

# Online Shopping System

Nirojan.Y<sup>1</sup>, Lavaniyah.L<sup>2</sup>, Sayanthan.K<sup>3</sup>, Arivaran.T<sup>4</sup>, D. I. De Silva<sup>5</sup>, and S. M. D. T. H. Dias<sup>6</sup>,  
Faculty of Computing, Sri Lanka Institute of Information Technology,  
New Kandy RD, Malabe, Sri Lanka

**Abstract:-** A web-based shopping system called “Araz” is being developed for an existing store. The project's objective is to deliver the online shopping application on the web platform. This initiative aims to make online shopping accessible to customers of physical stores. Using web to shop for goods online from any location is helpful. As a result, the consumer will get his favorite store's online purchasing and delivery services. Any store in the neighborhood or international brands with retail outlet chains may use this approach. Shops won't lose any more clients to popular online retailers like Flipcart or eBay if they provide an internet gateway where their customers may purchase conveniently from anywhere. The application is readily available and constantly available since it is available on web.

**Keyword:-** Online shopping, web application, e-commerce.

## I. INTRODUCTION

A web-based shopping system is being developed for an existing store. The project's objective is to provide the web platform with the online shopping application. Buying products or services directly from a vendor online in real time without the need of a middleman service is known as online shopping. It is a specific type of online trade. With this initiative, physical store customers will be able to enjoy the advantages of online shopping. Using web to shop for goods online from any location is helpful. As a result, the customer's preferred retailer will offer home delivery and online shopping options.

Our E-Commerce Website, called "Aaraz," Is a Platform for Online Buying and Selling Our E-Commerce Website, called "Aaraz," Is a Platform for Online Buying and Selling Aaraz is an online purchasing and selling e-commerce platform that enables sellers to meet their expectations by selling the primary objective of this project is to provide a web-based shop for the sale of goods. It provides the customer with a list of the many things that may be purchased at the retail establishment. The user is provided with access to a shopping cart in order to facilitate more convenient online purchases. As a result of both the progression of technology and the wave of digitalization, an increasing number of firms are making adjustments to accommodate new technological developments. Both the salespeople at grocery stores and the folks selling goods on the street provide digital payment options.

### A. Project Objective

The project's goal is to create a web application that allows users to make purchases from an existing store. Such an application has to have full web support in order to be built. The main goal of the project is to create a comprehensive and effective web application that can provide an online shopping experience. An Android phone with a web view might be used to build the web application.

### B. Project Overview

The primary goal of the application is to enable users to shop virtually on the Internet and to buy whatever they want from the store. DBMS (Database Management System) is used to store the product-related information on the server (store). The server processes the orders, and the customers' provided shipping addresses are used to dispatch the goods. The program was split into two components. The clients who want to purchase the items comes first. The information on the products and the clients is updated and maintained by the storekeepers, who come in second. The web-based application is hosted, and the database is managed by the department store that purchases this product. When a customer selects an item from the menu using the application that is deployed at the customer database, the details of the item are brought forward from the database for the customer view, and the database of all the products is updated at the conclusion of each transaction. The application's data input may be done using a variety of screens created for users of varying experience levels. Several security-related reports might be created if authorized individuals enter the relevant data into the system.

### C. Project Scope

Any store in the neighborhood or international brands with retail outlet chains may use this approach. The concept suggests a facility that can take orders around-the-clock and a home delivery service that can satisfy clients. Shops won't lose any more clients to popular online retailers like Flipcart or eBay if they provide an internet gateway where their customers may purchase conveniently from anywhere. The application is readily available and constantly available since it is available on smartphones.

### D. Study Of the System

Buyer, Seller and Administrator are the users of the system. The super user of this program is the administrator. This admin page is only accessible to administrators. All user and product information is in the administrator's possession.

This module is divided into different sub-modules.

