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Title of the Project: **MARKETING MOBILE APPLICATION FOR FARMERS**

#### ***a. Declaration by the Students***

“I/We do hereby declare that this Project submitted in partial fulfillment of the requirements for the Advanced Diploma in Information Technology at IPRC Huye, is my/our original work and has not previously been submitted elsewhere. Also, I/we do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

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## **AUTHORITY TO DEPOSIT THE CORRECTED VERSION OF THE PROJECT TO THE LIBRARY**

We, the undersigned, hereby do testify to have verified the corrections made by the student (names)

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To his/her/their

Project entitled **MARKETING MOBILE APPLICATION FOR FARMERS**

And authorize them to deposit the document to the library of Integrated Polytechnic Regional College Huye.

### **MEMBERS OF THE PANEL**

**Principal Evaluator**

Date ...../March/2021

Names and Signature.....

**Co-Evaluator**

Date ...../ March/2021

Names and Signature.....

## **DEDICATION**

I, NDIKUMANA Paulin dedicate this work to:

The Almighty God;

My lovely Mother Mrs. NYIRABAJUJI Beatha;

My lovely Brothers and sisters

My relative friends.

I, HABINEZA Jean Pierre dedicate this work to:

The Almighty God;

My lovely Father Mr. NTAKAZIRAHU Jean;

My lovely Mother Mrs. NYIRANSANZUBUHORO Astherie;

My lovely Brothers and sisters

My relative friends.

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Finally, we express our gratitude to everyone who directly or indirectly contributed to make our studies until today.

## **ABSTRACT**

This project is aimed for developping a marketing application for Turengerubuzima cooperative. It is a mobile application, which allows this cooperative to market their productions over the online market so that they can sell their products via mobile application. This will be creating opportunities to this cooperative of getting the customers without losing their time for searching the market.

We observed how Marketing application for Farmers works in cooperative Turengerubuzima, it facing problems related to the time spend by farmers to find the market of the productions. Farmers spent money while transporting to reach to the market without specified customers. In order to solve the above problems, we developed Marketing Application for this cooperative which facilitate its farmers.

This Application was developed as an android mobile application with a web based application for achieving the goals and objectives targeted while analyzing this research.

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## **LIST OF ABBREVIATIONS**

**API:** Application Programming Interface

**AVD:** Android Virtual Device

**CPU:** Central Processing Unit

**CSS:** Cascading Style Sheet

**DBMS:** Database Management System

**HTML:** Hyper Text Markup Language

**ICT:** Information and Communication Technologies

**IIS:** Internet Information Server

**IPRC:** Integrated Polytechnic Regional Center

**PHP:** Hyper Text Pre-Processor

**RAM:** Random Access Memory

**RP/IPRC:** Rwanda Polytechnic/Integrated Polytechnic Regional Center

**SDK:** Software development Kit

**SDLC:** Software Development Life Cycle

**TV:** Television

**UK:** United Kingdom

**URL:** Uniform Resource Locator

**XML:** Extensible Markup Language.

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## **CHAPTER.1. GENERAL INTRODUCTION**

### **1.0. INTRODUCTION**

Farming is the act or process of working the ground, planting seeds, and growing edible plants. You can also describe raising animals for milk or meat as farming.

The major agricultural products can be broadly grouped into Food classes include cereals (grains), vegetables, fruits, oils, meat, milk, fungi and eggs. Over one-third of the world's workers are employed in agriculture, second only to the service sector.

Now technology is increasing very fast in the world today. Marketing application for farmers is mobile application, which is based on a powerful tool known as smart phone. The most people around the world use it; it connects buyer and sellers for the purpose of business. In Rwanda, information technology has increased but in Farming still has problems.

Marketing application is an application designed for joining farmers and customers easily for the purposes of view the available products and predicted products. The users with modern smart phone are able to access this application through the mobile application, which is designed specifically for mobile devices not desktop.

New technology can implement this marketing application for farmers in order to facilitate farmers to sell their products to the customers in Rwanda only.

### **1.1 BACKGROUND OF THE STUDY**

The Cooperative TURENGERUBUZIMA MUSHONYI Started in 1998 by INGOZIRARUSHYA Dominic and it is a Private Cooperative but they offer services such as farming. The most interest is based on the “farmer”, The Cooperative Headquarter is located in Rutsiro District, Mushonyi Sector, Biruyi Cell, Mugara Village (INGOZIRARUSHYA Dominic, 2019)

## **1.2. PROBLEM STATEMENT**

Currently TURENGERUBUZIMA Cooperative is facing problems related to the time spend by farmers to find the market of the productions. Farmers spent money while transporting to reach to the market without specified customers. Marketing application for farmers is developed to remove problem found in the existing system.

In order to accomplish our work, the following research question was formulated:

“How marketing application for farmers can be a solution to the problem related to the farmers to find the market with specified customers”

## **1.3. OBJECTIVES OF THE PROJECT**

### **1.3.1. GENERAL OBJECTIVES**

The main purpose of our project is to implement a marketing application for farmers. That handles the problems of cooperative Turengerubuzima Such as to search customers of their productions. This mobile application connects farmers with customers easily.

### **1.3.2. SPECIFIC OBJECTIVES**

Specific Objectives of this marketing application for farmers are the following:

- To develop a mobile application that facilitates the customers to get available products, predicted products; and send orders to the cooperative manager. Therefore, manager view orders and send response to customers.
- To develop a mobile application, to help manager to manage orders where customer send unpaid orders or upload fake receipt, approved/ rejected order, undelivered and delivered orders.
- To develop a mobile application that allows manager to get report to the shareholders, stock, payment and cooperative income.

## **1.4 PERSONAL INTEREST**

This project will help us in better understanding of daily life of farmers and making mobile application as well. It will also help us to gain more skills and experience about development in mobile application and web-based application, research also improved in advanced way.

## **1.5 COOPERATIVE INTEREST**

This study aids to find out the possible and necessary solutions to the COOPERATIVE TURENGERUBUZIMA problems after collected data, the Marketing application for farmers is the answer of the given problems.

## **1.6 COMMUNITY INTEREST**

The Farming gives opportunities to eradicate the lack of productions to the market. the Minor Farmer gets motivation to improve the level of production after being inspired of this Marketing application; this application will be available to all Rwandans people by getting more information from management of Turengerubuzima cooperative.

## **1.7 SCOPE OF THE PROJECT**

This Marketing application for farmers will only focuses on shareholder's products in TURENGERUBUZIMA Cooperative. It only deals with the process of searching the customers to their productions and advertisement, to be popular on the wide market to handle the problem of marketing faced in farming especial in COOPERATIVE TURENGERUBUZIMA MUSHONYI.

## **1.8. HYPOTHESIS OF THE STUDY**

This research project aimed to achieve the following hypothesis “Practically, it is possible to develop marketing application for farmers that facilitates the cooperative members to get easy market to their productions and facilitates customers to view all available and predicted products from cooperative”.

## **1.9. METHODOLOGY AND TECHNIC**

This research has conducted under the use of different tools as data collection including documentations, observation and interview to gather the necessary data helpful to the realization of our project.

The Internet was used to extend the concepts provided by books and observation to view what done in reality and analyzes it for more information. The software development methodology was used is the waterfall model.



## **1.10. ORGANIZATIONS OF STUDY**

**Chapter 1: General introduction,** it contains introduction, background of the study, problem statement, objectives, interest, and scope, Hypothesis of the study.

**Chapter 2: Literature Review,** it provides details on introduction, review of researches of the system, review of existing systems, methods, techniques and the summary.

**Chapter 3: Research methodology and Analysis of the Project,** It shows design diagrams of new system and interface connectivity to implement new systems.

**Chapter 4: Implementation of new System,** It deals with Implementation of new system.

**Chapter 5: Conclusion and Recommendation,** It Concludes and recommends the work for further researchers.

## **CHAPTER2. LITERATURE REVIEW**

### **2.0. INTRODUCTION**

The purpose of this chapter is to give a short description of the terms used during the development of this application. It provides definitions and characteristics of technologies used. Theoretical concepts that were used; they seem as the complex, so the description provides overview of those concepts.

### **2.1. CUSTOMER**

Customer is a person who buys goods and services (Cambridge university, 2018)

### **2.2 SHAREHOLDER**

Shareholder is a person who owns some of the equal parts into which ownership of a company is divided (Cambridge university, 2018)

### **2.3. COOPERATIVE**

A cooperative is an association of persons or organization that is owned and controlled by the people to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically controlled business or enterprise. (Cambridge University, 2014)

### **2.4 INFORMATION SYSTEM CONCEPT**

#### **2.4.0. SYSTEM**

A System is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective. It is a collection of elements or components that are organized for a common purpose (merriam-webster, 2016)

#### **2.4.1 INFORMATION**

It is the processed data, which is meaningful. It obtained as the results of processing, manipulating and organizing data in suitable form for human interpretation and in fashion that add to the knowledge of person and make sense to him. (Merriam-webster, 2016)

## **2.4.2 INFORMATION SYSTEM**

An information system (IS) is an arrangement of people, data, processes, communications, and information technology that interact to support and improve day-to-day operations in a business as well as support the problem-solving and decision making needs of management. (Sun Microsystems, 2015)

## **2.5 DATABASE CONCEPTS**

### **2.5.0. DATA**

Data are the values that are stored in the database. They are static in the sense that they remain in the same state until it modified to give them value and make them meaningful system (P. Beynon-Davies, 2002)

### **2.5.1. DATABASE**

A database is a collection of information organized to provide efficient retrieval. Typically, a database contains all the data that is associated with one application or with a group of related applications. (M.A. Kahn, D.L. Rumelhart, and B.L. Bronson, 1977)

### **2.5.2 DATABASE SYSTEM**

Database system is a computerized record-keeping system.

