

# **GOFOOD: A FOOD FINDING AND ORDERING APPLICATION**

A Capstone Project

Presented to the Faculty of the

Department of Computer and Information Sciences

University of San Carlos

In Partial Fulfillment

of the Requirement for the Degree of

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

By

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June 2018

## **CERTIFICATE OF AUTHORSHIP/ORIGINALITY**

This is to certify that the authors are responsible for the work submitted in this capstone. The intellectual content of this capstone is a product of original work. Any assistance that the authors received in the preparation and work of the capstone itself has been acknowledged. In addition, the authors certify that the materials and literatures taken from other sources are properly quoted.

Lee Anton Laurenz I. Rubi, June 2018

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This capstone entitled, “**GOFOOD: A FOOD FINDING AND ORDERING APPLICATION**” prepared and submitted by **LEE ANTON LAURENZ I. RUBI** in partial fulfillment for the degree of **BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**, has been examined and is recommended for acceptance and approval for ORAL EXAMINATION.

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Again, I give my sincerest thanks to everyone involved, this was not possible without you.

## **ABSTRACT**

The Food Industry is a fast-growing industry where people consume food each day of their living life, nowadays schools and other establishments have different canteens on different departments and it's such a hassle going on a certain food stand and wait for the food that you order, the researchers proposed a better solution for this which is a food ordering system which enables customers to place their order online at any time and any place within the specified range.

These issues are such the waiting for food to be prepared and control of food management issues, therefore, this system enhances the speed and standardization of taking the order from the customer. Furthermore, it also extends and delivers customer satisfactions especially to the students who have hectic schedules who just want to have break before their next class.

The conclusion of this project have resulted with statements that approve of the study. Store owners would like to communicate with customers on their orders to allow for preparation as well Users wanting to tell the store what to prepare for them when they come to pick up. Testing came with an 85% acceptance to black box and got an average of 3.57, receiving an acceptable rating. Therefore, the system has proved to be useful for users.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Rationale of the Study**

A food finder application is one of the latest trends in food industry that makes customers enjoy their food according to their convenience. An online ordering system opens a window of opportunity for customers. Restaurants can customize their menus to highlight the menu specials or have them designed in a way they can make suggestions to the customer as they are ordering. Mobile application catering to any restaurant functioning provide various benefits for both the users and the executives as they intensify the interaction of the users via the application and provide better monetary advantages and a good reputation for the owners. The reason base on, is because while the idea to develop a food application is a good idea, the work behind making it a reality is too much for busy restaurant owners to handle.

The advent of the technological boom in this decade prompted most industries to join in the hype. Restaurants may have joined later in this fad, but it is undeniable that technology also plays a great role even in the culinary setting. From Wi-Fi to different designs that utilizes technology, restaurants have started using technological gadgets to improve their services. It is important to know the most effective ways of utilizing this technology to enhance the customers' experience in the restaurant and eventually gain their satisfaction and loyalty. Beyond making more money, mobile applications (especially the ordering options for pickup or delivery) make it easier to fulfill their orders. It gives new customers a quick and easy way to find and their restaurant's offerings. New customers are much more likely to try their food if the ordering process is quick, easy and painless. Customers can order very quickly or can take a long time to decide.

One of the best parts of integrating a mobile application into their restaurant's other online profiles is the ability to collect more review the instant someone happily leaves. Getting your customers to share positive experiences on

social media is a great way to advance the word of mouth and social proof around their business, boosting their reputation in the mind of the public, leading to increased business over time. One of the important feature is, it allows them to promote their restaurant or food serving company online and enables them to attract more customers towards their restaurant.

## **1.2 Statement of the Problem**

### **1.2.1 General Objective**

This study aimed to develop a food finding and ordering application within a fixed area.

### **1.2.2 Specific Objectives**

1. To Identify customer behavior regarding purchasing of items from food stalls within a set location.
2. Develop a web application that provides owners of food stalls to display their items and administrators to view logs, accepting owner request and manage map locations.
3. Develop a mobile application that customers can use to see and select items they want to purchase from a food stall and store hands to utilize in helping tend the store orders.
4. To test and evaluate the application.

## **1.3 Significance of the Study**

The findings of this research would be beneficial to the people because information regarding items they would like to purchase is readily available for them to see. By knowing the items, they would purchase and being able to queue their orders and then going to the stall to pick up their items in a streamlined fashion makes for better use of one's time, time that should be used on more important matters.

**Consumers** would be able to use the application to be able to see the stalls that are available to them. The users can then place their orders to notify the stall for the items they wish purchase, placing also the cash they have on hand. This is to streamline the process of having to go out of their way to purchase an item in a fast and orderly way.

**Businesses** would have a way to control sales that would take a long time should there be a misunderstanding between them and their customers. By being able to display their items and accept orders from their customers, they would know the items their customers want and can prepare the items for when the customers pick up their order, also preparing the change for the customer when they input how much cash they have on hand.

**Developers** would be able to look into this research on how they could streamline a process, which makes for a better application when consumers are able to quickly get the items they want to buy. By creating a streamlined process for the customers to quickly get what they want is visually and practically appealing.

**Future Researchers** would be able to utilize this research on the current technologies used. The information gathered by this research regarding customer and business relations would be beneficial for any research that is anything related towards commercial interaction between entities as well as the use of GPS system in interaction with customer standpoints towards business locations.

#### **1.4 Scope and Limitations**

There are 4 account types in this system, the user, store hand, owner and the admin. GoFood will alert/notify them through smartphone and email if the ordered food is ready for pick up. GoFood is very useful for the customers such as students and teachers who have very hectic schedules. Administrators can set the locations that owners of stalls can select for their business. Admins can also allow to accept or deny an owner for the use of the system. Owners can select a location of their stall and put on display what items they have. They can also authenticate

store hands who would manage the sales. Users could order food with the use of the website and the Android Application. Users could set the time they want for food picked up. Users could also leave a comment on a specific stall and to the application for bugs and improvements. GoFood would keep track of the number of users using the application passing to a location. The application is compatible with Android devices, at version 4.01 Ice Cream Sandwich operating system. Any device with a browser can access the website.

Though the system has a lot of features and is very helpful, it also has its limitations. The application is limited to Android devices. This system can only be used within a Campus area such as University of San Carlos that was set by the administrator. The administrator could only accept customers order with online connection. Since this application has multiple features running together at most times, it would consume device battery life at a fast pace.

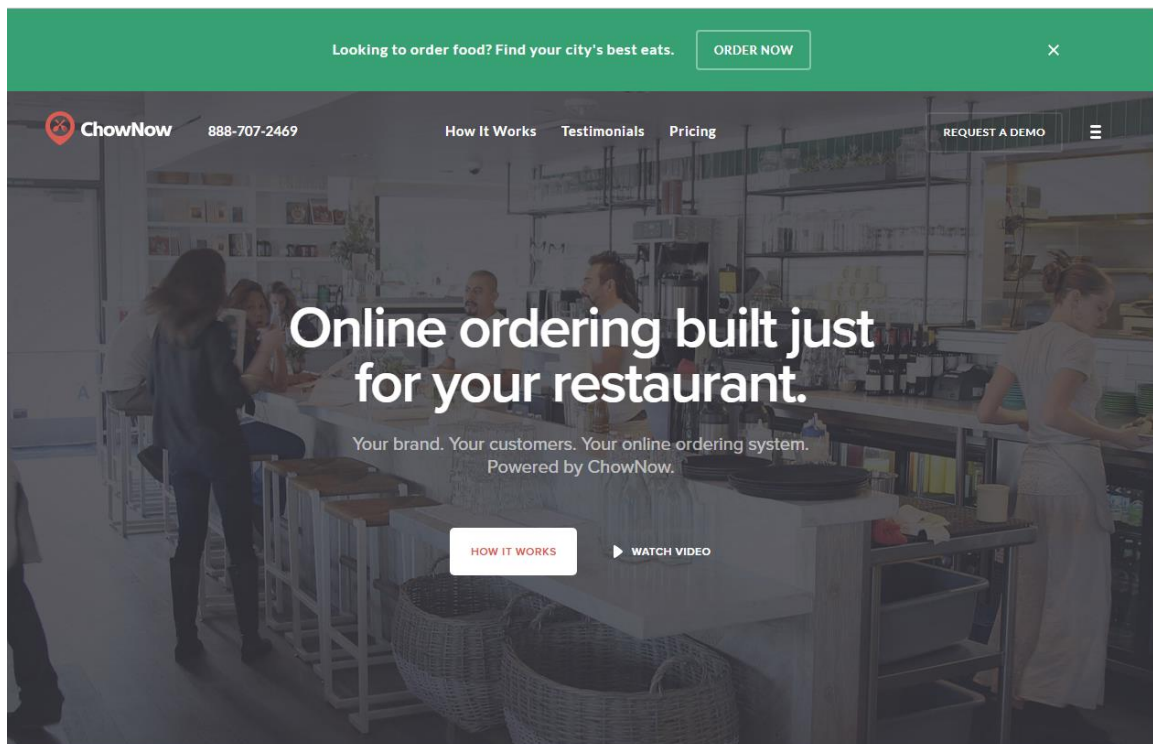
## CHAPTER 2

### RELATED SYSTEMS

This chapter discusses existing literature and systems related to the study.

#### ChowNow

An online ordering platform built for mobile and Facebook and aims to provide restaurant with an easy way to offer online ordering customer via either their Facebook page, or their existing website (ChowNow, 2017). ChowNow is not a centralized platform for all restaurants, with its offering, restaurant can individually customize and brand their ordering apps. Additionally, it offers restaurant a wireless tablet to receive orders and communicate back to the customer when it will be ready.



*Figure 1. ChowNow*

## Order Assignment and Routing for Online Food Delivery: Two Meta-Heuristic Methods

A research by Yuxin Lu, Yongzhong Wu and Yongwu Zhou (Wu, Lu, & Zhou, 2017) have characterized that in terms of objective value the hierarchical method is much better than integrated method. It presents that online food delivery business has been earning a huge amount of money, since the development of mobile technology has rapidly growing. Hierarchical method introduces slight sub-optimality in performance, but potentially gain a good deal of efficiency in execution of time. While integrated examines object from different style and different point of views. This research is useful to know that using the hierarchical method can reduce the overall traveling distance, which lessens the delivery cost.

### Food Panda

A web and mobile application that allows you to easily order a food through online from 1000+ restaurants (FoodPanda, 2017). They can order food from 400+ restaurant and to choose from any 30+ different cuisines and enjoy delivery till late night. This application has order status tracking feature to know if they have confirmed or canceled their order.

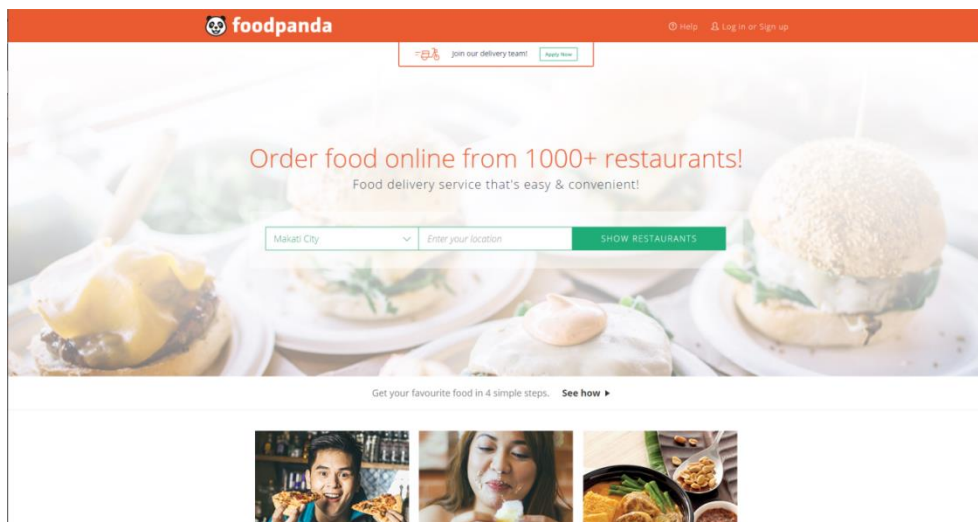


Figure 2. FoodPanda

## Just Eat

A mobile application that allows you to order food from restaurants. Just eat has simple interface but it is still a pretty decent app(Just-eat.co.uk limited, 2017). This application save's their favorite orders and restaurants making it easier for you next time you order. It also has feature which is they can share their experience and rate their takeaways.

