



# **Mindoro State University**

## *College of Computer Studies*



### **FOOD AIRCRAFT: CONTINENTEA CAFE ORDERING SYSTEM**

An  
Application Development Project  
Presented to the Faculty of  
**Mindoro State University Calapan Campus**  
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of the Requirements for the Degree  
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### CHAPTER I

#### INTRODUCTION

##### **Project Context**

Restaurants, cafeterias, cafés, fast-food outlets, pubs, catering businesses, and other enterprises make up the food and beverage sector. Preparing, packing, transporting, and serving food or beverages are all jobs in this business. The food and beverage business are vital because it allows people to eat on time at any location. For instance, ContinenTea Cafe which serves beverages together with continental delicacies. They prepare meals and drinks, serve them at their café. The way people purchase food and beverages is altering throughout the world.

Philippines ranks as the second highest milk tea consumers in Southeast Asia, it's evident that milk tea has become one of the favorite drinks of the Filipino people despite being a foreign beverage from Taiwan [1].

As of now online is one of the most convenient as of today the mobile apps have shifted people's lifestyles and our society and almost all the services you need can found. [2] As Mobile food ordering apps (MFOAs) have been considered one of the most popular mobile apps proves in Bangladesh since its inception in 2013. Like, Pathao Foods has 7,000 registered Bangladeshi restaurants, while Sohoz Food has 6,000 restaurants, and Foodpanda has 6,500 restaurants until 2019 [3].



And according to study, about 50% of the population is under 25 of age, mostly fascinated with fast food and restaurants. The MFOAs are becoming popular in Bangladesh because people's lifestyles are changing with higher buying capability, increased busy hours, and enhanced dependence on technology, leading them to take readymade foods. The growing number of restaurants has also played a role in pushing the demand for online food service. All of these attributes have stimulated MFOA growth in Bangladesh. According to several industry insiders of Bangladesh, the total daily delivery was 25,000 orders per day in 2019 on average which is its too hard to accommodate in manual ordering [4]. As COVID-19 pandemic situation comes we have been witnessed the surge of online orders and delivery which is no face-to-face transaction, limited people. And as the situation back to normal online ordering adopted [5].

### **Objectives of the Study**

The main objective of this research study is to develop a "Food AirCRAFT: ContinenTea Café Ordering System". This acknowledges the owner to save labor costs for hiring more staffs and a restaurant with space friendly for serving in order to prevent waiting queue line for customers.

Specifically, this study aims these following objectives:



1. Lead to introduce the technology to their business and be part of its success. Which so much time and strive will be save for having a system in a website and mobile application.
2. Accommodate customers immediately, so, this offers customers a means of hassle-free in placing an order.
3. Enable customers to order food anytime and anywhere that saves time and efforts that they will have so much time to decide what food they will order.
4. Through this system, this will be staff friendly which will be convenient for them to prepare the food in an organized way.
5. Due to the readiness of the food that customers ordered, staff will immediately prepare it without waiting for them and listing what food will be ordered.

### **Scope and Limitation of the Study**

The study focuses in developing a system entitled "Food AirCraft: ContinenTea Café Ordering System".

The scope of the study allows the café to display their categorized menu in the system, making it easy for customers to decide what to order at any time and from any location. Place an order online and track the status of order from placing, processing up to ready to serve. This system's payment method is only centralized to cash on pick up at physical café. On the other hand, through





the restaurant's website admin panel, they monitor and are notified when orders are placed automatically, and they proceed to order preparation and serving as soon as the customers arrive to pick it up and make payments. This system enables the small restaurant to manage their menu. Respectively, it will simplify order processing for both customers and restaurant.

The limitation of the study only includes to the customers who has a registered account and exclusively manage by the administrator.

### **Definition of Terms**

**Ordering System.** A system enables the ContinenTea Café customer to order.

**Continental Tea.** Milk Tea flavors that are influenced by different continent in the world.

**Aboard.** A very first Airplane and Flight Attendant-inspired Tea & Café Restaurant.

**Navigation Bar.** Categories of different products offered by mini-restaurant.

**Newsfeed.** A newsfeed page of system that enables customers to send feedback with approval of admin to post it.



## **CHAPTER II**

### **REQUIREMENTS SPECIFICATION**

This chapter discusses different literature and studies from foreign and local sources which are connected to the present study that the developers are conducting. It focuses on helping the developers for their study. This focuses on the establishing a Food AirCraft: ContinenTea Café Ordering System. Literature for this study come from articles, journals, PDF or E-books and other foreign research conducted.