It is a computerized system whose overall purpose is to store information and to allow users to retrieve and update that information on demand. (David and John, 2010)

### **2.5.3 DATABASE MANAGEMENT SYSTEM**

Database management system is a set of programs that enables storing, modifying, and extracting information from a database. ( David and John, 2010)

## **2.6 ANDROID CONCEPTS**

### **2.6.0 ANDROID**

Android is a mobile operating system developed by Google, based on modified version of the Linux kernel and other open source software and designed primarily for touch screen mobile devices such as tablet, and smart phones. In addition, Google has further developed an android TV for televisions, android auto for cars, and wear OS wrist watches, each with a specialized user interface. (K. Chinetha, 2015)

### **2.6.1 APPLICATION**

A set of detailed methods, procedures and routines created to carry out a specific activity, perform a duty, or solve a problem. (Richard, 2012)

### **2.6.2 ANDROID EMULATOR AND ANDROID VIRTUAL DEVICE**

The Android tooling contains an Android device emulator. This emulator can be used to run an Android Virtual Device (AVD), which emulates a real Android phone, for example Genymotion. AVDs allow you to test your Android applications on different Android versions and configurations without access to the real hardware. Even if you have a real Android device available, you should get familiar with the creation and usage of AVDs. Virtual devices give you the possibility to test your application for selected Android versions and specific configurations. During the creation of your AVD, you define the configuration for the virtual device. This includes, for example, the resolution, the Android API version and the density of your display. (Skogberg, 2010)

## **2.7 NETWORK CONCEPTS**

### **2.7.0 CLIENT/SERVER ARCHITECTURE**

Client server architecture is a technology that separates computers and application software into two categories clients, and servers to better employ available computing resources and share data processing loads. (Sun Microsystem, 2009)

### **2.7.1 DATABASE SERVER**

A database server is a computer program that provides database services to other computer programs or computers, as defined by the client–server model. It can also be defined as a server dedicated to providing database services (Urlocker, M. Zack, 2005)

### **2.7.2 WEB SERVER**

A Web server is a program that, using the client/server architecture and the World Wide Web's Hypertext Transfer Protocol (HTTP), serves the files that form Web pages to Web users (whose computers contain HTTP clients that forward their requests). Every computer on the Internet that contains a Web site must have a Web server program. ( Web developer's notes, 2007)

Two leading Web servers are

- Apache, the most widely-installed Web server, and
- Microsoft's Internet Information Server (IIS).

### **2.7.3 WEB BROWSER**

A web browser is an interactive software application for retrieving, presenting, and traversing information resources on the World Wide Web. The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. An information resource is identified by a Uniform Resource Identifier (URI) and may be a web page, image, video, or other piece of content. Some of the popular web browsers are: Internet Explorer, Mozilla Firefox, Netscape, and Opera. (Jacobs, Ian; Walsh, Norman, 2009)

### **2.7.4 WEB PAGE**

A web page is a web document or other web resource that is suitable for the World Wide Web and can be accessed through a web browser and displayed on a monitor or mobile device identified by an URL. (Web design, 2006)

## **2.8 TOOLS AND PROGRAMMING LANGUAGE TO USE**

### **2.8.0 STRUCTURED QUERY LANGUAGE**

Structured Query Language (SQL) is a standard programming language used for accessing and maintaining a database. SQL is the set of commands that are used to create, manipulate the structures in a relational database. Also, SQL is the most powerful way of retrieving the data from database. (Oppel, Andy, 2004)

### **2.8.1 MYSQL**

MySQL is an open source relational database management system (RDBMS) based on Structured Query Language. (Mackmillan, 2016)

### **2.8.2 HTML**

Hypertext Markup Language (HTML) is the main markup language for creating web pages and other information that can be displayed in a web browser. HTML defines the structure and layout of a Web document by using a variety of tags and attributes. ( Philippe le Hegaret, 2016)

### **2.8.3 XAMPP**

XAMPP is developed by Apache Friends to promote the Apache web server. XAMPP Acronym is X or extended (Apache, MySQL, PHP, PERL); Apache Friends developed this software to help the people to install and configure Apache web server along with MySQL, PHP and Perl.

Therefore, when we were releasing our project we used this software in order to be connected together with MySQL database, PHP and Apache as a web server within local host (Burton, Richard Antony, 2014)

### **2.8.4 PHP**

PHP is a recursive acronym that stands for Hypertext Preprocessor. It is a scripting language that's usually embedded in HTML of a web page to make it dynamic. When the page is requested, the web server executes the PHP script and substitutes in the result back into the page. PHP is a server side scripting language and a widely used programming language for web and software product development. This is because it supports different databases like MySQL which is an open source database management system. (Lerdorf, Rasmus, 2007)

### **2.8.5 JAVASCRIPT**

JavaScript is a programming language that can be included on web pages to make them more interactive. It is used to check or modify the contents of forms, change images, open new windows and write dynamic page content. This allows us to make parts of our web pages appear or disappear or move around on the page (java notes, 2011)

### **2.8.6 CSS**

CSS stands for cascading Style Sheet and is a software application used to format layout of web pages. It can be used to define text styles, table sizes and other aspects of web pages that could be defined in the HTML pages. CSS helps the web and application developers create a uniform look across several pages of the website or of applications. (Cambridge University, 2015)

### **2.8.7 NOTEPAD++**

Notepad++ is a powerful, feature-packed text editor that more or less has everything Notepad needs but lacks (it can replace Notepad in Windows). It supports 27 programming languages, searches regular expressions, and supports syntax highlighting and folding, synchronized edits and views, and much more. (Cambridge University, 2015)

## **CHAPTER 3: RESEARCH METHODOLOGY AND ANALYSIS OF THE PROJECT**

### **3.0 INTRODUCTION**

This chapter focuses on how project is developed. It deals with methods and techniques that have been used in this project to collect the data. In any domain on which the research is carried out, some specific methods and other techniques that the research is referring are recommended. It refers to the theoretical analysis of the system development and data collection techniques

### **3.1 DATA AND INFORMATION COLLECTION TECHNIQUES**

#### **3.1.0 OBSERVATION**

Observation is a way of gathering data by watching behavior, events, or noting physical characteristics. For example, I have been visited the cooperative at headquarter when they were in the meeting of handling the big problem in cooperative of loosing market of the whole collected productions.

#### **3.1.1 INTERVIEW**

Interview has different types. The main types are face-to-face interview and telephone interview where questions are asked by the interviewer to get information from interviewee. For us we used face-to face interview with cooperative manager called INGOZIRARUSHYA Dominic.

#### **3.1.2 DOCUMENTATION**

Documentation defined as the process of reading books, documents from library, and browsing on the internet for searching important information related to the topic/subject. For us we used internet to search farmer's information.



## 3.2 SOFTWARE DEVELOPMENT PROCESS MODEL

Software process models represent a networked sequence of activities, objects, transformations, and events that embody strategies for accomplishing software evolution. Such models can be used to develop more precise and formalized descriptions of software life cycle activities. Their power emerges from their utilization of a sufficiently rich notation, syntax, or semantics, often suitable for computational processing (John w. and Sons, 2001)

### 3.2.0 WATERFALL MODEL

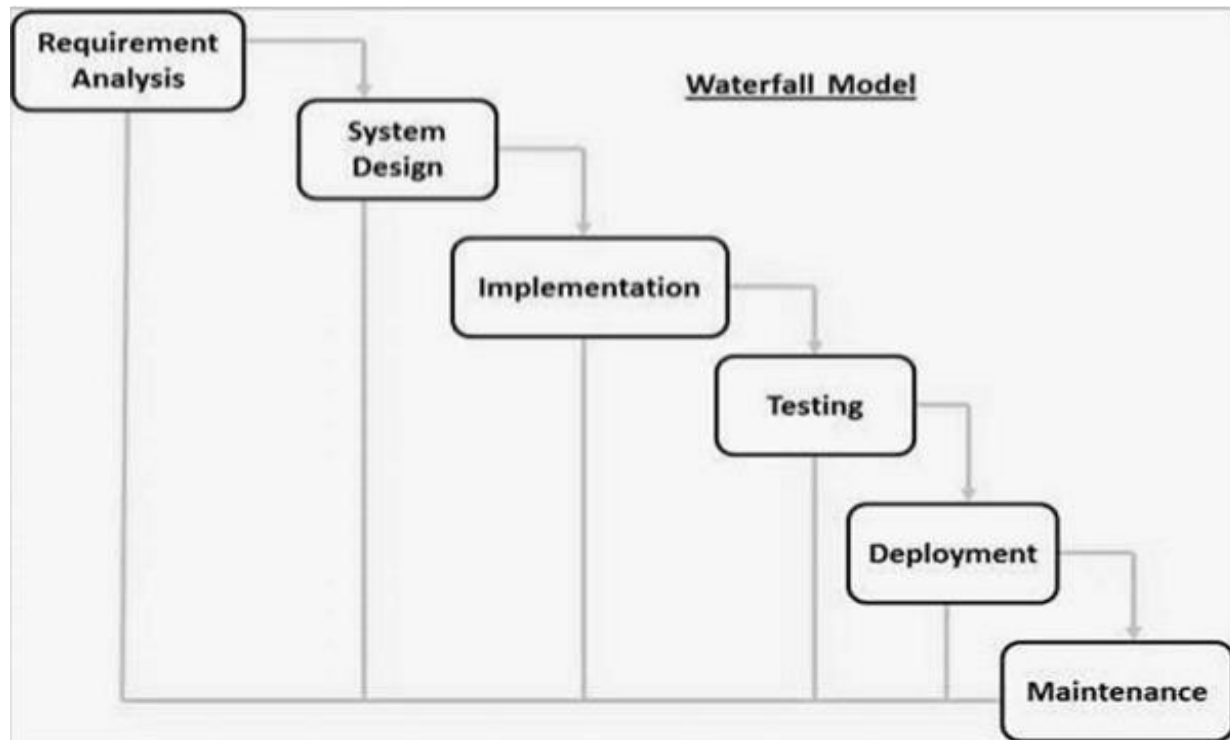
The waterfall software development process model is probably the oldest publicized model. It is sometimes referred to as the classic software life cycle model. Although many organizations utilize this model. The name of waterfall model is derived from the process it represents; tasks occur sequentially one after another, with the output from one task dropping into next task (“Jones and Bartlett”, n.d, para 4). Stages of the Waterfall Model Details are listed below:

- **Requirement Analysis and Definition:** All possible requirements of the system to be developed are captured in this phase. Requirements are a set of functions and constraints that the end user (who will be using the system) expects from the system. The requirements are gathered from the end user at the start of the software development phase. These requirements are analyzed for their validity, and the possibility of incorporating the requirements in the system to be developed is also studied. Finally, a requirement specification document is created which serves the purpose of guideline for the next phase of the model. (Harvard University, 2017)
- **System and Software Design:** Before starting the actual coding phase, it is highly important to understand the requirements of the end user and also have an idea of how should the end product looks like. The requirement specifications from the first phase are studied in this phase and a system design is prepared. System design helps in specifying hardware and system requirements and also helps in defining the overall system architecture. The system design specifications serve as an input for the next phase of the model. (Harvard University, 2012)
- **Implementation and Unit testing:** On receiving system design documents, the work is divided in modules/units and actual coding is started. The system is first developed in

small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality; this is referred to as unit testing. Unit testing mainly verifies if the modules/units meet their specifications. (Harvard University, 2012)

- **Integration and System Testing:** As specified above, the system is first divided into units which are developed and tested for their functions. These units are integrated into a complete system during integration phase and tested to check if all modules/units coordinate with each other and the system as a whole behaves as per the specifications. After successfully testing the software, it is delivered to the customer. (Harvard University, 2012)
- **System Deployment:** Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market. (Pyong X., 2014)
- **Operations & Maintenance:** this phase of the model is virtually a never-ending phase. Generally, problems with the system developed (which are not found during the development life cycle) come up after its practical use starts, so the issues related to the system are solved after deployment of the system. Not all the problems come into picture directly but they arise from time to time and need to be solved; hence this process is referred to as maintenance. (Harvard University, 2012)

## WATERFALL MODEL



*Figure 1: Waterfall model*

### 3.3 DESCRIPTION OF THE CURRENT SYSTEM

In the current system, the shareholders were suffered to get the customers where each shareholder was suggested to find customers him/herself at the market (home or away). The cooperative Turengerubuzima get profits from each shareholder, where shareholders get the seeds, fertilizer and animal from cooperative. So, after predicted period, the shareholders pay money at low cost after production to the cooperative.

### 3.4 NEW PROPOSED SYSTEM

According to existing system, we have found that it would be better to design mobile application for resolving the problems that challenging the current system.

The new implemented application facilitates cooperative to set available and predicted products to the customers, so that the customers will view products information on mobile application and send the requests to the cooperative without spend the time of going to the cooperative office.

The manager also will provide a response to the customer request, adding shareholders, products, pay money to shareholder, view report to cooperative.

Also it is used by cooperative manager to send feedback to customers after checking all required document and money paid by customers for the ordered products.

### 3.5 USE CASE DIAGRAM

A use case diagram is a graphic depiction of the interactions among the elements of a system.

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. In this context, the term "system" refers to something being developed or operated, such as a mail-order product sales and service Web site. Use case diagrams are employed in UML (Unified Modeling Language), a standard notation for the modeling of real-world objects and systems. (web programming notes, 2014)

#### USE CASE DIAGRAM



*Figure 2: Use Case Diagram*

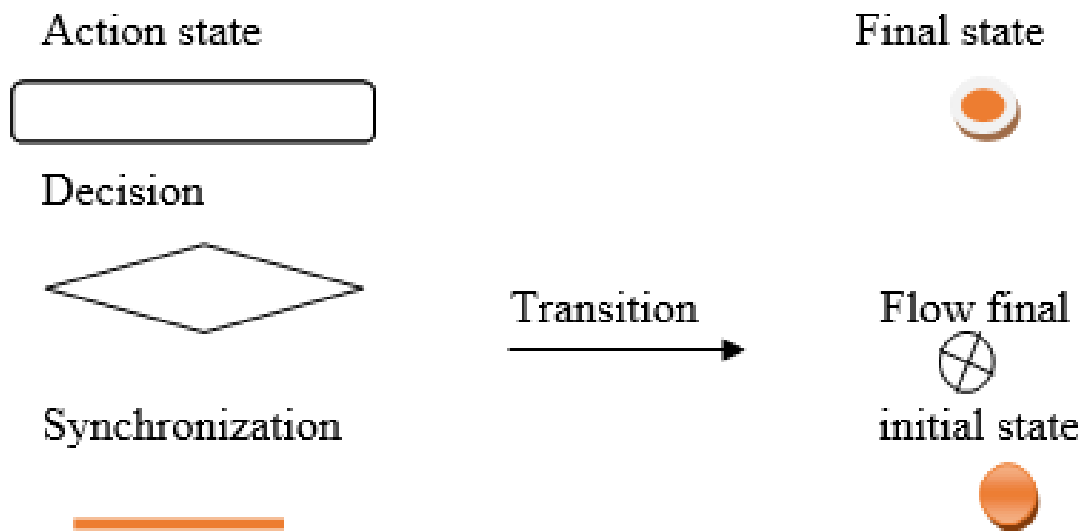
## 3.6 ANALYSIS OF NEW SYSTEM

### 3.6.0 ACTIVITY DIAGRAMS FOR SYSTEM USERS

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.

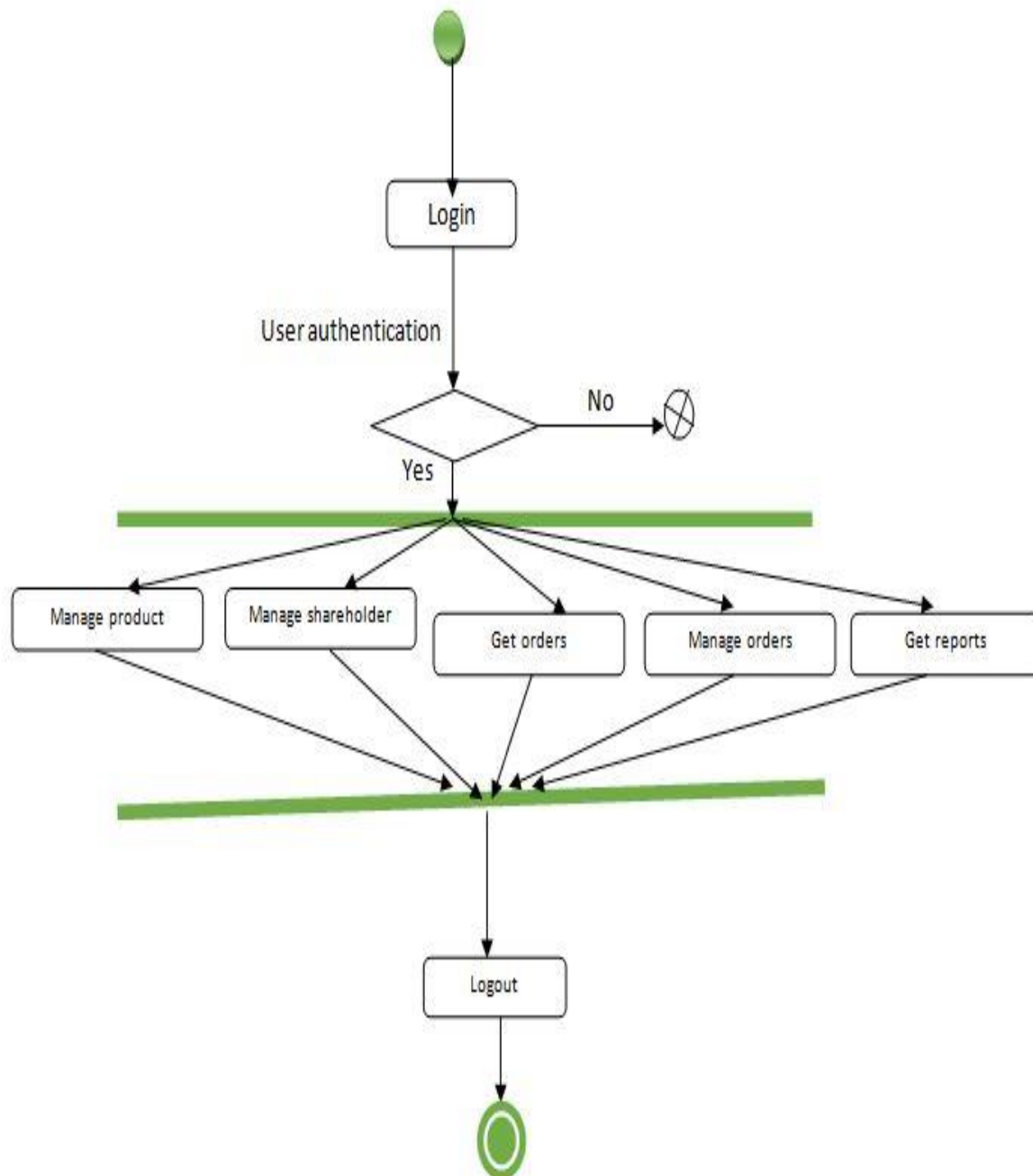
The control flow is drawn from one operation to another. This flow can be sequential, branched, or concurrent. Activity diagrams deal with all type of flow control by using different elements such as fork, join, etc.