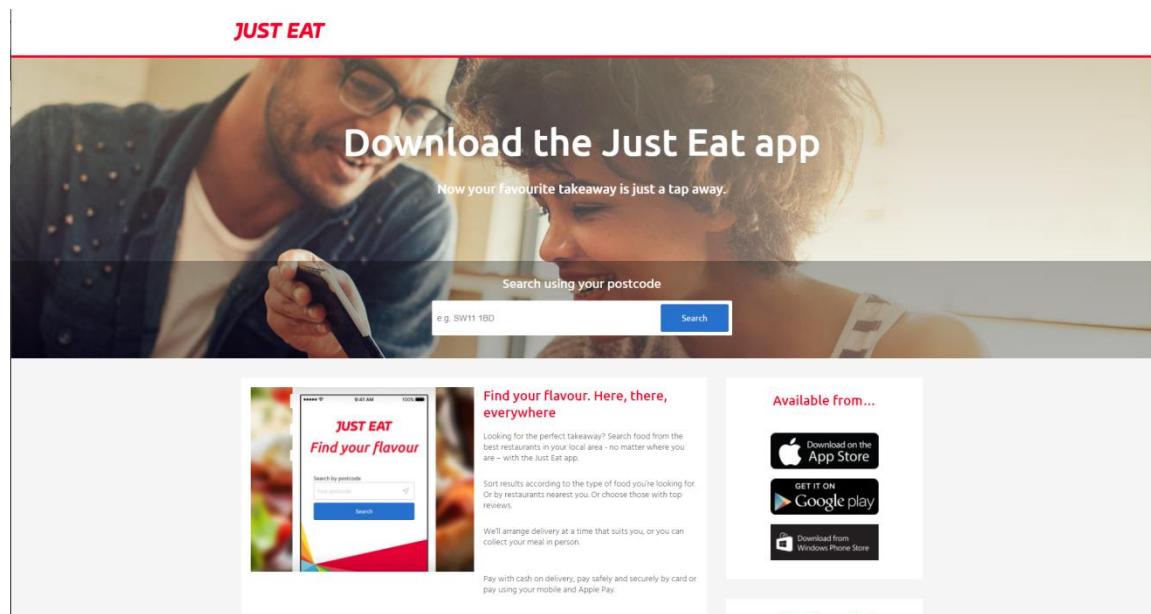


Figure 3. Just Eat

## User-Specific Feature-Based Similarity Models for Top-n Recommendation of New Items

Asmaa Elbadrawy's and George Karypis's journal is on recommending new items to users of an ordering system (Elbadrawy & Karypis, 2015). The authors have presented that in recommending new items to users, only their previous purchases would be used to determine new items they would be interested in. However, past purchases of other users can also be used if they have similarities in their interest of purchases.



## Dynamically Integrating Item Exposure with Rating Prediction in Collaborative Filtering

This paper presents a different approach on exposing new items to more users. By looking at user preferences in purchases of items and their review of it, items can be pushed to the top of the items or pushed down (Shih, Hou, Jiang, Lien, Lin, & Cheng, 2016). By using this method, all the items can be viewed with equal value and be easily replaced if the quality of an item is not good enough

### GloriaFood

This application allows users to take online orders from their website or even on Facebook (GloriaFood, 2017). It allows users to receive orders from their customers directly to a phone or tablet that notifies them of an incoming order. By creating this application, they have made store owners and staff work easier by allowing for information of orders from customers without direct contact.

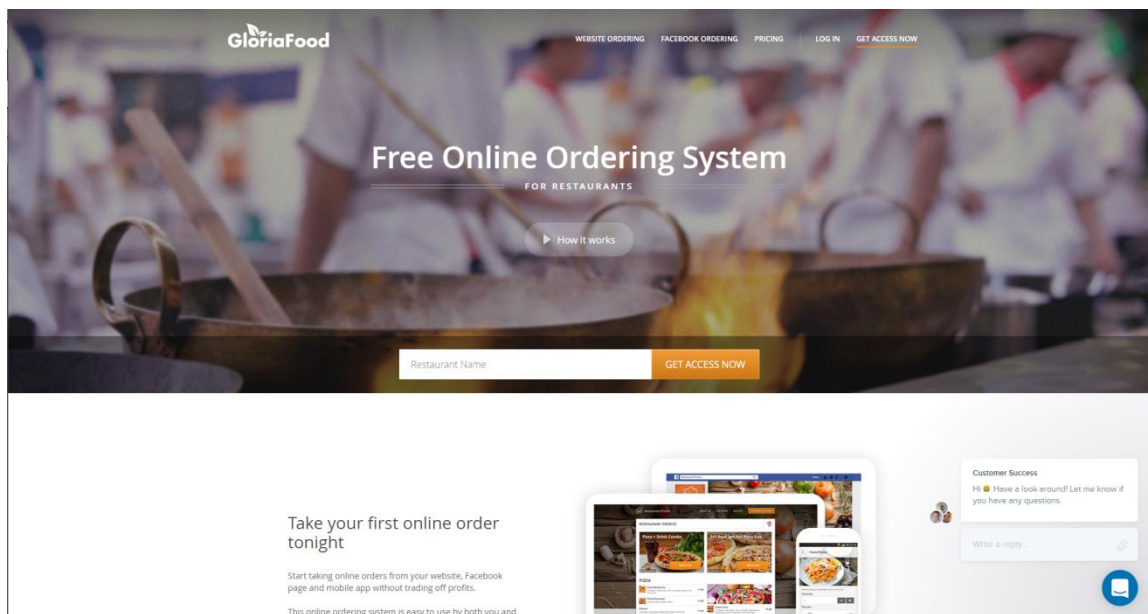


Figure 4. GloriaFood

## **CHAPTER 3**

### **TECHNICAL BACKGROUND**

This chapter discusses the fundamental algorithm, tools, and definitions that were relevant in this study.

#### **Global Positioning System**

The Global Positioning System is a global navigation satellite system that provides location and time information in all weather conditions, anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites (Hofmann-Wellenhof, Lichtenegger, & Collins, 1997). Created by the United States government, they made it freely available to anyone with a GPS receiver. By using this technology, the accurate estimations of their location can be provided users for locational awareness. This research uses GPS to determine the current relevant location of the user.

#### **Geofencing**

Geofencing is a feature of software programs that uses the global positioning system or radio frequency identification to define geographical boundaries (TechTarget, 2016). With geofencing, virtual boundaries are created. This ability to create virtual boundaries is very beneficial to implementing areas to what the user wants what kind of area it will be and alert they would get from another user getting into the geo-fence. Geofencing would be used to create virtual spaces in which the user can manipulate according to their wants.

#### **Geolocation**

Geolocation is the identification of the real-world geographic location of an object, referring to the practice of accessing the location, or to the actual assessed location (Ionescu, 2010). Using radio frequency location methods, Geolocation can get information from cell towers that can triangulate the current location of the user, despite not being as accurate but an excellent back up in case a GPS signal is

unavailable. Geolocation is used to determine the location of the user and reveals the nearby locations that could be of interest to the user.

### **Google Maps Android API**

Google Maps is a desktop web mapping service by Google that offers satellite imagery as well as street maps (Google). With their release of the Google Maps Android API, which allows for the embedding of Google Maps onto Android applications for Android devices, would be used which would provide the birds' eye view of the current relevant location of the user on the website as well as the initial location data.

### **Mobile Computing System**

Mobile computing systems has the ability to give users with mobile devices a computing service that is available anywhere (Koudounas & Iqbal). The majority of mobile computing systems today are in the use of the everyday person which provides them an extended arm for productivity. While mobile computing systems are comparably weaker to its desktop counterparts, the ability to have the system on-hand provides functionalities that desktops could only hope for. Functionalities that include providing information and services through mobile applications to the user from their current location rather having to find a desktop system to provide that information. This research would use a mobile computing system for the objective to provide users the capability to have information on their mobile device anywhere and anytime.

### **Android Operating System**

The Android operating system is a mobile operating system developed by Google (Google). Being open sourced, the operating system has the largest installed base of every operating system. This enables applications to have a large pool of users. This research, that would develop a mobile application, would be using the Android OS to serve its large user base.

## CHAPTER 4

### DESIGN AND METHODOLOGY

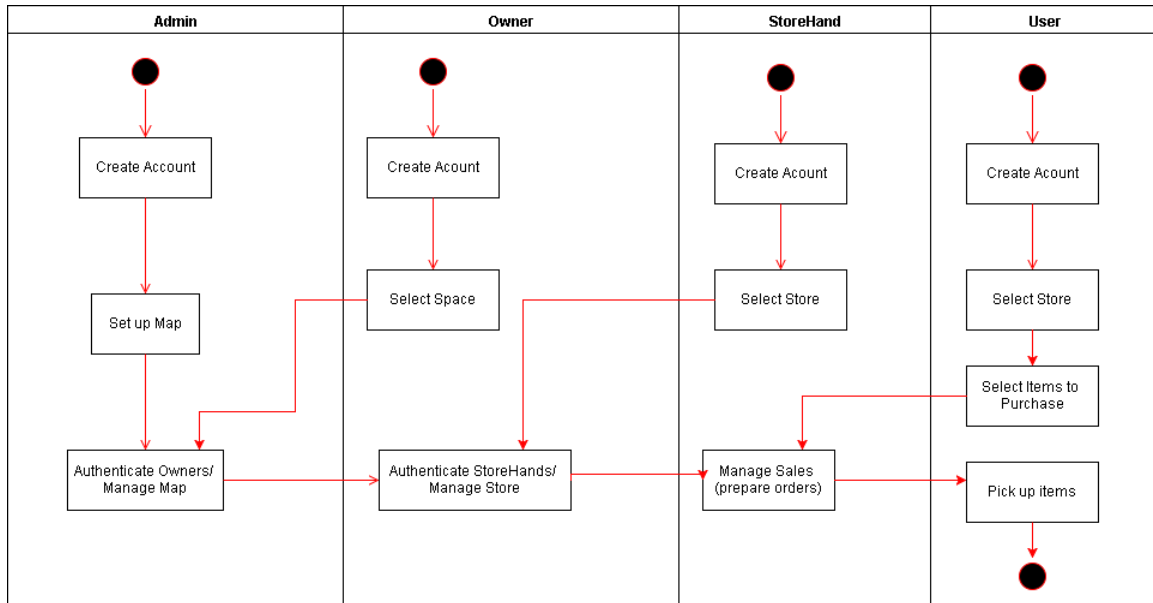
#### 4.1 Conceptual Framework

Using the mobile application, users would be able to select a store and then select the items they would like to purchase and input details such as the amount of cash they have on hand. Owners or store hands are then able to accept the user's order, subtracting from the overall total stock of the store and preparing the items of the user's order and await their arrival for picking up. The user then arrives at the store, paying with the amount of cash they have declared during the purchasing stage.



