# E-Commerce System for Media Group Cooperative

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*Abstract*— **E-Commerce is a way to shop online, where it is easier to process transactions between sellers and buyers without having to meet face-to-face. During the covid-10 pandemic, face-to-face activities should be reduced to prevent the transmission of covid-19 virus. Based on these conditions, it is necessary to create an e-commerce system for the media group employee cooperative so that buying and selling transactions can continue. The SDLC waterfall method was used to identify suitable and appropriate features. The tools used were Visual Studio code and Heidi SQL. The results of this research are an e-commerce system made using PHP, JavaScript, Bootstrap, and CSS for the front end and back end of the website. The proposed system can accommodate buying and selling transactions online and reduce the possibility of data loss in cooperatives.**

*Index Terms*— **cooperatives; e-commerce system; waterfall methodology; web-based system**.

## I. INTRODUCTION

Because technological developments are closely related to knowledge, technological advances in this era are inevitable [1] technology provides many conveniences for humans. The development of communication technology in this world is growing rapidly, with the ability to interact and communicate with individuals and groups using the internet [2]. If people want to get information, they just need to use the internet. This makes the activity more practical. The impact of technological advances is that the exchange of information will be easier and faster, easier to work with, more effective and efficient.

With the development of technology and communication, many services have sprung up [2]. One of them is the use of digital cooperatives. The development of technology and communication in cooperatives at this time has penetrated online such as the existence of an e-commerce website. E-commerce users are now a requirement for organizations or companies, so that the company can develop/compete globally [3]. E-commerce will change all marketing activities and at the same time cut operational costs for trading activities (trading).

Media Group has an employee cooperative called KOKARMINDO, which has 1,500 members. Members of this cooperative are permanent employees within the scope of the media group. By having this number of members, this cooperative is required to improve its performance to be more optimal in serving its members. The conditions of the COVID-19 pandemic have caused a division of work schedules, namely work from home (WFH) and work from office (WFO). The division of work schedules causes the cooperative to not be busy, product sales decrease, and it is difficult to disseminate information about cooperative programs or the latest news that is happening in the cooperative.

Therefore, we need an e-commerce website that aims to provide services such as selling goods in cooperatives, disseminating information about motorcycle sales, discount promos for holidays, etc. Cooperative members can easily get information about ongoing programs at the cooperative.

## II. LITERATURE REVIEW

### A. Theory

Cooperatives are one of the economic boosters for the community, become a driving force for the national economy and become a supporter in the economy of the State of Indonesia [4]. According to Rosa, "Cooperatives are associations of people who voluntarily unite themselves in improving their economic welfare by making a business entity managed democratically [5]. From the various meanings of cooperatives, we can conclude that cooperatives are institutions or business entities that have a member in improving their economy as a form of team that is voluntary based on kinship.

SDLC is a model of SDLC (Software Development Life Cycle). for development systems that have been replaced by other means, attempts to overcome one of the shortcomings inherent in traditional SDLC [6]. Development (SDLC) is a methodology that can be used in the description of the process in designing an information system [2], to carry out system development in a structured way.

### B. Previous Study

This research is based on several previous studies. The first research entitled analysis and design of web-based e-commerce systems in students cooperatives [7].

The research resulted in an e-commerce system for student cooperatives that provides various products for student needs. Just like the previous research, this research also builds an e-commerce system for cooperative companies. The second research entitled web-based e-commerce design and business transaction notification system in klister networking system [8]. This research is used as a reference for website design that provides authority to administrators as website managers. The third research entitled designing e-commerce application to increase UMKM revenue [9]. This research is used as a reference for designing a website using waterfall methodology.

## III. RESEARCH METHODOLOGY

### A. Research Object

The discussion this time will discuss the cooperative which will be the object of this research in the media group employee cooperative, this cooperative was established to help improve the welfare of employees under the auspices of the Media Group. The establishment of Kokarmindo is a Media Group employee cooperative to help provide various needs, such as merchandise, housing, loans, and so on. Currently, Kokarmindo is one of the largest cooperatives in West Jakarta with 1,458 members and 9 business units under the Media Group.

