E-Commerce of Online Store Applications at Kstore Kalbis Institute

Nuraini Purwandari
Study Program Information System, Faculty of Creative Industry, Kalbis Institute
Jl. Pulomas Selatan Kav.22, East Jakarta 13210
nuraini.purwandari@kalbis.ac.id

Abstract – *Kalbis Institute Cooperative is an association established at Kalbis Institute, one of the private universities in East Jakarta. One of the business activities in this Cooperative is buying and selling merchandise contained in a store called Kstore. Currently, the Kstore sales system is still conventional waiting for customers to come to the store so it is less effective because the customer must come directly to the store to find and choose the desired goods. E-commerce is a process of selling and purchasing products or services that are done electronically through a computer network or internet. E-commerce can be used in managing Kstore to improve and simplify business process activities. This study aims to build Kstore merchandise buying application online. System development method used is Web Development Life Cycle (WDLC). The results of this research is e-commerce website to facilitate customers in conducting transactions as well as promotions or product offerings, and ordering products anytime and anywhere by utilizing internet technology.*

Keywords: e-commerce; cooperative; online store; WDLC

INTRODUCTION

This Kalbis Institute Cooperative is one example of an association established at the Kalbis Institute, one of the private universities in East Jakarta. This Cooperative was founded by a group of Kalbis Institute employees who have a goal to improve the welfare of members, especially to meet the needs of members and as a first aid for family emergency needs. This community business activity consists of businesses and savings and loans.

Kstore is the name of the online store which was inaugurated in February 2016 which is located at Kalbis Institute Basement floor, which provides office stationery, books related to lectures, photocopy services, file printing services and various other items. This shop makes it easy for employees and students to buy and get support for lecture activities.

The sales system used in Kstore is conventional today, which is to wait for customers to come to the store so that it is less effective because customers must come directly to the store to find and select the desired item. In addition, the promotion of Kstore merchandise still uses social media facilities such as Instagram and Facebook because it does not have an Online Shop so sales are still minimal.

The solution proposed to overcome the Kstore problem in developing its sales business is the online trading system. E-Commerce is the practice of buying and selling goods and services trough online consumer services on the Internet. The e-commerce, ashortened from electronic, has become a popular prefix for other terms associated with electronic transaction (Barkatullah & Prasetyo, 2005)

With the Online Shop, Kstore can be used as a marketing and promotion tool and facilitate the sale and ordering of goods through the internet. The advantage gained by using transactions through e-commerce is to increase revenue by using online sales which are cheaper and at the same time operational costs such as paper so that the cooperative management of the business development section no longer needs to manually make sales notes. Based on the description, the researcher conducted a study to build a website application that can accommodate those needs, namely building E-Commerce of Online Store Applications at Kstore Kalbis Institute.

In this study there are some restrictions on the problems that are carried out, namely this system presents sales information including information on the type of product and ordering products. Customers can easily and quickly access the Kstore online shop via their own computer or

smartphone. The process of ordering goods displayed on the web only reaches the payment process that must be done by the customer. The purpose of this study is to build E-Commerce of Online Store Applications at Kstore Kalbis Institute to facilitate broader sales promotions by utilizing internet media and making it easier for customers to make transactions online.

LITERATURE REVIEW

In this section the researchers conducted a literature study on previous research related to the same theme as the researchers did regarding the Cooperative E-commerce website. According to Dionne and Yuli Karyanti in 2013 in the Information Systems journal entitled Dhanamas Cooperative Website Application Using Adobe Dreamweaver and PHP My SQL explained that the DHANAMAS Cooperative aims to create a Web of trade for its cooperatives in order to facilitate members and non-members can make purchase transactions. By using a MySQL database, the database has six tables, namely the admin table, product table, member table, order data table, order detail table and shopping table. This application has passed three stages of testing, testing of applications, testing of admins and testing of users. The results of the tests carried out showed that the application was sufficient to be used (Luhukay & Karyanti, 2013).