As we have seen our system has two users, which are Manager, customer.



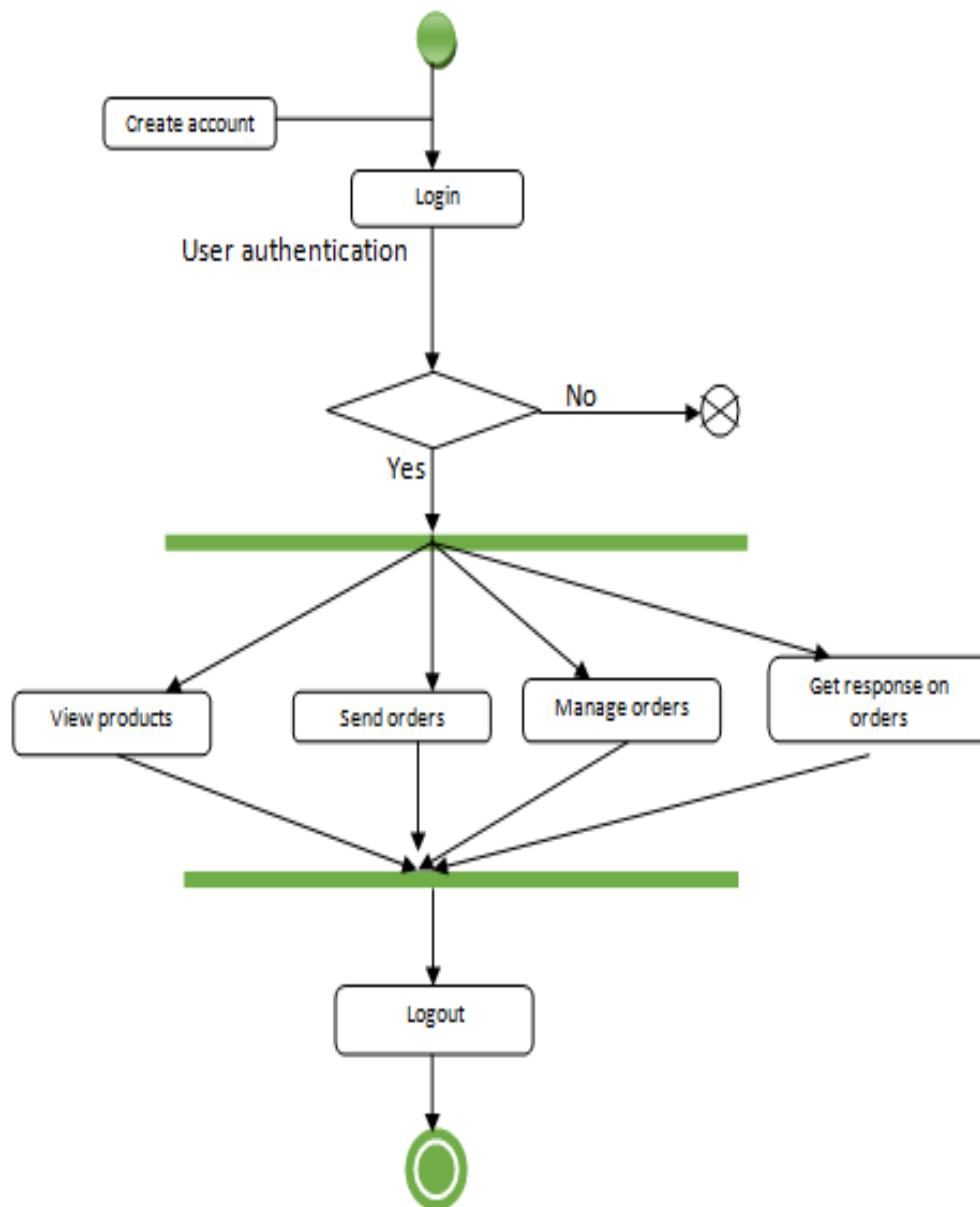
*Figure 3: Activity diagram symbols*

### 3.6.1 ACTIVITY DIAGRAM OF MANAGER



*Figure 4: Activity Diagram of Manager*

### 3.6.2 ACTIVITY DIAGRAM OF CUSTOMER



*Figure 5: Activity Diagram of Customer*

### 3.6.3 SENQUENCE DIAGRAM

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're 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 modeling a new system.

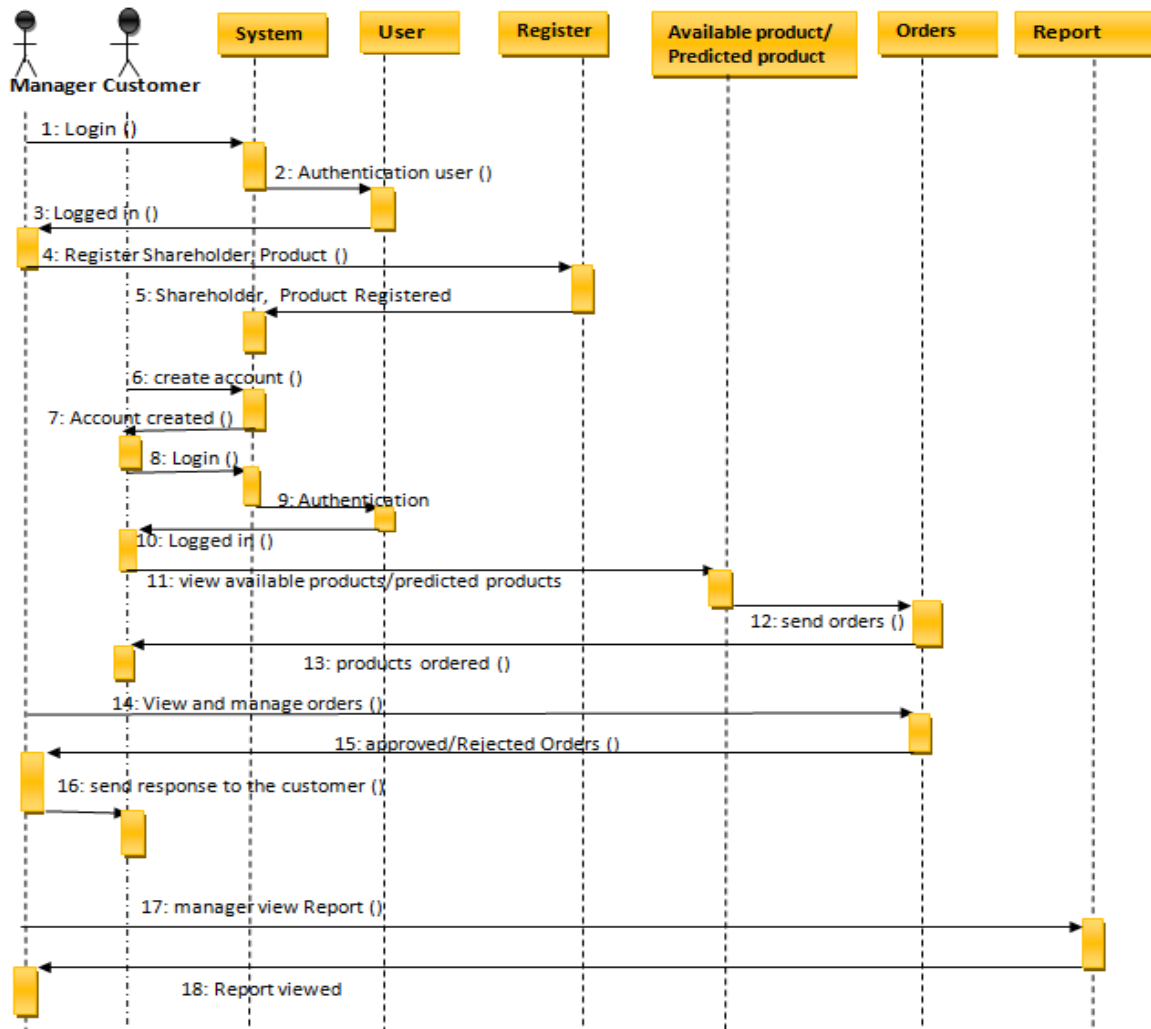


Figure 6: Sequence diagram



### 3.7 CLASS DIAGRAM

According to Laurie Williams (2004) Class diagrams are used in both the analysis and the design phases. During the analysis phase, a very high-level conceptual design is created. At this time, a class diagram might be created with only the class names shown or possibly some pseudo code-like phrases may be added to describe the responsibilities of the class. The class diagram created during the analysis phase is used to describe the classes and relationships in the problem domain, but it does not suggest how the system is implemented. By the end of the design phase, class diagrams that describe how the system to be implemented should be developed. The class diagram created after the design phase has detailed implementation information, including the class names, the methods and attributes of the classes, and the relationships among classes.

