

Food Provider Application – FOOD4U

by

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A project report submitted in partial fulfillment of the requirements of the course
CSE 3103: System Analysis and Design.

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SUMMARY

The project is about developing an application in any one of the four fields: Land, Agriculture, Water, and Food. The field I decided to work on is the food sector. My application has some simple features that provides people with homemade food and ingredients that they can use to make their own food. A user interface has also been designed to visualize the application in which the features are mapped. The potential of this application is high it will increase the efficiency and save time in people's lives.

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1. INTRODUCTION

1.1 Overview of the Project:

Food4U is a food application that aims to provide its users with an opportunity to have homemade food at their door step or make their own food if they wish to. This application provides an opportunity for small business owners to expand their businesses by having a platform to sell their food items. Furthermore, this project focuses on creating a user-friendly application that can bridge the connection between a user and a business owner.

The project can be divided into three main aspects: business owners adding a list of food items that they can provide with, users getting an opportunity to order homemade food directly from these business owners, and the option to select a food item and get the necessary ingredients for it.

Business owners can sign up and create an account where they will be provided with the options to add menu, check order list and view reviews. Using the add menu option, they can add the list of food items they can provide any user with. Every time a user places an order, a request will be sent to the owners, who will be able to go through these requests and decide for themselves whether they want to accept it or not. The business owners are also given the right to view reviews so that they get an opportunity to improvise if needed.

Users are given two options where they can choose to order food or cook by themselves. When placing an order for a homemade food, users can check reviews and see it for themselves if they prefer a certain provider or not. Pictures of the food item can also be viewed before placing an order. If the other option is chosen, where they decide to get the ingredients instead, then the person can select a food item and view the ingredients that are used to make that specific item. A recipe button also exists to help the person get directions to make the dish by themselves. Using the *make payment option*, mobile banking, and card both can be used. After the completion of payment, the user will be delivered the necessary ingredients for the food they are planning to make.

1.2 Objective of the Project:

The objective of the project is to:

- Provide an online platform where people who are good at cooking can directly sell their food to users
- Provide the users with an option to order necessary ingredients
- Provide people with the opportunity to view review that can reflect what other people think about the taste of the specific food item

1.3 Motivation of the Project:

In everyday life, it is a luxury to be able to make one's own food by themselves. Students who live far away from their homes may not be able to cook the dishes they want to have at times. Working women who have to juggle their career and family life cannot afford the time to make food for everyone else in their house. This application aims to help the earlier mentioned people by connecting them with other people who can make homemade foods for them. Some people may know how to cook but they feel reluctant to buy groceries because after making what they want, the remaining ingredients might go to waste. For them, the get ingredients option exists so that they can buy the exact amount of ingredients they are going to need to make a certain dish. Furthermore, the platform offers an opportunity for individuals who enjoy cooking to make money out of it. The application is very user friendly as people from all walks of life will be using it. With the help of this application, people do not have to worry about making food among all the other important things of life.

1.4 Scope of the Project:

FOOD4U has a great future scope and there are plans on expanding this project by adding more features like budgeting the amount of money that one plans to spend on food in a month. However, this project at its current state is still revolutionary as it brings the concept of providing homemade food or the necessary ingredients to make a certain food. Using this application, people will be able to save time by simply ordering the food they want to have.

2. BACKGROUND STUDY

A background study was done before coming up with this project. By conducting the background study, it was easy to find the problem and work through the solution. The four fields in which background study was conducted are as follows: Agriculture, Food, Water and Land. Some of the innovations of these fields are talked about in detail in the following subsections.

2.1 Agriculture:

2.1.1 Sofol:

Sofol is a unique mobile application developed by the technology company named iFarmer in Bangladesh. It is a proprietary mobile application that enables field agents and partner retailers to serve farmers. Farmers can get registered, complete their **e-KYC** and receive necessary updates through Sofol which is operated by field agents and partner retailers. Sofol also enables to capture farmer and farm information for better monitoring, customized services and building farmer profiles along with their transaction history. [1]

2.1.2 Fosholi:

Fosholi is an application developed by ACI. The application provides a number of services like checking for pre-cultivation activities, cultivation related activities, post-cultivation activities, farmer's toolbox, and have a field report. Farmers can get advises regarding the crops they are cultivating. This application also provides information like maximum temperature, minimum temperature and the humidity of a certain area. [2]

2.1.3 Banglalink Agro Bazaar:

Banglalink, a Bangladeshi telecommunications company, is providing services where customers can dial "2474" to get registered in Krishibazaar and record his/her own desired agro product information and call up that trader instantly using the service to finalize the coveted deal. The information of the products is available by categories, prices, locations etc to make the process easier for the targets. The program uses voice prompts to guide both buyers and sellers step by step through the whole procedure. Keeping in mind the education issue of most farmers, the whole program uses the medium of voice recording to gather details of the user's needs. The distinctiveness of recording one's own advertisement of their agro-product is what makes it stand out. [3]

2.2 Food:

2.2.1 Chaldal:

With the ambition of reducing people's time spent and inconvenience of grocery shopping, Chaldal is an online grocer that has become very popular in Dhaka because of its unique one-hour delivery model. Founded in 2013, Chaldal is already considered as the biggest online grocery shop in Bangladesh and operates through its website and application. With over 1.4 million orders placed and 1,058,805 hours saved and an averaging 150 deliveries a day, Chaldal plans to add at least six more warehouses in Dhaka before expanding into other cities. [4]

