

Design and Development of Food Ordering Mobile Application

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Abstract: Many restaurants or cafes in Malaysia still apply traditional ordering methods such as writing on paper, queueing up at the counter, or serving by the waiter. Due to the coronavirus pandemic, people also must maintain a social distance from others. Furthermore, the rate of obesity or overweight of Malaysian citizens still continuously increased in the past few years. Therefore, this food ordering application has developed by providing calorie count features on the menu, delivering the customer a more efficient food ordering process, and diminishing physical contact with other people. Furthermore, this project developed the food ordering application by using the Waterfall model in Software Development Life Cycle (SDLC) methodology. This project categorizes into several modules: User Registration and User Login, Food Ordering, Food Cart, Menu and Order Management Module, and Payment Module. Android studio and Java programming languages are used to develop this application. This food ordering application was designed for Owl City Cafe Melaka, and it has achieved an expected result by doing the unit testing and users acceptance testing. According to the System Usability Scale (SUS) evaluation model, the overall usability score of this application is 85.71 %, most of the users are pleased with the calorie count functionality. Customers were also curious about how many calories they have ordered in a meal, and this feature has encouraged them to be more conscious of their daily calorie intake.

Keywords: Food Ordering, Calorie counts, Android

1. Introduction

In this technological era, mobile technology emerged in various industries such as education, healthcare, construction and so on. People can order food through the kiosk system or using electronic products without a waiter serving with the advancements of the food ordering system. However, in Malaysia, most restaurants or café remain to order food in a traditional way which is customer ordered by writing on paper or queue up at the counter. Due to the covid-19 pandemic, people should recently stay a social distance from each other. Furthermore, this influenza has affected many people's economic depression, company closures, losing jobs, and so on. For those operating in the catering industry, their business has also gradually dropped. Thus, it can make some improvements in the food ordering system to solve this issue.

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Other than that, having the right amount of calories is essential for our health as eating too many high-calorie foods will cause overweight or obesity. In Malaysia, there are 64% of male and 65% of the female population being either obese or overweight, which is the highest rate of obesity and overweight among Asian countries [1]. Many people who are trying to lose weight or maintain a standard weight will count calories daily intake. Moreover, different age or sex of people requires different amounts of energy each day. Suppose food ordering applications can provide calorie counts features on the menu. In that case, it will help us to know how much calorie intake of each meal, especially for a person who is controlling their weight and having a health problem.

The objectives of this application are to design a food ordering application that provides calorie counts features on the menu. The second objective is to develop a food ordering application that will increase the effective ordering process in the android platform. The third objective is to evaluate a food ordering application using alpha testing to get better overall experiences. By using this application, customers can select different kinds of food categories, and customers can review the calorie of food while referring to the menu. Customers can view the rating and comments given by other customers about the food. Customers can add some special instructions before add food to the cart. After that, customers can view the total amount of price and calories in a food order. Customers can choose the order methods, which are delivery or pick up before placing the order. The admin can edit the order process for the admin server to "in the cooking process", "on delivery", "the food is reached", or "the food is ready". Admin can insert a new menu, update menu information, or delete the menu. Customers can choose the method of payment, either pay with PayPal or cash on delivery if choosing the delivery order method.

Next, the related work of this project discusses in section 2 after the introduction of this project. The methodology used in this project, which is the Waterfall Model, consisting of five parts: requirement analysis, system design, implementation, testing, and maintenance, illustrates in section 3. Use case diagram, flowcharts of the application and some output of interfaces demonstrate in the appendix. In section 4, the project's results and discussion are discussed. The last section will be the conclusion of this report.

2. Related Work

Due to the coronavirus pandemic, people are encouraged to have a social distance from each other. However, a majority of restaurants or café in Malaysia still adopt traditional ordering methods that require face-to-face contact with people. Based on the Free Malaysia Today (FMT) News, a restaurant in Plaza Batai, Ekkamai Thai Kitchen, has closed momentarily as a Covid-19 case was discovered involving the business in November 2020 [2]. Thus, it is necessary to encourage people to apply food ordering applications rather than dine-in in the restaurant.

2.1 Mobile Food Ordering Apps (MFOAs)

Mobile food ordering applications (MFOAs) can be interpreted as mobile apps that users download and utilize as an innovative and convenient ordering way without any physical interaction or communication with restaurant staff [3]. Using MFOAs, customers can access restaurants, view the restaurant's food menus, take an order, and proceed with the ordering process by payments. Nowadays, people frequently use android devices which are tablets or mobile phones. This scenario causes the automation of the routine task in a wireless surrounding also uses of mobile technology.

In addition, some of the countries' governments have forced the restaurants or café to provide calorie labelling requirements for the menu. In London, Boris Johnson's government plan an enactment that forcing restaurants and cafes with over 250 employees are required to place calorie counts on their menus [4]. Calories counts on the menu can advise consumers to control their calories diet in a meal. The featuring calorie information on restaurants or café menus can aiding customers in preventing or decreasing the risk of obesity.

2.2 Comparison of Existing Applications

In this section, the proposed application, Owl City Café Food Ordering Mobile Application, was compared with three current applications: McDonald's Mobile Ordering Application, KFC Malaysia Mobile Ordering Application, and Domino's Pizza Malaysia Mobile Ordering.

Table 1: Comparison of existing application

Features	McDonald's Mobile Ordering Application[5] 	KFC Malaysia Mobile Ordering Application[6] 	Domino's Pizza Malaysia Mobile Ordering Application[7] 	Owl City Café Food Ordering Mobile Application  <small>OWL CITY Café</small>
Delivery Services	Yes	Yes	Yes	Yes
Pick up Services	No	Yes	Yes	Yes
Track Order	Yes	No	Yes	Yes
Rating Features for Customer	No	No	No	Yes
Ability of add into Favorites	Yes	No	No	Yes
Ability of adding special instruction	Yes	Yes	Yes	Yes
Mobile Message Notification	No	No	No	Yes
Calories Counts	Yes	No	No	Yes
Platform	Android, iOS	Android, iOS	Android, iOS	Android
Price	Free	Free	Free	Free

Table 1 shows a comparison between the three existing applications and the proposed application. All the application provides delivery services, but for the pick-up services, the McDonald's app does not support. The KFC Malaysia app also provides pick up services by the drive-through and even contactless delivery services. The track order features Domino's pizza app is the one that performed the features very well as consumers able to track their order in every single step. For KFC Malaysia app has to search and track the order through online websites.

The missing features of these three applications are rating features and mobile message notification. Users only can receive the email after successful order and find the tracking order number through email too. They will not receive the message notification on their mobile devices. However, three of the existing applications can add special instruction; the KFC Malaysia app and Domino's pizza app are not allowed to add food to the favorites. McDonald's app has to checkout only can add the food to the favorites. Lastly, the KFC Malaysia app and Domino's pizza app do not have calorie counts features on the menu, and McDonald's app only provides the nutrition facts on the food submenu.