- Manage Store
- Manage Products
- Manage Users

- Manage Orders
- Manage Category

## II. LITERATURE REVIEW

As is common knowledge, internet and business transactions conducted online are fully committed to every industrialized nation. If an ideal commercial aim can be established, however, we believe that not only can it be achieved, but that it may also be of significant help to developing nations. E-commerce has been called a revolution and a turning point in online business practices, and it has the potential to make a significant contribution to the economy. Ohidujja man et. al. and Hasan et. al. both pointed out that in the present day, e-commerce organizations have increasingly become a fundamental component of business strategy and a powerful catalyst for economic development. E-commerce, which is essentially just another name for online buying, has been the subject of a massive amount of study over the years. The importance of online shopping, as well as its benefits and advantages, have recently come to the attention of a significant number of academics. On the other side, the researchers discovered a restriction of e-commerce, and at the same time, they offered an important proposal and arrived at a conclusion about how to make online shopping more helpful for customers. Yet, the role of traditional marketing cannot be ignored; however, in comparison to purchasing online, we believe that conventional marketing is less successful. Therefore, using this information, Mehrdad Salehi and his colleagues were able to determine the differences between internet marketing and conventional marketing. Even though the majority of individuals in Bangladesh, particularly those living in rural areas, do not have the internet-using skills to successfully manage an online company. Because of this, they have little choice but to rely on more conventional methods of marketing.

Williams, Bertsch, Wiele, Iwaarden, and Dale et al. [6] discussed clearly that although consumers continue to purchase from a physical store like traditional shopping, consumers feel very convenient to shop online since they find themselves free from personally visiting the stores. This was found to be the case even though consumers keep on purchasing from a physical store like traditional shopping. Therefore, we are able to claim that doing one's shopping online helps a customer save both time and effort when it comes to purchasing their goods. When it comes to shopping online, purchasing choices are able to be readily made from the comfort of one's own house by just sitting at one's own home. When doing your shopping online and comparing products with a wide variety of options and supplies, you may find that you have a pricing edge. The convenience of purchasing online makes it much easier to satisfy the requirements and preferences of customers. Brown et al. revealed in his article that consumers may now make better informed judgments than was previously feasible via conventional purchasing methods. This is something that was not achievable in the past. In addition, Monsuwé et al. conducted a review that said customers have the ability to make purchases while remaining anonymous, which is not only more convenient but also beneficial when

it comes to the purchase of personal items that customers may feel awkward purchasing in retail establishments. According to the findings of Brown et al., consumers who prefer to avoid crowded environments now have an easier time doing routine chores such as shopping for groceries. Richard Dobbs and his colleagues discovered that one of the primary ways that internet retail shops sell themselves is via offering cheap prices. For instance, Amazon.com employs this strategy in an effort to entice customers away from more conventional bookshops. The cheap prices offered by these online retail stores are contributing to a significant increase in consumer excess. According to the findings of a study conducted by Goldsmith and colleagues, some customers prefer to shop online in order to avoid face-to-face interactions with salespeople. These customers report feeling uneasy and uncomfortable while bargaining with salespeople and expressing a desire to avoid being manipulated and fooled around in the marketplace. For those clients who may have had a terrible encounter with the salesperson, this statement has a great deal of significance. In this section, Mohammad Harisur Rahman Howladar et. al. described in their paper that due to the up to date developing infrastructure of ICT in Bangladesh, online shopping intention among people is developed day by day, and consumers and marketers make a huge contribution to the national economy through e-commerce. Let's take a look at the most recent consumer data and age ranges for e-commerce in Bangladesh, where the bulk of online shoppers are young men (75% of the total). The age group of 26 to 30 years old is the most successful, accounting for 50 percent of the total consumer group.

The best way to think about electronic commerce is as a virtual version of an offline marketplace. Distributing, purchasing, selling, promoting, and servicing items or services through electronic systems such as the internet and other computer networks are the primary activities that make up electronic commerce [1]. Transactions are essential to the operation of any kind of company model. E-transactions are the name given to the business dealings that take place in an online marketplace. It may entail electronic cash transfers, payments made online, or even online credit card payments, among other possible examples. At some point in the process of the transaction's lifetime, electronic commerce will generally make use of the electronic communications technology provided by the World Wide Web.

