International Academic Institute for Science and Technology

International Academic Journal of Science and Engineering
Vol.11, No.1, 2024, pp.71-80.

ISSN 2454-3896

International Academic Journal of Science and Engineering

www.iaiest.com

Online Shopping System

Dr.N. Baggyalakshmi [a*], M. Janani Shree Priya [b], Dr.R. Revathi [c]

[a] Assistant Professor, Department of Computer Science, PSGR Krishnammal College for Women, Coimbatore.*
E-mail: baggyanethra@gmail.com
[b] Student, BSC Computer Science, PSGR Krishnammal College for Women, Coimbatore.
E-mail: jananishreepriya.07@gmail.com
[c] Assistant Professor, Department of Computer Science, Karpagam Academy of Higher Education, Coimbatore.
E-mail: revathilakshay@gmail.com

Abstract

The main objective of this system is to make global shopping possible, were the customers buy things from anywhere in India. The customer will be displayed with the available products of the company, and the customer will be asked to select the items based on his choice and all information about the product like price, product id model will be given to the customer based on his requirements they make an order of the product. The modules are: Product Master, Customer Module, Purchase Module, Order Module, Billing Module. Daily, special and emergency deliveries are available. At any time during off-hours, 24 hours a day, seven days a week, we can provide your record. As days goes offline shopping has reduced and online shopping is increased. This Software will help you know the various products, product description, price range, discounts so that the customers can easily identify which product will suit best for them. The Web model that was used in the implementation of the On-Line Shopping Database Application is very simple each request from the webpage invokes a request, which then communicates with the Objectivity/DB to retrieve the requested data. The resulting data is passed by a request object to. The client-side HTML that displays the result to the user.

Keywords: Online Shopping, Database Application, HTML, Customer.

DOI:10.71086/IAJSE/V11I1/IAJSE1110
Received: 03 January 2024/Accepted: 29 January 2024/Published: 08 February 2024

Introduction

Since the existing system of our esteemed organization is done manually, it is necessary to computerize our vehicle service system for the following reasons: Providing efficient control Providing efficient control, to provide easy way to handle the data, to provide high data security, to provide easy data accessing, to downsize the man power, to provide locking facility of database. Through the preliminary investigation the proposed system features are specified such as follows which eliminates the risk in the current system [1]. Creates an interface, user-friendly environment by providing help and error messages, Maintains the customer and repair information, Maintains the history card for all serviced vehicles Provides the friendly environment when update the data of vehicle, Provides up-to-date information.

In order to accomplish the system analysis, one must first ascertain whether it is feasible. Given an endless amount of time and money, any project may be completed. However, there is a lack of resources in our systems [2]. A project's viability must be considered as soon as feasible. Risk analysis and feasibility studies are closely related. Producing high-quality software becomes less feasible when project risk is high. But there are three main things that we focus on when we do system engineering. Function, performance, and limitations that might impact the attainment of a satisfactory system are the subjects of this study. Since the organisation already has all the necessary technical resources on hand, and since the majority of the world's population has access to the Internet, the suggested system can only be implemented via web technology [3]. Therefore, the proposed system is fully compatible with the present hardware, software, and human resources.

Because of its straightforward design, the suggested system is easy to grasp and control. After the system is created and put into action, will people really use it? Will users be resistant, preventing the programme from reaping its potential benefits? Information regarding household goods and other consumer products will attract attention from all corners of the globe due to the universal use of these products. Therefore, people will undoubtedly make use of the system [4]. Taking everything into account, the suggested system is dependable, easy to maintain, and produces excellent performance. Thus, the system that has been suggested can work. It is a calculation that takes into account the expenses of development in relation to the profit or advantage that will be obtained in the end [5]. Financial rationale Considers a wide variety of issues, such as the price of development resources, cost-benefit analyses, and long-term strategies for corporate profitability.

Literature Review

Daffodil and Rose [6] Analysis of the effect of website design on consumer satisfaction with online grocery shopping is the goal of this study. Additionally, it identifies the components of websites that significantly affect how satisfied online grocery shoppers are. Originality: Based on sample data gathered from 200 respondents who shop for groceries online, the conclusions were drawn. Future research projects by academics and researchers will benefit from the literature on online purchasing behavior. It will also offer advice on how to create an efficient marketing plan for vendors and website designers. Keywords: grocery shopping online, website design, and customer satisfaction

Misra et. al [7] Our proposal for a non-linear mathematical model to evaluate social media's effect on online shopping is presented in this paper. Three dynamic variables—the quantity of people shopping offline, the quantity of people shopping online, and the quantity of social media advertisements—are taken into account during the modeling process. Stability theory of differential equations is used to study the proposed model. Studies reveal that social media ads are essential for promoting online shopping across all industries, but customer satisfaction is especially important for Micro, Small, and Medium-Sized Enterprises (MSME) sector. To validate the results of the analysis, numerical simulation is also done.