2.3 Proposed Application: Owl City Café Food Ordering Mobile Application

Owl City Café Food Ordering Mobile Application allows users to choose whether they deliver or pick up. This food ordering application also provides the rating features to rate the food they have ordered. The restaurant owner also can refer to review to make any improvements for their foods. For other users also can refer to the review while ordering the food, especially first-time users. Furthermore, users can add the food to their favorites. This food ordering application also enables users to track their orders and receive mobile messages information. This food ordering application also provides the

calorie counts features on the menu. Thus, users can directly refer to the food's calories amounts on this food ordering application menu. It can keep reminding the users to take care of their diet also. However, This food ordering application only available on the android platform.

3. Methodology

The software industry currently uses the waterfall model as the first approach when developing the software. This model is also known as the linear-sequential life-cycle model, which defines developing as a sequence of successive steps [8]. This model usually used for small software development teams or projects. One of the advantages of this method is it is easy to manage as each phase is implemented and complete without overlapping. Therefore, the waterfall model is suitable to use as the methodology of this application development.

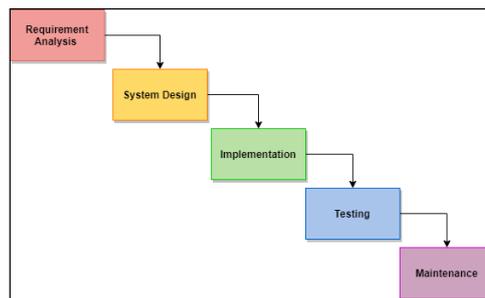


Figure 1: The waterfall process model [8]

It has five phases which each phase consists of several tasks to achieve: requirement analysis, system design, implements or testing, and maintenance, as displayed in Figure 1.

3.1 Requirement Analysis

In this phase, the requirement needed and justification for developing this application are identified and documented. Furthermore, this phase needs to perform the feasibility analysis to ensure that the proposed requirement is appropriate for the application. Before that, user analysis is essential to study the user requirement and determine the needs of the target users: the customer and the owner of Owl City Cafe. The user analysis was conducted by a short interview with a few target consumers and Miss Ong Chiu Yen, the owner of the Owl City Cafe in Bukit Beruang, Melaka. This project's user analysis is tabulated in Table 2.

Table 2: User Analysis

Stakeholder Category	Role in product	Design implications	Actions Needed
Target Users	End-user of the application	Based on the interview. It can be used at anytime and anywhere. All the relevant information is included. Easy to learn and use.	<ul style="list-style-type: none"> • Enable access on the target user's mobile phone. • All the necessary menu information such as food price, food calories should display in this mobile application. • Make sure all the menu information is correct and latest. • Use simple English as instruction. • Prevent using complicated words.

Table 2: (continued)

Easy to navigate.	<ul style="list-style-type: none"> • The application should consist of the main menu button, back button and navigation bar. • The application should contain the cart button in the menu, submenu, and food details interfaces.
Simple user interface design	<ul style="list-style-type: none"> • Instead of text, an icon-based button shall be used, such as the cart button. • Use consistent font type, which is Open Sans and a suitable size that is readable to users.

Subsequently, the functional and non-functional requirements are gathered for brief ideas of the software development direction. The functional requirement means providing a particular service or function to the end-user, as exhibited in Table 3. The non-functional requirement determines the quality attribute of the system, as displayed in Table 4.

Table 3: Functional requirement

Functional Requirement	Description
Autonomous System Activities	<ul style="list-style-type: none"> • While users register an account, the system shall not able users to register with a repeat account. • While users register an account, the system shall only able users to successful sign up after all the information is filled in. • After users successfully register, the system shall save the users information into the database. • While users or admin login with an account, the system shall enable the user or admin to log in with the correct phone number and password successfully. • While the phone number fills in is incorrect, the system shall be able to display an error message. • While password fill in is incorrect, the system shall be able to display an error message. • When users enter the menu and submenu interface, the system shall show all the menu information, such as food category, food name, food price, the cover photo of food, amount calorie of the food and description to the users. • When users enter the food cart interface, the system shall show the food information of food items added by users, such as food name, food price, food quantity, the total amount of calories, and the total price in the food cart interface. • The system shall be able to automatically calculate the total price of the food ordered by users in the food cart interface. • The system shall be able to automatically calculate the total calorie of the food ordered by users in the food cart interface. • The system shall display the comments given by the users when the users give feedback. • The system shall automatically send message notifications to their users when the admin edits the order process. • The system shall automatically update the menu database in the Firebase when the admin updates the menu by

Table 3: (continued)

Functional Requirement	Description
User Interaction	<p>adding, editing, and deleting the menu.</p> <ul style="list-style-type: none"> • The system shall provide users with the ability to fill in the user information when the user sign up to the application. • The system shall provide users or admin with the ability to fill in the phone number and password when the user or admin login to the application. • The system shall provide users with the ability to look at the food category or food item that users choose. • The system shall provide users with the ability to look at the food information of food items added by users, such as food name, food price, food quantity, the total amount of calories, and the total price in the food cart interface. • The system shall provide users with the ability to give feedback in real-time by giving ratings and comments to the food. • The system shall provide users with the ability to view other customer feedback. • The system shall provide users with the ability to choose two order methods which are delivery and pick up. • The system shall provide users with the ability to make payments via the PayPal payment method. • The system shall provide users with the ability to choose cash on delivery if users choose delivery as their order method. • The system shall provide users with the ability to receive the message instantly after the admin edit the order process. • The system shall provide users with the ability to add food to their favorite. • The system shall provide the admin with the ability to manage and update the menu, which able to add, edit and delete the menu. • The system shall provide the admin with the ability to review the orders. • The system shall provide the admin with the ability to update the order process.

Table 4: Non-functional requirement

Non-Functional Requirement	Description
Performance	<ul style="list-style-type: none"> • This system shall allow users to place an order quickly.
Implementation	<ul style="list-style-type: none"> • This system shall work well on all android based mobile devices.
Usability	<ul style="list-style-type: none"> • This system shall work based on an internet connection. • This system shall support users with a quick and easy in using graphical user interface.
Security	<ul style="list-style-type: none"> • This system shall encrypt the user’s phone number and user’s password to login into the application. • The system shall protect the privacy of user information.
Cultural	<ul style="list-style-type: none"> • This application uses a simple English Language.

3.2 System Design

Use Case Diagram, Activity Diagram, Entity Relationship Diagram (ERD) and flowchart on how to use this mobile application are designed in this phase. Thus, this task can well-defined the module's function of the system and its data flow, entities, and attributes for the database. The use case diagram of this food ordering application shown in Appendix A.

