affected area?

## IV.    AIMS AND OBJECTIVE

The aim of the project is to design and develop a mobile application for people to sell, trade, and donate their extra items in their household.

The objectives are:

- The first objective is to educate the people managing their extra items by using the proposed application.

- The second objective is to gain profit by using the proposed application.

- The third objective is to do charity by using the proposed application.

## V. RESARCH METHOD

The proposed system going to be developed in the form of mobile application, there will be 2 part of development which are known as the back-end development and front-end development.

### A. Back-end Development

For the back-end development, there are various of language for the mobile application development and the backend development will mainly focuses on the API. But the 2 already been chosen for comparison are C# which known as .NET and Kotlin. There are also 2 famous language which known as Swift and Objective C, but due to the lack of hardware for the proposed system we will only be comparing the 2 chosen languages. C# or .NET will be selected for the backend development where it supports the backend development for the API (Mariappan, 2017). In addition, there are one benefit when come to developing API because currently now the application is focuses on Android devices, but the API can also be used for IOS devices. With this benefit, it has prepared the material when in future development for IOS devices.

### B. Front-end Development

For Front-end development, I have already chosen Android OS platform for the proposed system due to lack of hardware, and there are 2 types of frameworks selected for the Front-end development which are Xamarin and React Native. React Native will be selected because of its ability to cross platform development and the development phase will be faster and more efficient since it is flexibility. Even though the proposed project will be focuses on Android OS platform but choosing a framework that could develop cross platform allow the developer to make preparation for the IOS development phase too. In addition, React Native is a moveable framework where in future if development must change its React Native framework to another framework, it is possible to do so without doing it from the scratch.

### C. IDE (Interactive Development Environment)

The IDE selected for the proposed system are Visual Studio Code and Visual Studio 2019, Android Studio. Three IDE is very popular. Visual Studio Code will be selected as for the IDE of proposed project. The reason for choosing this instead of Android Studio is because if choosing Android Studio will not enable us for cross platform development in future. Even though the proposed project is currently developing for Android platform only, but it is also good to prepare the material to cross platform development by using Visual Studio Code. In addition, Visual Studio Code is compatible with React Native where it develops the frontend and .NET where it develops the backend or API.

### D. Database Management System

There are various of Database Management System but only 2 has been listed down for selection. The first data management system will be local based also known as Microsoft SQL Server (MSSQL) and the second data management system will be cloud based also known as Amazon RDS. Amazon DynamoDB is selected as the proposed system database management system. Because for future proof, Cloud database will be more suitable for future development and No SQL database is much faster than SQL database. In additional, it will be a lot more trouble for the development and testing phase where the data is inconsistence between each developer for testing. So, Amazon DynamoDB will be the suitable for the proposed system.

### E. Operating System

In the mobile devices domain, there are two top OS in the industry which are Android and iOS. For the proposed system, it will be developed in the Android OS platform and the system will be tested on an Android device. So, Android has been chosen to be the OS for the proposed system. Android is an operating system for mobile devices that Google developed. It allows users to manipulate the mobile devices intuitively with only the finger movement. In additional, developing with Android OS is much easier than the iOS. Because the Android Studio created by Google can be used by any OS platform where iOS's IDE can be only used via Apple products. To conclude this, it is a hardware limitation, and it is also budgeted to use Android OS for the proposed system where you don't have to get an Apple's product for development. Moreover, Google also provide a Software Development Kit (SDK) for Android for the developer to develop the application on the platform. The SDK also provide the tools such as emulator for the developer to test virtually. (Developer, n.d.)

### F. Web Server

The selected web server is Amazon web services or known as AWS. It also has the services for cloud database where data are stored online and deployment of API in it. The usage of it is to let the services of the application be well prepared when it is called in the mobile application. Besides, for average company business performance it is necessary to have a web server to host all the services. The services of AWS going to be used are S3 bucket, DynamoDB, Lambda, and API Gateway.

