GROUP 1- META
COURSE CODE: CSC316

CASE STUDY:
ANALYSIS AND DESIGN OF ONLINE FOOD ORDERING SYSTEM FOR GMKEATS BY CHEF DERIN

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GROUP MEMBERS AND ROLES:

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ACKNOWLEDGEMENT

This project is a result of the outstanding guidance and lecturing of the Course Coordinator, Babatunde Sawyer, who took his time to ensure that we understood on an in-depth level, what we were tasked to do and the right way to go about it.

To every group member of META, this is to appreciate your diligence, cooperation and willingness to see this project to the end.

You are very appreciated.

CHAPTER 1
INTRODUCTION

1.1 **BACKGROUND OF THE STUDY**

The GMKEATS eating house may be an edifice that has a large variety of cuisines, from international to regional and maintains a high level in terms of meal quality, further because of the safety and procedure concerned in manufacturing a meal.

To students, workers and society at large, they provide delivery services to offices/locations on and off-campus.

Following the fashionable business strategies of nowadays, the eating house handles ANd supervises its dealings activities with an ordering system. The dealings activities dispensed are often classified into sections:

(I) Customers visit the restaurant and submit their orders after perusing the menu alternatives. Customers may visit the eatery in person or online, for example, by sending a whatsapp message or making a phone call. To avoid the transmission of disease as one of the COVID-19 Protocols, in-house ordering is done by scanning a QR code placed on the table.

(II) Preparation of the food begins whereas the customer waits. Waiting is often in-house or the customer is notified once the order is prepared for pick up.

(III) Payment is made at pick up. The Billing unit handles payments and keeps track of each payment made. This unit records details concerning the payment terms, amount, outstanding payments etc. The recently ordered items are entered into the system with the price paid and quantity sold. This unit updates the payment information of each order with the necessary relevant details.

Analysis and Design of Online Food Ordering System for GMKEATS by Chef Derin

1.2 **PROBLEM STATEMENT**

The company's existing ordering system requires customers to make orders in a fashion that is inconvenient for them, which may not be optimally suited for offering utmost customer happiness.

Furthermore, given the system's broad spectrum of business tasks, it is clear that the existing system introduces extra complexity and techniques for users who are inexperienced with these processes.

These points being reason enough, it would do the company a considerable deal to develop an online food ordering system tailored to meet the needs of the business operations carried out and designing it to be as user-convenient as possible, thereby curbing the difficulties brought about by the latter information system.

1.3 **OBJECTIVES**

(I) Design a structured ordering system, suited to business needs and customer convenience.
(II) Removal of irrelevant functions
(III) Enhance Billing system efficiency and speed.

1.4 **PROJECT SCOPE AND CONSTRAINTS**

This project is aimed at creating a subsystem utilised by ordering and billing unit~~units~~ activities. The goal is to develop a fully functional and efficient ordering and billing management system that would be as straightforward as possible, to provide better functionality for ordering and billing systems. The system would be created in a flexible way that facilitates communication with other systems, presents information in a simple format and eliminates any complexity that might have existed earlier in the previous system .

1.5 **ALTERNATIVE SOLUTIONS**

- Acquire Off-the-shelf software
- Acquire an Enterprise solutions software
- Obtain Open Source Software

- Design and build a web application system.

1.6 **SYSTEM DESCRIPTION**

The system is a working system where when a user tries to order they have to search for the whatsapp link through their social media platform(instagram or twitter). After being redirected to Whatsapp, they go through the menu and pick what they want to order. Then they talk to a representative of the ordering unit who notes down the client's order and they are billed by this same representation.The representative takes down the client’s name, phone number,order and delivery details and the system begins processing the order once payment is validated. Payment is currently being done by bank transfer and upon credit confirmation .

1.7 **FEASIBILITY ASSESSMENT**

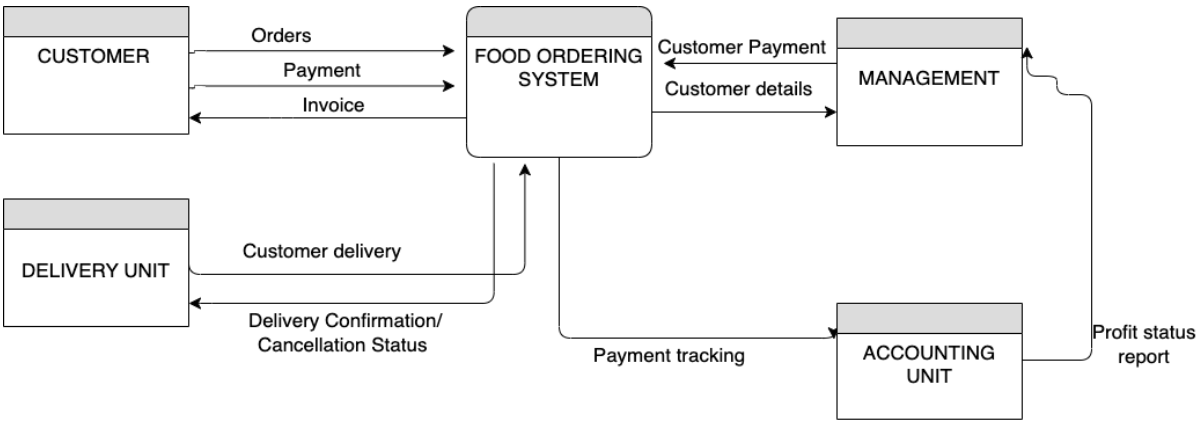
1.7.1 ECONOMIC FEASIBILITY

Items	Estimated cost (₦)
System Software	12,000
System Development	15,000
Hardware Installation	45,000
Training	10,000
Total	82,000

This level of feasibility focuses on the estimated cost for the development of this project. As it is in its current state it is cost effective for the business because the platform is free

and less expensive to manage.

CONTEXT FLOW DIAGRAM OF THE CURRENT SYSTEM



1.7.2 TECHNICAL FEASIBILITY

The requirement for the implementation of this system requires the following:

- Software requirement
- Hardware requirement
- Functional requirement(Input/output)
- Non-functional requirement

Software Requirements

The following specification is needed:
a). Operating system - any specification of Microsoft windows xp or higher
b). Interface Design - Figma, draw.io
c). Front-end - React , Typescript
d). Back-end - Java
e). Microsoft Excel for sales records.

Hardware Requirements

The following minimum hardware specification are recommended for effective operation of the newly designed system

1. Processor of at least 2 Ghz clock speed
2. RAM should be a minimum of 4gb
3. The system should have a hard disk of at least 256 SSD and CR-ROM drive
4. The monitor, keyboard, mouse and printer should also be available

The listed requirements are minimal but if there are higher versions the processing would be better and the program would run better and faster.