2.2.2 Foodpanda:

Foodpanda allows its users to order food from the most popular restaurants in Bangladesh by listing their menu and product lists online which can help people process orders and pick them up or deliver them to its users. They have expanded their project by providing services like allowing users to order daily groceries. [5]

2.2.3 HungryNaki:

HungryNaki is another food application where you can enter your location and using the location, the app will suggest restaurants nearby. Using the app, you can order the food from nearby restaurants. This is very similar to foodpanda, however, it is more location based. [6]

2.3 Water:

2.3.1 WASA App:

Dhaka Water Supply and Sewerage Authority, more commonly known as WASA, has a mobile application that lets users make payment online and file any complaints that they might have regarding their services. [7]

2.3.2 Dropcountr:

Dropcountr is a mobile application that enables its users to be more aware of the amount of water they are using. It translates data generated by water meters into actionable information for utility staff and their customers. The applications lets the users connect with customers on the technology they prefer and automate alerts and transition to digital communications. [8]

2.3.3 Hydro Coach:

Hydro Coach is a daily water intake application that helps a person stay hydrated. It features a water consumption calculator and allows its users to peep into the history of the amount of water the person has consumed per day. It is easy for the users to check if they are in taking the right amount of water or whether they have to increase or decrease the amount of water they are drinking per day. [9]

2.4 Land:

2.4.1 Bhumisheba:

The land information service app has been launched to meet the needs of the citizens expecting land services. The main purpose of this app is to inform the service recipients about the concept of service such as service, time of service, cost, necessary paperwork and detailed information about the service provider's office. You can get all the information related to land services from this app. In this app you will get information about non-agricultural khas land settlement, land ledger, various information related to namzari, tax paid by government for land development, land measurement unit and all the terms used in land service including calculator for measurement. [10]

2.4.2 E-Porcha:

The Bangladesh government has developed a website through which users can get any information they need regarding a plot of land and the amount of money that is needed to purchase it. [11]

3. REQUIREMENT ANALYSIS

It is important to decide on the functional and non-functional requirements before-hand so that the designing of the project can be done smoothly. Along, with the functional and non-functional requirements, a detailed budget of the project is also provided.

3.1 Functional Requirements:

- **Sign Up:** Users are asked to provide a username, email and password to set up their accounts after which they are asked if they want to register as a business owner or a customer.
- **Log In:** When logging in, users are asked for their username and password and are once again asked if they are logging in as a business owner or a customer so that the application can guide the user to its appropriate destination.
- **Further Information:** If the user signs up as a business owner then further information is asked of them where they will enter their first name, last name, contact number, email address, business name and their NID number for verification.
- **Add menu:** Using the add menu option, owners can add the items they can provide and they will be asked to fill a small form where they are asked for the item name, description, and price. They will also be given the option to attach a photo or take a photo of the food item they wish to add.
- **Check orders:** With this option, they can select the order they wish to accept or decline.
- **View Reviews:** In order to improvise their quality, they can check reviews to see what customers think about their food item.
- **Make my own food:** With the help of this option, customers can select the food item they wish to have and check the list of ingredients and the recipe that is provided. Upon clicking on the total cost button, the cost will be shown to which they can then move to the make payment option to confirm their order.
- **Order food:** If the customers wish to order their food directly, they can select this option and click on a food to see its pictures and check its reviews and then send an order request. After the order request has been confirmed, they can make their payment.
- **Log Out:** Using the log out button, users will be able to log out of the system to log in again as which type of user they want.

3.2 Non-functional Requirements:

- **User-friendly:** The interface is kept simple so that people of all age can easily access it without facing any difficulty.
- **Security:** The NID numbers of the business owners will not be accessed by any other employees as it will be an automated system through which it will be verified.
- **Maintenance:** Appropriate methods will be adapted so that the transition to an updated version of the application can happen smoothly.

3.3 Budget:

The budget for this application was developed after considering the cost of developing the application and after implementing it in real life. The budget has been made for a year and is divided into 4 quarters, where each quarter consists of 3 months.

3.3.1 Quarterly Budget:

Yearly Expenses					
COST	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	TOTAL
Employee Salary	759000	759000	759000	759000	3036000
Office Rent	63000	63000	63000	63000	252000
Utility Bill	39000	39000	39000	39000	156000
Maintenance	54000	54000	54000	54000	216000
Software Development	435000	435000	435000	435000	1740000
Miscellaneous	51000	51000	51000	51000	204000
TOTAL				5604000	

Table-1: Cost of developing the application in a year

3.3.2 Monthly Budget:

Monthly Expenses	
Office Rent	21000
Utility Bill	13000
Maintenance	18000
Employee Salary	253000
Software Development	145000
Miscellaneous	17000
TOTAL	467000

Table-2: Monthly Expenses of the project

3.3.3 Break Even Analysis:

Break Even Analysis				
	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4
Cost	1401000	1401000	1401000	1401000
Cumulative Cost	1401000	2802000	4203000	5604000
Revenue	700000	900000	1690000	3210000
Cumulative Revenue	700000	1600000	3290000	6500000
Break Even Point	3.5			

Table-3: Break Even Analysis

The data from the table above was used to plot the graph that is attached below. From the graph, the payback time period has been found out which comes to be 3.5.