#### 3.7.0 CLASS DIAGRAM FOR MARKETING MOBILE APPLICATION FOR FARMERS

The below class diagram shows a collection of classes, interfaces, associations, collaborations and constraints of our system.

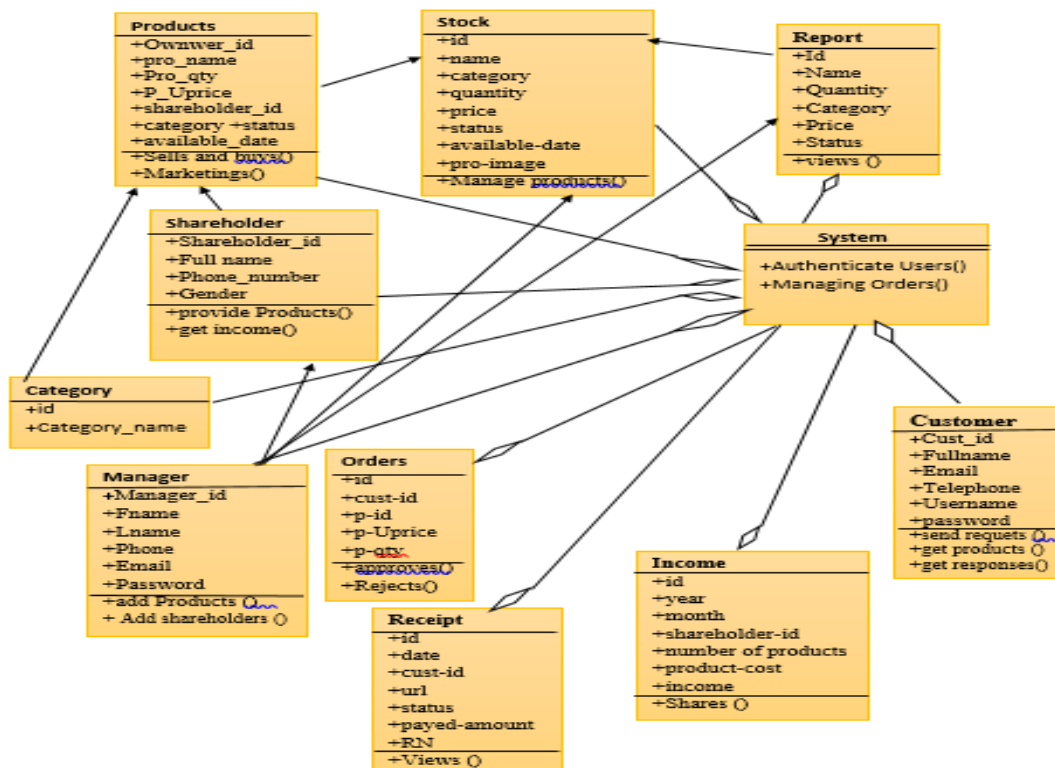


Figure 7: Class diagram

### 3.8 ENTITY RELATIONSHIP DIAGRAM

ERD describe the relationship between entities in database

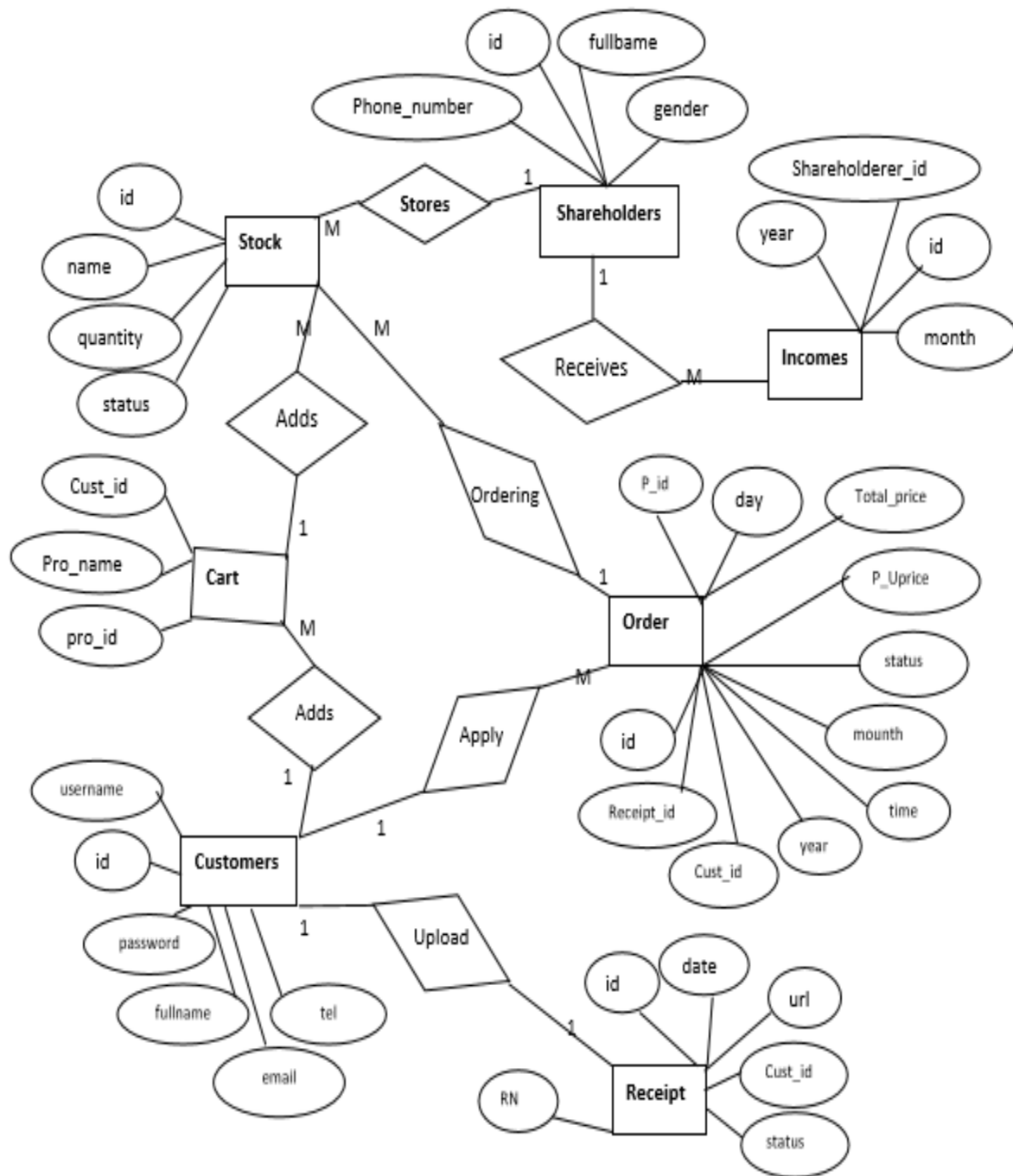


Figure 8: Entity Relationship Diagram

### 3.8.0 DATA DICTIONARY

Data dictionary is an organized listing of all data elements pertinent to the system, with precise, rigorous and definitions. The following table shows both users and system analyst a common understanding of all inputs, outputs, and components of store of marketing application for farmers (Loney, 2009)

<b>CUSTOMER</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int	Not Null	Identification
full_name	Varchar (30)	Not Null	Full name
user_name	Varchar (30)	Not Null	Client username
Email	Varchar (30)	Not Null	Email address
Tel	Varchar (30)	Not Null	Telephone
Password	Varchar (30)	Not Null	password
<b>MANAGER</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int	Not Null	Identification
Fname	Varchar (30)	Not Null	First name
Lname	Varchar (30)	Not Null	Last name
Phone	Varchar (30)	Not Null	Telephone
Email	Varchar (30)	Not Null	Email address
Password	Varchar (30)	Not Null	Password
<b>CART</b>			

FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
Id	Int	Not Null	Identification
Cust_id	Varchar (30)	Not Null	Customer identification
Pro_image	Varchar (30)	Not Null	Product image
pro_id	Varchar (30)	Not Null	Product quantity
Pro_name	Varchar (30)	Not Null	Product name
Pro_price	Varchar (30)	Not Null	Product Price
Pro_qt	Varchar (30)	Not Null	Product quantity
Available_qty	Varchar (30)	Not Null	Available quantity
Available_date	Varchar (30)	Not Null	Available date

## **ORDERS**

FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
Id	Int	Not Null	Identification
Cust_id	Varchar (30)	Not Null	Customer identification
P_id	Varchar (30)	Not Null	Product identification
P_qty	Varchar (30)	Not Null	Product quantity
P_uprice	Varchar (30)	Not Null	Product unit price
Total_price	Varchar (30)	Not Null	Total price
Day	Varchar (30)	Not Null	Day
Month	Varchar (30)	Not Null	Month

