THE OPEN UNIVERSITY OF TANZANIA

DEPARTMENT OF INFORMATION COMMUNICATION TECHNOLOGY

PROJECT PROPOSAL

TITTLE: DEVELOPMENT OF A WEB BASED FARMERS MARKET
PORTAL INFORMATION SYSTEM

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CHAPTER ONE: INTRODUCTION

1:1 Background of the project

Agricultural marketing is inferred to cover the services involved in moving an agricultural product from the farm to the consumer. It is also the planning, organizing, directing and handling of agricultural produce in such a way as to satisfy the farmer, producer and the consumer.

Numerous interconnected activities are involved in doing this, such as planning production, growing and harvesting, grading, packing and packaging, transport, storage, agro- and food processing, distribution, advertising and sale. Effectively, the term encompasses the entire range of supply chain operations. However, its key function is to help direct these services, by providing competent and able market information, thereby linking the other operations into an integrated service with targeted outcomes.

Lack of market for agricultural products has been a big challenge to small farmers in Tanzania. Majorities of citizens who are engaged in agricultural sector are small-scale farmers living in rural and urban areas whose main source of cash income is the selling of agricultural products

Performance in agriculture determines the overall improvement in rural people's living standards and development of the economy.

Selling of agricultural produces by rural farmers pause a challenge as their access to markets is limited. Therefore, due to this problem a farmer's market portal information system will simplify availability of the market for both farmers and buyers of agricultural products.

1:2 Statement of a problem

For a long time landlords have had a problem of managing their properties and also tenants have had difficulties in finding houses to rent. This has been so because of the following reasons;

i.   Huge space of data storage
     Due to manual process of data, it consume a lot of paper work even time.
ii. Too many brokers
     There are middle man who help a farmer to sell products to the wholesaler but on the other had there are ones who take a lot of money than a farmer. This action exploit farmers to get a lot of money and even cause loss to them.
iii. Data security
     Data are stored on a shelf, bags and even on the table. So accident like fire, floods and even thieves can cause data to be damaged and later on it will be difficult to find them again.

iv.   Lack of computerized system
      The most used system is a manual system that requires the physical presence of a
      farmer and even wholesaler this sometime may cause delays of a products, selling
      products at a low price, even delay of a selling product due to bringing a product which
      is high demand.

1:3 Objectives
The following are the web based farmers market portal information system project objectives:

1:3:1 Main objective

The main objective of this project is to develop a web based portal market
information system that will register user/farmers will be able to view different
agricultural products and post products

1:3:2 Specific objectives

Web based farmers market portal information system aim to develop a user interface which will
intend user to:

- To be registered in the system and update his or her profile
- Log in to the system and view products, post products.
- View products and their prices
- Communicate with retailer to whom he or she is going to sell his or her products.
- See history and calculations of his or her sellings

1:4 Significance of the project

Good communication, saving time and money, bring a right product in the market and bring it in
a right time, fast and easy data storage and data retrieval. Elimination of middle man, all those
actions are can be done in a system by single click. And this system is easy to learn.

1:5 Scope of the project

- Construct the farmers market information system that will increase agricultural productivity
  and promote commercialization of farmers through productive linkage between the farmers
  and the wholesaller in the market place.

- Construct software design and documentation of the system.

1:6 Project Beneficiaries

- Small farmers-small farmers makes direct contact to wholesaler, hence no middle men who
  exploit small farmers and make more profit.

- Whole sellers-easy access to farmers products, because they can view available products from the system.

- Local buyers- assurance of availability of products in the market.

- Retailers-no fluctuation of prices and products.

1:7 Roles and Responsibilities

Role	Responsibilities/tasks	Participant(s)
Project Leader	Advising and overseeing project progress	Eng. Raiton Ambele
Analysis	Requirement analysis for system specification	Hussein Mussa
Design	System architecture ie. E-RD, DFD and Use case diagram	Hussein Mussa
Implementation	System construction (coding) and deployment of the system	Hussein Mussa
Testing	Testing the system against requirements specification and system functionality against different platforms	Hussein Mussa Eng. Raiton Ambele

1:8 Risk management

During the project several risks may arise due to the environment and resources availability

- Lack of enough time and enough space for codding.
- Lack of huge codding skills.
- Lack of enough money which will be used to buy internet bundle and some softwares.
- Hardware malfunction- due to being overloaded the laptop may jam causing project delay, this can be handled by making sure only used programs are run during project work.

Not reaching the supervisor- due to busy schedules the supervisor may not be reached and vice versa leading to work delay.

2.1 Introduction

This chapter will explore literature surrounding producer's marketing channel choices. The selection of distribution channel is affected by many factors which have been studied by researchers in various fields. The chapter comprise of introduction, theoretical review, empirical review and conceptual framework.