The second study according to Syahrial and Sharipuddin in 2016 in the Information Systems management journal entitled Analysis and Design of Web-Based Cooperative Information Systems in Pandan Jaya Gerai Village Unit Cooperatives explained that the Pandan Jaya Geragai Village Unit Cooperative was one of the Cooperatives in Indonesia that had not yet utilized the use of the system and information technology optimally. Seen from the absence of an integrated information system between one another, so that there are still some obstacles in the processing of cooperative data, including inconsistencies and data redundancies, lack of accuracy of data, the length of the process of finding data, and the difficulty of spreading information about cooperatives to members . To overcome these problems a web-based Cooperative information system is needed. This Cooperative information system is designed using the PHP programming language and to illustrate the results of system analysis and design a structured modeling technique is used in the form of DFD and ERD. The output of this research is a web-based cooperative information system prototype design at the Pandan Jaya Village Cooperative Unit in Geragai. With the existence of a cooperative information system, it is expected to provide a platform in the form of a web that can do data processing well and is integrated, and can help disseminate information to all interested parties (Syahrial & Sharipuddin, 2016).

The third study according to Fauyhi Eko Nugroho in the 2016 Symmetrical Journal entitled Design of Online Sales Information System Tokoku Case Study explains that Tokoku engaged in clothing sales still uses conventional sales systems, where buying and selling transactions are carried out by directly coming to the store. Therefore we need a system that can overcome the problem of space and time, where consumers can order products from anywhere and anytime. The research method that will be used in this research is a descriptive method by conducting case study research that analyzes how Tokoku can sell its products to customers. With this online sales information system can help Tokoku to increase sales (Nugroho, 2016).

Based on the explanation of the three study, it produced a cooperative management information system, but it was still in the design of a web-based prototype, whereas in the E-Commerce Of Online Store Applications at the Kstore Kalbis Institute would be carried out through the internet in the form of an E-Commerce website in increasing its sales.

The difference of the present research with the previous research is on the payment method of trade transactions, where the Online Store application in Kstore has a choice of payment methods in accordance with the procedures running at the Kalbis Institute Cooperative, namely a system of salary deductions, cash and transfers for Cooperative members and for non-cooperative members only transfer system only. In addition, this research uses internet technology to conduct online sales on websites and uses the Web Development Life Cycle (WDLC) method in website development.

The research activities will begin in 2017 until 2019 according to the expected start and end dates that have been targeted to complete the research on time. The research period and the percentage of research implementation are shown in Table 1.

Table 1. Justification of the Research Period

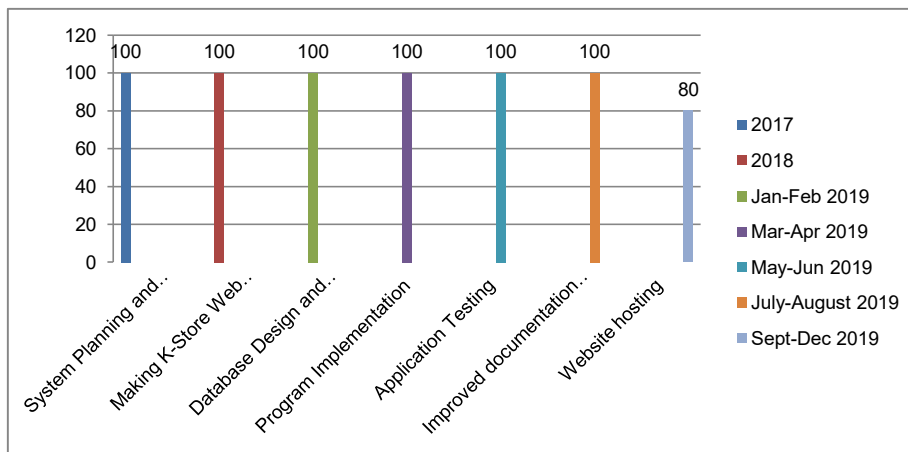| Activities	2017 (%)	2018 (%)	2019 (%)				
			Jan-Feb	Mar-Apr	May-June	July-August	Sept-Dec
System Planning and Analysis	100						
Making K-Store Web Prototype		100					
Database Design and System Modeling			100				
Program Implementation				100			
Application Testing					100		
Improved documentation and application based on user input						100	
Website hosting							80