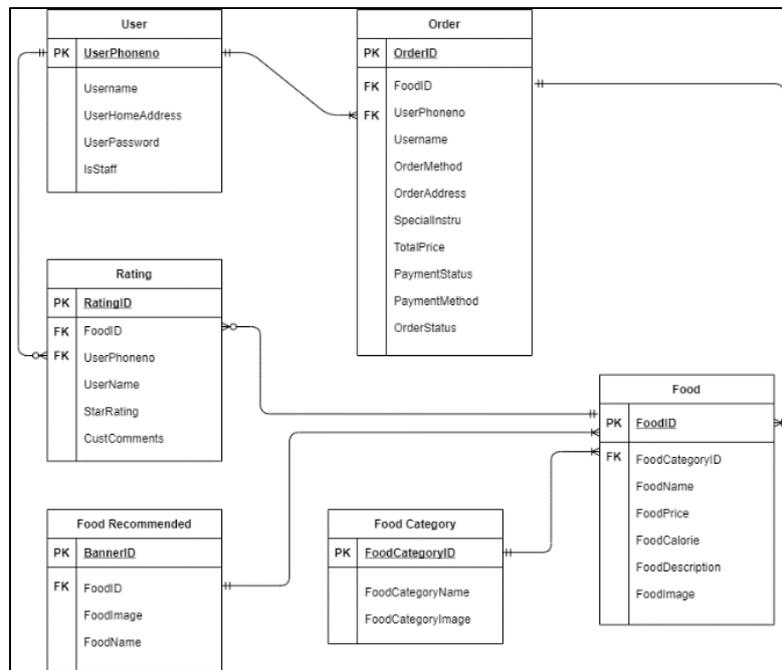


Figure 2: Entity Relationship Diagram (ERD)

The application design also needs to be completed in this phase, consisting of system design, database design, and user interface design. For the system design, the flowchart is used to explain the flow of the system. For reference, the flowchart diagram of users placing an order in the Food Ordering Application shown in Appendix B. The flowchart diagram of the system administrator exhibited in Appendix C. In database design, Entity Relationship Diagram (ERD) uses for designing the database, as shown in Figure 2. There are six tables in this ERD: user, food category, food, food recommended, rating, and order. The interface design of the Owl City Cafe food ordering application is illustrated using a storyboard. Some of the application output interfaces are displayed in Appendix D. Based on subsection 3.1 user analysis and requirement analysis, the interface design of this application is simple and plain. Thus, users can easily learn how to utilize this food ordering application. Most of the interfaces are choose white color as the background of the interface, such as the food cart interface. Some buttons were chosen icon-based instead of text, such as cart button, increase or decrease quantity button, etc.

3.3 Implementation

Next, followed by the implementation phase, it started working with coding in this phase. The application was developed in single units in this phase by referring to the previous phase system design. Thus, Java language and Android Studio is used for developing this android application. For the database of the application, Firebase is chosen to use. There are three Firebase functions, authentication, real-time database, and storage employed in this application. For Firebase authentication, phone authentication requires to enable. Hence, the phone number can be authenticated by reCAPTCHA. Suppose customers forgot the password while logging in to the application. In that case, users could reset the password after successfully verifying their phone number by entering the One-Time Password (OTP) code.

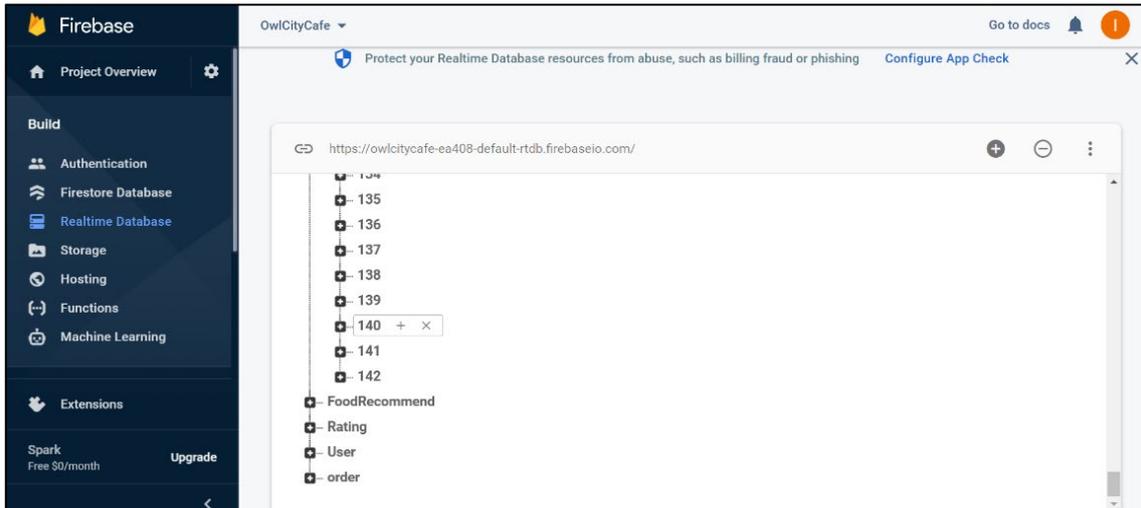


Figure 3: Firebase real-time database interface

For the second main function, Firebase real-time database, the data in the application can be added, delete and update. The real-time database collected from the application are users, food category, foods, food recommended, rating and orders, as shown in Figure 3. There are over 100 types of foods, and 16 various types of food categories are saved. When a new user registered, the user's data information also keeps in the real-time database. Furthermore, when the admin inserts, updates, or deletes the foods, food recommended, or food categories, the data are also updated concurrently. In addition, the order status, payment method, and many orders information also be stored and updated to this real-time database. Last is the Firebase Storage; all the Owl City Cafe's menu images are stored in it. Thus, customers can successfully view the images of the menu in the application with an internet connection. Other than that, the admin can also update the food's image in the menu interface by uploading the food images to the Firebase storage.