Functional Requirements

a. The Input - This is the information or items that would aid the processing of the order, the specifications are:
    i. Customer name
    ii. Customer phone number
    iii. Customer address(if applicable)
    iv. Order details
    v. Allergies
    vi. Quantity
b. The Output - This is the expected result from the order processing. The information carries all the data
    i. The Food
    ii. Receipt
    iii. Delivery(if applicable)

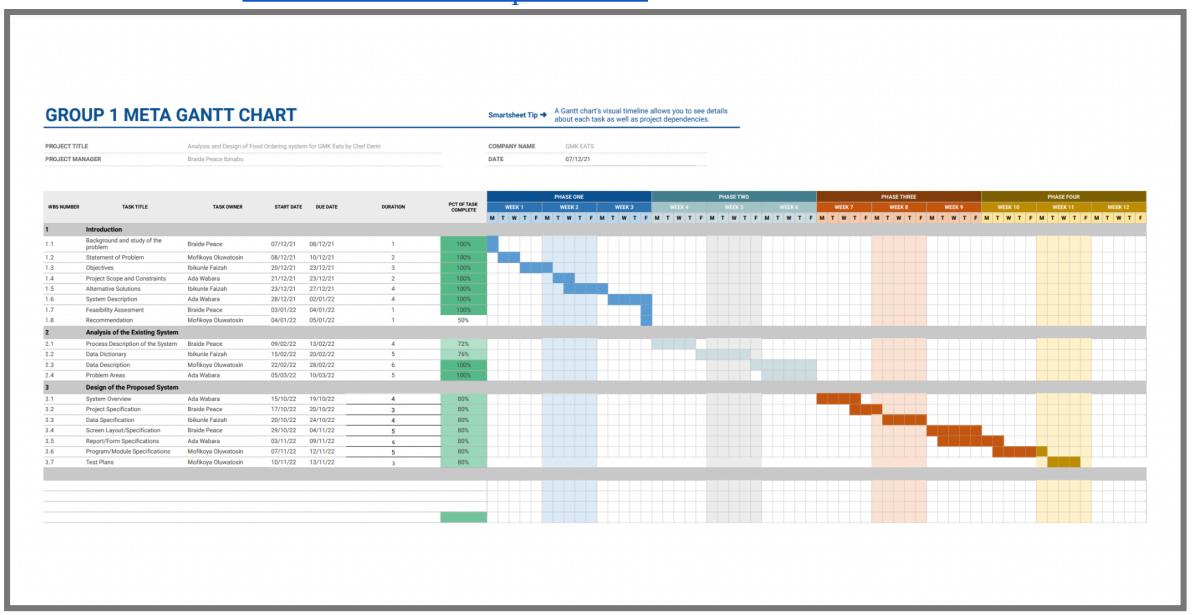
Non Functional Requirements

a. User manuals should be provided in the necessary form
b. Order Processing should be completed within seconds
c. A backup procedure is encouraged for maintenance of records

1.7.3 Schedules, Timeline and Resource Analysis

Schedule Analysis

This is the Gantt Chart for Group 1 META



Timeline Analysis

The Project Evaluation Review Technique was used to do the time analysis (PERT). PERT is a strategy that calculates the estimated time for each job throughout the development of a proposed system by using optimistic, pessimistic, and realistic time estimations.

Program Evaluation and Review Technique(PERT) Estimation

Units = WEEKS

Tasks	Optimistic(O) (weeks)	Realistic(O) (weeks)	Pessimistic(P) (weeks)	Expected Time(ET) (weeks)
1. Project Planning	1	2	3	2
2. Analysis	2	3	5	3.2
3. Design	4	4	5	4.1
TOTAL	7	9	13	9

EXPECTED TIME (ET) = (O +4R + P) / 6

Resource Analysis

This is an evaluation of the resources utilised in the course of carrying out this project. The major expenses were on data and transportation(for times when we physically met with the client). There was no monetary resource used.

Each member footed their own bills when it came to data and everyone being transported from one place to another.

Braide Ibinabo Peace - Managed and supervised all members, ensured project deadlines were met and delegated tasks to members, as well as seeing through her own tasks. A point of contact with the client.

Mofikoya Oluwatosin Ebunoluwa - Majorly saw through project documentation and implementing any designs.

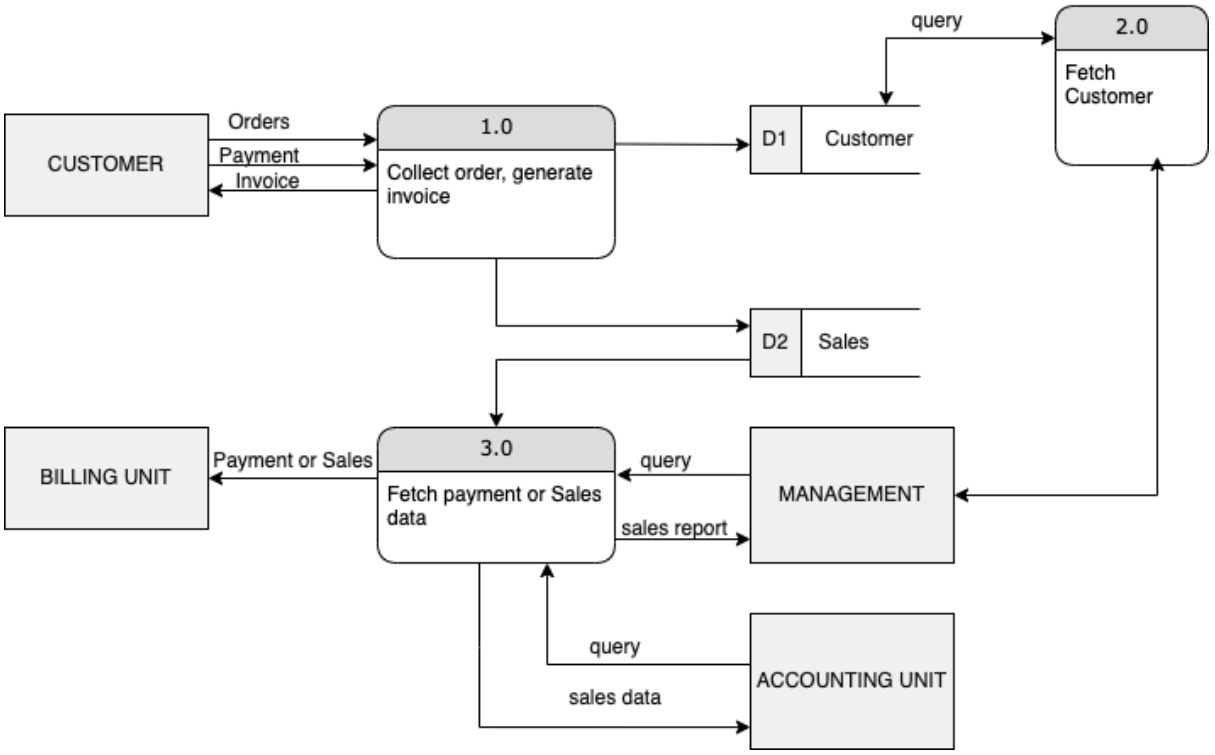
Wabara Adanma Precious - In charge of all meeting minutes, designated research of the current system.

Ibikunle Faizah Titilope - Researched on the implementation of databases through ERDs and managed logistics issues.

