

E-commerce management system

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of
Master Science of Management Information System

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APPROVAL

This Project titled “**E-commerce management system**”, submitted by **Abdullahi Arab Sheikhdon** and to the Department of Management Information System, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of MS. in Management Information System and approved as to its style and contents. The presentation has been held on 20 January 2022

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We hereby declare that, this project has been done by us under the supervision of **Sheak Rashed Haider Noori, Ph.D, Associate Professor & Associate Head, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

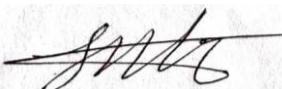
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ABSTRACT

The process of conducting business using computer networks is known as electronic commerce. A user who is seated in front of a computer may use all of the Internet's features to purchase or sell things.

Unlike traditional commerce, which requires a person to physically go out and purchase items, ecommerce has made it simpler for humans to eliminate physical labor and save time. E-commerce, which began in the early 1990s, has made significant progress in the computer world, but one factor that has slowed its expansion is security. Today's problem for e-commerce is security, and there is still a lot of progress to be done in this area.

The fundamental advantage of e-commerce over traditional commerce is that the customer can explore online stores, compare prices, and place orders from the comfort of their own home.

B2B e-commerce is being adopted to provide access to global markets for enterprises in developing nations in order to increase the usage of e-commerce in developing countries. Advancement in the sector of e-commerce is critical for a growing country. The study strategy demonstrates the relevance of e-commerce for commercial applications in emerging nations.

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Chapter 1

Introduction

An electronic commerce system is a combination of practices, strategies, processes, applications and technologies, necessary to conduct business transactions. The e-commerce model fundamentally changes the relationships between customers, suppliers, partners, as well as the processes within the company. For this requires relying on technologies that make change possible, "Enabling technologies". The use of internet technologies, together with others Information technology, should improve competitiveness and margins. This involves reducing supply-production-distribution cycles, getting closer to suppliers, getting to know the customer better, while seeking a reduction costs.

1.1 Project Background

It goes without saying that information technology has altered the way businesses are conducted today. It has transformed the globe into a massive virtual marketplace where actions may be completed in a matter of seconds while sitting in front of a computer terminal or using a cell phone from anywhere. This technology aids users in making their activity more efficient and productive.

1. Management costs are low, resulting in financial gain.
2. Business complications are eliminated.
3. A large number of activities may be completed in a shorter amount of time.
3. The ability to supply a significant amount of data, which is not achievable with the current system.

Web portals are emerging as a new generation of web-enabled services for internet users, where consumers may now participate in getting numerous online services that help them with their varied requirements, in addition to seeing information about a certain industry or range of items. It allows providers to offer a variety of unique services that benefit their customers and allows them to do business utilizing technology and the internet. This project looks at why it's vital for our country to have an e-commerce portal, as well as the broader challenge of adopting e-commerce. This project focuses on bringing Business to Consumer (B2C) ecommerce, which is a more advanced kind of ecommerce. There are also some additional capabilities, such as the ability to combine many enterprises into a single platform for the benefit of their own and targeted consumers.

1.2 Key Features

A web based online store that offers e-commerce solutions and services to customers via the use of integrated technologies such as product display tools, shopping carts, and payment systems.

The following are some of the important features:

- An online store with information on numerous things in many categories such as meals, clothing, and other items that customers may purchase online. Customers have their own platform where they can simply compare items.
- Quality and cost.
- Customers will be able to purchase products online using a variety of local payment methods like as online credit card, mobile phone payment (EVC, SAADMOBILE), and pay after delivery, among others.
- There will be a shopping cart feature where customers may select products and add them to their shopping carts or remove them from their carts.

1.3 Expected Impact of the Project

The B2C e-commerce platform, which will be established for buying and selling items, is the country's major entry point into business-to-consumer e-commerce. Hopefully, other sectors of our nation will be inspired by this template, generic design, or functional innovations, which they may use to create their own B2C or other types of e-commerce platforms.

1.4 Report Breakdown

This paper begins with a survey of the literature on themes such as B2C e-commerce and developing-world readiness. The e-commerce portal's design is then shown. The implementation part follows the design, and it explains in detail which technologies were utilized to put up the B2C e-commerce platform. Users then assess the system that has been installed. The e-commerce platform is then put through its paces, with test cases being provided. The report comes to a close with the results and conclusion.

1.5 Definitions

- **E-Commerce:** the purchase and sale of products and services through a digital medium (such as the internet).
- **Database:** An accumulation of electronic data that is similarly organized.
- **B2C:** A trade between a business and a consumer.
- **B2B:** A trade between a business and another business.
- **B2E:** A trade between a business and an employee of the business.
- **C2C:** A trade between a consumer and another consumer.
- **SSL:** Stands for Secure Socket Layer and can be used to encrypt and secure a communication channel between two parties over the internet.
- **GUI:** An application's graphical user interface, through which a user can interact with the system.

CHAPTER 2

SURVEY OF EXISTING MODELS

Virtually every economy has the potential for e-commerce. When it comes to Somalia appeared to be unprepared for an online-only future. This is somewhat unsurprising considering that just around a third of the country's 14 million residents have internet access and few have bank accounts. Getting an internet business off the ground is a difficult task.

E-commerce in Somalia is still in its infancy, and online shopping in Africa as a whole is still a niche market; many people still live on pitiful wages, so e-commerce is truly just for the upper crust. There are additional significant hurdles for e-commerce companies, not only in Somalia; the most significant of them is a lack of infrastructure, including both excellent roads and telecoms facilities that allow consumers to use the platforms in the first place.

However, because everyone now has access to the internet through cell phone, at home and abroad, Somali online enterprises will thrive in the near future. Only 1.88 percent of Somalis utilized the internet in 2016, according to Somalia's Ministry of Posts, Telecommunications, and Technology.

2.1 Current state in Somalia

The current situation of Somalia's regulatory environment in the financial and technical sectors was the topic of this report. Reforms that are required in order to implement e-commerce have also been proposed. The main barrier to establishing e-commerce has been highlighted as a lack of understanding among legislators. If e-commerce is introduced, conventional knowledge of payment processes raises misleading alarms about capital flight. Telecommunications and information technology synergy has been shown to be capable of monitoring and administering real-time transactions. As a result, liberalizing the telecom and IT sectors, as well as modernizing the countries financial and commercial procedures, are prerequisites for Somalia's effective ecommerce implementation. Simply having a website in the huge ocean of the Internet is insufficient in the case of marketing. When it comes to starting contracts over the Internet, uniformity is crucial. As a result, in order to take advantage of the increased prospects presented by IT growth, Somali businesses must get five globally recognized certifications in quality control, pricing competitiveness, and timely delivery.

This study discusses how e-commerce may be used in the RMG industry. The usage of IT technology by E-commerce and other export-oriented sectors is expected to become a requirement rather than a choice (due to worldwide needs and expectations). In order to preserve competitiveness and establish new worldwide prospects, banks, customs, and other supporting institutions, as well as entrepreneurs exporting products and services, will have to satisfy foreign demands. It is critical to raise e-commerce awareness among Bangladeshi exporters. They must be well-versed in order to recognize and make use of IT's advantages. Exporters are not obliged to learn how to operate computers. It would be a success if they could understand the cost-benefit analysis and then implement e-commerce. At this point, business groups may help by emphasizing the benefits of IT to their members and pushing them to employ customized software in their daily operations.

2.1.1 Background of Online System and SMS System in Somalia

Millions more Africans have skipped traditional landlines in favor of mobile phones, a phenomenon known as the "leapfrog" effect. By 2020, the GSMA estimates that there will be 725 million unique mobile customers on the continent. Mobile phone customers in Somalia, in millions, from 1960 to 2018: We have data for Somalia from 1960 to 2018 for this indicator. Somalia had an average of 0.99 million members over that time period, with a low of 0 million subscribers in 1960 and a high of 7.65 million subscribers in 2018. The most recent figure is 7.65 million members from 2018. In 2018, the world average of 46.79 million members was based on 177 nations.

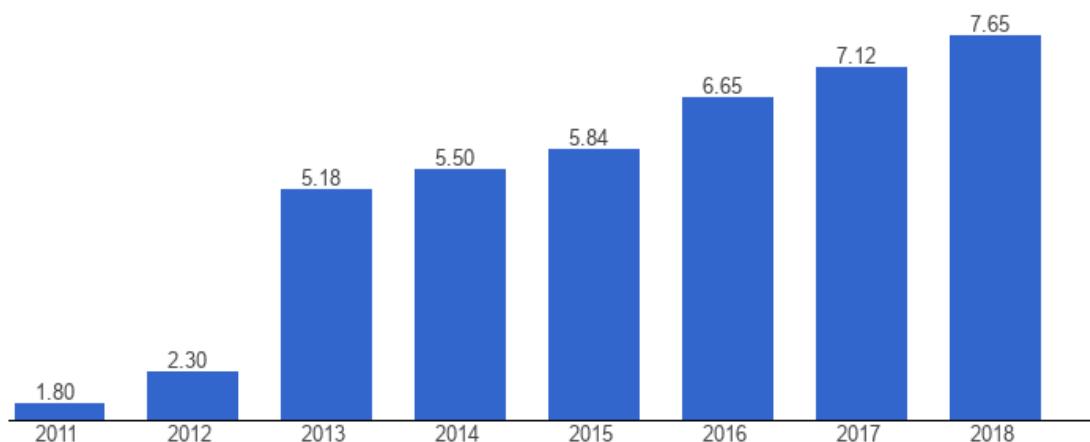


Figure 2.1: Recent values



Figure 2.2: Longer historical series

2.1.2 Statistical data

According to our research, more than 73 % of Somalis aged 16 and up use mobile money at least once every month. – While majority use it more frequently, and high-income earners use it even more frequently. Every month, There are more than 156 million mobile money transfers each year. It can be used for a variety of purposes. Paying bills – for purchases between \$2 and \$300 – is one of the most prevalent. As a result, mobile money is significantly more popular than cash-money. Two-thirds

of individuals polled are using it to pay for commodities like waters, power and charcoal. Another argument is that it may be used to purchase food, durable products, and livestock.