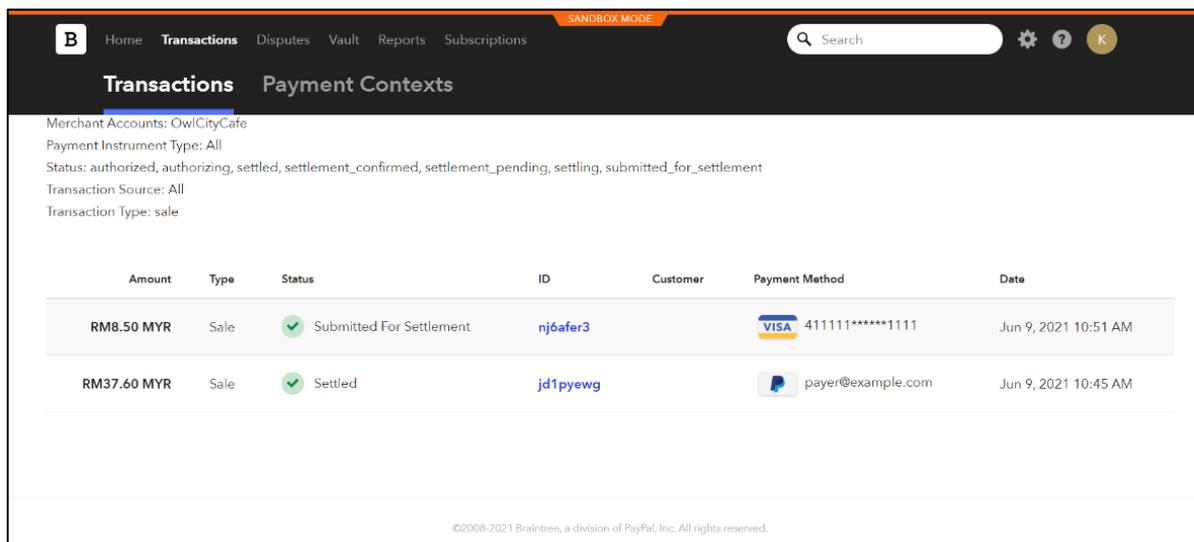


Figure 4: Braintree sandbox transaction interface

For the payment module development in this project, Braintree sandbox is applied for testing payment processing without taking any risk of actual credit card or PayPal details, as shown in Figure 4. Next, the most important part is coding; XML programming language is adopted to design the User Interface (UI) application layout. It is a lightweight language that does not make the mobile application layouts too hefty. Whereas for the management and control of this food ordering application on the Android platform, Java language is utilized to develop.

```

btnAddCart.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(add_on.length()>50){
            Toast.makeText( context: FoodDetail.this, text: "The add-on instruction is too long. Please keep it short.", Toast.LENGTH_SHORT).show();
        }
        else {
            //check the food already added to cart or not
            boolean isExist = new Database(getBaseContext()).checkFoodExists(foodId, Common.currentUser.getPhone());
            if (!isExist) {
                new Database(getBaseContext()).addToCart(new Order(
                    Common.currentUser.getPhone(),
                    foodId,
                    currentFood.getName(),
                    numberButton.getNumber(),
                    currentFood.getPrice(),
                    currentFood.getCalorie(),
                    currentFood.getImage(),
                    add_on.getText().toString()
                ));
            } else {
                new Database(getBaseContext()).increaseQuantity(Common.currentUser.getPhone(), foodId);
            }
        }
        setupBadge();
    }
}

```

Figure 5: Food detail coding part

Figure 5 demonstrates the food details coding part of the food ordering application. Users can view the food image, food name, food calorie amount, food description, rating, and comments of these foods. Besides, users can adjust the quantity of the food orders or give any extra requirements before adding the food to the cart in this interface.

```

@Override
public void onClick(DialogInterface dialog, int i) {
    //get Address and Instruction from Alert Dialog

    if (PickUp.isChecked()) {
        if(edtInstruction.length() > 50) {
            Toast.makeText( context: Cart.this, text: "The special instruction is too long.Please keep it short.", Toast.LENGTH_SHORT).show();
        }else {
            instruction = edtInstruction.getText().toString();
            OrderMethod = PickUp.getText().toString();
            DropInRequest dropInRequest = new DropInRequest().clientToken(token.trim());
            startActivityForResult(dropInRequest.getIntent( context: Cart.this), REQUEST_CODE);
        }
    }
    }else if(Delivery.isChecked()){
        if(edtInstruction.length() > 50) {
            Toast.makeText( context: Cart.this, text: "The special instruction is too long.Please keep it short.", Toast.LENGTH_SHORT).show();
        }else {
            instruction = edtInstruction.getText().toString();
            OrderMethod = Delivery.getText().toString();
            showPaymentAlertDialog();
        }
    }
    }else{
        Toast.makeText(getApplicationContext(), text: "Please select one of the order method.", Toast.LENGTH_SHORT).show();
    }
}

```

Figure 6: Order method coding part

Figure 6 shows the coding part of the order methods. In this application, there are two order methods options provided for users to choose which are delivery or pick up. Users also can add special instructions before placing the order. Thus, if users decide to select the pick-up order method, users will directly proceed with PayPal or the credit or debit card payment process to complete the order. On the other hand, users will move to the next interface to choose the delivery address and payment methods if users are taking the delivery method.

```

private void showUpdateDialog(String key, Request item) {
    final AlertDialog.Builder alertDialog = new AlertDialog.Builder( context: Admin_OrderStatus.this);
    alertDialog.setTitle("Update Order");
    alertDialog.setMessage("Please choose status");

    LayoutInflater inflater = this.getLayoutInflater();
    final View view = inflater.inflate(R.layout.update_order_layout, root: null);

    spinner = (MaterialSpinner) view.findViewById(R.id.statusSpinner);
    spinner.setItems("In the cooking process", "On delivery", "Your foods are reach!", "Your foods are ready! ");

    alertDialog.setView(view);

    final String localKey = key;
    alertDialog.setPositiveButton( text: "YES", new DialogInterface.OnClickListener() {
        @Override
        public void onClick(DialogInterface dialog, int which) {
            dialog.dismiss();
            item.setStatus(String.valueOf(spinner.getSelectedIndex()));

            order.child(localKey).setValue(item);
            adapter.notifyDataSetChanged();
        }
    });
}

```

Figure 7: Update order status coding part

Figure 7 displays the coding part of the update order status. When the order progress is updated, the admin can update the order status to “In the cooking process”, “On delivery”, “Your foods are reached!” and “Your foods are ready!” by clicking the “Update” button of each order placed by customers. At the same time, customers will receive mobile application notifications for each progression of their order.

3.4 Testing

After this application has been successfully implemented, the application proceeds with the testing phase to ensure quality assurance and check for any defects in this application. The testing method utilized in this project is Alpha testing. The developer needs to perform all the testing activities by checking on each module. Each function module of this application, such as user registration and login, must be done and testing by Unit testing in this phase.

There are 14 units testing conducted to test whether all modules of the application can function well and whether any error or bugs occur determined. For example, unit testing for the user signs up, as shown in Appendix E. New users cannot sign up if the length of the input text exceeds the length limit. New users also cannot sign up if the password does not have at least eight characters, does not have at least one upper or lower capital letter, or does not have at least one digit number. Based on the testing result, all the testing cases are tested successfully, and any bugs or errors found during testing are solved.

In addition, the developer must ensure the application achieves all of the requirements and works as expected. Due to the Covid-19 pandemic, Malaysia has to lockdown for a period. Therefore, the developer cannot directly show the food ordering application to the owner and customers. Thus, only one or two volunteers tested using this food ordering application personally to check all the user requirements are met. The restaurant owner tested for the admin module by watching a short video, whereas volunteers checked the user module. Further user acceptance testing result is discussed in section 4. Thus, some bugs or defect of this application can be improved and fix it.

3.5 Maintenance

The last phase of the Waterfall model is maintenance; it delivers these improvements in the customer's environment. This phase is to fix the bugs or feedback collected who use this application in the previous stage, testing and enhancing this application's functions. Thus, the application can have a better version to release after this phase is done, and users can get a better experience while using this application.