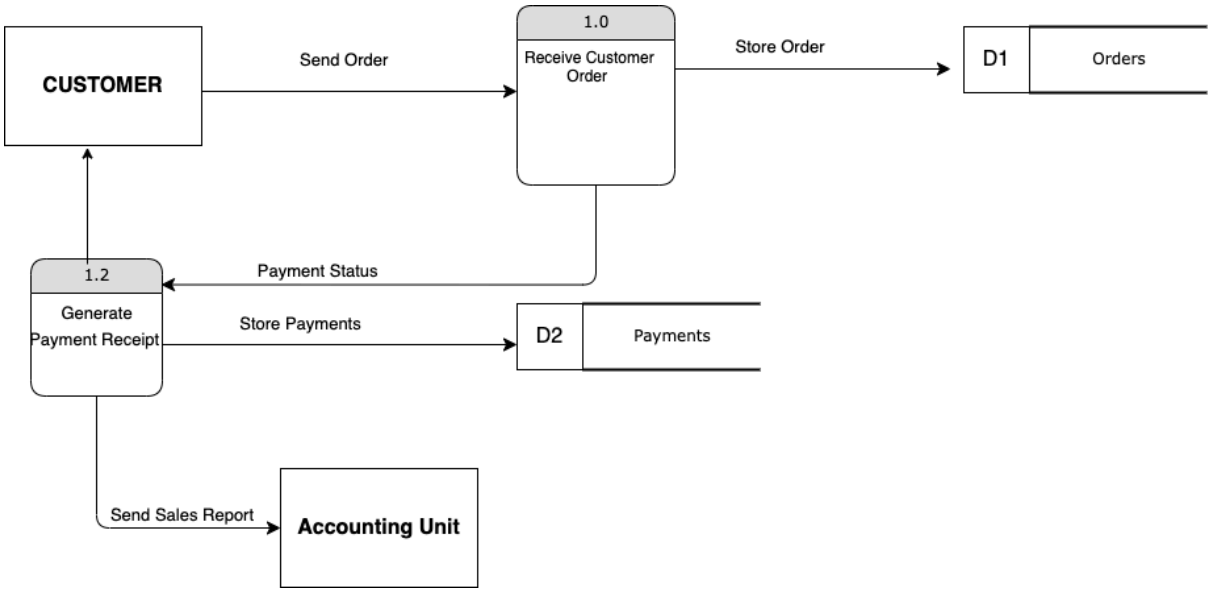
CHAPTER 2
ANALYSIS OF THE CURRENT SYSTEM

2.1 Process Description of the System (using context and DFDs)

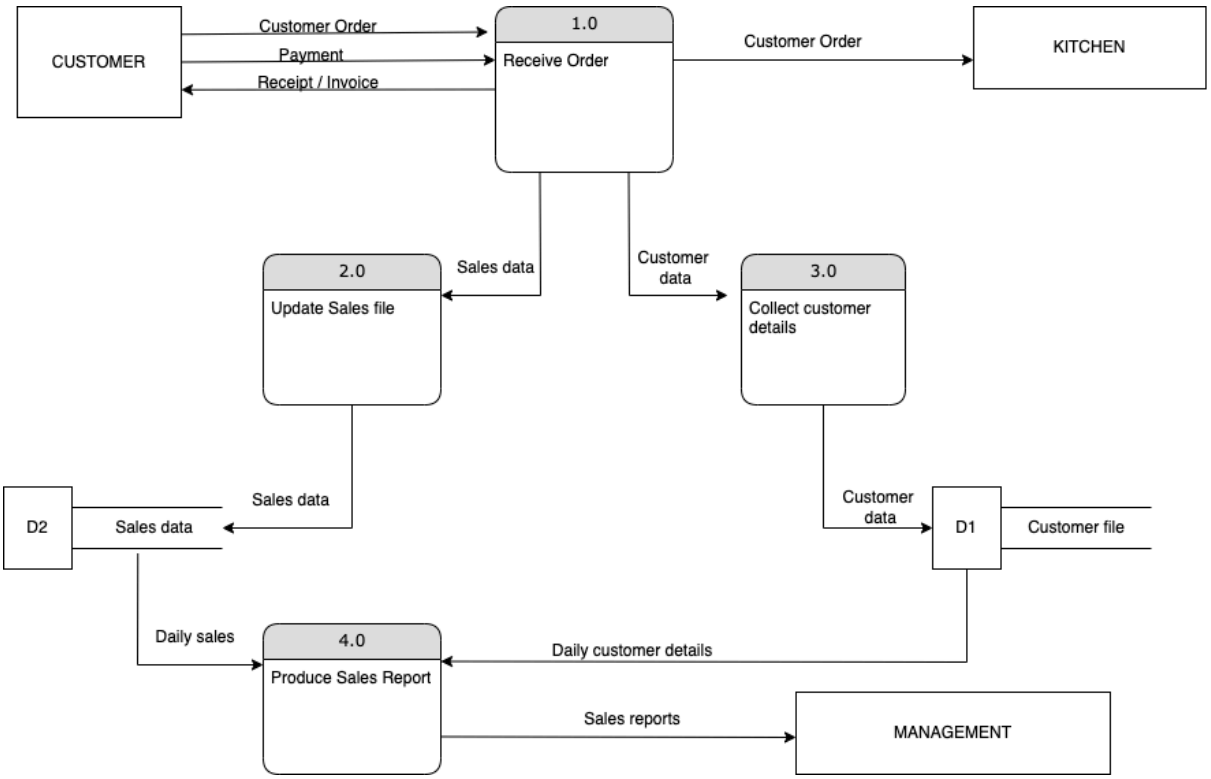
LOGICAL LEVEL 0 DFD FOOD ORDERING SYSTEM