Nearly 40% of parents pay their children's school tuition with mobile money. It's furthermore Money is often sent to family and friends using this method. In addition, We discovered that it has been used to save money. Now, the majority of transactions take place between individuals, but companies are becoming more interested. Receiving paychecks via mobile money, for example, has proven to be a crucial component in driving greater use.

Despite the many inherent difficulties faced in the country, the telecom market has flourished. Tariffs are among the lowest in Africa, and new cable systems coming on stream in the next few years (providing additional connectivity to Asia and Europe) will lead to downward pressure on retail pricing.

2.2 Problem in the existing system

We will discuss numerous barriers to business and trade in general, as well as ecommerce in specific. Many of these obstacles are widespread in the corporate world, necessitating big adjustments that need strong political commitment and the capacity to implement legislative changes. Below is a list of specific e-commerce obstacles that policymakers can address in the near and medium term.

- There aren't enough phone lines.
- The telecommunications sector lacks a robust independent regulating organization.
- There is no encryption regulation that prevents digital signatures from being accepted.
- To undertake foreign transactions, there is a strong reliance on Letters of Credit.
- International credit cards are not issued for international transactions.
- Interest rates on loans toward exports are capped.

2.3 Proposed Solution to problems.

Customers and consumers alike have found that purchasing online utilizing a grocery cart has made life much easier. The buyer may comfortably explore various things while sitting at home. This is in the e-commerce C2C (Consumers to Consumers) industry. B2B (Business to Business) is however gaining popularity increasingly popular, making business easier and more trouble-free. We wish to create a one-of-a-kind B2C e-commerce platform. Through which purchasers

from all over the world will be able to access all of their items on a single platform. They will be able to compare quality, quantity, and pricing all in one place while sitting at their computer. Finally, they will be able to place orders and make purchases from the relevant vendor. The purchasers will have an open market. It will be the country's first e-commerce system in which different suppliers will be linked into a single location and will be able to post their items independently from their own accounts, as well as manage their orders and payments separately. Buyers can also win bids by making bids in the auction market segment. This site will serve as a Somalia internet directory.

CHAPTER 3

PROPOSED MODEL

The transaction processing capabilities of an e-commerce system are the most typically cited functions and features. However, as previously said, e-commerce systems, like most information systems, give data to aid in the administration of the company. The examination of data obtained during the customer's visit to the e-commerce site provides a lot of this information. In order to deliver information to management, we need to incorporate the appropriate functionality in an e-commerce system model to acquire and evaluate this data.

3.1 Introduction

E-commerce is defined as the use of digital technology to facilitate economic transactions between and among businesses and individuals [1]. It creates a virtual marketplace where firms and consumers may form new interactions.

E-commerce encompasses not only the capacity to buy and sell products and services through the net but also through automating the entire buyer and seller system. The following business procedures will be found in a typical products or services firm:

- client support
- Sales
- Money back
- Inventory control
- Information management for customers
- Trying to market

All of certain operations may be controlled by a singular operative group using the new digital model of business. Business to consumer (B2c), Business to business (B2b), consumer to consumer (C2c), and business to employee (B2e) are the four types of e-commerce [1].

The practice of purchasing or selling items or services through an electronic network is referred to as e-commerce. The internet is the most widely used channel for doing e-Commerce. It integrates several processes, including:

- Interchange of Electronic Data

- Electronic communication (E-mail)
- World Wide Web
- Applications for the Internet
- Applications for the Net.

E-commerce is largely classified into three categories:

- Business to consumer (B2C): When a company sells directly to a client, it generally bypasses distributors or traditional retail channels ('disintermediation'). The most well-known type of online company is B2C. (www.amazon.com). Standard items, such as CDs, Books, Software, and downloaded music, have proven to be the most profitable.
- Business to Business (B2B) is bigger and quickly expanding. This covers the procurement of raw materials and supplies, coordination with contractors, sales channels, customer service, collaboration with partners, and integrated data and information management.
- Business to Government (B2G): This is when firms deal directly with government offices and agencies for public procurement (such as medical supplies, school supplies, and other government contracts).
- Consumer to consumer (C2C): Individuals transacting through the internet.
- Consumer to business (C2B): a customer or end-user creating a product or service that a company employs to fulfill a business process.

3.2 Advantages of E-commerce

- 24x7 operations: In the brick and mortar world, round-the-clock operations are a costly proposition, however in the click and conquer the world, it is normal.
- Global reach: Because the internet is essentially global, contacting global clients on the internet is very simple compared to the world of bricks and mortar.
- Acquisition, servicing, and keeping consumers costs: Obtaining new clients over the internet is considerably less expensive. Thanks to the 24 hours a day, seven days a week operation, and the achievement of the target. To keep consumers and loyalty with little investments, novel push technology techniques are used.

- It's simple to set up a large business: Every firm in today's world is a member of the "connected-economy," which means you must extend your business to your suppliers and business partners, such as distributors, retailers, and eventually your end consumers. The Internet is a cost-effective (and frequently less costly) means to expand your business beyond its current boundaries. Customer-relationship-management, Enterprise-resource-planning, and supply-chain-management are just a few of the tools that can be easily deployed over the internet, allowing for incredible efficiency in terms of time to market, customer loyalty, on-time delivery, and ultimately profitability.
- Disintermediation: Using the internet, one may reach consumers and suppliers directly, reducing the number of level intermediaries in the process and thereby lowering expenses.
- Client satisfaction and sales increase as a result of improved customer service.
- It has the ability to deliver the 'best of both worlds' by enhancing both traditional and internet-based solutions.

3.3 Advantages of E-commerce in Somalia

- Increases the number of options available to customers
- Increases the Marketplace's reach to a national and international audience.
- Reduce manufacturing and delivery costs.
- Allows customers to communicate and share their thoughts.
- Allows customers to shop or do other transactions at any time of day or night.

3.4 Benefits of E-commerce in the Perspective of Somalia

The following are some of the ways that E-commerce might aid Somalia in the business sector:

3.4.1 The business sector's expansion area

E-commerce is a multifaceted activity that covers a variety of service phases. In our country, traditional e-business models are currently thriving, allowing people to adopt a variety of business policies. E-commerce aids in the development of numerous economic sectors in our nation, resulting in a massive expansion of the linking industry.

3.4.2 Reducing unemployment problems

We had a lot of challenges before we got into e-commerce, such as dealing with crowds, waiting in lengthy lines at checkout, competing for parking places in a crowded mall, and so on. When we purchase online, e-commerce connects us to the rest of the world. It allows us to surf the web for things and make selections in the comfort of our own homes.

3.4.3 Gaining access to the global market

E-Commerce has opened up a wide range of opportunities for enterprises and people in Somalia to export their goods and services overseas and earn foreign currency. E-commerce, which has a wide range of applications in the export industry, has been in use in Somalia for some years.

3.4.4 Business is conducted throughout the clock.

The worldwide time difference is no longer a barrier. Because the Internet allows people from any country to contact individuals from other countries in any part of the world extremely simply. Any businessman may gather data, evaluate data, provide comments, and place orders through various corporate websites around the clock, that is, 7 days per week, 24-hour daily, without needing to go to a company in person.

3.4.5 Aids in the development of business expertise.

In Somalia, there are a few native websites. By visiting these websites, one may learn about business and develop a strategy for how a small group might operate within a large organization using seed cash.

3.5 Somalia's E-commerce Barriers

- The cost of a very basic telecommunication computer is exorbitant, and the number of users' infrastructure hardware for web sites is inadequate.
- Lack of fulfillment, a small number of technically competent people, and a difficulty with client credit. Cardholders.

3.6 E-Commerce System's Components

Several critical components make up an E-commerce system:

- A database
- E-commerce site
- Payment gateway
- Security system

The heart of the E-commerce platform is the Cms, is made up of four components . The graphic below depicts how these components work together:

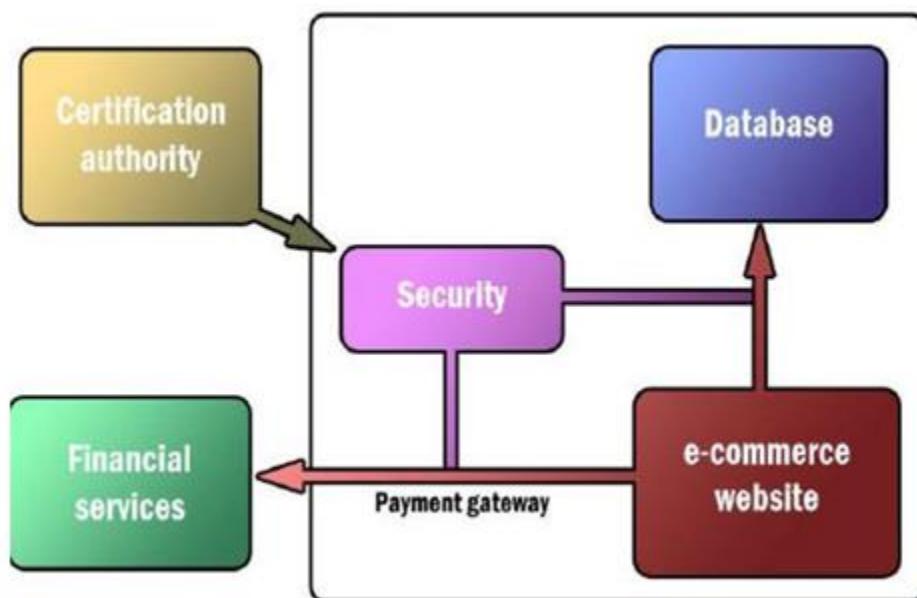


Figure 3.1:elements of an e-commerce Cms.