2.2 Theoretical literature review

Neil Borden on his paper "The Concept of the Marketing Mix", he reconstruct the history of the term "marketing mix". He started teaching the term after an associate, James Culliton, described the role of the marketing manager in 1948 as a "mixer of ingredients". The marketer E. Jerome McCarthy proposed a four P's classification in 1960, which has since been used by marketers throughout the world.
Theory of marketing mix thus consists of four main elements:

i)   Product (consumer need)

A product is seen as an item that satisfies what a consumer demands. it is a tangible good or an intangible service. Marketers must do careful research on how long the life cycle of the product they are marketing is likely to be and focus their attention on different challenges that arise as the product move
Marketers should consider how to position the product, how to exploit the brand, how to exploit the company's resources and how to configure the product mix so that each product complements the other. The marketer must also consider product development strategies.

ii)   Price(cost)

The amount a customer pays for the product. The price is very important as it determines the company's profit and hence, survival. Adjusting the price has a profound impact on the marketing strategy, and depending on the price elasticity of the product, often it will affect the demand and sales as well. The marketer should set a price that complements the other elements of the marketing mix

iii)   Promotion (communication)

Promotion refers to all of the methods of communication that a marketer may use to provide information to different parties about the product. Promotion comprises elements such as: advertising, public relations,sales organization and sales promotion
iv. Place channel
Place (distribution) refers to providing the product at a place which is convenient for consumers to access. various strategies such as intensive distribution, selective distribution, exclusive distribution and franchising can be used by the marketer to complement the other aspects of the marketing mix.

Getting the mix of these elements right enables the organization to meet its marketing objectives and to satisfy the requirements of customers. in addition to the traditional four P's it is now customary to add some more P's to the mix to give us seven P's. The additional P's have been added because today marketing is far more customer oriented than ever before, and because the service sector of the economy has come to dominate economic activity in this country. These 5 extra P's are particularly relevant to this new extended service mix.

The seven P's is an additional marketing model that refers to the already mentioned four P's, plus:=
V. Physical evidence
Physical evidence refers to elements within the store, the store front, the uniforms employees wear,

signboards, etc
vi) People
People refer to the employees of the organization with whom customers come into contact.

Vii. Process
The processes and systems within the organization that affects its marketing process. Theory of market mix explored factors that influence market in general hence will be used as the guideline for the research to study factors which influence coffee farmer's market choice in Tanzania.

2.3 Empirical literature review

2.3.1 Marketing process for agriculture products
Although marketing of agricultural produce remain an important tool in increasing farmers income and alleviating poverty, Kherallah and Kirsten (2001) explains that farmers experience barriers such as insufficient and inadequate physical infrastructure, lack of basic education and marketing knowledge, lack of organizational support and institutional barriers in marketing. This further has an implication on the choice of marketing channels those farmers who sell use in marketing their produce.

2.3.2 Marketing channel functions
According to kotler (2004) marketing channel moves goods from producers to consumers and it fills the main time, place and possession gaps that separate goods and services from those who would use them. Members of the marketing channel perform many key functions which include gathering and distributing marketing research and intelligence information about actors and forces in the marketing environment needed for planning and facilitating exchange, developing and spreading persuasive communications about an offer, finding and communicating with prospective buyers, shaping and fitting the offer to the buyer's needs, including such activities as manufacturing, grading, assembling and packaging, reaching an agreement on price and other terms of die offer, so that ownership or possession can be transferred. Some intermediaries help to fulfill the completed transactions through transporting and storing goods and acquiring and using funds to cover the costs of the channel work (Kotler et-al, 2004).

2.3.3. Determinants of Marketing channel choice from related studies
The choice of the channel to use is a fundamental decision for the producer where a number of factors and objectives have to be considered as a basis for such a decision. several authors carried out different studies to identify factors that influence the producer's choice of marketing channel.

Hobbs (1997) focused on transaction cost analysis between levering auction (live weight)and dead weight (direct-to-packer) cattle marketing channels in United Kingdom. it was found that the major transaction factors influencing the proportion of cattle sold through the auctions were degree of grade, uncertainty, risk that the cattle may not sell, time spent at the auction and the adequacy of parker procurement staff. The major producer characteristics included, average number of cattle sold, whether producer sold bulls and whether the producer was a member of the farm Assured scotch. All factors had a negative influence; this means that factors had inverse relationship with number of cattle sold through a particular marketing channel. For example increase in time spent at the auction led to decrease in the number of cattle sold through the auction.