## III. HISTORY

Over the course of the last three decades, the meaning of the phrase "electronic commerce" has evolved. Historically speaking, "transactions" and "commerce" relate to the conventional forms of doing business. E-commerce refers to the whole range of business procedures that are carried out through a network in order to support commercial company activities. This would have also required information analysis back in the 1970s and 1980s. In the 1980s, the proliferation and widespread use of credit cards, automated teller machines (ATM), and telephone banking were all examples of e-commerce in their own right. Nevertheless, beginning in the 1990s and continuing

ahead, this would come to incorporate enterprise resource planning systems (ERP), data mining, and data warehousing [7].

It came to include activities that were more precisely termed "Web commerce" during the dot com era. Web commerce is the act of purchasing goods and services over the World Wide Web, typically using secure connections (HTTPS, which is a special server protocol that encrypts confidential information). E-banking, offshore manufacturing, and e-logistics are only a few examples of the diverse array of corporate operations and procedures that are now included under its umbrella. The ever-increasing reliance of contemporary businesses on digitally enabled business processes was the driving force behind the expansion and development of supporting systems, such as backend systems, application software, and middleware. Examples include fiber-optic and broadband networks, inventory control systems, customer relationship management software, supply chain management software, and financial accounting software.

Electronic commerce, sometimes known as e-commerce, has garnered a lot of interest from the governments, corporations, and regional organizations of Asia. Several variables that converged to form this phrase have been credited with giving it its prominence. These factors include, first and foremost, the development of the use of the Internet as a means by which information is disseminated and through which communication and connectivity are enabled; and second, the affordability of personal computers, the increase in their computing capability, and the widespread use of open standards.

When conducting a transaction between a buyer and a seller in a commercial setting, there is generally a need for a tangible and long-lasting mode of communication in order to fulfill this requirement. The capacity to communicate in an electronic form that a computer is able to detect, duplicate, and save implies that business may now be performed in an environment that does not need the use of paper. This ability is made possible by e-commerce. The process of doing business through the Internet is known as electronic commerce. In this kind of commerce, a buyer goes to the website of a seller and completes the transaction there. In a less strict sense, it refers to transactions in which the Internet plays some part, such as providing the buyer with assistance in identifying and comparing items and/or vendors.

In spite of the many benefits that can be gained from engaging in e-commerce and e-transactions, the expansion of these forms of business will be hampered by the absence of a number of significant factors. These include trust, security, the inappropriate use of technology, incorrect or extraordinary information, privacy, categorizing customers and providing them with varying degrees of satisfaction. Because many people hold the belief that there is a one-to-one correspondence between trust and safety, one may consider trust to be an essential component of the equation. Concurrently, there is a direct connection to be made between trust and personal space or privacy. In order to

change the electronic marketplace into an environment that is conducive to conducting e-business and e-transactions, it is essential to have trust and confidence in the information and communication technologies.

#### IV. METHODOLOGY

System design is the solution for the creation of a new system. This phase focuses on the detailed implementation of the feasible system. It emphasizes on translating design specifications to performance specification. System design has two phases of development.

- Logical design
- Physical design

During logical design phase the analyst describes inputs (sources), outputs (destinations), databases (data stores) and procedures (data flows) all in a format that meets the user requirements. Additionally, the analyst describes the user's requirements to a degree that practically controls how information enters and exits the system and how data resources are used. Data flow diagrams and database design are used in this case for logical design. The physical design or coding comes after the logical design. By defining the design specifications, which specifically outline what the candidate system must accomplish, physical design creates the functional system. The programmers create the necessary programs that take user input, process the data once it has been accepted, and then print or display the required report as needed. Perform the necessary processing on received data and generate the needed report on paper or on the screen.