Source: (Purwandari, 2017)

Figure 1. Chart of the Research Period
Source: (Purwandari, 2017)

Information System is a combination of information technology and the activities of people who use that technology to support operations and management. In a very broad sense, the term information system that is often used refers to interactions between people, algorithmic processes, data, and technology. In this sense, the term is used to refer not only to the use of information and communication technology (ICT) organizations, but also to the way in which people interact with this technology in supporting business processes (McLeod, 2008). Information system is a system within an organization that meets the needs of daily transaction processing that supports organizational functions that are managerial in the strategic activities of an organization to be able to provide to certain outside parties with the reports required (Sustanta, 2003).

According to Law of the Republic of Indonesia Number 17 of 2012 concerning Cooperatives, Cooperative is a legal entity established by an individual or a Cooperative legal entity, with the separation of the wealth of its members as capital to run a business, which fulfills common aspirations and needs in the economic, social and cultural fields in accordance with Cooperative values and principles (Enterprises, 2012).

The internet is a is the largest network that connects computer networks that are spread throughout the world and are not tied to another organization. The internet can also be interpreted as a wide and large global computer network, which connects computer users throughout the world, where there are various information resources from static to dynamic and interactive (Kadir, 2010).

E-commerce is an online channel that can be reached by a person through a computer, which is used by business people in carrying out their business activities and is used by consumers to obtain information using computer aids which in the process begins by providing information services to consumers in making choices (Kotler, Philip, & Armstrong, 2012). E-commerce is the process of buying and selling and marketing goods and services through electronic systems, such as radio, television and computer networks or the internet (Wong, 2010).

WDLC stands for Web Development Life Cycle which means the life cycle (process) of developing a web. The Web Development Process can also be classified into various steps of the development life cycle such as traditional software development processes. Basically, Web development is the process of designing a website for the World Wide Web using various programs and designing technology (Aziz, Gao, Koronios, & Sulong, 2012). The stages of Web Development Life Cycle are shown in Figure 2.

Figure 2. General Web-based Development Life Cycle
Source: (Aziz, Gao, Koronios, & Sulong, 2012)

It is clear that the only major difference between SDLC and WDLC is the publishing stage, which makes a total of six stages in the WDLC for developing web-based information systems. The names of all the stages except the publishing stage still remain similar as to the SDLC stages but the roles reflect the nature of the web environment. This WDLC is taken as a basis to conduct further research through case studies in order to seek whether its stages are being employed by web practitioners (i.e. web development team that consists of project managers, analysts, developers and designers), to develop web-based information systems.

METHODS

Research methods relate to the procedures, tools, and research design used in conducting the research. The process stages in this study flow in accordance with the logical and systematic flow. The following is an explanation of the steps taken to conduct research on Kstore Kalbis Institute. The stages of this research are shown at Figure 3.
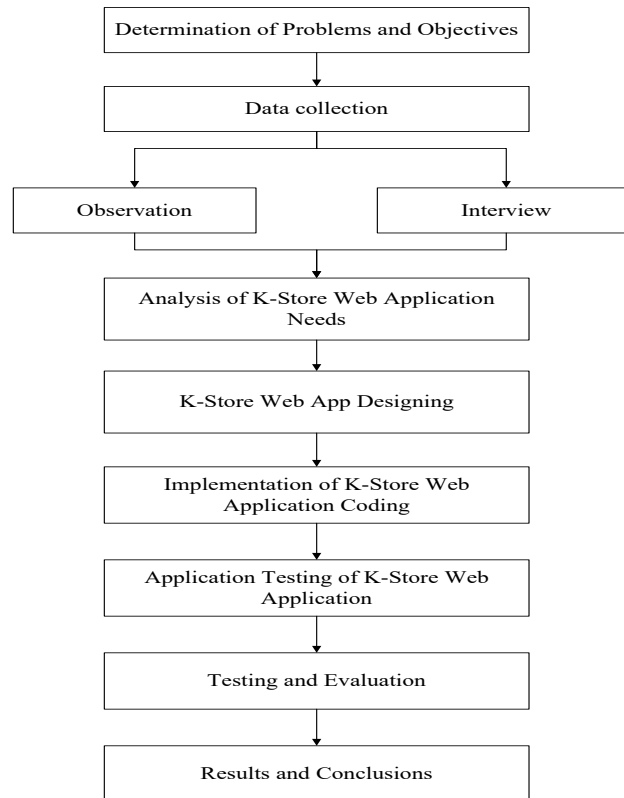
Figure 3. Research Stages

