



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



DEDICATION

THIS WORK IS DEDICATED
TO MY LOVING FAMILY

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GLOSSARY

- 2TUP: Two Track Unified Process.
- AICS: African Institute of Computer Sciences.
- APK: Android Package Kit.
- DBMS : Database Management System
- GUI: Graphical User Interface
- IDE: Integrated Development environment
- IPA: iOS App Store Package.
- JSON: JavaScript Object Notation
- MVC: Model View Controller.
- UML: Unified Modelling Language.
- USB: Universal Serial Bus
- VPS: Virtual Private Server

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ABSTRACT

Nowadays, Agriculture plays an important role in the economic development of our beloved country since the buying and selling of agricultural products is one of the major commercial activities that is performed in the country. In order to make a high number of sales farmers search for all type of methods or measures to sell their goods rapidly and easily. To help farmers to sell out their goods easily, we came out with the idea of implementing a **Farmer Market Place** mobile app. This web application is meant to help farmers sell their goods and help buyers to buy fresh foodstuffs easily . This therefore appears as a solution to facilitate agricultural commerce and farmers. In order to accomplish this project, we used UML (Unified Modelling Language) as our modelling language coupled with 2TUP (2 Track Unified Process) in order to form a method as well as FLUTTER, Node JS, and JAVASCRIPT languages.

KEYWORDS

- ◆ AGRICULTURE
- ◆ COMMERCE
- ◆ ECONOMIC
- ◆ FARMER
- ◆ UML
- ◆ FLUTTER
- ◆ MARKET

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RESUME

De nos jours, l'Agriculture joue un rôle important dans la croissance économique de notre pays. Les cultivateurs usent de plus en plus de stratégies spéciales pour pouvoir vendre leurs produits frais aisément. Vu que les vivres frais cultivés sont difficiles à vendre aisément, nous avons décidé d'implémenter une application mobile de vente de produits frais qui permettra aux fermiers de liquider les vivres qu'ils ont récoltés rapidement juste en un click et il permettra aussi aux clients d'acheter leurs produits rapidement en toute sécurité. Pour réaliser ce projet, nous avons utilisé FLUTTER, et JAVASCRIPT ainsi que la méthode Agile et le langage UML pour concevoir et gérer le cycle de vie du logiciel.

Mots-clés

- ◆ AGRICULTURE
- ◆ FERMIER
- ◆ VIVRES FRAIS
- ◆ UML
- ◆ FLUTTER
- ◆ CULTIVES

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GENERAL INTRODUCTION

Technology is advancing at an incredible rate, spreading into almost every sectors of the world, that is from agriculture to education and many other sectors. Due to a fast technological advancement, living facilities have become more reachable . As a developing country, most Agricultural sectors in Cameroon work to make use of the advantages of the digital economy to grow their businesses thereby boosting the economy as well. To achieve such a goal enterprise, need qualified personnel having skills in computer sciences and related fields. Third year students at AICS Cameroon, are required to provide an end of year personal project as part of their IT training which will permit them to become their own boss tomorrow. Our project consist of developing a mobile application for **Farmer Market Place** . To carry out this project, we used JAVA, FLUTTER, and JAVASCRIPT languages, as well as the Agile method and the UML language to design and manage the software life cycle. Our theme is entitled “**CONCEPTION AND REALISATION OF A FARMER MARKET PLACE APPLICATION**”. We divided this report into a phase and seven files which are as follows:

1. **Technical phase:** it present the evolution of our project, that is from the study of the existing system to the testing of the application.

a. **Existing System file:** it presents the already existing system which we studied.

b. **Specification Book file:** In this book, we specify the needs of the user taking into considerations the time and cost of the project.

c. **Analysis file:** Here, we shall present the analysis method chosen together with the presentation of all the diagrams used for the analysis of this project.

d. **Conception file:** This presents the generic and detailed conception of the project .

e. **The deployment file:** This phase will permit us to visualize the implementation process of the solution.

f. **Test of functionalities:** this phase shall present the different functionalities or modules of the application and how they work.

g. **The User Guide:** This elaborates on all conditions necessary to use the application and how to use it.

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PART I : TECHNICAL PHASE

Preamble :

This phase will focus precisely on our work and its development that is from the analysis to the testing of our work. We are going to focus on six specific files.

PLAN

INTRODUCTION

- ✧ FILE I: THE EXISTING SYSTEM
- ✧ FILE II: THE SPECIFICATION BOOK
- ✧ FILE III: THE ANALYSIS FILE
- ✧ FILE IV: THE CONCEPTION FILE
- ✧ FILE V: THE DEPLOYMENT FILE
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CONCLUSION



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INTRODUCTION

In this part of our document, we are going to give more importance to our work, that is, all the exhaustive and detailed investigation, including the needful data collected on the existing system of our work which was made in order to gain good ideas on how to implement our application. Here we are going to present the existing system, make the analysis of our project and present the application at the end followed by a conclusion.



FILE I : THE EXISTING SYSTEM

Preamble:

Presenting the existing system is one of the bases of our work. This system is going to be the subject of our study. All works or projects in IT are always implemented to ameliorate it's existing system in order to make it's usage more easy for the population.

PLAN

INTRODUCTION

I. PRESENTATION OF THE THEME OR PROJECT

II. STUDY OF THE EXISTING SYSTEM

III. CRITICISM OF THE EXISTING SYSTEM

IV. PROBLEMATIC

V. POSSIBLE SOLUTIONS

CONCLUSION



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INTRODUCTION

This file is going to present and study the existing system of our project by analyzing it. To better understand why we took this particular system, we are going to present our theme. This file will help us give us detailed information on the existing system, its benefits, usage, way of functioning and also its defaults. In this file, it will be needed for us to present our project, make an analysis on the existing system by criticizing it and bringing out its problems and solutions.



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I. PRESENTATION OF THE THEME

Agricultural products like vegetables and fruits are counted among the commercial products that are highly needed and sold. The population of a country depend mostly on agricultural products to survive. Since farmers are the ones cultivating and selling those fruits and crops, we decided to CONCEPTUALISE AND REALISE A FARMER MARKET PLACE APP which will permit farmers to easily sell their products. This app will also permit buyers to rapidly buy foodstuffs. .

This app will permit people or users to stop going on long distances to buy or sell agricultural products. The app will permit farmers to easily purchase and sell their foodstuffs and also making the promotion of their goods . At the end of the day, farmers will gain enough money needed for the growth of their farms and for their personal needs .

The idea behind our theme which is « CONCEPTION AND REALISATION OF A FARMER MARKET PLACE APP» is the help farmer to rapidly sell their products .



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II. STUDY OF THE EXISTING SYSTEM

The cultivation, and commerce of crops is a business done by farmers to earn their living and become prosperous in the economic sector of Cameroon. Presently in Cameroon many Farmers have to sell their cultivated crops and in order to do so , they make use of different methods. In the following lines, the different steps made by farmers to sell their products.

Farmer use the following way to sell their crops in Cameroon;

- ✧ Firstly, when they finish their cultivation, they take the cultivated crops to the market to sell them .
- ✧ Secondly, some farmers are contacted by wholesalers to whom they sell the goods.
- ✧ Again, other farmers simply make business contracts with big firms in order to sell them their crops when the latter is cultivated.
- ✧ Also, some farmers simply open shops beside their houses to sell crops .
- ✧ In the same order , some farmer walk from place to place to sell their products.
- ✧ To conclude, some farmers go to sellers to delivers crops for them to sell. They become wholesalers.

After performing some of the above methods to sell their vegetables and fruits, some farmers end up making profit and others become bankrupt due to selling on credit or to make no sales at all.

III. CRITICISM OF THE EXISTING SYSTEM

Since not every action made by man on earth is completely perfect, after making a complete study of way individuals learn their dialect, we came out with many inconveniences which are going to be presented in the following lines.

Table 1: Limitations, Consequence and proposed solution

LIMITATIONS	CONSEQUENCE	PROPOSE SOLUTION
Some farmers have to pay transport to go to the market to sell their products.	- They will lost money in the cost of transport payment.	- Implement a platform that will permit farmers to rapidly sell their products without having to pay transport .
Huge taxes for market places are given to farmers who have shops in the market to sell crops.	- They have to pay rent each month for them to stay in their shops and if they don't have enough money, they may lost their shop.	- setting up selling App that those not require renting shops to sell foodstuffs.
Some farmers never get money after selling goods on credits to customers.	- They end up bankrupt without any money to invest in their farm for the next agricultural season.	- Creating an app which will permit to get their money before giving out the products.
Cost of transport to go and deliver goods to clients is very high .	Farmers may use a large party of their money on delivery transport .	Developing a platform that will permit individuals to obtain their goods without the farmer having to spend money.
The search for customers to sell their products i not an easy task	As a result, farmers waist a lot of time to get clients that will buy their crops.	Developing a platform in which buyers will register in order to buy foodstuffs.



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IV. PROBLEMATIC

The above criticism performed has permitted us to have a great understanding of the on going ways used by farmers to sell foodstuffs in cameroon thereby bringing the problem of : HOW TO FACILITATE THE SALES OF FARMER'S FOODSTUFFS?.

V. SOLUTIONS

To solve the above problem, we decided to implement an application that will permit farmers to sell their goods and help buyers to buy them easily. The application will permit them to have a payment API the will make financial procedures easily.

CONCLUSION

To conclude, we can say that the existing system is important for the realization of our work since it gives us an idea on what to do and not to do while implementing the application. The existing system plays a great role in our work as it shows us all the different functionalities to implement in our project. It shows us what is to ameliorate.



FILE II : THE SPECIFICATION BOOK

Preamble :

The specification book is the part of the document that gives the relative directives of the product to be conceived and delivered. It carries the set of steps and procedures permitting to understand and define the work to be realized and what the client is expecting from the software.

Plan

INTRODUCTION

- I. CONTEXT AND JUSTIFICATION OF THE PROJECT
- II. OBJECTIVES OF THE PROJECT
- III. THE EXPRESSIONS OF NEED SPECIFICATION
- IV. THE PROJECT PLANNING
- V. THE COST ESTIMATION OF THE PROJECT
- VI. THE PROJECT'S CONSTRAINTS
- VII. THE LIVRABLES

CONCLUSION



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INTRODUCTION

The specification book permits to specify the expectations of the customer as well as the standards that will govern the project for a good, smooth, precise and concrete project. It establishes a certain agreement between the client of the project and the person realizing the project. It presents the objectives and needs of the system to be developed. The present specification book refers to the context and justification, the needs of the project, the plan and deliverable.



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I. CONTEXT AND JUSTIFICATION OF THE PROJECT

A. CONTEXT

The more time passes, the buying and selling of goods more especially foodstuffs is really important for man's survival. Farmers make use of many ways to sell out their products either as wholesalers or small sellers. Farmers either sell their products in markets or to enterprises. Farmers face a lot of difficulties in order to sell the foodstuff they cultivated. Some end up bankrupt or making lost since they make sales on credit and never get their money back.

B. JUSTIFICATION

As part IT training, we are to provide an end of year personal project that will help us to solve a societal problem and respect the motto **one student, one project, one enterprise.**

As a result of this, we decided to promote economic activities and make the farmers to sell foodstuffs easily just by being online. IT has shown itself innovative and competent in the handling of many economical problems. The implementation of a **Farmer Market Place Mobile application** will greatly help them to make profit.

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II. OBJECTIVES OF THE PROJECT

A. GENERAL OBJECTIVE

The main objectives of this project is to digitalize the commercialization of agricultural products and foodstuffs. This is going to be done by creating a web application that will function 24/7.

B. SPECIFIC OBJECTIVES

The specific objectives of our project are as followed;

- ✧ Firstly, the application will permit farmers to sell goods online.
- ✧ Secondly, consumers will be able to buy foodstuffs online.
- ✧ Also, delivery agent will know where to deliver goods via the App.
- ✧ Again, Farmers can publish and purchase their goods via the app.
- ✧ In the same order, consumers can buy their goods online and farmers can also get their money online.
- ✧ Finally, every user must be able to receive notifications about the evolution of their activities online.

The project has the following characteristics;

- ✧ Project Name: AGRILINK
- ✧ Project target: Farmers and Consumers.
- ✧ Technical specifications: Mobile Application.



III. THE EXPRESSIONS OF NEED SPECIFICATION

A. TECHNICAL CHOICES

The constant improvement of Technology in the world makes it essential for individual to familiarize themselves and make use of these new technologies to become efficient and effective in solving most of their societal or day to day problems. The principal technologies used include:

- ✧ The object-oriented modelling with UML.
- ✧ The 3-tier architecture with DBMS.
- ✧ The use of mobile development language.

B. FUNCTIONAL NEEDS

This part is required to present the need our application is going to answer to. Our application must permit all users of the system to have the functionalities listed below at their disposal. In order words, functional needs are the different actions which a user performs on a system. Functional needs differ according to the status of the user as seen below:

- ✧ **The End User and Customers** can;
 - View home page
 - Edit account Details
 - Create an account.
 - View Orders
 - Track Orders
 - Make Feedback interactions
 - Receive Notifications
- ✧ **The Farmer** can;
 - Authenticate
 - Purchase and Sell Products
 - Confirm Orders
 - Manage Products
 - View and Receive Notifications



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✧ **The Delivery Agent** can;

- Performs have the Same functionalities as the end user.
- Update Delivery Status

✧ **The Administrator** can;

- Authenticate.
- Send Notifications
- Manage all User's Account
- Handle Feedback
- Set Policies
- Oversee Transactions

C. NON-FUNCTIONAL NEEDS

These are a set of specifications that describe the system's capabilities and constraints. These are basically the requirements that outline how well the system operates. These are the attributes or characteristics which the system must have. They are as followed;

- ✧ **Accessibility:** the application must be accessible by everybody wishing to use it.
- ✧ **Scalability:** the system should handles an increase in users or workload
- ✧ **Usability:** the system should be easy to use.
- ✧ **Performance:** there should be a good and fast the system respond to requests.
- ✧ **Security:** the system must be secured and have a good protection.
- ✧ **Reliability:** the system must function coherently and have truthful information.
- ✧ **Availability:** the system must be available to all.
- ✧ **Ergonomy:** the system's platform should be well designed in order to ease the user's usage of the platform.
- ✧ **Portability:** it can easily be portable.
- ✧ The code should be clear and facilitate future development and improvements

Due to time and resources constraints, our application will mainly focus on its usability.



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IV. THE PROJECT PLANNING

The planning of a project is an activity that consists of determining the tasks performed and putting them in order by presenting them in intervals of time. We will present the Gantt diagram of our project and its table form.

Table 2: project's plan

NAME	OBJECTIVE	OUTCOME	ACTORS	DURATION
SPECIFICATION BOOK	Specification of user needs and giving the objectives and constraints of our project.	SPECIFICATION BOOK	- ZALI NDA	15 DAYS
EXISTING SYSTEM	Presenting the system existing, study and criticize it.	EXISTING SYSTEM FILE	- ZALI NDA	10 DAYS
ANALYSIS	Presentation of behavioral diagrams and comparative study of UML and MERISE.	ANALYSIS FILE	- ZALI NDA	24 DAYS
CONCEPTION	Preliminary and detailed conception	CONCEPTION FILE	- ZALI NDA	30 DAYS
DEPLOYMENT	Development and some diagrams	DEPLOYMENT FILE	- ZALI NDA	15 DAYS
TESTING	Unitary Testing	TESTING FILE	- ZALI NDA	10 DAYS
USER GUIDE AND INSTALLATION	Steps to follow	FILE OF GUIDANCE AND INSTALLATION	- ZALI NDA	5 DAYS



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GANTT Project

The GANTT project software is one of the efficient tools to present the various projects tasks, their dates and the order in which they should be.

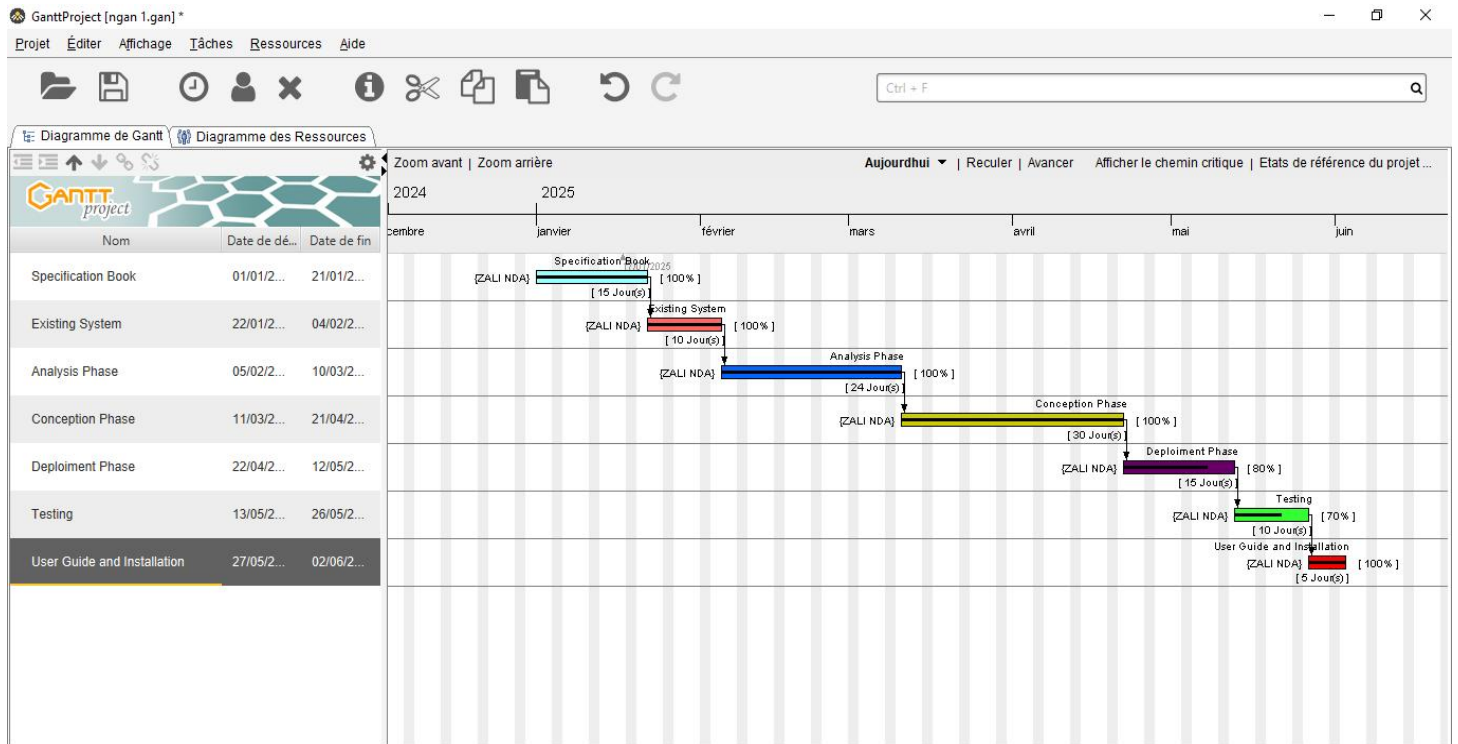


Figure 1: GANTT PROJECT



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V. THE COST ESTIMATION OF THE PROJECT

The material needed for the realization of the project must have a precise financial evaluation and handwork. Their different prices are being referred from the Mercurial 2024 application.

a. Hardware Resources

It will be wise for the development of our project to have the material resources below:

Table 3: Hardware resources Source: Mercurial 2024

NO	NAME	REFERENCE NO	USAGE	QTY	Unit Price	COST (FCFA)
1	Laptop (HP)	--	Work space for users	1	210 000	210 000
2	USB Key (Flash Drive) 4GB	01-003-200017	For storage	1	6900	6900
3	Realm of Paper	31- 004-140017	Print hard copy	1	14 375	14 375
5	HP laserjet Printer	37-011-140018	Print hard copy reports	1	105 800	105 800
6	HP Wired Mouse	01-007-200225	To better work on laptop	1	5900	5900
7	USB Cable 2.0	01.007.200185	transport documents into phones	1	2300	2300
TOTAL						345.275Frs

b. Software Resources

Table 4: Software Resources

Source: site officiel de chaque logiciel

SOFTWARE	DESCRIPTION	QTY	PRICE
Windows 10 version	Operating system made by Microsoft	1	100 000
Visual Studio Code	Test editor used to write down code	1	FREWARE
Laragon	Local server used to implement Mysql queries	1	FREWARE
WPS	Typing software	1	FREWARE
Gantt Project	Software used to manage project time and planning	1	FREWARE
Power AMC Version 15	Software used for diagram modeling	1	20 000
Google Chrome and Microsoft Edge	Web browsers used to launch and test applications	1	FREWARE
Anti virus 365	Protect computers against viruses	1	FREWARE
TOTAL			120 000 FCFA



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c. Human Resources

For a good realization and setting up of our project, it is wise to make an estimate in terms of manpower.