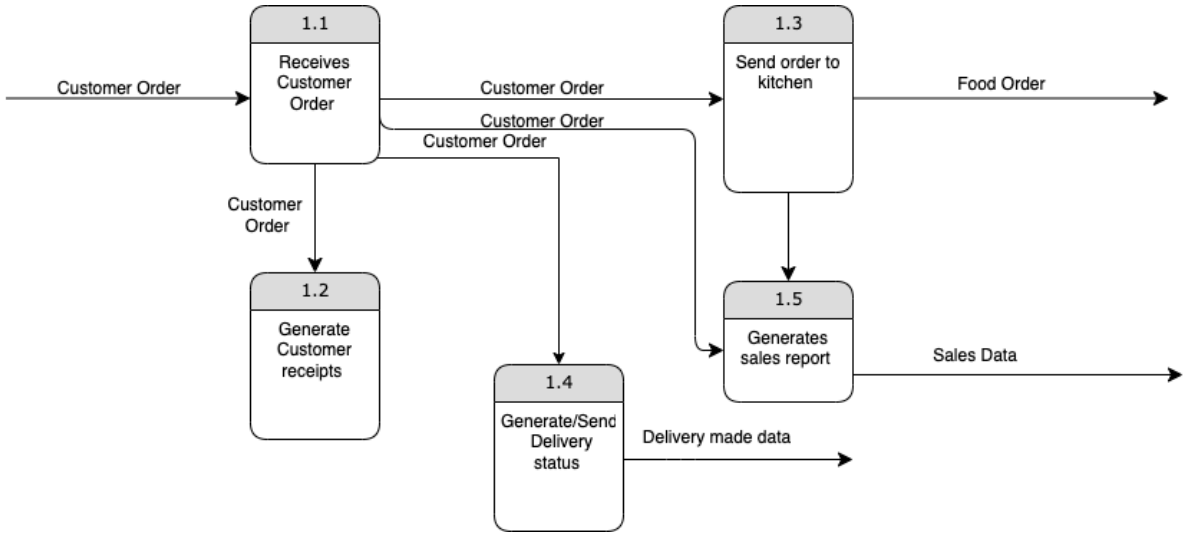
LOGICAL LEVEL 1 FOOD ORDERING SYSTEM



PHYSICAL LEVEL 0 FOOD ORDERING SYSTEM



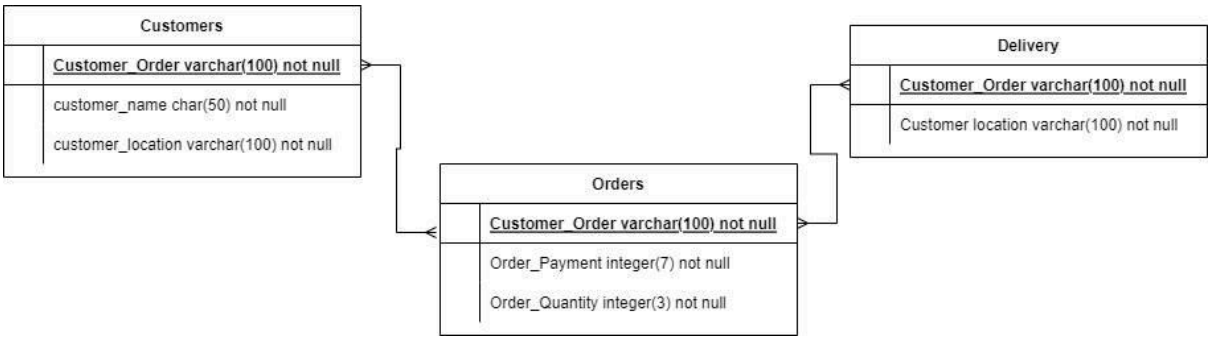
PHYSICAL LEVEL 1 DFD FOOD ORDERING SYSTEM



2.2 DATA DICTIONARY

Field Name	Data Type	Field Length	Constraint	Description		
Customer_order	Varchar	100	Not null	Order details		Customer
Customer_name	Text	50	Not null	The name of the person placing the order.		
Customer_location	Varchar	100		Order delivery location		
Field Name	Data Type	Field Length	Constraint	Description		
Customer_order	Varchar	100	Not null	Order details		Order
Order_payment	Integer	7	Not null	Total cost of the order		
Order_quantity	Integer	3	Not null	Quantity of the order		
Field Name	Data Type	Field Length	Constraint	Description		
Customer_order	Varchar	100	Not null	Order details		Delivery
Customer_location	Varchar	100	Not null	Order delivery location		
Field Name	Data Type	Field Length	Constrain	Description		

2.3 Data Description of the System (using ERDs)



2.4 PROBLEM AREAS

Having gone through the analysis stage of the modelling process and data of the current system, it would be noticed that the system has been allowing setbacks and errors, data losses and time theft. These to mention a few, are major factors that make the existing system a vulnerable and unreliable one.

Human errors during taking orders and generating or tracking payments lead to inaccurate records and unbalanced reports.

These few, summarise as a whole, many problems of the current system.

The main problems that must be highlighted as well include:

1. It would require an inordinate amount of time to train system users.
2. A lot of issues require the presence of senior staff e.g sometimes in having data consistency issue among individual units of the venture
3. The implementation is overly focused on accounting functions and not ideal for ordering and billing systems.

4. Due to the structure of the system both units have the entirety of the system setup installed whereas each unit requires only separate functionality.

CHAPTER 3
DESIGN OF PROPOSED SYSTEM

3.1 System Overview

SYSTEM OVERVIEW OF PROPOSED SYSTEM

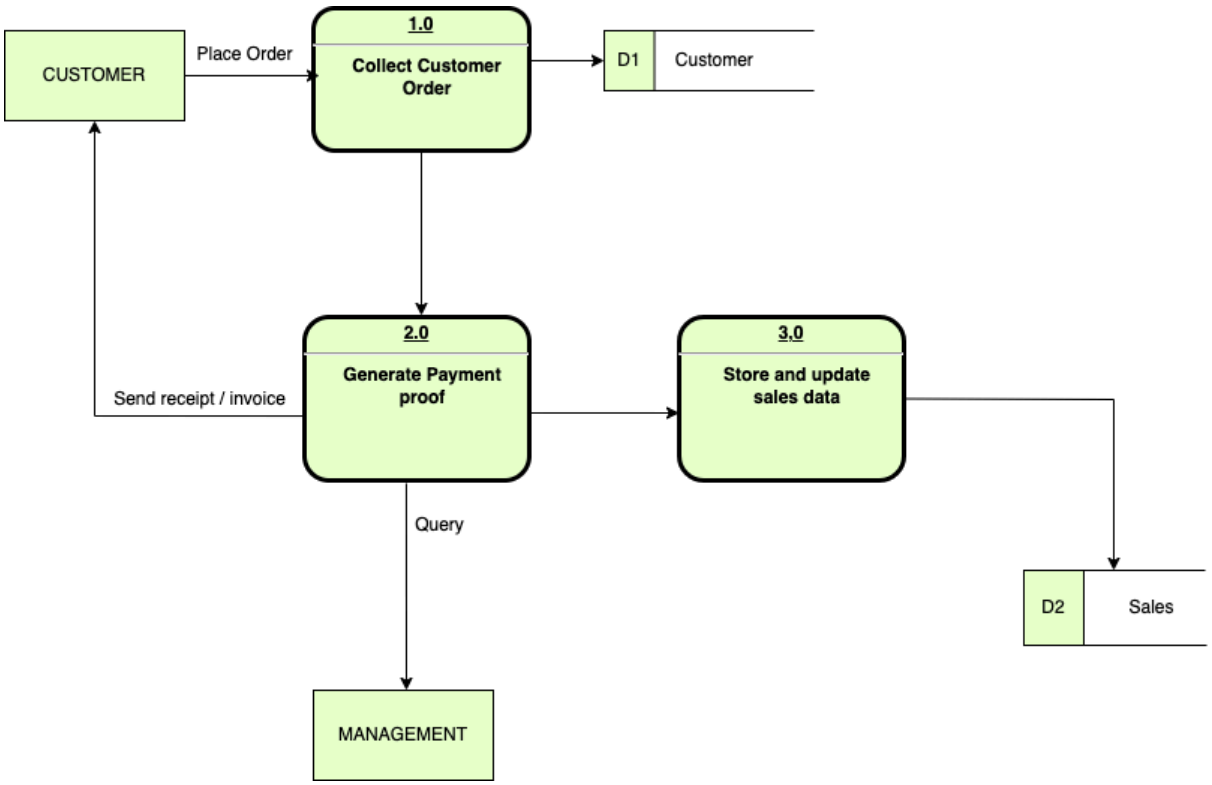
The system proposes a more defined and automatal version of the current ordering. System. In this system the customer's under is taken directly through the system interface made available through the website. The Customer's order details are stored and a bill is generated for the customer to pay before their order can be processed. On Payment confirmation, the customent order is processed and Seamlessly the customer. The system also provides an alternative option through which the customer can make their orders directly, through a call line that links directly to a customer representative.