A study by Jari (2009) provides an insight into the institutional and technical factors that influence agricultural marketing channel choices among smallholder and emerging farmers in Kat River Valley in South Africa. The institutional factors that influence agricultural marketing channel choices include transaction costs, market information flow and the institutional environment which encompasses formal and/or informal rules, the use of grades and standards, organization in the marlets and the legal

environment. An appropriate institutional environment reduces transaction costs for traders.

Mburu et al (1998) found that the institutional factors that +ere significant in the study of the determinants of smallholder dairy farmer's adoption of various milk marketing channels in Kenyian highlands included credit availability, dairy cooperatives, policy related interventions such as government extension agent as a source of government extension information and finally, membership to agricultural farmer's group.

Jabbar (2008), Dleni and Gabre-Madhin (2001), explain that transaction costs are unique and specific to individual agents, therefore, each agent in the market conducts transactions on the basis of his/her own costs. Transaction costs can be incurred either before (ex ante) or after (ex post) the transaction has taken place. Ex- ante costs involve searching for a potential partner with whom to exchange, screening their trustworthiness and negotiating to reach agreement. Ex post costs include monitoring and enforcing the agreement. Transfer of the product (transport costs) between two transacting parties also involves costs (Voor, 2006). However, these may not necessarily be transaction costs but in other cases the transport costs are production costs. it is argued that the cost of transacting plays a key role in economic performance. Therefore, higher transaction costs incurred in a particular broiler market channel would reduce the likelihood of farmers to participate. Misra (1993) found out that factors related to price and non price factors affecting selection decision of milk producer farmers. According to Royer (1995) risks that agricultural producers face are linked with decisions about the prices, quantity, quality, and the timing of delivery. it also aims to explore the association between the factors that influence the farmers to adopt a particular marketing strategy and their selection of a particular distribution channel.

2.4 Conceptual framework
This section presents the study's variables and the conceptual model of the study. it presents the model of the study (conceptual model) for the factors influencing coffee farmer's market channel choice in Tanzania, variables of the study in which the dependent and independent variables for the analyses +ere identified.

FIGURE: CONCEPTUAL FRAME WORK
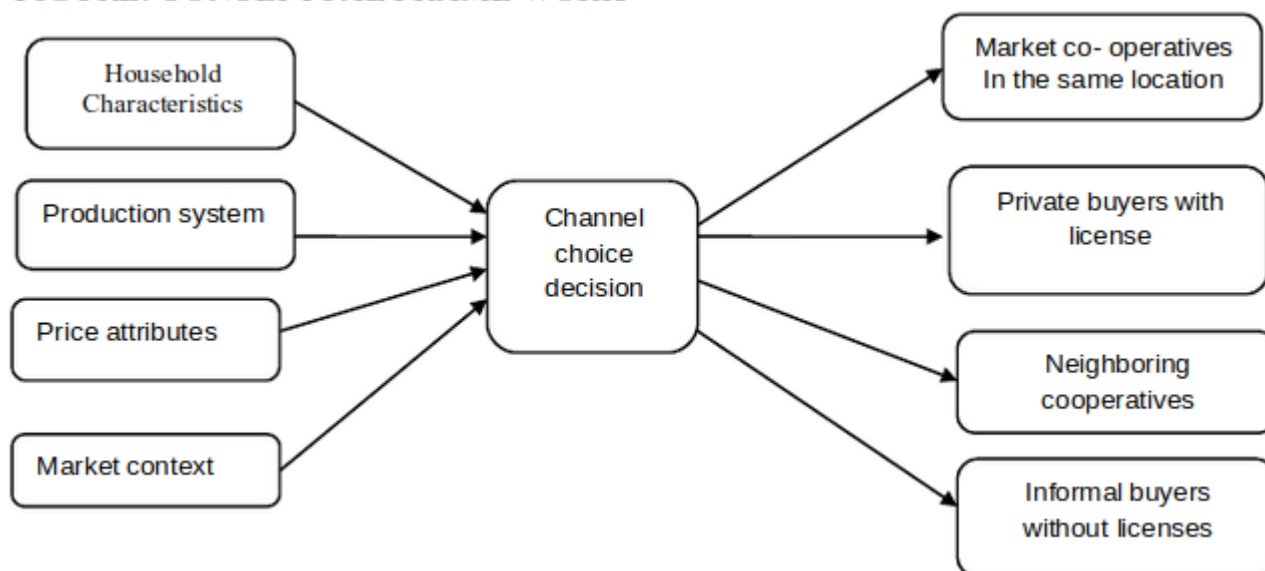
The above mentioned variables are as explain below:-
i)   Farm household characteristics
Market channel choice is likely to be influenced by farmers risk attitude (Agarwal and Ramaswami, 1992). When farmers face uncertainty, they will turn to other whom they know and trust (Galaskiewics, 1985, Podolny, 1994.
Farmers always select market channel depending on their social network and background and hence seek to

reduce transaction cost and uncertainty, while on other hand, they feel safe in market setting where they maintain long L term relationship with participating agent.