Table 5: Human Resources

Source: Mercurial 2022

ACTORS	NUMBER	DURATION (DAYS)	PAYMENT PER MONTH	TOTAL AMOUNT
Project Manager	1	10	300 000 FCFA	300 000 FCFA
Analyst	2	30	250 000 FCFA	500 000 FCFA
Designer	1	30	100 000 FCFA	100 000 FCFA
Database Manager	1	40	300 000 FCFA	350 000 FCFA
Developers	2	30	250 000 FCFA	500 000 FCFA
TOTAL	7		1 200 000 FCFA	1 750 000 FCFA

d. Global Estimation of the Project

Table 6: Global cost of the project

TYPES	PRICE
Hardware Resources	345 275 FCFA
Software Resources	120 000 FCFA
Human Resources	1 750 000 FCFA
Total	3 115 275 FCFA
Unexpected charges (10%)	600 000 FCFA
TOTAL	3 615 275 FCFA

After the evaluation of the budget of conception, realization, transfer of competence, software and material usage, we can estimate the total cost of the project at **3 615 275 FCFA**



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VI. THE PROJECT'S CONSTRAINTS

1. **COST CONSTRAINT:** to complete the conception and realization of our work, a huge amount of money which we don't have is needed.
2. **CRITERION OF ACCEPTANCE:** there are many functionalities which will not be implemented on our project making it to be partially acceptable.

VII. THE DELIVRABLES

At the end of this Academic Year , we must present the following;

- ✧ **A DEFENSE REPORT** having;
 - A study of the existing system
 - The user's guide
 - The installation guide
 - The conception and realization of the project.
- ✧ **AN APPLICATION**

CONCLUSION

The specific book presents the planning of our work, the different tasks performed and their duration. It gives us an estimation of the cost of our project by giving the price of all the human, software and hardware resources use in the project realization.

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FILE III : THE ANALYSIS FILE

Preamble

The analysis file presents us the different modeling methods that exist, thereby making a comparative study of them and presenting some diagrams according to the modeling language chosen.

Plan

INTRODUCTION

I. METHODOLOGIE

A- Comparative Study of UML and MERISE

B- Choice of Method Used

C- Comparative Study of unified processes

II. MODELING

1) Use Case Diagram

2) Communication Diagram

3) Sequence Diagram

4) Activity Diagram

CONCLUSION



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INTRODUCTION

The analysis and design of information systems has most of the time vocation to allow the creation of databases, which must represent as closely as possible the reality of the field studied thus requiring the use of a design method. This is why our choice will be directed on UML method as it offers much to developers seeking for a user-centered approach and or wide scope in design. This part of the report includes the presentation of the UML and the 2TUP methodology and finally the various diagrams that meet the functional need requirements.



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I. PRESENTATION OF THE ANALYSIS METHODOLOGY

A. COMPARATIVE STUDY OF UML AND MERISE

UML and MERISE are two modeling methods used in the software development domain. Despite the fact that they have many similarities, there also exist many differences between them.

UML(Unified Modelling Language) is an object oriented modelling language which helps to present different concepts, relations and behaviour of a software system. It is used to present static and dynamic aspects of a system and it's technical specifications. It was born from the merge of the dominant object modelling languages namely OMT of James Ram Baugh, OOSE of Grady Booch and Ivar Jacobson.

MERISE (Methode d'Enseignement et de Realisation Informatique de Systèmes en Entreprise) is a method use to build automated (computerized) information system which is efficient, flexible and adapted to the organization. Like any other method of analysis and design of information system, MERISE include a language, a process, tools and models.

Below are some differences that exist between UML and MERISE.

Table 7: differences between UML and MERISE

Source: data-rosetta-store.com

UML	MERISE
Primarily used for modeling and designing software systems, focusing on object - oriented concepts and structures	Used for modeling information systems with a broader scoop covering data modeling, process modeling and organizational aspects.
It covers both static and dynamic aspects of software systems.	It focuses on the structure of data and processes within an information system.
It addresses dynamic behavior through diagrams like usecase, activity, sequence etc.	Emphasizes the separation of phases such as analysis, design and implementation with a focus on the temporal aspects of processes within the information system.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



It can be applied at various levels of abstraction from high level conceptual modeling to detailed design and implementation.	It is structured into 3 levels which are conceptual, organizational and logical, each corresponding to specific phase in the development process.
It uses a variety of behavioral and state diagrams including class diagram	It uses entity relational diagrams (ERD) for conceptual modeling, data flow diagram (DFD) for organizational modeling and data structure diagram (DSD) for logical modeling.
It focuses on encapsulation, inheritance and polymorphism.	It focuses on clear and specifications and well defined processes.
It is adaptable to a wide range of application domains, but primarily associated with software engineering	It is originally designed for information system modeling, applicable to both software systems and broader organizational processes.

B. CHOICE OF METHOD USED

After a comparative study of UML and MERISE, we decide to use UML diagrams for a better understanding of the functioning of our project.

UML (Unified Modeling Language) is a graphical and textual modeling language base on schema called **diagrams** design to provide a standard visualization when designing a software. UML uses the bases of a system structure, behavior and way of communicating to present a diagram which has a coherent methodology and which is easy to use. UML combines both concepts and notions of object oriented analysis and design. It is analogous to the blueprints used in either field, and consists of different types of diagrams. In the aggregate, UML diagrams describe the boundary, structure and the behavior of the system and objects within it.

The UML version presently used is UML version 2.5 which has 14(fourteen) diagrams divided into 2 groups which are;

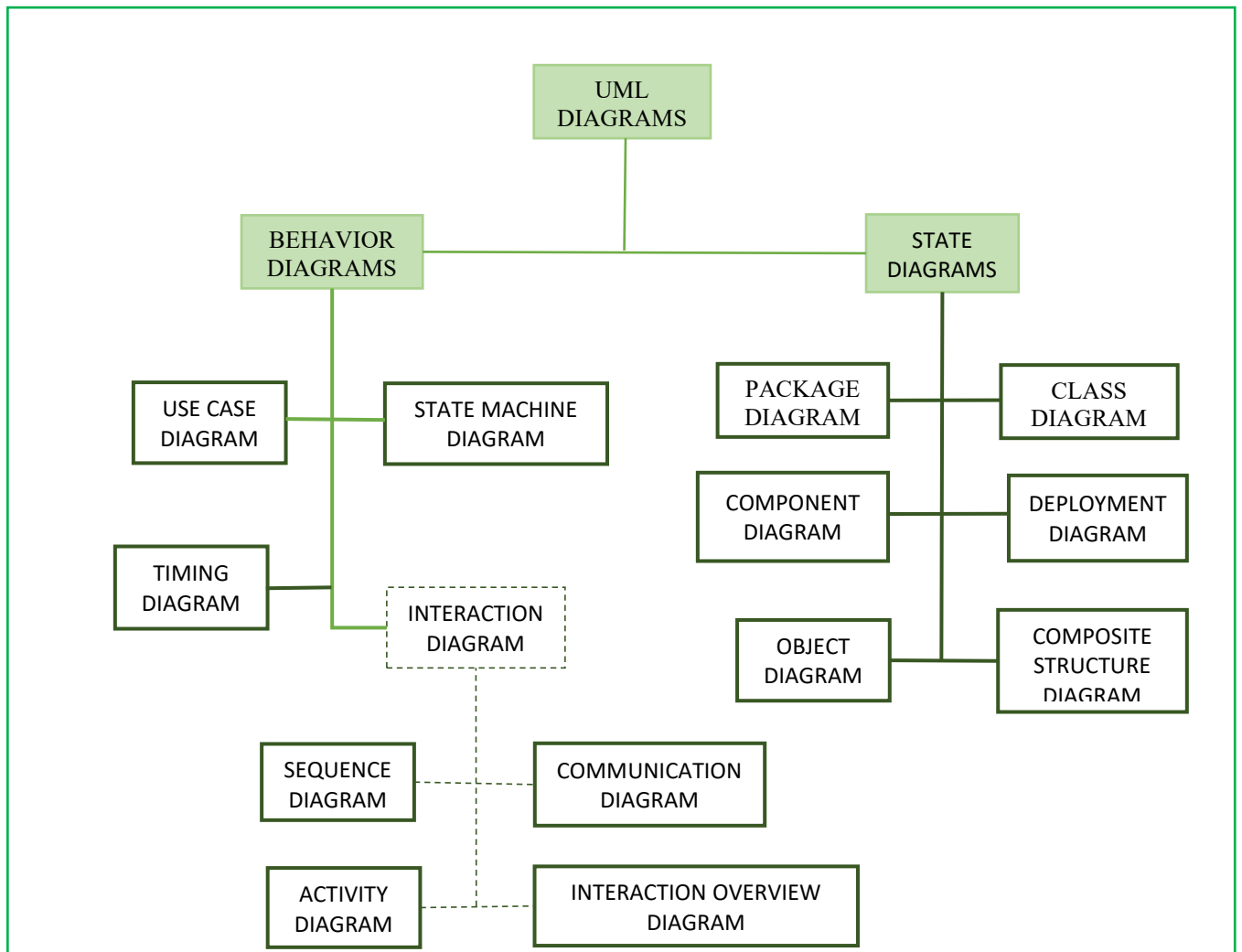


Figure 2: UML Diagrams

Source: NT- Health World doc.pdf

Though there are 14 different types of UML diagrams for modelling applications, developers use only three or four to document a software system. Class diagram, sequence diagram, and use case diagram remain the most used diagrams.

It is important to note that UML is a modelling language and not a method or procedure. As such to give it in an approach we need to associate UML to a Unified Process (UP) in order to give our conception a methodology to follow.



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C. COMPARATIVE STUDY OF UNIFIED PROCESSES

A Unified Process is a generic method for developing software. The term generic signifies the fact that it is necessary to adapt UP to the context of the project, team, domain and or the organization. There exist several types of UPs but we are going to use the 2TUO (2 Track Unified Process) in the course of our project to implement the solution. It is iterative, incremental centered on the architecture, driven by the use cases and requirements. Some few examples of unified processes include:

- RUP (Relational unified process)
- 2TUP (Two Track Unified process)
- XUP (eXtreme Unified Process)

In the following lines, we are going to make a comparative study of RUP and 2TUP which are the most used unified processes.

2TUP is a unified process which has as objective to bring a solution to constraints of functional and technical changes imposed in information systems. It proposes a development cycle which separates the functional aspects from the technical aspects. It goes from the point of view that all evolution imposed on the system could be decomposed and treated in parallel following the functional branch and the technical branch. 2TUP distinguishes therefore 2 branches (the functional and technical branches) which their different result is combined to realize our system. After the evolution of the functional and the technical branches, the realization merges the results of the two branched. The merging permits to obtain a process of development in a Y-form.

Rational Unified Process (RUP) is a software development process for object oriented models designed and documented using UML. It is an iterative and incremental approach to improving problem knowledge through consecutive revisions. It is an architecture - centric and usecase driven approach that manages risks and is flexible to change. It has 5 branches which are: inception, elaboration, transition, production and construction.

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Table 8: Differences between RUP and 2TUP

CRITERIA	2TUP	RUP
METHODOLOGY	It uses a Y - Form development process which separates the technical aspect from the functional aspect.	It is an iterative, incremental, architecture - centric and usecase driven approach to improving problem knowledge through consecutive revisions.
ITERATION	It is necessary to first implement the use case diagrams before implementing the others in order of importance.	Every iteration is considered to be a deliverable of the system and we can go back on any completed phase to modify the software.
ADVANTAGES	<ul style="list-style-type: none"> -It decomposes all evolution imposed on the system and treats them in parallel following the functional and technical branch. -it centers on the architecture. 	<ul style="list-style-type: none"> -It provides good documentation and complete the process itself. - it makes sure to answer all the client's needs on time -it uses an architecture base on components and reuses those components thus making time duration less.
DISADVANTAGES	<ul style="list-style-type: none"> - it is difficult to merge the technical aspect and functional aspect into one model. 	<ul style="list-style-type: none"> -it is a complex and not properly organized process -it is hard to integrate again and again. -requires expert professionals.



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THE VARIOUS BRANCHES OF 2TUP

a. Functional branch : This branch captures the functional needs which help in preventing the production of software that does not fit the needs of the user. The analysis here consists of studying precisely the functional specification in order to obtain an idea of what the system is going to realize and its result does not depend on any technology. This branch consists of the following stages:

- **Capture of Business (functional) needs:** This part minimizes the risk of producing an inadequate system with the needs of users and also verifies its consistency.
- **Analysis:** This is the study of specifications to find out what the system will be made of in terms of business rules. We have the following diagrams: **Use case, Activity, State Machine, Communication.**

b. Technical branch : This branch captures all the constraints and choices related to the conception of the system, the tools and equipment's as well as the integration constraint with the existing system condition. This branch consists of the following stages:

- **Capture of Technical Needs:** This stage consists of the identification of tools, materials and technologies to use in developing the system. This technical architecture will be presented in this stage.
- **Generic Design:** The technical architecture will be presented in this stage. We have the following diagrams: **Mockup design.**

c. Implementation branch : The preliminary conception, the detailed conception and the documentation of the system are studied here. This branch consists of the following stages:

- **Preliminary Design:** This is the stage where the analysis model is integrated into the technical architecture. The goal here is to know what technical component will be used depending on the features from the analysis. We have the following diagrams:

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Interaction Overview, Component, Deployment, Package and Composite structure diagrams.

- **Detailed Design:** This is the detailed design of each feature of the system. We have the following diagrams: **Class, Object, Sequence and Timing Diagrams.**
- **Coding and Tests:** This is the programming phase of the designed features, alongside testing of the coded features.
- **Recipe (Results):** This is the validation phase of the functions of the system developed .

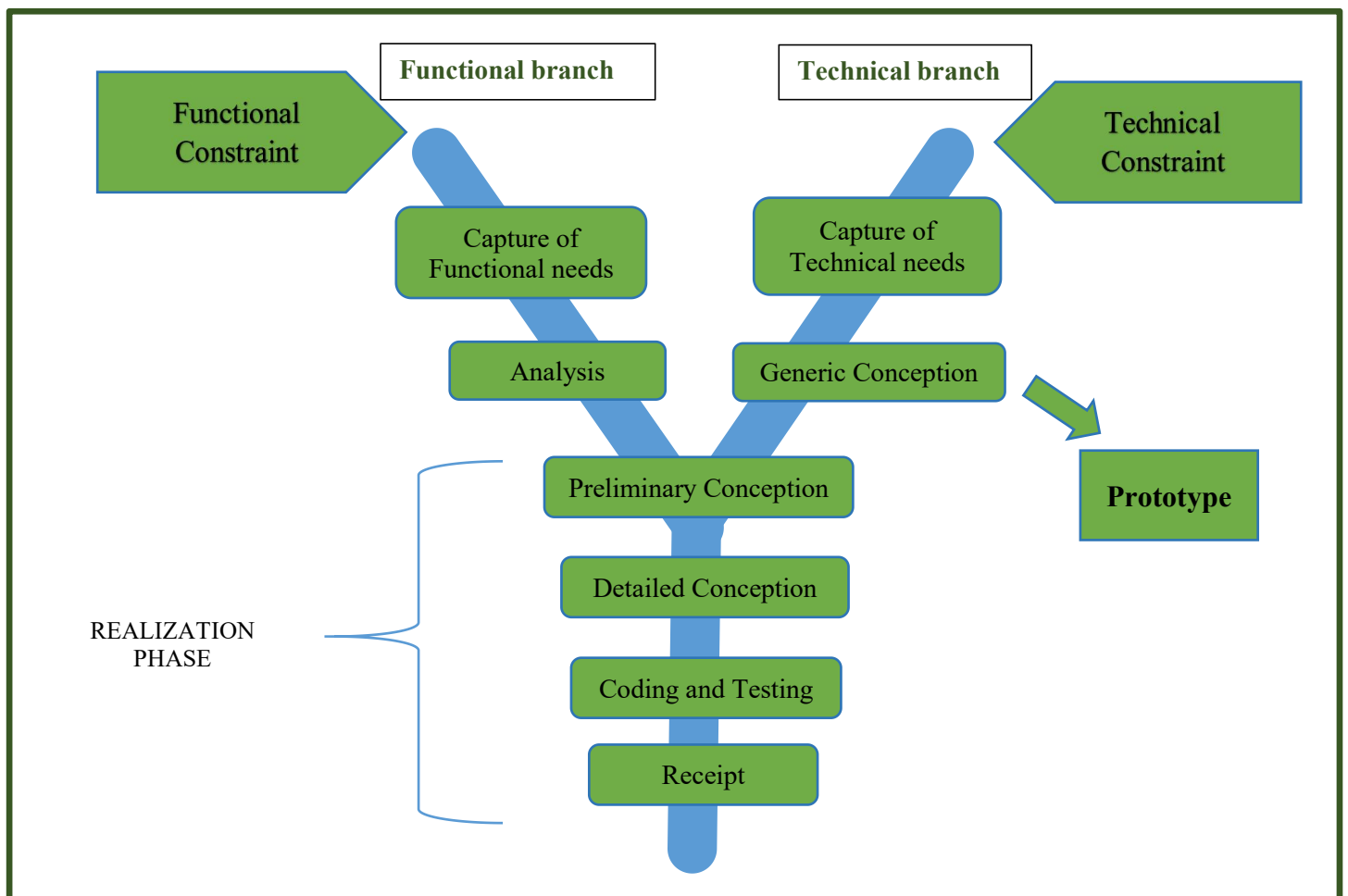


Figure 3: Structure of 2TUP

Source: www.umlchannel.com/image/2TUP

II. MODELING OF THE PROPOSED SOLUTIONS

A- USE CASE DIAGRAM

The use case diagram simply shows the functionalities of the system, their interdependence and how they can be linked with actors in the system. It also clearly defines the boundaries of the system

FORMALISM

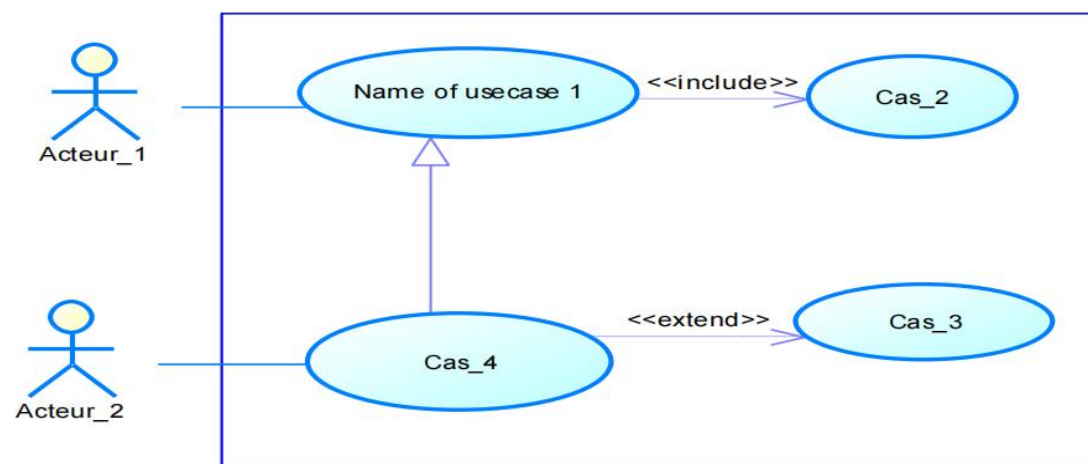



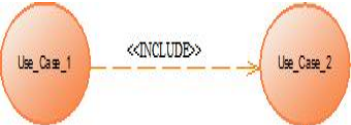
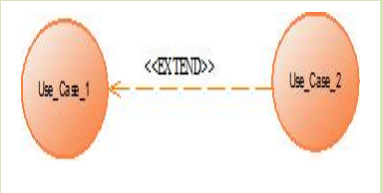
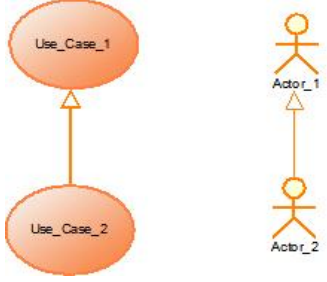
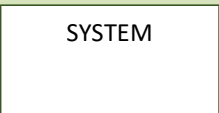


Figure 4: Formalism of Use case Diagram

Table 9: elements of a use case diagram

ELEMENT	DESCRIPTION AND MAIN PROPERTIES	NOTATION
ACTOR	Represents a user, organization, or an external system that interacts with your application or system.	
USE CASE	Represents the actions performed by one or more actors in the pursuit of a particular goal.	
ASSOCIATION	Indicates that an takes part in a use case.	
INCLUDE	An including use case calls or involves the included one. it is used to show how a use case breaks into smaller steps.	
EXTEND	it indicates that the source use case adds it behaviour to the destination use case. The use case s optional and comes after the based (main) use case	
GENERALISATION	In a general relation , the child is a specialization of the parent. This relationship is useful for showing that one entity is a special type of another and differs somehow from the original	
SYSTEM	It is a container of use cases which interact with external actors.	

