**DESIGN AND IMPLEMENTATION OF A WEB BASED SHOPPING MANAGEMENT SYSTEM**

**BY**

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**BEING A BSc PROJECT REPORT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE**

**AWARD OF A BACHELOR’S DEGREE IN COMPUTER SCIENCE,**

**GODFREY OKOYE UNIVERSITY,**

**ENUGU STATE**

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# CERTIFICATION

This is to certify that this research work titled DESIGN AND IMPLEMENTATION OF ONLINE SHOPPING MANAGEMENT SYSTEM is an original work of **Ameh Achele Eunice,** under the supervision of Dr. Ndidiamaka Ozofor

**APPROVAL**

This is to certify that this research work titled **DESIGN AND IMPLEMENTATION OF AN ONLINE SHOPPING MANAGEMENT SYSTEM** was written by **AMEH ACHELE EUNICE,** Registration No: **U14/NAS/CSC/048,** presented to the department of Computer Science and Mathematics of Godfrey Okoye University, Enugu has been assessed and approved

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##

## DEDICATION

I dedicate this project to Almighty God for the inspiration, wisdom, knowledge and understanding through this work and to my family and friends for their unending love, prayers and financial support.

## ACKNOWLEDGEMENT

All thanks to Almighty God for granting me the privilege to undertake this program and bringing it to successful end.

I am immensely grateful to my project supervisor who despite his tight schedule had time to guide me, a man of intelligence, hard work and competence, Dr. Ndidiamaka Ozofor for his time, support, patience and advice within the time of this research work, and to other lecturers of the department for bringing out the best in me through advices and making themselves available when i need help.

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## ABSTRACT

## *The Project Online shopping management system is a complete multi-user website. The system helps in buying of goods, products and services online by choosing the listed products from website (E-Commerce site). This system provides an efficient way of adding almost all the features of the online shopping. In the cause of writing this research, HTML, CSS, PHP, JS and Sublime text were used to design the system (front end) and Xampp Server was used to store the database (back end). The website has a large memory of storing all the goods in the shop and also keeping record, it is highly effective and accurate.*

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# CHAPTER 1INTRODUCTION

## 1.0 Background of Study

E-commerce (electronic commerce) is the buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet. In this area of technology, e-commerce is fast gaining ground as an accepted and used business paradigm. These business transactions occur either as business-to-business (B2B), business-to-consumer (B2C), consumer-to-consumer (C2C) or consumer-to-business (C2B). The terms e-commerce and e-business are often used interchangeably. The term e-tail is also sometimes used in reference to [transactional processes](https://searchcio.techtarget.com/definition/transaction) for online shopping. More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming the common place.

 Since the emergence of World Wide Web (WWW), vendors can easily sell their products to the different kinds of people over the internet. Many people prefer online shopping because of its different kinds of convenience. They can find a specific product by searching various online stores which is less time consuming and tedious process rather than searching this product in various stores in the market.

The largest of these online retailing corporations are Alibaba, Amazon.com, and eBay. Retail success is no longer all about physical stores. This is evident because of the increase in retailers now offering online store interfaces for consumers.

## 1.1 Statement of the Problem

There are many online businesses on the internet. People have many choices to buy products through the internet. These products include household equipment, electronics, clothing products and many more. Now a day's people are so busy that they have no time to go to shopping malls and buy the things they want and this was the problem primarily intended for online shopping to solve. That's why importance of online shopping is increasing with the passage of time and one cannot deny this fact. Online shops gives you lot of discounts that you may not find by shopping at the physical stores. Moreover many online shops not only give you huge discounts on different products but at the same time they provide free shipping to whatever destination provided it’s in the shop’s agreed location’s. Online shopping not only save your time but it saves lots of your money by not going to visit each shop and spend money on gas and patrol. The issue of wasting time and petrol and not seeing that project you wish to purchase is another problem intended to be tackled by inventing online shopping. Online shopping gives you benefit of comparing same products at different online shops at the same time which you can't do in a physical store. So you cannot only compare the quality of products but also their prices as well. You can order anything from the whole world and it will be delivered at your home. There are more than 90% chances that you will find your desired product whether you shop from auction online websites like eBay or a specialty store. When you go to any department store for shopping, you cannot know about customer feedback about any product but with online shopping you can read customer feedback about any product. Customer feedback can help you to buy a product with more ease.

## 1.2 Objectives

The main objective of this study is to design and see the implementation of an online shopping management system.

Specifically the study intends to:

* Display goods and services in the store.
* Automate every sale effectively without mixing product prizes.
* Store product detail using a secure database
* Manage every user’s information of the system.

## 1.3 Significance of the Study

* This research work is to develop a system capable of handling sales by automating a cart system that stores details prior to when the user requests a sales service. This research work is a cost effective and conducive method for buying and selling and easier method for a customer to get their desired goods easily
* This study is important to sellers and buyers because it saves time energy rather than going to the open market, It is a more dynamic way of buying and selling also because it reduces the chances of shoplifting.
* It is important to students especially those in computer science as a reference material when designing their project
* Lecturers who teach system analysis and design can also benefit from it as a guide to what they teach students
* Workshop and conference paper presenters will make use of this especially those presenting design and implementing of e-commerce
* Manufacturers of industries that produce goods will make use of this work in marketing their products especially online. Therefore this provides a new avenue for product marketing by managers of industries.

**CHAPTER 2
LITERATURE REVIEW**

## 2.0 Introduction

The related literature was revealed under the following:

* Systems theory
* Cybernetic theory

**Systems theory:** This chapter applies concepts from Systems Theory to the growing area of E-commerce and agents. The purpose of this is to demonstrate how Systems Theory principles are widely applicable to the field of E-commerce. The Systems approach can be used as a framework to model interaction in the electronic market place. Software agents play an important role in this system. *https://en.m.wikipedia.org*

The systems approach is a method of inquiry which emphasizes the whole system instead of component systems. The systems approach is a useful framework in which we can analyse the role of intelligent agents and the e-commerce environment. *https://en.m.wikipedia.org*

**Cybernetic theory:** Cybernetics is the scientific study of the control and communication in the animal and machine. *https://onlinelibrary.wiley.com*

The term cybernetics implies the control of any system using technology. In other words, it is the scientific study of how humans, animals, and machines control and communicate with each other. The essential goal of this broad field of cybernetics is to understand and define the functions and processes that have goals of how anything (digital or mechanical) processes information, reacts to information and changes or can be changed to better accomplish tasks.