Farm household characteristics it comprises of factors like: family size, education level, cultivated area, producer age, experience and farmer's age.

ii)   Production System

Production system includes all means of production like soil fertility, access to training and road condition (transportation system).

iii)   Price attribute

Price is usually considered as one of the most important attributes in the analysis of economic regimes especially for marketing process. Price attributes includes factors like price, inputs costs and salaries/ wages.

iv. Market context/ channel characteristics

Market context it includes factors like business factors, chance of success, distances to the market, number of buyers and trust of farmers towards buyers.

3:1 Type of project methodology used

The project will use water fall model with the following phases

REQUIREMENTS GATHERING AND ANALYSIS

Information delivery is barrier between farmers and wholesaler, this project is aim to simply the delivery of information between them. This project has the following user who are admin of the system, wholesaler and a farmer.

User Requirements
Basically a user need a system which is efficient in information security, retrieval and storage. Also a system which is easy to learn and use, process data faster and flexible.

Functional Requirements
 The proposed farmers market information system will allow:

 Administrator
- To control entire system, system maintenance and even all upgrades.

 Farmer and wholesaler
- To register themselves into the system.
- Post products and their prices.
- To view which product is trending in the market or which product is at high demand in the market.
- Track their sales of their products
- To communicate in the system

 Hardware Requirements
i) Processor 1.5 Ghz processor speed
ii) Memory 2.1GB RAM
iii) Visual Display Unit 1920*1080 color

Software Requirements
i) Operating System- windows 10
ii) Microsoft Office Power point- Used during presentation
iii) PhpStorm – Used for coding development
iv) Photoshop – Used for image manipulation
v) Xammp server – Used for accessing a project in local hosting environment

3.2 SYSTEM DESIGN

Software architecture, high level and low level design for the project.

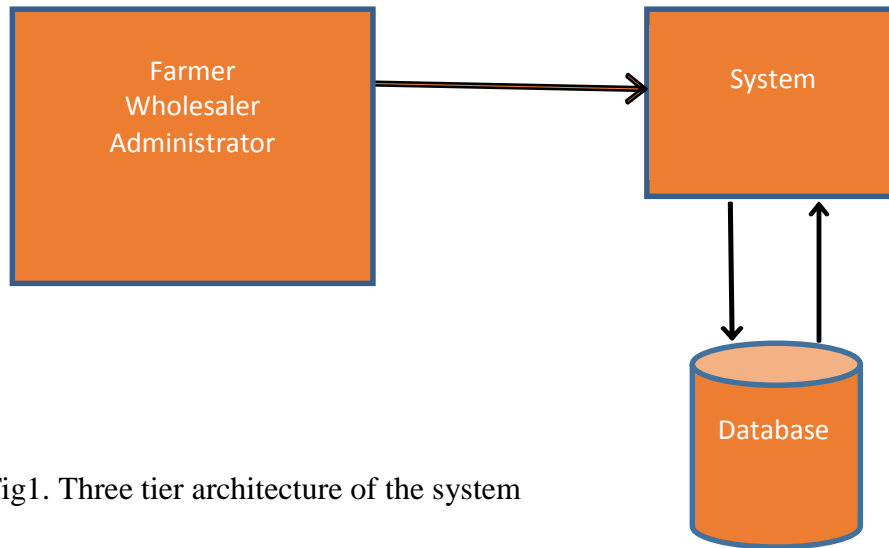The system will use three tier architecture where clients will access the database through the system.