3.2 Process Specification

3.2.1 Data Dictionary for proposed system

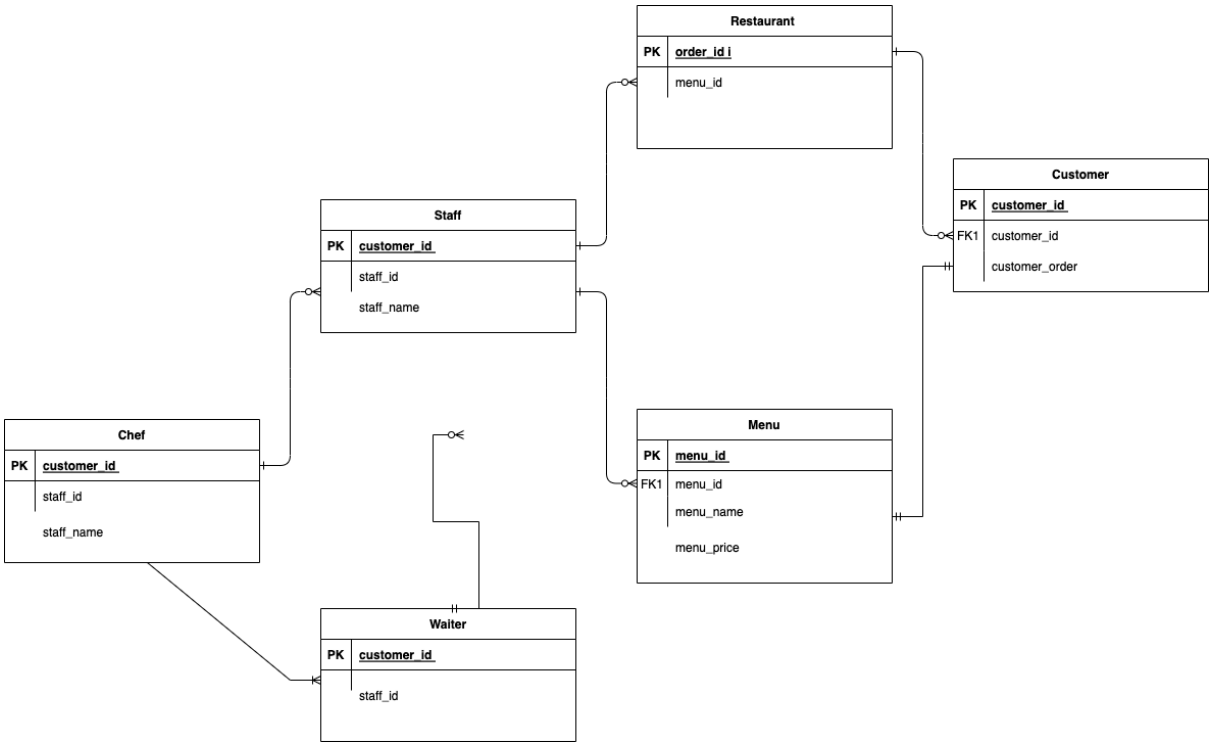
Field Name	Data Type	Field Length	Constraint	Description		
Order_id	Number	10	Primary key	Autogenerated order id		Item
Name	Varchar	30	Not null	Order name		
Order_description	Varchar	255	Not null	Short descrption of order		
Cost	Decimal	10	Not null	Order cost		
Field Name	**Data Type**	**Field Length**	**Constraint**	**Description**		
Order_id	Varchar	10	Primary key	Autogenerated order_id		Order
Name	Varchar	30	Not null	Name of vendor		
Name of company	Varchar	50	Not null	Company name		
Field Name	**Data Type**	**Field Length**	**Constraint**	**Description**		
Payment_id	Number	10	Primary key	Autogenerated payment id		Vendor
Amount	Decimal	10	Not null	Amount paid		
Date	Date		Not null	Payment date		
Field Name	**Data Type**	**Field Length**	**Constrain**	**Description**		