S3 bucket is services provided by AWS to store, protect, and retrieve data from it at anytime from anywhere on any device. The advantages of S3 bucket is durability and accessibility, and it is cost-effective storage where it is suitable for the proposed project the charges are based on the accessibility of it (Guilder, 2021).

DynamoDB is a service provided by AWS where it is a NoSQL database. The advantages of it are having the ability to performance and scalability where it can track down the usage of it and adjust according to the amount of data traffic which allow to avoid the issues with the performance by decreasing the costs (Rogojan, 2019).

Lambda is a service provided by AWS where it is a serverless compute service that run the backend code like http request for the API. The advantage of Lambda is that you don't have to manage the server where the code automatically run your program once it uploaded to it (Guilder, 2020).

Amazon API gateway is a service provided by AWS that allow developers to connect non-AWS applications to AWS back-end resources. (Carty, 2021) The advantages of this API

Gateway could scale the performance by tweaking the latency for API request and response by using the Amazon CloudFront.

## VI. System Development Methodology

Throughout the studies on both methodology, Prototyping model is the most suitable for the proposed system because there are already some existing applications that has similar features that needed so all the team need to do is just replicate the design and changing some design. In addition, the scope, requirements, and outcomes of the project will have an investigation and analysis process before developing the prototype so Prototyping model is suitable for this proposed system.

There are total of 6 steps in Prototyping Model and will be explained how it implemented in the proposed system.

### Step 1 – Requirements gathering and analysis

In this step investigation will be acted for gathering information and analysing it to determine what are the requirements for the proposed system. Information will be gathered from the client's perspective. With this step the development will be able to identify what are the needs of the client and able to lead the project in the right path.

### Step 2 – Quick Design

A quick design will be undergone after the requirements are gathered from the client. In this step, it is only a simple design based on the requirement and after the design is prepared it will be shown to the client, but it isn't the final design, it is used to get feedback from the client so that design can be updated until it meets the client requirements.

### Step 3 – Build a Prototype

In this step, after the completion of the quick design, an actual prototype will be created based on the information collected from the quick design. But it is just a prototype the required system.

### Step 4 – Initial user evaluation

In this step, after completing the prototype it will be tested out by the client to get feedback from them. Throughout the testing, it can identify the strength and weakness of the prototype so it can be enhanced in step 5.

### Step 5 – Refining Prototype

In this step, after acquiring all the feedback from evaluation given by the clients. The feedback will be provided to the developer so the team can further discuss on how to refine the prototype. After refining the prototype, step 4 will be taken again to get feedback from the client if the changes satisfied them. If it not, feedback will be taken again and will proceed to step 5 to refine the prototype. Step 4 and 5 will be a loop until the prototype has finally satisfied the client.

### Step 6 – Implement Product and Maintain

After the final prototype has been completed, development will start based on the final prototype. Throughout the process it will be tested and deployed to the production so that feedback can be gathered from the actual users instead of the client. After that, the system will have a routine maintenance for decreasing the chances of downtime and in order to prevent the chances of failure. Each maintenance will have slight enhancement from based on the feedback.

## VII. Research Method

In this project, the quantitative research will be selected since it can generate a lot of data from the people that have the problem. The online survey method will be selected because it's allowed researcher to use relevant questions to be asked for the people with the aim of gathering information of the problem (Qualtrics, n.d.). In additional, currently there is a pandemic ongoing that caused the people to stay at home and to follow SOP (Standard Operating Procedure) to prevent the spread of COVID-19. In conclude, online survey is most suitable method for the time being since there's no close contacting the person and it is more convenient where people can easily access to this online survey and doing so.

This online survey consists of 15 questions where are designed with the format of checkbox, multi choice, short or long paragraph, and linear scale, where these formats will help critical analysis process to be more accurate and more reliable. The online survey will be created and distributed through Google Forms. Approximate number of 30 respondents or more are to be expected in participating the survey.

