Napata College

Information Technology Program

Thesis Submitted for B.sc Degree

Comparative smart market

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DEDICATION

Athelah Mohammed Omar

I dedicate my success and graduation to what I have achieved today after grace from God to the queen of my life she is the one who taught me to strive to obtain what I wished, she is the female who summarizes all women to my To my late mother, God bless her soul**, Nayla Mohammed**. To the one who gave me the love of knowledge when I was young, my late grandfather who passed away month before my graduation **Mohammed Ibrahem**. To the person who held my hand strongly since my childhood and never allowed me to fall, to stand before the waves of the sea The rebellious one who gave me and still gives me without limits, my father **Mohammed Omar.** To who used to light the way for me to those who always supported me and gave up their rights to satisfy me to the best sisters.

Zaienb Fatharhman

To the owner of a fragrant biography and an enlightened thought:
He was the first to attain higher education (My beloved father), may God prolong his life. To whom you set me on the path of life, and made me calm, She took care of me until she became old (My dear mother).To my brothers; Those who have had a great impact in many obstacles and difficulties. To all my distinguished professors, who did not hesitate to extend a helping hand to me My university trip came to an end after fatigue and hardship. And here I am, I will conclude my graduation research with all vigor and activity, And I am grateful to everyone who has had a favor in my career.

.

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Thanks to All the doctors who taught us.

ABSTRACTION

In view of the wide spread of the Internet, which has become accessible to most members of society, and the country has gone through one of the biggest crises of the new century represented by the outbreak of the new Corona virus, and from the standpoint of facilitating people's lives, keeping pace with technological and cultural development and achieving development in Sudan, the idea of the project was launched, which is to provide a website for marketing basic food commodities. The idea of the project is to provide a website that reaches the largest possible number of customers through the site, so that it achieves the main goal of the project, which is to compare the prices of food commodities in the major stores, which are the main point for buying groceries and slipping you through one site, which saves them the trouble of traditional shopping, saves the time and effort of the shopper and transforms Shopping for the pleasure of surfing the Internet from different computers or via smart devices from anywhere. We are also looking forward to adding all the major stores in the country to facilitate the exchange of services and the delivery of products on a wider scale.

الملخص

نظرا لانتشار الأنترنت الواسع والتي اصبحت بمتناول معظم افراد المجتمع , ومامرت به البلاد من اكبر ازمات القرن الجديد والمتمثله بتفشي فيروس كورونا المستجد , ومن منطلق تسهيل حياه الناس ومواكبه التطور التكنولوجي والحضاري وتحقيق التنمية في السودان ,انطلقت فكره المشروع وهي توفير موقع الكتروني لتسويق السلع الغذائية الأساسية. تقوم فكرة المشروع علي توفير موقع الكتروني يصل الي اكبرعدد ممكن من الزبائن من خلال الموقع , بحيث يحقق الهدف االساسي للمشروع وهو مقارنه اسعارالسلع الغذائيه في المتاجر الكبرى التي تعتبر نقطه رئيسيه لشراء البقاله وذلك من خالل موقع واحد مما يوفرعليه عناء التسوق التقليدي فيوفر وقت وجهد المتسوق ويحول التسوق لمتعه تصفح الانترنت. كما ونتطلع الي اضافه كافه المتاجر الكبري في البلاد لتسهيل تبادل الخدمات وايضا المنتجات علي نطاق اوسع.

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CHAPTER ONE

1.1 Introduction

The entry of the Internet and the emergence of smart applications and easy commercial services contributed to the speed of marketing goods over the Internet, and this phenomenon spread, especially in the early eighties of the last century, when it entered the personal and electronic computers. Therefore, computers were connected to it via electronic networks with the Internet, making it easy and fast to provide services.

1.2 Research problem

The major stores in the country have witnessed a quantitative expansion, which has led to me the emergence of different quality products, and prices have accelerated in the recent period so that there is no opportunity to compare the prices of products in addition to the difficulty of moving from one place to another.

1.2.1 Suggested solutions

A search application for the availability of compare price of products through website.

1.3 Research aims

- Customer’s service.
- Customer’s satisfaction.
- Increase product distribution areas.
- Increase brand awareness.

1.4 Research importance

- Saving time and effort expended in the process of moving from one store to another.
- Providing a wide variety of products.
- Easily compare prices and quality.

1.5 Project Brief Description

It is an electronic shopping system in the most famous supermarkets that includes a database of food commodities in which it collects the services that the user needs during the process of shopping via the Internet. As it reviews the offered products and compares the prices between them, the system also facilitates the process of customer communication with the system administrator through the messaging service, where they can add their comments to ensure their permanent satisfaction. Also it provides the communication service to submit purchase orders without the need to go to the market in order to save time and effort. We worked on analyzing the current e-shopping systems and among the problems that shoppers face, and e-shopping supermarket has been proposed in order to solve these problems.

1.6 Search limits

- Temporal limits: Third Millennium.
- Spatial boundaries: Sudan Khartoum Hypermarket Al-Anfal Al-Mashtal Street and Sudan Khartoum Sena Mart Al-Mashtal Street.

1.7 Research Methodology

The descriptive and analytical approach was followed by describing and analyzing the system and then building the system.

1.8 Research Structure

In addition to this section containing the introduction, the research structure comes in five other sections, and detailed as follows:

- **Chapter2** Background and literature review.
- **Chapter3** This chapter describes Analysis and the methodology and the phases of the application creation.
- **Chpater4** This chapter contain Tools and technique used in research and Design and Implementation.
- **Chpater5** In this chapter result and conclusion

CHAPTER TWO

2.1 Internet

It is a global communications network that allows the exchange of information between smaller networks through which computers connect around the world. It operates according to specific systems and is known as the Unified Protocol, which is the Internet Protocol.

2.2 web application System

This is computer software using a Web browser as the interface to support organizational functions or processes. The system is the integration of computer hardware, software, databases, networks, procedures, and people to collect, process, store, and distribute information for specific business purposes.

2.3 How a web application works

Web applications are usually coded in browser-supported language such as JavaScript and HTML as these languages rely on the browser to render the program executable. Some of the applications are dynamic, requiring server-side processing. Others are completely static with no processing required at the server.

The web application requires a web server to manage requests from the client, an application server to perform the tasks requested, and, sometimes, a database to store the information. Application server technology ranges from ASP.NET, ASP and ColdFusion, to PHP and JSP.

2.4 Benefits of a web application

Web applications run on multiple platforms regardless of OS or device as long as the browser is compatible.

- ✓ All users access the same version, eliminating any compatibility issues
- ✓ They are not installed on the hard drive, thus eliminating space limitations
- ✓ They reduce software piracy in subscription-based web applications (i.e. SaaS)
- ✓ They reduce costs for both the business and end user as there is less support and maintenance required by the business and lower requirements for the end user's computer.

2.5 web application History

In the early days of the Web each individual web page was delivered to the client as a static document, but the sequence of pages could still provide an interactive experience, as user input was returned through web form elements embedded in the page markup. However, every significant change to the web page required a round trip back to the server to refresh the entire page.

In 1995 Netscape introduced a client-side scripting language called JavaScript allowing programmers to add some dynamic elements to the user interface that ran on the client side. So instead of sending data to the server in order to generate an entire web page, the embedded scripts of the downloaded page can perform various tasks such as input validation or showing/hiding parts of the page.

In 1996, Macromedia introduced Flash, a vector animation player that could be added to browsers as a plug-in to embed animations on the web pages. It allowed the use of a scripting language to program interactions on the client side with no need to communicate with the server.