Cybernetics includes the study of feedback, communication and control in machines. Studies in cybernetic provide a means for examining the design and function of any system including social systems such as E-commerce for the purpose of making them more efficient and effective. *https://en.m.wikipedia.org*

## 2.1 Theoretical Framework

 The major technologies used in this project are web technologies HTML (Hyper Text Markup Language),CSS (Cascading style sheet),JAVASCRIPT, and PHP (Perso455nal Home Page)s. This site is a collection of web documents. These web documents are rendered to be visible to the user by an application program known as a browser e.g. (Chrome, Opera Mini, Internet explorer, Firefox).

**HTML** Also known as Hyper Text Markup Language is used for creating web pages and web pages are usually viewed in a web browser. They can include writing, links, pictures, sounds and videos. HTML can also be used to add meta information to a webpage. Meta information is the information about the web page.

 The major HTML features used were form and Cascading Style Sheet (CSS). The form was used to collect registration data – Username and password from a user. *https://www.w3schools.com*

**CSS**: Also known as Cascading Style Sheet which is used to style a web page to suite the form which you want it to take. CSS can also be used to work on a concept which you want be it a slide in text or a hover concept. *https://www.w3schools.com*

**PHP**: PHP also known as Personal Home Page which is used to design a dynamic website example: Facebook. PHP isn’t a code you see affecting the layout of the page, it’s a code that handles the connection to the database and so on. *https://www.w3schools.com*

**JAVASCRIPT**: JavaScript is used to make an interactive web site which like a slideshow and so on. Not all websites are developed using JavaScript because the developer probably decided not to use it but JavaScript was used in this project. *https://www.w3schools.com*

**MYSQL**: It handles the details of a website which needs to be saved. *https://mysql.com*

**2.2 Literature Review**

Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the internet using a web browser. Aldrich, 2009. *https://en.m.wikipedia.org*.

## Advantages of E-commerce

**Convenience**

Online stores are usually available 24 hours a day, and many consumers have Internet access both at work and at home. Other establishments such as internet cafes and schools provide internet access as well. In contrast, visiting a conventional retail store requires travel and must take place during business hours.

In the event of a problem with the item (e.g., the product was not what the consumer ordered, the product was not satisfactory), consumers are concerned with the ease of returning an item in exchange for either the correct product or a refund. Consumers may need to contact the retailer, visit the post office and pay return shipping, and then wait for a replacement or refund. Some online companies have more generous return policies to compensate for the traditional advantage of physical stores. For example, the online shoe retailer [Zappos.com](http://en.wikipedia.org/wiki/Zappos.com) includes labels for free return shipping, and does not charge a restocking fee, even for returns which are not the result of merchant error. (Note: In the United Kingdom, online shops are prohibited from charging a restocking fee if the consumer cancels their order in accordance with the Consumer Protection (Distance Selling Act 2000). *https://sqa.org.uk*

**Information and reviews**

Online stores must describe products for sale with text, photos, and multimedia files, whereas in a physical retail store, the actual product and the manufacturer's packaging will be available for direct inspection (which might involve a test drive, fitting, or other experimentation).

Some stores allow customers to comment or rate their items. There are also dedicated [review sites](http://en.wikipedia.org/wiki/Review_site) that host user reviews for different products. Reviews and some blogs give customers the option of shopping for cheaper purchases from all over the world without having to depend on local retailers. *www.esalestrack.com*

**Pricing**

Cheap deals and better prices are available online, because products come to you directly from the manufacturer or seller without middlemen being involved. Many online shops offer discount coupons and rebates as well. Apart from this, online shops are only required to collect a sales tax if they have a physical location in our state, even if we buy from a store across the world. *https://toughnickel.com*

**Product Selection/ Payment**

Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine.

Once a particular product has been found on the website of the seller, most online retailers use shopping cart software to allow the consumer to accumulate multiple items and to adjust quantities, like filling a physical shopping cart or basket in a conventional store. A "checkout" process follows (continuing the physical-store analogy) in which payment and delivery information is collected, if necessary. Some stores allow consumers to sign up for a permanent online account so that some or all of this information only needs to be entered once. *www.esalestrack.com*

The consumer often receives an e-mail confirmation once the transaction is complete. Less sophisticated stores may rely on consumers to phone or e-mail their orders (although full credit card numbers, expiry date, and Card Security Code, or bank account and routing number should not be accepted by e-mail, for reasons of security). Online shoppers commonly use a credit card or a PayPal account in order to make payments. *www.esalestrack.com*

However, some systems enable users to create accounts and pay by alternative means, such as:

* Cash on delivery (C.O.D.)
* Cheque / Check
* Debit card
* Gift cards
* Postal money order
* Wire transfer/delivery on payment
* Invoice, especially popular in some markets/countries, such as Switzerland Bit coin or other crypto-currencies

Some online shops will not accept international credit cards. Some require both the purchaser's billing and shipping address to be in the same country as the online shop's base of operation. Other online shops allow customers from any country to send gifts anywhere. *www.esalestrack.com*

**2.2.2** **Disadvantages of E-Commerce**

The disadvantages of e-commerce include:

**Fraud and security concerns**

Given the lack of ability to inspect merchandise before purchase, consumers are at higher risk of fraud than face-to-face transactions. Merchants also risk fraudulent purchases using stolen credit cards or fraudulent repudiation of the online purchase. However, merchants face less risk from physical theft by using a warehouse instead of a retail storefront.

[Phishing](http://en.wikipedia.org/wiki/Phishing) is another danger, where consumers are fooled into thinking they are dealing with a reputable retailer, when they have actually been manipulated into feeding private information to a system operated by a malicious party.