## VIII. Data Analaysis

Based on the data collection, many people kept their unused item until it full of dust because many of them does not know how to deal with them while some know how to. When some know how's to deal with it the 3 main methods would be selling, donating, and trading it away. In addition, people often use E-commerce on their devices whenever they need something because it is convenient and easily access with internet. So, the proposed project is suitable for this issue where it will be developed on the mobile devices where accessibility is easy. In conclusion, the analysis process with the collected data is considered successful.

## IX. System Architecture

### A. Non-member Features

In the application, non-member of the Trade Up application is allowed to see what item is available to trade in the Marketplace, what item are available to buy in the Shop, and see the list of donation centres where people can donate their items. But the disadvantages of being a non-member is that they are not able to fully utilise the application. For example, if they want to buy or send a trade request, it will alert them to login. Non-member could also be a member of the application by simply going to the registration form to register to be a member.

### B. Member Features

As a member of the Trade Up application, they have gained the more features to the application as a member. Member can finally send trade request of the item they wanted in the Marketplace and buying the item they want in the Shop. Not only they can get item, but they could also add item into their inventory to sell or trade. If they want to change the item information, member also have the authority to do so.

Member also can see their sent request and received request. While for the sent request, member is allowed to update the information of it before the receiver accepted it or rejected it. While in the received request detailed screen,

member can either Accept or Reject the request or put it on hold first where he or she can still view another request based on the same item they are trading. Member could also see their purchase history after they brought the item in the shop.

Member also have the same ability from the Non-member where they can see the list of Donation Centre and its detail. Member could also submit donation centre suggestion if the application is missing any donation centre.

### C.  Admin Features

As an admin of the Trade Up application, they gained the ability to manage all item in the Marketplace and Shop with the authority to remove any inappropriate item added, inappropriate trade request sent, or inappropriate suggested submitted. They can also manage the donation centre list where admin can add or update the donation centre. They can review donation centre suggested by Member where Admin can Reject or Accept the suggestion. Admin could also see everyone purchase history to prevent frauds.

With the features that's provided for Admin, they could protect the users without them getting abuse. They could also provide positive impact to them where suggested donation centre are accepted and it will make the Member feel more happier where Admin really take action.
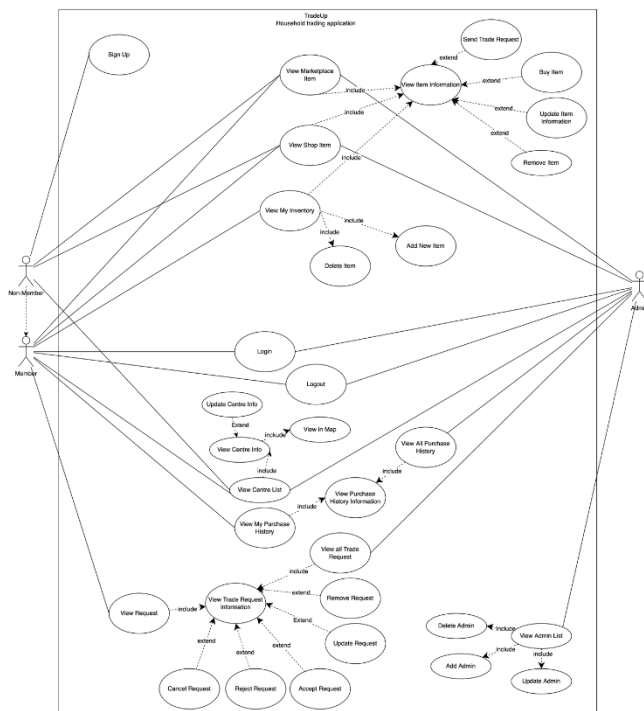
### D.  Use Case Diagram