Fig1. Three tier architecture of the system

3.2.1 DATA FLOW DIAGRAM FOR WEB BASED FARMERS MARKET PORTAL INFORMATION SYSTEM

Through a system a user will interact with a database. Those interaction will include login to the system, posting products, viewing products and their prices etc. A data flow diagram shows the way information flows through a process or system. It includes data inputs and outputs, data stores, and the various sub processes the data moves through.
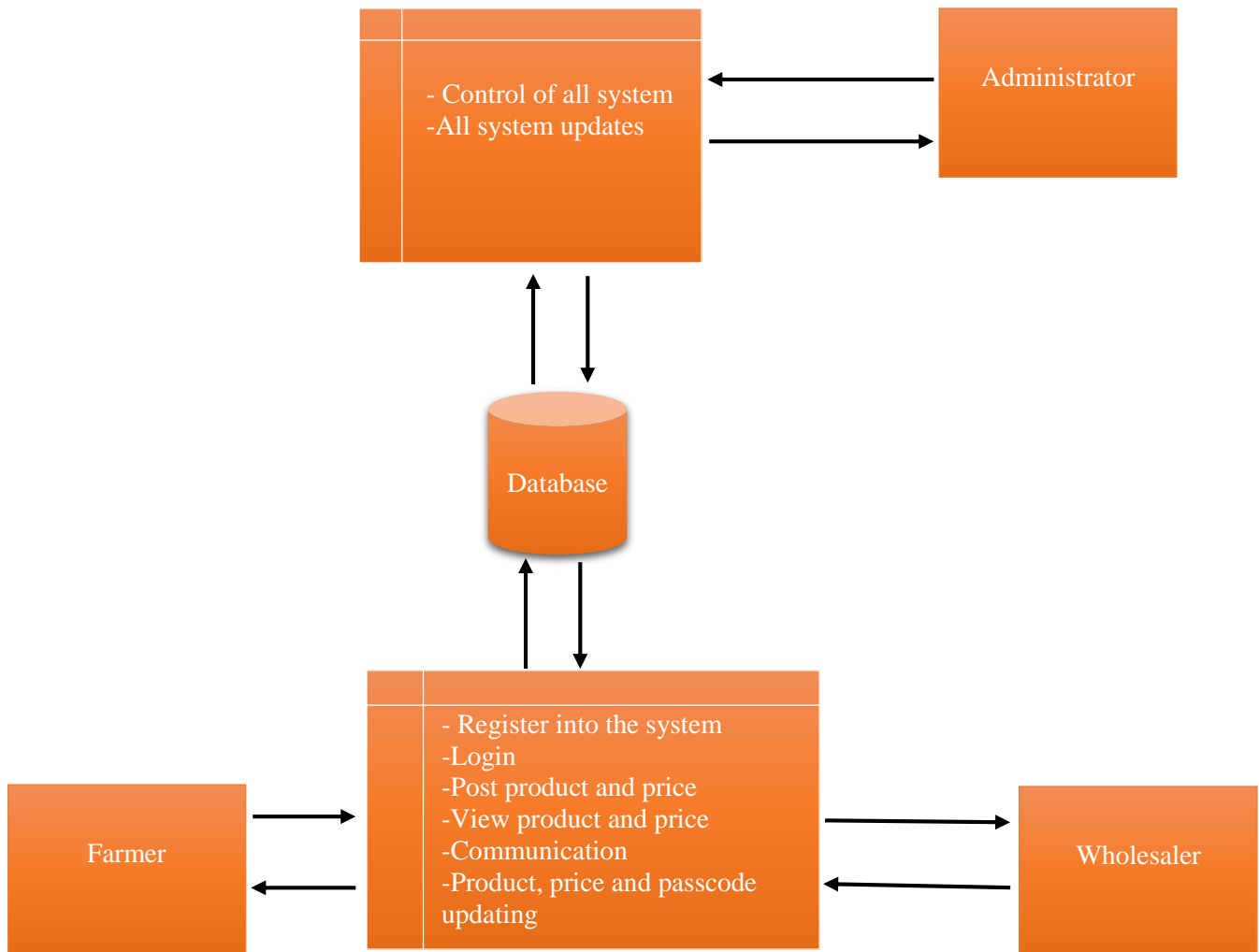
Fig2. Data flow diagram