#### **Foreign Literature**

Baba et.al (2020) mentioned in an article, a digital ordering that launched by Sakae Sushi is to utilized iPads in the self-service ordering system. Which is their mission being to promote the innovation of technology that will assist all customers so that they can browse the menu and choose freely according to customer preferences. Other than that, there are also issues with human errors and service failures that may encounter in the traditional method ordering system such as language barrier or misspelling of orders that may affect the customer satisfactions. Furthermore, during peak hours, the waiting staffs would not be able to entertain all customers at once. Usually, when visiting restaurants, customers must wait to communicate with the waiters, however since the alternative of technology is available and accessible the customers do not have to wait for waiters, but they can be able to use



the technology on their own and reduced the customers waiting time.

Leung (2020) discussed the customers perceptions on computerized ordering at restaurants are differed. Others had been disappointed because of technological fear and a lack of human contact, while some expressed a better satisfaction due to having more control. It will also be interesting to compare these ordering processes at quick-service restaurants with those in full-service restaurants as more full-service restaurants enter the digital ordering industry.

Alalwan (2020) (ICT) and smartphones, smart technologies, and mobile application (app) software have become an extensive and integral part of our everyday life. Through the introduction of Mobile Food Ordering Apps (MFOAs) the restaurant industry has changed. These apps have received a lot of support as a new way to communicate with consumers and giving them the great services.

Customers are now able to browse a restaurant's menu, customize their order and pay for it in a short period of time. And it also represents as mobile commerce applications as new mechanisms either to attract new customers or to maintain current customers satisfaction and its loyalty to the restaurant.

According to Bangkar (2015) as of now we can notice that most of the restaurant meal ordering is relying on the interaction with waiters to place order into the kitchen. During busy hours of restaurant this coordination is difficult, it results dissatisfaction of the customer. Due to this matter, restaurants used modern innovation. Digital



multi-touch menu cards in restaurant are replacing traditional services where waiters take order from customer according to their menu requirement. In traditional restaurant orders are taken by waiters and they bring the food when it is ready later the customer pay the bill to the waiter or to the accountant at billing area. This system relies on large numbers of manpower to handle customer reservation, ordering food, placing order on table, reminding orders of customer and billing. He also added this is effectively improve the service quality of a restaurant for their customers using advanced technologies.

Fei et.al (2020) mentioned in his article that COVID 19 has an inevitable impact on local and global food supply systems. It is of increasing concerns that the pandemic will ultimately lead to a long-standing food crisis. COVID-19 has indeed influenced the digitalization of food supply chains and agricultural services, which contributes to divergence of food distribution channels and transformation of food systems. Furthermore, digitalization safeguard food supply, from which effective immediate food supply solutions upon emergency crisis, and for the long term, on the way forward in building more resilient and sustainable local food systems with stronger linkages between urban centers and the surrounding rural territories.

### **Local Literature**

Garcia et.al (2018) stated that due to the fast phase lifestyle nowadays, it is truly an uncomfortable to spend a lot of time in queuing to the traffic encountered in ordering food on school cafeteria. This traditional way of



ordering meal consumes a lot of time and effort that during peak hours, the density of people is distinctly large that causes overcrowding. The amount of time consumed in ordering and waiting for food in school cafeteria a lot of minutes wasted just by standing in a queue for a chance to take an order on is truly a setback for students and professors who greatly value their time that wasted.

Aside from the variety of cuisines, excellent service using emerging technologies is another feature of a restaurant. Service innovation on customer experience increases customer satisfaction significantly. Having an ordering system has a great advantage because it can display additional information about the dishes compared to just a list of the menu. Those restaurant used technology in any way in their operations are more successful than those who did not. They stated also that having smartphones are common to all customers it is convenient for them if the menu of their favorite restaurants is accessible on it. (Romano et.al 2020).

According to Lim (2020) Online food delivery service has changed the way people order food. With the growth of the one-to-one e-commerce business, online meal delivery (OFD) App has made ordering food from restaurants easier than ever before. In just one click restaurant can deliver customers ordered food through the online ordering system. The convenient of online ordering has been witnessed during the Covid 19. During pandemic people have been stuck in their home and can't go outside and eat in restaurant. OFD enable customer to order their food online and explore in different varieties of restaurant and food.



Buenaventura (2021), states that customers who experienced waiting to be serviced causes customers to go to competitor. And to be a good restaurant there are some important factors to remember such as taste, ambiance, and service. Fast service is one of the most important factors in fast a food restaurants to avoid losing of customers. A Mobile ordering application for a fast-food restaurant that offers a series of functionalities wherein a customer can order food a mobile application that would assist owners, employees and customers transact orders efficiently. The application provides efficient performance for fast food restaurants and customers.