The following is an explanation of the steps taken to conduct research on E-Commerce Of Online Store Applications At Kstore Kalbis Institute.

Identification of Problems and Purposes

The researcher determines the problems that are currently occurring in this cooperative, where the system used by the cooperative is currently still running the business process using manual methods. The sales system used in Kstore is conventional today, which is to wait for customers to come to the store so that it is less effective because customers must come directly to the store to find and select the desired item. In addition, the promotion of Kstore merchandise still uses social media facilities such as Instagram (storehouse), Facebook (Kalbis cooperative) and WhatsApp group because they do not have an Online Shop so sales are still minimal.

Based on the problems described,the researcher had the idea to build E-Commerce Of Online Store Applications At Kstore Kalbis Institute. The features possessed by the system is a user login menu as a Kstore customer that functions to enter the main page of the website. The home menu that functions as a home page or main page consisting of menu options for viewing products, ordering and testimony. The product catalog menu functions to search for products that customers want consisting of the categories of fashion, stationery (office stationery), souvenir Kalbis, gadgets, credit, food and beverages. The ordering and payment menu functions to display the order process information and make product payments. In addition there is also our profile menu and testimonials that contain information about the history of Kstore and customer reviews of products sold at Kstore.

Data Collection

Interview

At this stage the researcher conducts interviews with parties related to the ongoing system problems. The researcher conducted an interview with the Chairperson of the Cooperative to get information about the problems faced by the Cooperative, system requirements, and system design according to the needs of the cooperative.

Observation

This stage the researcher made a direct observation of the activities carried out by the Cooperative in managing and processing the data and making reports in accordance with the needs of the cooperative. The purpose of the observations made by researchers is to get the right information about the problems that are happening.Analysis of Kstore Web Application Needs.

This stage the researcher conducted a needs analysis for the system to be made by the researcher. Analysis of system requirements contains factors that influence the making of systems (software and hardware) used by researchers. Based on research activities for systems that are running at this Cooperative, it can be concluded that there is some information that can be analyzed. The information is shown in Figure 4.

Figure 4. Chart of Analysis of Kstore Web Application Needs

Design Application

This stage the researcher designs the display for E-Commerce of Online Store Applications At Kstore Kalbis Institute which include the user login menu, home menu, product catalog menu, way menu and ordering items, history menu and customer review menu.

A. Coding Application

This stage the researcher conducts the coding based on the analysis, design and modeling that the researcher has done. This stage is done to create programs by writing scripts using the PHP, CSS, and Java Script programming languages.

B. Testing Application

This stage the researcher conducts testing of the system that has been built in such a way. Researchers use the blackbox testing method and are carried out directly by users who are directly related to the system.

C. Result and Conclusions

The last step that will be carried out by the researcher is evaluating the entire system that has been built. After including the results of the researchers provide conclusions based on research that has been done.

RESULTS and DISCUSSION

System Design with Usecase Diagrams

The usecase diagram describes the flow or procedure of customers, cooperative staff or admin as an actor who explains what activities are carried out in the process of selling Kstore Kalbis Institute merchandise. The description of the actors involved in the system is shown in Table 2.

Table 2. Usecase Diagram Description

User	User Needs
Admin	1. Log in. 2. Make changes to product catalog data. 3. Make changes to the payment method. 4. Print transaction reports. 5. Make changes to testimonials. 6. Make changes to access rights. 7. Log out.
Kstore customer	1. Log in. 2. Look at the product catalog. 3. Carry out the transaction process. 4. View, delete and add transactions to the shopping basket. 5. Enter testimonials. 6. Confirming payment. 7. Log out.