The rest of this section will go through each of the four components of a CMS in greater depth.

3.6.1 Database

MySQL will be used since it is described as a free, quick, and dependable open-source relational database. It lacks certain sophistication and capacities, but it has an active development team and additional capabilities are added as it progresses from release to release. This database appealed to me because

- MySQL's performance is highly high and lightweight because of its unique storage engine.
- MySQL is particularly adaptable since it supports a huge range of embedded applications.
- The developer can increase efficiency by using triggers, stored procedures, and views.
- Allows for transaction reversal, commit, and crash recovery.
- Cursor and triggers.

3.6.2 Website

The e-commerce program's website is the user interface via whereby a client, for example, the online shopping, will engage with the company. This indicates that the website must present all important information to the user in a thorough manner. Product details, sequence, and billing, and shipping addresses, and so on will be included. E-commerce website interfaces have undergone extensive study to order to make them more user-friendly and useful to online shoppers. Recommendation systems [2] are a good illustration of this because they give product recommendations to online shoppers based on their purchase history. E-commerce enterprises may enhance their sales volumes by doing so, according to studies.

An application or a website can serve as an e-commerce front-end [10]. The first may be built in almost any programmer has the ability to that can communicate (C++, Java, Visual Basic, and so on) with database. A web language can be used to create the latter (PHP, HTML, ASP, etc.).

3.6.3 Security

The amount of e-commerce business transactions requiring the sharing of very sensitive data, for example personal details and credit card numbers, is increasing as electronic commerce increases [8]. When more people become aware of online buyers are subjected to hacking and fraud, there is a growing demand for improved privacy and security.

Certification authorities like Thawte and VeriSign [11] are frequently utilized solutions to the problem of e-commerce fraud. Only if an e-commerce firm passes specific security criteria can these bodies offer it a certificate.

This assures that the two participants to an online commercial transaction are who they say they are.

SSL (Secure Socket Layer) [12] , it encrypts data sent involving sides, is a commonly used solution to the hacker problem. This can assist protect sensitive information from being intercepted by an unauthorized third party.

3.6.4 Payment Gateway

Without a payment gateway, no online business transaction can take place. payment system enables payments to exist in an electronic form transmitted from the buyer to the vendor. PayPal [14], a service for making payments that are not made through a bank, was unveiled to internet commerce in the late 1990s. Consumers may now use this eBay-owned business to conduct Purchasing and even transfers of credit are possible over the internet payments to another individual (Consumer to consumer transactions are referred to as C2C.).

EVC, SAAD, mobile money, and other mobile payment alternatives are available in Somalia. We installed and tested with EVC. Similarly, it is possible to utilize other payment gateway using mobile.

EVC is one of the simplest and fastest ways to transmit money in Somalia utilizing the mobile network.

We're going to utilize EVC for the following reasons:

- It is possible to send money anywhere in Somalia in a matter of seconds.
- Anywhere throughout the nation, there are shopping opportunities. As far as I'm aware, this is now accessible at a number of retail malls. If you own a business, you may accept payments from customers using EVC. It simply takes a few minutes to sign up.

3.6.5 Other Services

➤ Message Service(SMS)

Short Message Service (SMS) is a type of text messaging program that allows the transmission of short SMS between fixed-line and mobile phone devices utilizing conventional network protocols.

We plan to use SMS to accomplish the functionalities listed below in our proposal.

- SMS notice of order placing.
- SMS can be used to verify a payments.

- SMS may be used to purchase an item.
- SMS may be used to send a special deal to visitors.

➤ **Cron Jobs**

Cron is a UNIX and Solaris application that allows things to be completed in the process by the cron daemon frequently basis. The service name is crond. In UNIX and Solaris, these tasks are known as cron jobs. Confab is a file that includes a list of cron entries that must be run at specific times.

Essentially, this executes a PHP script file at certain periods. It will run a PHP file per 5 mints on my machine.

We'll use Cron Jobs to appliance the following functionality.

- On a specific day, SMS and email will be delivered with an unique offer.
- A credit reminder will be sent if there are any outstanding payments.

➤ **XAMPP**

XAMPP (or) is an open and free cross-web server term that includes the Apache HTTP Server, MySQL database, and PHP and Perl interpreters.

3.7 Development Process

There are a lot of e-commerce platforms out there, but most of them lack capabilities like SMS confirmation in Somalia and export dates for other applications. If I want to build an online e-commerce system from the ground up, I may follow a 5-step development approach.

- Step one: Analyze the requirements
- Step two: Choosing a sub-system
- Step three: Create a prototype
- Step four: Create the graphical user interface
- Step five: System and integration testing

Gathering user needs and creating a conceptual framework of the e-commerce system are the first steps in the design process. The new technology is then analyzed to see how it will fit into the existing model of business. The fresh system architecture after that broken down into pieces, each of which is created independently. In the startup phase, a prototype of an e-commerce system is created to offer users and administrators a taste of what the finished system will look like. The four phase during the procedure entails creating the user interface for the platform's front-end. The testing of the different units and aspects to the system's, as well as the incorporation of the online platform system into the company, are the final steps in the development cycle.

3.8 Software and Tools

3.8.1 Front-End design

The front-end of a webpage is developed using HTML 5 and CSS3, and various jquery modules have been incorporated to the system for specific functions.

3.8.2 Back-End design

The system's backend is built with PHP 5 and MySQL for database integration and coordination.

3.8.3 Other Materials

➤ Bizagi

For quicker and more flexible automated processes, Bizagi is the premier Business Process Management (BPMS) solution. A sophisticated and easy-to-use BPM suite for solving real-world business challenges. Bizagi is trusted by companies in over 50 countries to execute their main business activities.

➤ JQuery

JQuery is a cross-browser JavaScript library that makes client-side HTML writing easier. John Resign presented it at BarCamp NYC in Jan 2006. jQuery is the most common JavaScript library

in use today, across over 55 percent of the 10,000 top visited websites using it.

➤ **jQuery UI**

The jQuery UI Datepicker plugin offers datepicker capabilities to your websites in a very flexible way. You can simply change the dating system and languages, limit the period ranges that may be selected, and add function keys and other navigational choices.

➤ **PHPMailer**

PHPMailer is a PHP module that has a set of methods for sending an email. Postfix, Sendmail, Qmail, and sending emails directly to an SMTP server are all supported by PHPMailer. You may utilize any SMTP-based e-mail functionality, such as multiple recipients, CC, BCC, and so on.

3.9 Why I chosen PHP and MySQL

PHP will act as a bridge between us and MySQL, acting as a type of middleman that can interface with multiple technologies and move data between them. MySQL is another language that PHP appears to work well with, and the open-source society is continually expanding and improving the language's structure. We'll use PHP to create and stop connections, pick and interpret information from the server, and much more.

MySQL provides a wonderful soft cushion to help you comprehend and deal with database systems if you're fresh to database systems and deep data storage. You may use our PHP+MySQL apps for understanding application logic after you're comfortable working with MySQL and PHP together. Many open-source programs, including several ones we provide here, employ MySQL as a data storage technique. If the project necessitates the usage of a database, MySQL will suffice. MySQL is a relatively reliable, safe, and user-friendly database that novices can get started with right away.

3.10 Conclusion

We may infer from this study that, despite consumer skepticism of local internet and poor credit card penetration in Somalia, there is a promise for e-commerce in underdeveloped nations like ours. A safe and user-friendly e-commerce platform must be built to order to meet the goal of offering electronic means for sellers to sell their items to potential purchasers. Using the previously described five-step development method.

CHAPTER 4

USER MANUAL

The process of developing the e-commerce platform will be covered in-depth in this chapter. We'll be looking at the system's UML models and the design approaches that were employed. Our strategy for creating a useful E-commerce platform. This strategy was chosen because it will lower a system's money and effort to install.

PART A: SYSTEM DESIGNING ISSUES

4.1 Design Methodology

It's critical to choose and use the right combination of design techniques in every software development project. The approach used must be appropriate for the problem being addressed. It was chosen to adopt a combination of two design techniques for the creation of Botswana's e-commerce web, namely, Step - by - step Tweaking and Object-Oriented Designing.

4.1.1Stepwise Refinement

Stepwise Refinement refers to the repetitive process that starts with requirements specification. The problem's solution is then divided down into a series of modules. At each step, these units are polished and separated into small components until enough detail is seen. Because the fundamental features of every module have now been disclosed and just need to be translated to their code counterparts, implementing the concept in an actual programming language is considerably easier.

Using this process, we will be able to break the e-commerce platform into manageable modules that will execute a certain set of functions and have well-defined inputs and outputs. Debugging will be a lot easier because errors will be linked directly towards the modules which caused them.

4.1.2 Object-Oriented Design

Object-oriented design and analysis (OAD) are frequently used in the creation of large-scale systems and applications, and the Unified Modeling Language is frequently used (UML). OAD uses object modeling techniques to assess and design a solution for a context, such as a system, a group of functional units, an organizational, or a business unit. Across requirements, designing, implementations, tests, and deployment, most current object-oriented analysis, and design approaches are driven by use cases. Usage cases were born out of object-oriented coding, but they're equally perfectly adapted to procedures. A Unified Modeling Language (UML) is becoming the standard modeling language for graphically illustrating system ideas in the object-oriented analysis of structures. As a result, the "UML" technique, which promotes Object-oriented analysis and design, will be employed in the program.