Anne et.al (2021) stated that the rapid growth of restaurant industry particularly in the Philippines has a high demand of customers and slow service speed that results in creating a longer queuing line and waiting time especially during in the peak hours. And due to that, service providers have focused and gave importance on reducing of customers' waiting time as well as increasing the service speed of the restaurant. Through technology-based services in the food industry have improved convenience to the customers, because customers tend to conserve their time and effort, speed transaction convenience that can increase in customers' satisfaction and decrease customers' waiting time. The use self-service technology can improve service speed, which means that with an increase of service speed, there is a high chance of serving more customers thus increasing its revenue.



### Requirements Specification

This encompasses functional requirements, hardware requirements, and security requirements that were present during the study's development. The user must understand the system function to fully utilized the project correctly.

### Hardware Requirements

The hardware requirements used by the developers was showed in the table below. This contains its functions, minimum and recommended specifications, and unit.

**Table 1. Hardware Requirements**

Hardware	Functions	Specifications	
		Minimum	Recommended
Computer's Central Processing Unit	It gives us the computing power we need to make sure our system is optimized for performance and reliability while handling the difficult tasks involved in building a robust, secure, and reliable system.	Intel (R) Celeron (R) n4000	i3 and above of version
RAM	It serves as the system's temporary memory storage. It makes	4GB	8GB



it possible for the computer to quickly access and effectively process the data on the website, resulting in a quicker and more fluid browsing experience.

### Software Requirements

The software requirements used by the developers was showed in the table below. This contains the software used and its description.

**Table 2. Software Requirements**

Software	Software	Specification	
		Minimum	Recommended
1.WampServer	It is a Windows web development environment. It allows researchers to create web application with MySQL database.	Version 3.3.0	
2. Visual Studio Code	It is a code editor used by developers needs for quick code-build-debug	Version 1.75	





	cycle that supports development operations of web system.		
3. CodeIgniter 4	CodeIgniter 4 is the framework used for the development of system. It is a toolkit for building web sites using PHP.	Version 4.3.1	
4. Bootstrap & HTML	These are the programming languages used for frontend coding to create a responsive and attractive graphic interface for users.	Bootstrap 5	

### Functional Requirements

Functional Requirements are an important part of the software development process. They define the functions and processes that the software must perform in order to meet the needs of its users. They are the key to ensuring that the software will meet the standards it's designed for and that the user experience will be satisfactory.



**Table 3. Functional Requirements**

ID NO	Requirement Description
<b>FR1</b>	<b>Data Requirements</b>
<b>Admin Account</b>	
1.1	The admin must input a username and password to access the system.
1.2	The admin must add and modify the menu displayed in the system.
<b>User Account</b>	
1.3	The user must input a email and password to access his/her account in the system.
1.4	The user must input a name, email, and password to register.
1.5	The user can select and add to cart all the products want to buy.
1.6	The user may cancel the orders as long as admin didn't accept it yet.
<b>FR2</b>	<b>Process Requirements</b>
<b>Admin Account</b>	
2.1	The system must process the orders of the customers without any failure.



2.2	The system must notify all the transactions of the users.
<b>User Account</b>	
2.3	The system can monitor the orders once it is placed and view recent transactions.
<b>FR3</b>	<b>Output Requirements</b>
<b>Admin Account</b>	
3.1	The system must track the progress of sales through graphic presentation.

### Non-Functional Requirements

This section describes the nonfunctional requirement of the "Food AirCraft: ContinenTea Cafe Ordering System".

#### Operational Requirement

**Table 4. Operational Requirements**

ID No.	Requirement Description
1.1	System shall operate with every type of web browser.
1.2	System shall operate with every mobile operating system.
1.3	The server must be capable of



	supporting an arbitrary number of surface computers, tablets, mobile phones, and screens, i.e., there is no limit to the number of devices that can be supported by the system.
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### Performance Requirement

**Table 5. Performance Requirements**

ID No.	Requirement Description
1.1	The system should be able to accept any number of orders and show them as they are completed.
1.2	The system should be able to calculate the amount, prompt the user for payment method, and arrange the pickup or dine-in time.
1.3	The system should be able to notify users for the order processing.
1.4	System should allow Store manager to add/alter product items.
1.5	System should allow the admin to manage orders and access users' information.
1.6	The system can be accessed by every registered user who want to order foods.
1.7	The system will always be available within working hours, except for periodic maintenance or unavailable



	internet connection.
1.8	The systems interface is easy to learn and can be used by users of any technical background.