##### A. *Input And Output Design*

###### a) *Input Design*

Input design is the link that ties the information system into the world of its users. The input design includes identifying the inputs, verifying the data, reducing data entry, and providing a multi-user interface. Input inaccuracy is the leading source of data processing mistakes. Input design allows for the management of data entering operator errors. In the input design, user-generated inputs are translated to a computer-based format. The input data are gathered and put into sets of similar data. Once identified, the proper input medium for processing is chosen. All input data are checked, and a notice is shown to the user if any data violates any requirements. If all of the prerequisites are met, the data is moved to the proper database tables. User information must be provided during registration for this project. A user-friendly and straightforward website has been made as a result. The design ensures that users get suitable alerts when exceptions arise.

###### b) *Output Design*

The most significant and direct source of information for the user is computer output. Output design is a crucial step since output must be produced in an efficient way. Effective and understandable output design enhances the system's interaction with the user and facilitates decision making. Important to allow

the user to examine the sample screen since the user is the final arbiter of output quality. This system's output module is the chosen notifications.

**B. System Tools**

The various system tools that have been used in developing both the front end and the back end of the project are being discussed in this chapter.

**a) Front End**

REACT JS with MATERIAL UI are utilized to implement the frontend. A straightforward, feature-rich, component-based JavaScript UI library is called ReactJS. Both tiny and large, complicated applications can be created with it.

**b) Back End**

SPRINGBOOT is used to implement the backend. An open-source Java-based framework called Spring Boot is used to build micro-Services.

**c) Database**

In here we used MONGODB which is a document-oriented, cross-platform database called MongoDB offers excellent performance, high availability, and simple scalability. MongoDB utilizes the collection and document concepts.

**C. Diagrams & Tables**

**a) ER-Diagram**

The entity-relationship diagram [Figure 1] of the Shopping System "Araz" shows all the visual instruments of database tables and the relations between Shop, Product, User, Order etc. It used structured data to define the relationships between structured data groups of Shopping System functionalities. Moreover, the main entities of this shopping system are user, shop, order, payment, category, and address book.

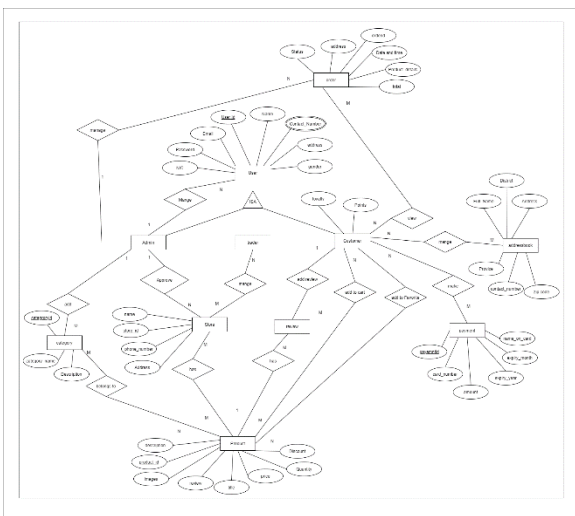


Fig. 1: This is the ER-Diagram of our webapplication "Araz"

**b) Tables**

Based on how online shopping is managed, the database for the online shopping system was created. Thus, the system should keep information on a customer whenever they make a purchase or place an order. The picture [Figure 2] show all tables which created for our system.

Fig. 2: All Tables which are used in the web application

Collection Name	Documents	Avg. Document Size	Total Document Size	Num. Indexes	Total Index Size	Properties
Category	12	141.5 B	1.7 KB	1	36.0 KB	
Order	4	490.8 B	1.9 KB	1	36.0 KB	
Product	11	790.0 B	7.9 KB	1	36.0 KB	
Store	3	382.7 B	648.0 B	1	36.0 KB	
User	11	489.2 B	5.3 KB	1	36.0 KB	

User Table [Figure 3] contains basic user details such as name, email, password, contact number etc.