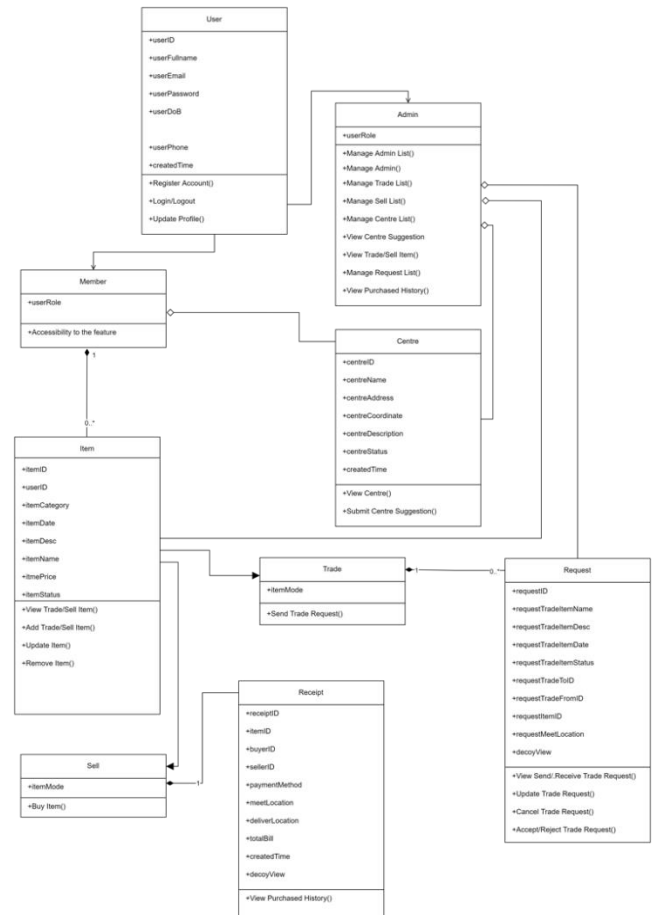Fig. 1. Use Case diagram

### E.  Class Diagram



Fig. 2. Class diagram
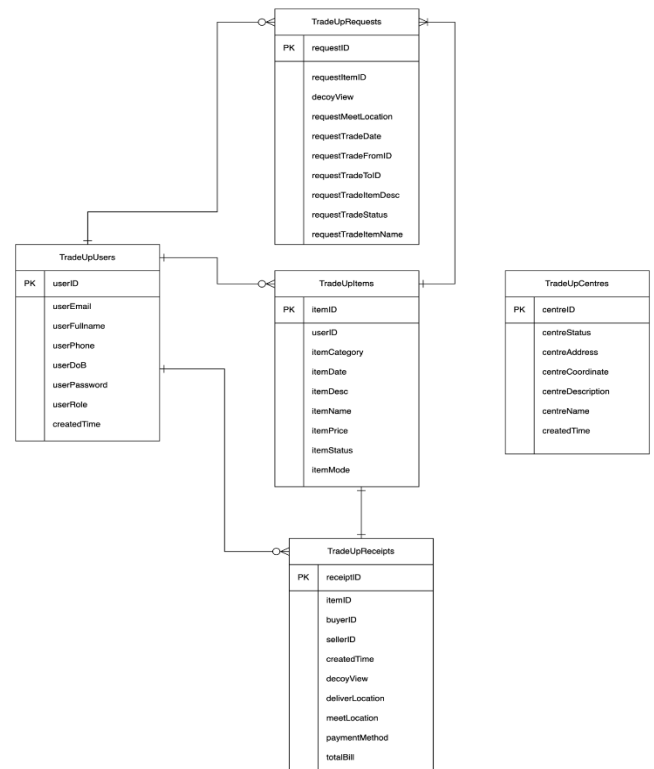
### F.  Database Design



Fig. 3. Trade Up entity relationship diagram

## X.   TEST PLAN

The testing that has been chosen to test the application will be Unit Testing and User Acceptance Test. There will be total of 70 test plans for Unit Testing and total of 4 User Acceptance Test prepared for the target user to try out the application.