### Security Requirement

**Table 6. Security Requirements**

ID No.	Requirement Description
1.1	Users must log in to the system for all operations except for viewing the menus.
1.2	Customer shall log in according to restricted computer system access policy.
1.3	Only the admin users can view data and information of users from the system.
1.4	Customer are only limited to view their own personal details, previously placed orders, and not orders placed by other customers.
1.5	All network transactions that involve financial information or personally identifiable information shall be encrypted.



### **Chapter III**

#### **Design and Development Methodologies**

This chapter presents the outline of the study. The different methods and procedures were explained to further justify and understand the data information gathered for the development of system. Different diagrams are presented for easily visualizing the flow of the proposed project.

#### **System Design**

The researchers determined the differences between a manual and an automated methodology. This research aims to create a system for customers of ContinenTea Café. It highlights that systems that operate automatically are more convenient and secure to be perform rather than manual process of taking orders and prevent waiting queue line for effective satisfaction of customers.

#### **Database Design**

One of the important phases of website development is the design of the database which contains the different entities in the website. This provides the users with the attributes of existing entities and describes the use of the website.

This represents the tables with the fields used and the equivalent data types and its description. It collected, coordinated, and confirmed what specific data terms mean. This also shows the relationship of one entity to another.



For our database design, we developers use MySQL for our RDBMS. MySQL allows us to have a relation for tables that needs to be connected to each other. The database design will be for our Aircraft: Continentea Cafe.

**Table 7. Fields for User**

Field Name	Data Type	Size	Default	Description
id	int	11	Not Null	User's ID (PK)
name	varchar	150	Null	User's Name
email	varchar	150	Null	User's Email
contactno	varchar	11	Null	User's Contact Number
address	varchar	50	Null	User's Address
state	varchar	50	Not Null	User's Status
usertype	varchar	11	Not Null	User's Usertype
password	varchar	150	Null	User's Password
created_at	datetime		Current_timestamp	User's Account Time Created

Table 7 above contains the fields for the User table. It contains id, name, email, contactno, address, state, usertype, password, created\_at. Here, the id is the Primary Key (PK).



**Table 8. Fields for Product**

Field name	Data type	Size	Default	Description
id	int	11	Not Null	Product's ID (PK)
productname	text		Not Null	Product's Name
description	text		Not Null	Product's Description
price	float		Not Null	Product's Price
quantity	int	11	Not Null	Product's Quantity
size	varchar	20		Product's Size
image	text		Not Null	Product's Image
category	varchar	30	Not Null	Product's Category
created_at	datetime		Current_times tamp	Time Created
updated_at	datetime		Not Null	Time Updated

Table 8 above contains the fields for the Product table. It contains id, productname, description, price, quantity, image, category, created\_at, and updated\_at. Here, the id is the Primary Key (PK).





**Table 9. Fields for Cart**

Field Name	Data Type	Size	Default	Description
cartid	int	11	Not Null	Cart's ID (PK)
user_id	int	11	Not Null	User's ID (FK)
menuid	int	11	Not Null	Product's ID (FK)
bilang	int	11	Not Null	Cart's Item Quantity
total	float		Not Null	Cart Total Price

Table 9 above contains the fields for the Cart table. It contains cartid, user\_id, menuid, bilang, and total. Here, the cartid is the Primary Key (PK), while the user\_id and menuid are the Foreign Key (FK).

**Table 10. Fields for Checkout**

Field Name	Data Type	Size	Default	Description
id	int	11	Not Null	Checkout's ID (PK)
user_id	int	11	Not Null	User's ID (FK)
menuid	int	11	Not Null	Product's ID (FK)

Table 10 above contains the fields for the Checkout table. It contains id, user\_id, and menuid. Here, the id is the Primary Key (PK), while the user\_id and menuid are the Foreign Key (FK).



**Table 11. Fields for Orders**

Field Name	Data Type	Size	Default	Description
user_id	int	11	Not Null	User's ID (FK)
menuid	int	11	Not Null	Product's ID (FK)
cartid	int	11	Not Null	Cart's ID (FK)
orquantity	int	11	Not Null	Order's Quantity
total	int	11	Not Null	Order's Total
type	varchar	20	Not Null	Order's Type
status	varchar	50	Order Placed	Order's Status
createdd_at	datetime		Current_Timestamp	Date and Time of Order Created
createdd_at	datetime		Not Null	Date and Time of Order Updated

Table 11 above contains the fields for the Orders table. It contains user\_id, menuid, cartid, orquantity, total, type, status, createdd\_at, and updatedd\_at. Here, the userid, menuid, and cartid are the Foreign Key (FK).