A number of resources offer advice on how consumers can protect themselves when using online retailer services. These include: *www.esalestrack.com*

* Sticking with known stores, or attempting to find independent consumer reviews of their experiences; also ensuring that there is comprehensive contact information on the website before using the service
* Before buying from a new company, evaluate the website by considering issues such as: the professionalism and user-friendliness of the site; whether or not the company lists a telephone number and/or street address along with e-contact information
* Ensuring that the retailer has an acceptable privacy policy posted. For example note if the retailer does not explicitly state that it will not share private information with others without consent.
* Ensuring that the vendor address is protected with Secure Sockets Layer (SSL) when entering credit card information. If it does the address on the credit card information entry screen will start with "HTTPS".
* Using strong passwords, without personal information. Another option is a "pass phrase," which might be something along the lines: "I shop 4 good a buy!!" These are difficult to hack, and provides a variety of upper, lower, and special characters and could be site specific and easy to remember.

Although the benefits of online shopping are considerable, when the process goes poorly it can create a thorny situation. A few problems that shoppers potentially face include identity theft, faulty products, and the accumulation of [spyware](http://en.wikipedia.org/wiki/Spyware). If users are required to put in their credit card information and billing/shipping address and the website is not secure, customer information can be accessible to anyone who knows how to obtain it. *www.esalestrack.com*

**Lack of full cost disclosure**

The lack of full cost disclosure may also be problematic. While it may be easy to compare the base price of an item online, it may not be easy to see the total cost up front. Additional fees such as shipping are often not be visible until the final step in the checkout process. The problem is especially evident with cross-border purchases, where the cost indicated at the final checkout screen may not include additional fees that must be paid upon delivery such as [duties](http://en.wikipedia.org/wiki/Duties) and [brokerage](http://en.wikipedia.org/wiki/Brokerage). Some services such as the Canadian based [Wishabi](http://en.wikipedia.org/w/index.php?title=Wishabi&action=edit&redlink=1) attempts to include estimates of these additional costs, but nevertheless, the lack of general full cost disclosure remains a concern. *www.esalestrack.com*

**Privacy**

Privacy of personal information is a significant issue for some consumers. Many consumers wish to avoid spam and telemarketing which could result from supplying contact information to an online merchant. In response, many merchants promise to not use consumer information for these purposes,

Many websites keep track of consumer shopping habits in order to suggest items and other websites to view. Brick-and-mortar stores also collect consumer information. Some ask for a shopper's address and phone number at checkout, though consumers may refuse to provide it. Many larger stores use the address information encoded on consumers' credit cards (often without their knowledge) to add them to a catalogue mailing list. This information is obviously not accessible to the merchant when paying in cash or through a bank (money transfer, in which case there is also proof of payment). *www.esalestrack.com*

## Review of Related Literature

Economists have theorized that e-commerce ought to lead to intensified price competition, as it increases consumers' ability to gather information about products and prices. Research by four economists at the University of Chicago has found that the growth of online shopping has also affected industry structure in two areas that have seen significant growth in e-commerce, product shops and travel agencies. Generally, larger firms are able to use economies of scale and offer lower prices. The lone exception to this pattern has been the very smallest category of product seller, shops with between one and four employees, which appear to have withstood the trend. Depending on the category, e-commerce may shift the switching costs, procedural, relational, and financial experience by customers. Individual or business involved in e-commerce whether buyers or sellers rely on Internet-based technology in order to accomplish their transactions. E-commerce is recognized for its ability to allow business to communicate and to form transaction anytime and anyplace. Whether an individual is in the US or overseas, business can be conducted through the internet. The power of e-commerce allows geophysical barriers to disappear, making all consumers and businesses on earth potential customers and suppliers. Thus, switching barriers and switching costs may shift. EBay is a good example of e-commerce business individuals and businesses are able to post their items and sell them around the Globe. *https://books.google.com.ng*

### **2.3.1 The Social Impact of E-Commerce**

Along with the e-commerce and its unique charm that has appeared gradually, virtual enterprise, virtual bank, network marketing, online shopping, payment and advertising, has now become familiar to people. This reflects that the e-commerce has huge impact on the economy and society from the other side. *https://www.coursehero.com*

To understand how the e-commerce has affected the society and economy, the following three issues will be addressed:

1. The e-commerce offers the consumer or enterprise various information they need, making information into total transparency, this will force enterprise to be able to use the mode of space or advertisement to raise their competitive edge. Moreover, in theory, perfect competition between the consumer sovereignty and industry will maximize social welfare. *https://www.coursehero.com*

2. During the economic activity in the past, large enterprise frequently has advantage of information resource, and thus at the expense of consumers. Nowadays, the transparent and real-time information protects the rights of consumers, because the consumers can use internet to pick out the portfolio to the benefit of them. The competitiveness of enterprises will be much more obvious than before, consequently, social welfare would be improved by the development of the e-commerce. *https://www.coursehero.com*

3. The new economy led by the e-commerce, change humanistic spirit as well, but above all, is the employee loyalty. Due to the market with competition, the employee’s level of professionalism becomes the crucial for enterprise in the niche market. The enterprises must pay attention to how to build up the enterprises inner culture and a set of interactive mechanisms. This is the prime problem for them. Furthermore, though the mode of e-commerce decrease the information cost and transaction cost, however, its development also makes human being overly computer literate. Hence, more emphasized humanistic attitude to work is another project for enterprise to development. Life is the root of all and high technology is merely an assistive tool to support our quality of life. *https://www.coursehero.com*

The e-commerce is not a kind of new industry, but it is creating a new economic model. Most of people agree that the e-commerce indeed to be important and significant for economic society in the future, but actually that is a bit of clueless feeling at the beginning, this problem is exactly prove the e-commerce is a sort of incorporeal revolution. Generally speaking, as a type of business active procedure, the e-commerce is going to leading an unprecedented revolution in the world, the influence of this model far exceeded the commercial affair itself. Except the mentioned above, in the area of law, education, culture and also policy, the e-commerce will continue that rise in impact. The e-commerce is truly to take human beings into the information society. *www.esalestrack.com*

###

### **2.3.2 Electronic Commerce versus Traditional Commerce**

The major difference between electronic commerce and traditional commerce is the way information is exchanged and processed. Traditional commerce involves face-to-face, telephone lines communication, or use of mail systems. Manual processing of information and individual involvement in all stages of business transactions is also involved in traditional business transactions. E-Commerce uses internet or other network communication technology. There is automated processing of information in the business transactions and individual involvement in all the stages of transactions. It pulls together all activities of business transactions, marketing and advertising as well as service and customer support. Wiley, (2011)

### **2.3.3 E-Commerce Classes**

There are many various classes of electronic commerce and many different methods to characterize these clusters. Academics determined a number of frameworks for classifying electronic commerce but each one want to illustrate it form a unique perspective. The main classes of electronic commerce are Business-to-Business (B2B), Business-to-Consumer (B2C), Consumer-to-Consumer (C2C), Consumer-to-business (C2B) and Mobile Commerce (M-Commerce).