The use case diagram of Kstore sales activities can be shown in Figures 5.
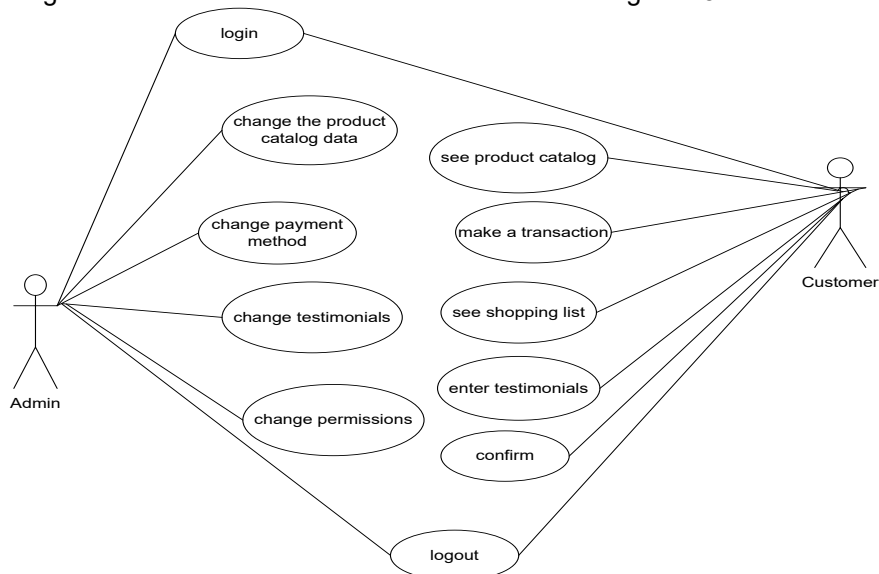

Figure 5. Usecase Diagram

Website Display Result

At this stage is the result of the implementation of e-commerce applications online store in Kstore which consists of displaying home menu, product catalog menu, Kstore profile, shopping cart and transaction which can be seen in Figures 6 to 10.
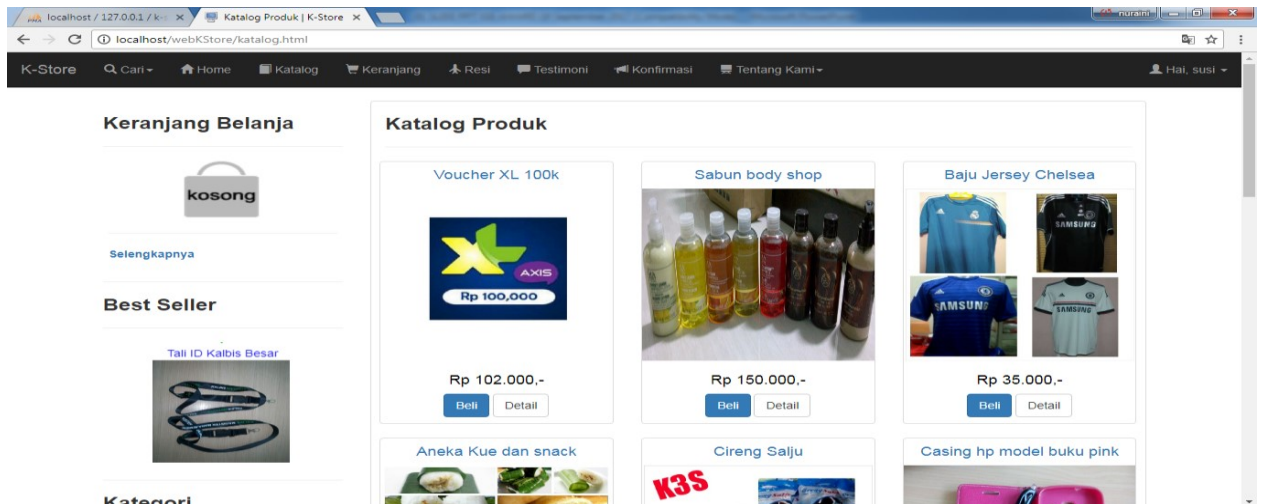