3.3.4 Break Even Analysis Graph:

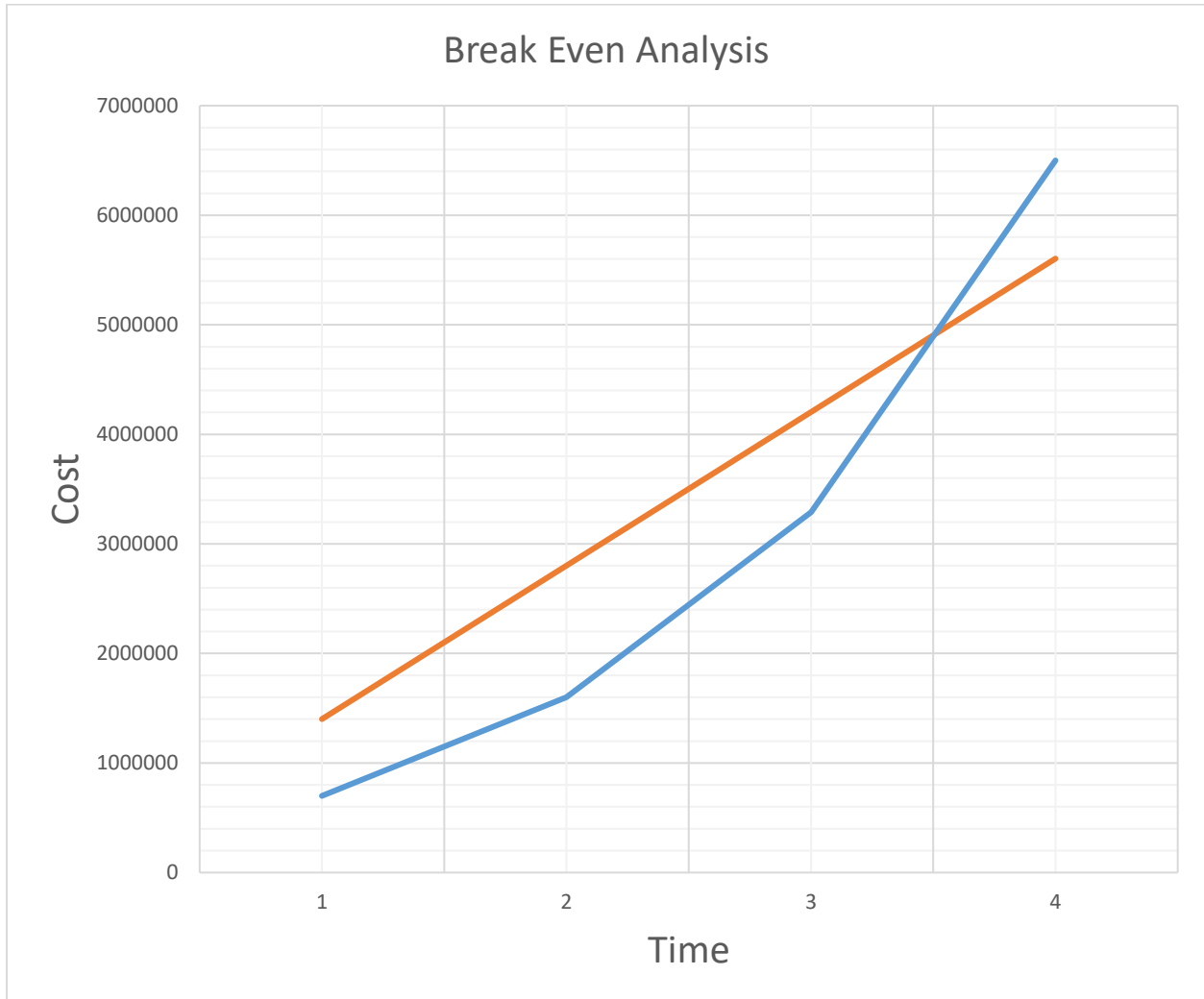


Figure-1: Break Even Analysis Graph

4. SYSTEM DESIGN

4.1 UML Use Case Diagram