Alzoubi et.al [8] The purpose of this study is to examine, with a focus on the banking sector in the United Arab Emirates, the relationship between the growth of sales and the impact of electronic payment methods and eCommerce. Correlational design and quantitative methodology were used in this investigation. 217 valid surveys, which were sent by email to all participants—top managers, middle managers, and technicians—were used to gather the empirical data. The survey was created using a 5-point Likert scale. This investigation involved a variety of statistical analyses. The Cronbach's Alpha values of the study variables ranged from 873 to 855, indicating high internal consistency, according to the results. The substantial correlation and direct influence between online shopping and sales growth were also emphasized by this research.

Bailusy et.al [9] An overview of Indonesian consumers' opinions about Tokopedia, Shopee, Bukalapak, and Lazada—four major online shopping portals—is what this study aims to provide. Participating in this study were 850 respondents from all around Indonesia. Purchase intention, customer satisfaction, security, self-efficacy, usefulness, ease of use, quality of e-service (reliability, web design, trustworthiness, personalization, and responsiveness), and ease of use are consumer perceptions relevant to online shopping in this study. The distribution of the questionnaires was done through two different methods: surveys and filling out Google Forms. The data was analyzed using a descriptive statistical technique. When it comes to security, usability, self-efficacy, usefulness, e-service quality, purchase intention, and customer satisfaction, the data indicate that consumers are generally in agreement. The only perceptions that differ are those of the consumers.

Kofoworola et.al [10] This study looked at how consumer purchasing behavior and the trend of online shopping relate to each other. A cross-sectional design was employed in the study. Final-year undergraduate students from the faculties of science, engineering, environmental technology, agriculture, management sciences, and education at Abubakar Tafawa Balewa University in Bauchi made up the study's population. There are 3,332 students in total among the faculties' student body. Using the Krejcie and Morgan table, a sample size of 336 was chosen, and the basic random technique was applied. Only 293 respondents' data were ultimately used for data analysis after data cleaning. Data analysis and hypothesis testing were conducted using descriptive statistics and Spearman's rank correlation. Empirical findings verify that the trend of online shopping is positively correlated.

Proposed Methodology

Current System

The system's development is driven by a desire to address the shortcomings of the previous system, simplify the shopping experience for customers, and expand the reach and growth of the business through the power of the internet. The current system's primary focus is on making the interface as easy to use as possible. All the details that are now maintained manually are now computerised via the proposed system. There is no longer any requirement for multiple individuals to handle distinct portions after the data has been input into the computer. It only takes one person to keep track of all the reports. Additionally, the security can be tailored to meet the needs of individual users.

Advantages of the System

The customer is required to physically visit the store in order to complete their shopping here. There needs to be an excess of personnel to manage the clients because shopping is done manually.

Shopping is done in online using the internet facilities for any were.

- Online shopping to helps multiple shop for one web application
- Customers to view multiple products in web application
- Customers compare to all product very easily
- Online shop order and billing method very easily
- Customer order any product any time for our place

Time is greatly reduced. We can save a lot of time by using the Internet facilities instead of going to the actual shop. We offer a range of customer services, including one that assists with shipping things to the address the consumer specifies. Allows for trade on a worldwide scale. Unlike at a traditional store, there are no restrictions on what you can buy online. Buyers can see how other people rated and reviewed the product in a straightforward manner. Makes less people needed. Because fewer employees are needed when shopping online compared to traditional techniques, it is more cost-effective. Contributes to a rise in sales. The expansion of shopping options contributes to higher sales as a result of the services offered. Contributes to the growth of the company. Because of the services offered, it also contributes to the development and recognition of the concern.

System Modules

The purpose of this project is to demonstrate the use of Web technology in shopping were the Shopping products available for purchase on the website are displayed, organized into categories. Each category constitutes different items such as supermarket products. Every item belongs to a category. An item entity records the number, name, description, price, colour and picture of a product.