The process of selling various needs is quite long due to the information process. By being one of the largest cooperatives in West Jakarta, it is possible that this cooperative has shortcomings, this can be seen in the sales process and has difficulty in recapitulating data and disseminating information about current programs. cooperatives are held for members; the process is still done manually so that sometimes it slows down performance. This problem can hinder cooperatives in achieving their vision and goals.

### B. Research Methods

The method that can be applied is the waterfall method. The waterfall method can be applied because this method is first carried out to create a flow of the system running process that will be applied to the problems contained in the Media Group Employee Cooperative, namely the process of buying and selling transactions and informing members about programs or information that is currently happening in the cooperative. The system development is done sequentially using the waterfall method [12]. In the early stages of the waterfall method, interviews were conducted with the Media Group Employee Cooperative then given a solution, namely implementing an information system in the form of e-commerce that can assist in making sales. Then a system is made in the form of news on the e-commerce website that is needed and implemented in the Media Group Employee Cooperative.

### C. Data Collection Techniques

Data collection is done by means of in-dept interview. In-dept interview is the process of obtaining information to obtain research objectives by conducting questions and answers while meeting the interviewer face to face with the interviewee [10].

With data obtained through interviews with cooperative management and related parties, namely the chairman of the cooperative and 2 cooperative staff, questions were asked during the interview about how the conditions in the cooperative currently, what problems are being faced, how to deal with the problem, how often and what solutions will be taken. [11] From the interview, you will get the variables needed in making a website and implementing it.

## IV. ANALYSIS AND DISCUSSION

### A. Analysis

At this stage an interview was conducted with the chairman of the cooperative, they are Mr. Andreas and Mr. Zay from the media group employee cooperatives. The interview process aims to get information about the data and also an overview of the ongoing business processes in the cooperative so that the functional system that will be needed when designing the system can be known.

Based on the results of interviews conducted with the chairman of the media group employee cooperative on January 20, 2022, with a duration of approximately 45 minutes, from the results of the interview it is known that the current state of business processes, documents and several problems occur in cooperatives, especially in sales monitoring problems. The number of members of the media group employee cooperative is approximately 1,500 members.

The main problem faced is that the sales system at this cooperative is still done manually, users have to make purchases via WhatsApp, especially during this pandemic, employees find it difficult to get information about goods sold by cooperatives. The next problem is the recording of sales and expenditures of goods that are still recorded and stored in the form of a Microsoft Excel file, then also when checking the stock of goods is still done manually, so there is a risk of lost data, and the data is not in sync with the amount of stock available. As for the solution to the first problem, it is proposed to create a website that can conduct online sales transactions. For the second problem, at the back end there will be a feature to view the display of sales of goods and be able to make sales reports.

### B. System Modeling

The system modeling process is carried out using UML diagrams consisting of use case diagrams, activity diagrams and class diagrams. Use case diagram is a diagram that describes an overview of the business process [13]. This system has 3 actors, namely visitors,

users (cooperative members), and admin (cooperative administrators). In fig 1, visitors only have access to see the products being sold as well as cooperative news. Users have access to view news, view products, make product purchases, and view purchase transaction history. The admin will have access to product updates, manage news, manage sales transactions, print sales reports.
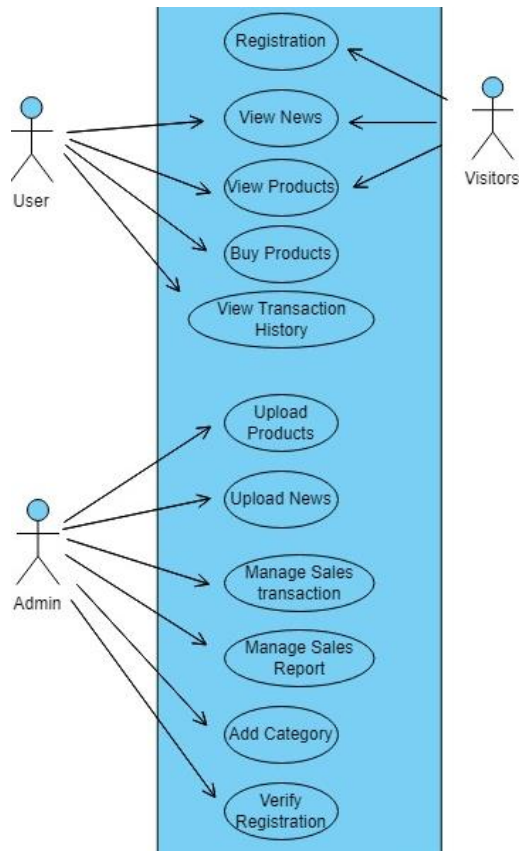


Fig. 1. Use Case Diagram of Proposed Systems

After modeling the main functions of the system, the business processes of each function will be modeled in the form of an activity diagram.