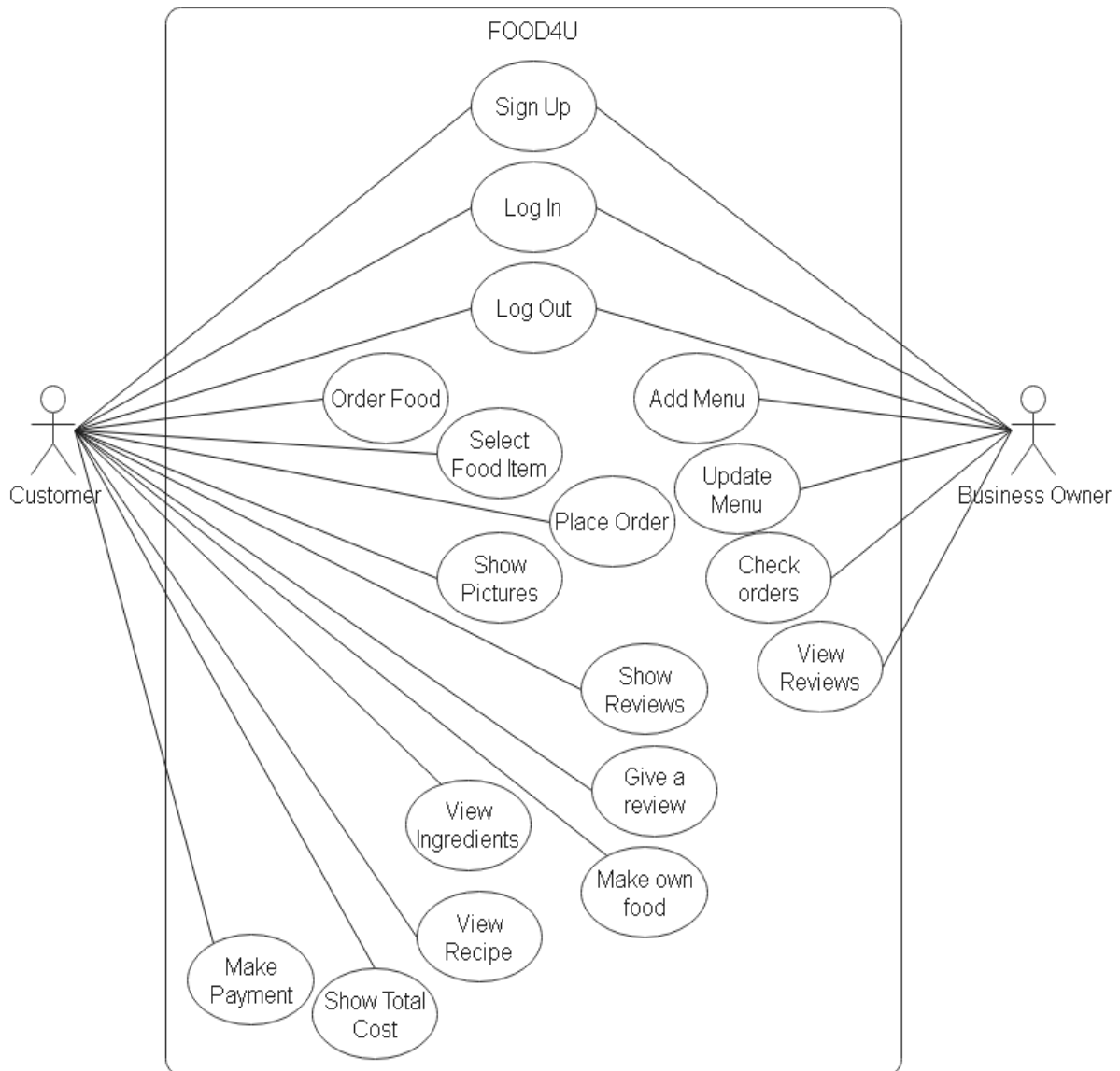


Figure-2: UML Use Case Diagram

4.2 Entity Relationship Diagram

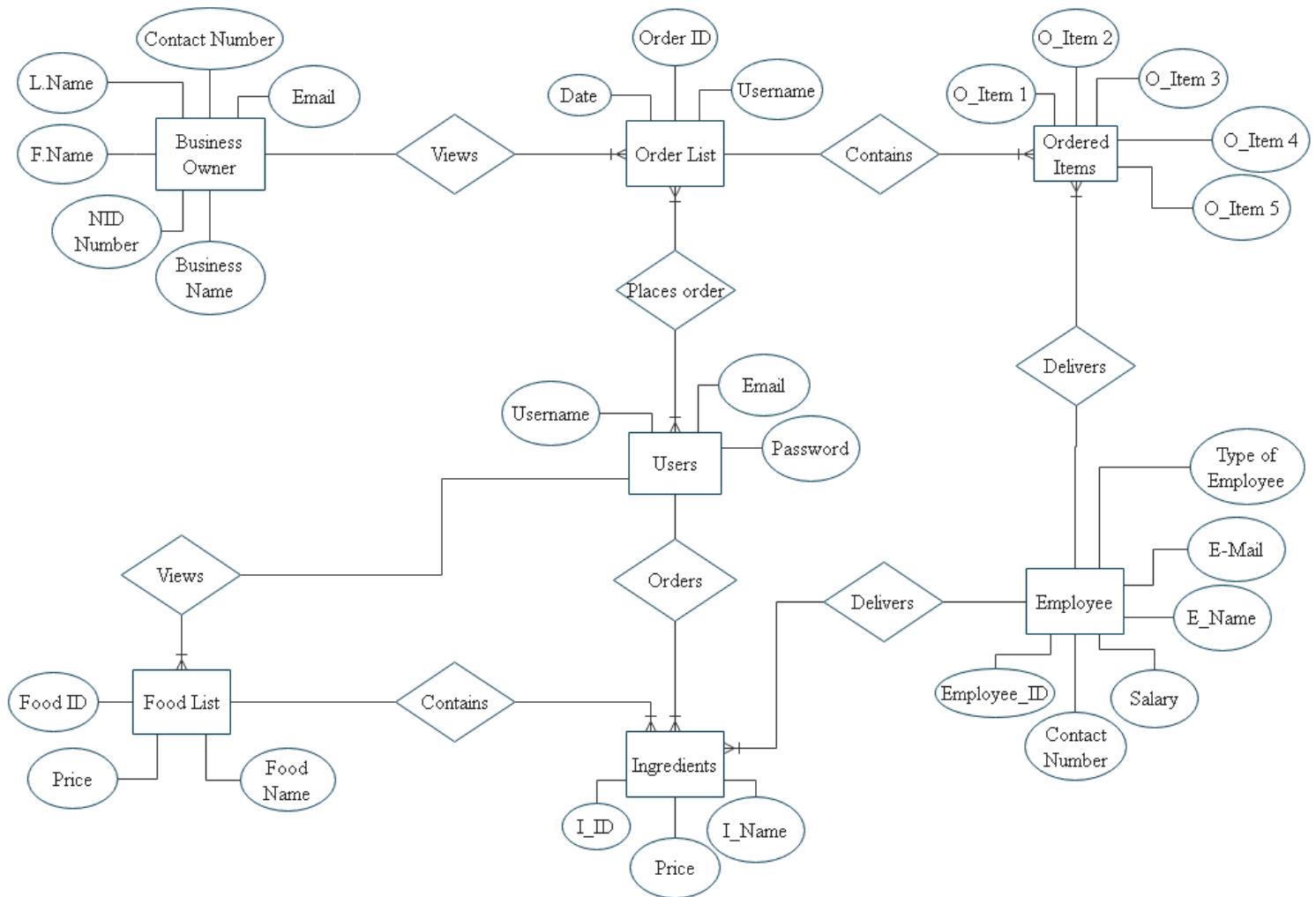