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3 1

Table 10: actors of our system

ACTOR	ROLE
Administrator	He is responsible for managing accounts and sending notifications.
FARMER	He is one of the main actors of the system, he is the one selling foodstuffs.
VISITOR	He views the App and creates an account.
CAMPAY API	Provides payment services to the application in terms of MTN mobile money and Orange Money.
CONSUMER	They are the one who buy the products and order them
DELIVERY AGENT	He is the one who delivers the product

a. General Use Case

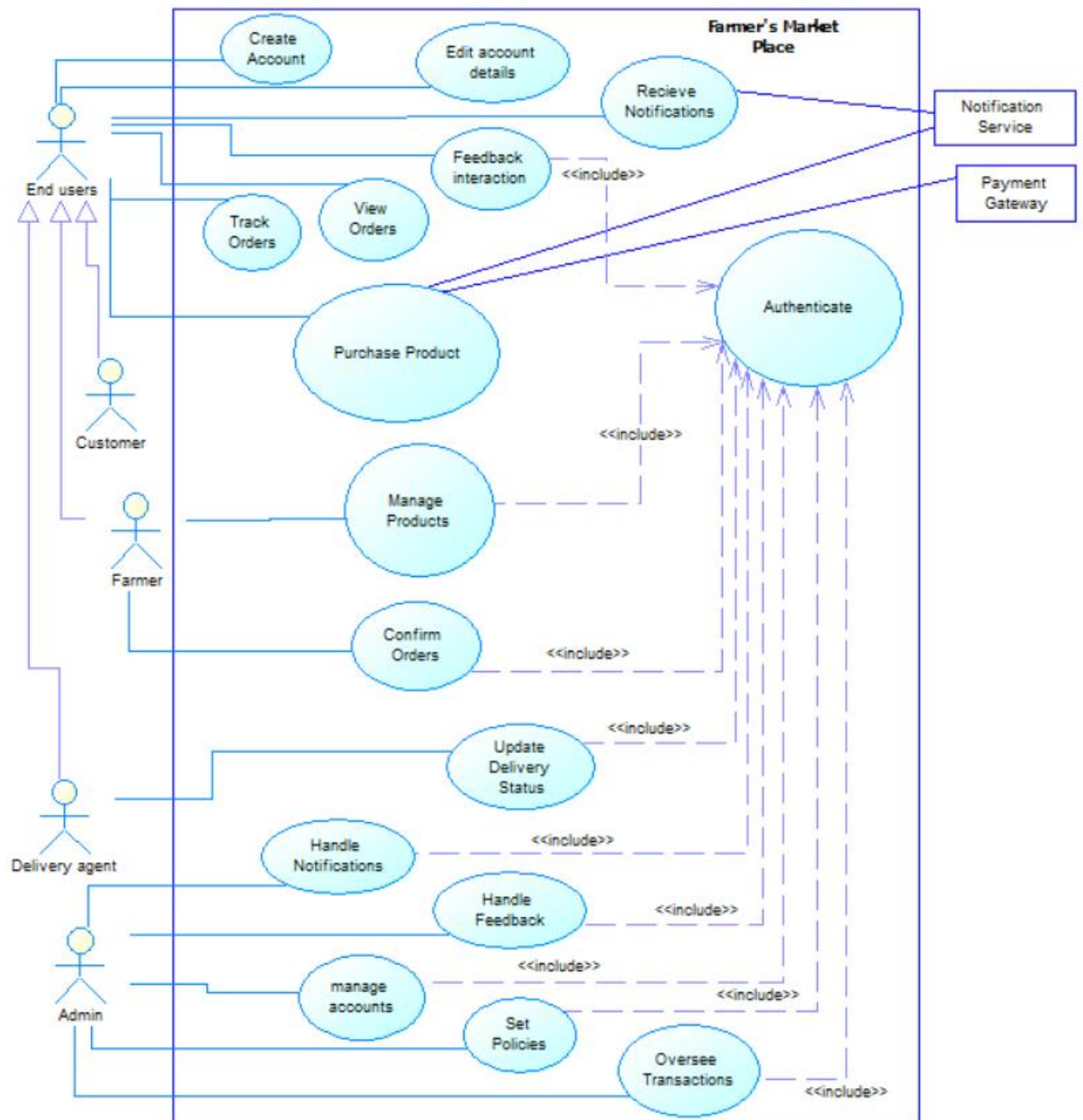


Figure 5: General Use Case Diagram of our system

b. Specific Use Case Diagrams

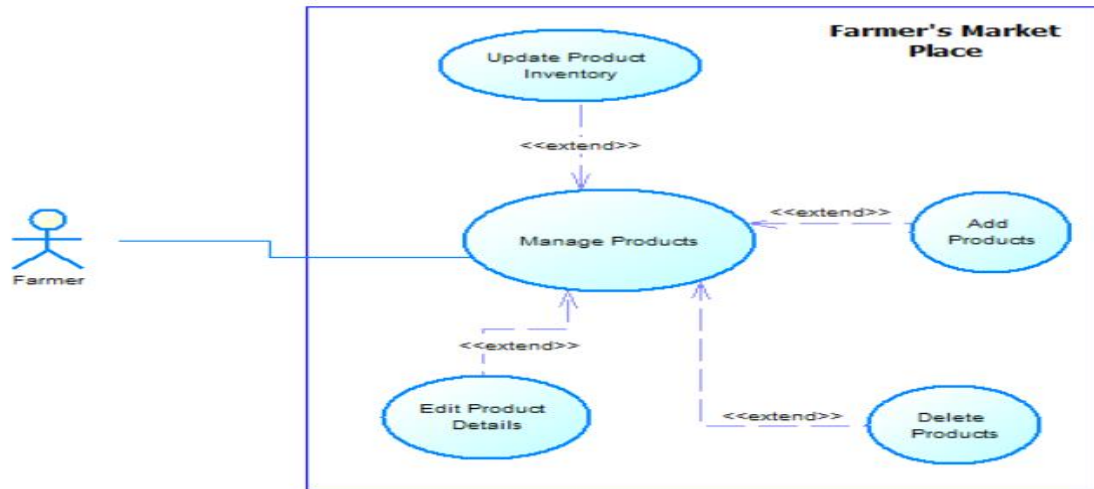


Figure 6: Specific Use case Diagram of Manage Products

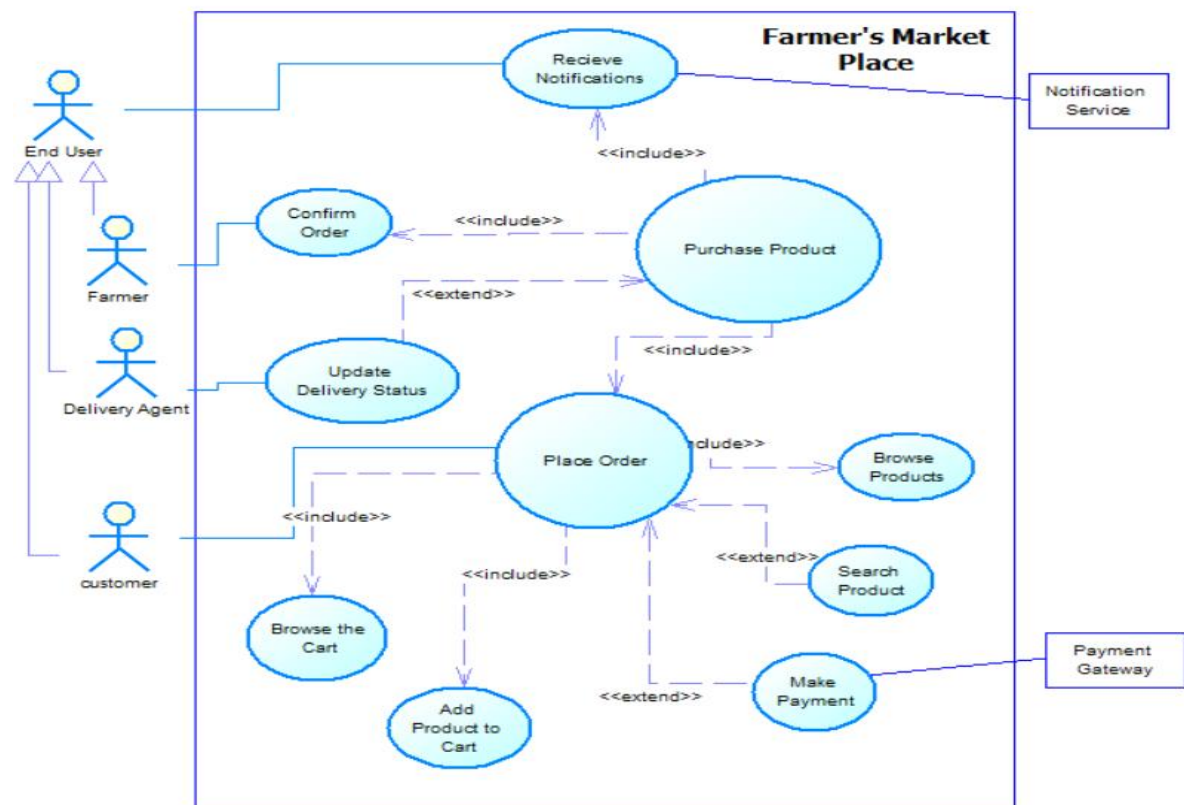


Figure 7: Specific Use case Diagram of Purchase Products



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c. Description of Use Cases

As we mentioned earlier, a use case represents a specific functionality of the system. Here, it is a question of breaking down the use cases, making a textual description and emphasizing on the different detailed scenario.

1) Textual Description of Authentication

Table 11: Authenticate Textual Description

TITLE	AUTHENTICATE
Summary	The user needs to authenticate
Objectives	To allow users to gain permissions according to account types in order to access some functionalities of the system by identifying them.
Actors	Administrator, End User, Farmer, Delivery Agent and customer
Stakeholder	App Director
Entity in charge	System
Version	2.5
Presumption	The login page of web application is launched
Precondition (s)	1. The app is launched. 2. The actor has an account on the platform.
Triggers	The user clicks on login button
Nominal Scenario	1. The system displays the login form. 2. The actor fills and submits the form. 3. The system verifies conformity of the form fields 4. The system sends the data to the dbms. 5. The dbms returns result of the query. 6. The system displays a success message to the actor.
Alternative Scenarios	7. At step 4 of the nominal scenario, the user enters mismatched or missing information. 8. The system displays an error message then returns to step 2 of the nominal scenario.
Post condition for success	The corresponding user session is displayed
Post condition in failure	An error message is displayed and the system asks for correct



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	credentials
Non-functional requirement	Entering the password must not be visible on the screen

2) Textual Description of Product Purchase

Table 12: Textual description of Products Purchase

Title	Purchase Product
Summary	The customer wants to purchase a product from the website
Actors	End Users (Customer, Farmer, Delivery Agent)
Date	January 19, 2025
Stakeholder	Farmer's Market Place directors
Version	1.0
Precondition (s)	Actors Must have an internet connection
Trigger (s)	Actor clicks on the reserve ticket button
Nominal scenario	<ol style="list-style-type: none">1- The customer enters the application URL in a web browser2- System displays the home page with products3- Customer selects products and adds to their cart by clicking the add button4- The system confirms the addition5-Customer clicks on the cart icon6-System displays the cart page with product details and price7-Customer reviews the cart to confirm the items and total price and proceeds clicking on the checkout button8-The system displays the checkout form9-Customer fills and submits the form10- System verifies the conformity of the form and queries the information to the DBMS11- The DBMS execute the query by creating the Order and sends the result to the system12- The system notifies the Farmer of the order via the notification service13- The Farmer reviews and confirms the order14-The system displays the payment form15- The customer fills and submits the form



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	<p>16- The system checks for form conformity and forwards the details to the payment gateway</p> <p>17-The gateway performs the transaction and sends a response back to the system.</p> <p>18- The system forwards the order details to the delivery agent via the notification service and notifies the customer of the delivery progress</p> <p>19- The delivery agent gets the pickup and drop-off addresses of the order and performs the delivery accordingly</p> <p>20- The delivery agent then updates the delivery status of the Order</p>
Alternative scenario	3.a the customer may equally search for a product of her choice before selecting
Exceptional scenario	<p>10.a. At step 10 of the nominal scenario, the actor enters wrong information</p> <p>10.b. The system displays error message and returns to step 8 of the nominal scenario.</p> <p>11.a At step 11 of the nominal scenario, the DBMS returns a failed response</p> <p>11.b The system displays an error message and returns to step 8 of the nominal scenario</p> <p>13.a At step 13 of the nominal scenario, the farmer cancels the order request</p> <p>13.b The system displays the error message and returns to step 2 of the nominal scenario</p> <p>16.a At step 16 of the nominal scenario, the customer fills in invalid information</p> <p>16.b. The system displays the error message and returns to step 14 of the nominal scenario</p> <p>17.a At step 17 of the nominal scenario, The payment gateway returns a failed message</p> <p>17.b the system displays the error message and returns to step 14 of the nominal scenario</p>
Postcondition of success	The customer successfully receives the product she purchased
Postcondition of failure	The customer doesn't get the product
Non-functional requirement	<p>There must be good internet connection</p> <p>The system should be user friendly for customers to easily navigate</p> <p>The payment information of the customer should be encrypted</p> <p>The system must comply with data protection and regulations of user information</p>

B- COMMUNICATION DIAGRAM

a. Definition

Communication Diagrams model the interactions between objects in a sequence. They describe both the static structure and the dynamic behavior of a system. It is a simplified version of a Collaboration Diagram introduced in UML 2.0. A communication diagram is more focused on showing the collaboration of objects rather than the time sequence.

b. Formalism

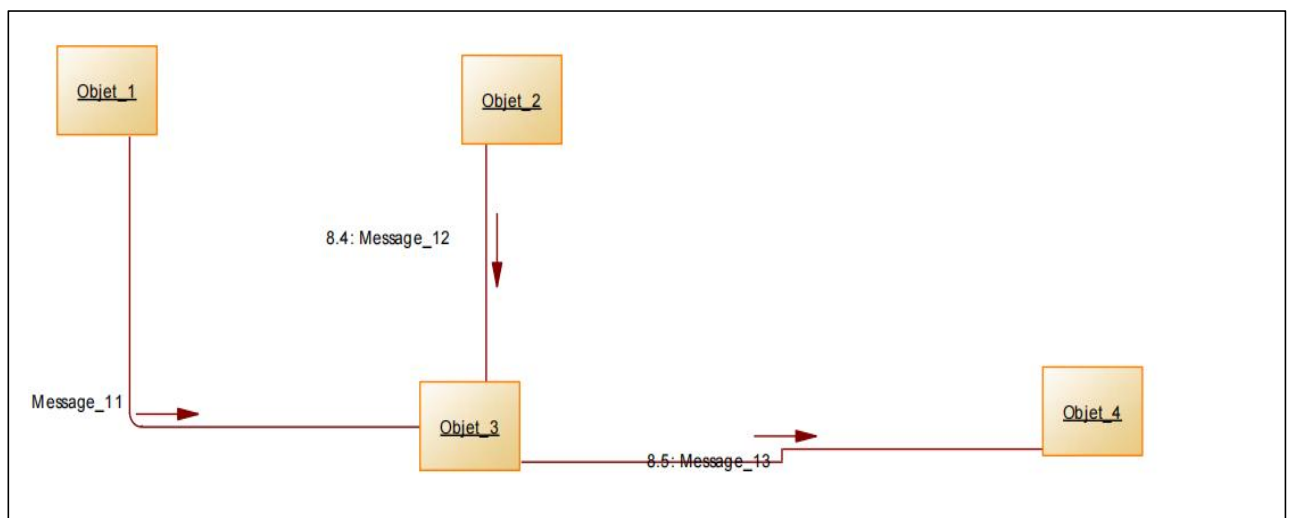
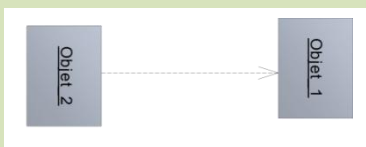
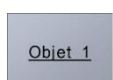


Figure 8: Communication Diagram formalism

Table 13: Elements of a communication diagram

ELEMENT	NOTATION	DESCRIPTION
Message	1: Message_1 →	Designs a particular communication between lifelines
Connectors	1: Message_1 →	It represents the relationships that exist between lifelines
Dependency		A dependency is a relationship that signifies a single or a set of model elements for their specification
Object		An object represents an individual participant in the interaction conversation

c) Diagrams

1- Communication diagram of Authenticate

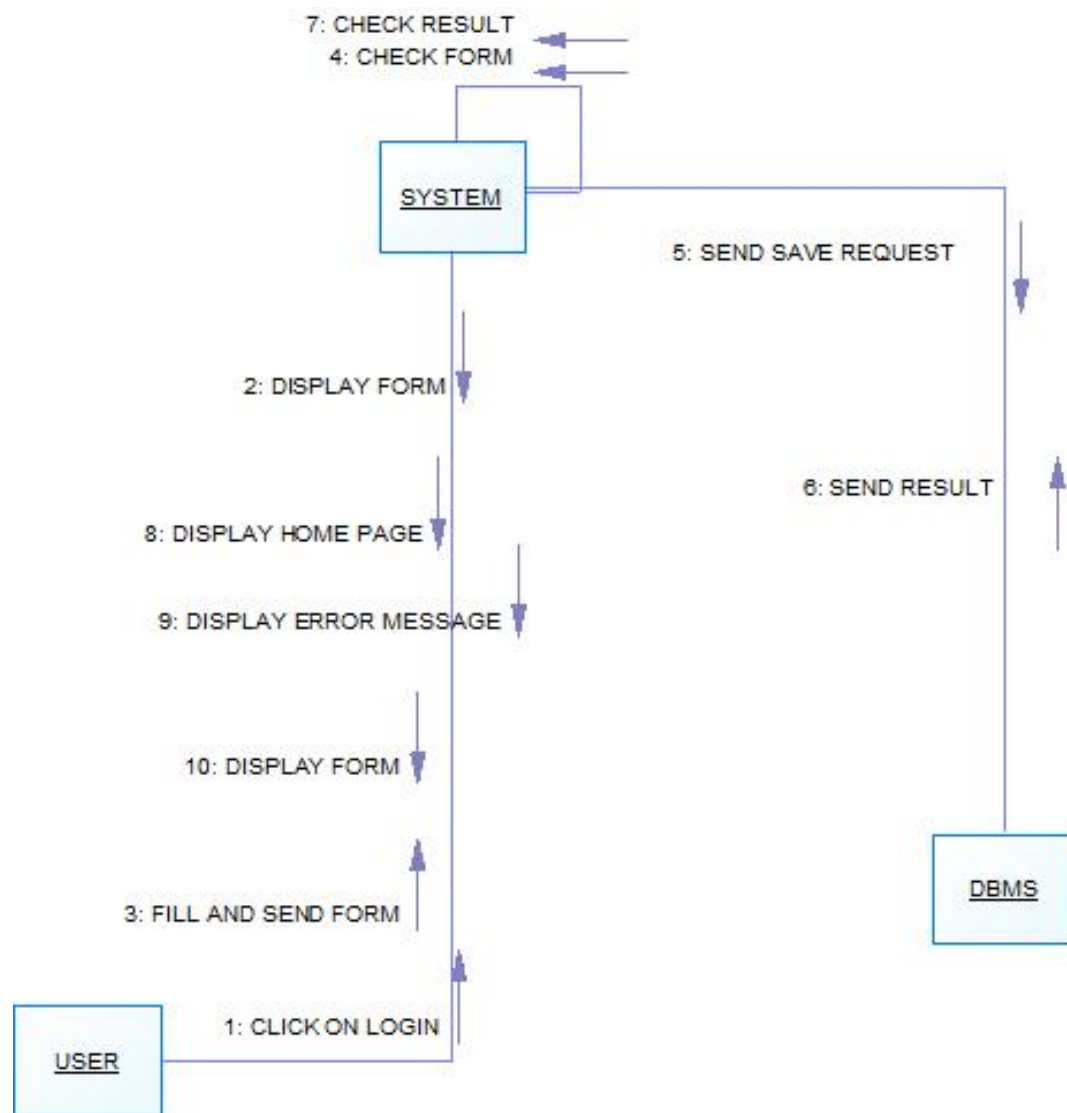


Figure 9: Communication diagram of Authenticate

2- Communication diagram of Purchase Products.