After creating a use case diagram, an activity diagram is created to show the main tasks and how they relate to one another in a process [14].

Fig 2 below shows the business process when visitors want to register.
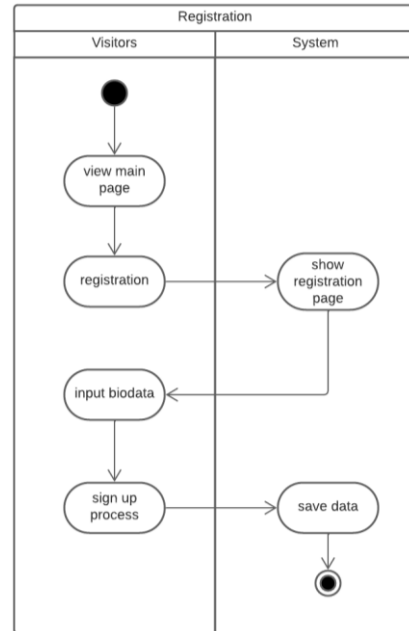


Fig. 2. Activity Diagram Register

Fig 3 below esplains the business process to view list of products sold in the cooperative.
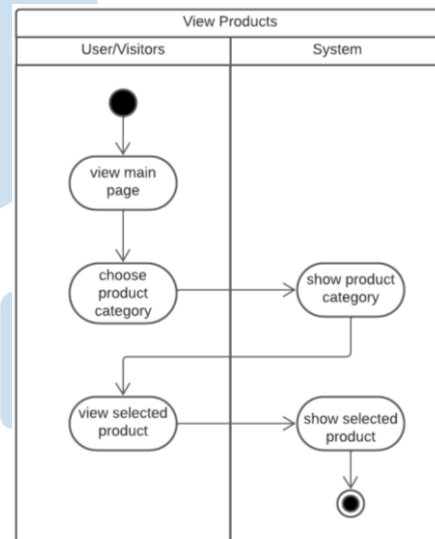


Fig. 3. Activity View Product

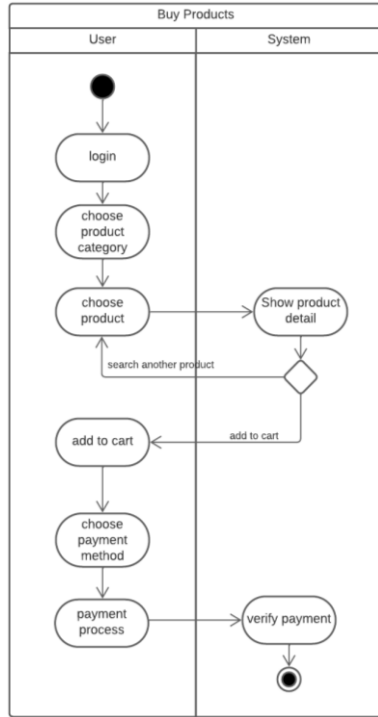Fig 4 below explains the business process for the product purchase process.

Fig. 4. Activity Diagram Buy Products

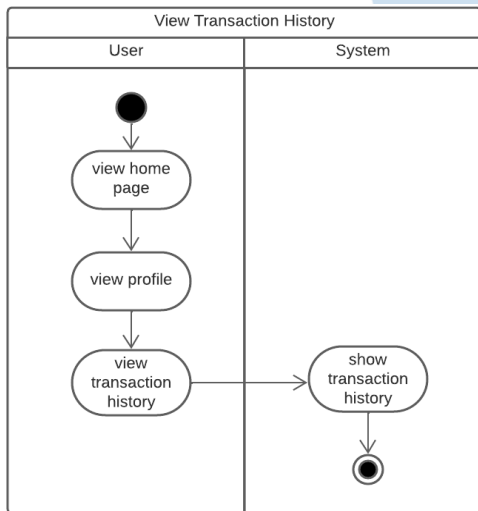Fig 5 below shows the activity details of view transaction history.