#	_id ObjectID	password Object	last Object	loginEmail TextID	name String	email String
1	6340813a767c91767961	{ } 5 Fields	{ } 3 Fields	#	"sajeeb boyer"	"sajeebboyer@gmail.com"
2	634080e645496e40202	{ } 5 Fields	{ } 3 Fields	#	"Sajeeb Car"	"sajeebcar@gmail.com"
3	634080c3c9f0c05b89	{ } 5 Fields	No Field	#	"Sajeeb seller"	"sajeebseller@gmail.com"
4	63408022264474988861	{ } 5 Fields	No Field	#	"Sajeeb Akbar"	"sajeebakkbar@gmail.com"
5	6340803a5c5d1767961	{ } 5 Fields	No Field	#	"sajeeb seller"	"sajeebseller@gmail.com"

Fig. 3: User table and their attributes

Store Table [Figure 4] contains with the appropriate constraints such as name, email, address, contact number, user id etc.

#	_id ObjectID	storeName String	contactNo TextID	address Object	loginEmail String
1	634081f16c35806e8704	"Wojan Store"	712401300	{ } 3 Fields	"Wojan"
2	634080925a7c1f167961	"The Great Store"	786543211	{ } 3 Fields	"Wojan"
3	6340802a424f1200204e1	"Kamal Store"	793837893	{ } 3 Fields	"People bank"

Fig. 4: Store table and their attributes

Product Table [Figure 5] with the attributes such as product name, description, category, images etc.

#	_id ObjectID	title String	description String	price Double	category String	image Array
1	634080e645496e40202	"computer added test"	"A computer is a digital electr"	200000	"Electronic Device"	{ } 3 elements
2	634080e645496e40202	"Mac Laptop"	"A computer is a digital electr"	500000	"Electronic Device"	{ } 3 elements
3	634080f16c35806e8704	"MultiDrive Car"	"The year 2000 is regarded as t"	1200000	"Car"	{ } 3 elements
4	634080f16c35806e8704	"Bike Biker"	"Bicycles were introduced in th"	500000	"Bike"	{ } 3 elements
5	634080c3c9f0c05b89	"Headphone"	"Headphones are a pair of small"	200000	"Speaker"	{ } 3 elements
6	634080e645496e40202	"Bag"	"The bag founded by James Kelly"	20000	"Bagpack"	{ } 4 elements

Fig. 5: Product table and their attributes

This table [Figure 6] manages the store orders. A logged-in user can also be associated with the order. userid, payment, total, items are the description of all the columns of the Order Table.

#	_id ObjectID	userId String	total String	payment Boolean	address Object
1	6340803f16c35806e8704	"634080e645496e40202"	"1000000"	true	{ } 5 Fields
2	6340803f16c35806e8704	"634080e645496e40202"	"100000"	true	{ } 5 Fields
3	6340803f16c35806e8704	"634080e645496e40202"	"10000"	true	{ } 5 Fields
4	6340803f16c35806e8704	"634080e645496e40202"	"1000000"	true	{ } 5 Fields

Fig. 6: Order table and their attributes



c) Data Flow Diagram

The Data Flow Diagram (DFD) is a structured analysis and design tool used for flowcharting. This data Flow Diagram [Figure 7] is a network that depicts the data flow and the operations that modify or transform the data across a system. This network is built using a collection of symbols that do not imply a physical implementation. It has the purpose of clarifying system needs and significant transformation identification. The design process begins with the functional decomposition of the requirements specifications to the lowest degree of detail. DFD is an abstraction of the logic of an information- or process-oriented system flowchart. DFDs are often referred to as logical data flow diagrams for these reasons.

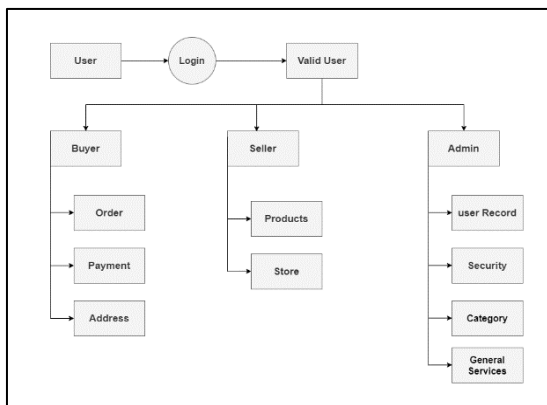


Fig. 7: Data Flow Diagram of this system

d) Project Architecture

This architecture diagram [Figure 8] is a visual representation of all the elements that are in our "Araz" web application.