*Figure 5. Conceptual Framework*

## 4.2 Analysis and Design



*Figure 6. System Activity Diagram*

The Swim lane diagram above shows the general process of the system. Administrators are to deploy a map, designate areas of that map for the owners to utilize and authenticate owners when they select a space to use. Owners would select a space that the administrator has designated, wait for authentication from the administrator then manage their store, putting on their items for sale. Store Hands manage the sales of items that the owner has put on, accepting orders and waiting for the user to come by and pick up their purchases. Users would select a store then select items they want to purchase, detailing also cash on hand, then when their order has been accepted, they can then go and pick those up.

The following ERD shows you the different information relation of the system, from items, inventories, store, order, location, maps and the user. Also shows what are the primary keys or foreign keys of the system.

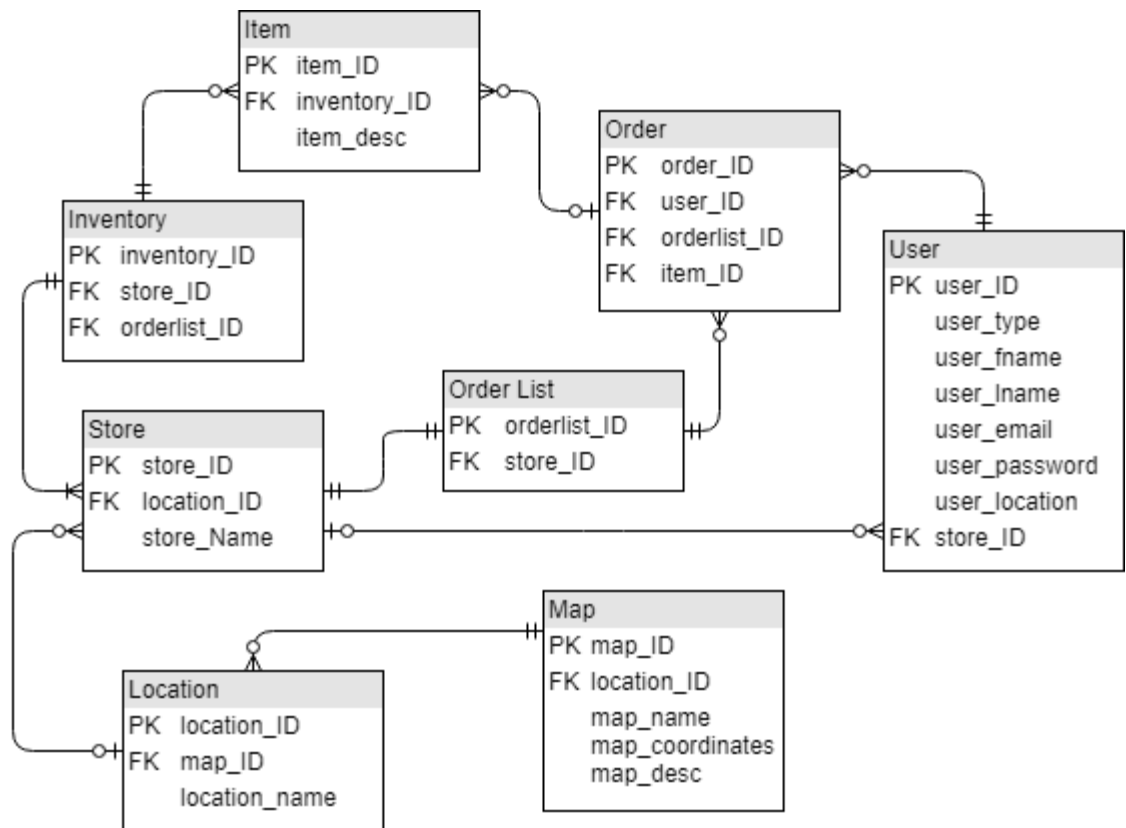
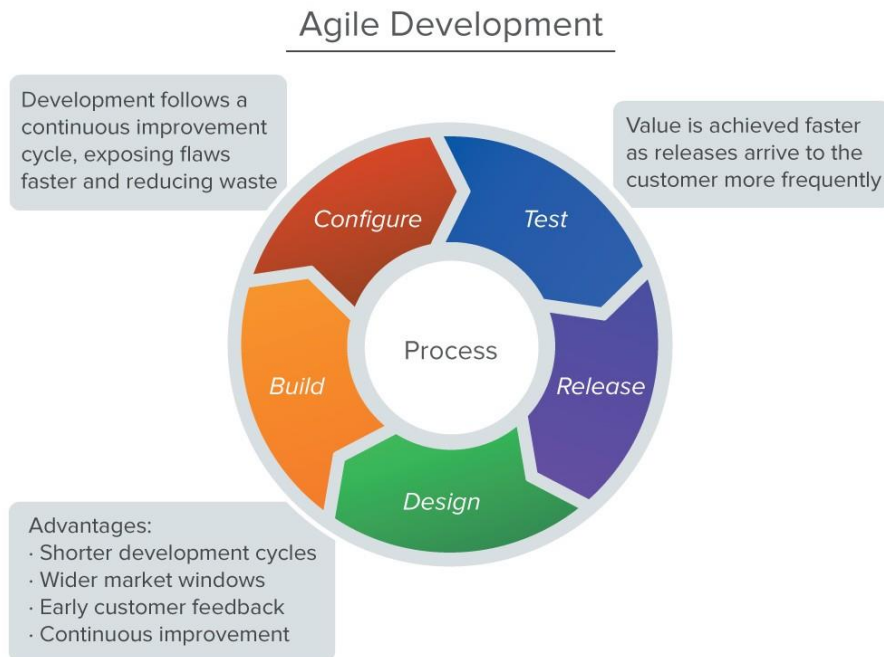


Figure 7. Entity Relationship Diagram

### 4.3 Development Model

The process design of this research aims to use the agile process model. It is a design process, used in software development processes, which are seen as a combination of iterative and incremental models that focuses on process adaptability and customer satisfaction by delivering of the working product fast (Wiley, N.D.). The following figure shows the process of the agile model. Using Agile development, while having the benefits of iterative and incremental which is the splitting of the application into smaller parts so that each part has their own development cycle and the released parts could be improved on in later cycles, receiving customer feedback earlier on during development would allow the development on the application to cater to the problems that users would be having and address features that would be changed according to that feedback.



*Figure 8. Agile Model*

The Design phase is where information gathered would be used to design the system to cater to the requirements of the application. By creating a model to which the creators of the application can follow would allow for faster development of the system.

The Build phase is the initial creation of the modules would begin. By following the model that the previous phase has outputted, the build phase would relatively be creating the base modules, following the development approach of bottom-up.

The Configure phase is the fine tuning of the modules by eliminating obvious risks themes from being allowed to happen. This phase also creates the relationships of the modules with each other.

The Test phase is the testing and evaluation of the system to check if it meets the requirements set from the previous phases. Any errors from the Build and Configure phases are to be fixed in this phase.

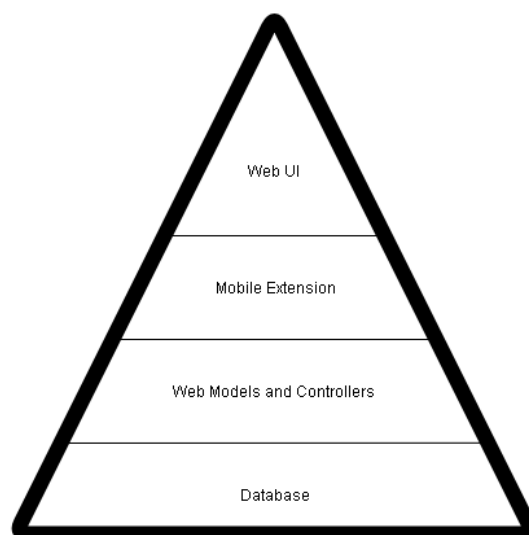
The Final phase, Release, is the official deployment of the application to the market, once the Test phase has ended and the system is evaluated to be viable for public use.

#### **4.4 Development Approach**

This research aimed to use the bottom-up approach in which increments are planned then implemented unto the application. The whole system development process would be divided into 4 parts.

In the first part, the development of the database would be the priority, as it is the basis for all the data that the system would come across. The second part is Web models and controllers. Following the MVC framework with the V omitted, this is to create initial connection from the users to the data but without the views as this is to prioritize the intricate flow of the system.

The third part is Mobile Extension. In this part, following the development of the previous part, it will accommodate the flow made from the models and controllers and translate them into the mobile aspect of the system. The fourth and final part is the Web UI. This part focuses on the Web UI but is also where all the previous parts will be joined together to create the final system.



*Figure 9. Bottom up Approach*



## 4.5 Software Development Tools

Table 1

### *Software Development Tools*

Name	Front or Back end	Re-used or not	Open or Licensed	Version
Android Studio	Front-end, Backend	Not	Open	2.2.1.0
Laravel	Front-end	Not	Open	5.2.44
Firebase	Back-end	Not	Open	9.6
Java Development Kit	Back-end	Not	Open	8
SQL Server	Back-end	Not	Licensed	13.0.1601.5

## 4.6 Project Management

### 4.6.1 Schedule and Timeline

Table 2

### *1<sup>st</sup> Semester, School Year 2017-2018*

	June		July				August				September			
	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Brainstorming for Ideas														
Finalization of Idea														
Gathering of Information														
Making of Documents														
Finalization of Documents														
Submission of Documents														
Identify Customer Behavior														
Gather food stall information														
Creating Database														
Initial development of Web/Mobile														
Interaction building														
Setting up Hosting Service														

Table 3

*2<sup>nd</sup> Semester, School Year 2017-2018*

	October				November				December			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Interaction building												
Setting up Hosting Service												
Initial Testing												
Initial Release												
Higher functions Design												
Finalization of Mobile Dev												
Finalization of Controllers & Models												
2nd Interaction building												
Improvization												
2nd Testing												
Final Release												

#### 4.6.2 Responsibilities

Table 4

*Responsibilities*

Assignment	Roles	Responsibilities
Lee Anton Rubi	Mobile, Back-end	Handles mobile development and server database creation

#### 4.6.3 Budget and Cost Management

Table 5

*Budget and Cost Management*

Program Budget	
Item	Cost
Food and Beverages	P2000.00
Petty Cash Funds	P2000.00
Office Supplies (Folders, Sliders, etc.)	P500.00
Printing Costs (P1.00 x 2000 pages)	P2000.00
Transportation	P600.00

Binding	P300.00
Web Hosting Service	P1,500
Laptops	P80,000
<b>Total</b>	<b>P88,900.00</b>

#### 4.7 Verification, Validation and Testing

In validating and verifying the system, the User Acceptance Testing (UAT) would be used. The strategy is outlined, test cases are made to cover functional scenarios that would happen in real-world usage, the testing team would comprise of real-world users as this application would be made available to the public then the testing team would execute the test cases and log all bugs that they have encountered so that the fixes are applied to make the application bug-free and when all bugs found have been fixed, it shows that the application meets user requirements and is ready for public consumption. In testing, the black box testing method would be used. Black box testing is a testing method in which the internal architecture of the application would not be known to the testers, who would be testing for its functionality (British Computer Society, Specialist Interest Group in Software Testing, 2001). Selected testers will be allowed access to the application before release. After an amount of time has passed, a survey will be conducted on the testers for their feedback and suggestions.

## **CHAPTER 5**

### **RESULTS AND ANALYSIS**

This system is based on the software verification, and validation to test the system capabilities and their major modules. The system will be improved with the suggestion of the testers to meet the requirements of the respondents. Therefore, this system will conduct a Black Box Testing for the Verification of the system and also conduct a User Acceptance Test for the Validation of the system.