Figure-3: Entity Relationship Diagram

4.3 Context Level Data Flow Diagram:

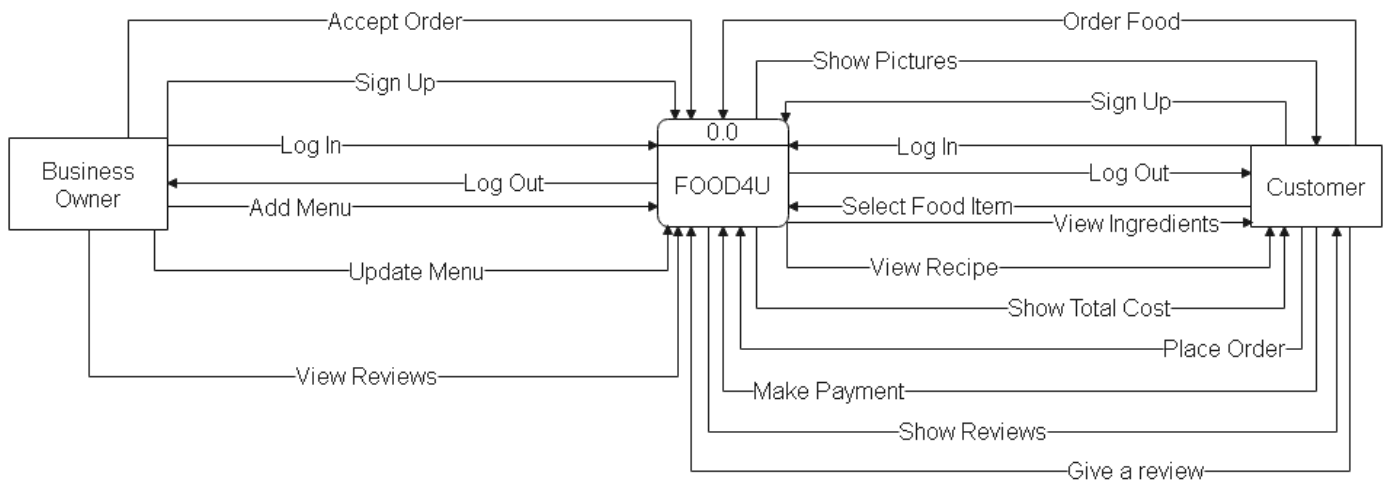


Figure-4: Context Level Data Flow Diagram