Figure 8. The view of the Project Architecture of our system

e) Use case Diagram

In this system, buyer, seller, and administrator are the users. In the below [Figure 9] diagram we include what the main function of each user.



Fig. 9: The use case diagram of "Araz" system

V. PROPOSED SYSTEM

- **Purpose:** This interface [Figure 10] is used for the admin to manage users and they can generate report
- **Flow:** Initially Admin can view all registered users in the system, and he/she also can delete a particular user by clicking "DELETE" button. And he can generate report by clicking "generate report" button.
- **Good practices:**
  - Labels were given meaningful names and the first letter was capitalized and made sure there are no spelling mistakes.
  - Interface is designed by focusing on one task.

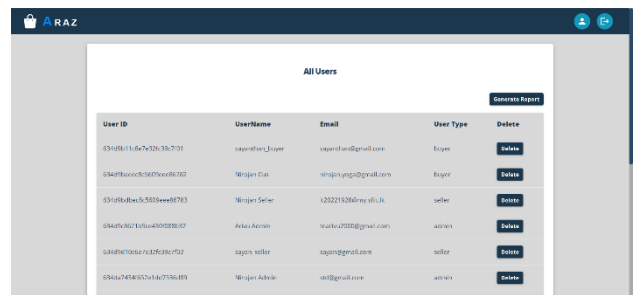


Fig. 10: User Interface of managing users

- **Purpose:** This [Figure 11] interface is used to view more images of the product and also used to read whole information about the product and used to add the review of the product.
- **Flow:** Initially users can see the images and view the whole description about a product. Users can also buy or add to cart of the certain product by clicking the "Buy now" button. And "Add to cart" Button. And also, customer can give the review and rating of the product.
- **Good practices:**
  - This interface was designed focusing on one specific task which is "replying customer review."
  - Very simple and brief information is given with simple English to the users.

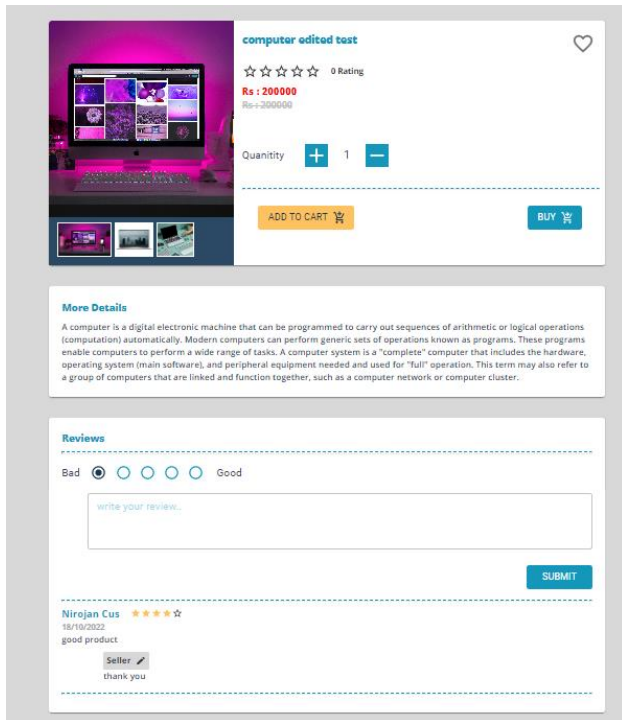


Figure 11. User Interface of product view

- **Good practices:**
  - The interface was designed by focusing on view all ordered item details.
  - The buttons were given meaningful names, and the first letter of each word was capitalized. In addition, it was made sure that there are no spelling mistakes.