Each customer is assigned only one shopping cart and the customer can add or delete items from the shopping cart at any time during his purchase in online. A customer can also save a shopping cart and retrieve it later when ever.

When a customer completes his purchase, then the shopping cart becomes an Order with an order No, date Ordered, other charges and total Price. Once the cart is sent to the ordering stage the customer cannot do any changes to his cart.

A customer cannot delete or edit any of the items that he has selected once an order is placed. These orders can be viewed as part of the customer's ordered information's history. Each request from the web page invokes a request, which then communicates with the Database to retrieve the requested data. The customer and supplier to do the shopping use the resulting data.

Since an item can come in different sizes and colors, each item contains different inventory objects. An inventory object has attributes, such as code, Color, size, and quantity on hand. The code is an abbreviated combination of the color and size. The item detail page displays the various information's about the available products where the customer may view them and also place his orders by adding the products to the shopping cart that is provided to him. Color and size options for an item together with the item description and price. The customer can add an item into a shopping cart from the item detail page.

Login

The login table accepts the username and password for the further processing of the application.

Cart Master

This table deals with the cart information that is provided to the user. Here all the selected products are listed.

Customer Master

This is the customer table where all the details of the customer are collected for further processing. This comes after the selection of the products is made and ready to purchase.

Menu Master

This table menu master has the products information such product name their category. The administrator only has rights to edit this table.

Order Master

The table order master deals with the orders placed by the customer for the purchase purpose. The details such information about the product and their id delivery date etc are dealt here.

Product Master

The administrator has to edit this table. He can only add or delete products. The products displayed in the list are chosen and modified only by the administrator. This table has the product details such as id, name, details, price, tax etc.

Customer Module

This is the first module where we will be collecting all the personal information about the customer. All personal details like name, e-mail address, address communication of the customer, phone number and other details are collected and maintained for further use.

Purchase Module

This is the second module where the customer will be moving along the website viewing all the products that are displayed and also, he may do purchases and add the products to the cart. He may also remove the products from his cart before it becomes an order.

Billing Module

This is the third module where the customer purchase details are maintained, information like the product purchased, the price of the product, and the address where the product has to be delivered is also collected, the total amount is also calculated by adding all the additional charges such as taxes and delivery charges.

Administrator Module

This is the fourth module where the administrator may make changes to the web sites that are like they may add new products, edit the details about the product and may also delete the products if necessary. Only the administrator is allowed to make such changes to the web site.

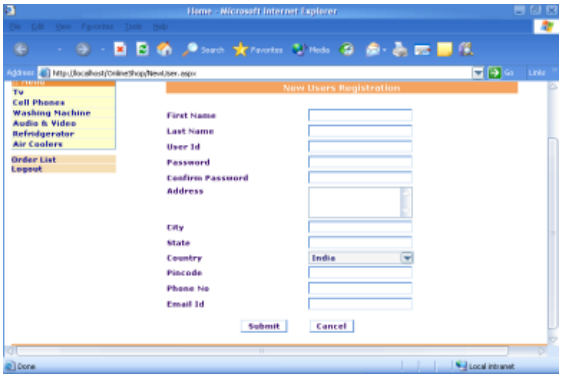


Fig. 1: User Registration Form

The above Fig 1 displays a form which appear when a new user wanted to register their details to proceed shopping and billing. It contains user information columns like First name, Last name, User Id, password, Address, City, State, Country, Phone number and Email Id also it contains two buttons Submit and Cancel.

System Specification

Hardware Specification

Table 1: Hardware Specification

Processor	Intel Core 2 Due 2.66 GHz RAM - 1 GB
Hard Disk	500 GB
Floppy Disk Drive	1.44MB
Mother Board	- Intel chipset board
Mouse	Logitech two buttons
Key Board	104 keys keyboard
Monitor	"17" SVGA colour monitor

Software Specification

Table 2: Software Specification

Platform	WINDOWS 8
Front-end Tool	ASP.NET
Back-end Tool	SQL SERVER
Web Server	Personal Web Server
Internet Information Server [Implementation] Web Browser	Microsoft Internet
Explorer 6 Designing Tools	Macromedia Flash, Macromedia Dream viewer.

Research and Discussion

Design Concept

Data flow diagrams (DFDs) are useful for data segmentation and system understanding problems in analysis. Data flow diagramming (DFD) illustrates the process, data storage, and delays that make up the data flow in a system, whether that system is manual or automated. Therefore, DFDs constitute the backbone of a logical, component-free description of the input-output process. It reveals the flow of information as it undergoes various transformations within the system.