In 1999, the "web application" concept was introduced in the Java language in the Servlet Specification version At that time both JavaScript and XML had already been developed, but Ajax had still not yet been coined and the XMLHttpRequest object had only been recently introduced on Internet Explorer 5 as an ActiveX object.

In 2005, the term Ajax was coined, and applications like Gmail started to make their client sides more and more interactive. A web page script is able to contact the server for storing/retrieving data without downloading an entire web page.

In 2011, HTML5 was finalized, which provides graphic and multimedia capabilities without the need of client side plug-ins. HTML5 also enriched the semantic content of documents. The APIs and document object model (DOM) are no longer afterthoughts, but are fundamental parts of the HTML5 specification. WebGL API paved the way for advanced 3D graphics based on HTML5 canvas and JavaScript language. These have significant importance in creating truly platform and browser independent rich web applications.

2.6 E-Marketing:

E-Marketing (Electronic Marketing) are also known as Internet Marketing, Web Marketing, Digital Marketing, or Online Marketing. E-marketing is the process of marketing a product or service using the Internet. E-marketing not only includes marketing on the Internet, but also includes marketing done via e-mail and wireless media. It uses a range of technologies to help connect businesses to their customers.

2.7 Advantages of e-marketing:

- The possibility of buying and selling while you are at your place.
- Ease of purchasing from different countries with a click of a button.
- Diversity in all goods and services.
- Shopping in the fastest time.
- Simply provide the payment process.
- The presence of permanent evaluation from customers.

2.8 Disadvantages of e-marketing:

- Hacking websites and social media accounts.
- Falling into unreliable shipping companies.
- Theft of credit card information.
- The arrival of a product other than the one offered.

2.9 Other Research

There are several applications for e-shopping from supermarkets such as Dukani.

2.10.1 Dukani app:-

Dukani is a smart shopping platform to serve all Arab countries, enabling groceries and stores to offer all their consumer products for sale electronically. Dukani acts as an electronic intermediary between the customer and the store, offering consumer products at the same price as the store and managing orders electronically in a smooth way. A comprehensive management of automated application processes will lead to the establishment of an integrated center for the distribution and meeting of applications.

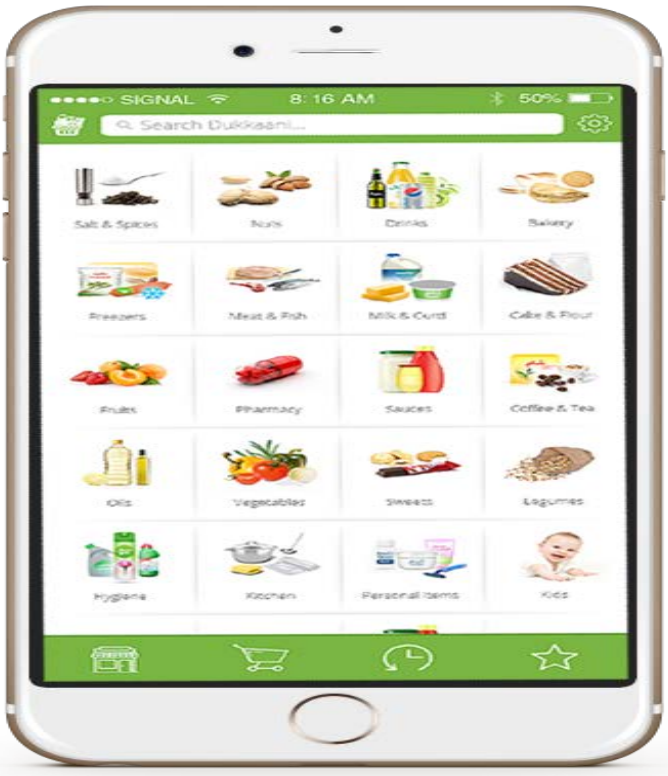

Figure 2-1 Other Research System

Consistent:

An electronic supermarket in Sudan, that does the shopping through electronic services from your home as well as the delivery.

Inconsistent:

It contains all supermarket products but does not compare the prices of major food commodities.

CHAPTER THREE

3.1 Unified Modeling Language (UML)

Is a standardized general-purpose modeling language in the field of object-oriented software engineering UML includes a set of graphic notation techniques to create visual models of object-oriented software systems, UML combines techniques from data modeling, business modeling, object modeling, and component modeling and can be used throughout the software development life-cycle and across different implementation technologies.

3.2 Modeling

There is a difference between a UML model and the set of diagrams of a system. A diagram is a partial graphic representation of a system's model.

The model also contains documentation that :

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3.2.1 Structure Diagrams

Is a conceptual modeling tool used to document the different structures that make up a system such as a database or an application? It shows the hierarchy or structure of the different components or modules of the system and shows how they connect and interact with each other. It is a tool used to guide developers to ensure that all parts of the system work as intended in relation to all the other parts.

3.2.2 Behavior Diagrams

The behavioral diagram shows how the system works ‘in motion’, that is how the system interacts with external entities and users, how it responds to input or event and what constraints it operates under.

3.2.3 State Machine Diagram

It shows the discrete behavior of a part of a designed system through finite state transitions.

3.2.4 Use Case Diagram

Use case diagram is the primary form of system/software requirements for a new software program underdeveloped. Use cases specify the expected behavior (what), and not the exact method of making it happen (how). Use cases once specified can be denoted both textual and visual representation (i.e. use case diagram).

3.2.5 Interaction Diagrams

Describes the interactions where messages and lifelines are hidden. You can link up the "real" diagrams and achieve high degree navigability between diagrams inside the Interaction Overview Diagram.

3.2.6 Sequence Diagram

Uml Sequence Diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration. Sequence Diagrams are time focus and they show the order of the interaction visually by using the vertical axis of the diagram to represent time what messages are sent and when.

3.3 Use Case Diagram of the System

Use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and also tells how the user handles a system.