4.2 Object Oriented Design of Portal Features

4.2.1 Process Modeling

➤ Use Case diagram

i. Use Case Diagram for ecommerce user

Actor: Users

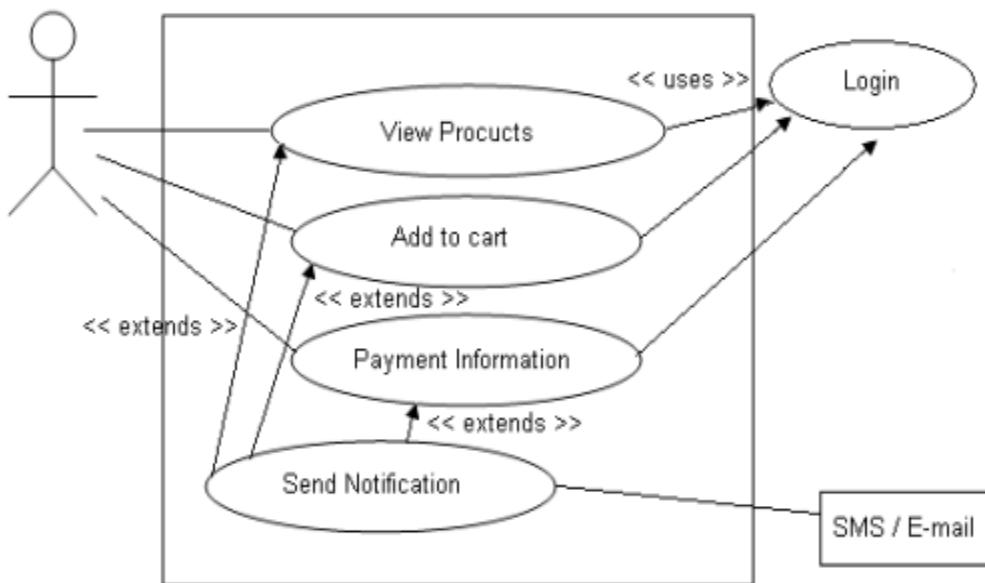


figure 4.1: purchasing a product, use a case diagram.

The user will enter the store and look at the product details. The user will next add the item to their basket and provide their payment details.

ii. Use Case Diagram for Admin

Actor: Admin

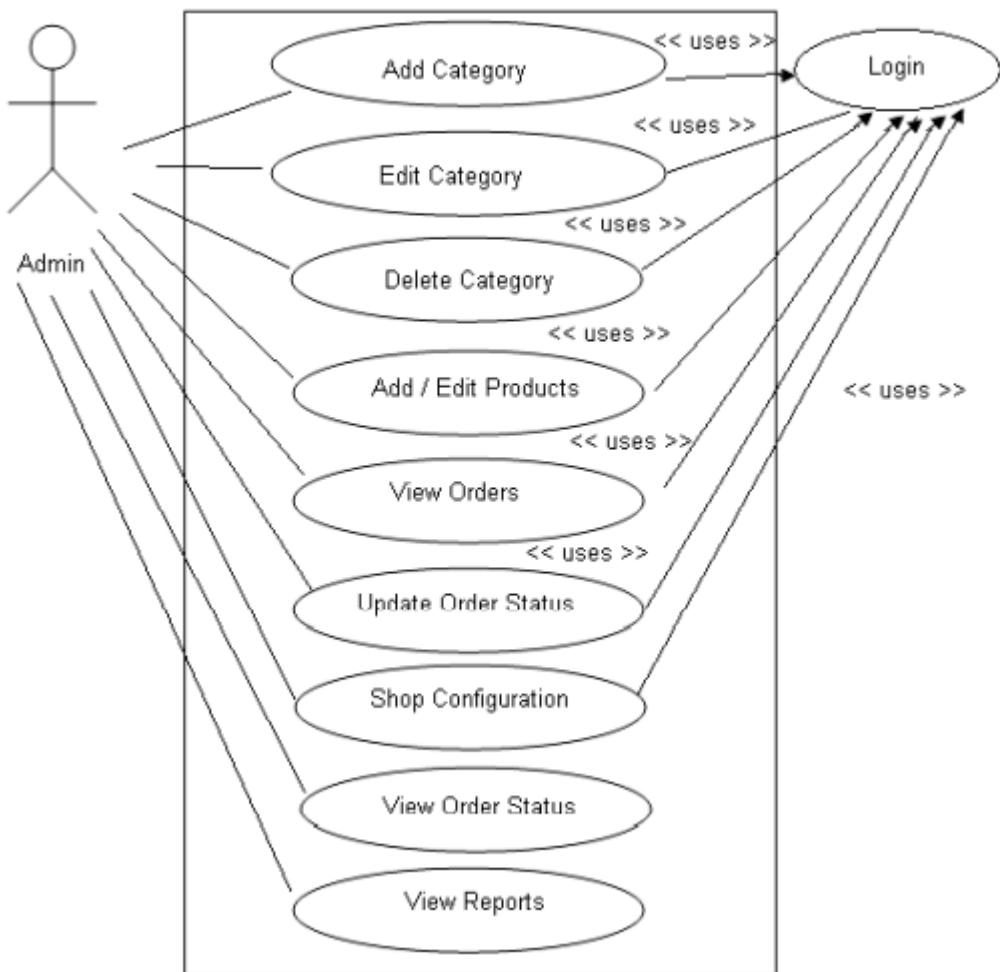


Figure 4.2: Admin's Use Case Diagram

Admins may create, update, and manage categories and goods, as well as stock levels. They can verify the payment status and, if necessary, amend the payment status.

4.3 Dynamic Modeling

4.3.1 Class diagram

A type diagram depicts a system's classes and relationships between them to provide an overview. Class diagrams are static; they show what occurs when things interact, but it's not what occurs when they don't.

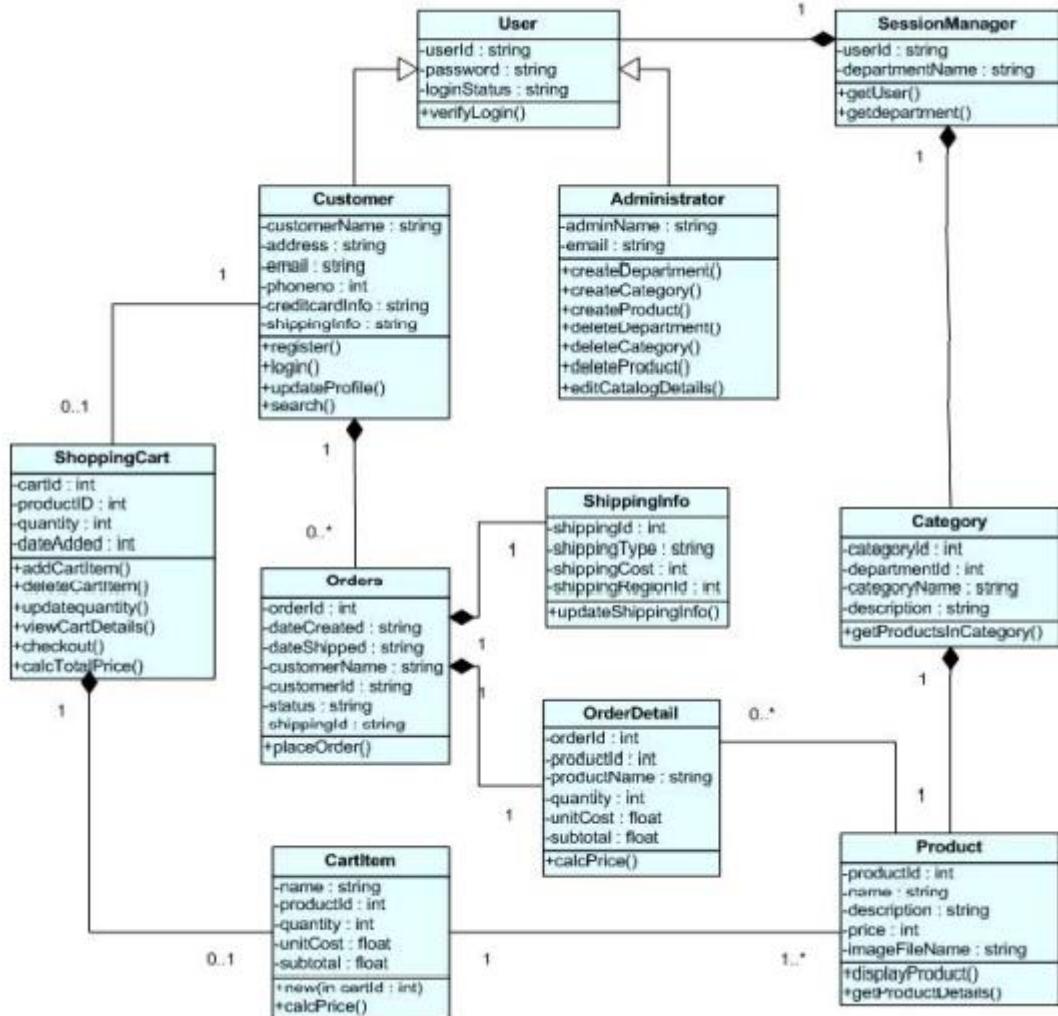


figure 4.3: Diagram of Class.

4.4 Sequence Diagram

Model views such as classes and item diagrams are static. Flow charts are alive and well. They explain how items work together.