Issue analysis frequently makes use of data flow diagrams. When applied properly during analysis, they provide light on a system and aid comprehension. A data flow diagram illustrates how information moves through a system. From this perspective, a system is like a function: it takes in data and outputs something you want it to. The system's visual depiction facilitates effective user-analysis communication.

The goal of creating a data flow diagram is to clarify the system requirements and to identify the main transformations that will be implemented as programmes in the design of the system. A string of bubbles connected by lines makes it up. Dataflow in the system is represented by lines, while data transformation is symbolised by bubbles.

Input Design

As a component of system design as a whole, input design demands meticulous attention to data entry. The majority of input design errors are caused by inaccurate data. Transforming structured input into a computer-readable format is what input design is all about. Data inputs are regulated and categorised according to their similarities. The design of input data should prioritise making entry as easy and error-free as feasible. During the planning stage of the project, the objective was maintained in mind.

Input design in ASP.NET is done using forms. Login information, client details, and product details are the three main types of input that the system gets. The consumer logs in, browses the available products, and then adds them to their shopping basket.

The next step is for the buyer to add each item to their cart after making their selection. In the shopping cart, you can add items to your cart and then proceed to complete your purchase by adding them to your previous transaction. After the buyer is through making his pick, he can go on to the checkout page and fill out his information. After the payment is received, the products are ordered if those specifics are approved. Items in the shopping cart can be added or removed by the consumer. Afterwards, when the selecting process is complete, he can also try this. An essential system operation is the deletion. Data and product deletions have been meticulously planned; the system verifies deletion in every way before erasing the requested data or product. The virtual store's product list, including the ability to add and remove items, is under the administrator's control. No one on staff has the authority to do anything other than approve user requests and transactions.

In a report-style layout, all of the tables' contents are part of the database design. Each table's details are inputted by it. As part of database design, user-generated inputs are transformed into a computer-based format. Data entry should be streamlined, organised, and error-free; this is the primary objective of database design.

Login

The login table accepts the username and password for the further processing of the application. The Login form contains only User Id, Password, and Submit button

Cart Master

This table deals with the cart information that is provided to the user. Here all the selected products are listed. This contains all the Product selected by the customer or user that they wished to be in the cart. This form contains the selected product and that products' details.

Customer Master

This is the customer table where all the details of the customer are collected for further processing. This comes after the selection of the products is made and ready to purchase. This contains user or customer detail when they proceed to place an order for the product that is in the cart.

Order Master

The table order master deals with the orders placed by the customer for the purchase purpose. The details such information about the product and their id delivery date etc are deled here. This project works in various input designs like customer registration details, admin add new products, customer order products and order and billing details stored in input design for shopping database. Example input design show the form are

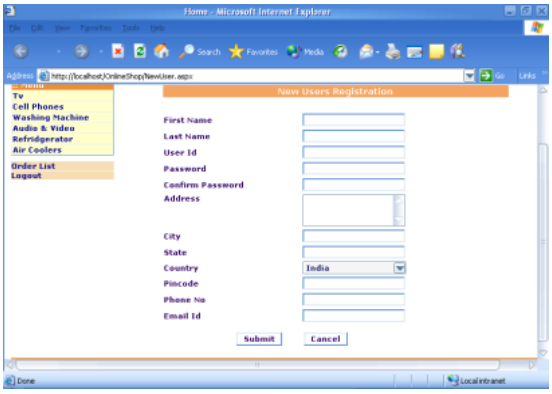


Fig. 2: New Users Registration Form

The fig 2 shows the input design to store details of customer name, address details, personal user id and password details, phone no and mail id details stored in user table.



Fig. 3: User Login Form

The fig 3 is displayed when we try to Login into our account to shop the product in the app

Output Design

In system design, output often means the end product or outputs produced by the system. Many users base their evaluations of the application's usefulness on its output, which is also the primary motivation for developing the system. A system's goal is to take form in relation to its output. The outputs of a system are determined by analysing its aims. A system's outputs might manifest in a variety of ways.

Graphical representations, reports, screen displays, printed forms, etc., predominate. The contents, frequency, timing, and format of the outputs can also vary. A system's output—including its intended recipients, its function, and the order in which details are to be printed—serves as the rationale for the system's very existence.

The objectives of the output design are as follows:

- Design output to serve the indented purpose.
- Design output to fit user.
- Deliver the appropriate quantity of output.
- Assure that output is where it is needed.
- Provide output on time.