Year	Varchar (30)	Not Null	Year
Time	Varchar (30)	Not Null	Time
Status	Varchar (30)	Not Null	Status
Receipt_id	Varchar (30)	Not Null	Receipt Identification
<b>PRODUCTS</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int	Not Null	Identification
P_name	Varchar (30)	Not Null	Product name
P_qty	Varchar (30)	Not Null	Product quantity
P_uprice	Varchar (30)	Not Null	Product unit price
Description	Varchar (30)	Not Null	Description
Image	Varchar (30)	Not Null	Image
Shareholder_id	Varchar (30)	Not Null	Shareholderidentification
Category	Varchar (30)	Not Null	Category
Status	Varchar (30)	Not Null	Status
Available date	Varchar (30)	Not Null	Available date
Date	Varchar (30)	Not Null	Date
Month	Varchar (30)	Not Null	Month
Year	Varchar (30)	Not Null	Year
Payout	Varchar (30)	Not Null	Payout

<b>SHAREHOLDERS</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int	Not Null	Identification
Full_name	Varchar (30)	Not Null	Full name
Phone_number	Varchar (30)	Not Null	Phone number
Gender	Varchar (30)	Not Null	Gender
<b>STOCK</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int(123)	Not Null	Identification
Name	Varchar (30)	Not Null	Name
Category	Varchar (30)	Not Null	Category
Quantity	Varchar (30)	Not Null	Quantity
Price	Varchar (30)	Not Null	Price
Status	Varchar (30)	Not Null	Status
Available_date	Varchar (30)	Not Null	Available date
Pro_image	Varchar (30)	Not Null	Product image
<b>INCOME</b>			
<b>FIELDS</b>	<b>DATA TYPE</b>	<b>CONSTRAINTS</b>	<b>DESCRIPTION</b>
Id	Int	Not Null	Identification
Year	Varchar (30)	Not Null	Year

Month	Varchar (30)	Not Null	Month
Shareholder_id	Varchar (30)	Not Null	Shareholderidentification
Number_of_products	Varchar (30)	Not Null	Number of products
Products_costs	Varchar (30)	Not Null	Product costs
Income	Varchar (30)	Not Null	Income
<b>RECEIPT</b>			
FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
Id	Int	Not Null	Identification
Date	Varchar (30)	Not Null	Date
Cust_id	Varchar (30)	Not Null	Customer identification
url	Varchar (30)	Not Null	Uniform resource locator
Status	Varchar (30)	Not Null	Status
Paid_amount	Varchar (30)	Not Null	Paid amount
RN	Varchar (30)	Not Null	Receipt
<b>CATEGORY</b>			
FIELDS	DATA TYPE	CONSTRAINTS	DESCRIPTION
Id	Id	Not Null	Identification
Category_name	Varchar (30)	Not Null	Category name

Table 1: Data dictionary

## **CHAPTER 4: SYSTEM IMPLEMENTATION**

### **4.0 INTRODUCTION**

This chapter explain the technologies used in implementing Marketing Application for Farmers after analysis of the current system. It describes the design of marketing application for farmers. It describes Software Technology and Tools Requirement.

### **4.1 HARDWARE REQUIREMENTS**

#### **4.1.0 COMPUTER**

Computers connected to network with at least 512 MB of RAM, 1GHZ of processor and 100 GB for HDD and screen of high resolution are basically required to participate in marketing application for farmers.

#### **4.1.1 ANDROID SMART PHONE**

Android smart phone is an open-source operating system used for smart phones and tablet it can be used to run your application system as physical device connected to with network, internal storage 8 GB, android version7.

### **4.2 SOFTWARE REQUIREMENTS**

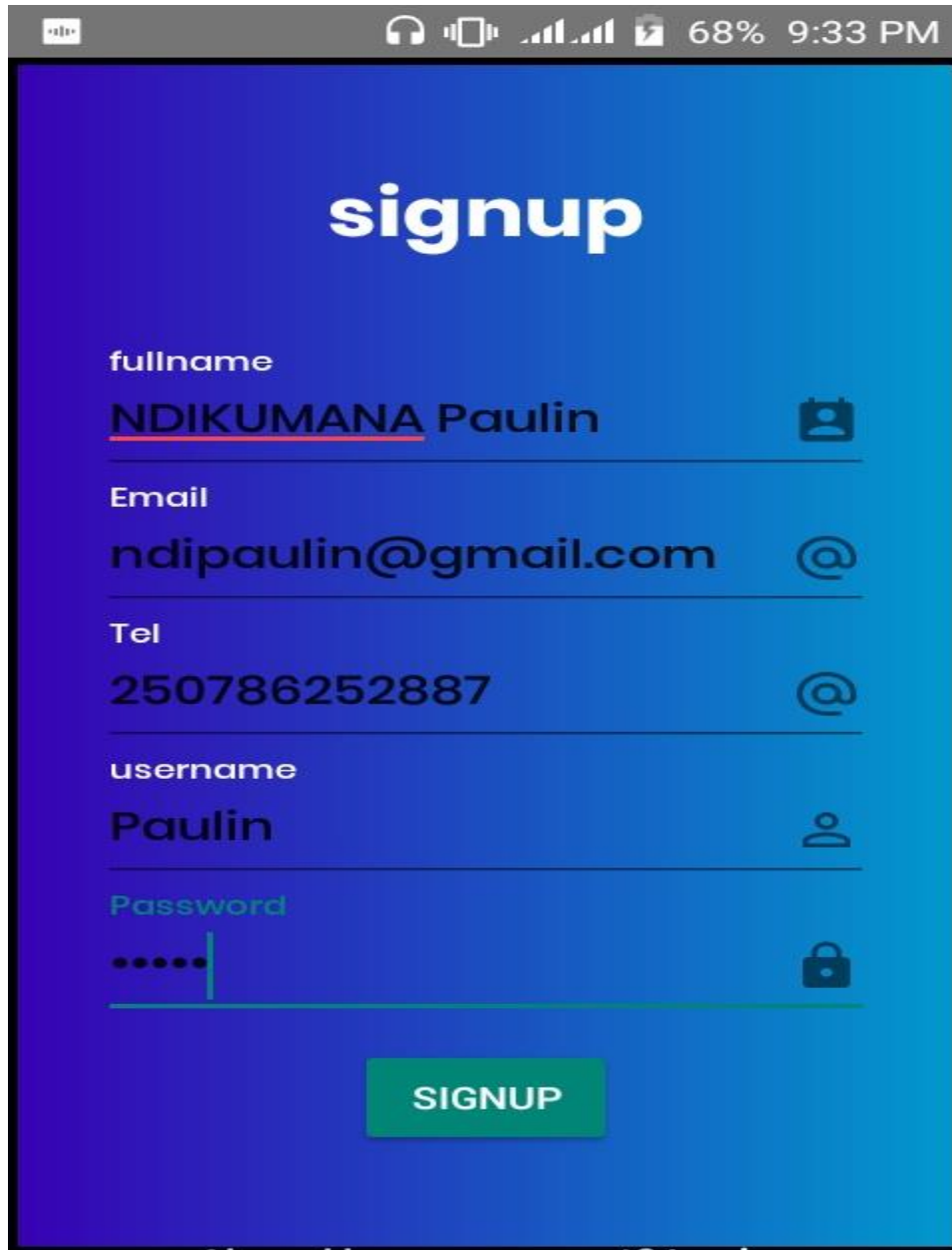
- ❖ Win 7, 8 or 10 for computer operating system.
- ❖ Browser (Mozilla, Chrome, Opera, etc...)
- ❖ XAMPP for local Apache and MySQL server configuration.



## 4.3 SYSTEM INTERFACES

### 4.3.0 CUSTOMER CREATE ACCOUNT ACTIVITY

This interface allow customer to create account for the first time to make order of the product



The image shows a mobile application interface for a customer signup activity. The background is a gradient of blue and purple. At the top, the word "signup" is written in a large, white, sans-serif font. Below it, there are five input fields, each with a label on the left and a corresponding icon on the right. The first field is labeled "fullname" and contains the text "NDIKUMANA Paulin" with a person icon. The second field is labeled "Email" and contains "ndipaulin@gmail.com" with an @ symbol icon. The third field is labeled "Tel" and contains "250786252887" with an @ symbol icon. The fourth field is labeled "username" and contains "Paulin" with a person icon. The fifth field is labeled "Password" and contains five dots with a lock icon. Below these fields is a green button with the text "SIGNUP" in white, uppercase letters. The top of the screen shows a status bar with various icons and the text "68% 9:33 PM".