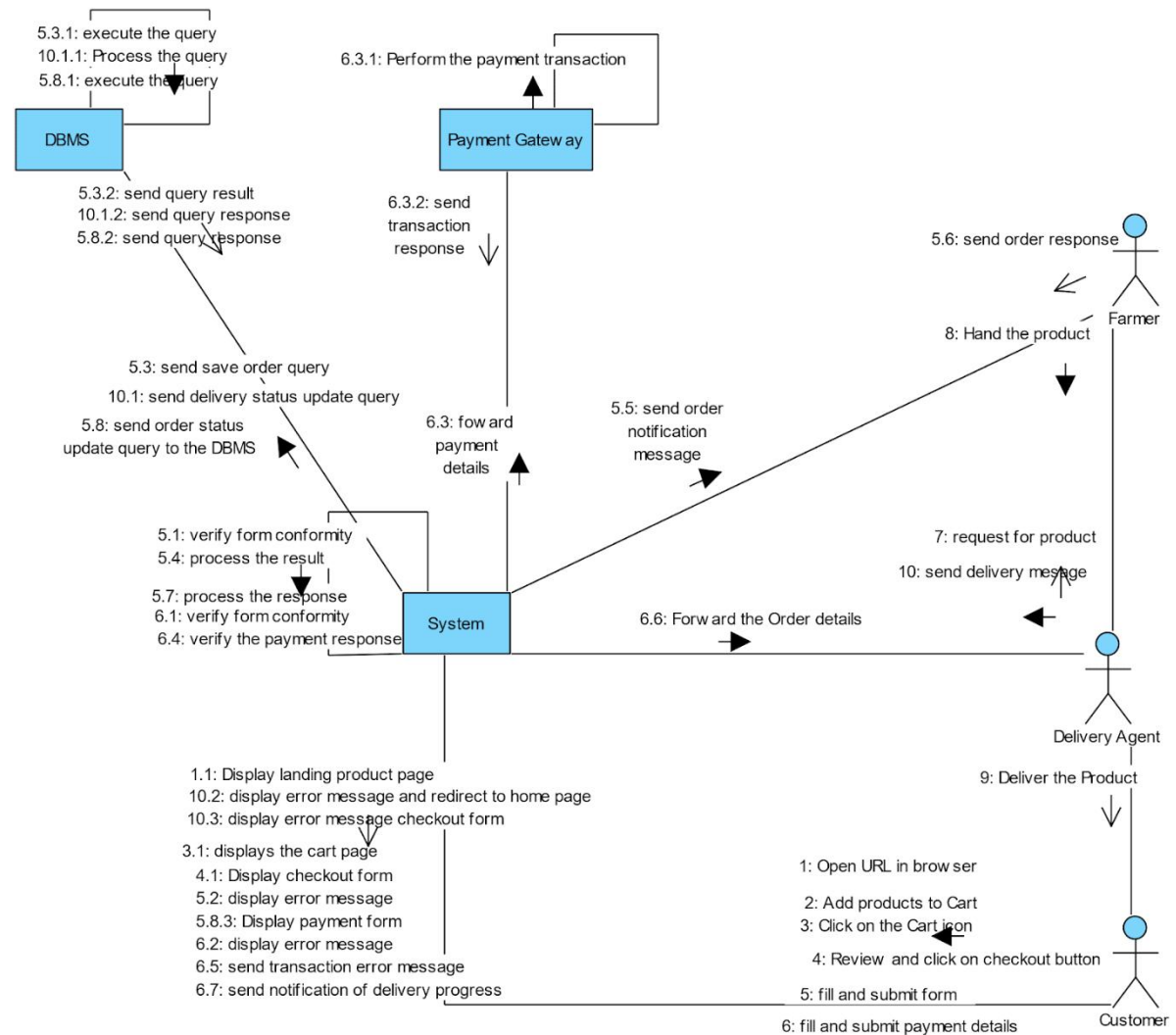


Figure 10: Communication diagram of Purchase Products

C- SEQUENCE DIAGRAM

a. Definition

A Sequence diagram describes interactions among classes in terms of an exchange of messages over time. They are also called event diagrams. A Sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modelling a new system.

b. Formalism

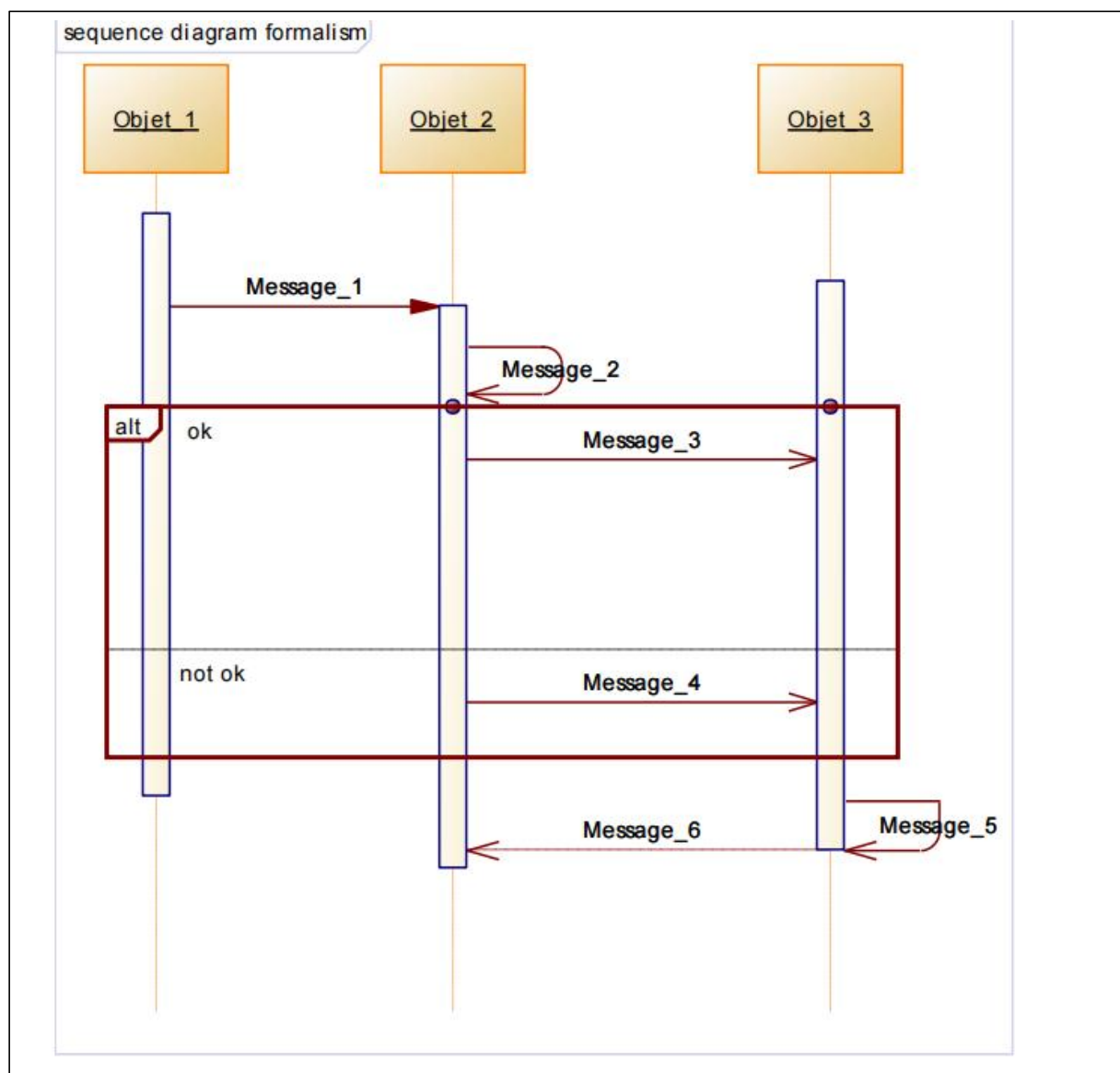

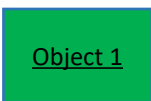
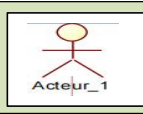
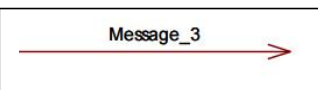






Figure 11: Formalism of sequence diagram

c. Components of Sequence Diagram

Table 14: Elements of a sequence diagram

ELEMENT	NOTATION	DESCRIPTION
Lifelines		They represent rows or objects instances that participate in the sequence being modelled
Object		It is the instance of a class
Actor		He communicates with objects
Asynchronous Message		It is a message that receives an indirect response
synchronous Message		It is a message that sends and want response before it continues a process
Self-message		A self-message can represent a recursive call of an operation, one method calling another method belonging to the same object.
Return Message		It represents the response of a message
Activation		It represents the time represented for an object or an actor to complete a task. The longer the time requires the longer the activation boxes.

d) Diagrams

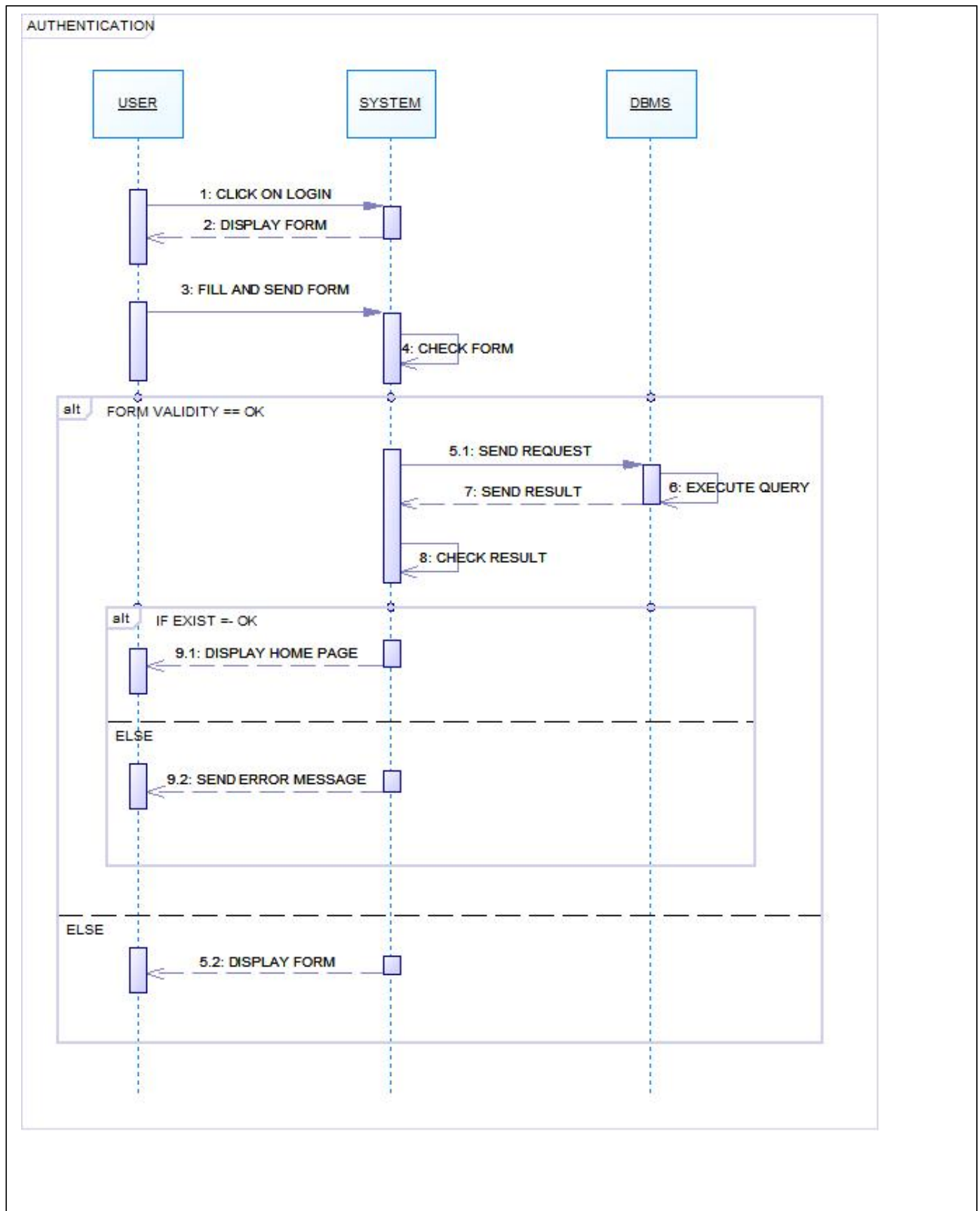


Figure 12: Authentication sequence diagram

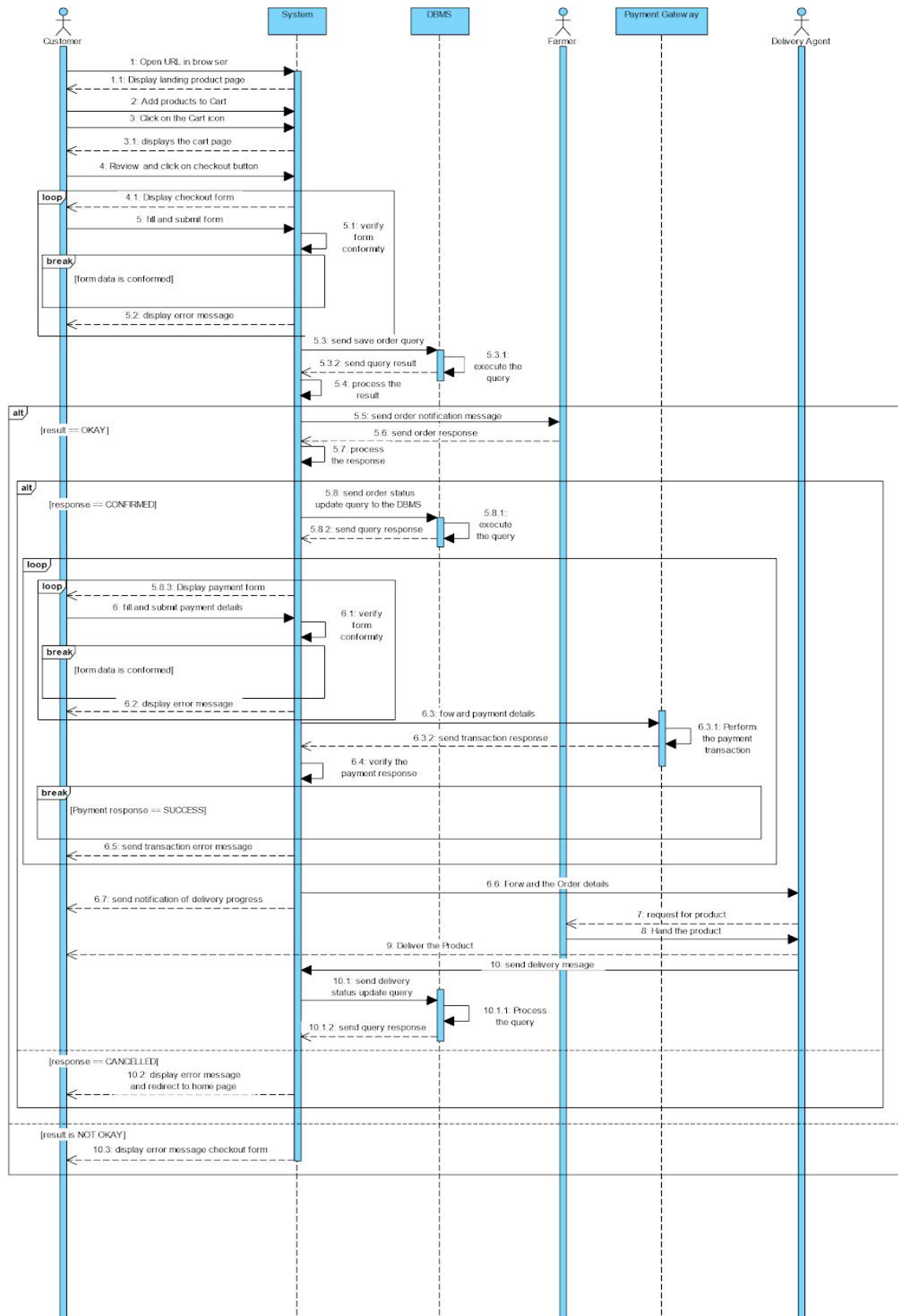


Figure 13: Purchase Products sequence diagram

D- ACTIVITY DIAGRAM

a) Definition

An activity diagram is used to represent the sequence of activities and actions of a system. It shows details from a start point to end point though all decisions coordinate actions that can possibly be performed. It permits to consolidate the specification of a use case. It may be used to detail situations where parallel processing may occur in the execution of some activities.

b) Formalism

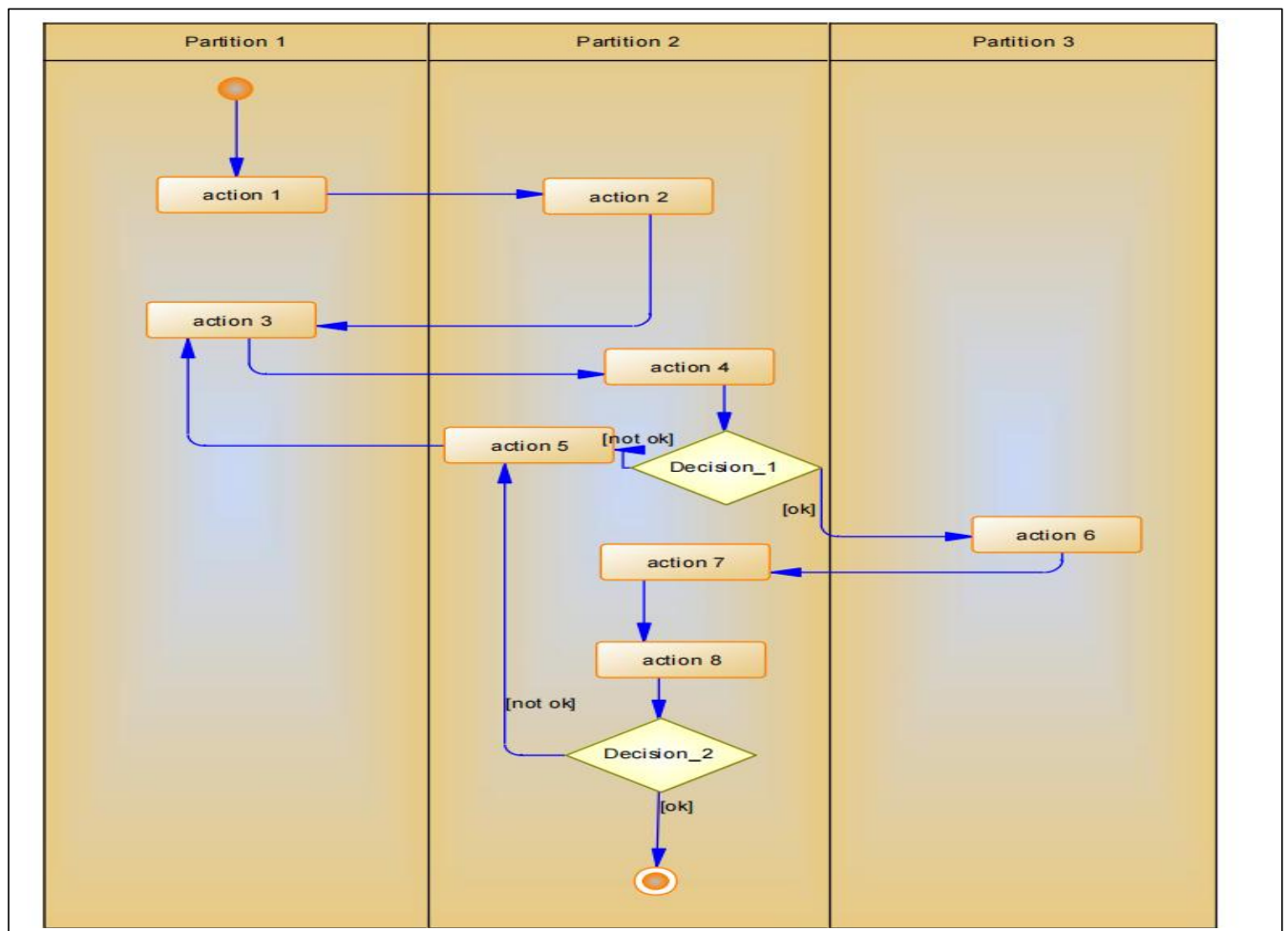






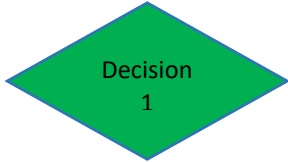
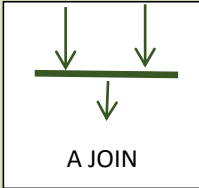
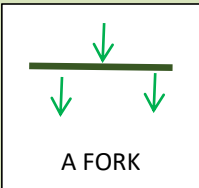
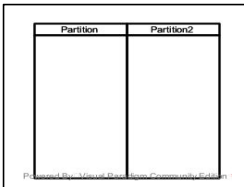


Figure 14: Formalism of an activity diagram

c) Components of an Activity Diagram

Table 15: Elements of a Activity diagram

ELEMENTS	NOTATION	DESCRIPTION
Activity		An activity is a rounded corned rectangle enclosing all actions control flows and other elements that make up an activity
Transition		A directed connection between two activity nodes through which tokens may flow
Action		Represent a task to be performed.
Initial Node		It shows the beginning of a process or workflow in an activity diagram.
Final Node	<div>  <p>End point It denotes the end of all control flows</p> </div> <div>  <p>Flow final It shows the end of a single action</p> </div>	It marks the end state of an activity and represent the completion of all flow of the process.2 types exist namely End point and flow final node
Decision Node		It represent a decision and always have at least 2 paths branching out with condition text to allow user to view options.
Bification Node	<div>  <p>A JOIN</p> </div> <div>  <p>A FORK</p> </div>	It helps to Slit behaviour into parallel or concurrent flows of activities (or actions) and also helps to combine flow in order to perform a single action .
Swimlane and partition		A way of grouping activities performed by the same actor in an activity diagram or to group actions in the same thread.