If there is a problem with the outputs, then the system is sufficient. The most fundamental standards for output are its timeliness, accuracy, and suitability for its intended use in terms of content, medium, and layout. Therefore, it is critical to plan output in a way that maximises the system's ability to achieve its goal. The results are displayed in the form of a report. The system analyst has a lot on their plate when they're creating, including figuring out what data has to be there, deciding whether to show or print the data, choosing the right output media, and planning distribution.

External outputs are those who destination will be outside the organization and which require special attention as the project the image of the organization. The output design works in shopping project are admin view our all the product details and total customer details view our portal. Customer can view total product details can easily managing our web application. This project shows the different output design are

Menu Master

This table menu master has the products information such product name their category. The administrator only has rights to edit this table.

Product Master

The administrator has to edit this table. He can only add or delete products. The products displayed in the list are chosen and modified only by the administrator. This table has the product details such as id, name, details, price, tax etc.

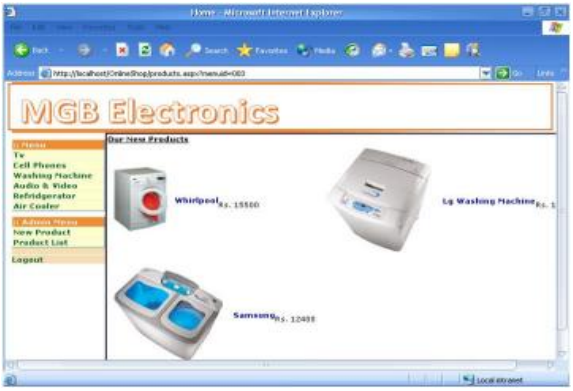


Fig. 4: Display Form for Product Chosen

The Fig 4 shows the output design are view all products in customer portal different product category. Customer can view menu and view our product category wise.

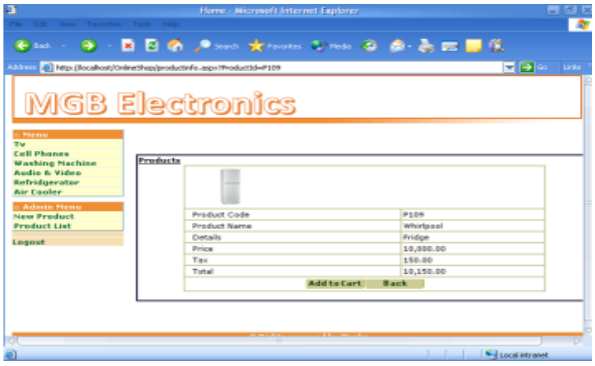


Fig. 5: Product Information Display

The Fig 5 shows the output design are view particular product for customer portal different product category. Customer can view product price; tax details and price details show this form.

Table Design

Table 3: Name: Login

Primary Key: User Id

FIELD	DATA TYPE	LENGTH	DESCRIPTION
UserId	Varchar	12	User id
Pwd	Varchar	12	Password
Status	Boolean	1	Status

The Table 3 contains the details of the Admin and Customer Login with the password and it has another column to know whether the login is active or not.

Table 4: Name: Customer Master

Primary Key: User Id

FIELD NAME	DATA TYPE	LENGTH	DESCRIPTION
Id	Numeric	9	ID
Fname	Varchar	50	First Name
LName	Varchar	50	Last Name
Address	Varchar	50	Address
City	Varchar	50	City
State	Varchar	50	State
Country	Varchar	50	Country
Pincode	Numeric	09	Pincode
Phone Number	Numeric	10	Phoneno
Email	Varchar	50	Email Id

The above Table 4 has the details when the customer creates the account for the first time in the app.

Table 5: Name: Menu Master

Primary Key: Menu Id

FIELD NAME	DATA TYPE	LENGTH	DESCRIPTION
Menuid	Varchar	10	Menu Id
Menuname	varchar	50	Menu name
Category	Varchar	12	Category
link	varchar	200	Link

The table 5 has the details related to Menu like Menu id, Menu name, Category and link. The link will redirect to the page that is given pages.