signup

fullname  
NDIKUMANA Paulin

Email  
ndipaulin@gmail.com

Tel  
250786252887

username  
Paulin

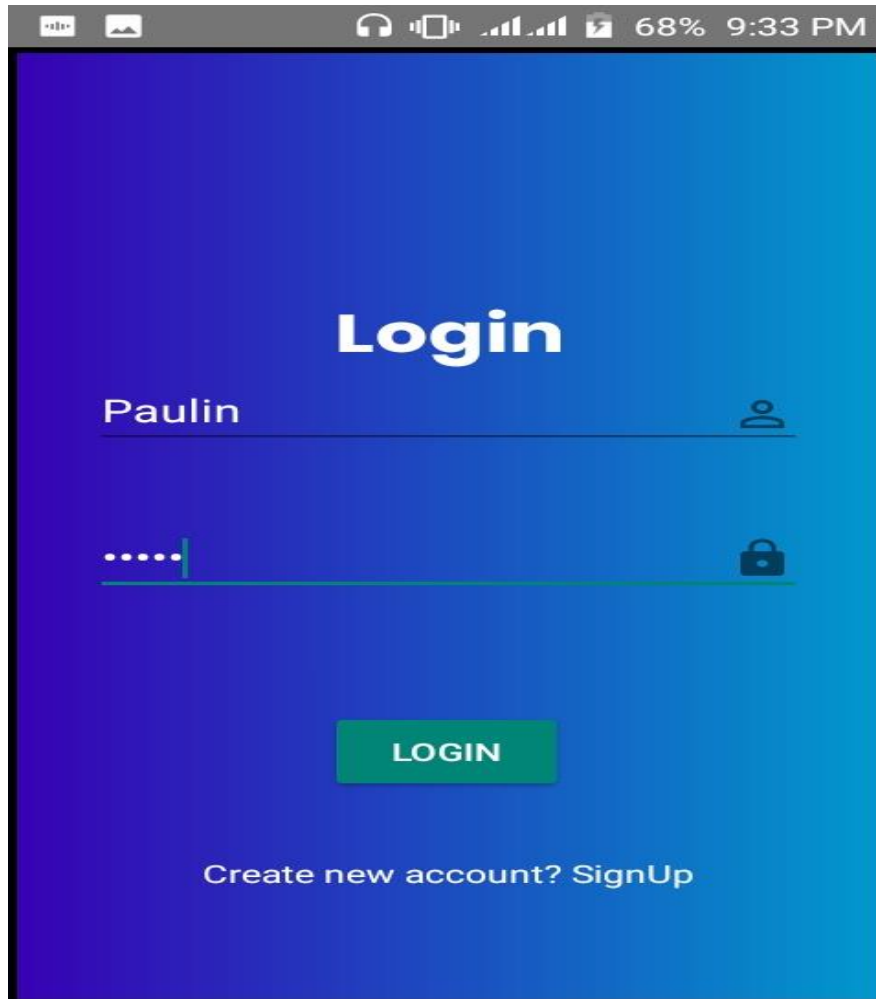
Password  
.....

SIGNUP

Figure 9 Customer signup activity

### 4.3.1 CUSTOMER LOGIN ACTIVITY

This interface allows customers to login in the mobile application in order to make order of the products.



*Figure 10: Customer login activity*

### 4.3.2 ACTIVITY SHOWS AVAILABLE PRODUCTS

This interface allows the customers to make orders

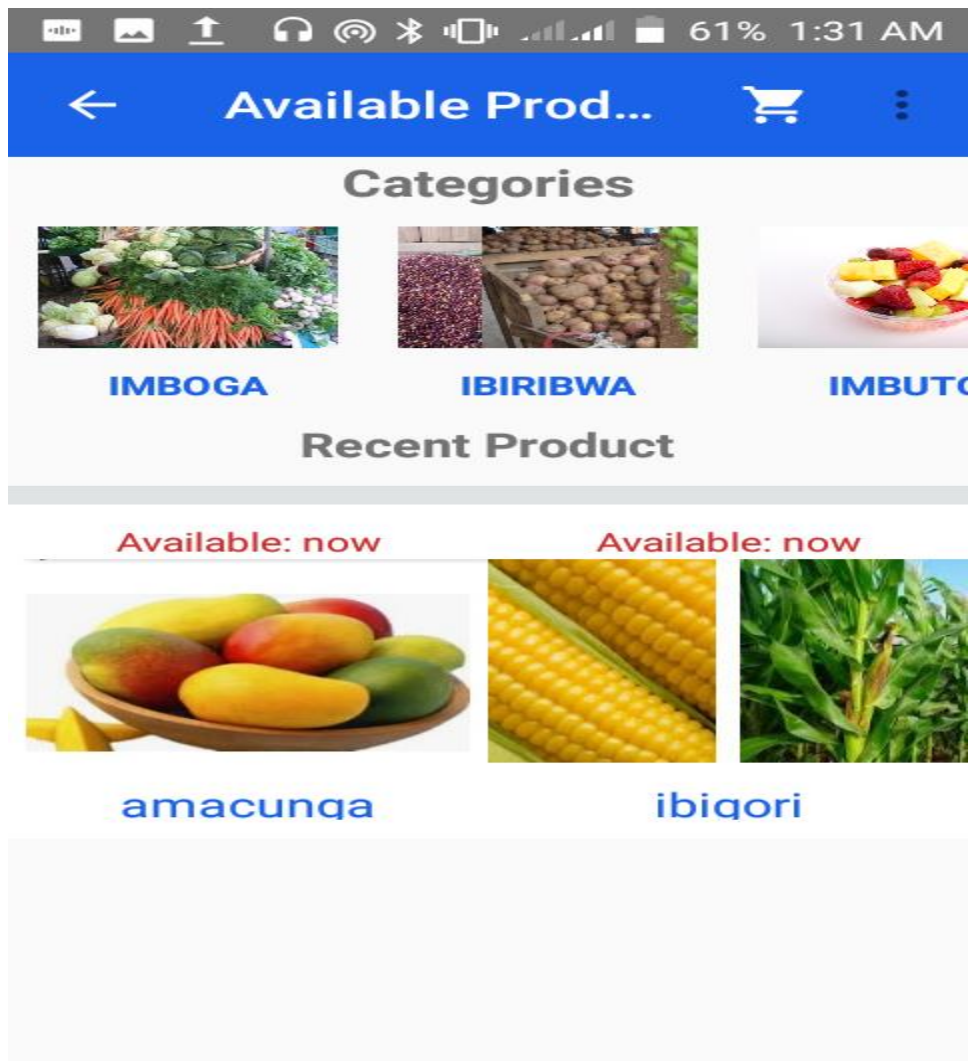


Figure 11: available products

### 4.3.2 ORDER ACTIVITY

This interface allows the customers to make orders by adding quantity

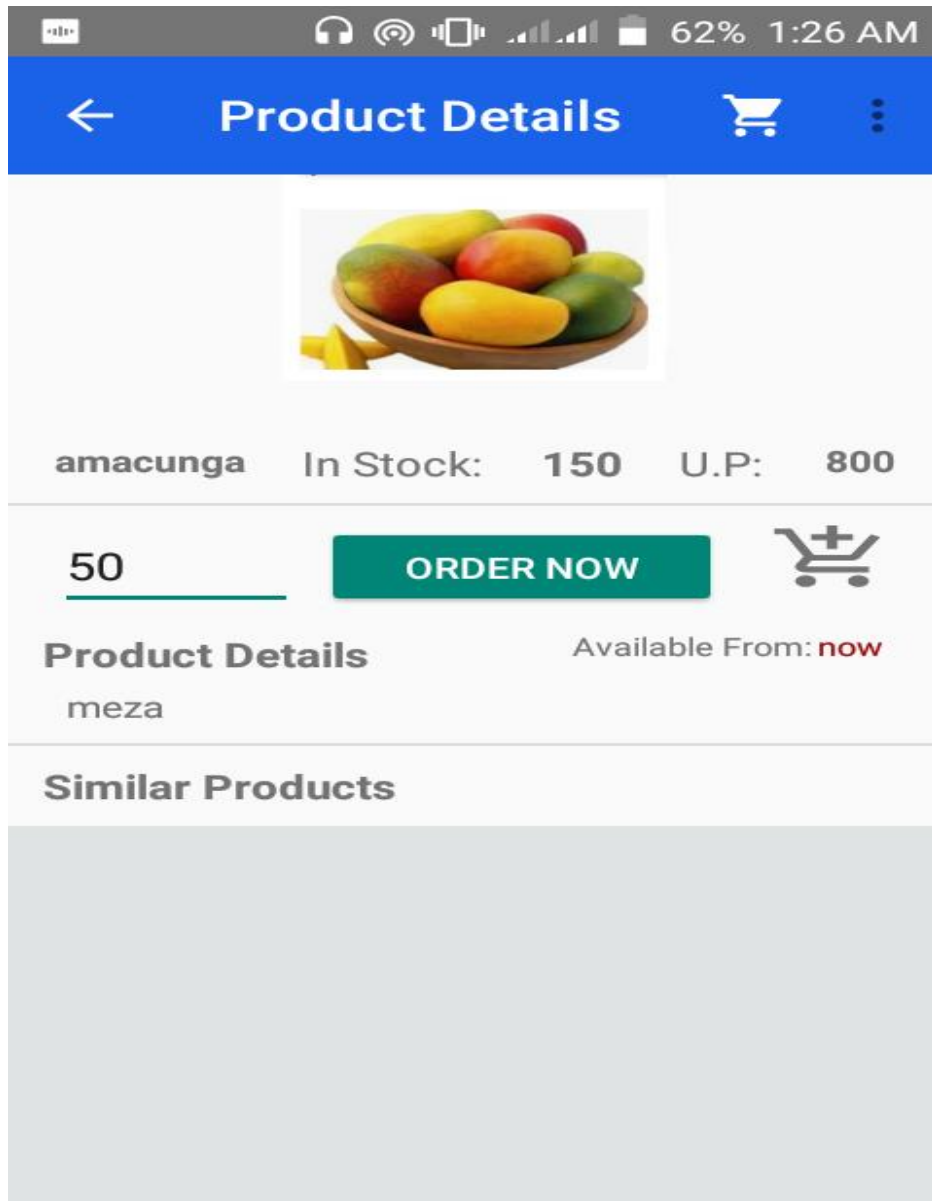


Figure 12: Ordering quantity activity

### 4.3.3 ADDING PRODUCT IN STOCK PAGE

This page is used to shows the records where manager of cooperative to display all information related to the product, shareholder, and stock.