4.4.1 Users buy products and get confirmation

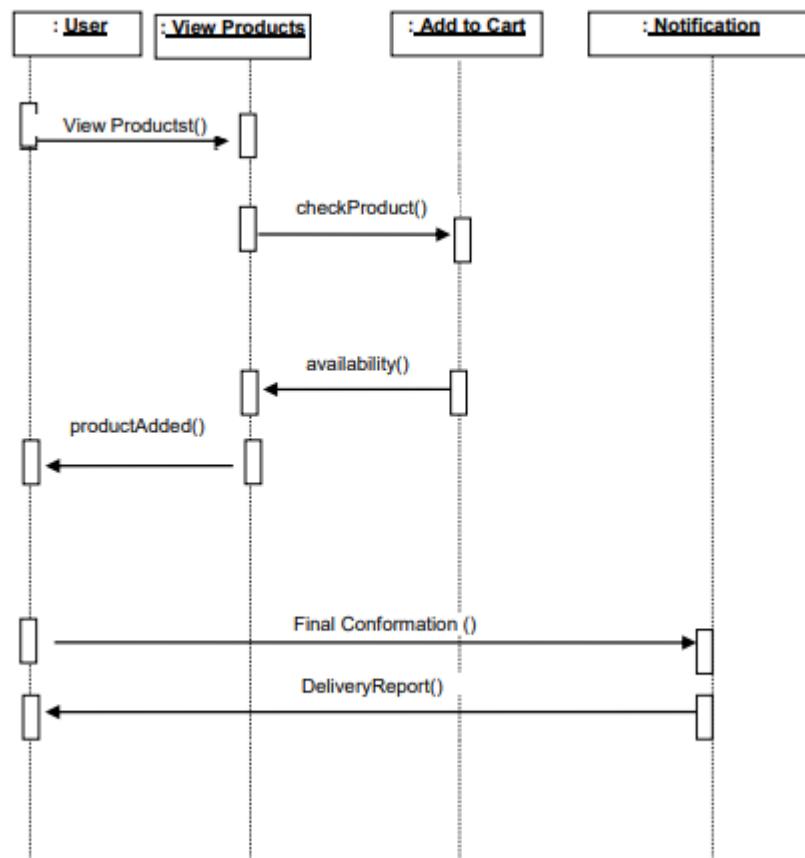


Figure 4.4:Users purchase items and are notified of their purchase.

4.4.2 Admins Add product and category

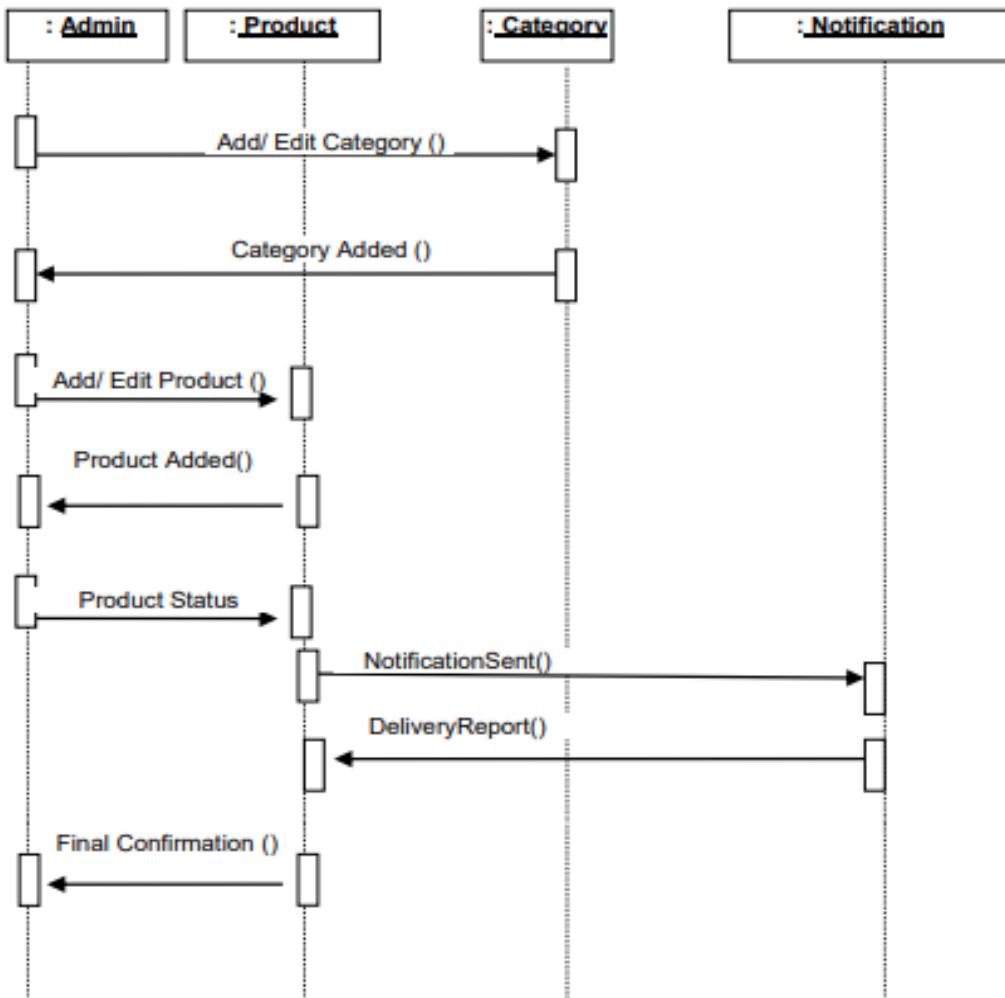


Figure 4.5: Admins can add new products and categories.

4.4.3 Sequence diagram for product shopping

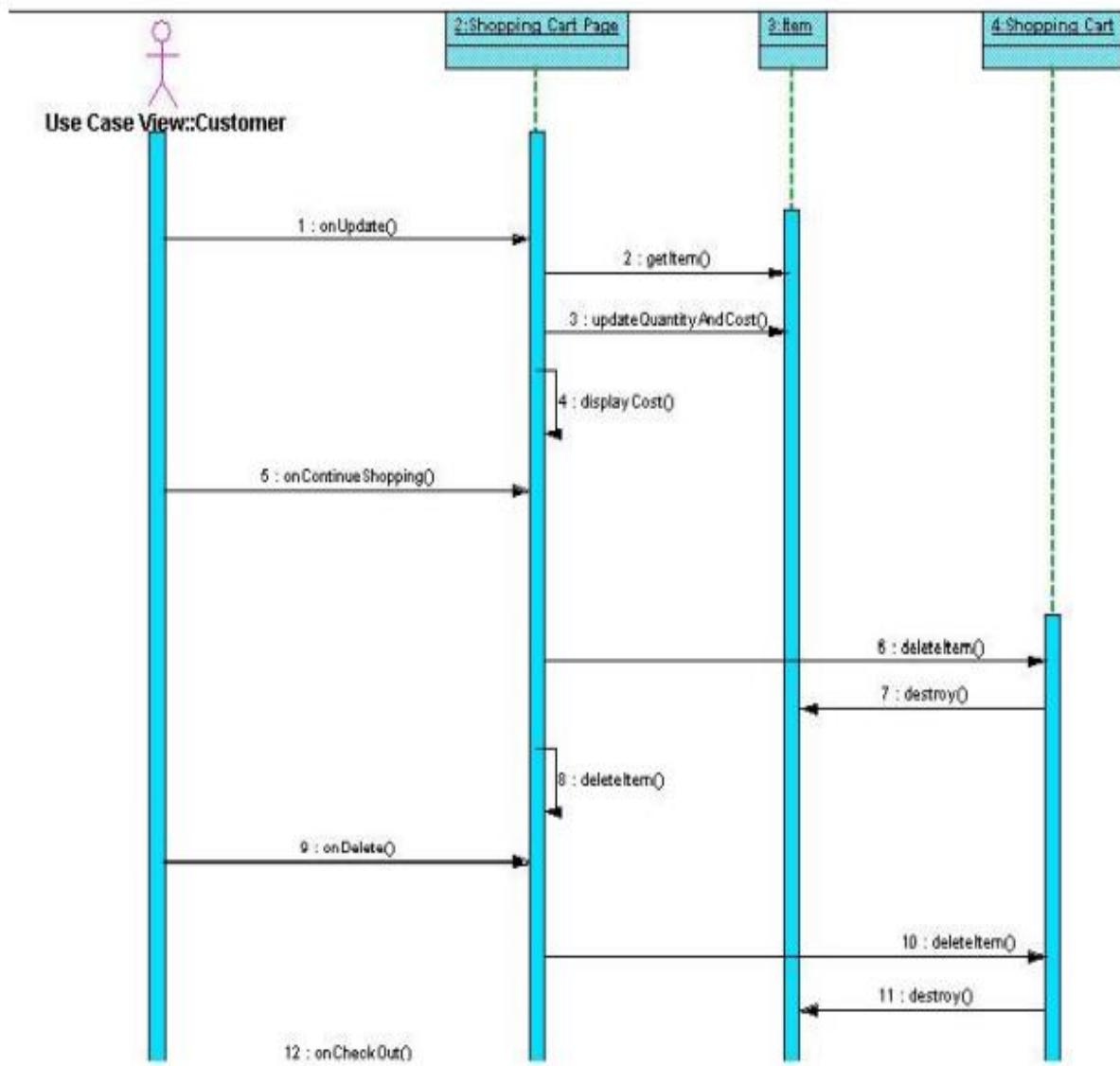


Figure 4.6: Product-shopping sequence diagram.