3.2.2 E-R DIAGRAM

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as **Entity Relationship Diagram (ER Diagram)**. An ER model is a design or blueprint of a database that will later be implemented as a database. The diagram shows the relationship between the administrator, farmer and wholesaler.
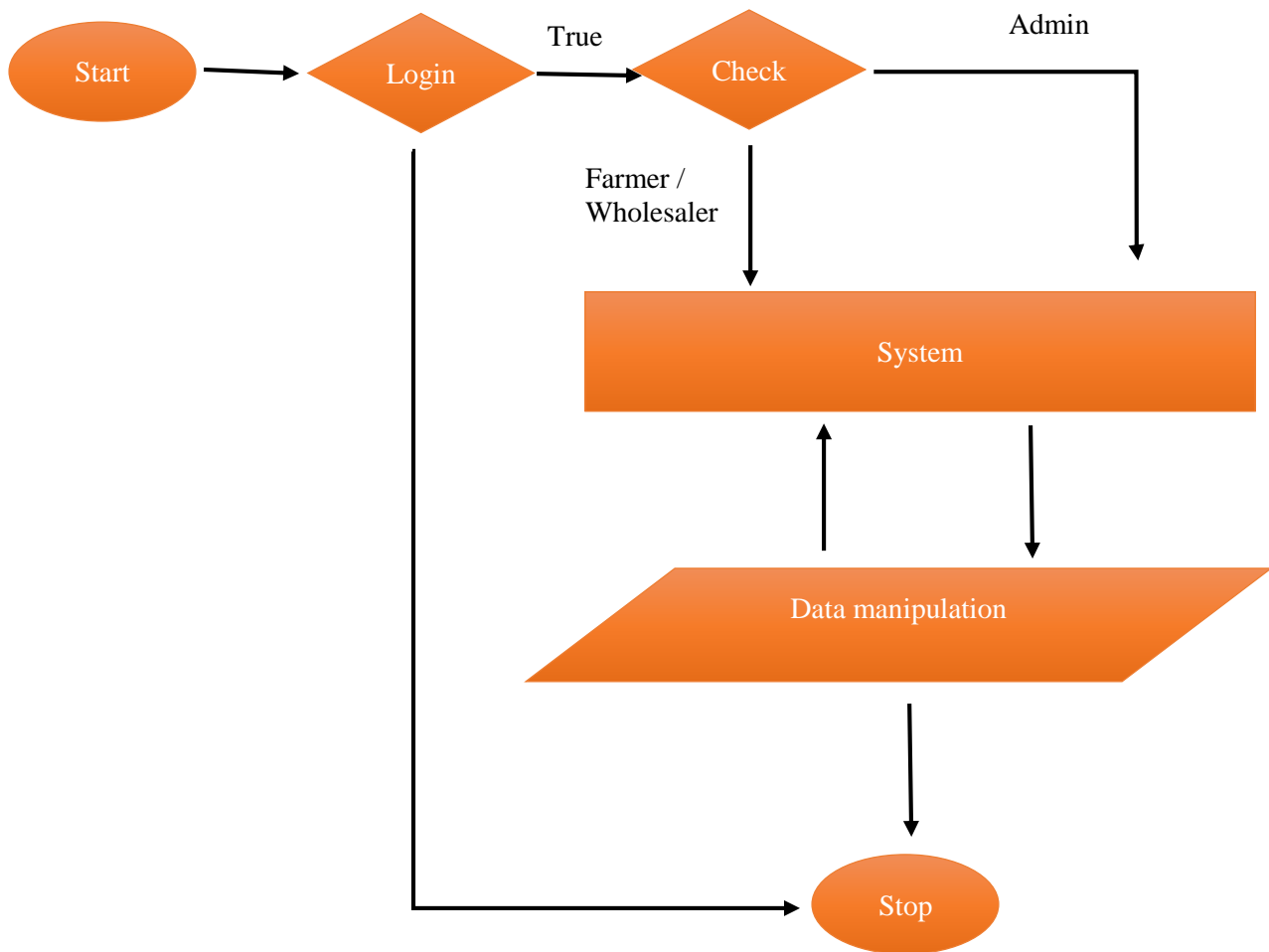
Fig3. E-R Diagram

3.2.3 USE CASE DIAGRAM

Use case diagram represents the functionalities of the Admin, tenant and user, where the admin will register then manage users, rent and houses. The tenant will register then view, search, book, pay rent and give feedback to the admin. Also a user/ visitor, will be able to view and give feedback to the admin.
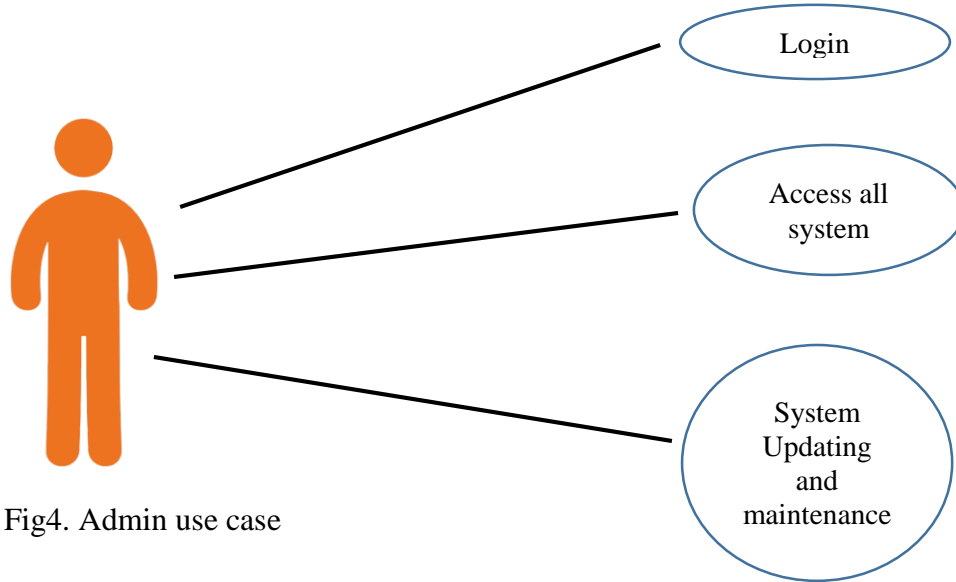
Login