d) Diagrams

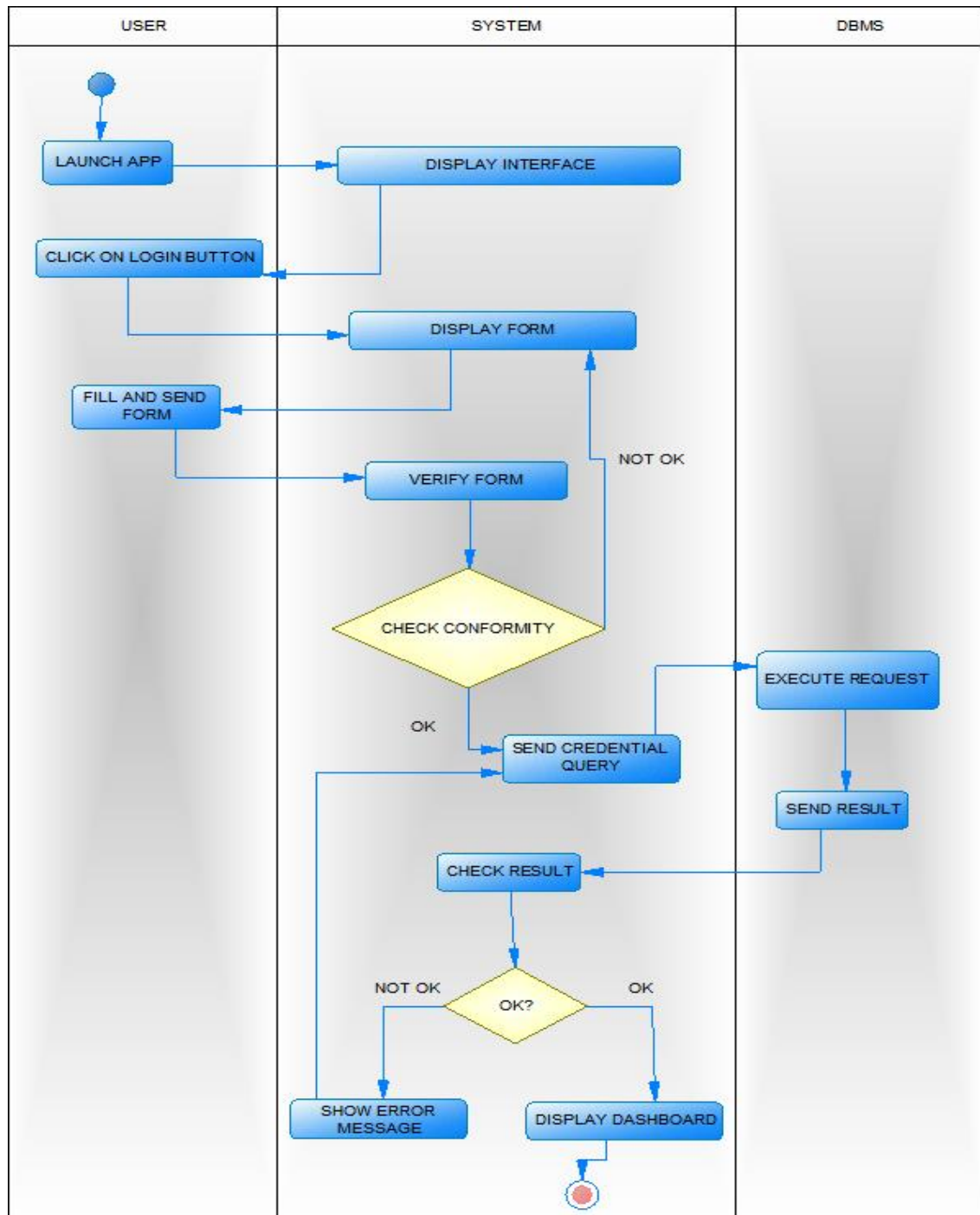


Figure 15: Authenticate activity diagram

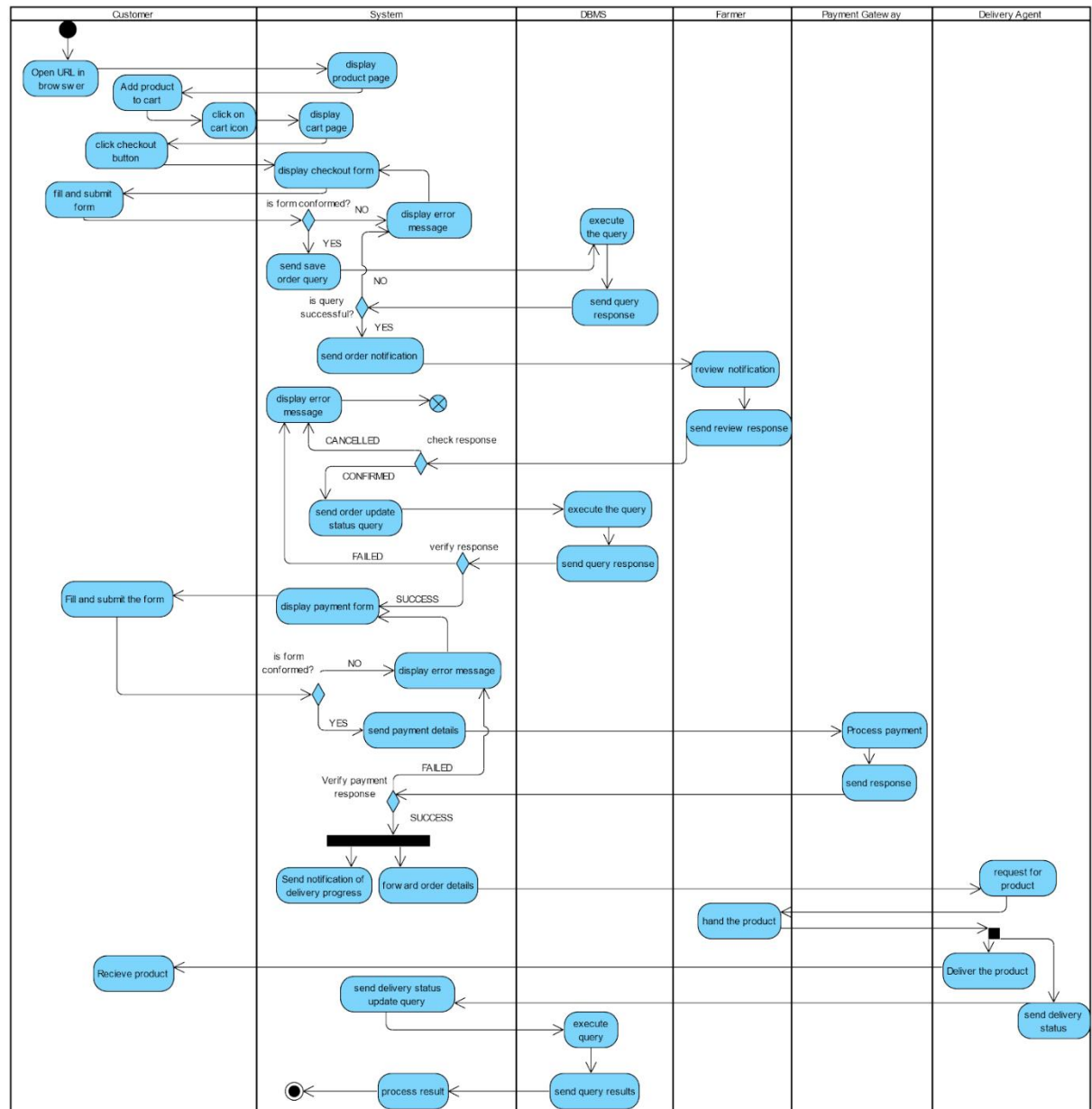


Figure 16: Purchase Product activity diagram



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



CONCLUSION

In the analysis phase, we chose a software development process and modelling language, after which we explained the functional need of our system, we saw the use case diagram which shows the relationship between the actors and use case (the action the actor can perform on the system) , the communication diagram which represents the architecture of the system based on object oriented programming, the sequence diagram which represents the flow of messages between elements in the system, and lastly the activity diagram which shows the workflow of our system. We will now move to the conception phase in which we will present the Technical branch of our system together with related diagrams.

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African Institute of Computer Sciences (AICS) Cameroon Paul BIYA Technological Centre of Excellence,
Third Year Software Engineering Option, 2024-2025 Academic Year

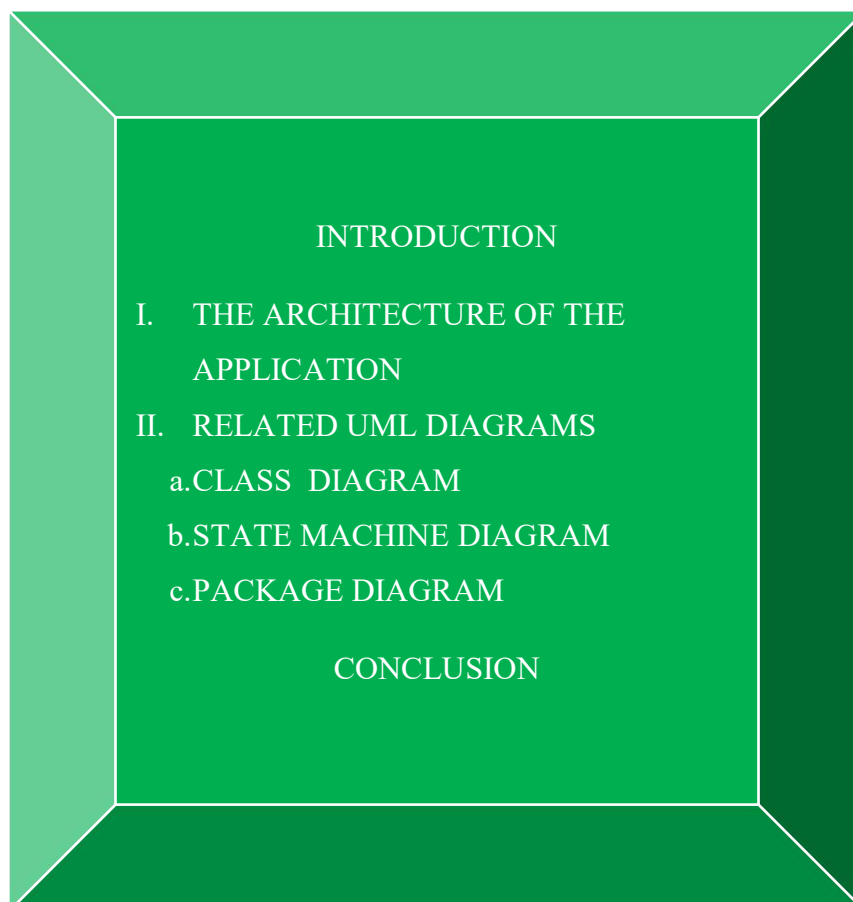


FILE IV : THE CONCEPTION PHASE

Preamble :

The conception phase will permit us to present in an orderly manner the components necessary for the good functioning of our software and also the architecture used for the proposed solution. It bridges the gap between the analysis phase and the realization phase.

Plan





CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



INTRODUCTION

The conceptual phase will describe in detail the necessary specifications, features and operations that will satisfy the functioning requirements of the proposed system as modeled in the analysis phase. This phase is meant to identify and consider essential components (hardware and software), structure (network capabilities), processes and procedures for the system to accomplish its objectives. We will look at some diagrams such as the class diagram, state machine diagram and package diagram.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



I. THE ARCHITECTURE OF THE APPLICATION

Every application requires architecture or a particular structure. It is that structure that describes the interaction between components of the software. At the level of the architecture, we have the:

- PHYSICAL ARCHITECTURE
- LOGICAL ARCHITECTURE

• PHYSICAL ARCHITECTURE

The design of the DBMS depends on its architecture. An n-tier architecture partitions on the whole system into related but separated n modules, which can be independently modified, altered, changed or replace. Within the scope of our project, we made use of a 3-tier architecture which is popularly known as the three layers architecture. This architecture separates its tiers from each other based on the complexity of the user and how they manipulated data in the database. Each layer has a well-defined communication interface and the evolution of a layer is independent of the other.

A. THE THREE LEVELS

1. The user(presentation) tier

At this layer, multiple views of database can be provided by the application. All views are generated by applications that reside in the application tier. End-users operate on this tier and they know nothing about the existence of the database beyond this layer. In other words, it acts as an assembly of services and applications offered by the lower layer. This layer relays the queries of the users and in return, the result from the database.

2. The application (Logic or middle) tier

At this tier resides the application server and the program that access the database. For a user, this application tier presents an abstract view of the database. End users are unaware of any existence of the database beyond the applications. At the other end, the database tier is not aware of any other user beyond the application tier. Hence, the

application layer sits in the middle and acts as a mediator between the end-user and the database.

It acts as the functional part of the application which implements the logic and which describes the operations that the application operates on the data according to the user request, carried out through the application layer. The various management rules and system controls are incorporated at this level. For appropriate functionality, it interacts with the data base layer by sending and receiving queries for the application.

3. The database(data) tier:

At this tier, the database resides along with its query processing languages. We also have the relations that defines the data and their constraints at this level. It manages the access to the data of the system.

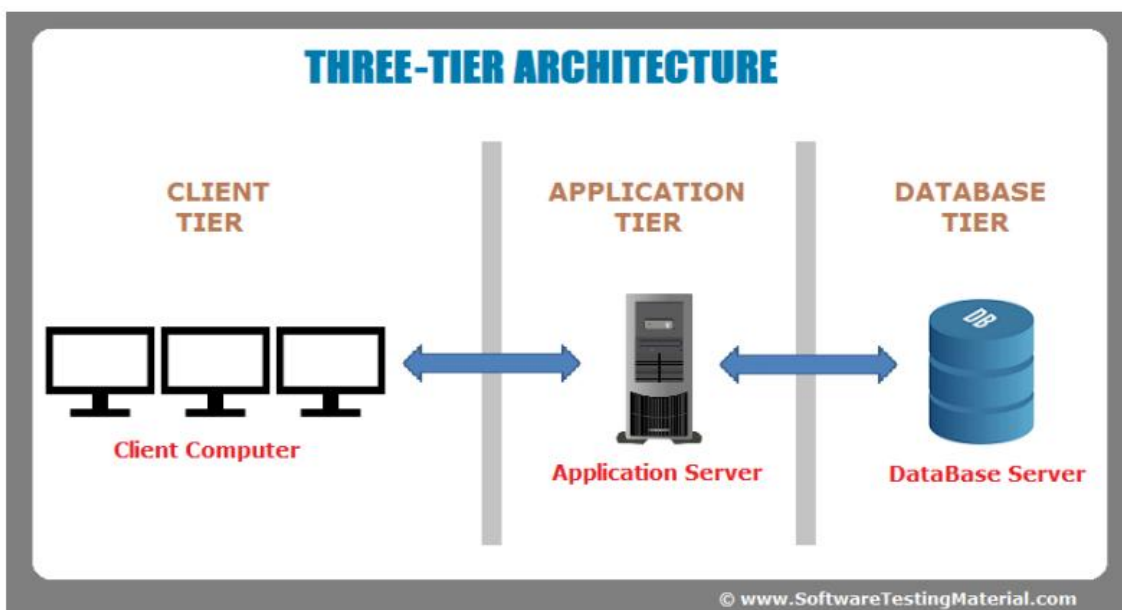


Figure 17: 3-Tier physical Architecture of Application
Source: www.SoftwareTestingMaterial.com

• LOGICAL ARCHITECTURE

Model view controller or MVC is popularly called, is a software design pattern for developing we application. A Model View Controller is made up of the following three parts:

- **Model:** The lowest level of the pattern which is responsible for maintaining data.
- **View:** This is responsible for displaying all or a portion of the data to the user.
- **Controller:** Software code that controls the interactions between the model and the view.

MVC is popular as it isolates the application logic from the user interface layer and supports separation of concerns. Here the controller conceives all requests for the application and then works with the model to prepare any data needed for the view. The view then uses the data prepared by the controller to generate a final presentable response. The MVC abstraction can be graphically represented as follows.

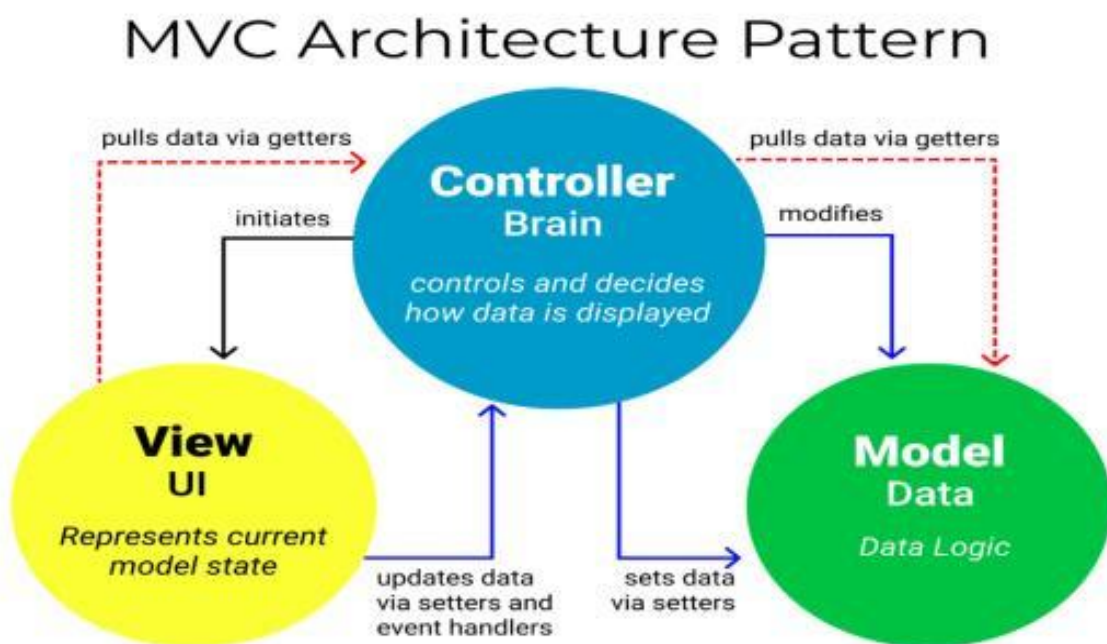


Figure 18: The MVC architecture (Source: <https://www.freecodecamp.org/news/the-model-view-controller-pattern-mvc-architecture-and-frameworks-explained/>)

II. RELATED UML DIAGRAMS

1. CLASS DIAGRAM

a. Definition

A class diagram is a static diagram. It represents the static view of an application. A class diagram is not only used for visualizing, describing and documenting different aspects of the system but also for constructing executable code of the software application. A class diagram describes the attribute and operation of a class and constraints imposed on the system. Its purpose is to model the static view of an application.

b. Formalism

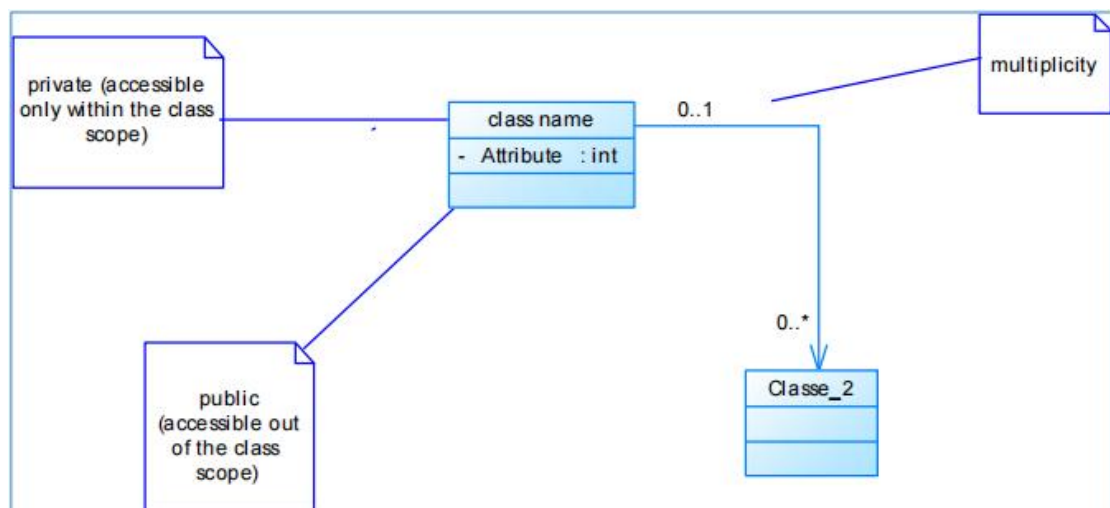
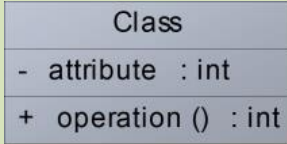

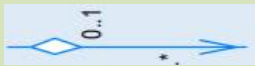

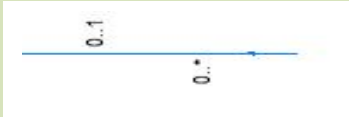


Figure 19: Formalism of Class Diagram

c. Elements

Table 16: Elements of a Class diagram

ELEMENTS	REPRESENTATION	DESCRIPTION
Class		A class is an element that defines the attributes and behaviors that an object can generate
Composition		If a parent of a composite is deleted, usually, all its parts are deleted with it
Aggregation		If the parent of the aggregate is deleted, usually the children are not deleted.
Generalization		A generalization is used to indicate inheritance. It shows a parent class generalizing a child class.
Association		It is the general relationship type between elements. This connector may include named roles at each end, cardinalities, direction and attributes.