### **Business-To-Business**

This is a type of e-commerce transaction that exists between a company and another company involving transfer of products and services. *https://study.com*

### **Business-To-Consumer**

This refers to transactions between a business and its end consumer. It creates electronic storefronts that offer information, goods, and services between business and consumers in a retailing transaction. *https://study.com*

### **Consumer-To-Business**

This involves the transfer of services, goods or information from persons to business. It is said to be a business model where end users create products and services that are used by business and institutions. *https://study.com*

### **Consumer-To-Consumer**

Consumer-to-consumer is an electronic Internet facilitated medium, which involves transactions among users. It is a business model which two consumers deal business with each other. *https://study.com*

E-Commerce is aimed at the buying and selling of products, information and services via wireless handheld devices such as cellular phones, laptops and personal digital assistants. These wireless devices interact with computer networks that have the ability to conduct online merchandise purchases. Mobile commerce allows user access to the Internet and shopping in it, without needing to find a place to plug in. Mobile Commerce transactions continue to improve and the phrase includes the purchase and sale of a wide range of products and services, online banking, bill payment, information delivery etc. *https://en.m.wikipedia.org*

# CHAPTER 3SYSTEM ANALYSIS AND DESIGN

## 3.0 Introduction

System analysis is the process of gathering and interpreting facts, diagnosing problems and using the information to recommend improvements on the system. System analysis is a problem solving activity that requires intensive communication between the system users and system developers.

This chapter gives an insight of the methods of data collection used for the research, the system requirements, the functional and the non-functional requirements. The system requirements include the hardware requirements and the software requirements.

Methodology involves a process whereby the existing or current system is studied to identify the information requirements. It is used to refer to a specific series of steps or procedures which governs the analysis and design of a particular project. It also includes the techniques and methods which are used to collect and analyse information. To achieve all the stated above, an internationally accepted software engineering model was used which is the Waterfall Model.

Waterfall methodology involves seven stages which are:

* Requirements Definition
* Analysis
* Design
* Coding
* System Tests
* Installation and conversion
* Operation and maintenance

## 3.1 Existing System

The current system for shopping is to visit the shop manually and from the available products, choose the item the customer wants and buying the item by payment of the price of the item.

In the existing system, the processes include:

* The products are uploaded on the e-commerce site
* The user goes to the shop
* Selects desired item from the available products
* Products may be in types, sizes, colours and different manufacturers

## 3.2 Analysis of Proposed System

3.2.1 General Description
To reduce the shortcomings of the existing system that operates on manual and electronic sales management system and to know how the existing system that operates on electronic sales management system runs and operates. The new system should be concerned with offering the requirements of the customer and the workers, the system should be reliable, easier, fast, and more informative.

### Functional Requirements

**USER**

* USER LOGIN

Description of feature

This feature used by the user to login into system. A user must login with his user name and password to the system after registration. If they are invalid, the user will not be allowed to access the system.

* REGISTER NEW USER

Description of feature

A new user will have to register in the system by providing essential details in order to purchase the products in the system. The admin must accept a new user by unblocking him.

- System must be able to verify and validate information.

- The system must encrypt the password of the customer to provide security.

* PURCHASING AN ITEM

Description of feature

The user can add the desired product into his cart by clicking ‘Add to cart’ option on the product. He can view his cart by clicking on the cart button. All products added by cart can be viewed in the cart. User can remove an item from the cart by clicking remove. After confirming the items in the cart the user can submit the cart by providing a delivery address. On successful submitting the cart will become empty.

- System must ensure that, only a registered customer can purchase items.

**ADMIN**

* MANAGE USER

Description of feature

The administrator can add user, delete user, view user and block user.

* MANAGE MODERATOR

Description of feature

The administrator can add moderator, delete moderator, and block moderator and search for a moderator.

* MANAGE PRODUCTS

Description of feature

The administrator can add product, delete product and view product.

* MANAGE ORDERS

Description of feature

The administrator can view orders and delete orders.

-The system must identify the login of the admin.

-Admin account should be secured so that only owner of the shop can access that account

* **MODERATOR**

Description of features

A moderator is considered as a staff who can manage orders for the time being. As a future update moderator may give facility to add and manage his own products. Moderators can reduce the work load of admin. Now moderator has all the privilege of an admin having except managing other moderators. He can manage users and manage products. He can also check the orders and edit his profile.

-The system must identify the login of a moderator.

## 3.3 Design of Proposed System

The Online Shopping Website will be implemented using three major components which are a database server for information storage, a middleware application and a client side application. The client side will be designed using HTML (Hypertext Markup Language), CSS (Cascading Style Sheet) and Js(JavaScript) which will be viewed with a web browser. The records and information about the product will be stored using the MySQL online database server while the middleware application will be implemented using PHP programming language.

In the preceding sections, the design of the new System will be the main focus.

**3.3.1 Usecase Diagram**

In software and systems engineering, a **Usecase** is a list of steps, typically defining interactions between a role (known in UML as an "actor") and a system, to achieve a goal. Below is the use case diagram of the Online Shopping Website.

Web Customer

Authentication

Identity Provider

Credit payment service

Registered Customer

New Customer

**Client Register**

PayPal

## 3.3.2 Database Design

In this section, the basic structure of the tables composing the database for the project are shown along with information about primary and foreign keys.