4. Results and Discussion

This section discussed the user acceptance testing result of this application. Five target users were chosen to test this application, including the customers and owner of the Owl City Cafe, to enhance the user experience of the Owl City Cafe Ordering application. The users have given some feedback simultaneously the strengths and weaknesses of the application are analyzed. The result of the user acceptance testing is displayed in Appendix F. The first question is about the frequency of using the mobile app to place food orders, and there are 3 out of 5 respondents (60%) using the mobile app to place orders once a week. One respondent (20%) uses the mobile app more than once per week to place orders, and one respondent (20%) rarely uses the mobile app. The second question asked the application they often used to order food. 2 out of 5 respondents (40%) often use McDonald's Mobile Ordering Application to order food, and 2 out of 5 respondents (40%) use other mobile food order applications such as Grab Food to order food. Only one respondent (20%) use KFC Malaysia Mobile Ordering Application to order food.

Follow by questions 3 to 5; the questions asked whether they agree that the calorie feature is beneficial and will affect their eating habit and whether the application can reduce people's contact with others. There are 5 out of 5 respondents (100%) who choose Yes. All the respondents concurred the calorie feature is beneficial and believe that it affects their eating habits and agree that this application can reduce people contact with others. Last is the performance satisfaction for this application. Based on the performance satisfaction's result shown in Appendix F, all the users are satisfied with the performance functionality and be keen on the calorie counts feature. The overall usability result of this application evaluated by the System Usability Scale (SUS) is 85.71%, which means that respondents were satisfied with the application's usability.

Respondents were also curious about how much is the food calorie amount that they have intake. This feature is encouraging them more concerned about the daily amount of calorie intake. The design of this application is simple and easy to use. However, certain users also have given some suggestions that the application can make some improvements. For instance, this application should explore more features such as enabling current location services, real-time GPS location tracking of food orders and providing more payment methods such as the Touch n Go e-Wallet, online banking, etc.

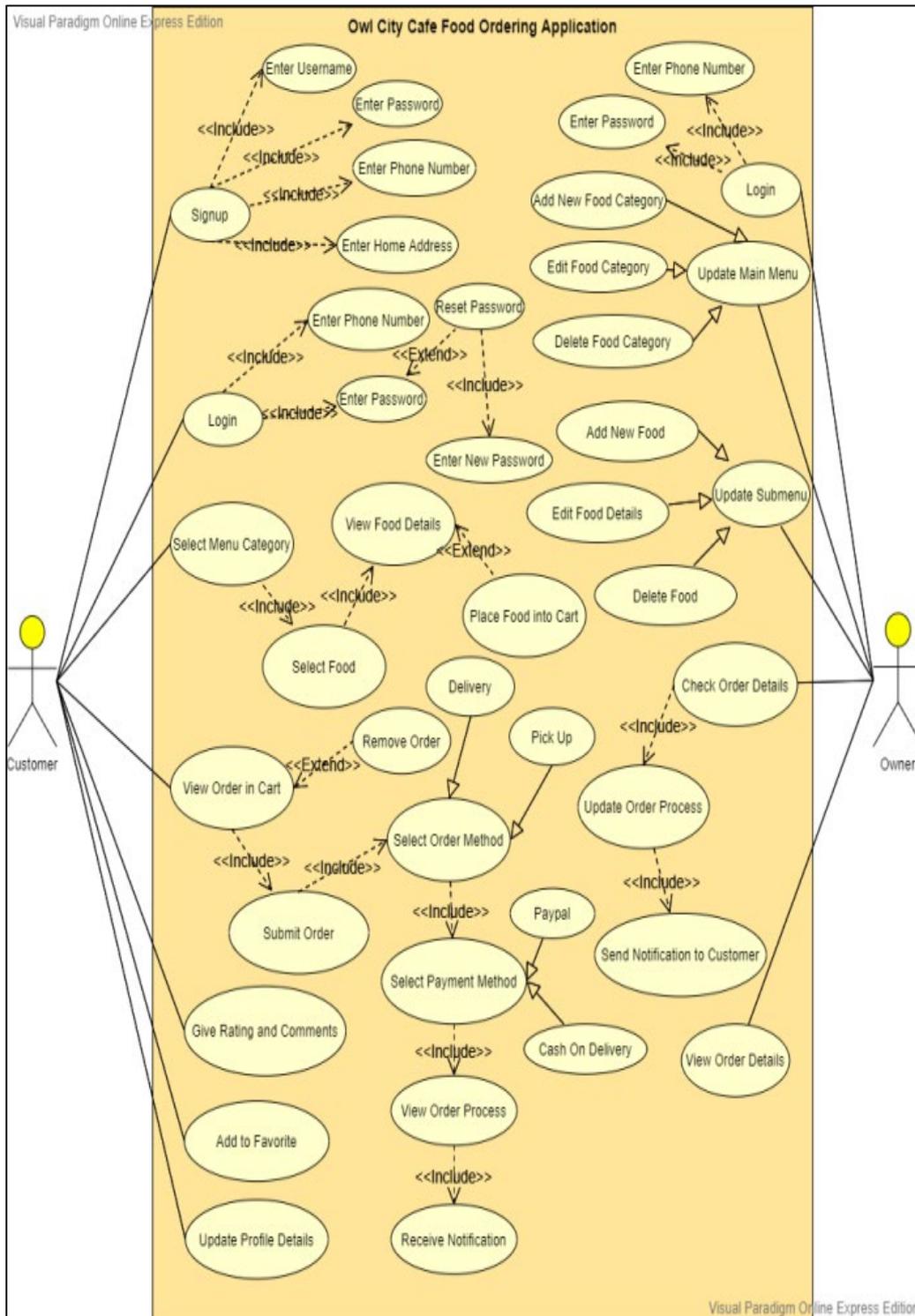
5. Conclusion

In conclusion, this application has achieved all the goals and brought users toward a healthier or safer lifestyle. The food ordering application is developed for Owl City Café Melaka. Customers can avoid social interaction with others and have a better ordering experience by using this application. Other than that, customers can choose order methods, whether delivery or pick up. Moreover, people should take care of their health by consuming an accurate amount of calories each day. That is because obesity or overweight can cause other diseases, such as high pressure, diabetes, etc. Thus, this food ordering application shows how many calories of food on the menu. Customers will be conscious of how many calories of food they have ordered, and they may decrease the calorie they intake in the next meals if calories intake over than standard. This application was created and developed on schedule according to the well-planned Waterfall model and has obtained the expected result during user testing. The unit testing and some users testing also identified the advantages and limitations of this application. For example, this application does not have a location service to detect the users' current location. Customers have to input their home address or current address manually. However, the overall usability result of this application, as evaluated by the System Usability Scale (SUS), is 85.71 %, indicating that users were pleased with this application's usability. Lastly, some future works were proposed, such as adding current location services, providing real-time tracking order location, etc. Thus, the limitations of this application can be improved in the future and provide a better version of the food ordering application.