The proponents created a set of questions to be answered by the small store owners. The answers were along the lines of; preparing the order of the customer ahead of time when they know that the customer is definitely going to their store to buy something to allow for ease of process when multiple customers are being prioritized over others as well as telling them of when they have no stocks of a particular item. Following this, the researchers proposed the following to ease their process:

#### **5.1 Systems Capability**

- System uses Firebase, allowing customers to place orders from anywhere
- Owners can record their inventory onto the system so that their customers can see their stocks.
- Customers can see the inventory of stores and place orders to that store
- Store hands can see orders from customers to prepare them

#### **5.2 Major Modules**

- Inventory System
- Ordering System
- Firebase database, storage and Login

### 5.3 Verification (Black Box Testing)

For verification of the project, a Black Box Testing is recommended to be used:

The Application was tested by three (3) testers on May 23-29 2018:

Anthonette Tambuli

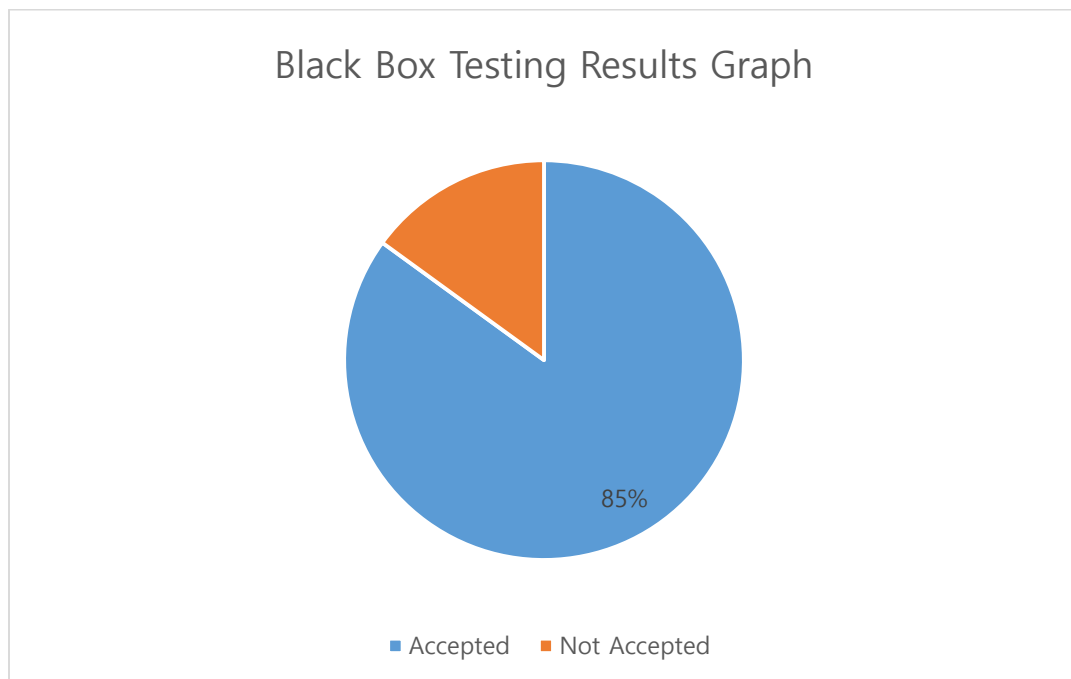
Christopher Yamco

Bryle Almirante

After executing a test, the decision is defined according to the following rules:

- Acceptable – The test sheet is set to “Acceptable” status if the actual result meets the expected result.
- Not Acceptable – The test sheet is set to “Not Acceptable” status if the actual result does not meet the expected result.

There are twenty-six (26) test cases being tested by three (3) testers.



*Figure 10: Black Box Result Percentage*

Table 6

*Black Box Testing Results*

Criteria	User	Percentage
Acceptable	22	85%
Not Acceptable	4	15%
<b>Total</b>	26	100%

After the black box testing has been accomplished by the three (3) testers, the proponents calculated the number of acceptable and not acceptable among the 26 test cases presented in the system which is shown in Table 6 and illustrated a pie graph for the percentage in Figure 10. The test results show that 85 percent, 22 test cases, of the system works as intended for the users who will use it and 15 percent, 4 test cases, have failed to pass. The proponents concluded that the system requirements have mostly been met and that fixes will be made for the failed test cases.

See Appendix E for Detailed and Sample Test Cases (Black Box Testing)

#### **5.4 Validation (User Acceptance Testing)**

The system was tested by potential users from May 23-29 2018. The system was tested based on functionality, reliability, usability, efficiency, maintainability, support and manuals by fifty (50) respondents in which the total score was divided by the number of sub-questions to get the average score in each criteria. The average score of each criteria will be added then divided by six to get the total average score.

## Table Summary

Table 7

### *User Acceptance Rating Average Results for Evaluation*

<b>Criteria</b>	<b>Total Score</b>	<b>No. of sub-questions</b>	<b>Average Score</b>
1. Functionality	367	100	3.67
2. Reliability	391	100	3.91
3. Usability	684	200	3.42
4. Efficiency	445	150	2.97
5. Maintainability	426	100	4.26
6. Support and Manuals	321	100	3.21
<b>TOTAL AVERAGE</b>			<b>3.57</b>

### **Average Score Interpretation**

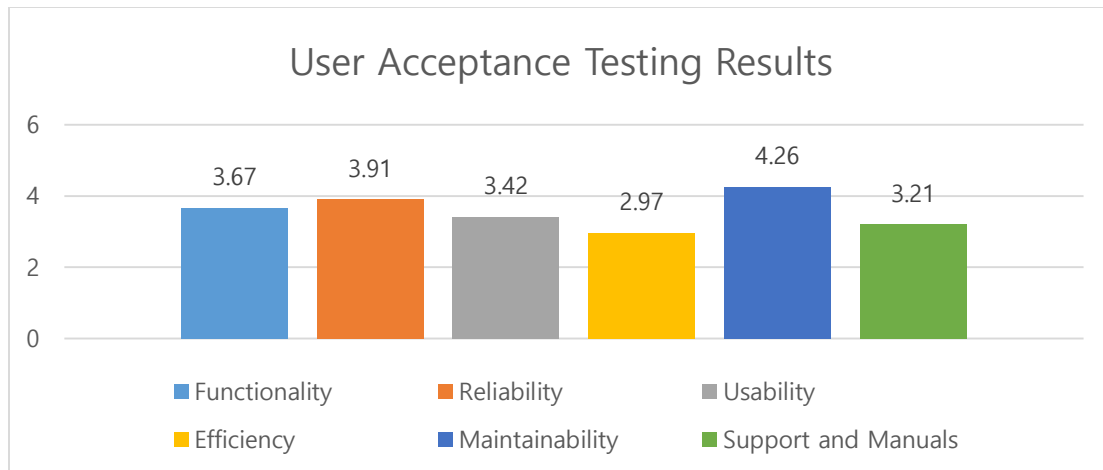
4.1 – 5.0 = Very Acceptable

3.1 – 4.0 = Acceptable

2.1 – 3.0 = Moderately Acceptable

1.0 – 2.0 = Not Acceptable

**Average Score:**      3.57      = “Acceptable”



*Figure 12: User Acceptance Rating Results for Evaluation*

There were fifty respondents who were asked to participate in the User Acceptance Testing. The respondents consist of five owners, five store hands, and forty customers. Based on the results found in Table 7, Functionality, Reliability, Usability and Support and Manuals have been deemed acceptable, Efficiency deemed moderately acceptable and Maintainability deem very acceptable. The respondents gave an average score of 3.57 that it is interpreted as acceptable. The results from the respondents have shown that the system is able to provide the services promised by the research on an acceptable level.

See Appendix F for the Detailed User Acceptance Testing Form



## **CHAPTER 6**

### **CONCLUSION AND RECOMMENDATION**

The system named “GoFood: A Food Finding and Ordering Application” has been successfully made and through verification and validation using Black Box testing and User Acceptance testing (UAT), it has been deemed acceptable for use and therefore have been concluded to have met its expected outcome. The ability of the system of allowing customers and store owners to communicate in an easy manner manages to simplify their transactions.

#### **Summarizing the Results**

The proponents have gathered the information that has them achieve the following statement; that small store owners regularly have the same customers buy similar products from their last visit, with variance from time to time. This allows store owners to anticipate what their main customer base would like to purchase more from them in the future. On the other hand, users would use the system to see if an item they wish to buy is available at a store before going to order. Seeing what was being bought allowed store owners to see what customers in their area would like from them and seeing what was on store allowed users to first prepare their order and then setting out with just a little bit of difference from the total price.

#### **Putting the Results into Context**

The results of the research has proven that there is a need for store owners and their customers to communicate so that they both can benefit from their interaction with the system. Store owners can cut costs when they see an item is not popular in an area and Users can see what they would purchase unlike before where they go to a store and see they don't have what they need, wasting time to look for somewhere else to buy. By allowing communication through the system, it opens new possible actions, allowing better handling of customers for the store owners and preparation of current needs or wants of a customer.

### **Evaluating the Process**

Research in to the study of how small stores operate has been studied thoroughly to better understand what priorities should be done for what store owners should be able to do in the system. The process of how customers and store owners interact has also been studied to have them be translated into the system. By this, the proponents can say that this research has been beneficial and therefore should be read by others with similar works.

### **Identifying Future Work**

In future works following this research, the information gathered could be used to study the behaviour of customers from the point of view of the store owners to determine the best approach in owner to customer communication with their selling and buying, respectively. Similarly, the behaviour of customers, gathered from their activity, can be studied to determine possible ways to attract them to various stores.

## **GLOSSARY**

**Administrator** - A person who manages the application.

**Geofence** – A virtual boundary to define geographical boundaries.

**Geolocation** - Identification of the real-world geographic location of an object.

**Inventory** – A store's list of items for sale.

**Mobile Application** – Software designed to work on a mobile device or anything that allows running of android applications.

**Module** - A single unit that can be used to create an application of multiple modules.

**Order** – A user's list of items they wish to purchase from a store.

**StoreHand** - A person who is hired help in a store

**Store Owner** – A person who owns an establishment who sells products.

**Transaction** – a deal between a buyer and seller.

**User** - A person who uses the mobile application to purchase from a store.

**Web Application** – Software designed to work on an online browser or anything that allows running of web pages.

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**APPENDIX A**  
**TRANSMITTAL LETTER**

August 3, 2017

To Whom It May Concern,

Greetings!

May we request from you the permission to gather information from you for our research entitled "GOFOOD: A FOOD FINDING AND ORDERING APPLICATION".

The above research study is a requirement for the completion of the degree in Bachelor in Science in Information and Communication Technology and Bachelor in Science in Information and Technology in the University of San Carlos. I am confident that the result of the study would be useful and helpful in the betterment of the community.

Thank you very much. I am looking for your positive response.