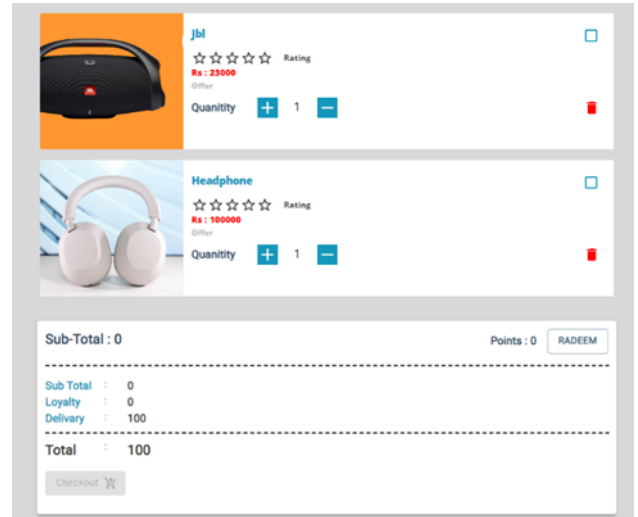


Fig. 13: User Interface of purchase view

- **Purpose:** This interface [Figure 12] is used to customer to view order status and customer can make Print invoice report.
- **Flow:** Initially, the customer first selects a particular order and views the order status.
- **Good practices:**
  - When the order status is changed, the customer will get Gmail.
  - Limit the contents on the list.

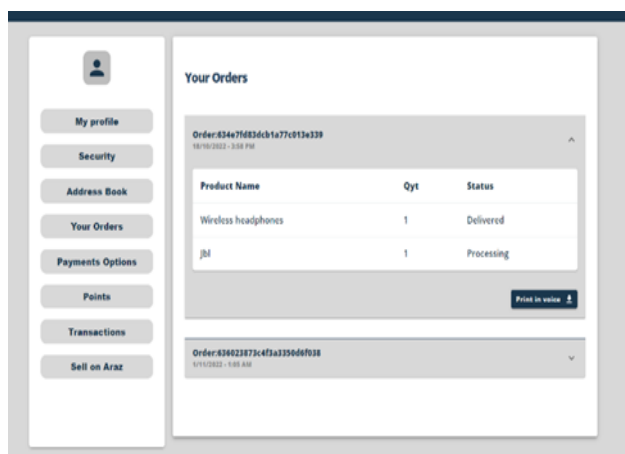


Fig. 12: User Interface of order management

- **Purpose:** This interface [Figure 13] will be used to view all the purchasing items which was added by customer, and it contains options to delete and another button for Added the quantity.
- **Flow:** Customer can view all ordered item details. If customer need to remove item record from the database, he/she should click on the delete button. If the customer wants to view item details, he/she can search by entering name. And also, customer can add the quantity of the item

## VI. DISCUSSION

The use of our online buying platform provides an opportunity to both reduce and increase these expenditures. Authorized Customers are exempt from the need that they physically bring the items they require from the shops in order to make their choice. They just use their own personal computers or mobile devices to browse the available online retailers, taking into consideration the ratings, descriptions, and pictures of the products before making their purchases. Additionally, the owners of the business are not obligated in any way to organize or display the items that are in their inventory.

E-commerce advantages lie in the fact that it may be accessed at any time of day or night, from any location in the world, and by a large variety of people. Availability, e-commerce sites allow customers to shop whenever they choose 365 days a year (barring downtime and maintenance). Traditional stores are only open at certain hours or on specific days of the week. While crowds of people shopping in a physical store might slow things down, the speed at which an e-commerce website loads depend on the computing power and data transfer capacity of both the consumer's device and the server hosting the website. The time it takes for pages like the one housing people cart and its contents to load is minimal. In less than five minutes, people may complete an online purchase with only a few mouse clicks.

Amazon's original tagline was "Earth's Biggest Bookstore" due to the company's huge inventory. This bold assertion was made possible by the fact that the company in question was an online retailer rather than a brick-and-mortar establishment that would have had to physically acquire and store each book individually. The convenience

of online shopping means that retailers may stock a broad selection of goods, ready to be delivered out from a central distribution center. Customers will have an easier time locating their desired products.

Comfortable availability, a customer shopping in a physical store can have trouble tracking down a certain item. The website's search function and category pages update in real time, allowing customers to discover what they need quickly. Brick-and-mortar retailers can reach consumers all around the world because they rely on customers actually coming into their establishments. E-commerce allows companies to offer their wares to anybody with an online connection. E-commerce might potentially increase a company's clientele.