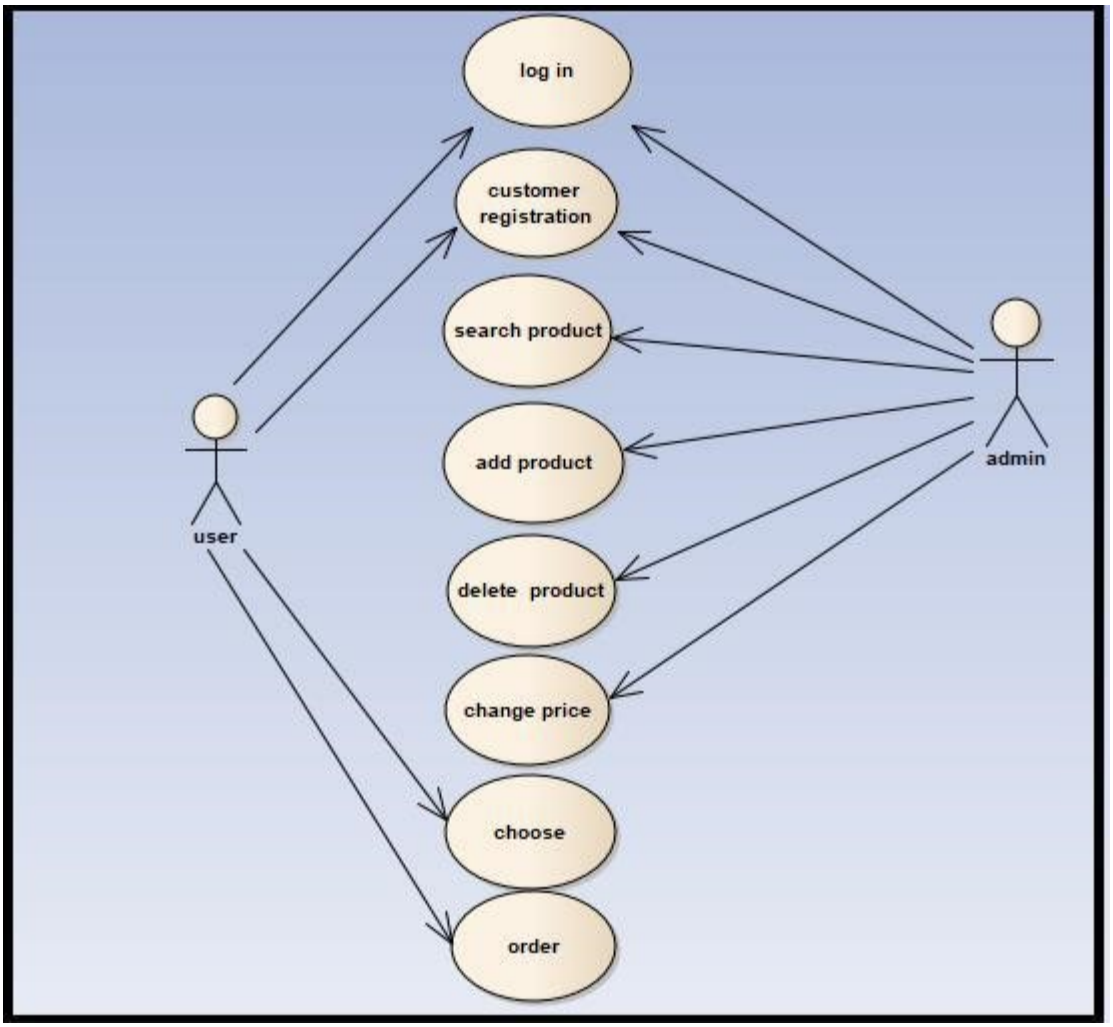

Figure 3-1 use case diagram to whole syst

3.4 Class Diagram of the System

The diagram describe the classes of the system and its attributes.

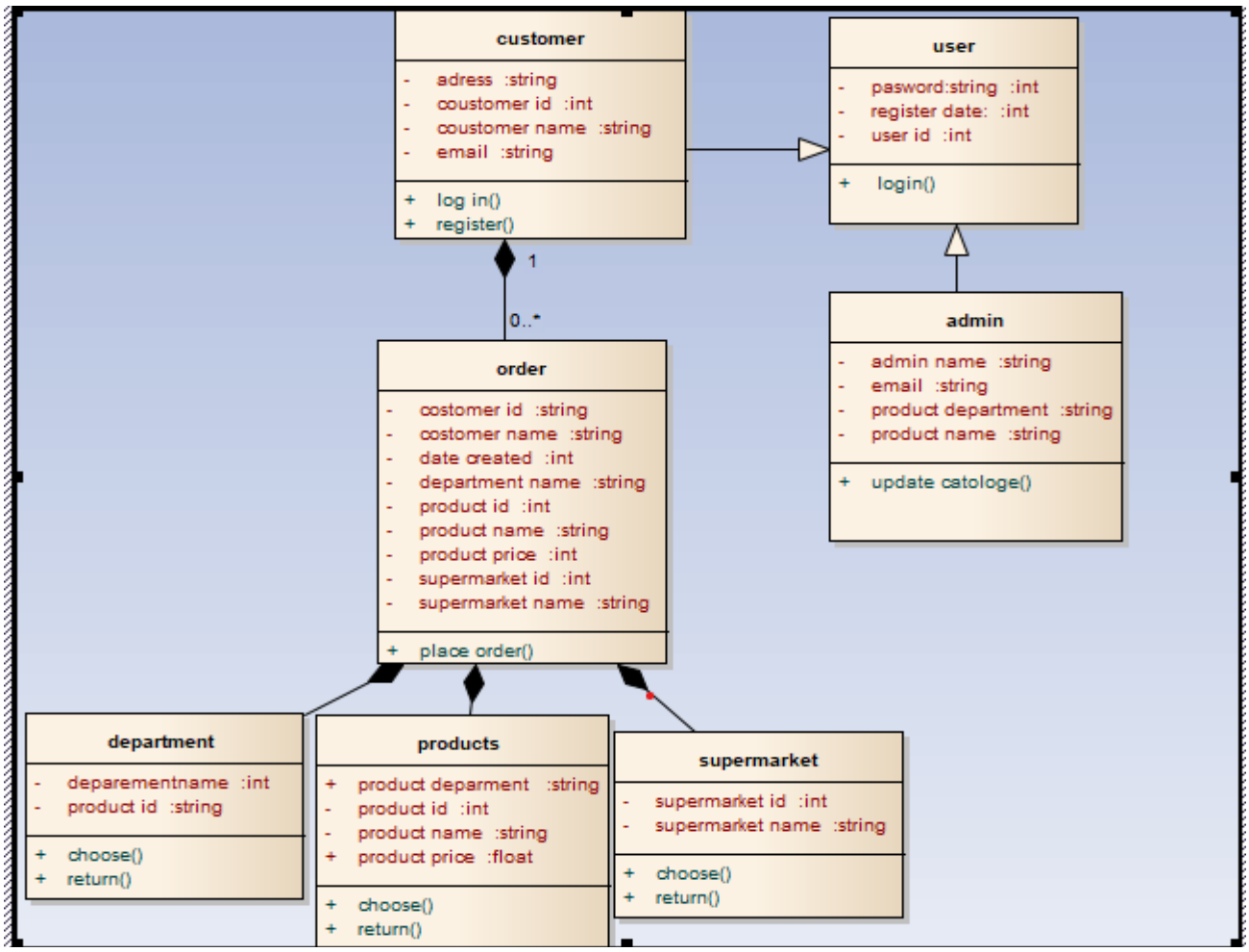

Figure 3-2 the class Diagram of the System

3.5 Sequence Diagram of selecting an order

The user can select the product on the data base to know if the product exists.