3.2.2 Logical DFD for proposed system



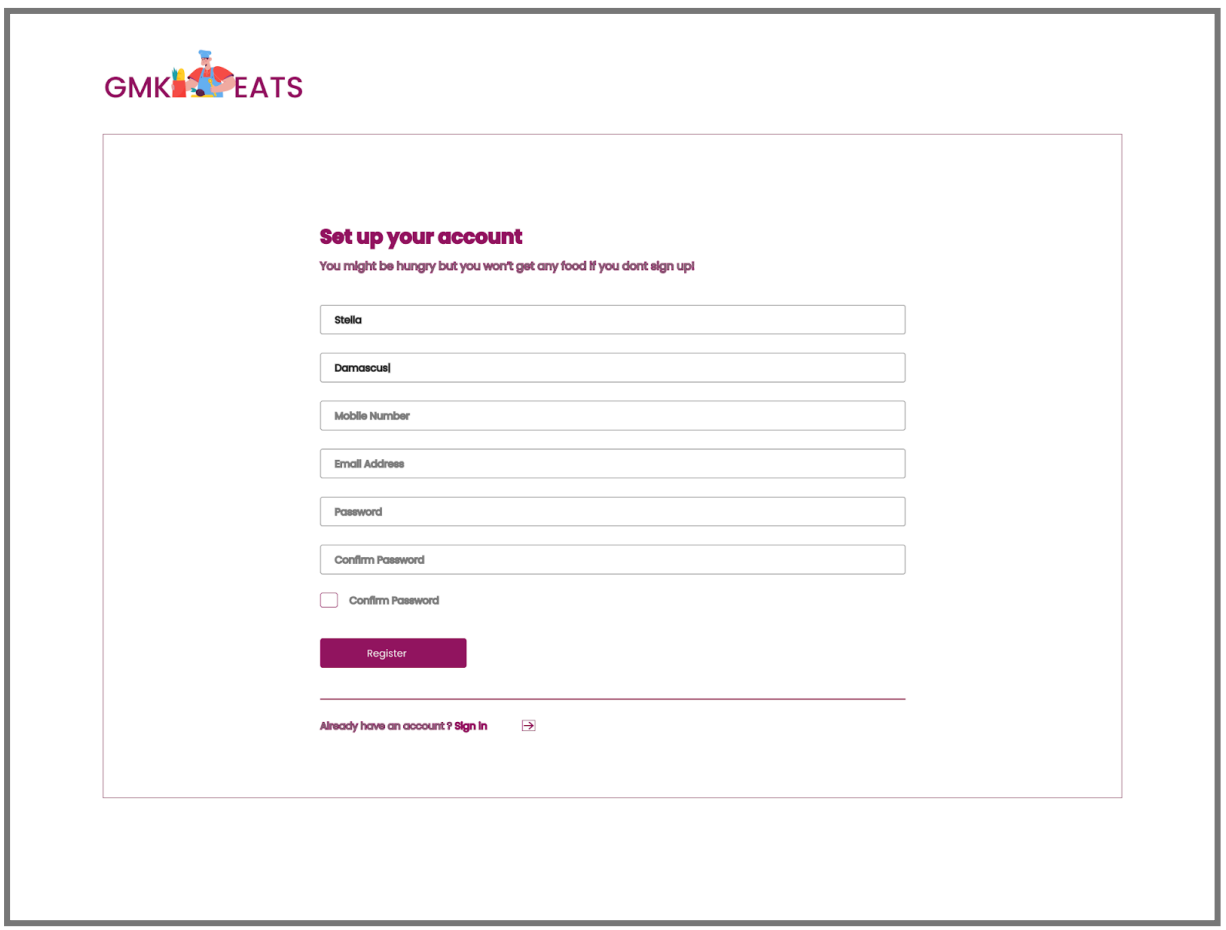
3.3 Data Specification

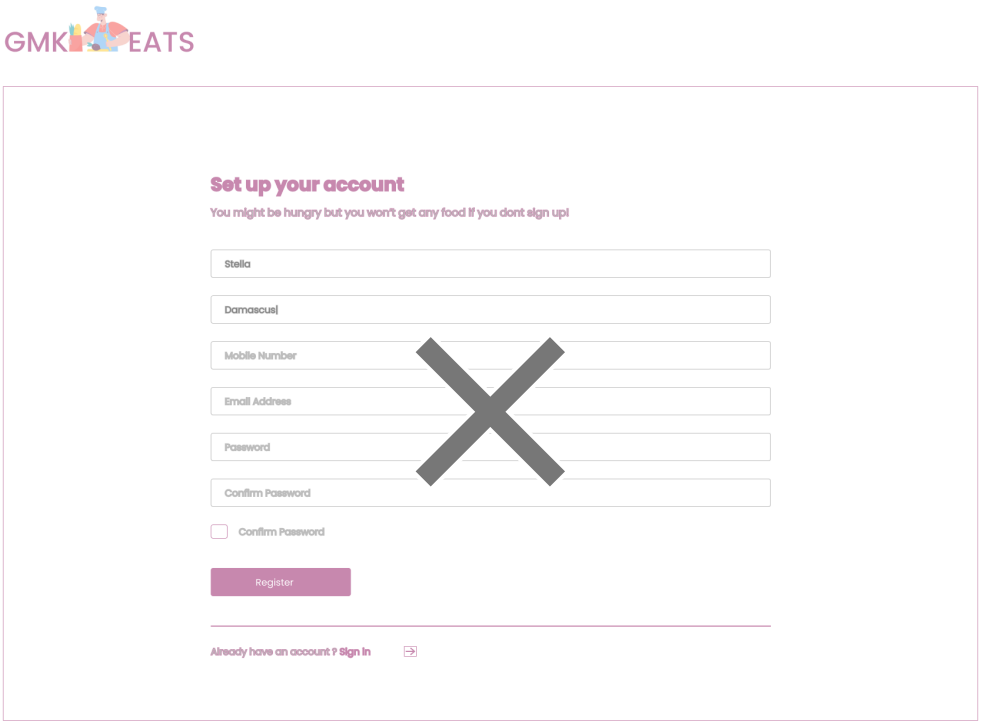
3.3.1 Entity Relationship Diagram



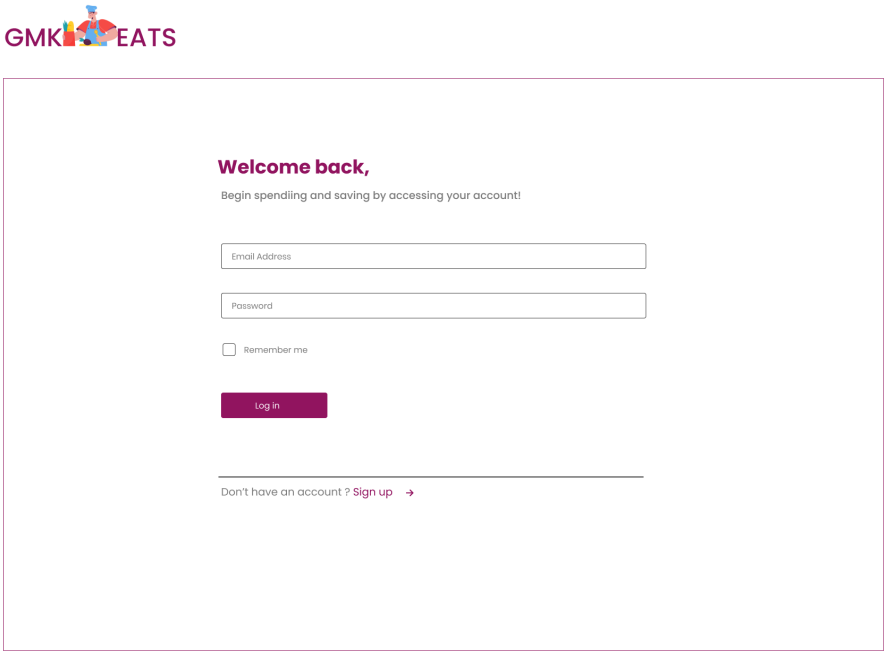
3.4 Screen Layout Specification

REGISTER

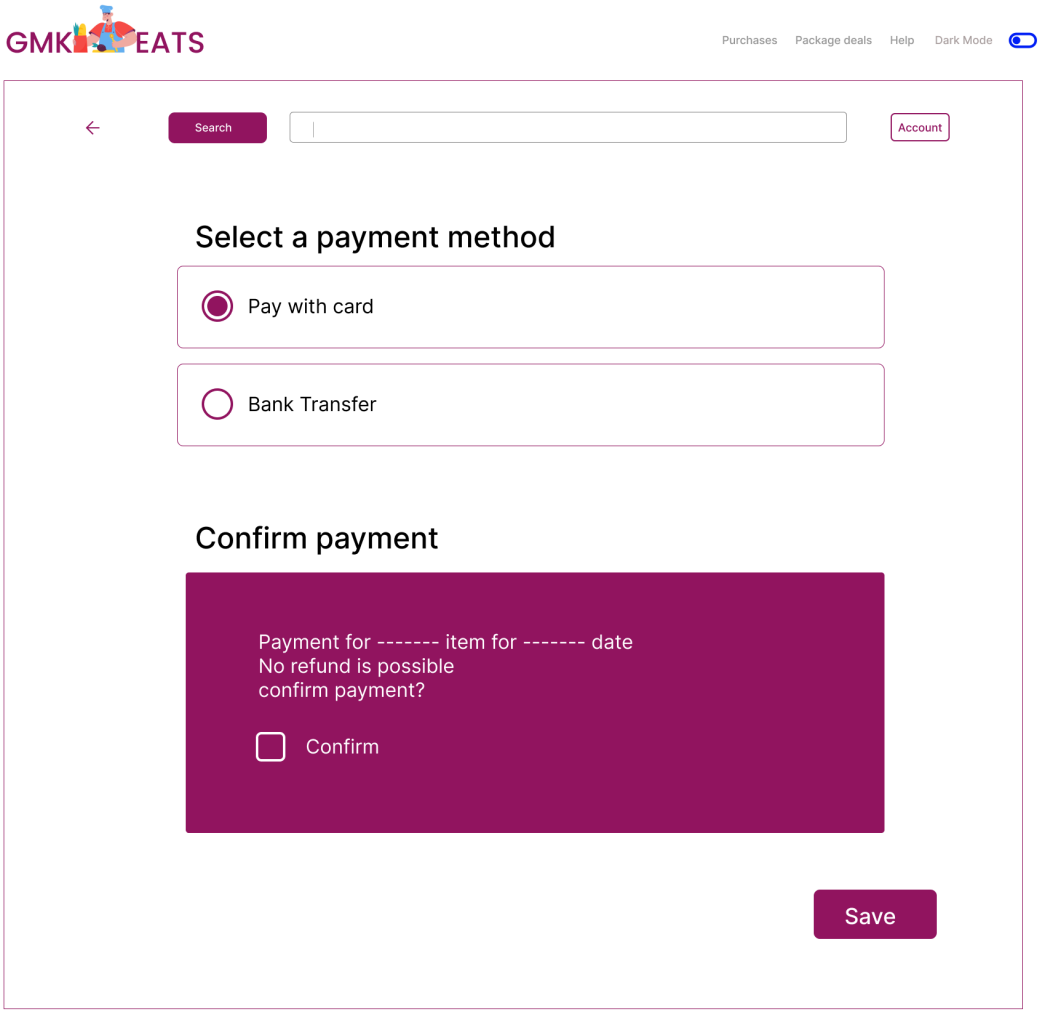

GMK EATS
Set up your account
You might be hungry but you won't get any food if you dont sign up!
Stella
Damascus|
Mobile Number
Email Address
Password
Confirm Password
Confirm Password
Register
Already have an account ? Sign in