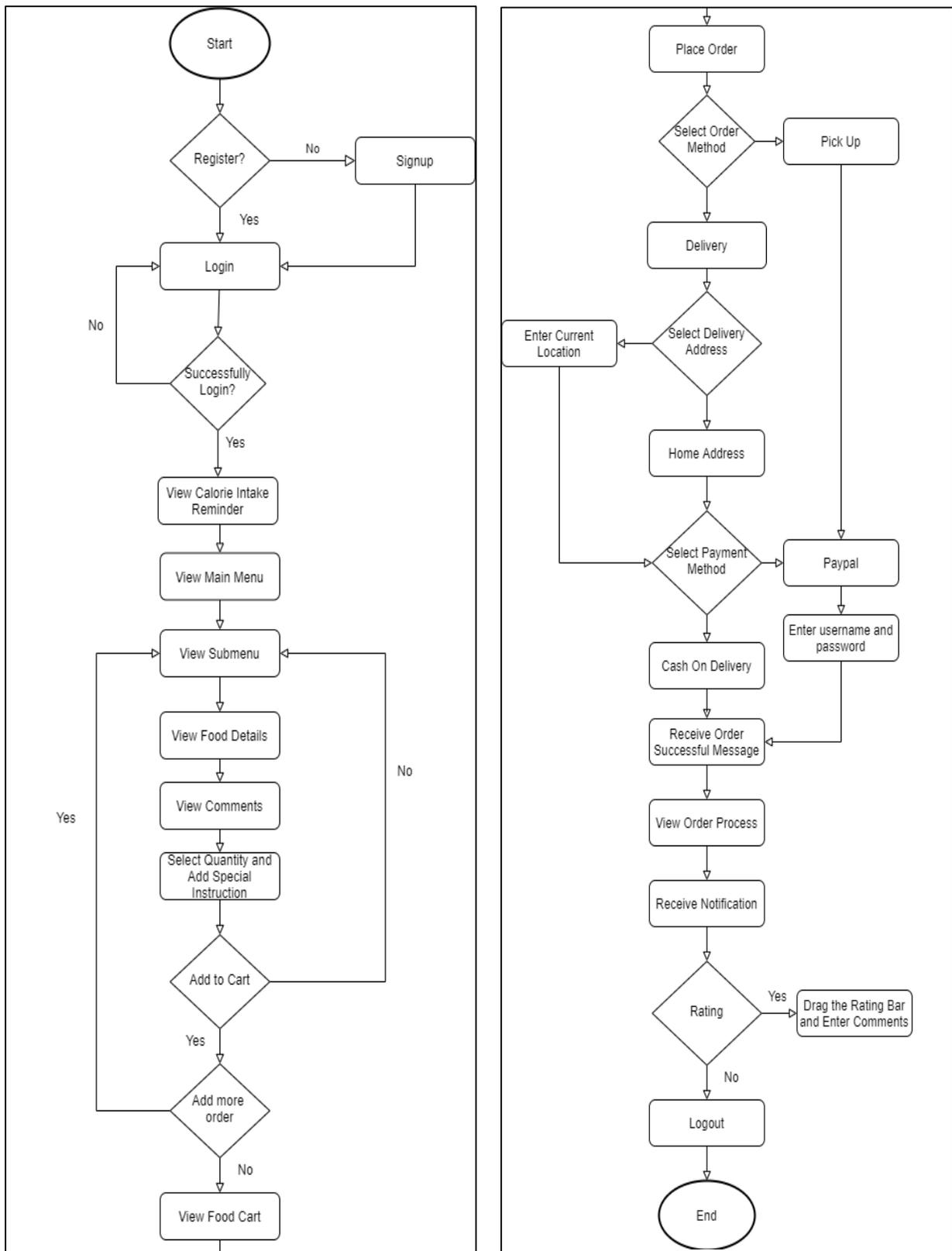
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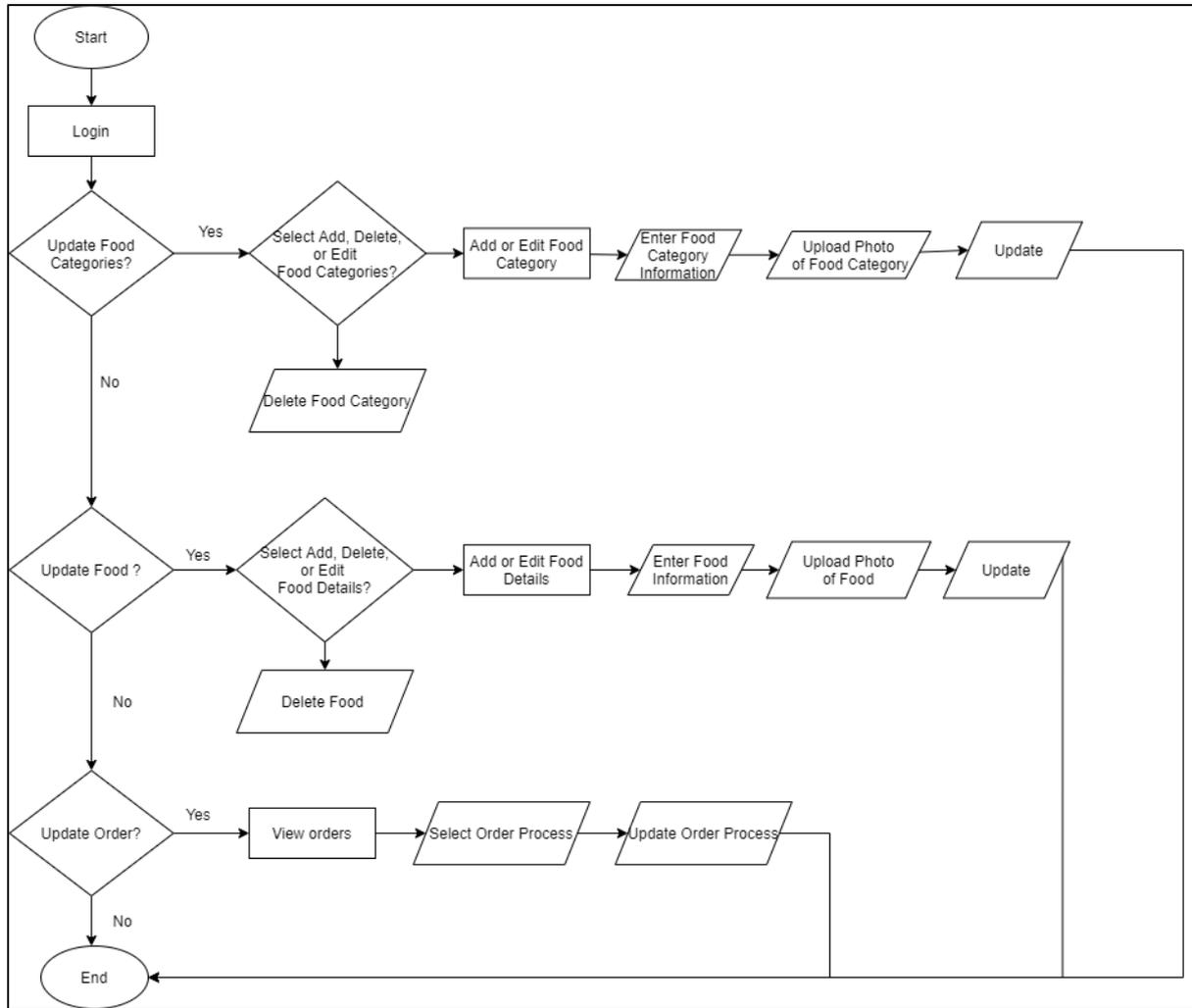
Appendix A: Use Case Diagram