Figure 6. Display of Kstore web home
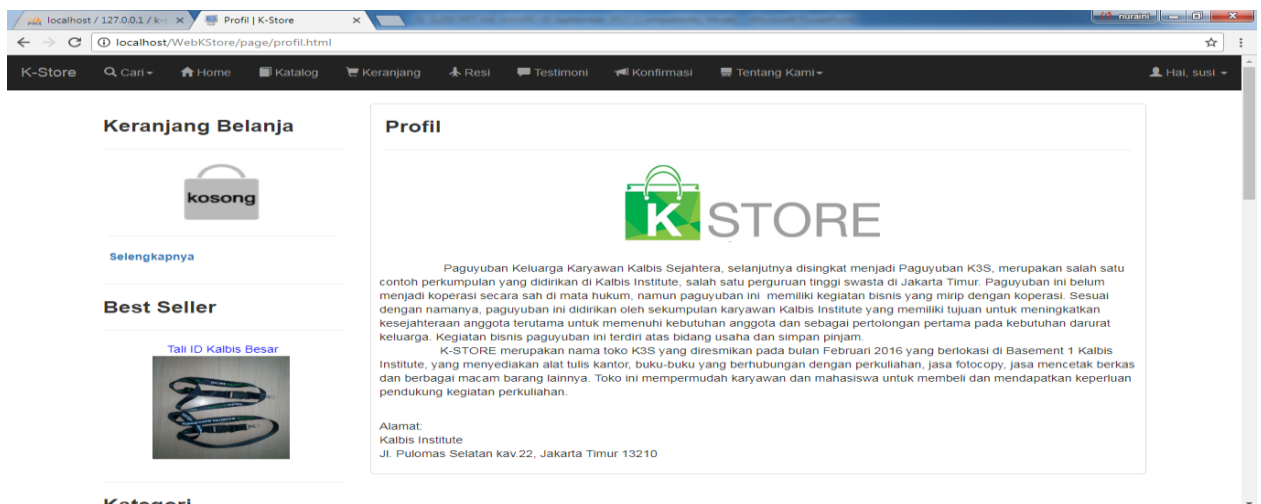
Figure 7. Display of Kstore product catalog