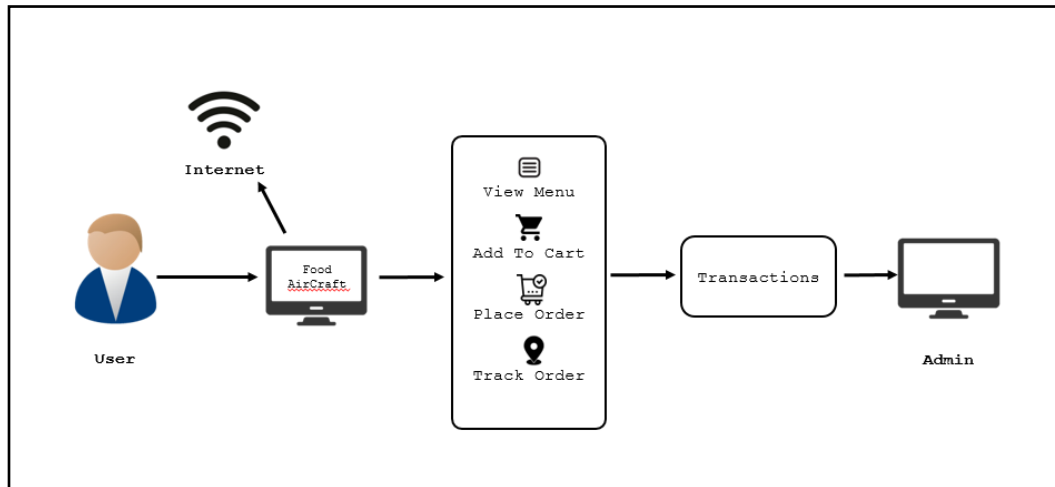
**Table 12. Fields for Nf**

Field Name	Data Type	Size	Default	Description
nf_id	int	11	Not Null	Newsfeed's ID (PK)
user_id	int	11	Not Null	User's ID (FK)
nf_content	varchar	500	Null	Newsfeed's Content
nf_rating	varchar	20	Not Null	Newsfeed's Rating
nf_status	varchar	10	Not Null	Newsfeed's Status
nf_createdon	datetime		Current_Timestamp	Date and Time of Newsfeed Created

Table 12 above contains the fields for the Orders table. It contains id, user\_id, nf\_content, nf\_rating, nf\_status, and nf\_createdon. Here, the id is the Primary Key (PK), while the user\_id is the Foreign Key (FK).

### **Architectural Diagram/ Block Diagram**

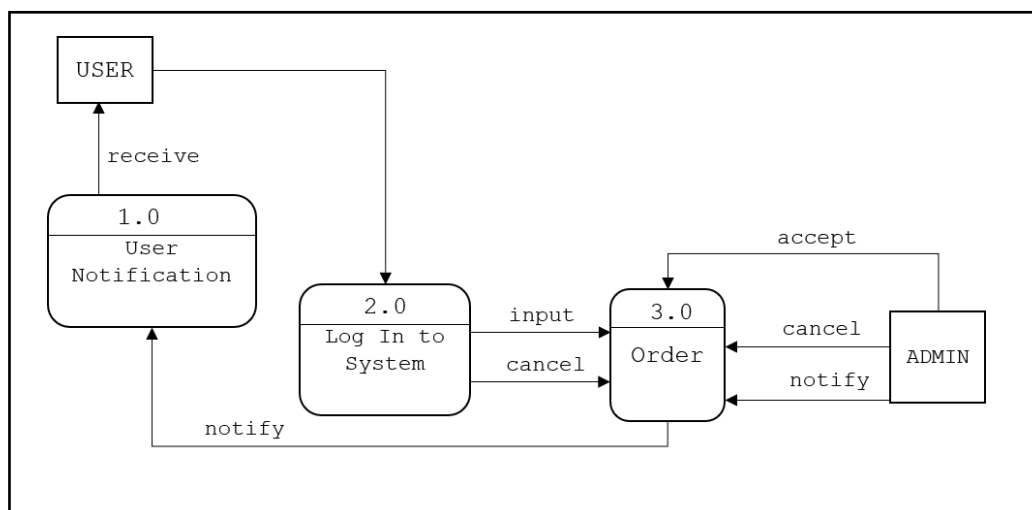
In this section, system architecture was designed to define the flow and behavior of system's functionalities to execute its high-quality performance. This covers the formal illustration and description of the project structure.



**Figure 1. Architectural Diagram/ Block Diagram**

## DFD Level 0

This section shows the description of the different diagrams of how the data is processed within the system.



**Figure 2. DFD Level 0**

## UML Use-case Diagram

In this section, the use case diagram summarizes the high-level functions and a graphic representation that depicts the relationship between the system and users, it is how does the system work within interactions of the actors. The diagram will help the researchers to identify and organize the functionality of the entire project.