The unit testing is carried out to evaluate each unit of functions is working properly or as expected with sample data. The aim of this testing is to validate if the functions are workable with the connection with the database. The unit testing assists the developer to identify the bugs or problem that exist in the application before the application is launched for users to test.

The user acceptance testing also known as UAT, it is a phase of development which tested in the real world by the intended users. There will be total of 4 users to be tested with where 2 users will act as Member and another 2 will be act as Admin. After the users performed the usage of the application, they will give feedback of the application and it will be taken consideration by the developer to take note for the upgrade or changes needed to be for the application. One of the advantages of using this testing will discover bugs or problem that developer can't identify. In addition, it will ensure the application meet its goals and better understanding of the users.

## XI.   SYSTEM VALIDATION

After Unit Testing procedure been carried out, it has greatly increased the confidence of developer because all the unit testing are passed with expected result which indicate the application is not having any bugs or problem. Although unit testing take a huge amount of time to teach each functionality but when a problem is identified during the process, the developer need to go through the source code to identify where the problem occurred at and solving it. With this procedure, not only developer will have better knowledge and understanding of their own code, it also enhanced their problem solving skills which also known as debugging skills which is very important in the development line.

Lastly, after conducting the User Acceptance Test with the 4 participant. It is able to identify the some similar problem area from the comment section which is the user interfaces. The developers had taken action and note on where to enhance the user interface for member and admin sites. Another comment mentioned about the notification of the application, where member try to cancel a request it will straight away delete without giving any warning. The developer has taken note on this matter and adding alert message with a Yes or No feature with it to assure if they member want to cancel the request. Beside the interface problem, there's one comment was about the performance of the application where the data will slightly delayed to display. The developer has explained this matter to the tester where the budget limitation is due for the speed of the database. Due to the budget limitation and time, the developer has taken this feedback as a future enhancement where it will have a better and faster performance.

## XII.   CONCLUSION AND RECOMMENDATIONS

### A.   Critical Evaluation

In the final section of the Trade Up: Household Trading Mobile Application, the critical evaluation is taken with purpose of estimating the success regarding the functionality of the application as well as the user interface of it. The developer will conduct the critical evaluation which evaluate the completeness of the application functionalities requirement to fulfil the goal of the application and the satisfaction of the user. Hence, the critical evaluation is important because it can determine the success rate of the application.

### B.   System Benefits

There are several advantages that can be identify from the outcome of users that the application has helped them with their extra item in the household. To start with one of the most obvious advantages of the application from the member site will be the problem solving of their extra household item in their house. Member could easily get rid of their item by using the main feature in the application which is the Selling feature. They can upload an item with the mode sell in their inventory, and in the Shop List other member could see the item posted there for sell. Other member can be attracted and interest to buy that item with the second-hand price which is much cheaper compared to the original price of that item. Therefore, when people buy the item, it means they are taking the item off from the person hand who trying to get rid of it. Meanwhile, the member itself can also view the Shop list, to see what useful item can be purchase with a lower price. After purchasing it, the system will provide a receipt for the member who brought it. Member could also see their receipts in the purchase history.

Another advantage can be identified and that is the member using one of the main features of the application which is the Trade feature. Some members have item that is not worth of money, so they decided to use the Trade feature from the application where they post their item into the marketplace to see if anyone interested to trade a much more valuable item for their item. Incoming trade request can be seen in the trade request list, and member can determine which item is suitable to trade with by simply pressing the Accept button. In addition, they can also reject a trade request where it is not suitable for their item. Beside this, member could also view other people item in the marketplace where they can also send a trade request to other party to see if they are interested to trade with. Member could also manage their outgoing trade request by cancelling it or update the trade request. But take note, they can only do it when the trade request status is still in pending, else the managing feature can't be utilised.