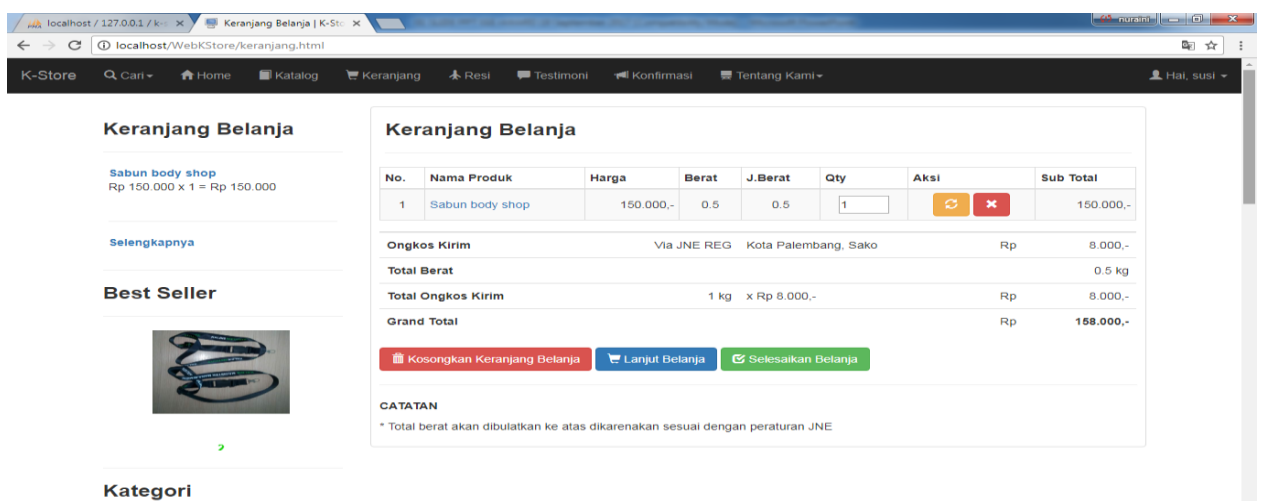**Figure 8. Display of K3S Profile**

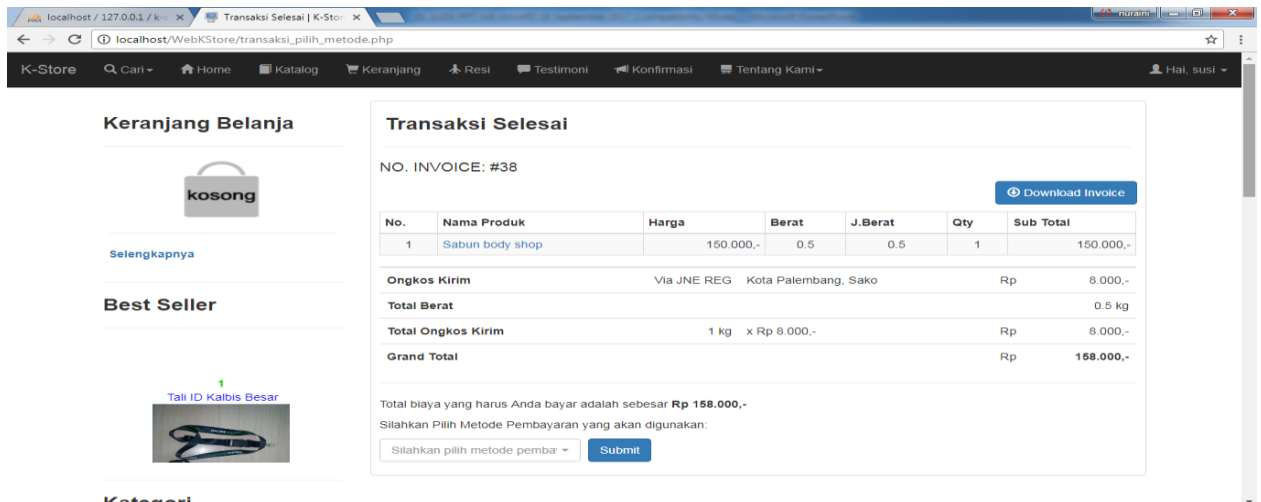**Figure 9. Display of Shopping cart**

Figure 10. Display of Kstore transaction

Testing Scenario

The trial was conducted to find out the advantages and disadvantages of e-commerce applications online store in Kstore. For this trial the existence of the user is very necessary considering that in business, the application must be adapted to the needs that have been documented initially. If the trial process has been approved by the user (called the User Acceptance Test - UAT) then the application can be socialized to the user through the implementation phase. The following testing tables have been conducted for the heads of cooperatives and cooperative staff.

Table 3. Testing Scenario

Test class	Test type	Test item
User login page	Fill in customer ID data, and password and display data	Black box
Home page display	Display the main menu and image information	Black box
Product Catalog menu	Display a list of product catalogs	Black box
Ways and ordering good display	Displays information on how to order goods	Black box
Items profile menu	Displays information about the history of the Cooperative	Black box
Testimonial menu	Fill in data and display information	Black box
Confirmation menu	Fill in data and display information	Black box
About Us display	Displays address information and contacts and Cooperative social media	Black box

Test Item

Testing is done by testing each process and possible errors that occur for each process. This test is carried out in a black box, ie testing is done by only paying attention to input to the system and output to the system. Black box testing is shown in Table 4.

Purwandari, Nuraini. (2019). E-Commerce of Online Store Applications at Kstore Kalbis Institute.