GMK EATS
Set up your account
You might be hungry but you won't get any food if you dont sign up!
Stella
Damascus|
Mobile Number
Email Address
Password
Confirm Password
Confirm Password
Register
Already have an account ? Sign in

LOGIN



BILLING


GMK EATS
Purchases
Package deals
Help
Dark Mode
Search
Account
Select a payment method
Pay with card
Bank Transfer
Confirm payment
Payment for ------- item for ------- date
No refund is possible
confirm payment?
Confirm
Save

Transfer to the bank

Bank name: ******* bank

Account name: GMK EATS

Account number: **********

Details: Payment for ------- item for -----date

Confirm payment

Add a card

Card number

Cardholder name

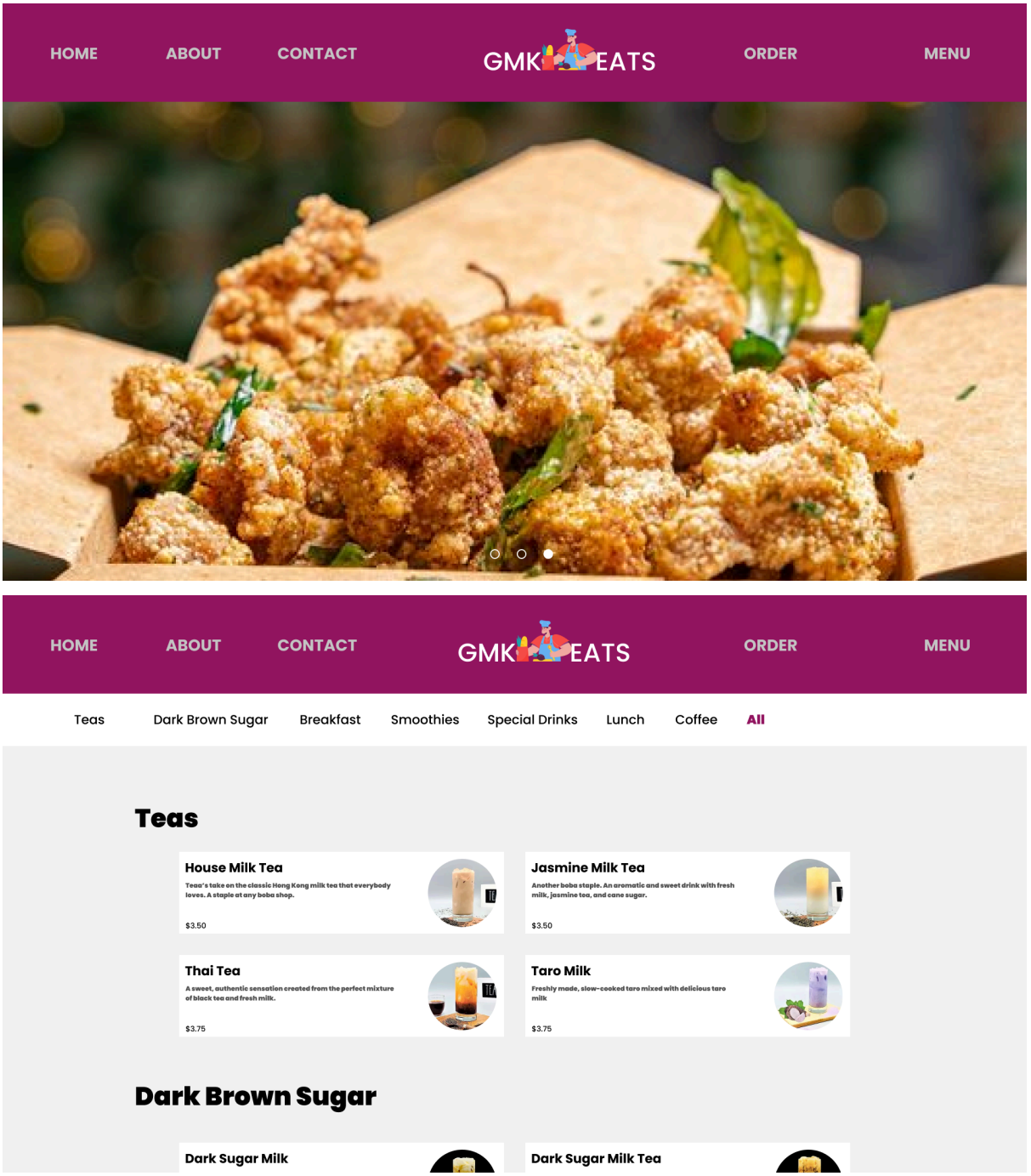
MM/YY

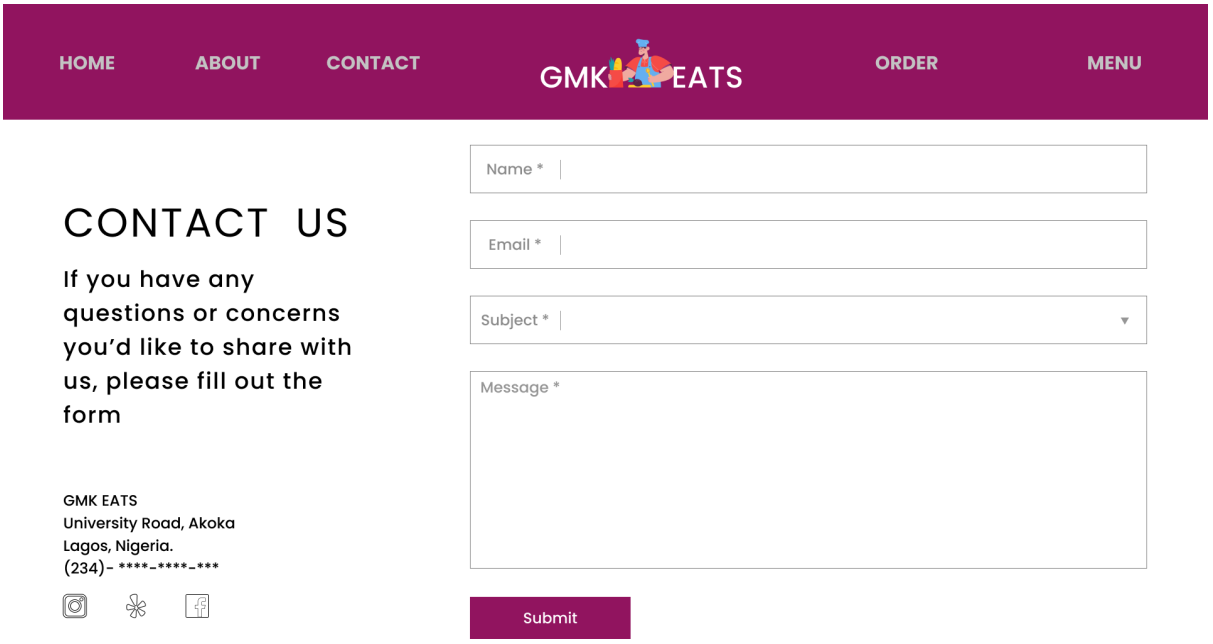
CVV

Save card details

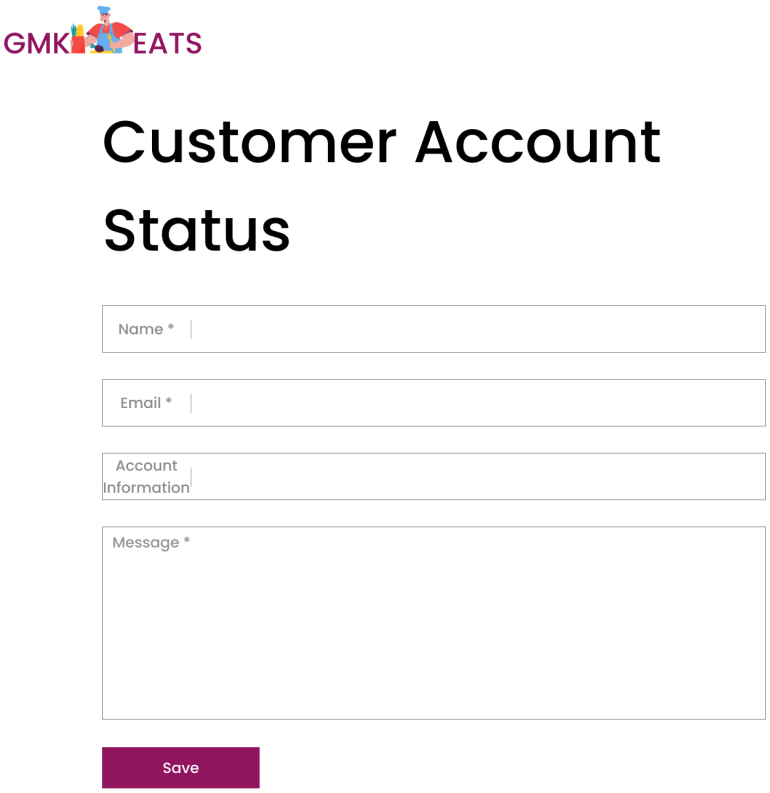
Save and Confirm

WEBSITE


HOME
ABOUT
CONTACT
GMK EATS
ORDER
MENU
HOME
ABOUT
CONTACT
GMK EATS
ORDER
MENU
Teas
Dark Brown Sugar
Breakfast
Smoothies
Special Drinks
Lunch
Coffee
All
Teas
House Milk Tea
Teaa's take on the classic Hong Kong milk tea that everybody loves. A staple at any boba shop.
$3.50
Jasmine Milk Tea
Another boba staple. An aromatic and sweet drink with fresh milk, jasmine tea, and cane sugar.
$3.50
Thai Tea
A sweet, authentic sensation created from the perfect mixture of black tea and fresh milk.
$3.75
Taro Milk
Freshly made, slow-cooked taro mixed with delicious taro milk
$3.75
Dark Brown Sugar
Dark Sugar Milk
Dark Sugar Milk Tea



3.5 Report/Form Specification



3.6 Program/Module Specification

The system has two modules, **Ordering Module** and **Billing Module.** The Ordering Module handles how the customers are able to make orders after going through the menu and this is enabled through the website's interface.