#### User

|  |  |  |  |
| --- | --- | --- | --- |
| **S/NO**  | NAME | **DATA TYPE** | **DESCRIPTION** |
| 1 | UserID | Varchar | Primary key for Customer identification |
| 2 | Password | Varchar | Security for Customer |
| 3 | First\_Name | Varchar |  |
| 4 | Last\_Name  | Varchar |  |
| 5 | Address | Varchar |  |
| 6 | City | Varchar |  |
| 7 | State  | Varchar |  |
| 8 | Email Address | Varchar |  |
| 9 | Phone number  | Integer  |  |

# Shopping Cart Item

|  |  |  |  |
| --- | --- | --- | --- |
| S/N | Name  | Data Type | Description |
| 1 | Shopping Cart ID | Integer | Primary key for shopping cart identification |
| 2 | Inventory ID | Varchar | Foreign key to inventory  |
| 3 | Price  | Double  |  |
| 4 | Date  | Date  |  |
| 5 | User ID | Varchar  | Foreign key to customer  |
| 6 | Quantity  | Integer |  |
| 7 | Product Name  | Varchar  |  |

#### Order Details

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Name** | **Data type**  | **Description** |
| **1** | Order ID | Integer  | Primary key for order identification  |
| **2** | User ID  | Char | Foreign key to customer  |
| **3** | Receiver’s Name | Char | If order is to be sent to other address rather than to the customer, we need that address |
| 4 | Address  | Char |  |
| 5 | City  | Char  |  |
| 6 | State  |  |  |
| 7 | Date of purchase  | Date  |  |

#### Shipping Type:

|  |  |  |  |
| --- | --- | --- | --- |
| S/N |  Name  |  Data type  |  Description  |
| 1 | Type of shipping | Varchar | Primary key to define type of shipping |
| 2 | Price | Double  |  |
| 3 | Approximate days  | Integer  | Day for delivery  |

*Credit Card Details:*

|  |  |  |  |
| --- | --- | --- | --- |
| **S/N** | **Name**  | **Data type** | **Description**  |
| 1 | Credit Username  | Varchar  | Primary key for customer identification |
| 2 | Credit card  | Varchar | Number  |
| 3 | Credit type  | Varchar | Master card, Visa |
| 4 | CVV number  | Integer  | Number present on the back of the card for extra security  |
| 5 | Expiry date  | Date  |  |
| 6 | User ID | Varchar  | Foreign key to customer  |

**3.4 SYSTEM ARCHITECTURE**

The System Architecture shows the overall view of the components of the system to be developed.

**Online shopping** is the process consumers go through to purchase products or services over the Internet. A Shopping application that typically runs on the computer where your Website is located (the Web server), and allows your customers to do things such as viewing the product in your store catalog, adding a selected product to a basket, and placing an order for it.

### **Payment:**

Online shoppers commonly use credit card or debit card to make payments, Here we are using PayPal Payment Security For Customers.

**Features of PayPal**:

Pay pal is an incredibly popular way of sending and receiving money over the Internet. Thousands of people use the service to pay for items bought on shopping site and for a variety of other goods over the Internet, making it one of the most convenient as well as the most popular ways to send and receive money online.

**Product delivery:**

Once a payment has been accepted the goods or services can be delivered in the following ways.

**Shipping:** The product is shipped to the customer's address.
Shopping cart systems: A type of program that represents a virtual shopping cart, similar to a real shopping cart. Shopping carts are an important component of e-commerce sites such as online shops or merchant storefronts. The visitor adds items to their cart for purchase until they are ready to “check out” and pay for those items. Here we can Add the item, delete the item and also change the quantity of the item in cart.

## 3.4.1 Process Model

A Process Model tells us about how the data is processed and how the data flows from one table to another to gather the required information. This model consists of the Functional Decomposition Diagram and Data Flow Diagram.

### Functional Decomposition Diagram

A decomposition diagram shows a top-down functional decomposition of a system and exposes the system's structure. The objective of the Functional Decomposition is to breakdown a system step by step, beginning with the main function of a system and continuing with the interim levels down to the level of elementary functions. The diagram is the starting point for more detailed process diagrams, such as data flow diagrams (DFD).

 **Customer**

**Transaction**

**Acknowledgment**

**Home Page**

**Customer Registration**

**Product / Search engine**

**Help? /FAQ**

**User page**

**Payment Terms**

**Add to cart**

**View cart**

**Confirmation**

**Database**

**Administrator**

**Administrative services**

**Add/Edit inventory**

**Add new product**

**Update inventory**

**Admin Home Page**



Customer – Shopping Cart Context DFD

**Customer - Shopping Cart Detailed**

**New user registration**

**Customer address**

**User id**

**Password**

**Customer**

**User id**

**Password**

Customers – New User Registration DFD

Administrator Context DFD

4.0 Introduction

Before implementing the actual design of the project, a few user interface designs were constructed to visualize the user interaction with the system as they browse for products, create a shopping cart and purchase products.

4.1. Choice of development Environment

The researcher will be talking about the system platform used, IDE (integrated development environment) used and programming language used.

The system platform used is windows 10. Also the IDE (integrated development environment) used is Sublime text 3 the latest version and the programming language used is PHP previously known as personal home page. PHP was created by RasmusLerdorf in 1994 and publicly released in June 8, 1995and was known as Hypertext Preprocessor. PHP is a server-side interpreted scripting language designed for creating dynamic web pages and web pages that effectively work with databases.

### Several reasons ride the choice of using PHP for this system, one of which is its extensive portability and use over several web host servers on the internet. Also PHP possesses several inbuilt functions which allow it to integrate well with the widely used and accepted database storage management system for the web-MySQL. Due to its wide use, several documentations are available online which will guarantee that materials about any aspect of its use will be easily found.

## Implementation Technologies

The objective of this project is to develop an online store. When the user types in the URL of the online store in the address field of the browser, a Web Server is contacted to get the requested information, Apache Server acts as the Web Server. The sole task of a Web Server is to accept incoming HTTP requests and to return the requested resource in an HTTP response. The first thing Apache does when a request comes in is to decide how to handle the request. Its decision is based upon the requested file's extension. For example, if the requested file has the .php extension, Apache will route the request to be handled by PHP engine

The PHP Engine then gets the requested file, and if necessary contacts the database through MySQL for the required file and then the information is sent back to the Client’s browser. Appendix 1 Fig 7 shows how a client browser interacts with the Web server and how the Web server handles the request from client.