Access all
system

System
Updating
and
maintenance

Fig4. Admin use case

Login

Register

Post product
and price

Update
product and
price

Check high
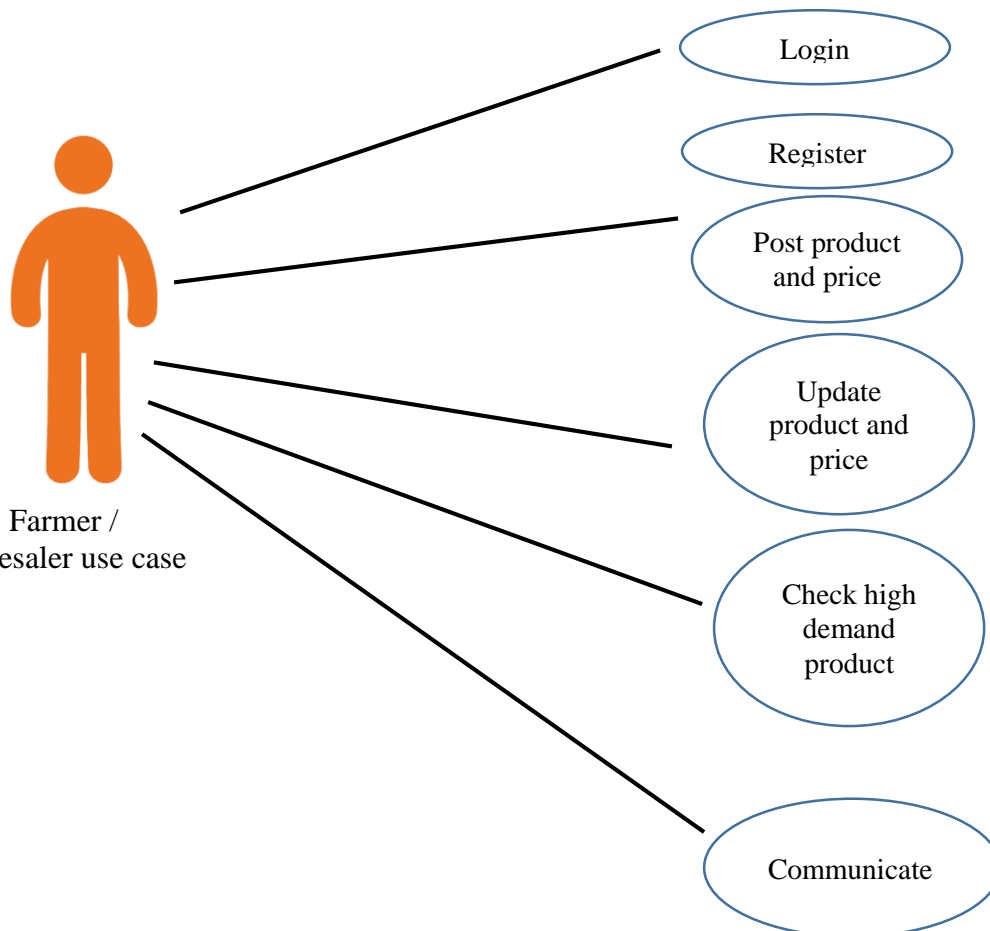demand
product

Communicate

Fig 5. Farmer /
wholesaler use case

3.3 Implementation

System implementation involves the actual coding of the system. During coding several languages and technologies will be used.

HTML and CSS will be used to build the structural layer of web pages (interface of the system) . CSS will be used to style the same HTML document in several different ways, offering multiple visual layout preferences for the user to choose from.

CSS also plays an important role on customizing the layout based on the device a person is using to read the HTML document, such as mobile versus desktop.

JAVASCRIPT will be used during implementation as it will perform the following tasks,

- Client-side validation

- Dynamic drop-down menus

- Displaying date and time

- Validate user input in an HTML form before sending the data to a server.

- Build forms that respond to user input without accessing a server.

- Change the appearance of HTML documents and dynamically write HTML into separate Windows etc.

PHP will be used as a server side scripting language which will interpret scripts at runtime.

APACHE will be used as a web server. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules as password authentication and digital certificates

MySQL will be used as the relational database management system and it uses SQL. **SQL** is the most popular language for adding, accessing and managing content in a database.

3.4 Testing

Tests the complete application and identifies any defects in the application. The tests should aim to check the system against the user requirements and see if they are all met. There's unit testing, functional testing, integration testing, and system testing, amongst many others. As part of these processes, questions such as these below will be asked:

- Does the application crash?
- Do all the functions accept the correct inputs and give the correct outputs?
- Does the application consume only the minimum amount of resources?
- What's the load time of the application?
- Which platforms does the system run on?