c. Diagrams

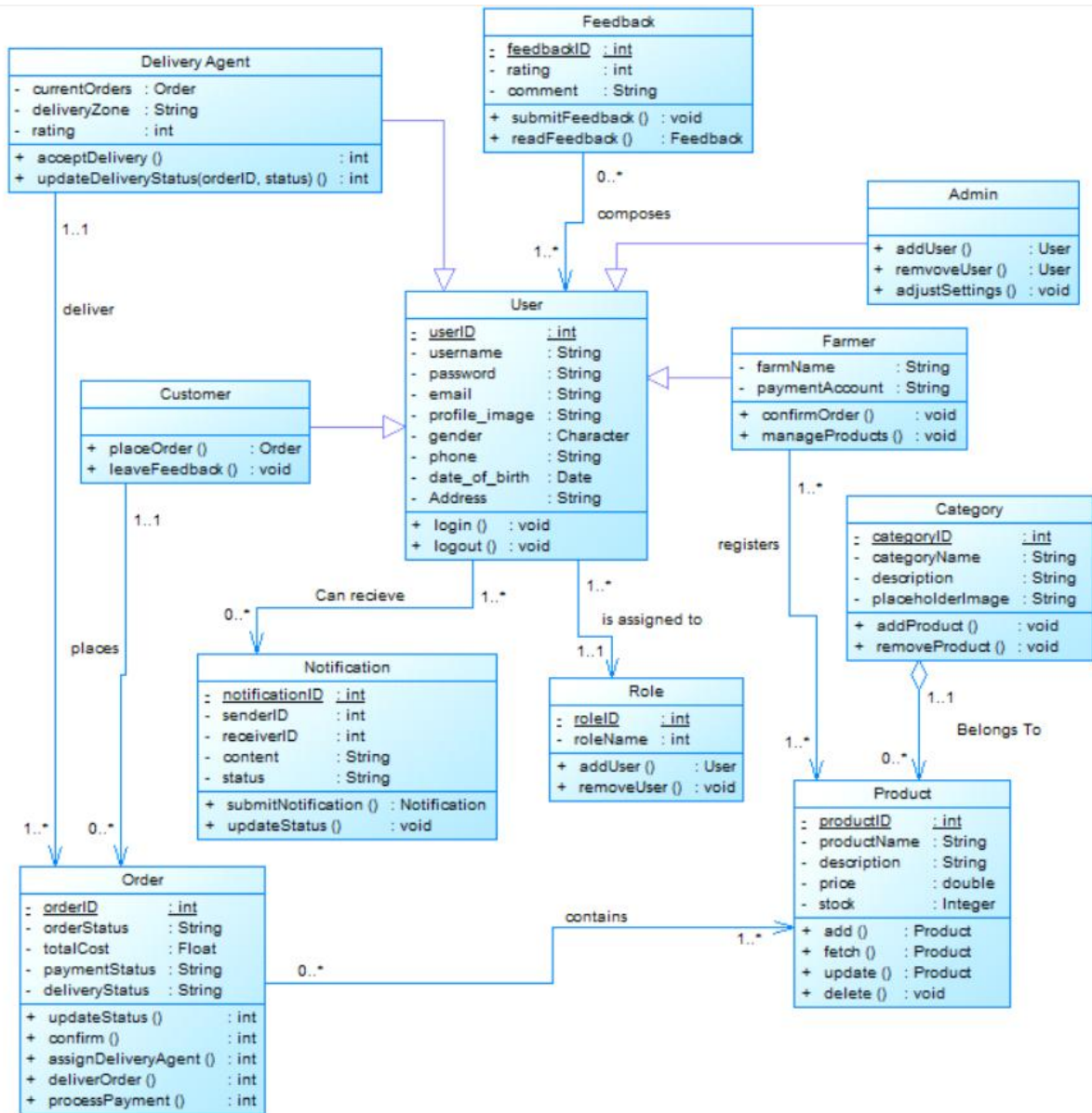


Figure 20: System Class Diagram

2. STATE MACHINE DIAGRAM

a. Definition

A state machine diagram describes the behaviour of a single object in response to a series of events in a system. Also known as the state machine diagram, it models the dynamic flow of control from the state of a particular object within a system.

b. Formalism

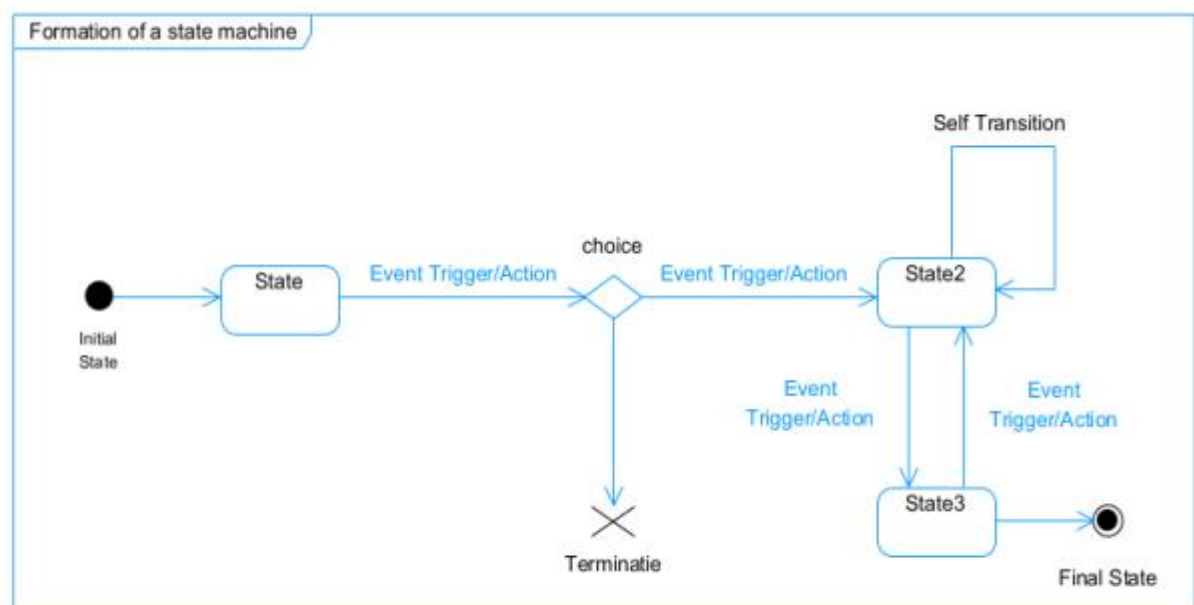




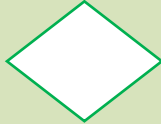


Figure 21: Formalism of state machine diagram

d. Elements

Table 17: Elements of a State Machine diagram

ELEMENTS	REPRESENTATION	DESCRIPTION
State		Models a state during which a certain invariant condition holds.
Initial State		It represents a default vertex, that is, a source for a single transaction to the default or composite state.
Final State		A state specifying that the enclosing region is complete.
Transition		A direction relation between a source and a target vertex.
Choice pseudo state		A diamond symbol that indicates a dynamic condition with branched potential results

d. Diagrams

1- ACCOUNT STATE MACHINE DIAGRAM

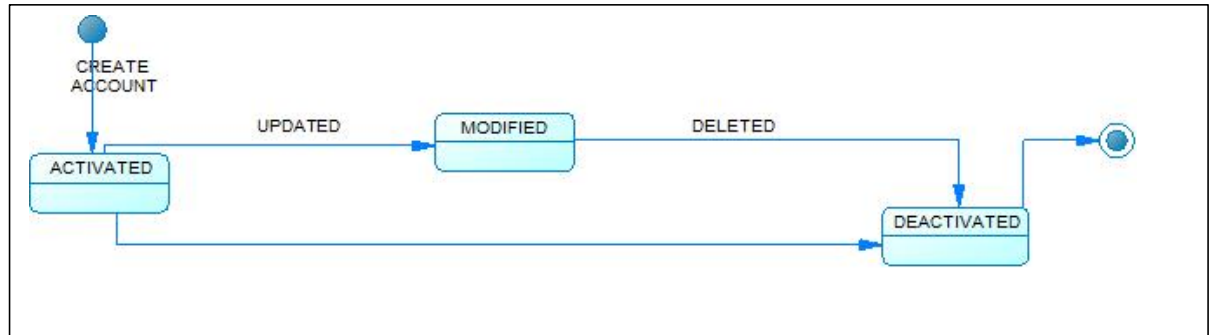


Figure 22: Account State Machine diagram

2- ORDER STATE MACHINE DIAGRAM

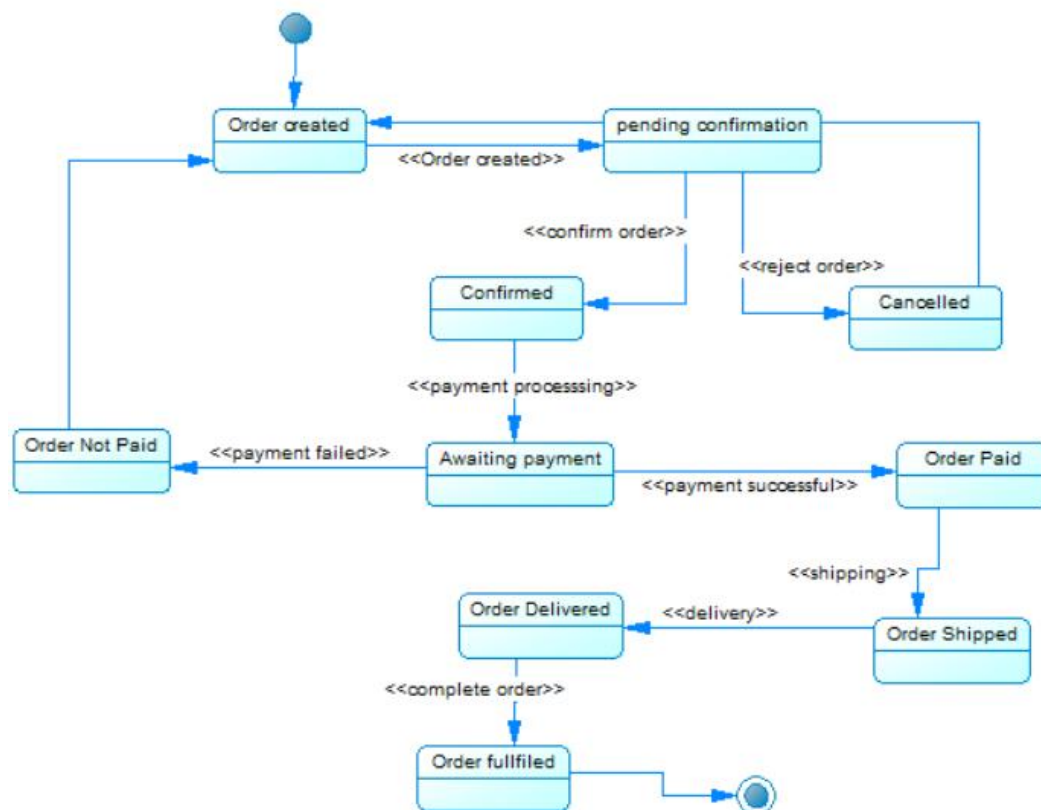


Figure 23: Order State Machine diagram

4. PACKAGE DIAGRAM

a. Definition

This is a structural diagram used to show the organization and arrangement of various model elements in the form of packages. It allows the system to be broken down into more easily observable categories or parts called packages. A package diagram is the grouping of related UML elements such as classes, diagrams or even other packages.

b. Formalism

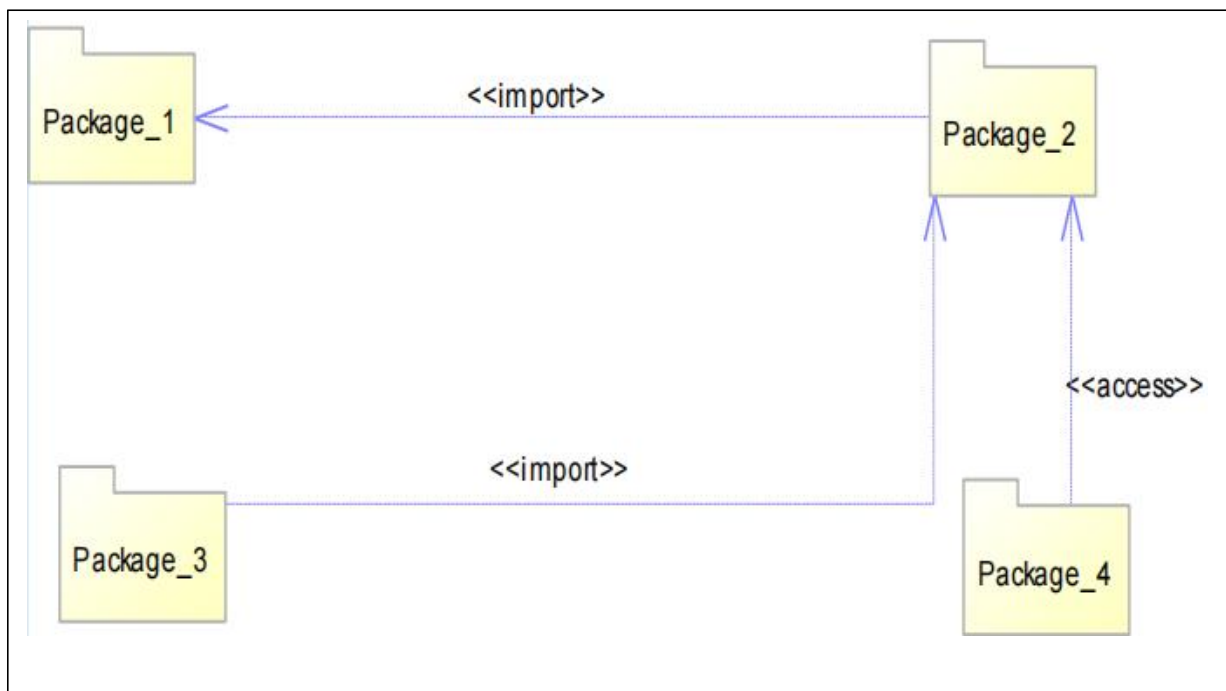

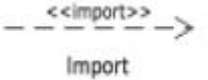




Figure 24: Formalism of a Package Diagram

c. Elements

Table 18: Elements of a Package diagram

ELEMENTS	REPRESENTATION	DESCRIPTION
Package		A package is a name-space use to group related elements; it is a mechanism used to group elements into a better structure in a system.
Import Dependency		A relationship Indicate that, a functionality has been imported from one package to another.
Access Dependency		A relationship Indicates that one package requires assistance from the function of another package.
Merge Dependency		It is a relationship which shows that, the functionality of two packages are combines to a single function

d. Diagram

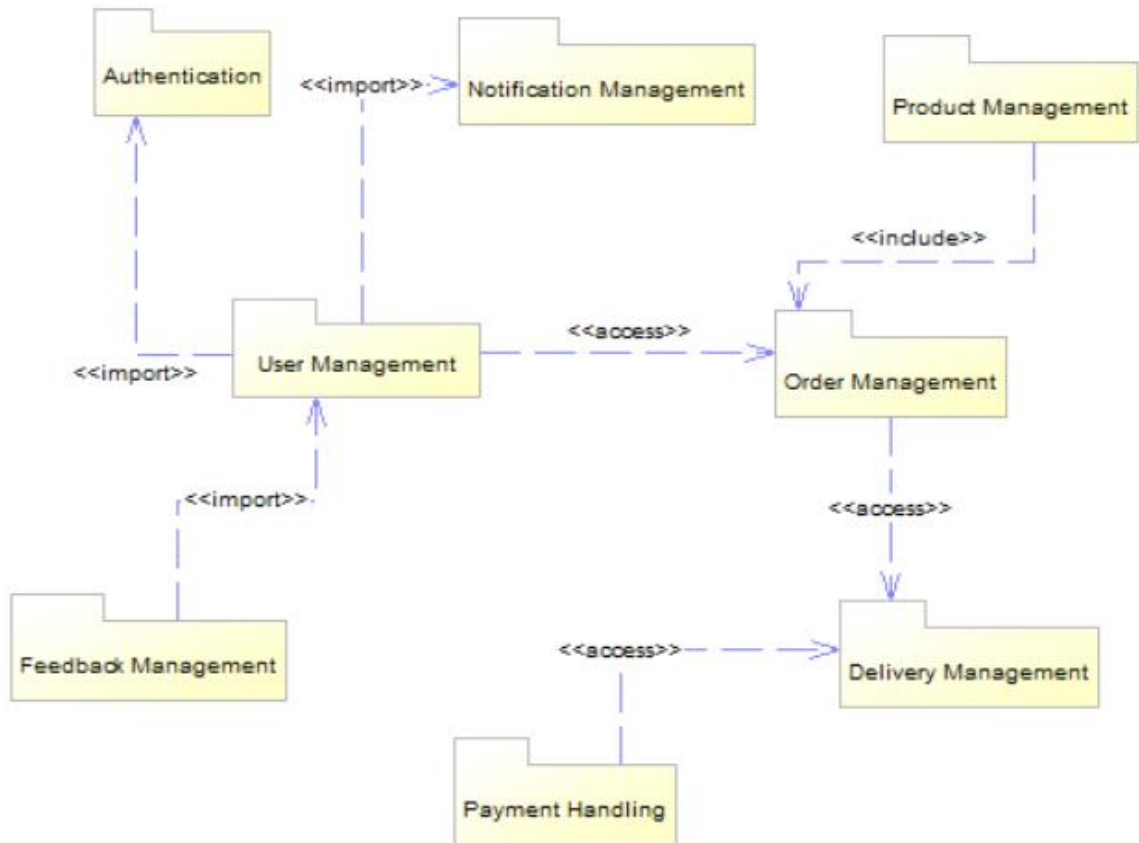


Figure 25: Package diagram of System

IV. OBJECT DIAGRAM

a. Definition

The object diagram represents a specific instance of a class diagram at a specific moment. It allows you to express the class diagram through examples in highlighting the imperceptible details in the class diagram. In other words, the class diagram models the rules, and the object diagram models the facts. One Object diagram is materialized as a class diagram but with some little differences. An object in a system can be an account in a virtual banking system. The object there is defined by his name that will represent him uniquely in memory, his state (his attributes values at a particular moment) and his behaviour (concerning the different task it can do). In an object diagram you don't need to put the last part concerning the operations and the multiplicities are not represented. An object is an instance of a class.

b. Formalism

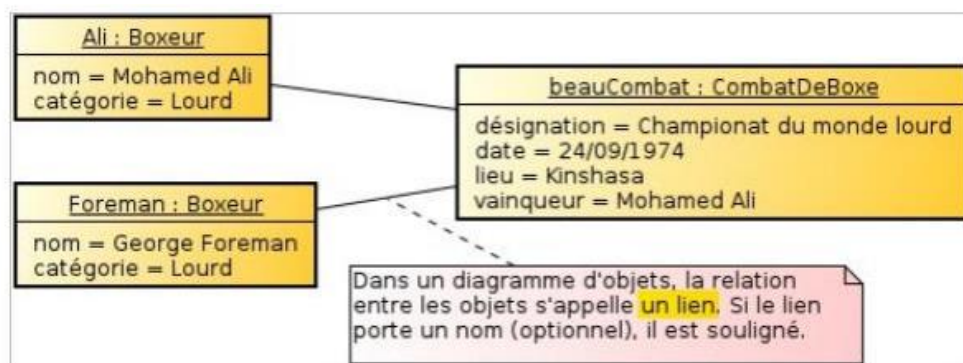


Figure 26: Formalism of an Object Diagram

c. Diagram

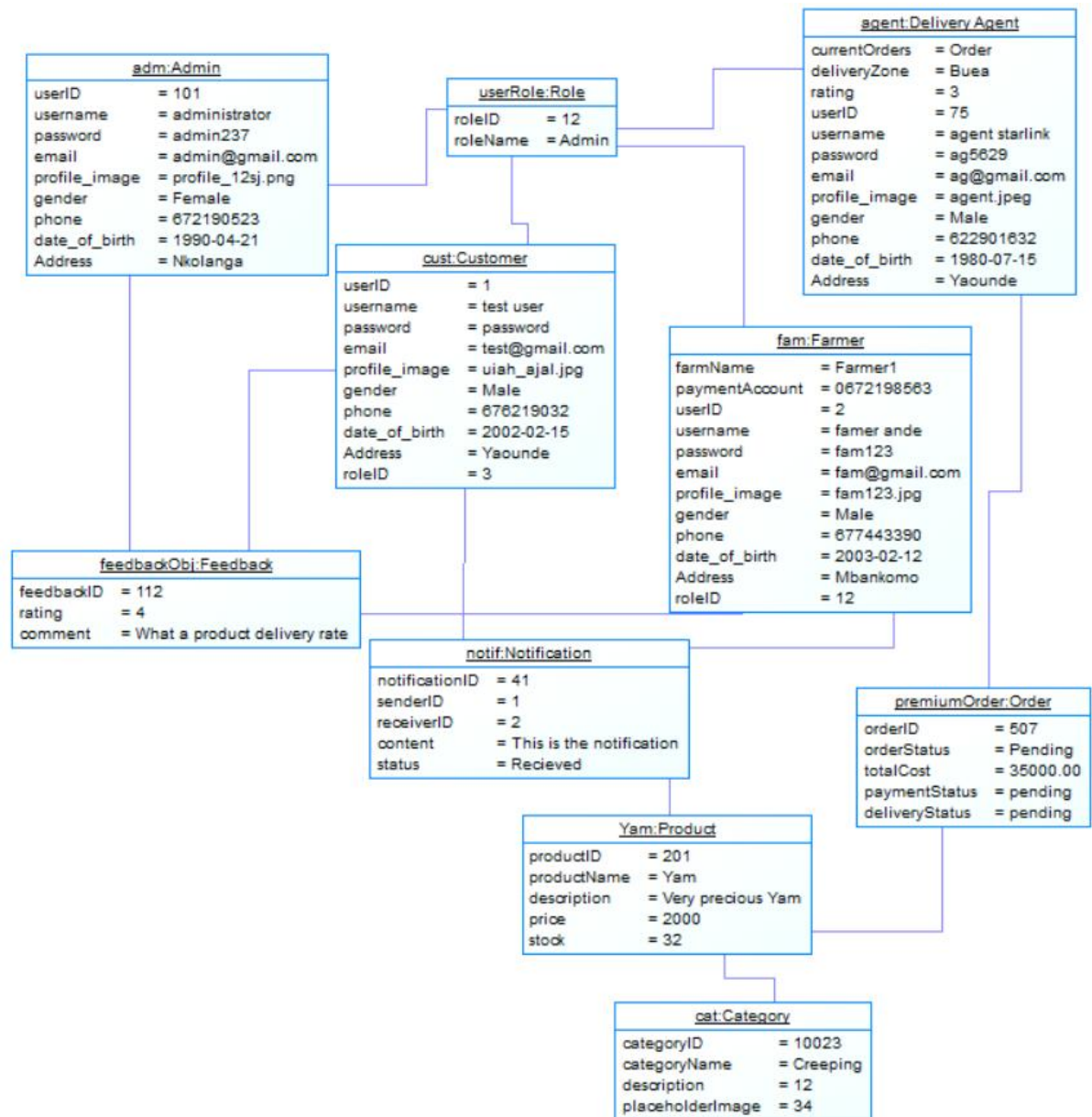


Figure 27: Object diagram of System



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



CONCLUSION

In the conception phase, we set as objective to plane the different aspect of our system by showing how it will be structured and deployed within existing technical architectures. We began by considering the technical constraints for our system, after which we proceeded to identify the components of our system, how they are grouped together and how they should be deployed on appropriate deployment targets. We finished this phase by looking at interactions between the various aspects and actors of our system. The next phase of our report is the realization phase where we will look at aspects concerning the implementation of our system.