## VII. CONCLUSION

The project entitled Online shopping system was completed successfully. The system was designed with great attention to detail, and as a result, it is error-free. Additionally, it operates quickly and takes up less of the user's available time. The objective of this project was to create a web application that could be used to make purchases from a store.

Because of this project, we were able to get useful information and hands-on experience on a variety of subjects, such as the design of web pages using REACT and MATERIAL UI, the application of responsive templates, and the administration of databases using MONGODB. The defenses are up across the board. In addition, the project assisted us in gaining a grasp of the various stages of project development and the software development life cycle. We gained an understanding of how to test the many components of a project. Because of this project, we now have a great deal of pleasure in having built an application that, with a few simple tweaks, can be applied to any neighborhood businesses or branded shops offering a wide variety of items.

## VIII. FUTURE WORK

Our idea allows for a significant amount of room for expansion of its current capabilities. In the future, a number of features may be added to this system. One of these features is the ability to provide customers with magnified experiences is to anticipate their needs and deliver their preferred products and brands at the ideal time and location. Artificial intelligence may gather information and predict customers' requirements by using their search or browser history, interactions on social media, visits to physical stores, etc. To create effective shopping experiences, retailers can simply manage their inventory and better select their product lines.

Another feature that we wanted to include was the ability to categorize clients into various groups so that we could provide unique deals to each group. It's possible for the system to retain a record of each customer's purchasing history and then make recommendations based on that information. These features may have been introduced provided that time constraints had not been a factor.

## REFERENCES

- [1.] Babenko, V., Kulczyk, Z., Perevosova, I., Syniavska, O. and Davydova, O., 2019. Factors of the development of international e-commerce under the conditions of globalization. In SHS Web of Conferences (Vol. 65, p. 04016). EDP Sciences.
- [2.] Bhatti, A., Akram, H., Basit, H.M., Khan, A.U., Raza, S.M. and Naqvi, M.B., 2020. E-commerce trends during COVID-19 Pandemic. International Journal of Future Generation Communication and Networking, 13(2), pp.1449-1452.
- [3.] Boysen, N., De Koster, R. and Weidinger, F., 2019. Warehousing in the e-commerce era: A survey. European Journal of Operational Research, 277(2), pp.396-411.
- [4.] Escursell, S., Llorach-Massana, P. and Roncero, M.B., 2021. Sustainability in e-commerce packaging: A review. Journal of cleaner production, 280, p.124314.
- [5.] Fatonah, S., Yulandari, A. and Wibowo, F.W., 2018, December. A review of e-payment system in e-commerce. In Journal of Physics: Conference Series (Vol. 1140, No. 1, p. 012033). IOP Publishing.
- [6.] Kwilinski, A., Volynets, R., Berdnik, I., Holovko, M. and Berzin, P., 2019. E-Commerce: Concept and legal regulation in modern economic conditions. Journal of Legal, Ethical and Regulatory Issues, 22, pp.1-6.
- [7.] Lin, X., Wang, X. and Hajli, N., 2019. Building e-commerce satisfaction and boosting sales: The role of social commerce trust and its antecedents. International Journal of Electronic Commerce, 23(3), pp.328-363.
- [8.] Mainardes, E.W., de Souza, I.M. and Correia, R.D., 2020. Antecedents and consequents of consumers not adopting e-commerce. Journal of Retailing and Consumer Services, 55, p.102138.
- [9.] MohdSatar, N.S., Dastane, O. and Ma'arif, M.Y., 2019. Customer value proposition for E-Commerce: A case study approach. International Journal of Advanced Computer Science and Applications (IJACSA), 10(2), pp.454-458.
- [10.] Pantelimon, F.V., Georgescu, T.M. and Posedaru, B.Ş., 2020. The impact of mobile e-commerce on gdp: A comparative analysis between romania and germany and how covid-19 influences the e-commerce activity worldwide. Informatica Economica, 24(2), pp.27-41.