Respectfully yours

Lee Anton Laurenz I. Rubi

BSIT Student, University of San Carlos

Endorsed By:

Angie M. Ceniza,  
Thesis Adviser

**APPENDIX B**

**INTERVIEW GUIDE**

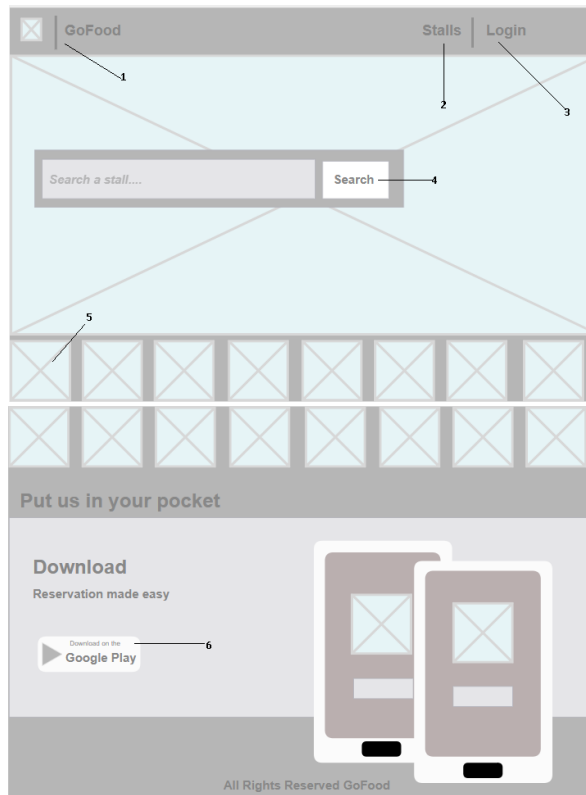


1. How do you draw customers to your stall?
  - “A big banner that show the store is here”
2. What are your thoughts on the current location of your stall?
  - “It’s okay, maybe a bit small”
3. Do you think that the current location of your stall has an effect on sales?
  - “Maybe, people see when they walk by”
4. What is your stall’s current process of handling customers?
  - “I let the helpers do that”
5. What are some factors in your stall that customers think about when they look for something to have?
  - “We just arrange the items so that they can see easier”
6. Can you enumerate some popular types of items that plenty of customers purchase?
  - “Junk foods or snacks since the school is nearby and things like soap and shampoo”

**APPENDIX C**  
**SOFTWARE REQUIREMENTS SPEFICATIONS**

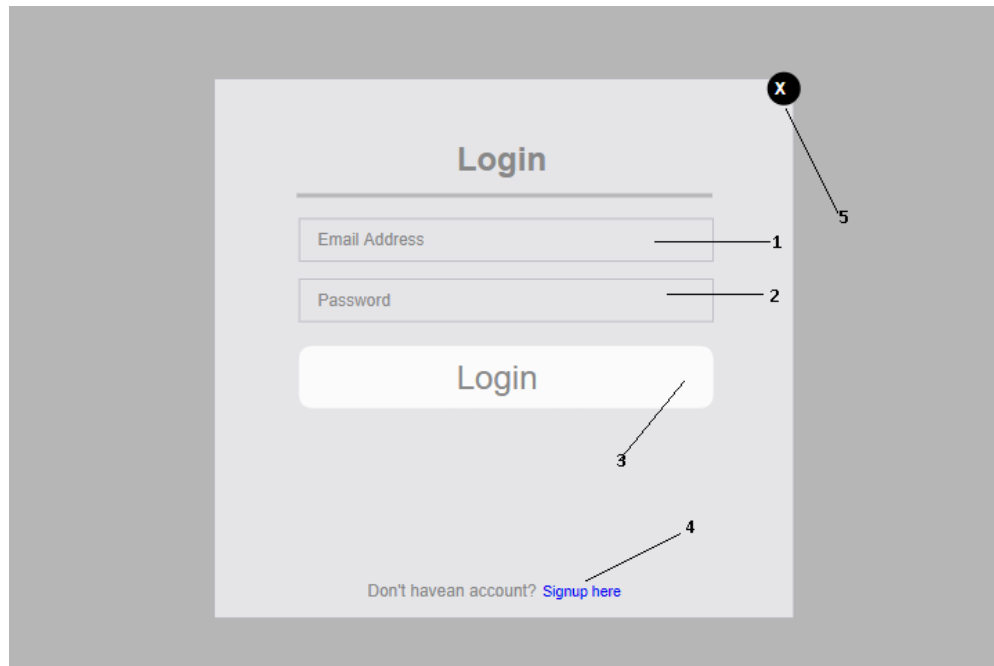
## Proposed User Interfaces

### Home Page



#	Components	Details
1	GoFood Logo	Redirects to the home page
2	Stalls	Redirects to the Stall page
3	Login	Redirects to the login page
4	Search button	Search's for the inputted stall and displays the location of that stall.
5	Picture	Displays the images of the stalls
6	Google play Logo	Download's the GoFood application

## Login Page



#	Components	Details
1	Email Address text field	Allows the use to input their email address.
2	Password text field	Allows the use to input their password.
3	Login button	Correct Email/Username would load the homepage depending on their account type.
4	Linked Signup here	Redirects to the register page.
5	Close	Exit's the login page.

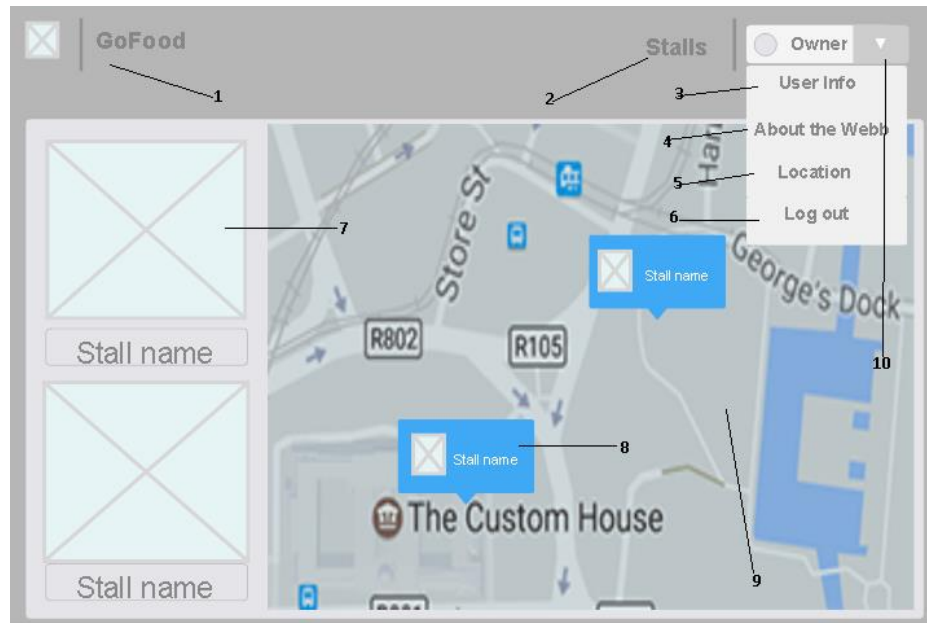
## Register Page

The image shows a 'Register' form with the following components and their corresponding callout numbers:

- 1: First name text field
- 2: Last name text field
- 3: Email text field
- 4: Mobile number text field
- 5: Password text field
- 6: Retype password text field
- 7: Register button
- 8: [Login](#) link
- 9: Close button (X)

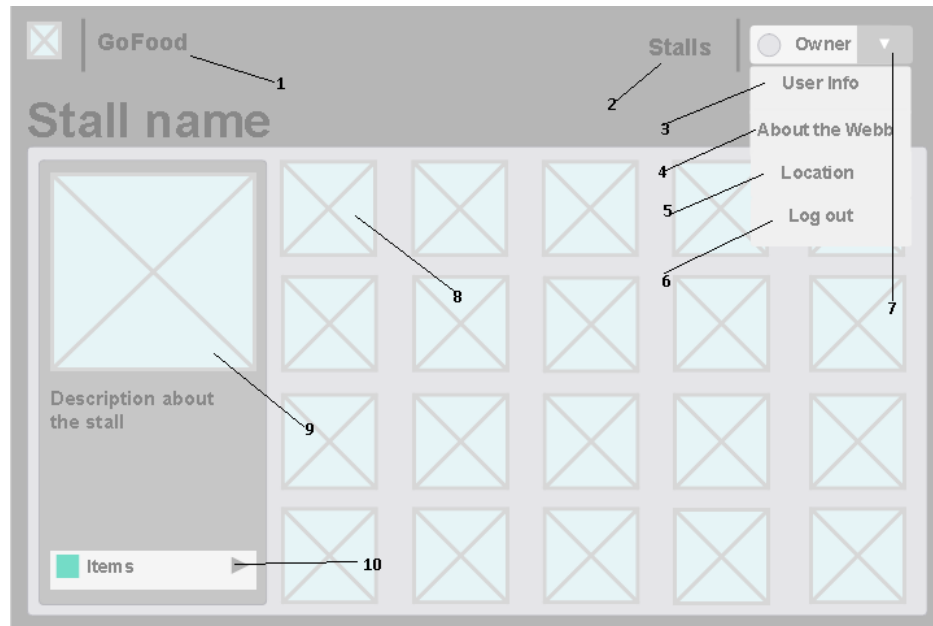
#	Components	Details
1	First name text field	Allows the use to input their first name.
2	Last name text field	Allows the use to input their last name.
3	Email Address text field	Allows the use to input their email address.
4	Mobile number text field	Allows the use to input their mobile number.
5	Password text field	Allows the use to input their password.
6	Retype password text field	Checks if the inputted password matches the password.
7	Register button	Correct Inputs would redirect to the homepage then proceeds to login.
8	Linked Login	Redirects to the login page.
9	Close	Exit's the register page.

## Map Page



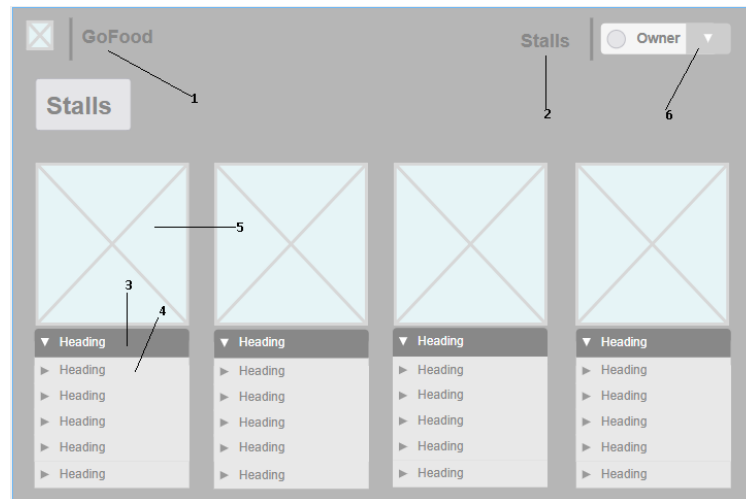
#	Components	Details
1	GoFood Logo	Redirects to the home page.
2	Stalls	Redirects to the Stall page.
3	User info	Loads the user info page.
4	About the web	Redirects about the web page.
5	Location	Loads the Location page.
6	Log out	When pressed, exits then goes the homepage.
7	Stall Image	Displays the picture of the stall.
8	Location of the stall	Tells where the location of the stalls are.
9	Map	Allows the user to scan for the area.
10	Dropdown	When pressed, drops down the dropdown menu for more functionalities.

## Inventory Page



#	Components	Details
1	GoFood Logo	Redirects to the home page.
2	Stalls	Redirects to the Stall page.
3	User info	Loads the user info page.
4	About the web	Redirects about the web page.
5	Location	Loads the Location page.
6	Log out	When pressed, exits then goes the homepage.
7	Dropdown	When pressed, drops down the dropdown menu for more functionalities.
8	Item image	Image/List of the items sold.
9	Stall Image	Displays the picture of the stall.
10	List of items	When clicked shows the list of items sold.

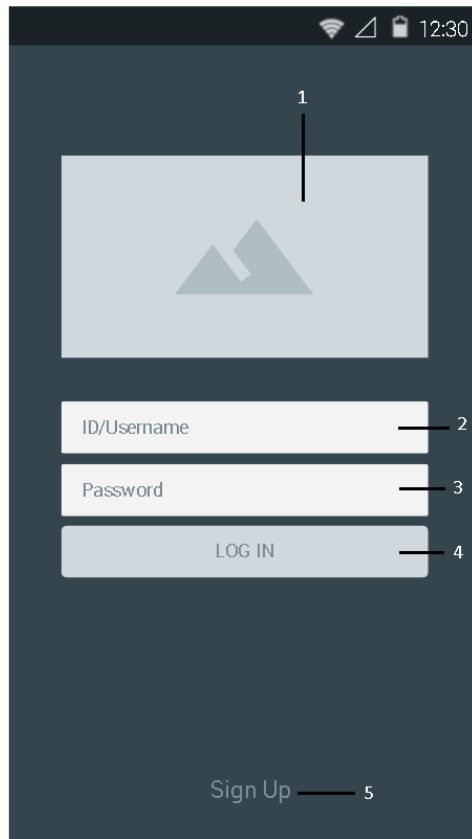
## Stall Page



#	Components	Details
1	GoFood Logo	Redirects to the home page.
2	Stalls	Redirects to the Stall page.
3	Stall Name	Displays the name of the stall.
4	List of items	Displays the list of items available in the stall.
5	Stall Image	Displays the picture of the stall.
6	Dropdown	When pressed, drops down the dropdown menu for more functionalities.