HomeOrders▼Add In StockProductsShareHoldersPayOut ShareHoldersReportsmodify password

Manage Products

List of Products

Owner							
#	Name	Name	Quantity	unit_price	Description	Category	Actions
1		amatunda	200	800	amatunda meza cyane	imbuto	<a href="#">Edit</a> <a href="#">Delete</a>

Add New Product in Stock

Product Info

Owner Id:

1199580016249477-NDIKUMANA Paulin▼

Product Category:

Imboga▼

Product name:

amashu▼

Product Quantity:

764

Product Unit price:

150

Product Description:

meza

Figure 13: Reporting page

#### 4.3.4. ADDING SHAREHOLDER PAGE

This page is used to show the records where manager of cooperative to display all information related to the product, shareholder, and stock.

[Home](#) [Orders ▾](#) [Add In Stock](#) [Products](#) [ShareHolders](#) [PayOut ShareHolders](#) [Reports](#) [modify password](#)

### Manage Shareholders

List of Shareholders

#	Full name	Tel	Id	Gender		
1	KAMANAYO Prosper	0786543234	1122334233334444	male	<a href="#">Edit</a>	<a href="#">Delete</a>
2	NDIKUMANA Paulin	0786252887	1199580016249477	male	<a href="#">Edit</a>	<a href="#">Delete</a>
3	KWIZERA ellis	0784348765	1234567890987654	male	<a href="#">Edit</a>	<a href="#">Delete</a>

### Add new ShareHolder

ShareHolder Info

**Full Name:**

**Tel:**

**ID Number:**

**Gender:**  

male ▾

Figure 14: add shareholder page

### 4.3.5 PENDING ORDERS PAGE

This page is used to shows the pending orders, means that products ordered well and receipt uploaded well by customers but is ready to be managed by manager by viewing receipt, reject, approve, delive products.

[Home](#) [Orders](#) [Products](#) [ShareHolders](#) [Reports](#) [modify password](#)

Ordered By Isaac wacu

Customer contact: 0786543222

List of Products

#	Date	Time	Product name	Status	Orded Qty	U.P	Total PayOut
1	06/03/2021	02:03	amacunga	available	25	800	20000 Frw

Amount to pay: 20000 Frw

[View Receipt](#)

[Reject](#)

[Approve Product\(s\)](#)

[Derive Product\(s\)](#)

©copyright by Habineza Jean Pierre

Figure 15: Pending Orders Page

### 4.3.6 REPORTING INCOME PAGE

This page is used to show the records where manager of cooperative to display all information related to the product, shareholder, and stock.

[Home](#) [Orders ▾](#) [Add In Stock](#) [Products](#) [ShareHolders](#) [PayOut ShareHolders](#) **Reports** [modify password](#)

View Report of: **Incomes** ▾

Options

List of Months

03/2021

Reports

Incomes Report

#	Date	Shareholder	Number of product(s)	Product Cost	Income
1	03/2021	NIYIBIZI eric	1	200000	40000
2	03/2021	TWIZERIMANA Theoneste	1	160000	32000
3	03/2021	NISINGIZWE YVETON	1	26000	5200
Total Income					77200 Frw

Print

Figure 16: income report page



#### **4.4 SYSTEM IMPLEMENTATION**

The implementation of this project requires one server and one or more customer connected to it online which means that this system is accessible through internet which enable customer to get information.

#### **4.5 SYSTEM TESTING**

The aim of marketing application for farmers is to achieve this goal “to support farmers for selling their productions and solve problems related to the time and wasted by customers taken for coming to the cooperative office” using this marketing application any farmer and customer are able to do their activities in easiest way.

## **CHAPTER 5: CONCLUSION AND RECOMMENDATIONS**

### **5.0 GENERAL CONCLUSION**

The implementation of marketing mobile application for farmers was the research that put in practice the development of an automated information system to allow Cooperative and shareholders to get advantages from the usage of information technology. This work helped us to increase our knowledge gained from RP/IPRC-Huye in the period of 3 years spent there. According to the time that we had, we wished to focus only to the application of marketing mobile application for farmers in order to facilitate shareholders meet with customers.

The objectives of this research were to help cooperative Manager to view the all requests from customers and enabling the cooperative to get information of shareholder without asking him/her documents, also allow customers to send request and receive response from cooperative after checked by manager. So the developed software proved the achievement of the objectives.

### **5.1 RECOMMENDATIONS**

After implementing the application, we recommend the Cooperative TURENGERUBUZIMA MUSHONYI to use this software because it will help them to perform their day to day activities timely and effectively in marketing mobile application for farmers.

We can't pretend that this work was accomplished, that's why we recommend to everyone who will be interested in this domain to accomplish and improve it without hesitation mainly to add the effort to the other activities and functionalities that can facilitate shareholders, cooperative Turengerubuzima, customers to deliver better services.

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## APPENDICES

### APPENDIX 1: WORK PLAN

Nº	Task to be Performed	Date to be Completed	Person Assigned to Task	Persons Required
1	Project chosen and project proposal	On 05 <sup>th</sup> February 2020	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
2	Project proposal submission and presentation	On 05 <sup>th</sup> May 2020	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
3	Data collection	On 5 <sup>th</sup> May 2020	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
4	Data analysis	On 5 <sup>th</sup> -10 <sup>th</sup> December 2020	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
5	Project design	On 15 <sup>th</sup> December 2020	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
6	Project testing	On 20 <sup>th</sup> -28 <sup>th</sup> February 2021	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons
7	Project submission	On 05 <sup>th</sup> March 2021	NDIKUMANA Paulin HABINEZA Jean Pierre	2 persons

Table 2: work plan

## APPENDIX 2: GANTT CHART









N <sup>o</sup>	Work done	Academic year 2019-2020						
		Dec(20 20)	Jan(2020)	Feb - May	May - July	July - Oct	Nov- Jan(20 21)	February (2021)
1	Project proposal & submission							
2	Preparing and collecting data							
3	Implementation of chapter 1(data entry)							
4	Implementation of chapter 2,meet by supervisor							
5	Implementation of chapter 3 and 4(coding)meet by supervisor							
6	Implementation of chapter 5							
7	Submitting the project							
8	Feedback to the community							

Table 3: Gantt chart

Uncompleted Task:



Completed task:



### APPENDIX 3: TEMPLATE OF A BUDGET PLAN

A detailed budget for running the project to the end must be shown. A budget is the systematic enumeration (listing in detail) of the anticipated costs of the planned inputs and activities of the project. It involves describing explicitly each and every budget line to show the way it is related to the study activities.

#### I.PREPARATION FOR THE STUDY

N°	Item	No. of Persons	No. of Days	No. Person days	Cost/Unit (RWF)	Total RWF
1	Laptop	2 Persons	5 days/7days	2 Persons/ 5days	450000	450000
2	Smart Phone	2 Persons	5 days/7days	2 Persons/ 5days	120000	120000
	<b>Sub-total 1</b>				570000	<b>570000</b>

Table 4: Preparation for the study

#### II.THE SURVEY OR EXPERIMENTATION

N°	Item	Persons/ Materials	No. of days	Person Days	Unit Cost (RWF)	Total (RWF)
1	Coding & testing	2 Persons/ 2Materials	5 days/7days	2 Persons/ 5days	300000	300000
2	Coding & testing	2 Persons /2 Materials	5 days/7days	2 Persons/ 5days	300000	300000
	<b>Sub-total 2</b>				<b>600000</b>	<b>600000</b>

Table 5: The survey or experimentation

### III.PROJECT SUPPLIES

Nº	Item	Quantity	Unit Price RWF	Total RWF
1	Note Books A4	500 papers	4500	4500
2	Bic	5	500	500
	<b>Sub – total 3</b>		5000	<b>5000</b>

Table 6: Project Supplies

### IV.PRODUCTION OF THE REPORT

Nº	Item	Quantity	No. of days	Pers.-days	Unit Price RWF	Total RWF
1	Crosscheck & Verification of data	5 draft pages	5 days/ 7days	2 persons/ 5days	30000	30000
2	Entering Data	15 draft pages	5 days/ 7days	2 persons/ 5days	10000	10000
3	Analysis of Data	3 draft pages	5 days/ 7days	2 persons/ 5days	40000	40000
4	Report (Draft 1-3)	5draft pages	5 days/ 7days	2 persons/ 5days	20000	20000
	<b>Sub – total 4</b>				100000	<b>100000</b>

Table 7: production of the report



## V.WORKSHOP FOR REPORT VALIDATION

Nº	Item	Quantity	Nº./Days	Person days	Unit Price RWF	Total RWF
1	Laptop	2	28 days	2 persons	450000	900000
	<b>Sub-total 5</b>					<b>900000</b>

Table 8: workshop for report validation

## BUDGET SUMMARY

Nº	DESCRIPTION	TOTAL
1	Preparation for the Study	570000Rwf
2	The survey	600000Rwf
3	Study supplies	5000Rwf
4	Production of the Report	100000Frws
5	Workshop for report validation	900000Frws
	<b>TOTAL BUDGET</b>	<b>2175000Frws</b>

Table 9: Budget Summary