4.4 Level 1 Data Flow Diagram:

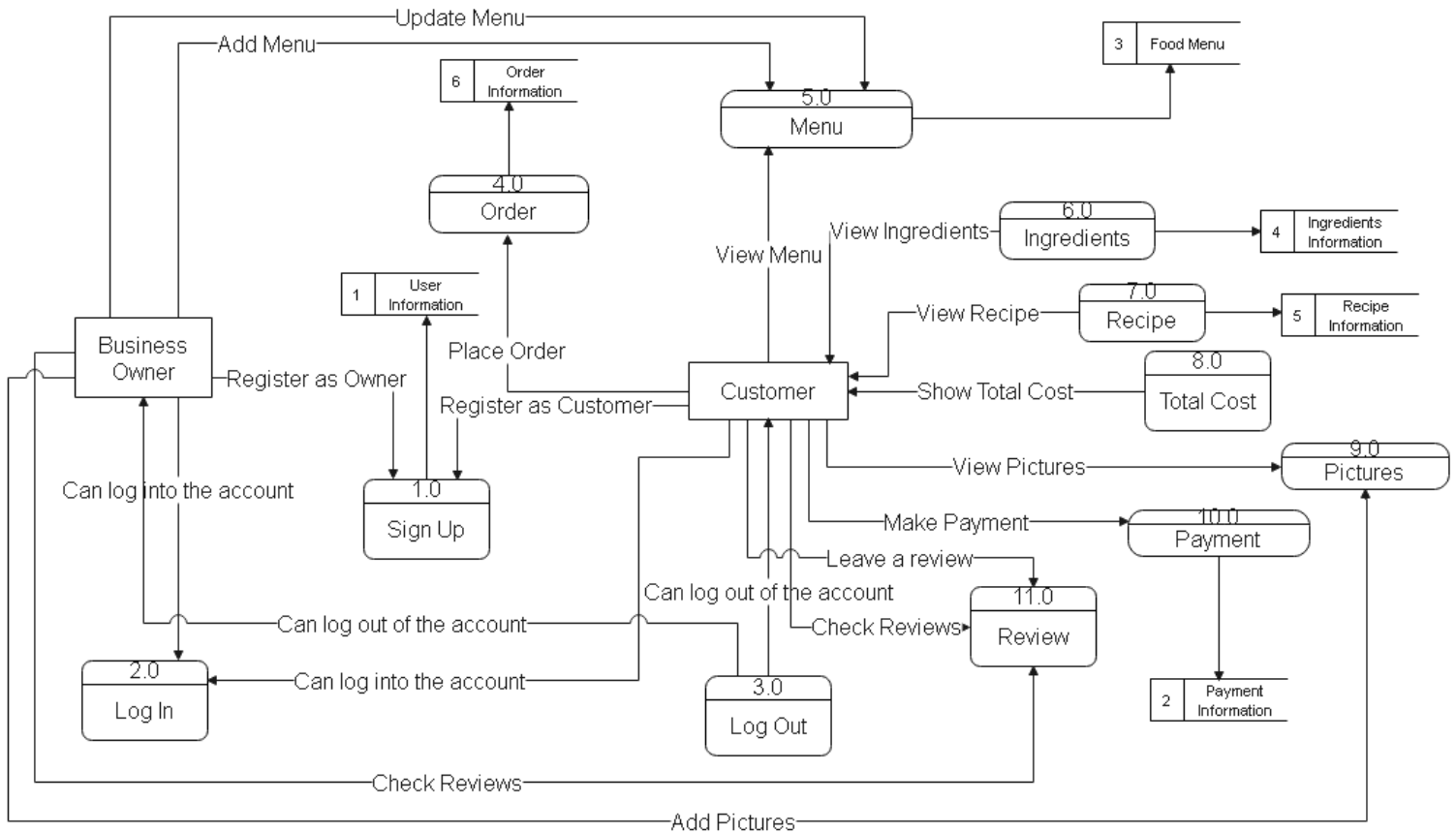


Figure-5: Level 1 Data Flow Diagram

4.5 Activity Diagram:

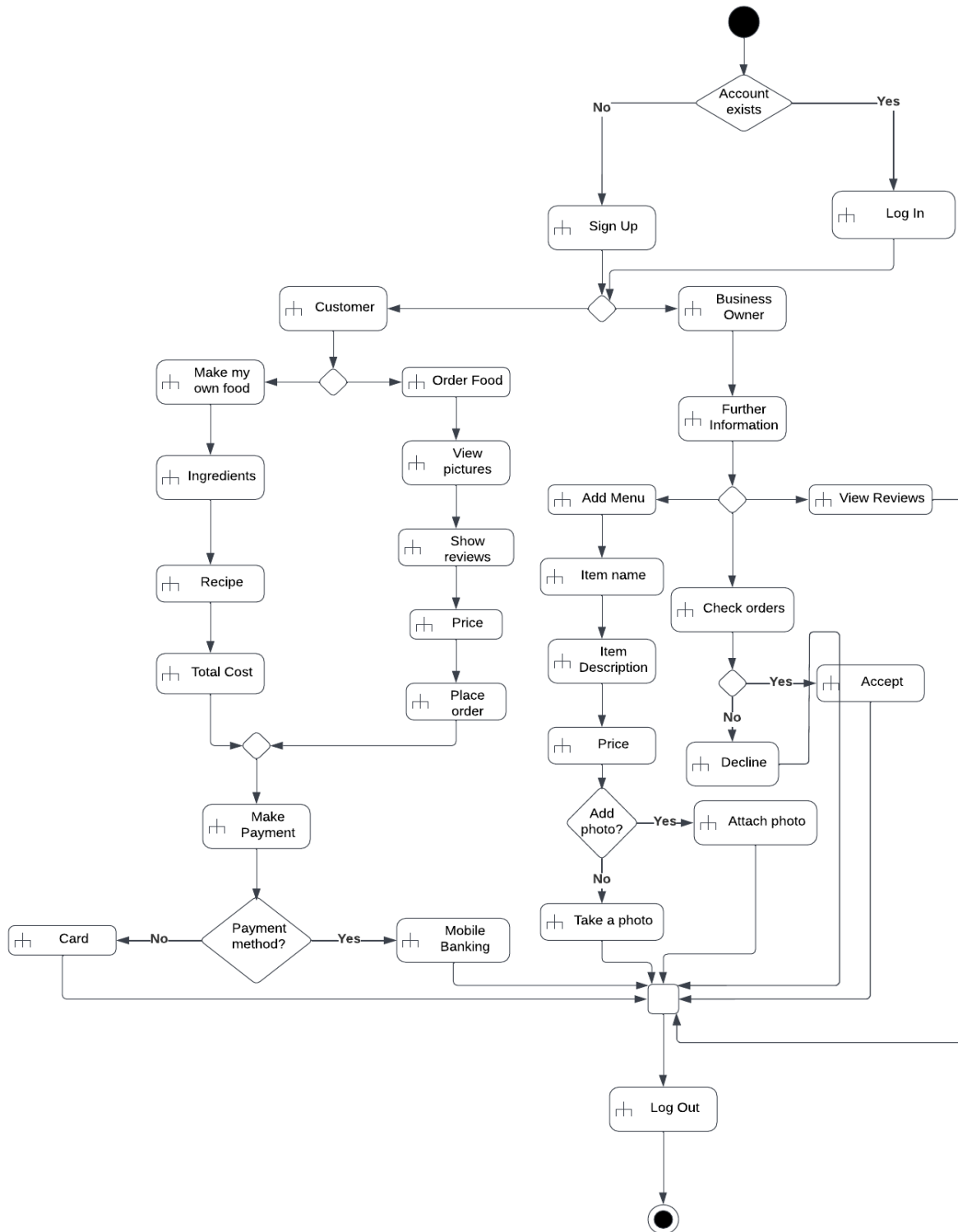