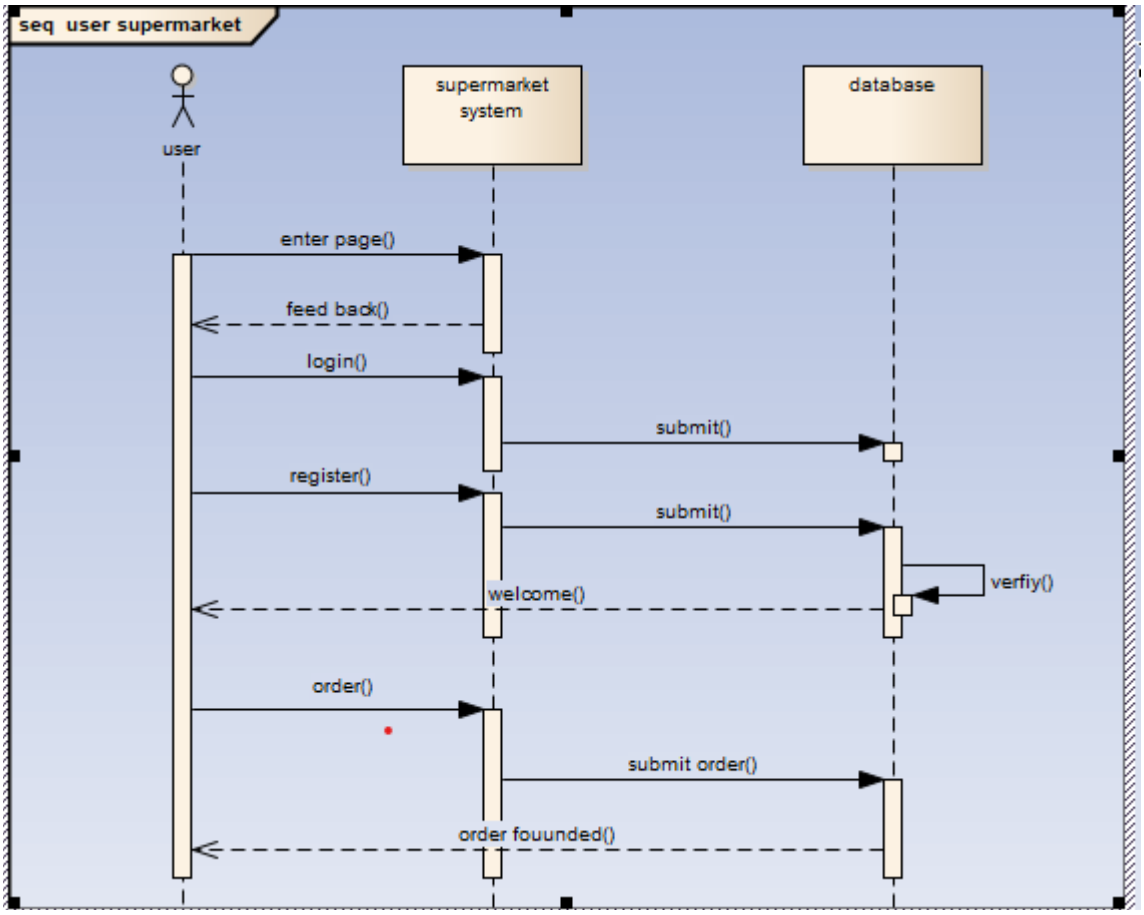

Figure 3-3 Sequence Diagram of the selecting an order.

3.6 Sequence Diagram of Products Operations

The Figure below that describe crud operations on products data that means create a new product with its details and update , delete and search for it.

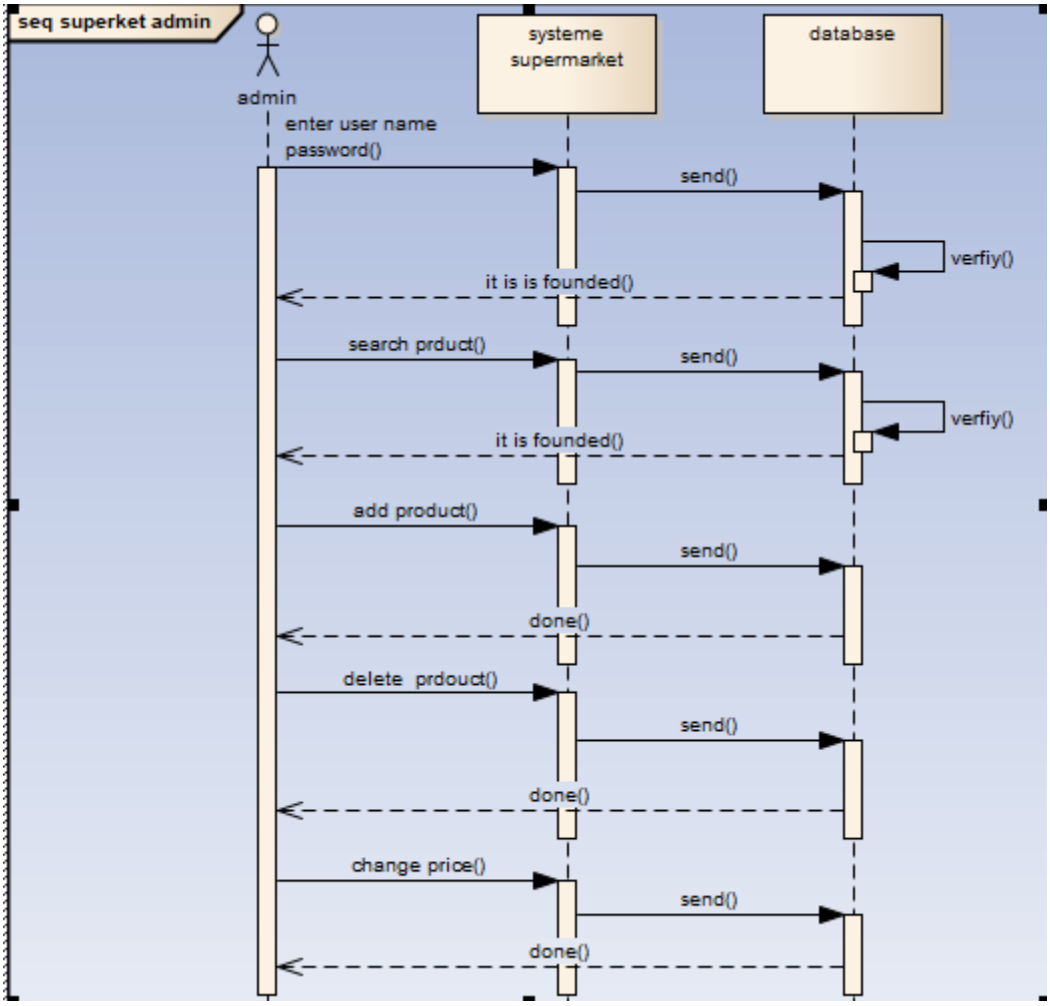

Figure 3-4 Sequence that describe the crud operation

CHAPTER FOUR

4.1 Techniques and Tools Used

The techniques and tools used in the design and implementation of the proposed system and their features will be presented.

4.1.1 HTML

HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation **(CSS)** or functionality/behavior **(JavaScript).**

"Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.

4.1.2 CSS

Stands for **"Cascading Style Sheet"** Cascading style sheets are used to format the layout of web page. They can be used to define text styles, table sizes, and other aspects of Web pages that previously could only be defined in a page's HTML.

4.1.3 Bootstrap

Is the most popular CSS Frame work for developing responsive and mobile-first websites.

4.1.4 My SQL

Is an open source relational database management system. It is based on the structure query language (SQL), which is used for adding, removing, and modifying information in the database. Standard SQL commands, such as ADD, DROP, INSERT, and UPDATE can be used with MySQL.

MySQL can be used for a variety of applications, but is most commonly found on Web servers. A website that uses MySQL may include Web pages that access information from a database. These pages are often referred to as "dynamic," meaning the content of each page is generated from a database as the page loads. Websites that use dynamic Web pages are often referred to as database-driven websites.

4.1.5 PHP

Stands for "Hypertext Preprocessor." (It is a recursive acronym, if you can understand what that means.) PHP is an HTML-embedded Web scripting language. This means PHP code can be inserted into the HTML of a Web page. When a php page is accessed, the PHP code is read or "parsed" by the server the page resides on. The output from the PHP functions on the page are typically returned as HTML code, which can be read by the browser. Because the PHP code is transformed into HTML before the page is loaded, users cannot view the PHP code on a page. This make PHP pages secure enough to access databases and other secure information.

4.1.6 XAMPP

is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database, and interpreters for scripts written in the PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer. With the advantage of common add-in applications such as Word Press and Joomla! Can also be installed with similar ease using Bitnami.

4.1.7 Java

Is a programming language and computing platform first released by Sun Microsystems in 1995? There are lots of applications and websites that will not work unless you have Java installed, and more are created every day. Java is fast, secure, and reliable. From laptops to datacenters, game consoles to scientific supercomputers, cell phones to the Internet, Java is everywhere!