## Log in Screen



#	Component	Details
1	Logo	Display current logo of the app
2	ID/Username text field	Allows the user to input their ID/ Username
3	Password text field	Allows the user to input their Password
4	Log in Button	Correct ID/Username and Password would load the homepage depending on their type
5	Sign up Label	Loads the <b>Register page</b>

## Register page

The image shows a mobile application registration screen. At the top, there's a status bar with signal, Wi-Fi, and battery icons, and the time 12:30. The app has a dark blue background. The registration form consists of ten components, each with a light blue border and a dark blue label on the left, followed by a horizontal line and a number on the right. The components are: 1. 'Set Location' button, 2. 'User' dropdown menu, 3. 'ID Number' text field, 4. 'Username' text field, 5. 'First Name' text field, 6. 'Last Name' text field, 7. 'Contact Number' text field, 8. 'Password' text field, 9. 'Confirm Password' text field, and 10. 'Sign In' button.

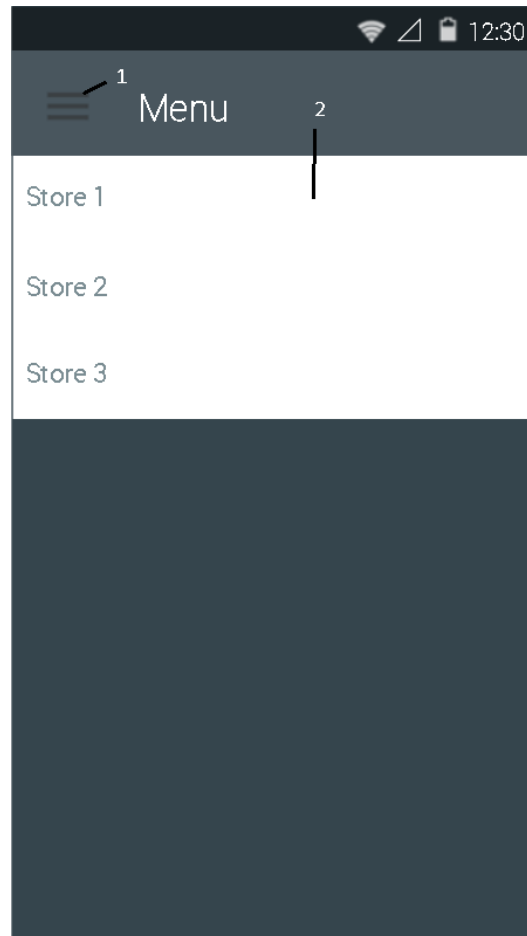
#	Component	Details
1	Set Location Button	Loads the <b>Location page</b> to allow the user to select their location
2	Type dropdown	Allows the user to select their Type as “user” or “store hand”
3	ID Number text field	Allows the user to input their ID number
4	Username text field	Allows the user to input a Username
5	First Name text field	Allows the user to input their First Name
6	Last Name text field	Allows the user to input their Last Name
7	Contact Number text field	Allows the user to input their Contact Number
8	Password text field	Allows the user to input a Password
9	Confirm Password text field	Asks the user to input their Password from the previous field
10	Sign In Button	Creates an account for the user and logs them in as their type

## Location page



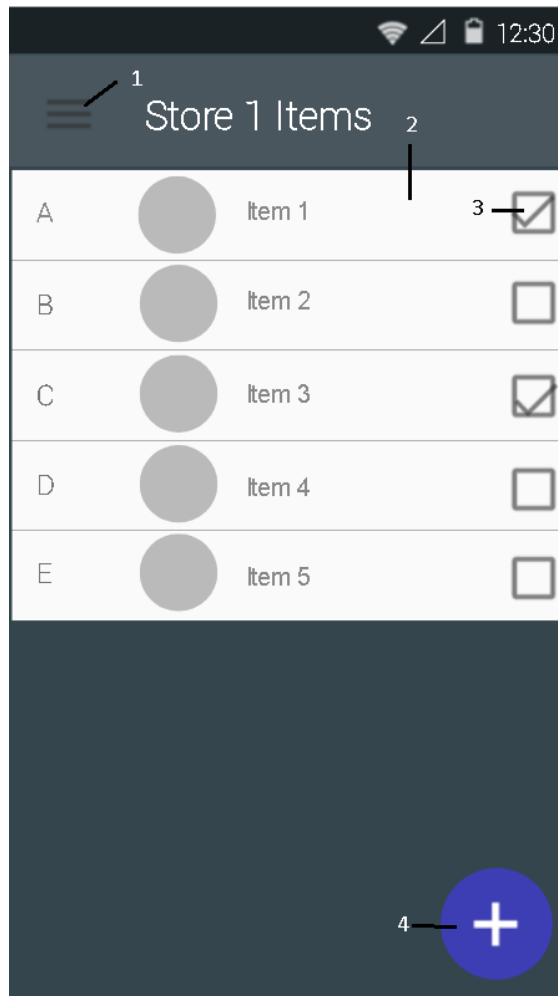
#	Component	Details
1	Map	Allows the user to scan the map for their area
2	Location Pin	Selecting this sets the user's area and returns them to register screen

## User's Store List



#	Component	Details
1	Hamburger button	Press to display <b>dropdown menu</b>
2	Store list	Displays stores nearest to user, sending them to their <b>store items ordering</b>

## User's Store Items Ordering



#	Component	Details
1	Hamburger button	Press to display <b>dropdown menu</b>
2	Item list	Displays items of the current store
3	Checkbox	When pressed, displays pop up asking for amount
4	Action	When pressed, <b>Cash and Time module</b> will be displayed

## Cash and Time Module

Cash on Hand

XXXX — 1

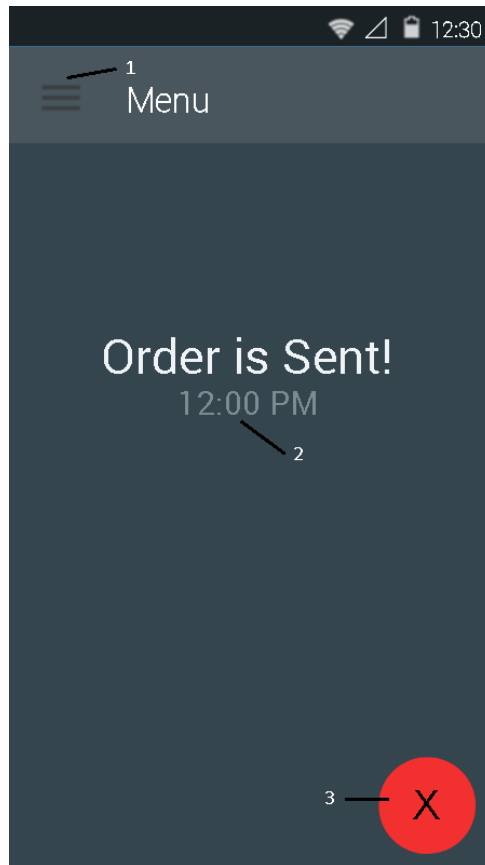
Time to Pick Up

XX:XX XM — 2

3 — AGREE

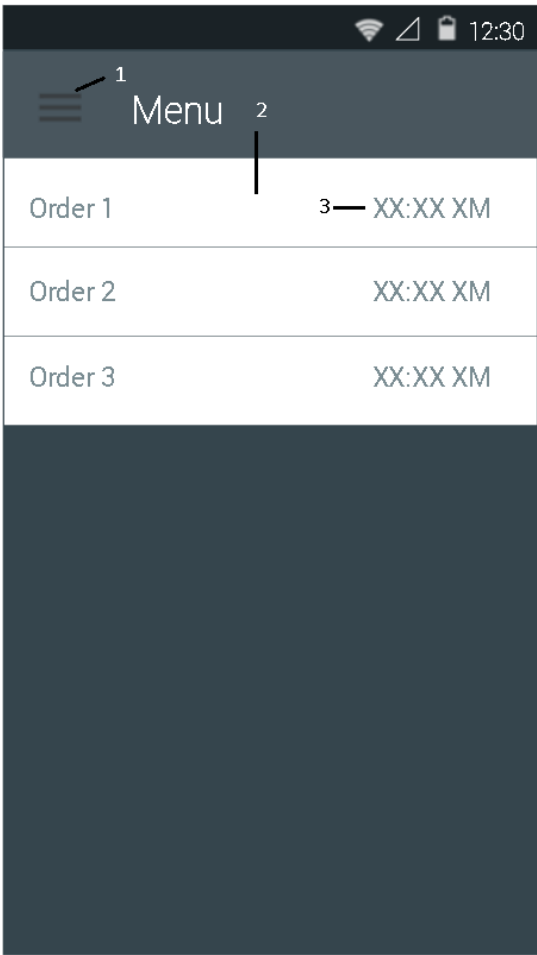
#	Component	Details
1	Cash field	Allows the user to enter their cash
2	Time	Allows the user to select when to pick up the order
3	Agree	When pressed, concludes the order and loads <b>Finished Order Screen</b>

## Finished Order Screen



#	Component	Details
1	Hamburger button	Press to display <b>dropdown menu</b>
2	Time	Displays when to pick up the order
3	Action	When pressed, asks the user for confirmation of cancelling the order

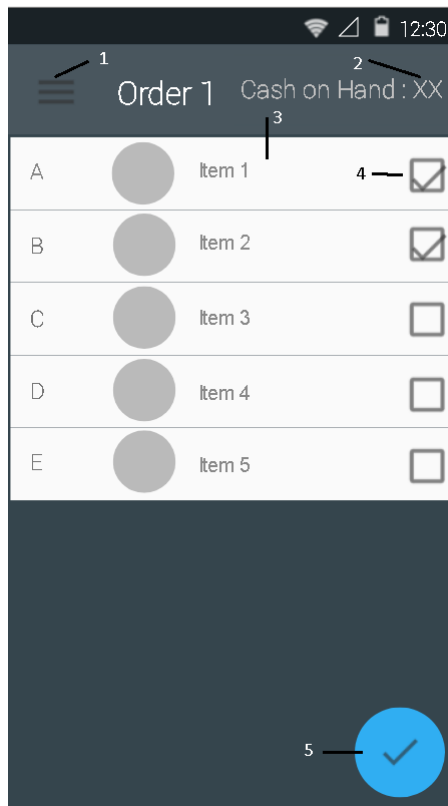
**Storehand's Orders List**



#	Component	Details
1	Hamburger button	Press to display <b>dropdown menu</b>
2	Order list	Displays list of orders sending them to their <b>order items</b>
3	Time	Displays when the order would be picked up

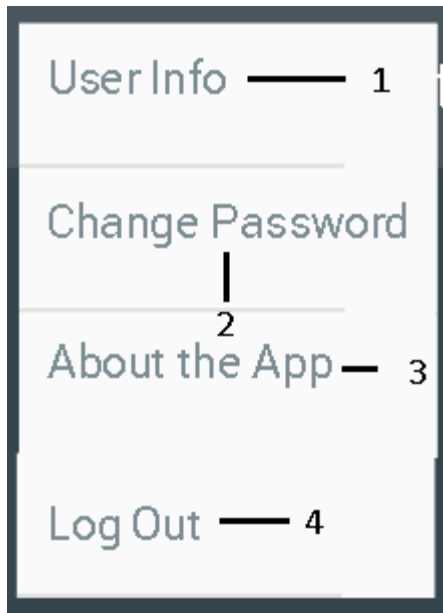


## Order items



#	Component	Details
1	Hamburger button	Press to display <b>dropdown menu</b>
2	Cash label	Displays the amount of cash of the user who ordered
3	Item list	Displays items of the current order
4	Checkbox	When pressed, places a check. Only an aid when items are prepared
5	Action	Finishes the order and alerts the user who ordered their order is ready

## Dropdown Menu



#	Component	Details
1	User Info	Loads <b>user information page</b>
2	Change Password	Loads <b>Change Password Module</b>
3	About the App	Display about information
4	Log out	Logs the user out

## User Information

The screenshot shows a mobile application interface for 'User Information'. At the top, there is a dark blue header bar with a hamburger menu icon (labeled 1) and the title 'User Information'. Below the header, the form is divided into five sections, each with a label and a text input field (labeled 2 through 6):

- First Name:** The input field contains the text 'John'.
- Last Name:** The input field contains the text 'Doe'.
- ID Number:** The input field contains the text 'XXXXXXXX'.
- Username:** The input field contains the text 'JohnDoe12'.
- Contact Number:** The input field contains the text 'XXXXXXXXXXXX'.