Beside the two main feature of the application being the advantage, the last main feature of the application which is the Donate feature also helped the member to solve their problem of having too many households' item. The member will be able to see a list of donation centres that available in various area. This feature also allow member to know the donation centres information and providing the member to

view that donation centre in map by pressing the button provided. This feature has helped the member to do good deeds by donating their items to the one that needs. It also made them feel good after donating it to the one that really need it. Lastly, member could also send a location request for the admin to review which location is not in the application. This feature also helps a lot of people in various area where they can donate their item near their area and also expanding the help for the needs by adding more donation centre in the list.

On the other hand, not only the member who gained the advantages from the application, there's also advantages for the admin. In the application there are few extra features for the admin. One of the extra features that admin could take advantage is the dashboard made for the admin to monitor the items and requests of the application. Admin will know how many items in the marketplace and in the shop.

Next, would be the management feature provided for the admin. The advantages of this are to maintain the application to be a family friendly and good environment for the members to use without any shame or toxicity from other member. Admin has the authority to remove any inappropriate item from the marketplace and shop. The reason for this feature to exist is some uneducated people would offensively item to the marketplace list or shop list where people will be able to see it. With this feature, admin can easily remove the inappropriate item with a simple press of the item that keep the community safe. Not only they can manage the marketplace and shop, admin also can view all trade request from member. With the authority, admin can remove any inappropriate request that send to others member. Meanwhile, admin can also manage the donation centre list where they can update the information of it so member will see up-to-date information of the centre. Admin can also accept or decline the location request sent by the member. This allows admin to take feedback provided by the member and it make them feel better when the admin will act on member's feedback.

Lastly, all the information and functionalities provided in the application is designed with user-friendly manner that target the users. With good design and implementation of the application, the target users will be able to utilize the application without any frustration and inconvenient which will improve the system usability. Therefore, the proposed system user interface design is another advantage which can ensure the reliability, consistency, and usability for the target user to utilize the application more efficiently and effectively.

## C.  Conclusion and Recommendations

Throughout the investigation of this project, a plenty of useful information has been acquired on the topic of "Trade Up: Household Trading Mobile Application". Different path of research has been carried out upon the chapters. Some in-depth and detailed literature reviews have been done on the related domain in chapter 2. Gathered some information that made by previous research has helped the researcher to achieve a better understanding to the topic. In chapter 3 and 4, the technical and methodology research have been completed and the software and hardware requirements and resources that needed have also been defined. Then in the chapter afterward, survey research has been conducted with total of 42 respondents, and the data are collected based on their point of view upon the topic and the collected data has been analysed as the statement of the project objectives and system requirements that have been mentioned in chapter 1.

In chapter 7, it is about the system architecture of the application where it displayed via diagram and each diagram is designed to achieve the goal of the proposed project. While in chapter 8 it will propose the test plan for each functionality of the application, type of testing be used in this proposed project will be Unit Testing and User Acceptance Testing and the proposed test plan will be conducted in chapter 10.

## D.  Limitations and Future Enhancement

After conducting the User Acceptance Testing, the Trade Up: Household Trading Mobile Application has some limitation which identified by the tester and throughout the information gathered during the survey with the questionnaire. One of the crucial improvements of the application will be the speed and performances of the application. With good logic thinking and functionality of the application but with poor speed and performance it has become a limitation for the application. This limitation can be identified as budget limit where using a budget package from the AWS it provides a slower speed of retrieving the data.

Lastly, for future enhancement will be the application can be utilized with IOS devices and a better speed and performance of the application. For now, the proposed project only available in Android platform devices, even though the application is developed using React Native but due to lack of hardware, the application focuses on Android platform and tested on Android devices only. With the future enhancement, the application can be utilized with an IOS platform devices. Next, the performance of the application is slowed down due to the speed of retrieving data from the database is slow due to budget limiting. The solution for this enhancement will be gaining the knowledge of Amazon Cloud Computing, with this knowledge we can optimise the speed and services provided by AWS with the budget limitation.

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