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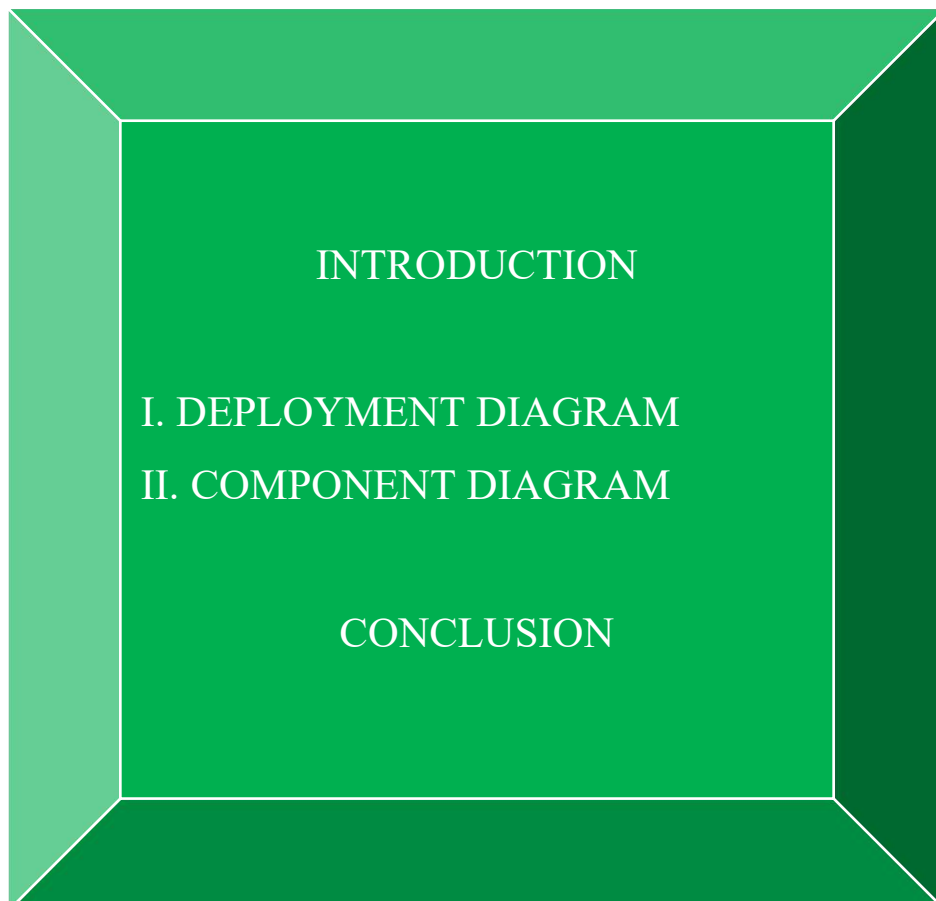


FILE V : THE REALIZATION FILE

Preamble :

In this phase we will go straight forward into the implementation of our solution, we will base ourselves on the analysis and conception phases and also present the component and deployment diagrams.

Plan



INTRODUCTION

In this phase , we will present some diagrams related to the physical aspect of the system like libraries, documents, as well as the physical topology of the components of the system when the software is been deployed.

1. DEPLOYMENT DIAGRAM

a. Definition

Deployment diagram is a structural diagram used to visualize the topology of the physical components of a system, where the software is deployed. They consist of nodes and their relationship. It is related to the component diagram because the components are deployed using the deployment diagram. A deployment diagram consists of nodes. Nodes are nothing but physical hardware used to deploy the application.

b. Formalism

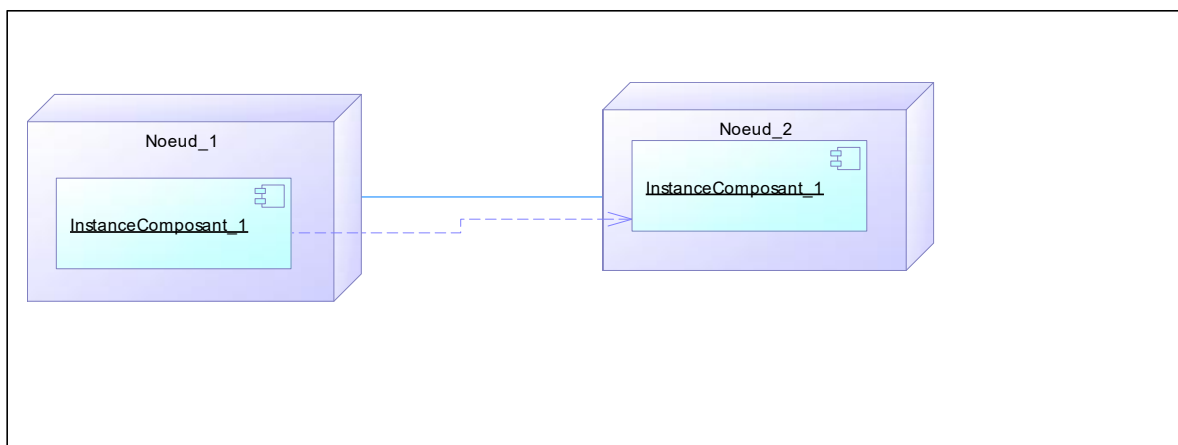
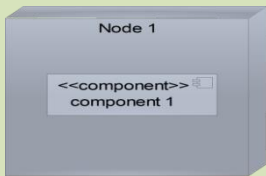

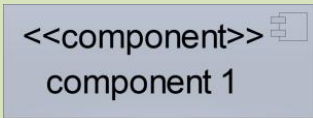



Figure 28: Formalism of deployment diagram

c. Elements

Table 19: Elements of a Deployment diagram

ELEMENT	REPRESENTATION	DESCRIPTION
Node		It is a hardware used to deploy the application
Artifact		An artifact is a major product, which is produced or used during the development of a software. E.g diagrams, data models, setup scripts
Component		It represents a modular part of a system that encapsulates its content and whose manifestation is replaceable within its environment.
Association		An association helps to connect two nodes together which permits them to communicate together

d. Diagram

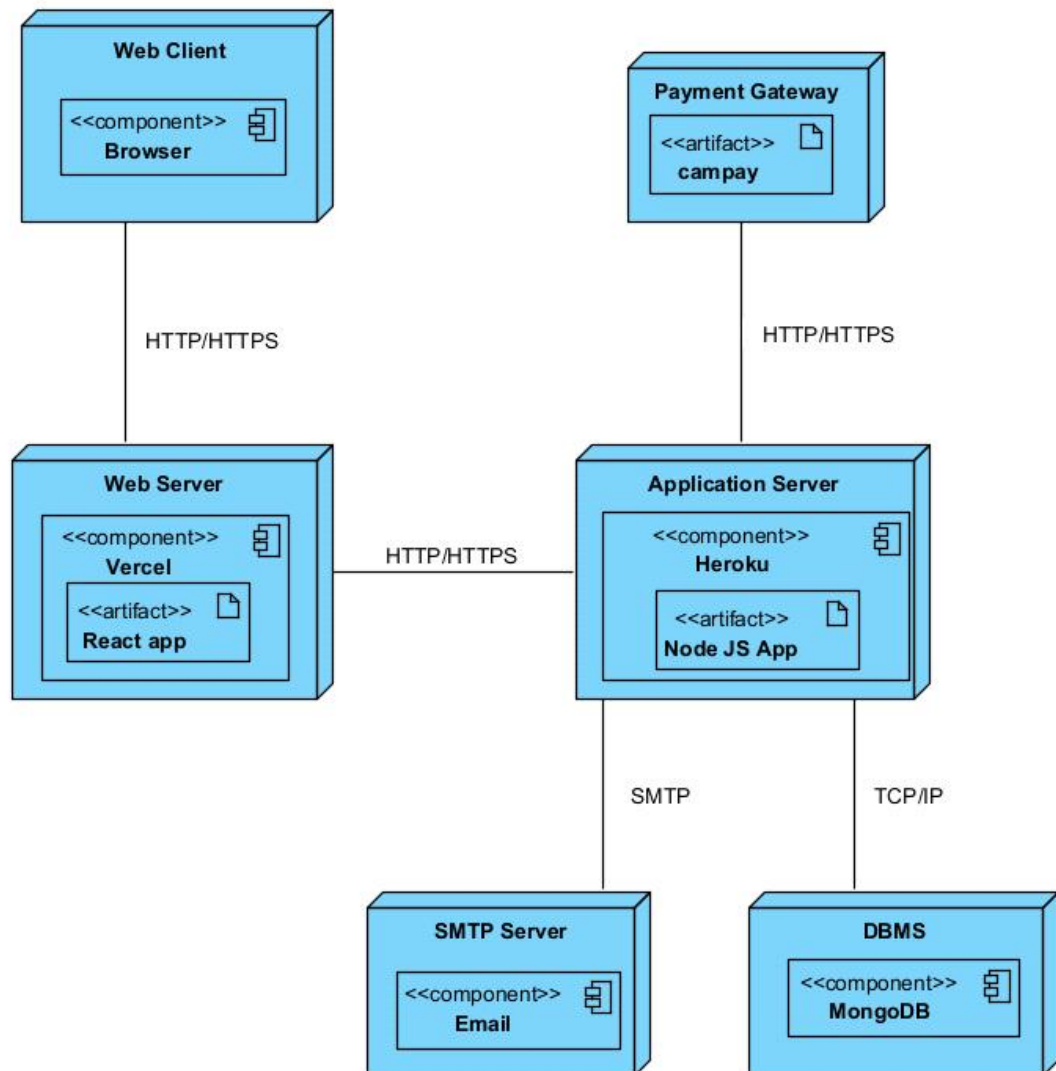


Figure 29: Deployment diagram

2. COMPONENT DIAGRAM

a. Definition

Component diagrams are used to model the physical aspect of a system. Now the question is what are this physical aspect? They are elements such as Executables, libraries, files, document etc. which resides in a node. The component diagram does not describe the functionality of the system, but it describes the components used to make those functionalities.

b. Formalism

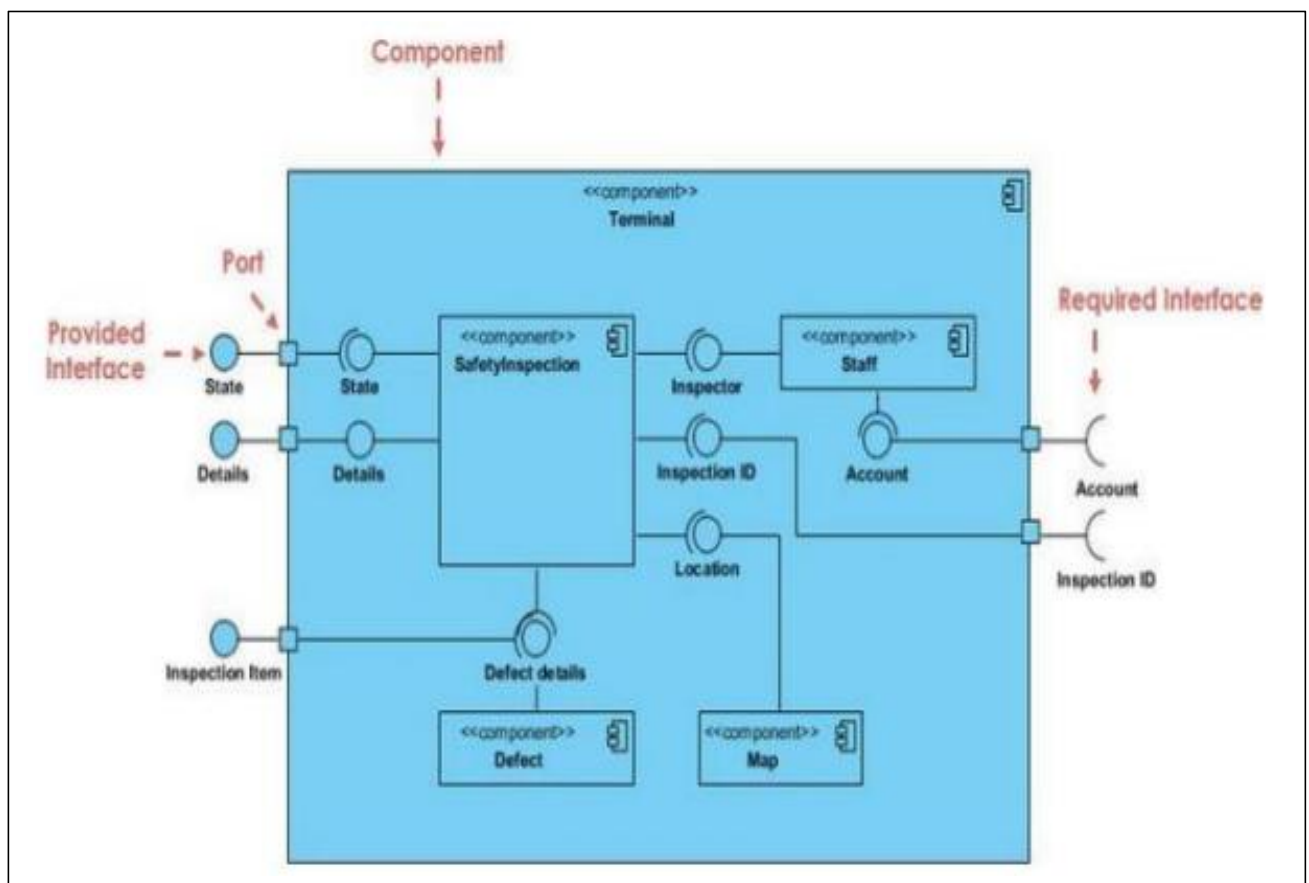


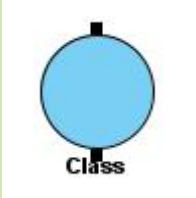



Figure 30: Formalism of a Component diagram

c. Elements

Table 20: Elements of a Component diagram

ELEMENTS	REPRESENTATION	DESCRIPTION
Component		A component is an abstract logical unit block of a system. It is represented as a rectangle with a smaller rectangle in the upper right corner which serves as its icon for recognition.
Dependency		Dependency is a directed relationship which is used to show that some components are dependent on others for their correct functioning.
Interface		An interface (small circle or semi-circle on a stick) describes a group of operations used (required) or created (provided) by components. A full circle represents an interface created or provided by the component. A semicircle represents a required interface, like a person's input.
Port		Ports are represented using a square along the edge of the system or a component. A port is often used to help expose required and provided interfaces of a component.

DIAGRAM

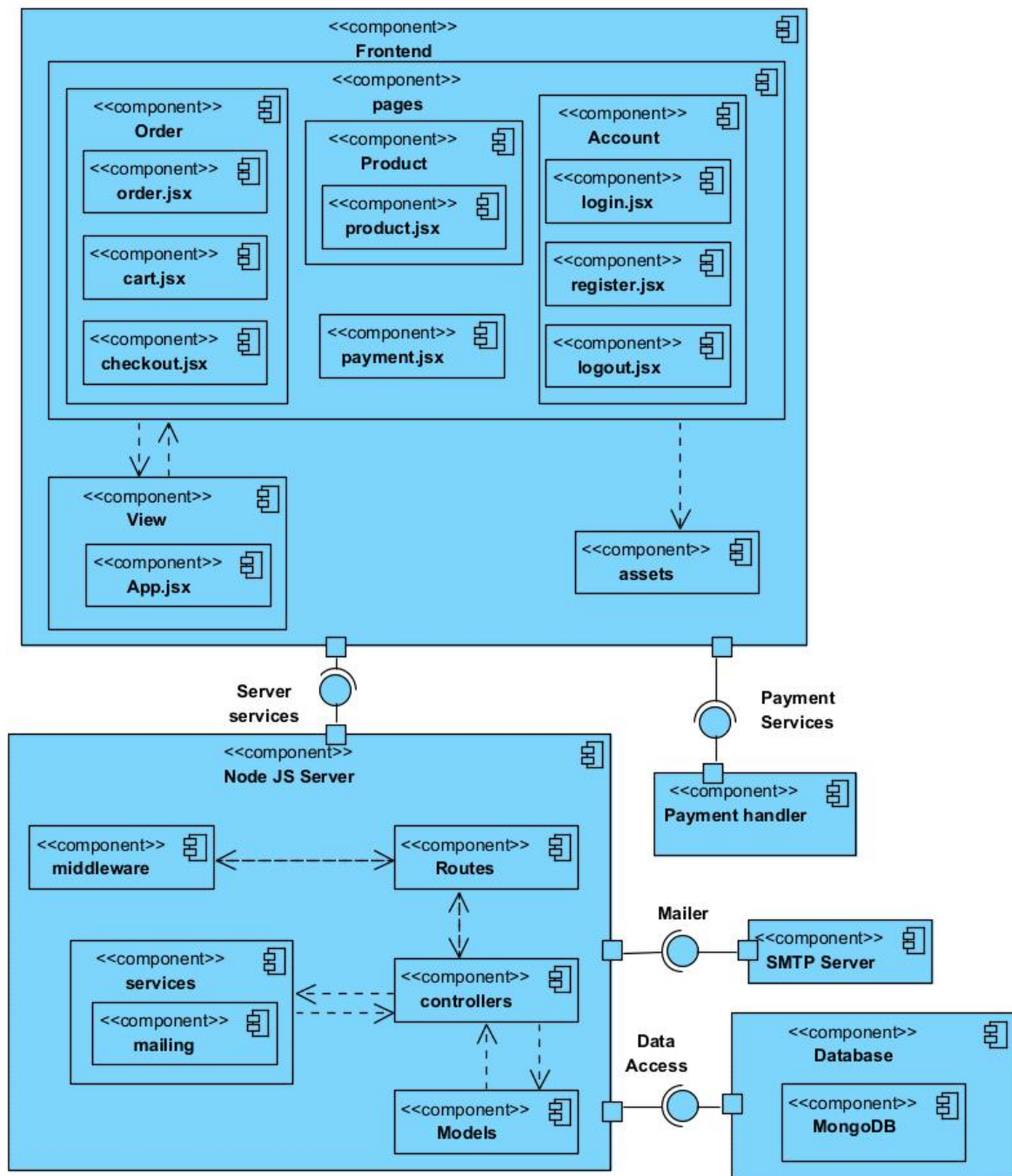


Figure 31; Component diagram



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



CONCLUSION

In our realization phase, we implemented our application. In order to accomplish this phase, we made use of our analysis and conception phase. We also drew the deployment and component diagrams which depict the structure of our system in terms of modules, files, assets, how the different elements interact with each other. We will move to the test of functionalities phase, where we will examine the different modules present in our app and how beneficial they are to its different users.

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FILE VI : FUNCTIONAL TESTING

Preamble

In this phase, we will present the various functionalities of our application.

Plan

INTRODUCTION

1. APPLICATION FUNCTIONALITIES

CONCLUSION



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



INTRODUCTION

The test of functionalities phase helps us to know more about the solution we are building be it web or mobile. It provides the different functionalities or modules found in our application and how they are beneficial to the users. Hence, we are going to explore the different functionalities present in our app.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



I. APPLICATION FUNCTIONALITIES

✧ **Registration**

This functionality permits a visitor to create an account on the platform and have access to many sessions.

✧ **Buying and Selling**

This functionality enables both farmers and customers to sell and buy foodstuffs.

✧ **Authentication**

This functionality enables the users to have access to their workspace or dashboard. In case he/she does not have an account he/she will register.

✧ **Order A Product**

It permits Buyers to order products online and permit the to accept the product delivery.

✧ **Account and Notification Management**

The users are capable of modifying account details by editing their passwords, profile, name, emails. Notifications are received by LEARNERS.

✧ **Log out**

It enables users to close a working session.

CONCLUSION

In the test of functionalities phase we explained the different functionalities of our application and the benefits to the various users (learners, admin). This phase is essential in the understanding of the application. We will move to the last phase which is the installation and user guide which will present how to install and use our app.