3.5 Deployment

During deployment the decision is made to either run the existing system an the new one in parallel or otherwise, although running in parallel has some advantages that you can easily back out to the original system if the new one runs into problems.

The following are the things to consider during system deployment;

- **Develop a Deployment/Transition Strategy** - installation, checkout, integration, and testing, Such activities are crucial to demonstrate that the system and the interfaces with the operational environment can function as intended and meet the contractual system specifications.
- **Develop Plans for Transitioning Systems** - Transition plans for the system or incremental system capabilities should be consistent with the overall transition strategy and agreed to by relevant stakeholders.
  - **Installation**
  - **Integration**
  - **Verification and Validation**
  - **On-site Acceptance Test (OSAT)** - This test includes any field acceptance testing and is performed only after the system has successfully been situated in the operational environment.

Maintenance

Maintenance is crucial to any system as it ensures that the application is running smoothly on servers without any downtime

why use waterfall model?

- Requirements are very well known, clear and fixed.

- There are no ambiguous requirements

- Ample resources with required expertise are available freely

- The project is short.

3.6 Timeline

Gantt Chart for Project timeline
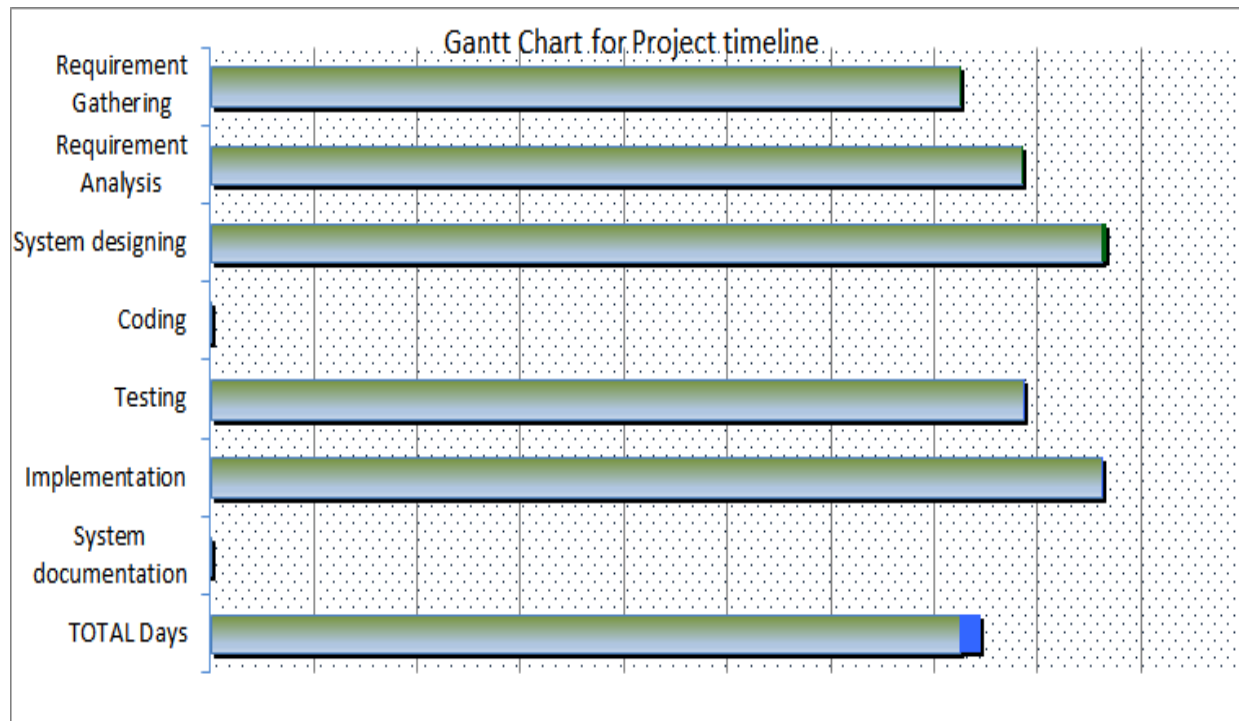
Task Name	Start	End	Duration (days)
Requirement Gathering	1/4/2019	4/4/2019	3
Requirement Analysis	5/4/2019	8/4/2019	3
System designing	10/4/2019	20/4/2019	10
Coding	22/4/2019	4/5/2019	14
Testing	5/5/2019	8/5/2019	3
Implementation	10/5/2019	13/5/2019	3
System documentation	15/5/2019	20/5/2019	5
TOTAL Days	1/4/2019	20/5/2019	41

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