At the top right of the screen, there is a status bar showing a Wi-Fi icon, a signal strength icon, a battery icon, and the time '12:30'.

#	Component	Details
1	Hamburger button	Press to display dropdown menu
2	First name label	Displays First name of user
3	Last name label	Displays Last name of user
4	ID label	Displays ID number of user
5	Username label	Displays Username of user
6	Contact label	Displays Contact of user

## Change Password Module

Previous Password  
XXXX 1

New Password  
XXXX 2

Confirm Password  
XXXX 3

4 — AGREE

#	Component	Details
1	Previous Password field	Asks the user to enter their previous password
2	New Password field	Asks the user to enter their new password
3	Confirm Password field	Asks the user to re enter their new password
4	Agree	Press to finish changing passwords

## **APPENDIX D**

### **FUNCTIONAL REQUIREMENTS**

## GOFOOD: A FOOD FINDING AND ORDERING APPLICATION

Module Name	Functionality
<b>Inventory</b>	
Add	It enables the user to add an item into the inventory
Edit	It enables the user to edit their inventory
Delete	It enables the user to delete their inventory
<b>Item</b>	
Create	It enables the user to create a new item
Edit	It enables the user to edit items
Delete	It enables the user to delete items
<b>Store</b>	
Create	It enables the user to create a store
Edit	It enables the user to edit store information
Location	It enables the user to select a location for the store
<b>User</b>	
Create	It enables the user to create a new account
Edit	It enables the user to edit account information
Delete	It enables the user to delete an account

<b>User Order</b>	
Create	It enables the user to create an order
Delete	It enables the user to delete an order
<b>Order List</b>	
View	It enables the user to view a user's order
Accept	It enables the user to accept an order
Deny	It enables the user to deny an order
<b>Map</b>	
Set up	It enables the user to set up map
Add points	It enables the user to add points for store locations
Edit	It enables the user to edit the map

**APPENDIX E**

**BLACK BOX TESTING**



Use Case No.	USE_CASE_01_Login_Android					
Description	The system logs in the user					
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status	
TST_No_01_01	Empty User Name and Password	1. Press the Log-in Button	Error Message "Enter Email Address!"	Error Message "Enter Email Address!"	Acceptable	
TST_No_01_02	Invalid User Name and Correct Password	1. Input the Invalid User Name and Correct Password 2. Press the Log-in Button	Error Message "Authentication Failed, Invalid User Name or Password"	Error Message "Authentication Failed, Invalid User Name or Password"	Acceptable	
TST_No_01_03	Correct User Name and Invalid Password	1. Input the Correct User Name and Invalid Password 2. Press the Log-in Button	Error Message "Authentication Failed, Invalid User Name or Password"	Error Message "Authentication Failed, Invalid User Name or Password"	Acceptable	
TST_No_01_04	Invalid User Name and Invalid Password	1. Input the Invalid User Name and Invalid Password 2. Press the Log-in Button	Error Message "Authentication Failed, Invalid User Name or Password"	Error Message "Authentication Failed, Invalid User Name or Password"	Acceptable	
TST_No_01_05	Correct User Name and Correct Password	1. Input the Correct User Name and Correct Password 2. Press the Log-in Button	Change to User Home Menu	Change to User Home Menu	Acceptable	

<b>Use Case No.</b>	<b>USE_CASE_02_Register_Android</b>					
<b>Description</b>	The system registers a user					
<b>Test_Case_No.</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Results</b>	<b>Actual Results</b>	<b>Status</b>	
TST_No_02_01	Empty Fields	1. Press the Sign Up Button	Error Message "Enter Email Address!"	Error Message "Enter Email Address!"	Acceptable	
TST_No_02_02	Invalid Email Address	1. Input Invalid Email Address 2. Press the Sign Up Button	Error Message "Enter Valid Address!"	Error Message "Enter Valid Address!"	Acceptable	
TST_No_02_03	Filled Fields with valid Email Address	1. Input fields 2. Press the Sign Up Button	Message "User Created!"	Message "User Created!"	Acceptable	

<b>Use Case No.</b>	<b>USE_CASE_03_Users_Android</b>					
<b>Description</b>	The system views user info					
<b>Test_Case_No.</b>	<b>Description</b>	<b>Test Procedure</b>	<b>Expected Results</b>	<b>Actual Results</b>	<b>Status</b>	
TST_No_03_01	Edit	1. Enter new information	Message "User Information Updated!"	Message "User Information Updated!"	Acceptable	

Use Case No.	USE_CASE_04_Order_Users_Android						
Description	The system takes user's order						
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status		
TST_No_04_01	Selecting Store with No inventory	1. Select Store	Message "No Inventory!"	Message "No Inventory!"	Acceptable		
TST_No_04_02	Selecting Store with Inventory	1. Select Store	Change activity to selecting items	Change activity to selecting items	Acceptable		
TST_No_04_03	Select items	1. Select items	Checkbox Is set to checked	Checkbox Is set to checked	Acceptable		
TST_No_04_04	Item - Floating Button to continue	1. Press floating button	Change activity to Quantity	Change activity to Quantity	Acceptable		
TST_No_04_05	Quantity - Entering number	1. Enter numbers for each item 2. Press floating button	Change activity to Finished Order	Change activity to Finished Order	Acceptable		
TST_No_04_06	Finished Order - Floating button (Cancel)	1. Press floating button	Message "Press to confirm to cancel order"	Message "Press to confirm to cancel order"	Acceptable		

Use Case No.	USE_CASE_05_Order_Storehand_Android						
Description	The system takes views a user's order for storehand						
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status		
TST_No_05_01	Selecting Order from Orderlist	1. Select an order	Change activity to View Order	Change activity to View Order	Acceptable		
TST_No_05_02	Pressing Red Floating Button	1. Press Red Floating Button	Message "Confirm Deny?"	Message "Confirm Deny?"	Acceptable		
TST_No_05_03	Pressing Check Floating button	1. Press Check Floating Button	Message "Alert Customer Order is Ready?"	Message "Alert Customer Order is Ready?"	Acceptable		

Use Case No.	USE_CASE_06_Inventory						
Description	The system allows users to manipulate their inventory						
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status		
TST_No_06_01	Selecting Add	1. Select add	Change activity to Add Item	Change activity to Adding Item	Acceptable		
TST_No_06_02	Selecting Edit	1. Select Edit	Change activity to Edit Item	Change activity to Edit Item	Not Acceptable		
TST_No_06_03	Selecting Delete	1. Select Delete	Change activity to Delete Item	Change activity to Delete Item	Acceptable		

Use Case No.	USE_CASE_07_Items						
Description	The system allows users to manipulate an item						
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status		
TST_No_07_01	Select Add with Empty Fields	1. Select add with Empty Fields	Error Message "Fill in Fields"	Error Message "Fill in Fields"	Acceptable		
TST_No_07_02	Select Add with Filled fields	1. Select add with Filled Fields	Message "Item Added"	Message "Item Added"	Acceptable		
TST_No_07_03	Selecting Update (Only on edit select from Inventory)	1. Selecting Update	Message "Item Updated"	Message "Item Updated"	Not Acceptable		

Use Case No.	USE_CASE_08_Map						
Description	The system allows users to manipulate map						
Test_Case_No.	Description	Test Procedure	Expected Results	Actual Results	Status		
TST_No_08_01	Select Set up Map	1. Select Set up Map	Change Activity to Map	Change Activity to Map	Not Acceptable		
TST_No_08_02	Selecting a point on map	Select a point on map	Message "Save Location?"	Message "Save Location?"	Not Acceptable		

**APPENDIX F**

**USER ACCEPTANCE TESTING**

Please put a check (√) mark on the rating boxes.

Criteria	Description	Rating (1 – Lowest / 5 – Highest )				
		1	2	3	4	5
1. Functionality						
1.1 Accuracy	How does the system adequately meet its objectives?					
1.2 Security	How protected is the system and its data contents from unauthorized access?					
2. Reliability						
2.1 Data Validity	Does the system check and validate user input to avoid erroneous data entry?					
2.2 Recoverability	How easily does the system provide a way to back-up data stored in it?					
3. Usability						
3.1 Understandability	Does the system provide on-screen instructions?					
3.2 Learnability	Can users quickly and easily learn to use the software?					

3.3 Operability	Can users easily navigate between program screens?					
3.4 Attractiveness	Is the overall user interface visually pleasing?					
4. Efficiency						
4.1 Ease of Start-up	How easily is the system started up?					
4.2 Resource Utilization	Does the system require minimal hardware resources?					
4.3 Time Behavior	How quickly does the system accomplish specific actions?					
Criteria	Description	Rating (1 – Worst / 5 – Best )				
		1	2	3	4	5
5. Maintainability						
5.1 Installability	How easily is the system installed (in case re-installation is needed)?					
5.2 Testability	Can the system be tested and verified using test/sample data?					
6. Support and Manuals						

6.1 Understandability	Does the user manual provide clear and concise instructions on how to operate the software?					
6.2 Visual References	Does the user manual provide actual screenshots showing how to operate the software?					

Comments/Suggestions	
1. Functionality	
2. Reliability	
3. Usability	
Comments/Suggestions	
4. Efficiency	
5. Maintainability	
6. Support and Manuals	

#### Table Summary

Criteria	Total Score
1. Functionality	



2. Reliability	
3. Usability	
4. Efficiency	
5. Maintainability	
6. Support and Manuals	

Average

Score Interpretation:

4.1 – 5.0 = Very Acceptable

3.1 – 4.0 = Acceptable

2.1 – 3.0 = Moderately Acceptable

1.0 – 2.0 = Not Acceptable

Average Score:

Evaluated and Tested by:

---

<signature over name>

## SYSTEM'S INSTALLATION MANUAL

The system was created by a team of four students, one BSIT and three BSICT students. It utilizes Firebase to allow communication between the mobile system and the web-based system that caters to small store owners with helping with customers buying from them.