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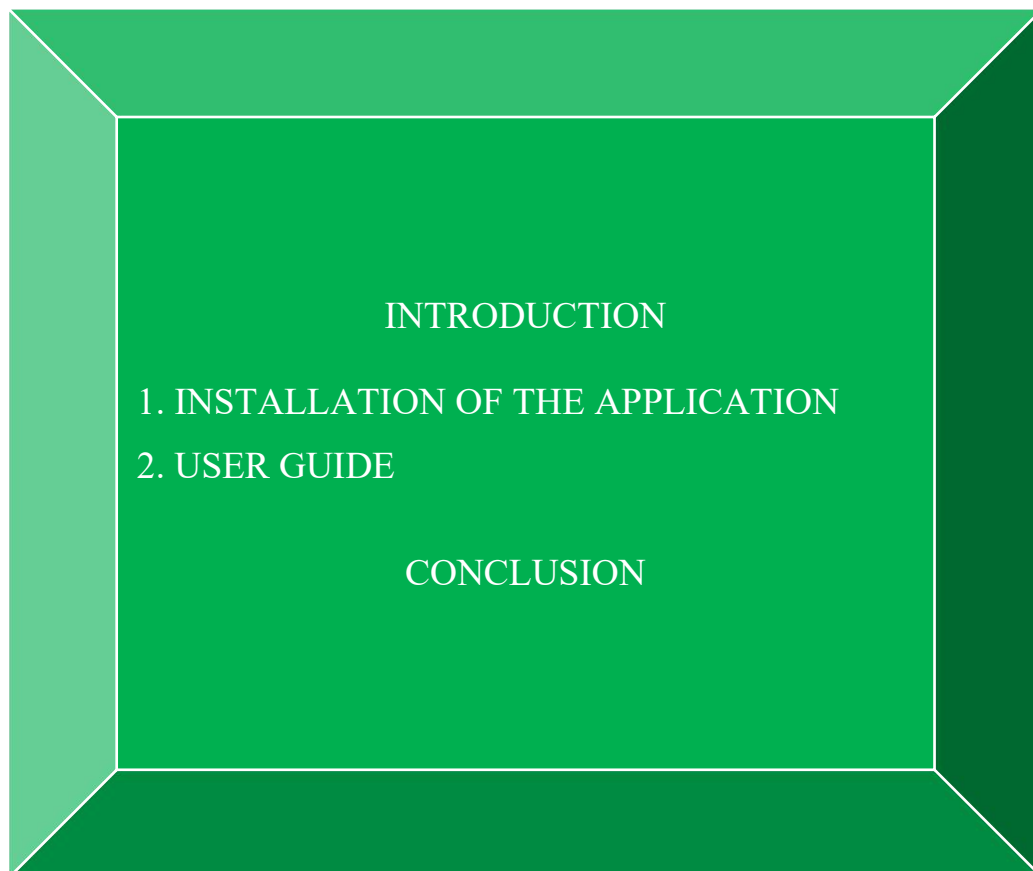


FILE VII : INSTALLATION AND USER GUIDE

Preamble

A user guide commonly known as the manual, is a technical communication document intended to give assistance on how to use the application. Thus, it enables the users to easily use the application in order to familiarize with the software and discover all the functionalities.

Plan





CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



INTRODUCTION

This is the final phase of our report. In this phase we will walk through the requirements for our system, the necessary installation process, accessing our system and its features, all this in a step-by-step manner to facilitate the setting up of the platform for the first-time users. The steps of different processes will be accompanied by images. After we will showcase our application by viewing the different screens.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



I. INSTALLATION OF THE APPLICATION

After developing an application, there is set of activities which must be carried out in order to make the system available for use. This step will mainly consist of hosting the application we have on an application server and running the database on a database server. The following will be used to the deployment:

Necessary Environment

- The database server (MYSQL)
- The application server (Apache)
- Composer
- Git bash
- A browser

Necessary Files

- The application files

A. DATABASE SERVER INSTALLATION

To deploy a software, we need to install it database server, in our case it is MONGO DB that will be installed in our system which is windows.



Figure 32: MONGO Picture

- **First step:** Downloading the mongoDB MSI installer package

We go to <https://www.mongodb.com/try/download/community> in order to download MongoDB. Note that we are downloading the community version since it is free and open source.

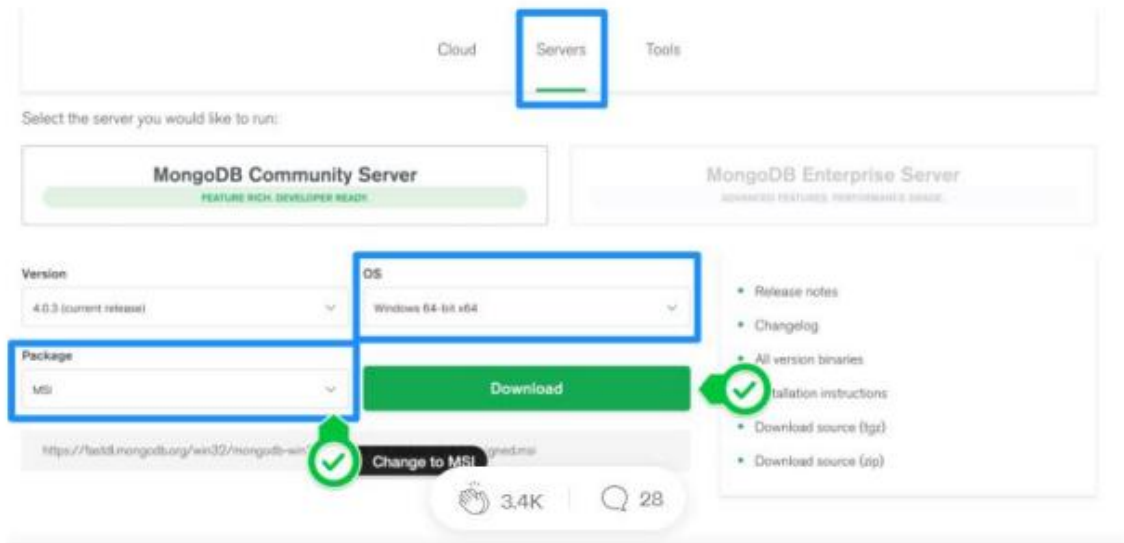


Figure 33: Downloading Mongo DB Community Version

STEP 2: Install MongoDB with the installation Wizard

- A. Make sure you logged in as a user with admin privileges. Then navigate to your downloads folder and double click on the .msi package you just downloaded. This will launch the installation wizard.

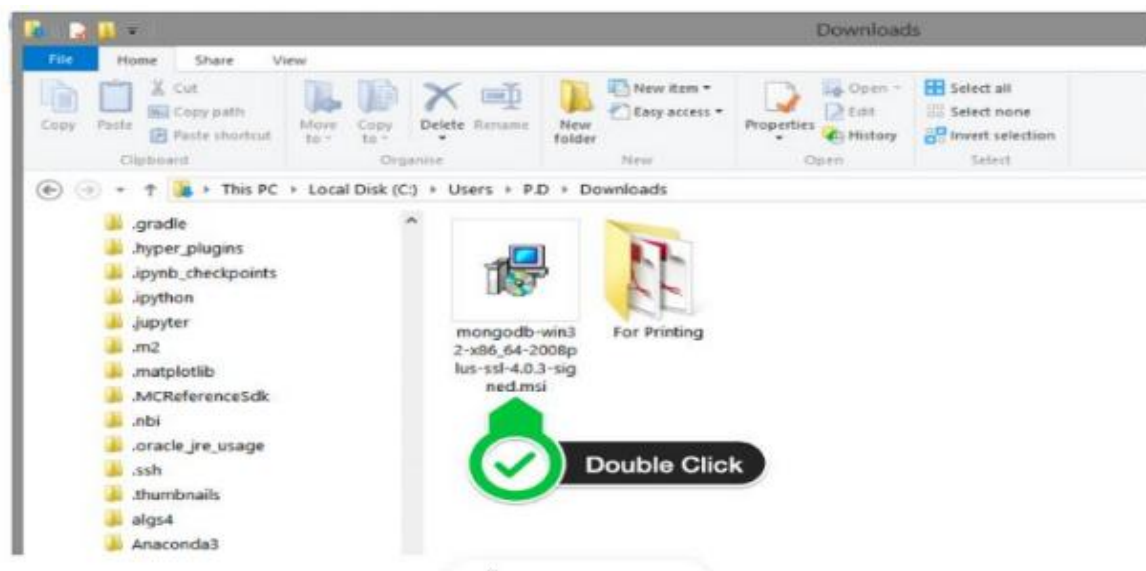


Figure 34: Starting installation Wizard

B. Click on the next button



Figure 35: Click on Next

C. Accept the license agreement then click Install.

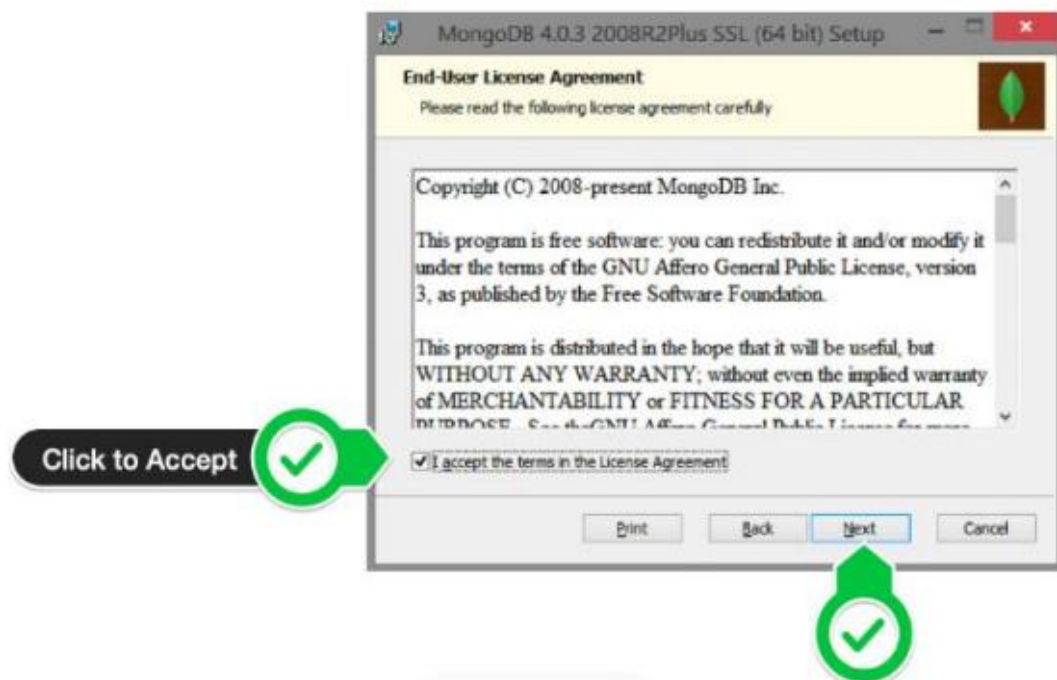


Figure 36: Accept to Install

D.Installing

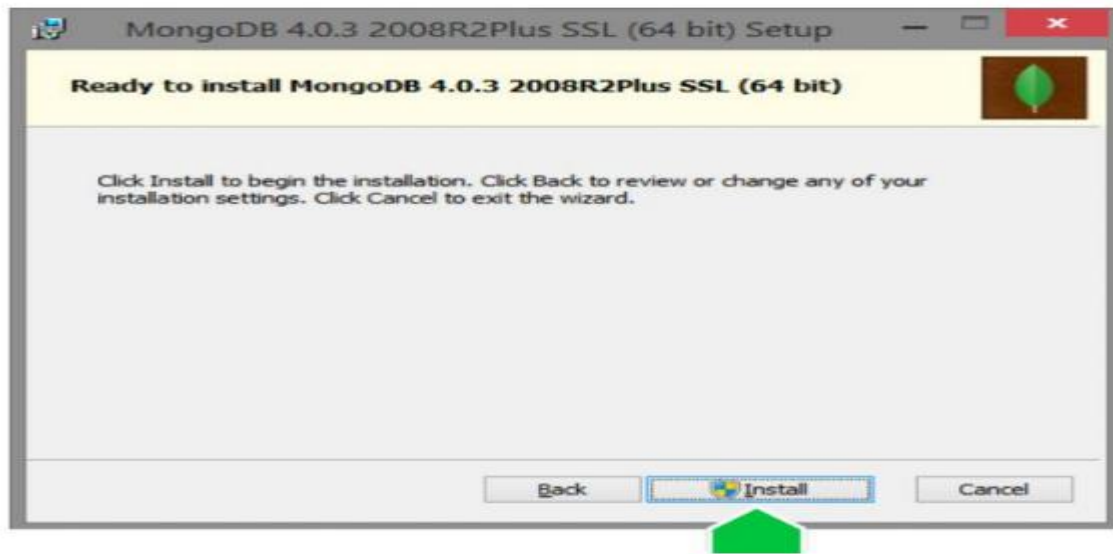


Figure 37: Installing Laragon.

B. APPLICATION INSTALLATION

To be able to use AGRILINK Mobile application, we need to download the PHP and CSS files . After installing it, run the application.

II. USER GUIDE

a. Here we have the login screen

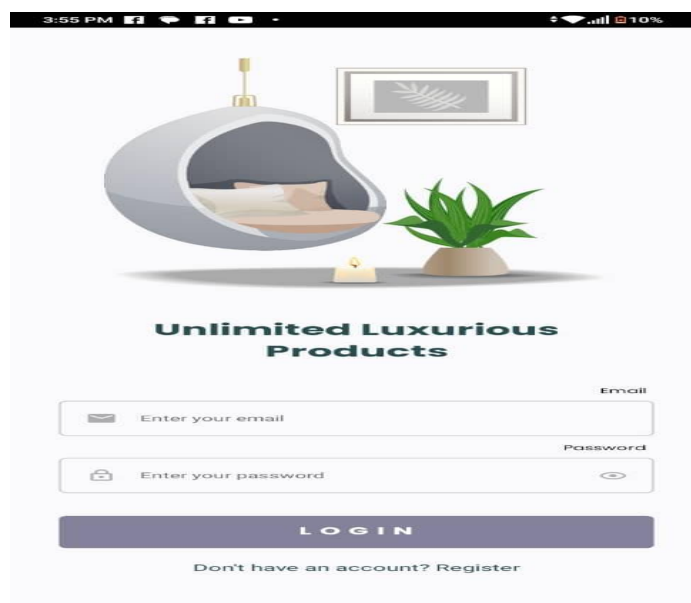


Figure 38: Login In.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



b) This is the register screen

The registration screen features a 'Create Your Account' title at the top. Below it is a dashed box with an upload icon and the text 'Drop or Upload profile picture'. The form includes input fields for 'Full Name', 'Email', 'Phone Number', and 'Password', each with a corresponding icon (person, envelope, phone, and lock respectively). A 'gender' dropdown menu is located below the password field. A large green 'SIGN UP' button is positioned at the bottom of the form. A link that says 'Already have an account? Login.' is located just above the bottom horizontal line.

Figure 39: Registration Page

c) Home Page

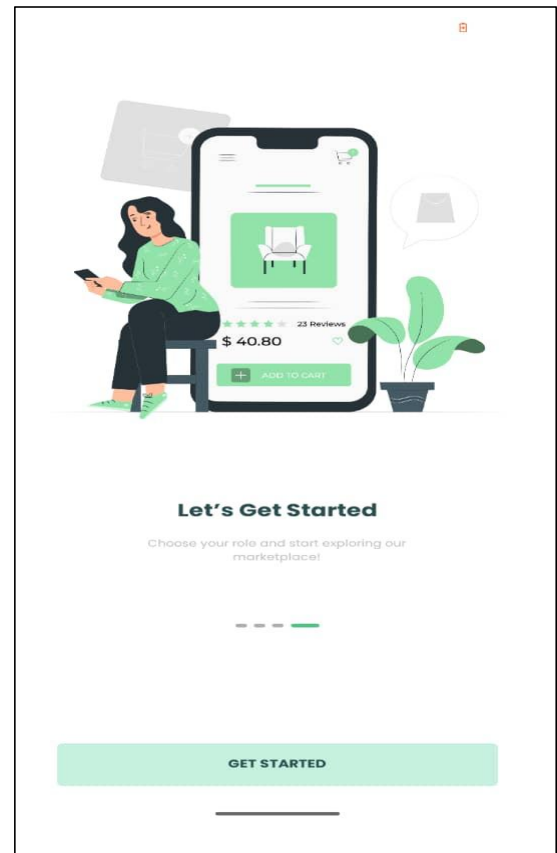


Figure 40: Home Page

d) Delivery Page

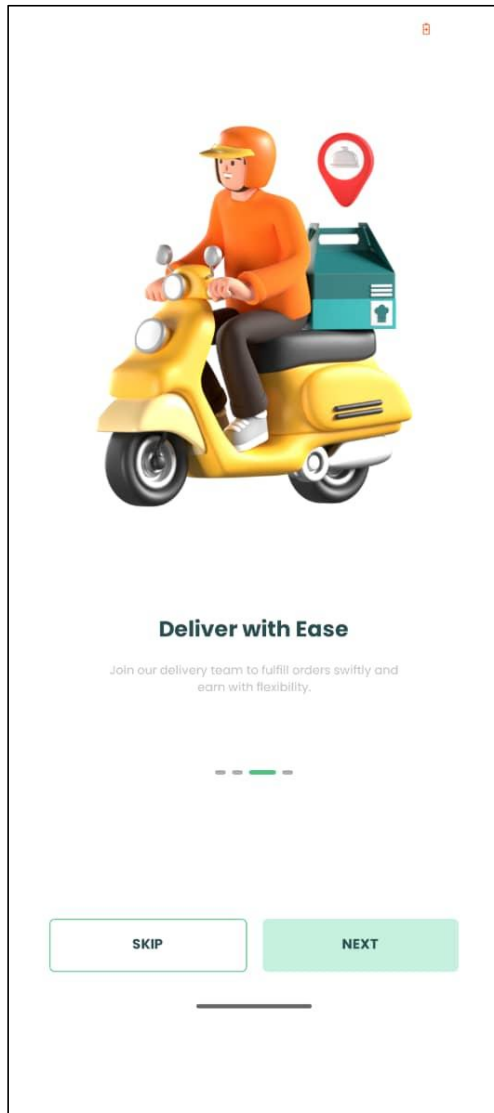


Figure 41: Delivery Page

d) Farm market Page

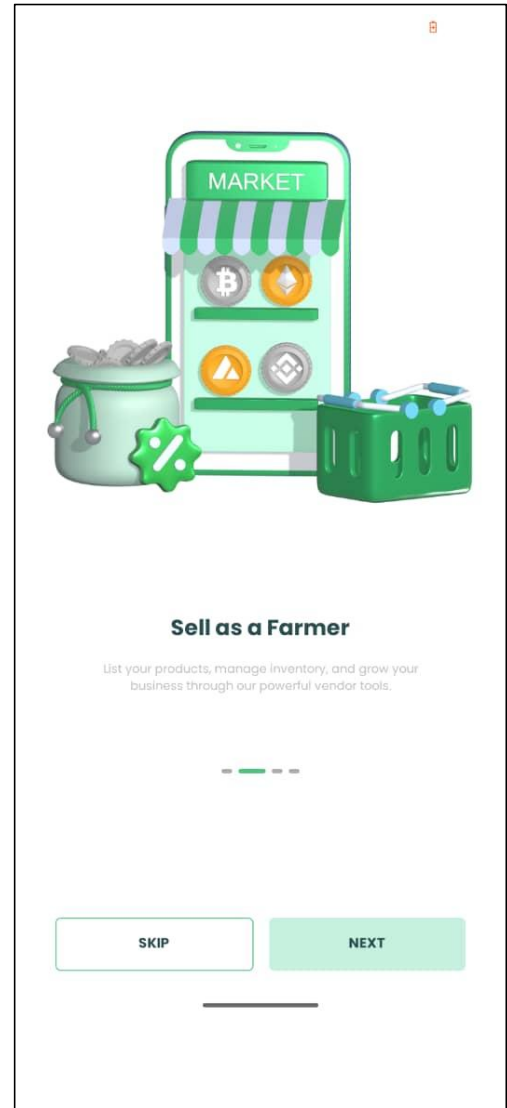


Figure 42: Farm market Page

CONCLUSION

Having put in place the platform, it was not sufficient for we had to produce a manual that will help its various users. That is why we presented the different tools to be installed and how they are to be installed in order to run this application without any problem and how the users will use this platform once the environment is set up.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



PERSPECTIVES

Considering the fact that this project can be improved to a higher extend, as perspectives we can bring some amelioration such as:

- ✧ Implementation of premium version of the app .
- ✧ Implement a Chatbot to improve consumer knowledge on products quality.
- ✧ Developing an AI model for Cameroon.



CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION



GENERAL CONCLUSION

Having arrived at the end of our project, which marks the end of our academic year , we can say that just like the previous years, this academic year was very beneficial in the sense that, apart from the knowledge acquired, a lot of research had to be done to overcome the challenges faced.

With the constant and consistent help of our teachers and friends, we studied the problem that was posed to us, proposed a solution adapted to the problem in the form of a project with theme: “**CONCEPTION AND REALISATION OF A FARMER MARKET PLACE MOBILE APPLICATION**”. We began by identifying the current system in place , project constraints and requirements in the specification book, then we went forth to analyze our system using UML-2TUP methodology.

We made use of Sybase Power AMC, a modelling software used to draw our various diagrams and the various technologies mentioned in the implementation phase, we were able to create a web application that allows the users to have access to many functionalities. Finally, we elaborated a user guide permitting the exploitation of the application put in place, However, all researches have flaws and these limits opens a way to conceptual recommendations for future researches since some elements from this field would continue to be ameliorated over time.

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- ✧ <https://www.geeksforgeeks.org> visited numerous times for sql syntax problems and error debugging January 15th, 2025, 07:00 PM..
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- ✧ linuxhaiti-wordpress.com 15th june,2025 at 5 pm.
- ✧ www.altexsoft.com 20th april, 2025 at 12:14 am.



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