4.2 Analysis Tools

Tools make it easier for users to process and manipulate data.

4.2.1 Enterprise Architecture (EA)

Is "a well-defined practice for conducting enterprise analysis, design, planning, and implementation, using a comprehensive approach at all times, for the successful development and execution of strategy. Enterprise architecture applies architecture principles and practices to guide organizations through the business, information, process, and technology changes necessary to execute their strategies. These practices utilize the various aspects of an enterprise to identify, motivate, and achieve these changes .

4.3 Login Admin Interface

Interface where admin and pharmacist login to their dashboard and enter his username and password.

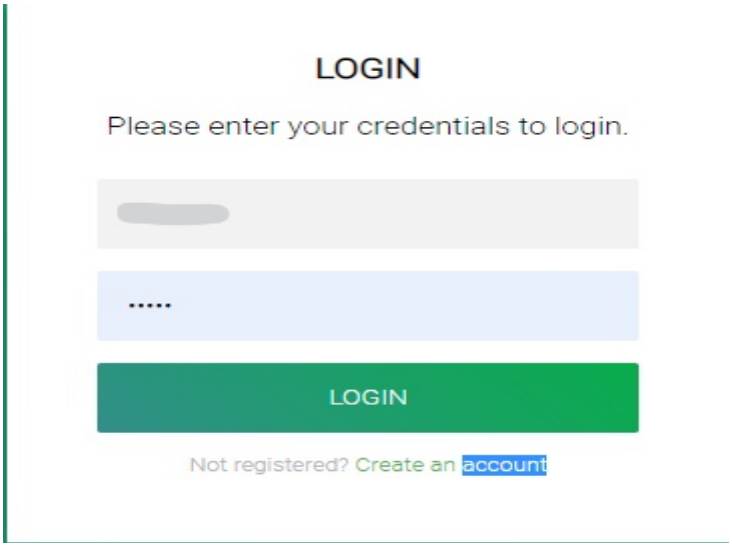

Figure 4-1 Login Screen to System Dashboa

4.4 Home page Interface

Home page contain the navigation link and photo or gallery to supermarket.