Table 6: Name: Order Master

Primary Key: Id

FIELD NAME	DATA TYPE	LENGTH	DESCRIPTION
Id	Numeric	09	id
UserId	Varchar	50	User Id
ProductId	Varchar	20	Product Id
Quality	Numeric	09	Quantity
OrderDate	Date	04	Order Date
DeliveryDate	Date	01	Deliver

The Table 6 named Order Master contains the details when the customer order any product and it has the fields like Id, User Id, Product, Quality, Order Date, Deliver. This will have the record when the customer orders any products and that it has the details of the products' Id, Quality, Date when the order is placed and Delivery date of the ordered product.

Table 7: Name: Product Master

Primary Key: Productid

FIELD NAME	DATA TYPE	LENGTH	DESCRIPTION
Productid	varchar	50	Product id
Productname	varchar	50	Product name
Details	varchar	200	Details
Imgpath	varchar	50	Img Path
Price	numeric	09	Price
Tax	numeric	09	Tax
Menuid	varchar	50	MenuId

The above table 7 will have the details of the product, this will be display when we select a product in the general menu.

Conclusion

This project presents the entire system architecture and development of the "On-line shopping" system. It is feasible for any user to take full advantage of the many user-friendly features included into the online purchasing system. The system's design incorporates programming techniques that allow for future growth and change implementation.

The primary motivation for creating this system was to address the company's explicit and implicit needs with a complete and effective solution. "On-line shopping" offers a comprehensive answer to the problem of data duplication in different locations. Built on SQL Server with ASP.NET as the front end, this system boosts the organization's efficiency.

Using this system, the database is dynamically maintained. The developed system is user friendly; easy to learn apart from the entire above feature it needs minimal training time for the users. The system with strict access control procedure provides the needed security and authorization. This system totally ends on the data that has been entered by the personnel. Any false information in the order entry will lead to wrong decision. This package has been designed such that this can be extended to any extent that could help it being more efficient system.

Reference

Boustani, N.M., Sayegh, M.M., & Boustany, Z. (2022). Attitude towards Online Shopping during Pandemics: Do Gender, Social Factors and Platform Quality Matter? *Journal of Risk and Financial Management*, *15*(10), 474.

Purohit, H., Kalra, D., & Nair, H.K. (2023). Technology Acceptance Model and Attitude of Consumers towards Online Shopping with Special Reference to UAE. *International Journal of Computations, Information and Manufacturing (IJCIM)*, *3*(1), 35-48.

Rodelas, N.C., Rubio, A.J.M., Valdoz, J.J.R., Dimaano, K.M., Pasilan, A.A., & Cruz, E.B.D. (2023). Behavioral Analysis and Evaluation of Online Shoppers in the Philippines using the Proposed Online Shopping Website. *International Journal of Computing Sciences Research*, *7*, 1973-1985.

Billewar, S.R., Jadhav, K., Sriram, V.P., Arun, D.A., Mohd Abdul, S., Gulati, K., & Bhasin, D.N.K.K. (2022). The rise of 3D E-Commerce: the online shopping gets real with virtual reality and augmented reality during COVID-19. *World Journal of Engineering*, *19*(2), 244-253.

Darkhantuya, S., Davaasuren, T., & Park, Y. (2023). The Effects of Online Shopping Trust and Recommendation System Trust on the Customer Cross-Buying Intention: The Moderation Effect of Shopping Interest. *Business economics research*, *45*(3), 99-129.

Daffodil, M.I.N., & De Rose, V.J.L. (2023). A Study on the Impact of Website Design on Customer Satisfaction in Online Grocery Shopping. *Journal of Research Administration*, *5*(2), 4226-4237.

Misra, A.K., Goyal, K., & Maurya, J. (2023). Impact of social media advertisements on the dynamics of online shopping: a modeling study. *Differential Equations and Dynamical Systems*, *31*(3), 651-671.

Alzoubi, H., Alshurideh, M., Kurdi, B.A., Alhyasat, K., & Ghazal, T. (2022). The effect of e-payment and online shopping on sales growth: Evidence from banking industry. *International Journal of Data and Network Science*, *6*(4), 1369-1380.

Bailusy, M.N., Buamonabot, I., Fahri, J., & Arilaha, M.A. (2022). Online Shopping Indonesia: Customer Perception. *International Journal of Applied Business and International Management (IJABIM)*, *7*(2), 82-104.

Kofoworola, O.J., Mallo, M.J., & Mu'azu, U.A. (2022). Online Shopping Trend and Consumer Buying Behavior: A Survey of Final Year Students of the Abubakar Tafawa Balewa University, Bauchi. *International Academy Journal of Management, Marketing and Entrepreneurial Studies*, *9*(1), 29-42.