Appendix B: Flowchart diagram of users

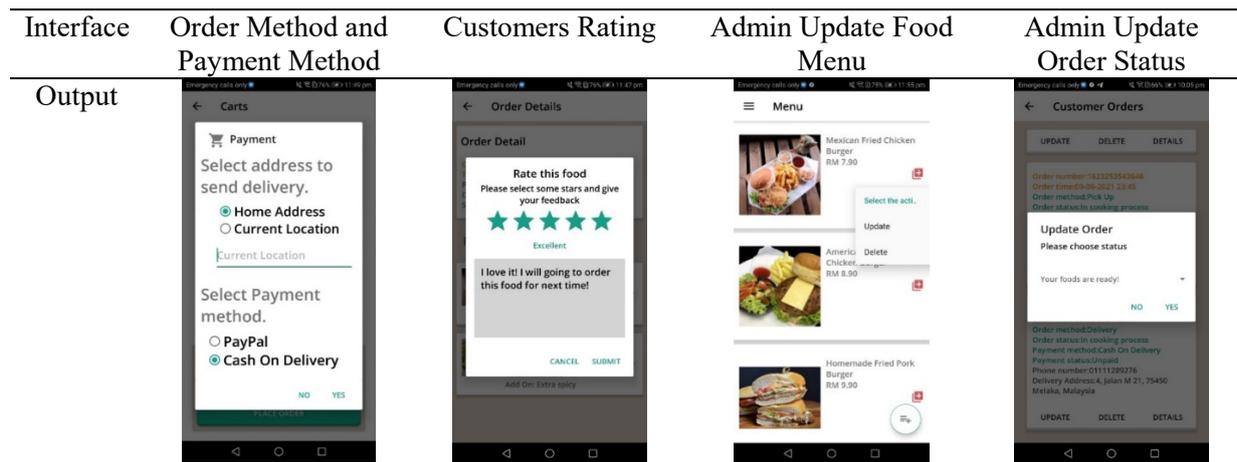


Appendix C: Flowchart diagram of system administrator



Appendix D: Owl City Café Food Ordering Application output interfaces

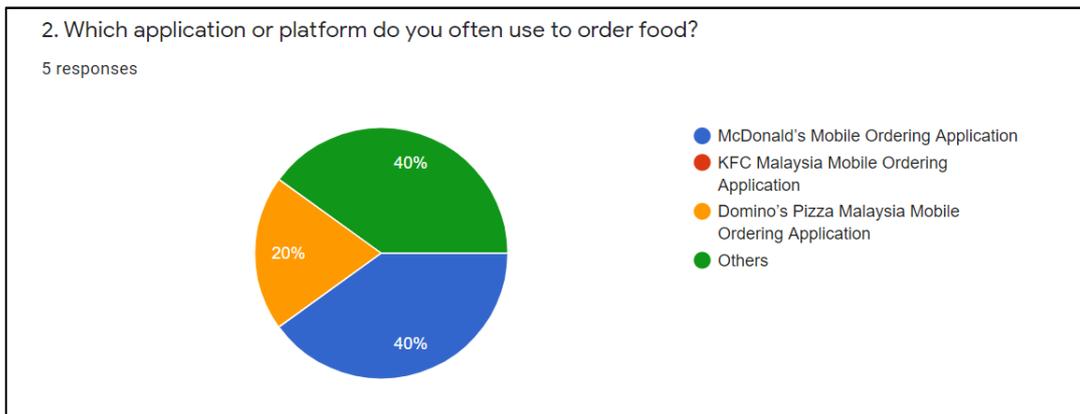
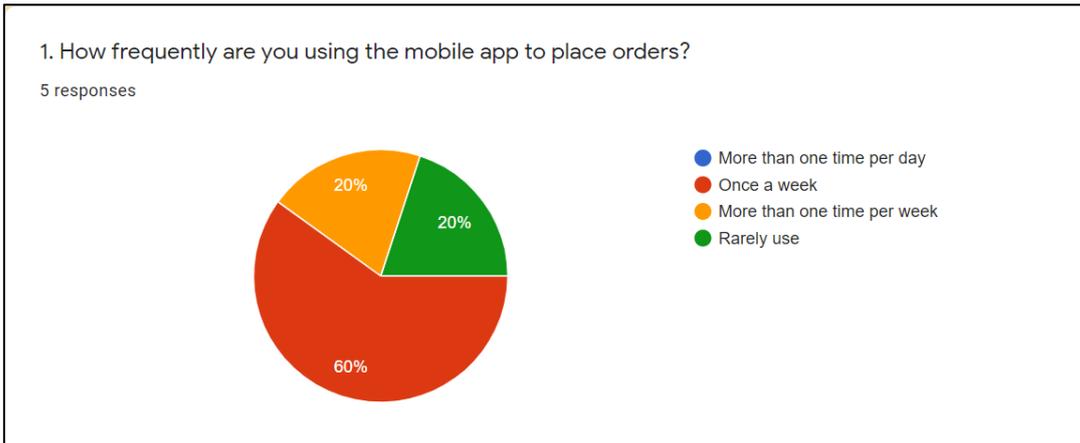
Interface	User and Admin Login	Main Menu	Food Details	Food Cart
Output				



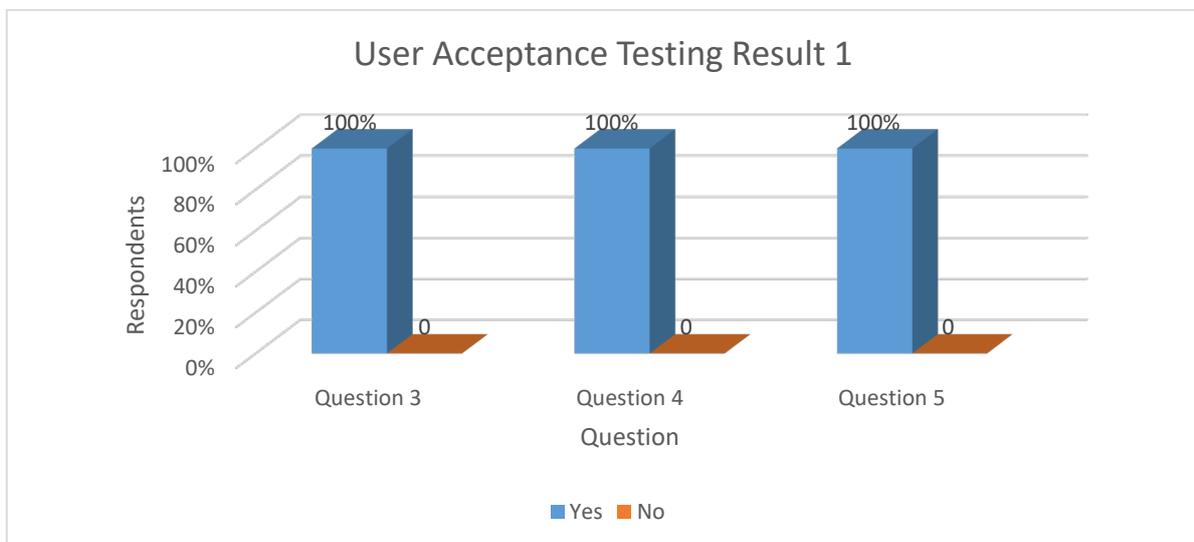
Appendix E: Unit testing for User Signs Up