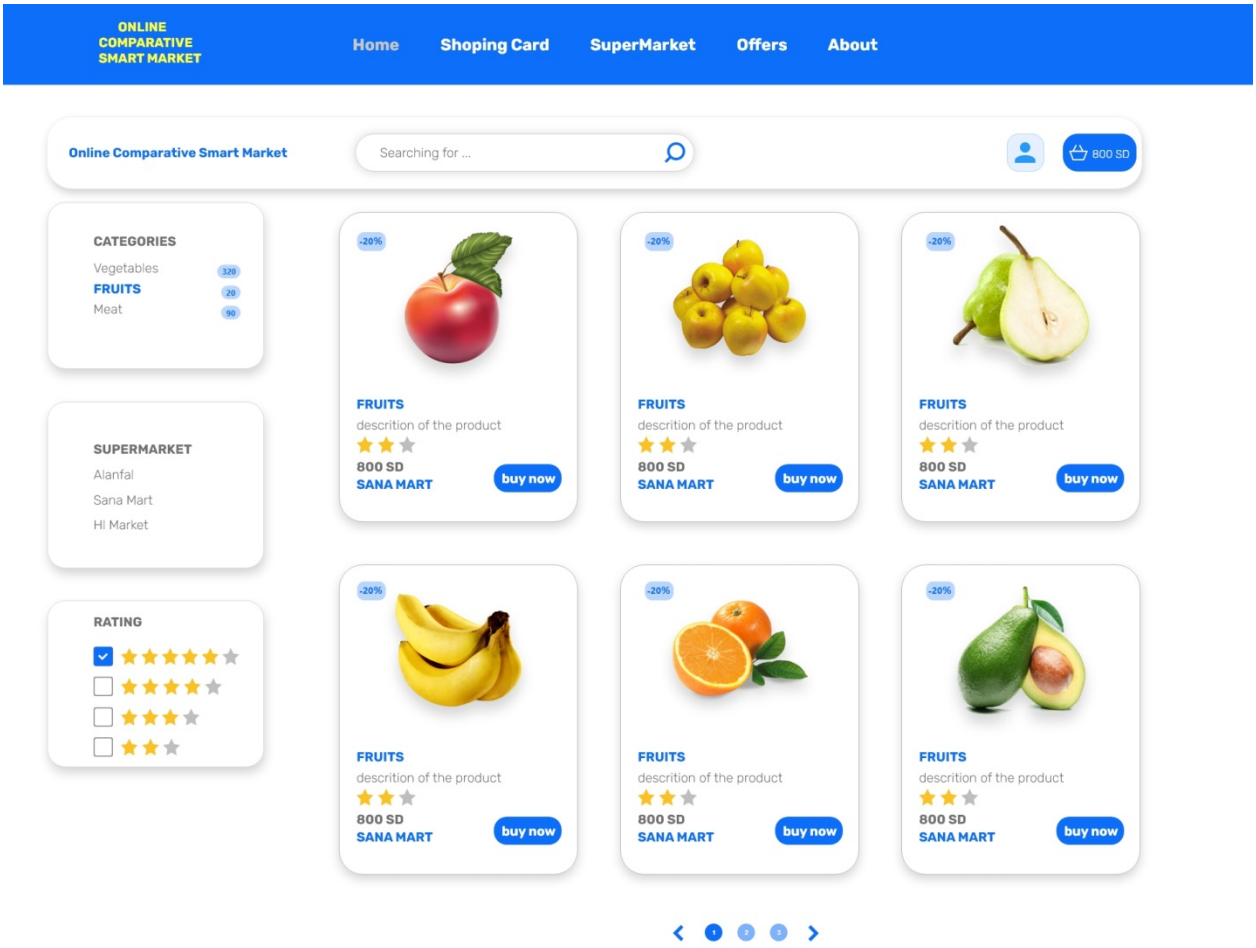

Figure 4-2 describe home page screen

4.4.1 Vegetable Selected Product

Describe the all-vegetable products are selected of filtered to user to buy

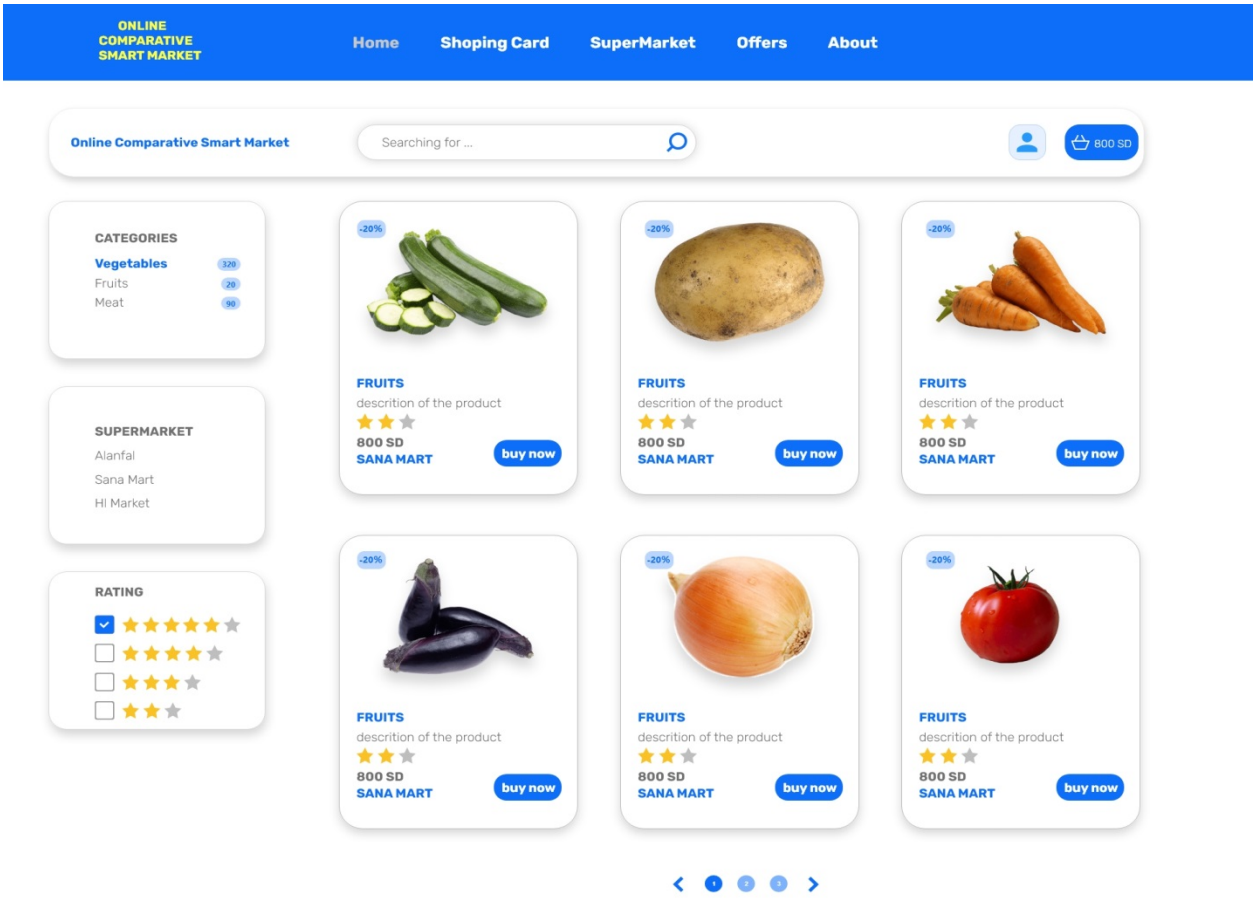

Figure 4-3 Vegetable Selection Product

4.4.2 Meat Selected Product

Describe the all-Meat products are selected of filtered to user to buy

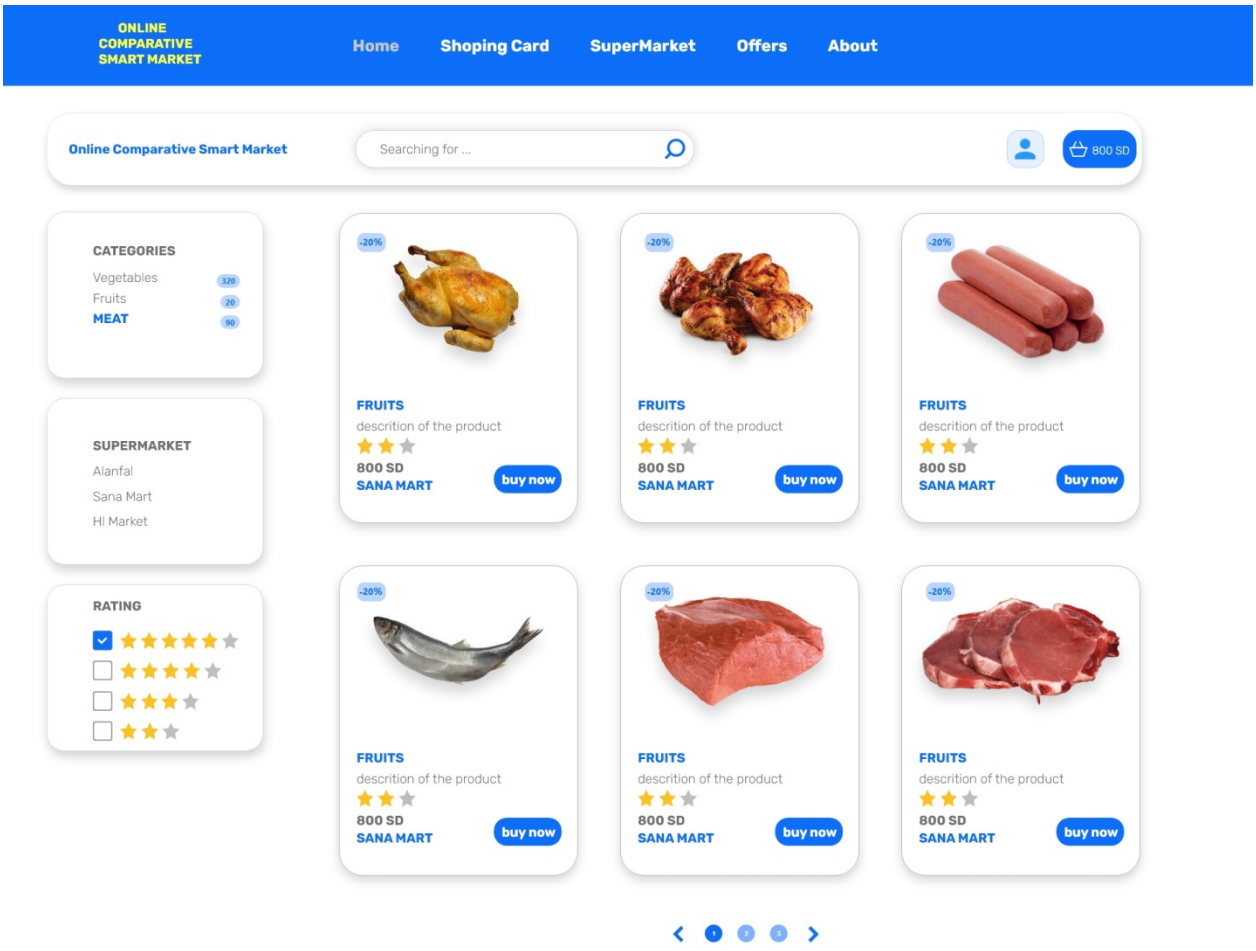

Figure 4-4 Meat Selection Product

4.5 Supermarket Details Interface

The about page describe some information about each market

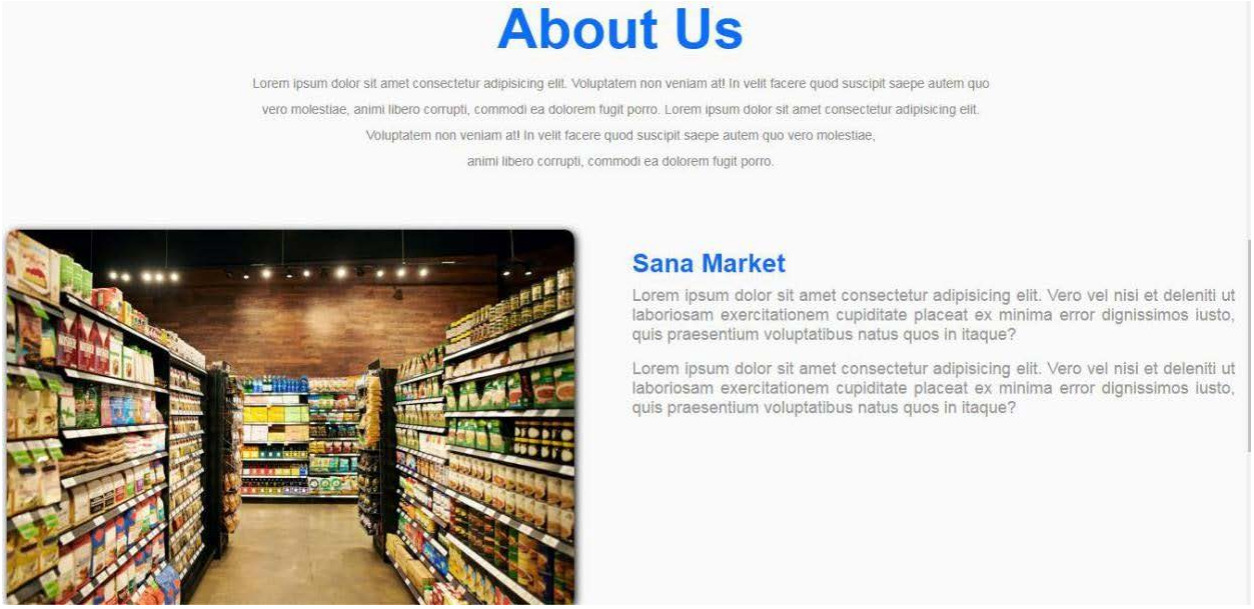

Figure 4-5 describe about us details