Figure-6: Activity Diagram

4.6 UML Class Diagram:

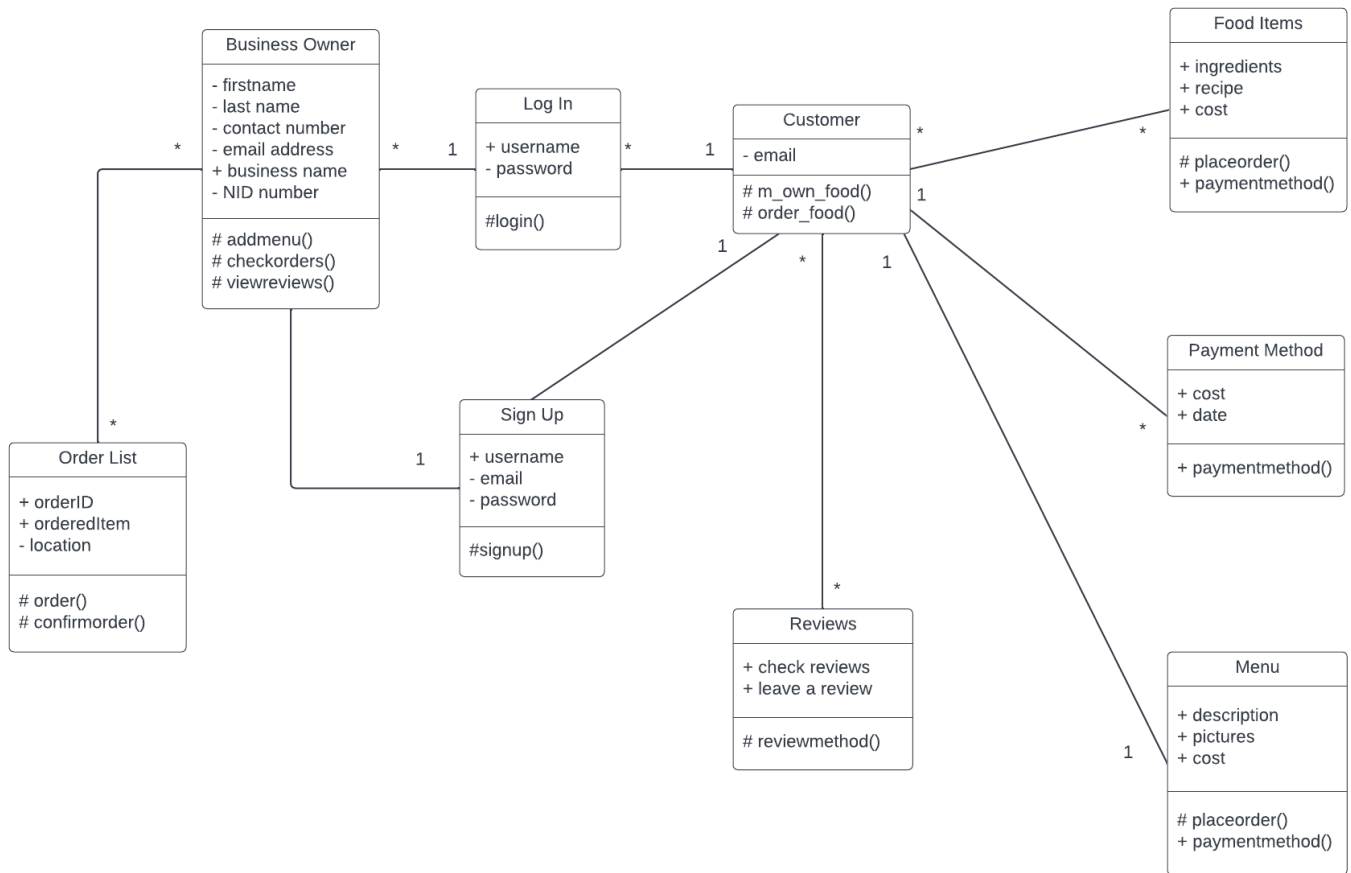
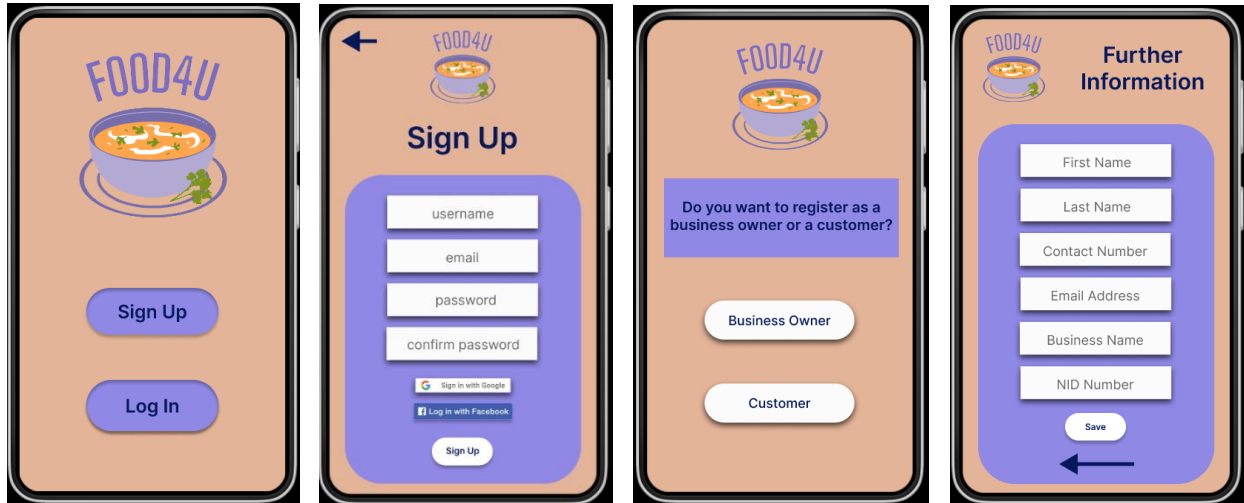