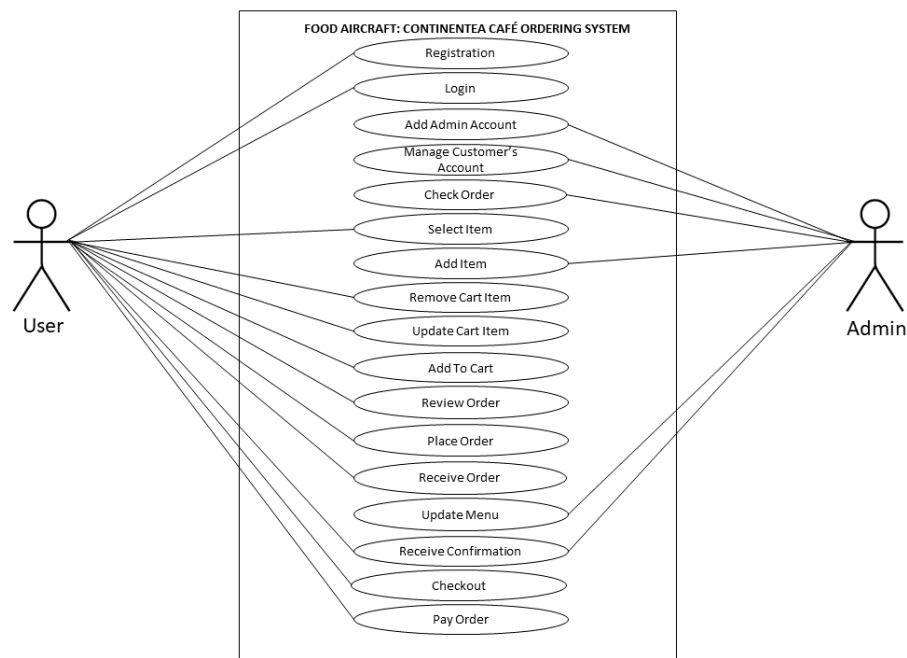
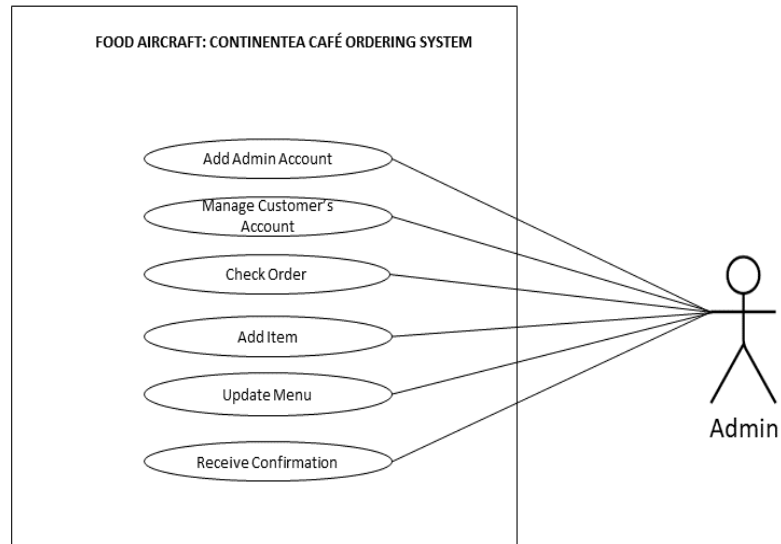
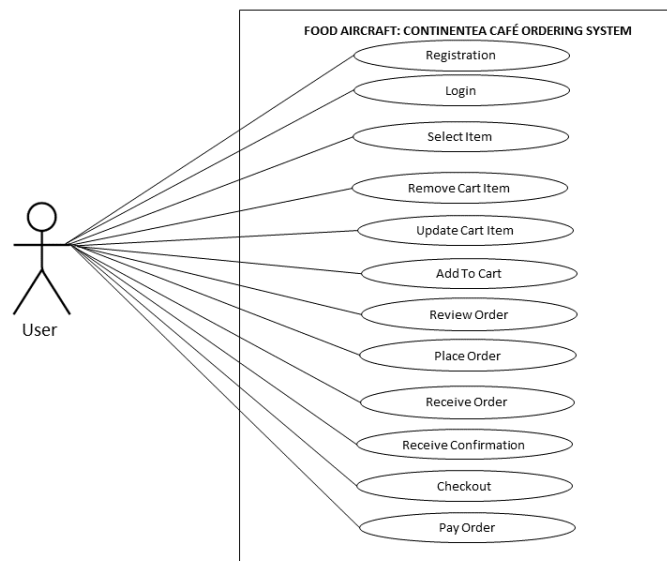


Figure 3. Use Case Diagram



**Figure 4. Use Case Diagram of Admin**



**Figure 5. Use Case Diagram of User**

### Sample Mock-up

A sample mock-up is the design model of the system used for the accurate impression on how the



website should look and to achieve the desired design for the satisfactions of users.