## 4.2 Implementation Architecture

Customers ordering from an e-commerce website need to be able to get information about a vendor’s products and services, ask questions, select items they wish to purchase, and submit payment information. Vendors need to be able to track customer inquiries and preferences and process their orders. So a well-organized database is essential for the development and maintenance of an e- commerce site

In a static Web page, content is determined at the time when the page is created. As users access a static page, the page always displays the same information. Example of a static Web page is the page displaying company information. In a dynamic Web page, content varies based on user input and data received from external sources. We use the term “data-based Web pages” to refer to dynamic Web pages deriving some or all of their content from data files or databases.

A data-based Web page is requested when a user clicks a hyperlink or the submit button on a Web page form. If the request comes from clicking a hyperlink, the link specifies either a Web server program or a Web page that calls a Web server program. In some cases, the program performs a static query, such as “Display all items from the Inventory”. Although this query requires no user input, the results vary depending on when the query is made. If the request is generated when the user clicks a form’s submit button, instead of a hyperlink, the Web server program typically uses the form inputs to create a query. For example, the user might select five products to be purchased and then submit the input to the Web server program. The Web server program then services the order, generating a dynamic Web page response to confirm the transaction. In either case, the Web server is responsible for formatting the query results by adding HTML tags. The Web server program then sends the program’s output back to the client’s browser as a Web page.

### 4.2.1 Web Page Programming Options

An e-commerce organization can create data-based Web pages by using server-side and client-side processing technologies or a hybrid of the two. With server- side processing, the Web server receives the dynamic Web page request, performs all processing necessary to create the page, and then sends it to the client for display in the client’s browser. Client- side processing is done on the client workstation by having the client browser execute a program that interacts directly with the database.



 Figure: Web page programming options

The Figure above outlines commonly used server-side, client- side, and hybrid Web and data processing technologies; client-side scripts are in dashed lines to indicate they are unable to interact directly with a database or file but are used to validate user input on the client, and then send the validated inputs to the server for further processing.

### 4.2.2 Server-side processing.

Generally dynamic or data-driven Web pages use HTML forms to collect user inputs, submitting them to a Web server. A program running on the server processes the form inputs, dynamically composing a Web page reply. This program, which is called, servicing program, can be either a compiled executable program or a script interpreted into machine language each time it is run.Compiled server programs. When a user submits HTML- form data for processing by a compiled server program, the Web Server invokes the servicing program. The servicing program is not part of the Web server but it is an independent executable program running on the Web server; it processes the user input, determines the action which must be taken, interacts with any external sources (E.g.database) and finally produces an HTML document and terminates. The Web server then sends the HTML document back to the user’s browser where it is displayed. Figure 17 shows the flow of HTTP request from the client to the Web server, which is sent to the servicing program. The program creates an HTML document to be sent to the client browser.



**PHP Engine**

Figure: Compiled server programs flowchart

Popular languages for creating compiled server programs are Java, Visual Basic, and C++, but almost any language that can create executable programs can be used, provided that it supports commands used by one of the protocols that establish guidelines for communication between Web servers and servicing programs. The first such protocol, introduced in 1993, for use with HTML forms was the Common Gateway Interface (CGI); many servicing programs on Web sites still use CGI programs. However, a disadvantage of using CGI-based servicing programs is that each form submitted to a Web server starts its own copy of the servicing program on the Web server.

A busy Web server is likely to run out of memory when it services many forms simultaneously; thus, as interactive Web sites have gained popularity, Web server vendors have developed new technologies to process form inputs without starting a new copy of the servicing program for each browser input. Examples of these technologies for communicating with Web servers include PHP and Apache. They allow a single copy of the servicing program to service multiple users without starting multiple instances of the program.

**Table 1: Processing Technology for different File Extensions**

**File Extension Processing technology interpreter/compiler**

 .asp Microsoft Active Server Page

.aspx Microsoft ASP.NET web page

.js Microsoft Scripting Language “JScript” file extension

.php PHP Script

.vbp Visual Basic Project

### 4.2.3 Client-Side Processing.

Client-side Web page processing is achievable through compiled programs downloaded, installed, and executed on the client workstation or by creating scripts with the HTML Web page commands interpreted by the client browser.

Downloading and running compiled programs on client workstations.When a user clicks a hyperlink on a Web page associated with a compiled client-side program, the user’s browser must have the ability to run the executable program file; this program interacts with the user, sending and retrieving data from a database server as needed.

Many times, the user is asked to install certain ActiveX components to view some animations or play games. This new component plugs in into the existing system, thus extending the functionality of the system.

Although basic client- side scripts cannot be used by a Web page to interact with a remote database, they are often used to validate user inputs entered on HTML forms submitted for processing by a server- side program; for example, a script running on a client workstation might check the inputs users submit to a Web page to make sure they entered all required data and appropriate data values. This approach avoids transmitting inputs to the Web server that are incomplete or include errors, while offloading error checking and handling from the Web server program to the client workstation.

Client-side scripts can also be used to create advanced Web page features, including: animations, calculations, playing sound and video, and image maps allowing users to move their cursors over an image and click to access different Web page links.

JavaScript is the most commonly used client-side scripting language and is supported by most browsers.

Use of a client-side scripting language depends on the user’s operating system, browser platforms, and developer expertise. If the Web pages in question are to be accessed by a variety of users over the Internet, JavaScript is probably better than VBScript, as JavaScript is the only scripting language able to run on nearly all browsers. If the Web pages are to be accessed on an intranet and if the organization has standardized on Microsoft’s browser and Web server, VBScript is a satisfactory scripting language for creating client- side scripts.

### 4.2.4 Development Tools

1. Environment:
* Servers:
	+ - * Operating System Server: - Microsoft Windows 2000 or Higher
			* Data Base Server: xamp or wamp server
* Clients : Microsoft Internet Explorer, google chrome
* Tools : Sublime Text or PHP Storm
* User Interface: HTML and PHP
* Code Behind : PHP and MySQL
1. Requirements:
* Hardware requirements:

|  |  |
| --- | --- |
| Number | Description |
| 1 | PC with 2 GB hard-diskand 256 MB RAM |

Table 4.20 Description of Hardware Requirements

* Software requirements:

|  |  |
| --- | --- |
| Number | Description |
| 1 | Windows 2000/ XP/ or Higher with MS-office |
| 2. | Xampp or wampp server |
| 3. | Ms-Internet Explorer, Mozilla Firefox, Google Chrome, Safari. |

Table 4.21 Description of Software Requirements

## 4.3 Software Testing

### Transactions in the Application

A transaction is a group of database commands that are treated as a single unit. Transaction must pass what is known as the ACID test:

**Atomic:** All operations in the transaction are executed properly. In other words, they make up a single unit of work. For example, if a customer moves and a transaction is used to reflect that change in the database, all parts of the address (street, city, state, etc) must be changed as an atomic action, rather than changing street, then city, then state, and so on.