4.6 Available Supermarket Interface

Describe or contain all supermarket details.

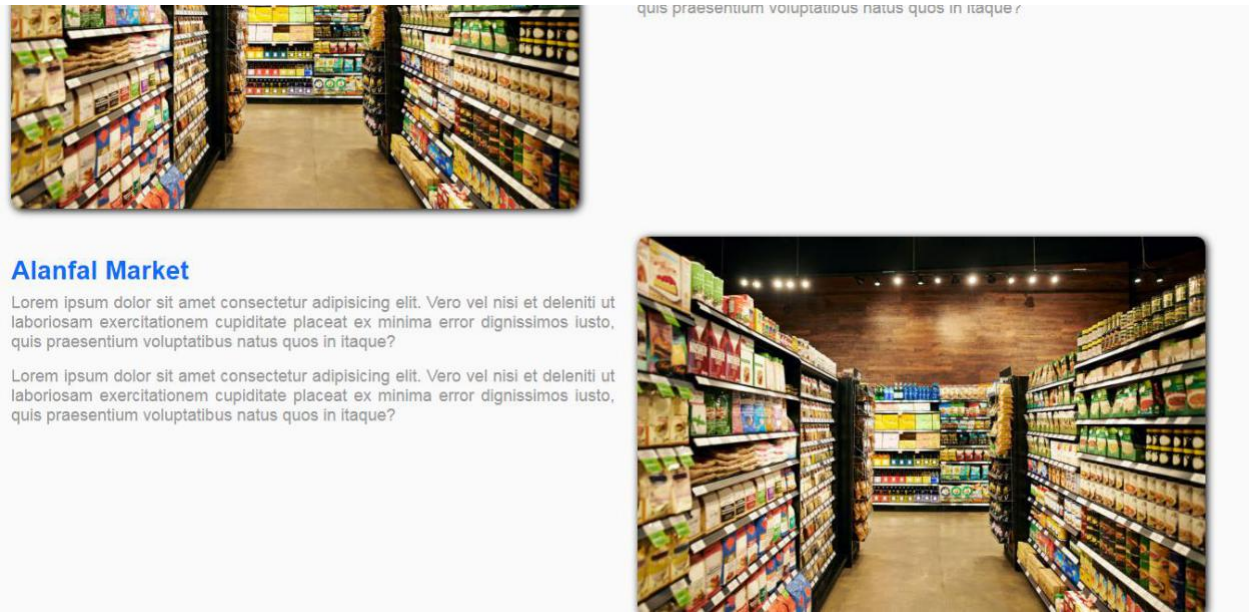

Figure 4-6 describe super market that we have

4.7 Admin Dashboard Interface

Page that describe all information about products name and brand and their price.

Figure 4-7 describe the admin dashboard

4.8 Add New Product Data Interface

Describe how admin add new product details.

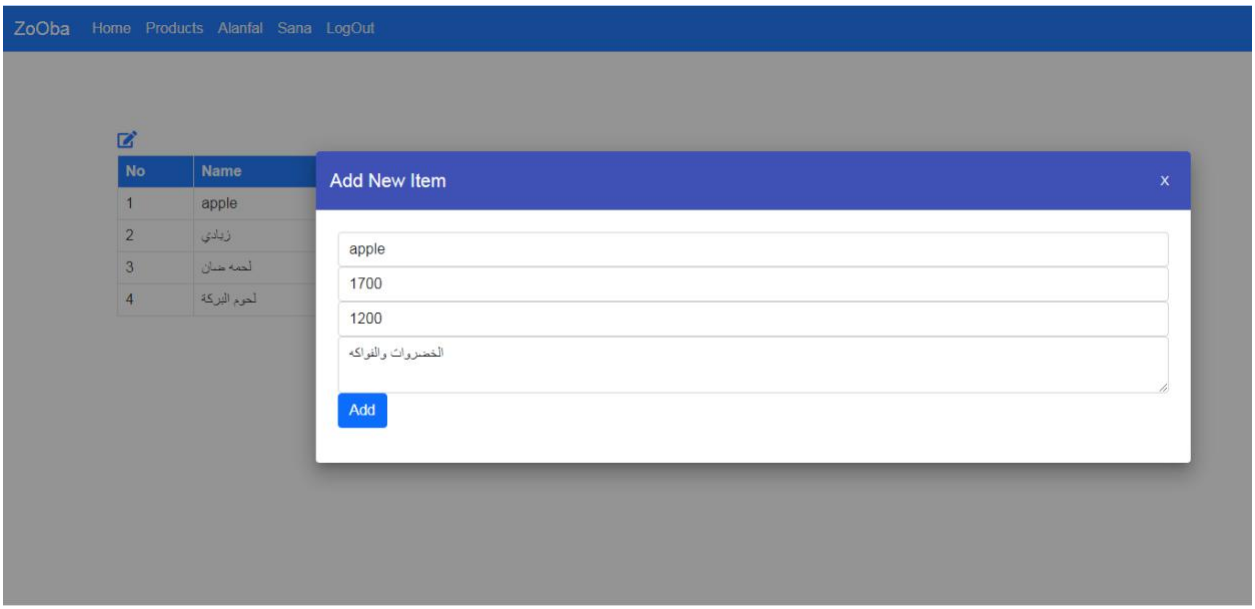

Figure 4-8 describe add new products information

4.9 Delete Data Operation Interface

Here the page where admin delete product by their id.