### 1.1 System Requirements

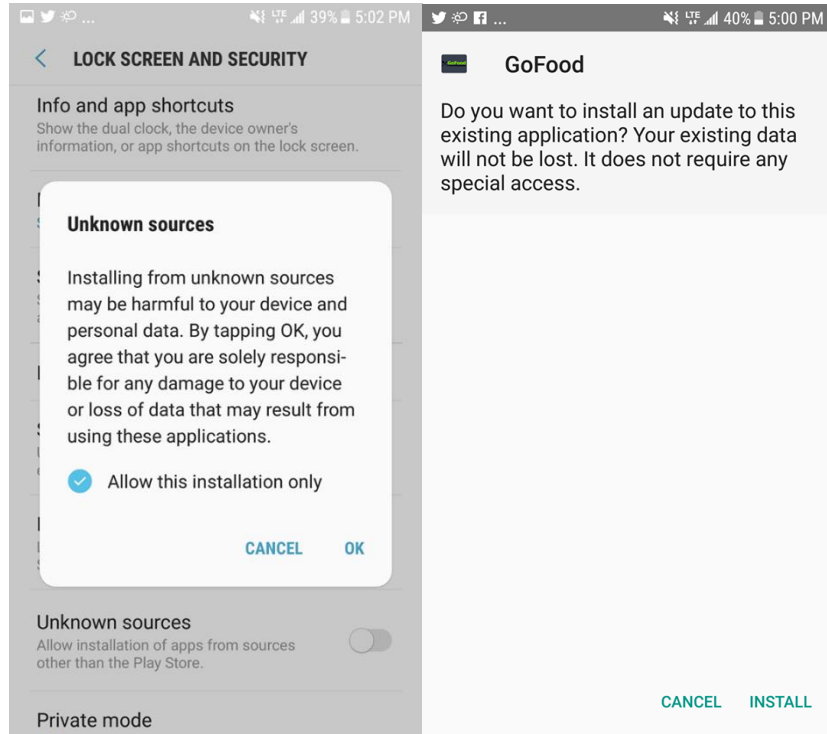
Operating System	Minimum Requirements	Recommended Requirements
<b>Windows</b>	Intel Core Dual Core or equivalent  Windows XP  Able to run an Internet Browser	Intel Core i3 or equivalent  Windows 7 or higher
<b>Apple OS X</b>	Macbook Pro 2011 or newer, Macbook Air 2012 or newer;  OS X 10.9 or above	Macbook Pro 2010, Macbook Air 2011;  OS X 10.7 or above
<b>Android</b>	Android 5.0	Android 7.1 above

### 1.2 Installation

The web system runs entirely on the server, requiring no hard installment on any hardware.

Access the website through Firebase Hosting:

To install onto an android device, run the “.apk” file provided. If your device is protected from unknown sources, allow the installation of this app only.

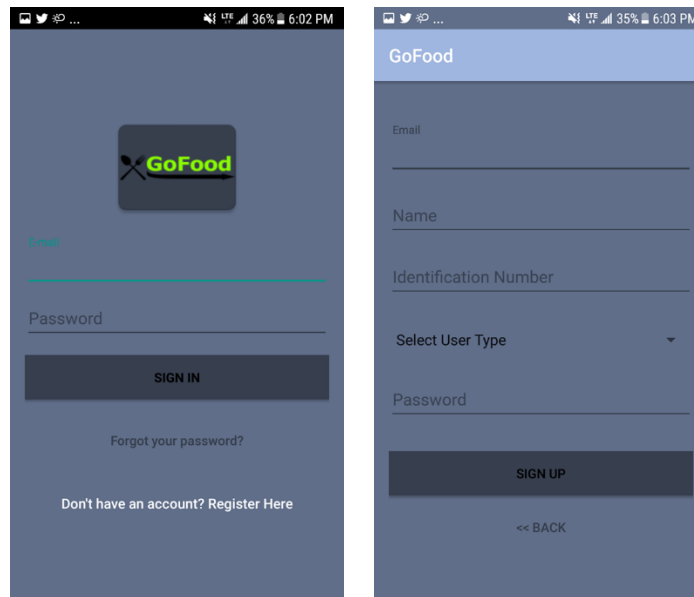


The mobile system would work according to the User Manual at this point.

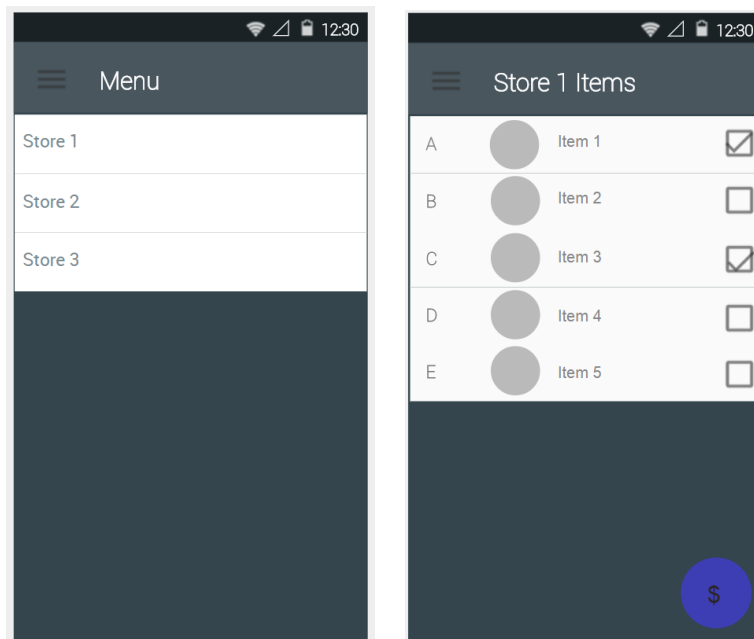
# USER'S MANUAL

## Getting Started for Users

1. After opening the application on your android device, register first through the register option on the Login Screen with User in the User Type.



2. When logged in, you can select the store from which you want and select items from them



## Getting Started for Owners

1. After going to the website, register an account through the Sign Up button, here numbered 4. Fill up the following fields and press Register when finished.

The image shows a 'Login' form with the following elements and callouts:

- 1: Email Address input field
- 2: Password input field
- 3: Login button
- 4: [Sign up here](#) link
- 5: Close button (X)

The image shows a 'Register' form with the following elements and callouts:

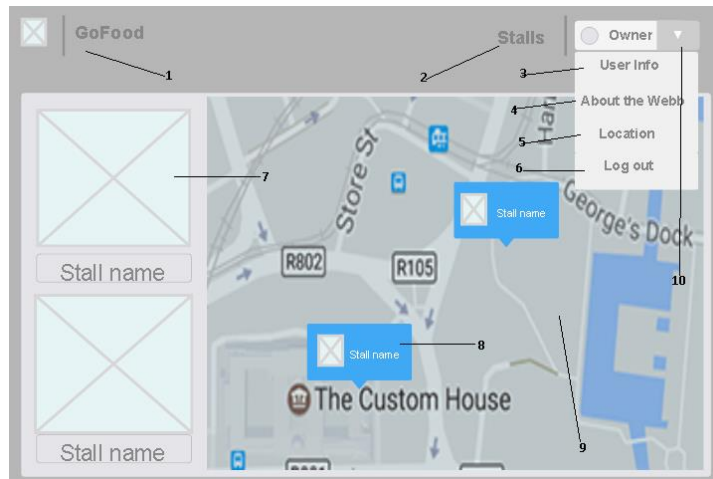
- 1: First name input field
- 2: Last name input field
- 3: Email input field
- 4: Mobile number input field
- 5: Password input field
- 6: Retype password input field
- 7: Register button
- 8: [Login](#) link
- 9: Close button (X)

2. You can now upload your inventory in the inventory screen.

The image shows an inventory management screen with the following elements and callouts:

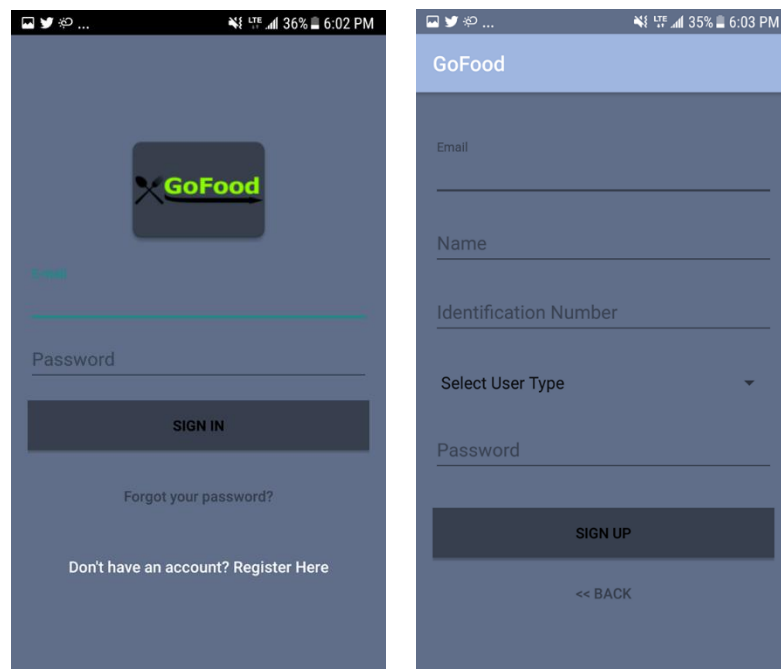
- 1: GoFood logo
- 2: Stalls button
- 3: Owner dropdown menu
- 4: User Info link
- 5: About the Webb link
- 6: Location link
- 7: Log out link
- 8: Stall grid (a 4x4 grid of stalls)
- 9: Description about the stall text area
- 10: Items button

3. You can then access the Map page to select the location of your business.

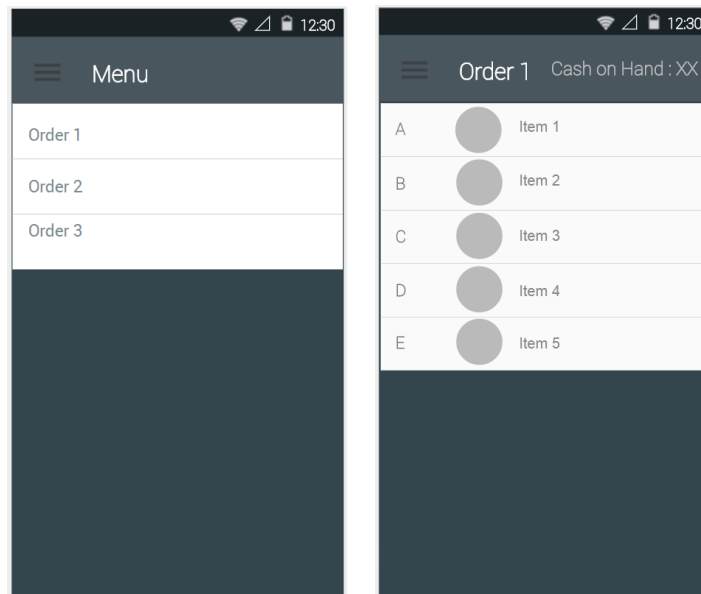


## Getting Started for StoreHand

1. After opening the application on your android device, register first through the register option on the Login Screen with Storehand User Type.



2. When logged in, you can see the orders for the shop and view their items



## **CURRICULUM VITAE**

### **Contact Information**

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### **Personal Information**

Birthday: February 8, 1997

Religion: Protestant

Civil Status: Single

### **Education**

#### **University of San Carlos**

Bachelor of Science in Information and Technology

Tertiary Level (2013 – present)

#### **Philippine Christian Gospel School**

Secondary Level (2009 – 2013)

#### **Philippine Christian Gospel School**

Primary Level (2004 – 2009)

**TECHNICAL SKILLS:** HTML, PHP, Javascript, Java, C, C++

**WORK EXPERIENCE:** **VISAE**, sub-database for easy acknowledgement of owners of multiple credit or debit cards for UNIONBANK

**TRAININGS:** PCSC 2017 (Philippine Computing Science Congress)