**Consistent:** The execution of a single transaction preserves the consistency of thedatabase. All the relationships between data in a database are maintained correctly. For example, if customer information uses a tax rate from a state tax table, the state entered for the customer must exist in the state tax table.

**Isolation:** Each transaction is unaware of the other transactions occurring concurrently. Changes made by other clients cannot affect the current changes. For example, if two data entry operators try to make a change to the same customer at the same time, one of two things occurs: either one operator's changes are accepted and the other is notified that the changes were not made, or both operators are notified that their changes were not made. In either case, the customer data is not left in an indeterminate state.

**Durability:** Changes the transaction has performed persist in the database. Once achange is made, it is permanent. If a system error or power failure occurs before a set of commands is complete, those commands are undone and the data is restored to its original state once the system begins running again.

Transaction processing is particularly important for Web applications that use data access, since Web applications are distributed among many different clients. In a Web application, databases are a shared resource, and having many different clients distributed over a wide area can present these key problems:

* Contention for resources. Several clients might try to change the same record at the same time. This problem gets worse the more clients you have.
* Unexpected failures. The Internet is not the most reliable network, even if your Web application and Web server are 100 percent reliable. Clients can be unexpectedly disconnected by their service providers, by their modems, or by power failures.
* Web application life cycle. Web applications do not follow the same life cycle as Windows applications —Web forms live for only an instant, and a client can leave your application at any point by simply typing a new address in their browser.

Transaction processing follows these steps:

1. Begin a transaction.
2. Process database commands.
3. Check for errors.
4. If errors occurred, restore the database to its state at the beginning of the transaction. If no errors occurred, commit the transaction to the database.

Suppose two users try to add the same product to the shopping cart and try to place an order at the exact same time. An update should be done to the Products table after the order is placed, but if only the latest transaction is noted down, the product quantity will differ in the real world. This situation has to be handled as in a “Transaction”. As detailed earlier, a transaction is an operation or set of operations that succeeds or fails as a logical unit. That is, either both the updates are not done, or both the updates are done consecutively.

**4.4 Documentation**

**Installation Procedure**

Some computer programs can be executed by simply copying them into a folder stored on a computer and executing them but this is quit advanced in nature because of the advancement in technology.

These are the steps involved in building a website:

1. Install the xampp Server.
2. Copy the **Quest** folder to your www directory.

***Locating Root Folder.....Click on Computer....Click on Local disk c...navigate to xampp.....Click on htdocs…..Paste the folder......***

1. Import the database file through **phpMyAdmin** in xampp server.
2. Launch your browser.
3. Type **localhost** or **127.0.0.1/Quest** in the address bar.
4. Click enter.

**System Maintenance**

The program may be maintained on the ground that the system requires an upgrade. When there is a new field to be added or a new form to be added in other to serve users well.

**The following precaution should be done**

* Ensure that the computer is kept in clean areas.
* System should be kept in cool places.

Air conditioner is important to reduce room temperature and keep it constant

### 4.4.1 User Manual

The objective of this application is to provide the user an online website where they can buy products from the comfort of their home. A shopping cart is used for the purpose. The user can select the desired products, place them in the shopping cart and purchase them using a Credit Card. The user’s order will be shipped according to the type of shipping selected at the time of placing the order.

Website consists of the following web pages:

1. AddProduct.html
2. ProductDetails.html
3. ProductReview.html
4. Products.html
5. ChangePassword.html
6. CheckOut.html
7. FinalOrder.html
8. Footer.html
9. ForgotPassword.html
10. Login.html
11. LogOff.html
12. Order.html
13. PurchaseHistory.html
14. Registration.html
15. Search.html
16. ShoppingCart.html

When the user types the web address in the browser, the main page of the application is displayed.

### Registration

A new user can register on the site by clicking on the registration button on the menu at the top of the page.

The “\*” beside the label indicates the required field for successful registration on the site. If the value if not entered, an appropriate message is displayed. If a user with same UserID already exists, the message is displayed. Clicking on Reset will clear all the fields and Submit will submit the information for registration. Upon successful completion, the user is directed to the Products page.

### User Details

On clicking “User Details”, the detailed profile information of the user who is currently logged in.

Here the users can change their profile except for the UserID and these details will be reflected in the database only when the Update button is clicked. If the user has placed any order previously, those details can be viewed by clicking on the Purchase History button.

### Shopping Cart

When “Add to Cart” is clicked for any product, it is added to the shopping cart. If that particular product is already present in the shopping cart, the quantity is increased by 1 and the price is changed accordingly; if not, a new entry is made into the table. All the information in the shopping cart is stored in “shopping\_cart\_items” table. Adding a product into the shopping cart does not decrease the quantity of products in the products table. It is decreased only after an order is placed for the product. So, placing the product in the shopping cart does not guarantee the availability of the product at the time of placing the order.

### Place an Order

When “Place an Order” button is clicked which is located on the bottom of the shopping cart, the application will ask the user to login if he has not already done so.

If the user is placing an order with the web site for the first time, they will be asked to enter the credit card details as shown in the above figure; if not, only the Card Verification Value (CVV) number of the credit card is asked for verification.

At this point, the user can check the shipping address box if shipping address is same as billing address, otherwise the user has to enter the new shipping.

If the check box provided is checked, the shipping address is obtained from the *Customer* table. The user also has to select the desired type of shipping for the order. When all the information is entered, the user can “Proceed to the Checkout”.