The Billing Module is the unit of the system that generates and validates payments made by customers. Once an order is made, the Billing Module sends a payment request through the system's interface and confirms that the customer's order can be processed once the payment made is validated(received).

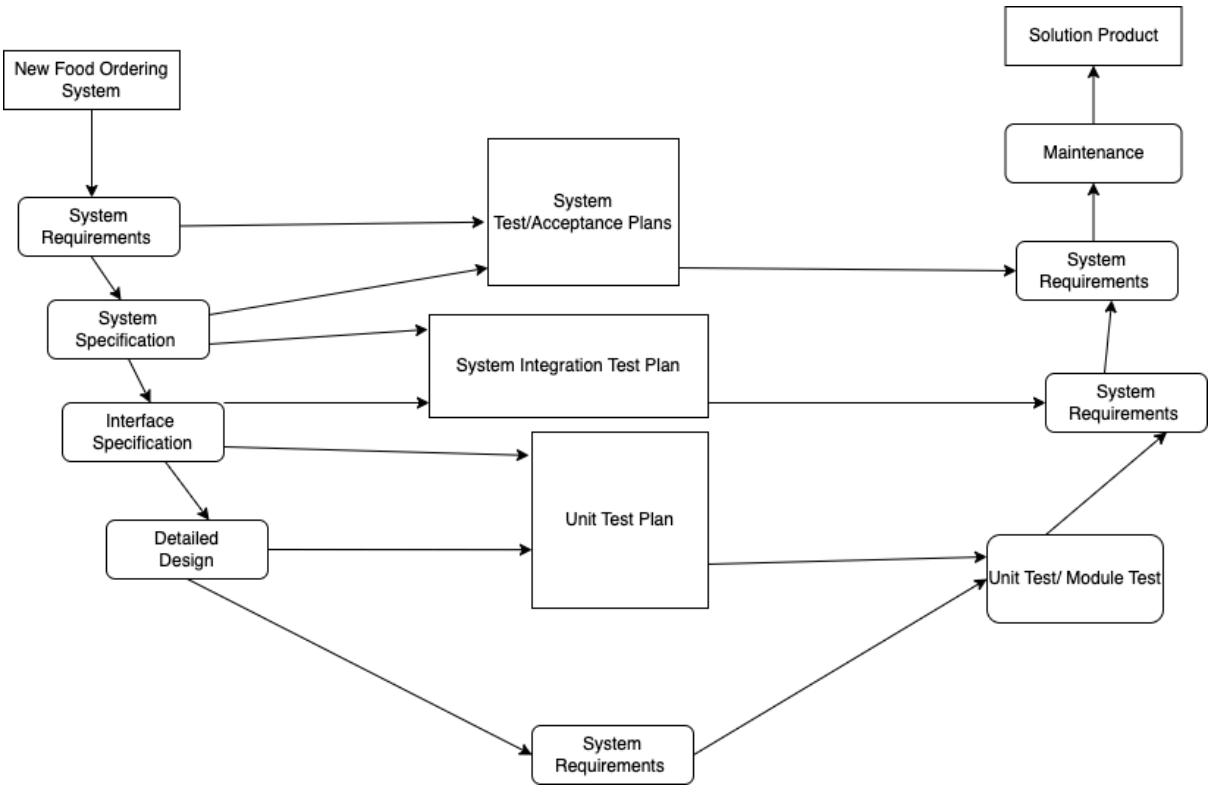
3.7 Test Plans

The plan for testing the new system are as follows

Unit Testing - All Individual methods and function of classes , testing each individual unit/piece of software of the new system

Integration Testing - We would test that all Software components and methods work together seamlessly and give expected results

Functional Testing - We would give the new System to the restaurant for a dry run to see if it meets their demands and improves their current system


New Food Ordering System
System Requirements
System Specification
Interface Specification
Detailed Design
System Test/Acceptance Plans
System Integration Test Plan
Unit Test Plan
System Requirements
Unit Test/ Module Test
System Requirements
System Requirements
Maintenance
Solution Product

CHAPTER 4
CONCLUSION

The new ordering system is a more efficient way to manage transactions with customers and eliminate formerly existing issues that occur with the old system.

For customers, interacting with an aesthetic interface would make them feel happy and considered, and also take any negative customer care reports away. Customers can place orders seamlessly and in less time, with little to no stress. This improves customer satisfaction and increases the ratings of the business.

For the Client, tracking sales and user experience is much more easily done and even more accurate than before. All burdens of improving user experience are better catered for and records of sales are effectively monitored.

Appendix:

Meeting Minutes

Online Repository

Gantt Chart

PERT TABLE

PERT