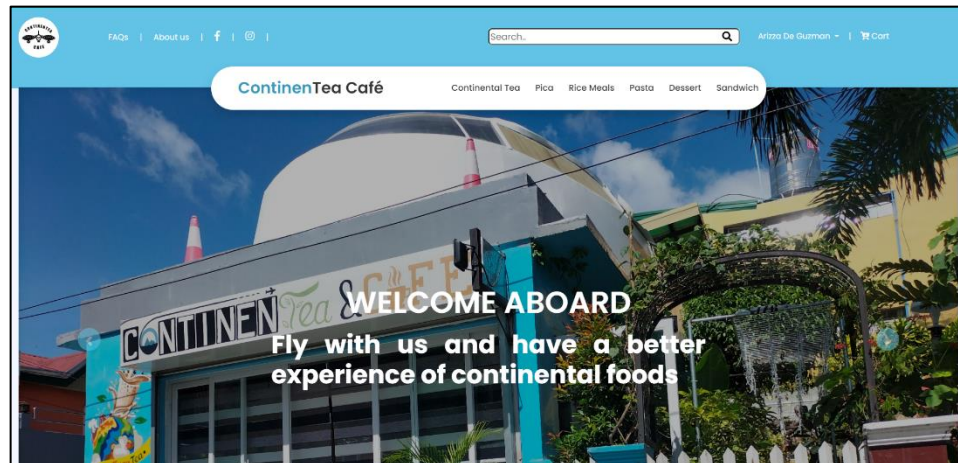


Figure 6. User Interface

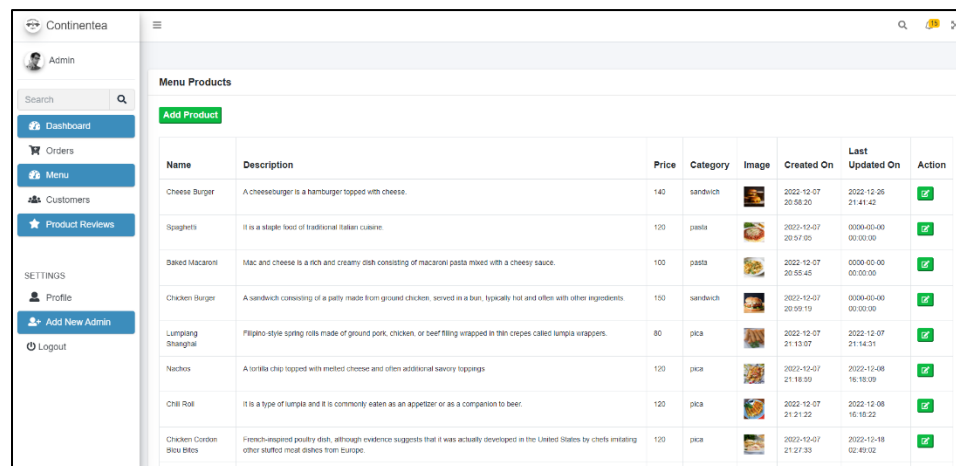
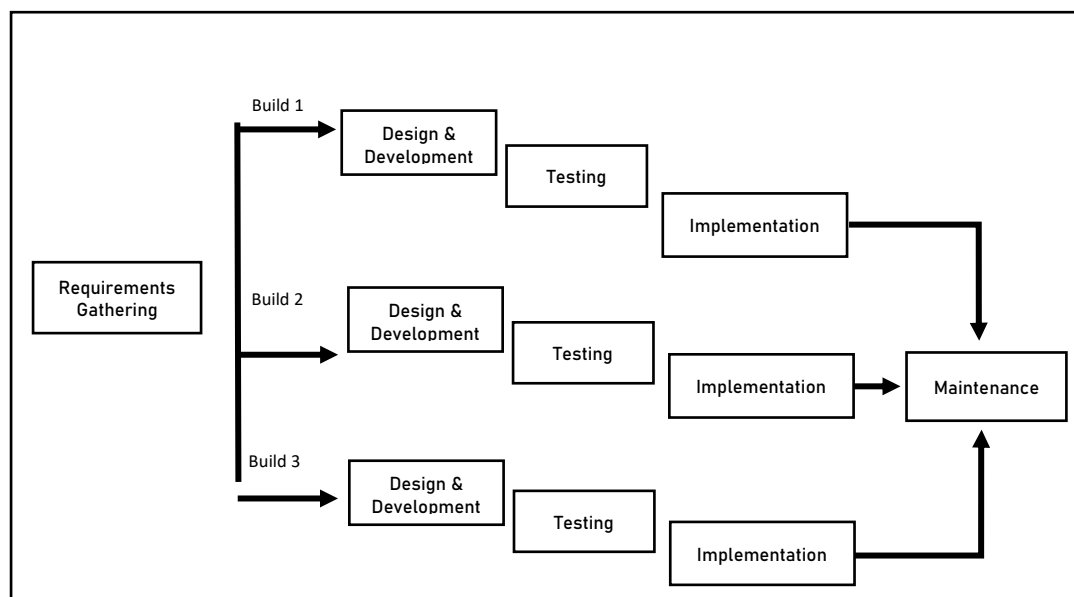