### Check Out

Before placing the final order, the user is shown the total price of the order, which includes total price of products selected, shipping rate and state tax. If the user is not satisfied with the order, the order can be cancelled at that point. The information in the shopping cart remains intact, so the user can go back to it and make any changes if necessary. When the “Place Order” button is clicked, the order is placed and the following screen appears which informs the user about the approximate number of days in which the order will be delivered.

Once the order is placed, the quantity of the products is reduced in the *Products* table. The shopping cart for the user cleared and an appropriate message is displayed. The inventory is updated after the order is placed.

### Purchase History

Purchase history can be reached by clicking on the “Purchase History” tab on “User Details” screen.

When viewing the purchase history, the user can view the details of each product by clicking on the product name. The details are displayed are shown.

Product information can only be changed by the Administrator of the site. All other users can only view the details of the products. The administrators of the site can also “Add Product” or “Remove Product” to/from the *Products* table.

In order to add a product, the administrator will enter the id of the product. If the id is already present in the Products table, the administrator is asked to enter the quantity of the products.

If the entered idproduct is not present in the Inventory, the administrator is asked to enter the details about the product.

When a user logs off the website, the items in their Shopping Cart are cleared. When the user enters a password during the registration, it is encrypted before it is stored in the database. It is a one-way encryption and the original form cannot be retrieved again. Similar encryption method is used for Credit Card Number.

Suppose there are only three “bicycles” products available in the store. One user adds all of them to the shopping cart, and by the time he chooses other products and places the order, another user has already placed an order for two of those products. In that case, the first user comes to know about this at the time of placing the order and he is directed to the shopping cart to make the appropriate changes.

As explained earlier, the user need not be logged in to add products to the shopping cart. When the user adds products without logging in, a GUID (Globally Unique Identifier) is obtained from the system and stored in Session ["loginid”] variable. This GUID is stored in the shopping\_cart\_items table along with the selected products by the user. If the user logs in, the GUID in the table is replaced with the actual UserID of the user.

Session variables are used to transfer data from one page to another. As soon as the user closes the window, the session variables are cleared.

# CHAPTER 5SUMMARY AND CONCLUSION

## 5.0 Summary

The primary aim of this project has been met. All the objectives that were set out have been completed and giving positive results in the end.

Although some users comment that they did not think shopping online was ideal, it has managed to convince them to try in the future.

In Nigeria, the e-Commerce ecosystem is a huge reality and is a catalyst for economic growth in the country. Indeed, e-Commerce gives to Nigerian businesses the possibility to significantly extend the reach of wholesale and retail trade in the country, which leads to a boost of profits and job creation.

People in Nigeria commonly use e-commerce sites to buy and sell second items online through free-classifieds sites like this one, which reveals an economic growth and improvement within individuals and not only large companies.

Oil, mineral and human resources and the population of people in millions are over 160 million potential buyers and sellers of different items on every street. The thing that makes e-Commerce so successful in Nigeria is that Nigerians love to shop, but there’s an absence of a well-structured retail chain, too few shopping malls and poor transportation network, which makes it difficult to access the product. And that’s where the e-Commerce comes in handy.

According to Euromoney International, online sales in Nigeria have multiplied between 2011 and 2012 from $10.5 million to about $3 billion, making e-Commerce the country’s second-biggest economy. This is also because what looks like a simple internet transaction includes, between the online order and the final delivery, a series of Nigerian business realities, such as the financial services sector, the transport sector, the postal sector and the telecommunication sector. What works against this incredible economic resource is an inadequate broadband access, the high cost of internet and mobile communications services, a low awareness among the public of the relevance of such type of commerce to their lives, a low consumer confidence in using electronic payment channels and a low availability of skilled personnel among others.[46]

## 5.1 Conclusion

The Internet has become a major resource in modern business, thus electronic shopping has gained significance not only from the entrepreneur’s but also from the customer’s point of view. For the entrepreneur, electronic shopping generates new business opportunities and for the customer, it makes comparative shopping possible. As per a survey, most consumers of online stores are impulsive and usually make a decision to stay on a site within the first few seconds. “Website design is like a shop interior. If the shop looks poor or like hundreds of other shops the customer is most likely to skip to the other site”[16]. Hence we have designed the project to provide the user with easy navigation, retrieval of data and necessary feedback as much as possible.

In this project, the user is provided with an e-commerce web site that can be used to buy products online. To implement this as a web application we used PHP as the Technology. PHP has several advantages such as enhanced performance, scalability, built- in security and simplicity. To build any web application using PHP we need a programming language such as HTML, CSS, JavaScript and JQuery. For the client browser to connect to the PHP engine we used Apache Server as the Web Server. PHP uses PhpMyAdmin to interact with the database as it provides in- memory caching that eliminates the need to contact the database server frequently and it can easily deploy and maintain aPHP application. MySQL was used as back-end database since it is one of the most popular open source databases, and it provides fast data access, easy installation and simplicity.

A good shopping cart design must be accompanied with user- friendly shopping cart application logic. It should be convenient for the customer to view the contents of their cart and to be able to remove or add items to their cart. The shopping cart application described in this project provides a number of features that are designed to make the customer more comfortable.

This project helps in understanding the creation of an interactive web page and the technologies used to implement it. The design of the project which includes Data Model and Process Model illustrates how the database is built with different tables, how the data is accessed and processed from the tables. The building of the project has given me a precise knowledge about how PHP is used to develop a website, how it connects to the database to access the data and how the data and web pages are modified to provide the user with a shopping cart application.

## 5.2 Recommendation

From this study, a shopping centre website providing online market and web site package under the same domain, is successfully implemented.

Using the principle of content management, onlinemarket provides all functions which customers needfor conducting online shopping. Furthermore, the website package service wellknown among online store owners is convenient and flexible for any potential users. For website development open source softwareis mostly used due to its low cost of development. Provided services are likewiserelatively low in price and suitable for online market. This website also promotes e-commerce and online marketing on the Internet, complying with theinformation technology policy of the government. Regarding website quality, implementing various techniques of web design and database management system coupled with other additional services, the website is quite responsive.

Moreover, to obtain the highest system performance, it utilizes full options of both hardware and operating system software. With all mentioned techniques, the website operates with low resource consumption at its massive size. This website will expand e-commerce business to cover most of available Internet devices and technology, such as mobile phone, mobile payment, and wireless application protocol and pocket personal computer.

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