No	Test case/ Description	Attribute and value	Expected Result	Result
1	New users cannot sign up without fill in completely all the text field.	Phone number: null Home address: null Username: null Password: null	Sign up failed, and error messages are displayed.	Successful
2	New users cannot sign up if the length of the text exceeds the length limit. New users also cannot sign up if the password does not have at least eight characters.	Phone number: 0169066218 Home address: 2, Jalan Tun Ismail, Taman Merah. Username: Angel Password: 1234	Sign up failed, and error messages are displayed.	Successful
3	New users also cannot sign up if the password does not have at least one upper or lower capital letters.	Phone number: 0169066218 Home address: 2, Jalan Tun Ismail, Taman Merah. Username: Angel Password: 12341234	Sign up failed, and error messages are displayed.	Successful
4	New users also cannot sign up if the password does not have at least one digit number.	Phone number: 0169066218 Home address: 2, Jalan Tun Ismail, Taman Merah. Username: Angel Password: Angelllll	Sign up failed, and error messages are displayed.	Successful
5	New users also cannot sign up if the phone number has existed.	Phone number: 0169066218 Home address: 2, Jalan Tun Ismail, Taman Merah. Username: Angel Password: Angel1234	Sign up failed, and error messages are displayed.	Successful
6	New users also can sign up if all the text field has correctly been filled in.	Phone number: 0111289276 Home address: 2, Jalan Tun Ismail, Taman Merah. Username: Angel Password: Angel1234	Sign up successfully, and the user has to log in to the application with the account that has been signed up just now.	Successful

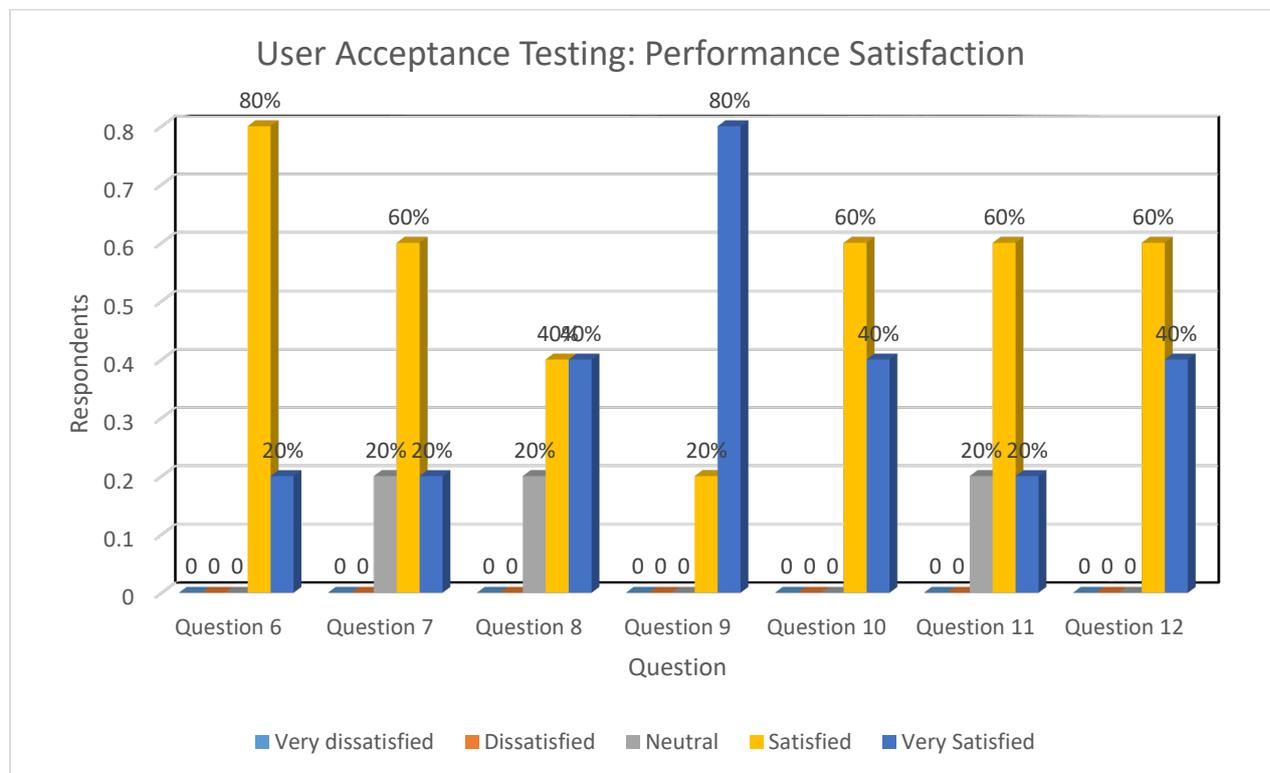
Appendix F: Result of User Acceptance Testing



Question	Yes	No	Result
3. Do you think this application can helping people reduce contact with each other when ordering food?	5/5	0/5	100% YES
4. Do you think the calorie count features on the food cart interface or menu interface are useful or beneficial to you?	5/5	0/5	100% YES
5. Do you think the calorie count features on the menu interface and cart interface will affect your decision during ordering the food?	5/5	0/5	100% YES



Question	1-Very Dissatisfied	2-Dissatisfied	3-Neutral	4-Satisfied	5-Very Satisfied	Result
6. The overall UI design of this application	0/5	0/5	0/5	4/5	1/5	Fully Satisfied
7. The calorie intake reminder feature on main menu interface of this application	0/5	0/5	1/5	3/5	1/5	Mostly Satisfied
8. The food recommended feature on main menu interface of this application	0/5	0/5	1/5	2/5	2/5	Mostly Satisfied
9. The food calorie counts feature on the menu and cart interface of this application	0/5	0/5	0/5	1/5	4/5	Fully Satisfied
10. The rating and comments feature on the menu interface of this application	0/5	0/5	0/5	3/5	2/5	Fully Satisfied
11. The order status notification feature of this application	0/5	0/5	1/5	3/5	1/5	Mostly Satisfied
12. The overall functionality of this application	0/5	0/5	0/5	3/5	2/5	Fully Satisfied



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