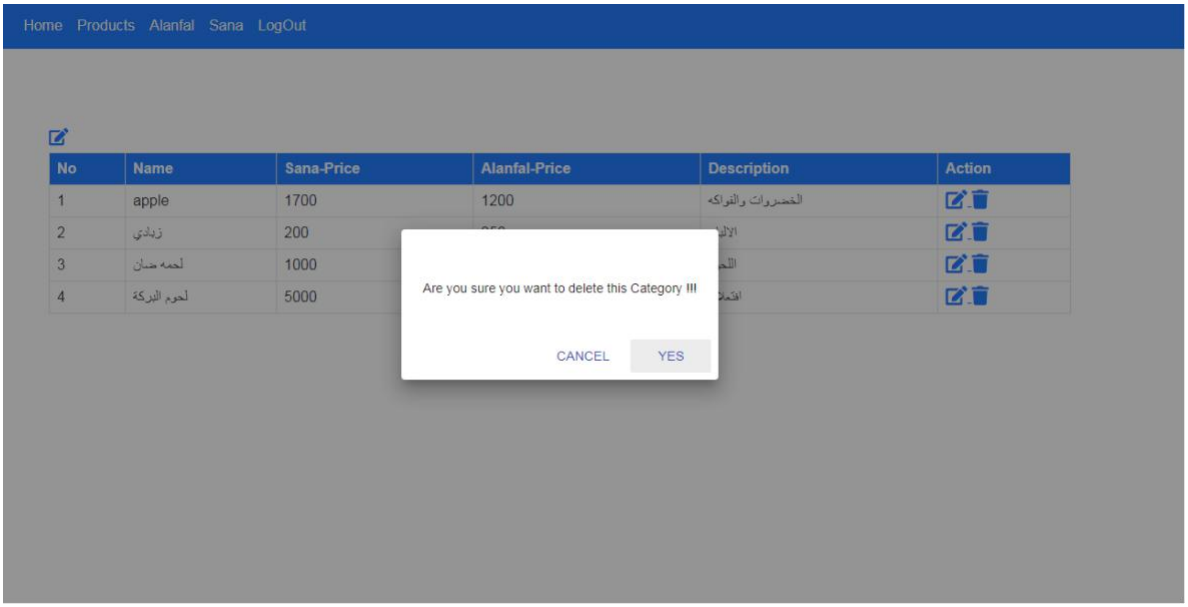

Figure 4-9 describe delete operation

4.10 Add New Product to Specific Market Interface

Describe add new item to market.

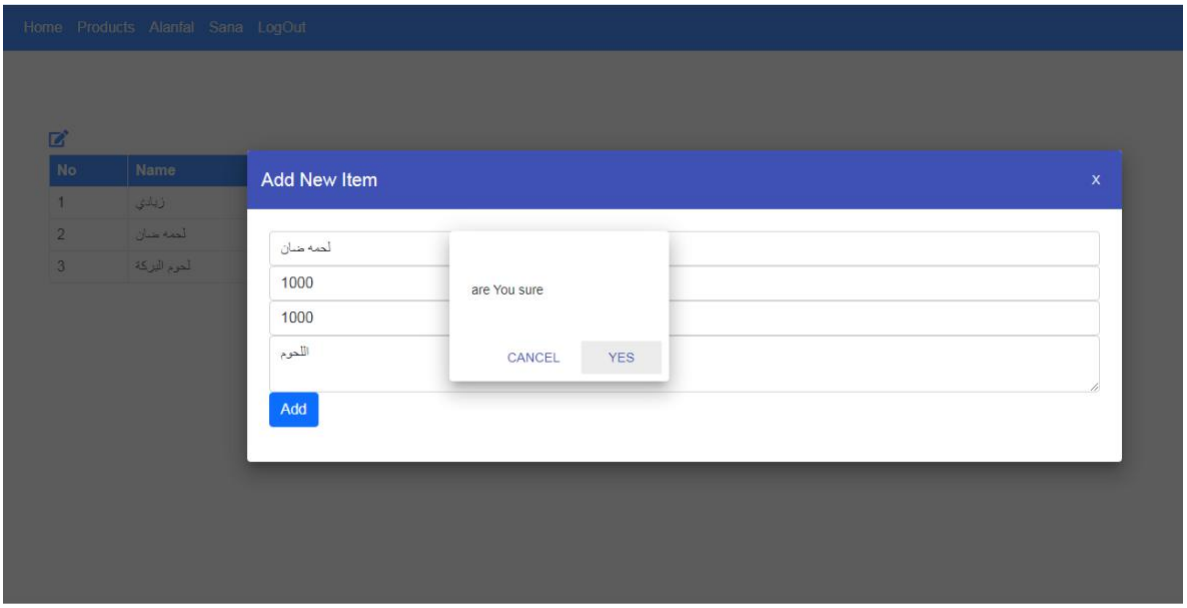

Figure 4-10 describe add new product to specific market

4.11 Specific Market Available Products Interface

Describe all products in alanfal market.

Figure 4-11 describe specific market products

4.12 All Products Interface

Show all products in the stock or inventory.

Figure 4-12 describe page to display all products

4.13 Sana Market Available Products Interface

Describe all products in Sana market.

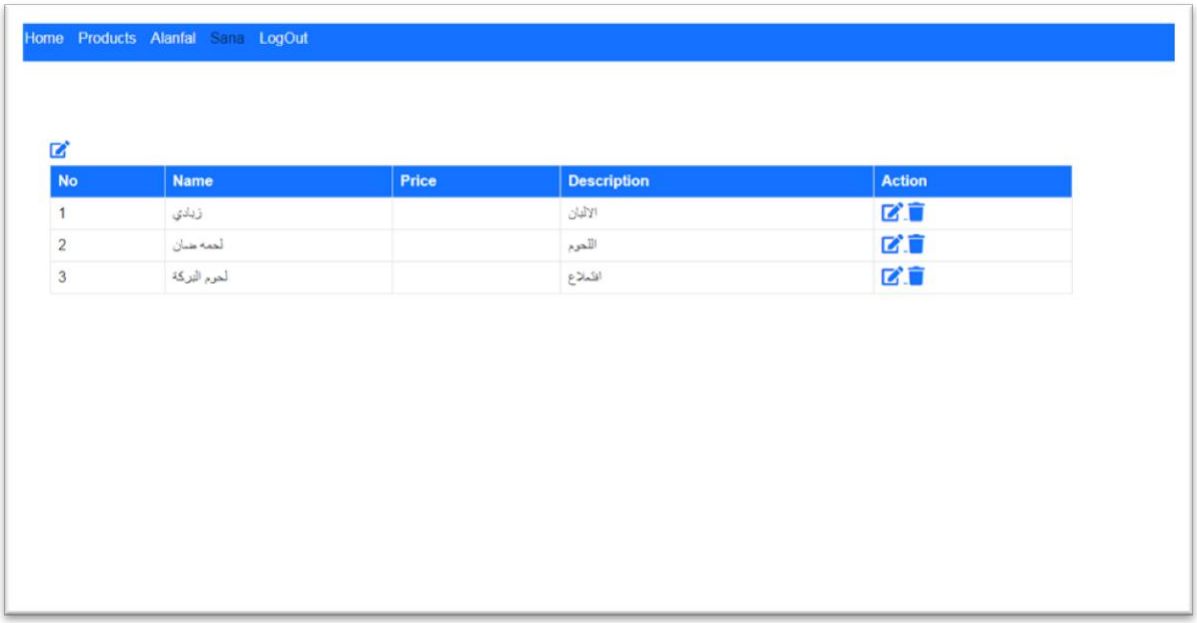

Figure 4-13 describe the specific market products

CHAPTER FIVE

5.1 Results

The application is set to provide a fast, reliable and error-free way of interaction between the customer and the supermarket, and ensures the application achieves its goals by finding the products in an easier and faster way.

- Facilitate timely access to products
- The system is so easy to use for customers.
- Easy to deal with the application and the possibility of working on it without training.
- The system does not allow unauthorized users to enter, and prevent any user from trespassing into the system.
- The tasks of the database manager are few and do not require effort and allow you to easily control users through control screens.
- . The system is so easy to use for customers.

5.2 Conclusion

There are many problems in finding products with deferent price and brand or company manufacture including lack of super market that gives high quality and low prices our project resolve some of this issues by providing an easy website to comparative between different price and company and with high quality, this project require for further development support and implementation.

5.3 Recommendation

- Developing the application to supports other languages.
- Add all major suparmarkets in the country.
- Developing the system to show the distance in km and the time taken to reach nearby supermarkets
- Turning the app from web to Android

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