4.5 Process Flow

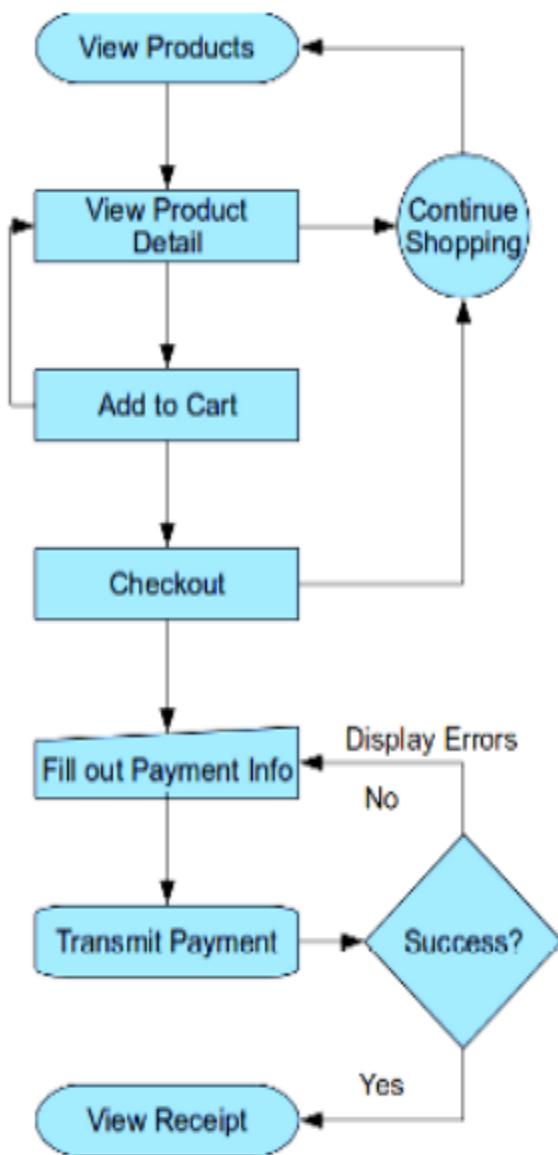


Figure 4.7: Chart of the procurement process.

4.6 Product Shopping Feature

A shopping cart appears to be a website featuring items with a "Add to Cart" button; selecting one object for purchasing will add the goods and you'll be able to watch the product quantity rise, and you'll be able to add additional things in the same way.

Inside the PHP Sitting manages a shopping cart that lets you add and remove goods, create categories, process orders, and occasionally additional features like emailing shipping information to consumers.

Users can change the number of an item in the Shopping Cart on the Cart Page, then hit the Update button. The system saves the updated quantity before computing and displaying the item's new pricing.

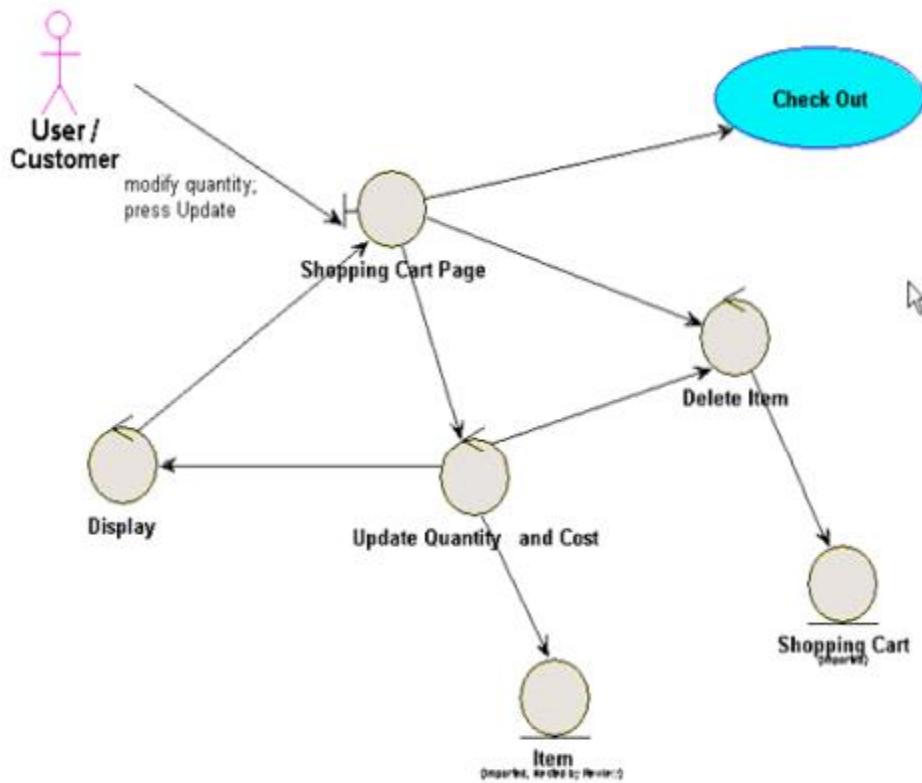


Figure 4.8: Item shopping use-case chart.

4.7 Website Administration Page

The duty of managing the e-commerce portal will be assigned to a skilled website administrator. The administrator's responsibilities will include managing Seller and customer accounts, performing regular backup data, and ensuring that the system is operational. To accomplish so, the administrator will require a user interface that allows him or her to view the portal's data. We will offer the administrator website management pages for this reason, which will enable the administrator to do the following tasks:

- Organize your categories
- Organize your goods
- photos to be uploaded
- Clients should get alerts and newspapers by e-mail or Text messaging.
- Change the value of a demand
- Create database file.

4.7.1 ER Diagram

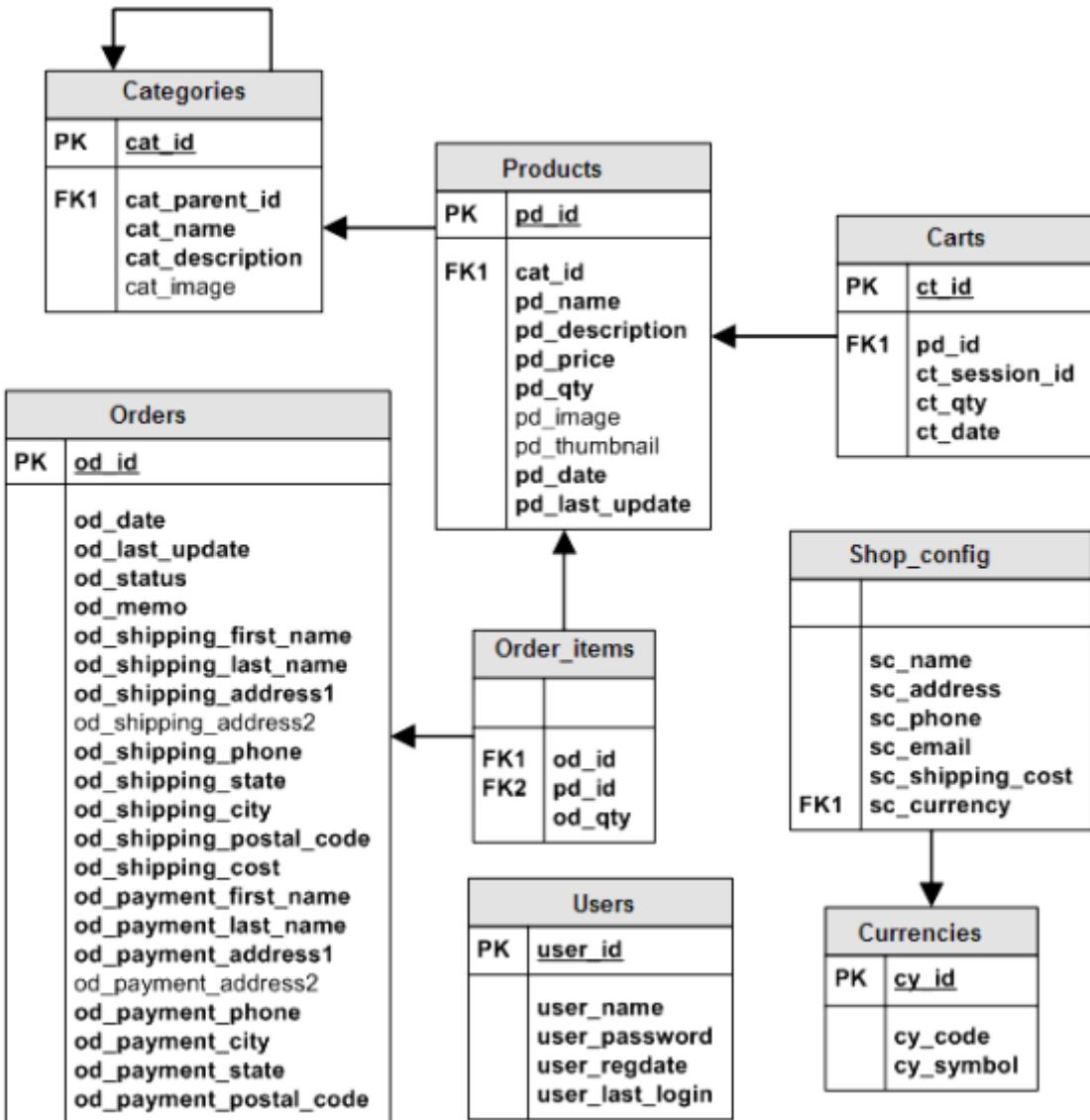


Figure 4.9: Diagram of Entity Relationships

4.7.2 Schema Diagram

The preceding section's objects may be translated to database tables that will hold all of the relevant information about each item. Some of these items would be allocated to database tables as shown in the picture below:

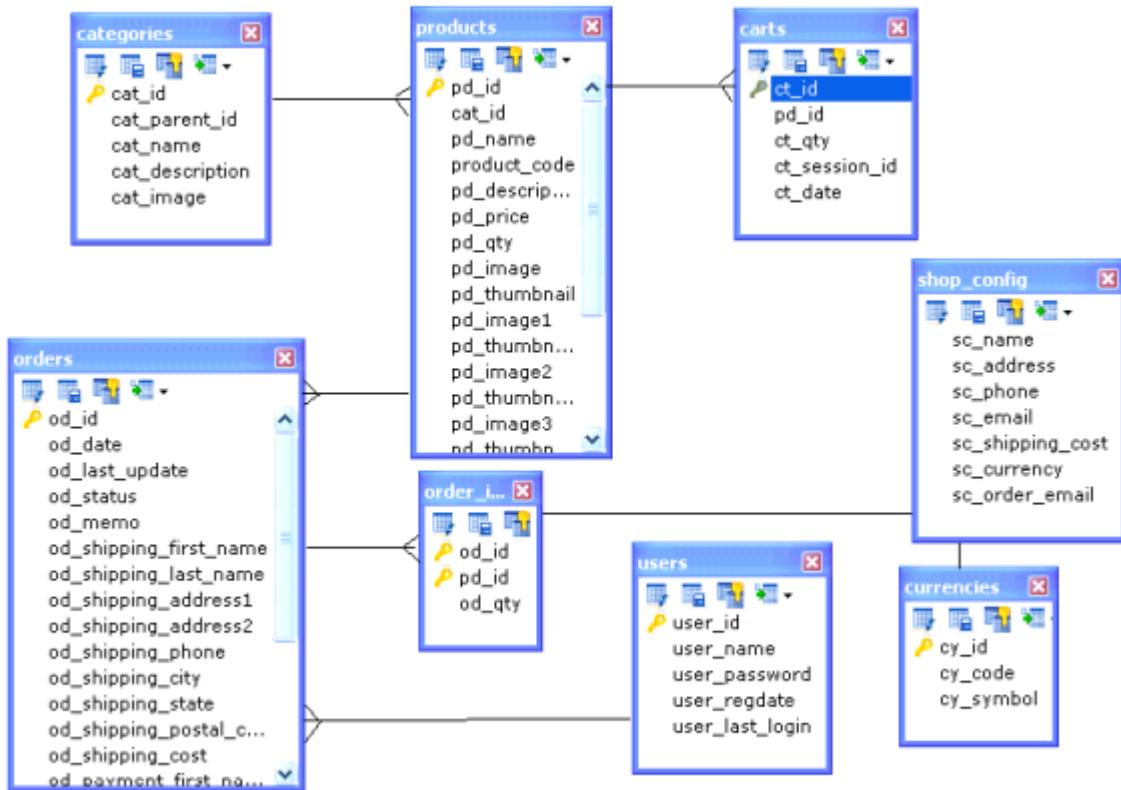


Figure 4.10: Diagram of a schema

Table Name	Description
Category product	Keeping track of all product types The merchandise (everything)
Carts	When a consumer decides to add something to their shopping cart, we'll place it here.
Orders	Here is where we keep track of all of our orders.
Order items	The things that were ordered
Users	Keep track of all store admin user profiles.
Shop arrangement	Include store personal details, address, phone number, and email address.

➤ Table Categories

The product categories are kept in this table. Our present database architecture allows a section to get a child section, and the child section to get another children section, and so on, as shown in the ER diagram. However, for the sake of this lesson, we will limit the category to only two levels deep.

➤ Table Products

The names, sector identifiers, descriptions, pictures, and thumbnails of the product are all stored in this table. An item can have one picture for now. Unless you want to exhibit a photo of your product from many perspectives, it's not always adequate, so I aim to update it in a future edition.

➤ Carts

This table will house all of the things that the customer has now placed. The ct session-id variable has to save the id of shopping sessions. When added goods to the shopping basket, we'll dig further into this.

➤ Orders

Lastly, is when a consumer places an order, we update this table with the new information. This table also saves the shipment and payment information supplied by the consumer after checkout, including the delivery cost.

➤ Order items

This is where you'll find all of your ordered things. When the consumer places an order, we try copying the goods from the cart table.

4.8 E-Mail Notification Service

The system's later part will be online shoppers. When the status of order changes (for example, from processing to shipped), online consumers who purchase products from the internet browser will be alerted by e-mail. To do this, we'll need to automate the e-mail transmission process with an SMTP server.

4.8.1 Payment using EVC

Mobile banking has just been offered in Somalia by a few Somali banking organizations and mobile network providers. In Somalia, a new technological door is opening. Somalis may now use their cell phone as a local bank with low minimum transfers, payments, money uploads, and other features. We'll provide you with some helpful information regarding EVC's services: It focuses on serving the country's low-income citizens and supporting sustainable micro-savings in order to achieve greater financial inclusion by delivering easy, inexpensive, and dependable financial services.

4.9 Website Security

The e-commerce platform must have enough security mechanisms in place to guarantee that sensitive information like passwords, email addresses, and phone numbers is handled and kept safely. It is critical to build a trusting relationship between the web retailer and the consumer. To do this, we must encrypt interaction between both the site and the consumer using recognized and established security mechanisms. Access to the seller management portals, the web

administrator webpage, as well as the client account manager must also be limited. Identity verification (i.e. username and password) is required for all of these components. Acquiring a certified copy from a Certifying Authority including Trust or Thawed, or creating a self-signed certificate, helps ensure the security of interaction between the user and the site. The SSL-secured exchange of information between the client and the website may then be established using this certificate.

PART B: IMPLEMENTATION

4.10 Introduction

The process of constructing the e-commerce portal will be discussed in depth in this part. We'll go through the software and hardware components for building a successful e-commerce platform, and also the staging process of installing, configuring, developing, and integrating all of the system's multiple parts.

4.11 Hardware Requirements

➤ Computer Server

The e-commerce website's documents, and also the databases that will hold the platform's data, are stored on the computer server. The e-commerce website will be hosted on this computer system. The author's desktop computer, and it has a 3.4 GHz frequency Processor, 2 Gigabytes of Dram storage, and 500 Gb of data from Hard Drive storage, was chosen to host the website. This, we feel, is adequate for testing and development needs.

➤ ADSL Router

The ADSL router is used to link the server hosting the e-commerce portal to the network through a broadband internet connection. Telkom's 4 Megabit ADSL line was utilized to connect to the internet in this case. With HTTP and FTP transfers, this line offers an upload rate of up to 470 kilobits per second. We feel that this transmission rate is enough for testing purposes when the

server load is minimal.

4.12 Software Requirements

4.12.1 E-commerce System

An internet web store that offers customers e-commerce services and solutions via the use of integrated technologies such as retail display tools, shopping carts, and payment systems.

4.13 Database Server and Administration Tools

The database server is used by the Cms to recover files for the e-commerce platform. The database administrator can use the administrative tools to perform backups and modifications to the website's database.

We picked MySQL Service for our storage needs so one of our goals is to keep the cost of our e-commerce business as low as possible. MySQL was selected because this is a well-known and well-respected accessible data warehouse that is free to use and includes several important administrative tools (MySQL Query Explorer, MySQL Manager, and MySQL Instance Manager). In terms of usability, these GUI-based applications are suitable for ordinary computer users.

The e-commerce portal was built with MySQL Server 5.1.1 and MySQL GUI Equipment version 5.0 RC9a (for Win XP), both of which are obtainable at www.mysql.com.

4.13.1 Web Server

Any machine with a net or aim of contributing network connection may host a website using the webserver. It accomplishes this by linking a certain directory on the local system with the IP address of the computer (WAN or LAN). When a visitor from another computer uses HTTP to reach the hosting machine's IP address, they are routed to a root folder provided in the web server's config file.

For the e-commerce platform, we used Apache, a prominent open-source web server that can be found at <http://www.apache.org/>. Version 2.0.59 of the Apache Web Server was chosen since it

is fully compatible with PHP Server 5.2.2.

4.13.2 SMTP Server

A computer with an internet connection may send e-mails using an SMTP (Easy Mail Transfer Protocol) service. This program is required since it allows an e-commerce website to send e-mails to its consumers. When a consumer registers for an account or places an order for products, an e-mail notice is delivered.

Postal Cases Service Free Version v2.6.0 is the SMTP server for the e-commerce platform. This is a free commercial program that is a condensed version of the same software's Professional edition. Nonetheless, for our e-commerce platform, its features set and limited access are enough. <http://www.postcastserver.com/> is where you can get the program.

4.13.3 PHP Server

The PHP Servers enable the browser on the host machine to run Code and see PHP websites. The e-commerce platform was built with PHP 5.2.2. Even though the fact that edition 6.0 was obtainable, this earlier version of PHP is entirely compatible with the Apache Web Server version utilized. <http://www.php.net/> is the URL for the PHP Server.

4.13.4 FTP Server

Using the File Transfer Protocol, the FTP service allows documents to be sent to the ability to host a computer server. This may be done over the website, which enables the documents on the e-commerce websites to be updated from anywhere with an online connection.

The chore of putting up a completely working FTP site was completed using the free software Program FTP Filezilla v3.5.0. The FTP site allows the webpage to be developed and tested from a variety of places. It also made it simple to download pertinent documents from and to the host. Only authorized users have access to the website's files, thanks to the War FTP Filezilla's comprehensive security function. A name and password are used for authentication.

Filezilla is an FTP client that may be found at <http://filezilla-project.org>.

4.14 PHP Integrated Development Environment (IDE)

For this project, PHP Edit version 2.12 was utilized as the development platform. It's a comprehensive PHP code application framework with powerful debugging features and on-the-fly syntax corrections.

Implementation Process

The e-commerce platform's deployment was broken down into numerous parts. In this portion, we'll go over the stages in the order that they were completed.

4.15 Installing Servers

All of the web servers that the CMS will need to use must be successfully installed first before the system can be installed and coding can begin. The MySQL service was the first service to be set up. It was set up to run as a Multifunctional Database on a Developer Machine, with the InnoDB and MyISAM machines.

After that, the PHP Server was successfully installed to incorporate the MySQL extension, allowing the e-commerce portal's PHP classes to the interface including its Mysql server. The Web Service with OpenSSL protection was installed next. The PHP 5 module was installed on the Web Server, allowing the webserver to detect and run PHP scripts.

The Conflict FPT Daemon then was downloaded to provide remote access to the website's root folder. Only users with the relevant password and login, as well as administrative permissions, were allowed to edit the files in this folder. Finally, the Systems information was set up and configured so that the e-commerce portal could send emails to its clients.

4.16 Database Configuration

It will be necessary to change library/config.php while downloading the shopping trolley script. According to the server's specifications, you must alter the database connection information (database server, user, password, and name).

4.17 Enabling GD Support

The following step is to activate GD support. This is normally enabled by web hosting companies, but you'll need to activate it explicitly if you want to check it on your PC.