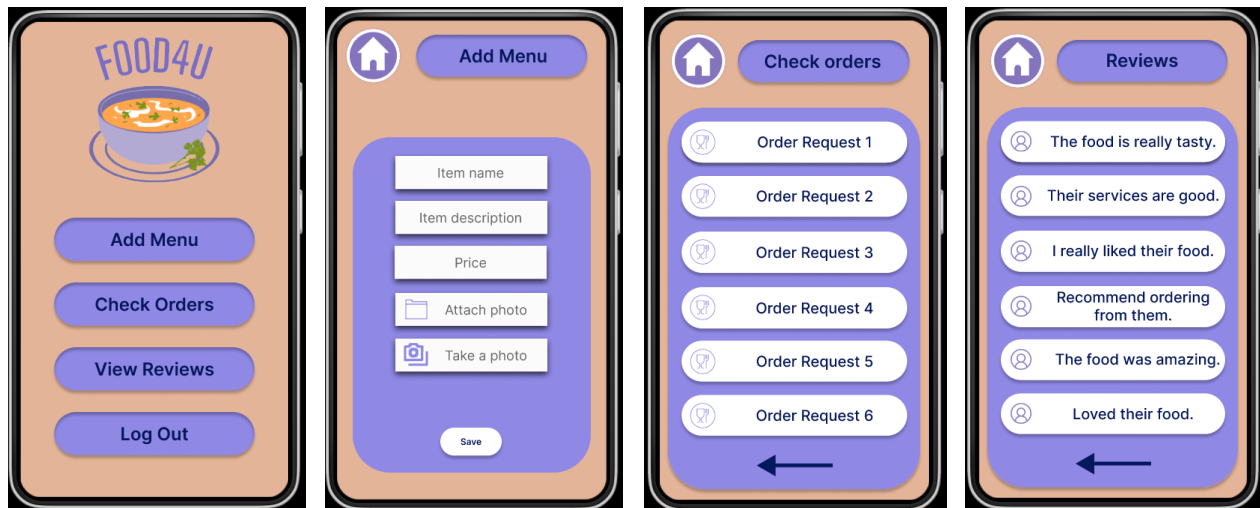
Figure-7: UML Class Diagram

4.7 Prototype:

The prototype for this project was made using the software named Figma. Some of the screenshots of the prototype are added below:



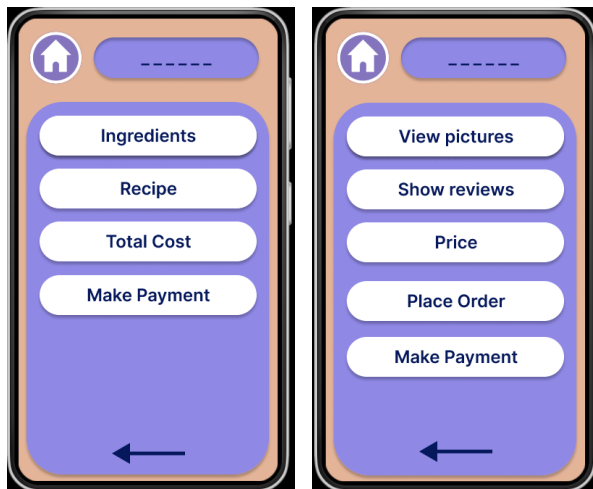
The above screenshots show the process a user will go through if he/she chooses the option 'Business Owner'.



These are the available options for the business owners once they register.



From the log in screen, if the user logs in, they are asked if they are logging in as a customer or a business owner. Upon selecting 'customer', the homepage appears to be like this.



The first picture shows what the user will see upon selecting 'make my own food' and the second picture shows what the customer will see upon selecting 'Order food'.

5 SOCIETAL IMPACT

Food is a basic necessity of human beings. Over years, people became busy with their lives and the time to make food turned into a luxury that very few people can afford. Students moving away from their houses to acquire education meant not being able to eat homemade food frequently. Female individuals who pursued a career and was also managing their family lives find it difficult to manage the time to cook food for themselves. Any person who enjoys cooking can turn this hobby into a small business if they wish to. This project can accomplish all these things.

The usage of this application can make everyone's lives a bit easier and that is the main aim of this project. If people who are not interested in cooking can simply order food at a reasonable price, they can easily invest that time doing something productive which can help them later on in life.

6 CONCLUSION

The report covered all the system requirements and all the diagrams that lead to the completion of the prototype of this project. It is a mobile application that can be accessed by anyone who uses android. There are further plans to implement this in iOS and design a web page so that it can be accessed by anyone. The system will be able to become a medium for both parties' healthy relationships.

7 REFERENCES

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5. <https://www.foodpanda.com.bd/>
6. <https://play.google.com/store/apps/details?id=com.aisavent.hungrynaki>
7. <http://app.dwasa.org.bd/index.php>
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9. <https://hydrocoach.com/>
10. <https://play.google.com/store/apps/details?id=com.mysoftheaven.jomi&hl=en&gl=US>
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