46

Table 4. Test Item

Test class	Input Class	Which are Expected	Observation	Conclusion
User login page	Fill in customer ID data, and password and display data	Login successfully and enter the main menu display	Successfully logged in and entered the main menu	Accepted
Home page display	Display the main menu and image information	Showing the main menu page, can see the categories of goods sold	Can display information on the main menu of the Kstore website	Accepted
Product Catalog menu	Display a list of product catalogs	Displays product catalog information including item name, item price, stock and item specifications	Can display product catalog information including the name of the item, price of goods, stock and specifications of goods	Accepted
Ways and ordering good display	Displays information on how to order goods	Displays information on the steps for ordering goods and payment	Can display information on steps to order goods and payment	Accepted
Items profile menu	Displays information about the history of the Cooperative	Displays historical information about the Kalbis Cooperative	Can display historical information about the Kalbis Cooperative	Accepted
Testimonial menu	Fill in data and display information	Input purchase reviews	Can display historical information about the Kalbis Cooperative	Accepted
Confirmation menu	Fill in data and display information	Input proof of payment	Successfully entered payment receipt	Accepted
Abou Us display	Displays address information and contacts and Cooperative social media	Displays address information and contacts and Cooperative social media	Can display address information and contacts and cooperative social media	Accepted

From the test it can be concluded that the website created by the researcher can be accepted and implemented at the Kalbis Institute Employee Cooperative well. This application functionally produces results in accordance with the expected results so that they can be useful and used later by the Kstore.

CONCLUSION

In this research, an e-commerce online store application was produced in Kstore that was able to provide convenience for the Kalbis Institute academic community in buying Kstore merchandise through internet media. Kstore website-based sales application features that include user login menus, home menus, product catalog menus, menu items and goods orders, history menus and customer review menus. The online e-commerce application store in Kstore was built using the programming languages PHP, HTML, CSS, and MySQL. The results of testing the Kstore website functionally produce results in accordance with the expected results so that they can be used and used later by Kstore.

From the analysis and the results of testing the E-Commerce website that must be improved, that is adding a menu to track shipments and the report menu that is presented is made in a table format that can be exported into an excel or pdf file. On the display of the Kstore website is still simple, so it needs to be added background and compatibility of writing colors to make it easier to read.

REFERENCES

Aziz, A., Gao, J., Koronios, A., & Sulong, M. S. (2012). A Methodology for the Development of Webbased Information Systems: Web Development Team Perspective. *Eighteenth Americas Conference on Information Systems.* Seattle, Washington: AMCIS.

Barkatullah, A. H., & Prasetyo, T. (2005). E-Commerce Business, Study of Security and Legal Systems in Indonesia. Yogyakarta: Student Library.

Enterprises, M. o. (2012). *Law of the Republic of Indonesia Number 17 of 2012 About Cooperatives*.

Kadir, A. (2010). Introduction to internet. Yogyakarta: Andi.

Kotler, Philip, & Armstrong, G. (2012). Marketing Management. New Jersey: Pearson Prentice Hall, Inc.

Luhukay, D., & Karyanti, Y. (2013). Dhanamas Cooperative Website Application Using Adobe Dreamweaver and PHP MySQL. *Information System* .

Martin, F. (2005). UML Distilled Edition 3. Yogyakarta: Andi Offset.

McLeod, R. (2008). *Management Information Systems.* Jakarta: Salemba Empat.

Nidhra, Srinivas, & Dondeti, J. (2012). Black Box Testing and White Box Testing Techniques - A Literature Review. *International Journal of Embedded Systems and Applications (IJESA)*.

Purnomo, C. H. (2010). Panduan Belajar Otodidak Microsoft Power Point 2007. Jakarta: Mediakita.

Purwandari, N. (2017). *Aplikasi Penjualan Berbasis Web (E-Commerce) Pada K-Store Kalbis Institute.* Jakarta: Program Studi Sistem Informasi Institut Teknologi dan Bisnis Kalbis.

Sustanta, E. (2003). *Management Information Systems.* Yogyakarta: Graha Ilmu.

Sutisna, D. (2008). *7 Easy Steps to Become a Webmaster.* Jakarta: Media Kita.

Syahrial, & Sharipuddin. (2016). Analysis and Design of Information Systems Web Based Cooperatives in Village Unit Cooperatives Pandan Jaya Geragai. *Information Systems Management, 1*, 80-94.

Wong, J. (2010). Internet Marketing for Beginners. Jakarta: Elex Media Komputindo.