To begin, enter the php.ini document in a text file (notepad would be enough) and look for the line extension=php_gd2.dll. If the code is preceded by a semicolon (;), the GD module is not yet activated. To enable GD, remove the semicolon and reload the webserver (apache) for modifications to take effect.

4.18 Implementing Security Measures

Customers' and merchants' sensitive information will be stored on the e-commerce platform. Identity numbers, bank account details, telephone numbers, and residences are among the data. As a result, security measures must be implemented to ensure that unauthorized people do not get access to sensitive information.

4.18.1 Database Security

A name and password are needed to enter the platform's Mysql. Only the website admin will be able to access it using the administrative login information. This will ensure that no unauthorized person may access the database's information unless they have the admin account and password. The administrator user name and password contain upper and lower letters of the alphabet, as well as numerals, to make this security precaution more effective. Every month, the user account will be updated.

4.18.2 Transactions Security

Customers can access the website via SSL-secured connections since the e-commerce platform has a self-signed security certificate. This guarantees that every sensitive data transmitted between the consumer and the online business is safe and secure and that unauthorized third parties cannot access it. The OpenSSL program was used to produce the security certificate: OpenSSL req -config Open SSL.cnf -new -out my-server is the command. A certificate request was created using CSR. SSL RSA -in privkey.pem -out my-server is the command. The key was then used to decrypt the private key and delete the password. OpenSSL x509 -in my-server is the

command. CSR -out my-server. cert -req -sign key my-server CSR -out my-server. cert -req -sign key my-server After then, the key was used to produce a self-signed certificate.

Consumers' credit card details are not maintained in the e-commerce website's database to safeguard the website's and consumers' security. Instead, it is input on the site of the checkout page (such as PayPal), which is likewise SSL-certified and safe.

4.18.3 Login Security

The CMS database stores consumer and seller usernames and passwords. Customers' passwords are encoded into a 128-bit string using the Sms 5 technique to keep them safe (or MD5). The password cannot be deciphered since this is one-way encryption. When clients or sellers need to recover a lost password, this causes issues. To solve this difficulty, a temporary password is supplied to the client or vendor, who may then use it to sign in to the site. After logging in, the user can modify their password to whatever they like.

PART C: TESTING

4.19 Introduction

Testing is a method of determining whether or not there are any mistakes. The primary purpose of testing would be to uncover flaws. To test my system, I devised a test strategy. In this project, I utilized three different sorts of test methods, which are listed below:

- Component evaluation (validation test included)
- Testing for integration
- Testing acceptance

4.20 Website Administration Functions

By pressing the Administrator button in the bottom left-hand corner of the main site, the user was able to enter the website management page. This sent the visitor to the Login form, where a username and password were required. This was the test case's intended result.

4.20.1 Logging In

When the systems was deployed and configured, the user has given the login "administrator" and password "admin," which were allocated to the administrative website user. The website was reloaded, and the main administrative page appeared. This was the test case's intended result.

4.20.2 Logging Off

The logged-in user got to the top of the site and clicked the Logoff button. This brought up the Account Logout screen, which told the user that he or she had successfully signed off and therefore it was acceptable to exit the computer. The user then pressed the log-in button to confirm that she had been logged off, and the website reloaded, displaying the Account Login screen. This was the test case's intended result.

4.21 Testing Summary

I put all three panels for clinicians, patients, and administrators to the test. The test of the framework with all feasible parameters on local host. The testing entailed creating some dummy entries and adding them into the database to fill the database and ensure that the functionalities are working correctly.

The testing procedure included the following steps:

- PRODUCT TESTING FOR THE PURCHASE PROCESS
- The emails send and validation processes are being tested.
- The making access procedure is being tested.
- Validation testing for forms
- Testing to ensure that records are created and maintained correctly.

The project was thoroughly tested, and a few issues were identified and corrected. During the testing, it was revealed that several aspects would be simpler to integrate differently a different way, thus their implementation techniques were altered.

CHAPTER 5

CONCLUSION AND FUTURE WORKS

5.1 Achievements and Discussion

During the course of this project, the e-commerce that's been planned, created, deployed, and tested met its objectives. It accomplishes this by letting consumers list and sell their products on the internet. The ability for customers to apply and act as vendors to sell their goods has also contributed to the growth of the online market.

This project intends to create an e-commerce platform, however, developing e-commerce in our nation remains a significant obstacle. The following are the current restrictions:

1. Restrictions of technology:

- There is a lack of universality in terms of standardization, security, and dependability.
- Insufficient bandwidth to sustain e-commerce, particularly e-commerce.
- Existing systems and databases make integrating the Net with EC software problematic.
- E-commerce implementation necessitates the use of specialized servers, which might add to the cost.

2. Restrictions that aren't technological:

- There seem to be a lot of legal difficulties to work out.
- It is not possible to test products first.
- When negotiating with strangers, people just lack trust.
- Cases of FRAUD are on the rise.

All of these restrictions are the project's implementation's difficulties. But, with the correct cultivation of dialogue and weaning to the appropriate authority, we may overcome all of these obstacles.

5.2 Conclusion

This report details the whole e-commerce platform development and assessment process. The project's goal was to build an e-commerce platform that provided Buyers with a single one-stop marketplace or home where they could purchase Their items. They may also handle their items, payments, currencies, and other Aspects of their business.

Usability tests were conducted to identify the optimal design for the client Administration's features and the seller portal, as well as to decide how the e-Commerce site should be displayed to consumers. A final version for the Systems was successfully established using use-cases, web models, and paper developing a model.

Setting up an e-commerce system was part of the implementation procedure. To Preserve continuity with the rest of the Network and allow smooth integration of new characteristics with the original System, all of the features were created in PHP. Customers may see their data and product information thanks to the vendor function.

Thousands of users then rated this E-commerce portal based on five criteria: Responsiveness, aesthetics, user-friendliness, system feedback, and quantity of Features. The customer feedback and assessment ratings were all rather high, with no reported values less than 6 out of 10. Based on the five criteria that were analyzed, this suggests that the consumers are happy with the system.

Many users, each allocated to a different portion of the platform, carefully tested the E-commerce portal. The system outcomes were compared to the Predicted outcomes of the test scenarios, and the primary features were all evaluated. The system's testing revealed that the e-commerce portal's functions worked as expected, and the system looked to be bug-free.

5.3 Future Work

To execute transactions, the nation needs intermediate institutions. And, thankfully, Somalia's banks, MasterCard and Visa, are capable of doing so. Somalia has the necessary infrastructure to get things going. A steady network connection and an e-commerce-friendly law are required.

A government must enact a practical e-commerce law. To provide a steady and reliable internet connection, it should collaborate with the private sector. Payments of utilities, fees,

and other items are made easier with e-commerce.

This endeavor was constrained by a lack of time and resources. For the sake of simplicity, several critical elements were overlooked when working on the project. The following are some of the project's future considerations:

- It is possible to integrate the use of small bank card transactions.
- The complete project may be carried out online to order to obtain accurate responses from its users.

Reference

- [1] Central Bank of Somalia, Somali Bank. accessed during 20019- 2020.
- [2] Schafer, J. B., Konstan, J., and Riedi, J. 1999. Recommender systems in e-commerce. In Proceedings of the 1st ACM Conference on Electronic Commerce (Denver, Colorado, United States, November 03 - 05, 1999). EC '99. ACM Press, New York, NY, 158-166.
- [3] Internet users in somalia [Africa Internet User Stats and 2021 Population by Country \(internetworldstats.com\)](http://www.internetworldstats.com/stats.htm)>
- [4] Comparative analysis of E-commerce
- [5] Luke, W., Thomson, L. 2003. PHP and MySQL Web Development. Sams Publishing. 261-273.
- [6] Bichler, M., Segev, A., and Zhao, J. L. 1998. Component-based ecommerce: assessment of current practices and future directions. SIGMOD Rec. 27, 4 (Dec. 1998), 7-14.
- [7] Bangladesh - Telecoms, Mobile, Broadband and Forecasts
- [8] Fingar, P. 2000. Component-based frameworks for e-commerce. Commun. ACM 43, 10 (Oct. 2000), 61-67.
- [9] Gruhn, V., Mocker, M., and Schöpe, L. 2002. Development of an electronic commerce portal system using a specific software development process. In Proceedings of the Fortieth international Conference on Tools Pacific: Objects For internet, Mobile and Embedded Applications (Sydney, Australia). ACM International Conference Proceeding Series, vol. 21. Australian Computer Society, Darlinghurst, Australia, 93-101. 85
- [10] Portillo, E. and Patel, A. 1999. Design methodology for secure distributed transactions in electronic commerce. Comput. Stand. Interfaces 21, 1 (May. 1999), 5-18.
- [11] Sherif, M., Serhrouchni, A., Gaid, A., Farazmandnia, F. 1998. SET and SSL: Electronic Payments on the Internet. Third IEEE Symposium on Computers & Communications (Jun. 1998). 153-155.
- [12] Database Systems: Design, Implementation and Management by Peter Rob.
- [13] Andres, G. 2003. PayPal and eBay: The legal implications of the C2C electronic commerce model. 18th BILETA Conference: Controlling Information in the Online Environment (Apr. 2003).
- [14] Essential components of an e-commerce website. Retrieved June 15, 2007, from Inktek

Technology and Vision: <http://www.inktecuk.co.uk/ecommerce/good-ecommerce.htm>.

[15] The world's most popular open source database < <http://www.mysql.com> >

[17] Server-side HTML embedded scripting language. It provides web developers with a full suite of tools for building dynamic websites. < www.php.net >

[18] Online Web Tutorials < <http://www.w3schools.com> >

[19] Ghosh, A. K. and Swaminatha, T. M. 2001. Software security and privacy risks in mobile ecommerce. Commun. ACM 44, 2 (Feb. 2001), 51-57.