Figure 7. Admin Interface

### Development Method

The "Food AirCRAFT: ContinenTea Café Ordering System" will use the System Development Life Cycle (SDLC) which has

a series of phases that serves as guide during the development to produce an efficient and high-quality system. This project will use Iterative and Incremental Model, which process may be modified in a repeated manner to enable corrective measurement of system's flaws in an early stage of development. The flow of development process is clearly displayed to its phases which are gathering of requirements, design and development, testing, and implementation.



**Figure 8. Iterative and Incremental Model**

The research followed the following phase.

- 1. Requirements Gathering.** In this phase, researchers gathered more information and data requirements needed for the development of system. Also, determined the





functional and non-functional requirements of the project.

2. **Design.** During this phase, researchers began to design the hardware and software of the system according to the requirements of the users. Developer thoroughly plan and implement trial and error enable to meet the desired output of the user interface.
3. **Development.** During this phase, researchers start the coding process for the functionality of the system through Visual Studio Text Editor Application and PhpMyAdmin as administrator tool for the database, wherein database will serve as data storage of the system and CodeIgniter 4 as the framework of the proposed system.
4. **Testing.** In this phase, researchers will execute the pre-deployment of the system for trial and error just to see if the device is properly functioning.
5. **Implementation.** In this phase, researchers will create the iteration of project after the testing process in order to analyze and improve the design and functionality which needs more improvements to meet the project objectives.
6. **Maintenance.** In this phase, researchers must maintain the functionality of the system during deployment to maintain its performance. Also, researchers will determine and fix the errors may occur on the period of time.

### Gantt Chart



In this section presents the Gantt Chart to show the plans and schedules of the project timeline. All the development stages up to the completion of project were documented in this chart. This helps the researchers to know the deadlines needed to accomplish and show breakthroughs of various tasks.

**Table 13. Gantt Chart**

Task Name	Task Date																			
	Oct				Nov				Dec				Jan				Feb			
	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week	Week
<b>1. Requirements Gathering</b>																				
1.1 Data Collection																				
1.2 Functional																				
1.3 Non-Functional																				
<b>2. Design</b>																				
2.1 Frontend software design																				
<b>3. Development</b>																				
3.1 Back-end coding																				
<b>4. Testing</b>																				
4.1 Functionality testing																				
4.2 User interface testing																				





**Methodology:** Establishing a testing process involves carefully crafting scenarios, real-world situations, or problems that could affect your system, and performing a list of tasks using the website under test. The purpose is to observe how the system works and how it interacts with users.

## 2. System Testing

**Participants:** Both members of the preferred site run the site test. This is because he/she is responsible for the system.

**Methodology:** In system testing, running many trials is one of the basic parts developers encounter. These issues also show up in the development process. Please document the problem you encountered, fix the problem and solve it with the best solution the developer had.

## 3. Performance Testing

**Participants:** The testing of the performance will be conducted also by the developers.

**Methodology:** Performance is site quality. Developers should ensure that the system must provide the intended services and functionality with maximum performance.

## 4. Usability Testing

**Participants:** The test should include client, developers, and the end-users.

**Methodology:** Developers should observe the end user's experience while using the website. Assess what they



feel or how they perceive the system. Collect responses about how you use the site and ensure that all suggestions and recommendations for improving the site should be considered.

### **5. Security Testing**

**Participants:** The software developer is the participant of this test.

**Methodology:** Developers must secure their websites from internal and external attacks to protect any information that should be kept private to the website. Developers must incorporate all appropriate data processing operations to avoid user input attacks.



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