Fig. 5. Activity Diagram View Transaction History

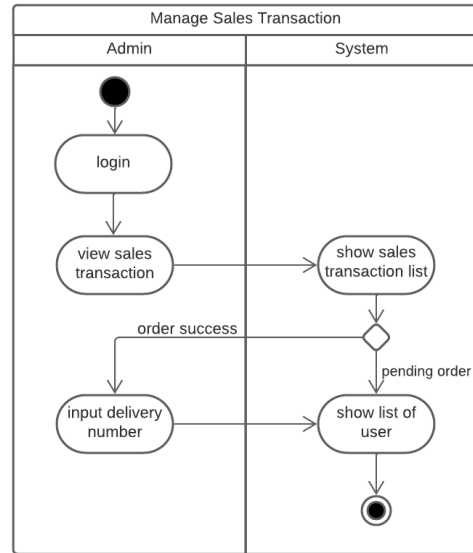Fig 6 below shows the business process for managing sales transaction.


Fig. 6. Activity Diagram Manage Sales Transaction

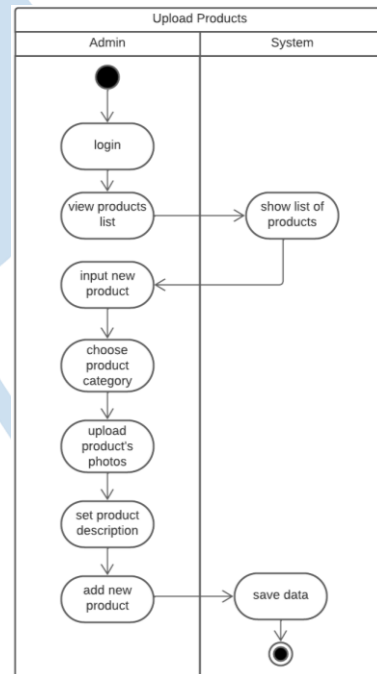Fig 7 below shows the activity details of how to upload new products into the system.


Fig. 7. Activity Diagram Upload Products

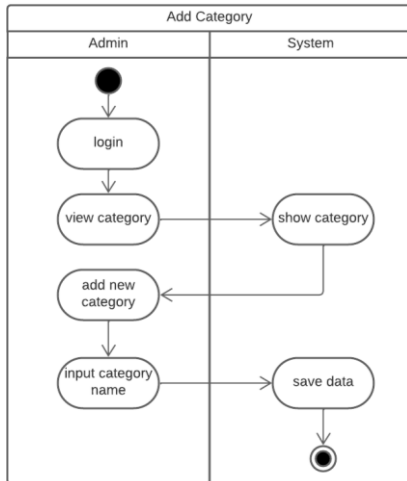Fig 8 below shows the activity details of how to create a new product category.

Fig. 8. Activity Diagram Add Category

## C. System Design

Interface design is the first step in the system design process. At this point, a thorough description of the system's functions and features is provided [15].

Fig 9 below is a dashboard display. On this page, users will be able to see the products being sold and able to view information or news about the media group employee cooperative.
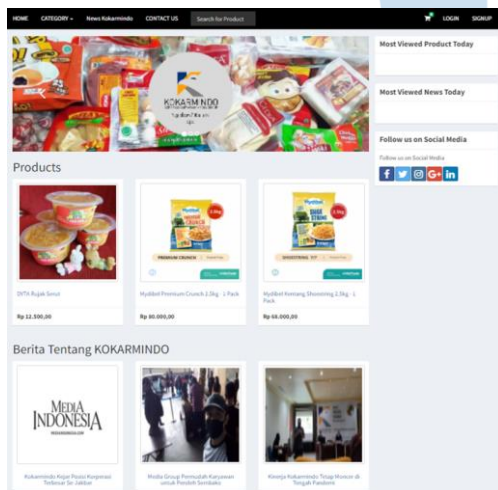


Fig. 9. The homepage of E-Commerce System

Fig 10 below is a product display based on the category that we have selected on the navigation bar. Here contains product information for sale starting from product names, product images, and product prices.
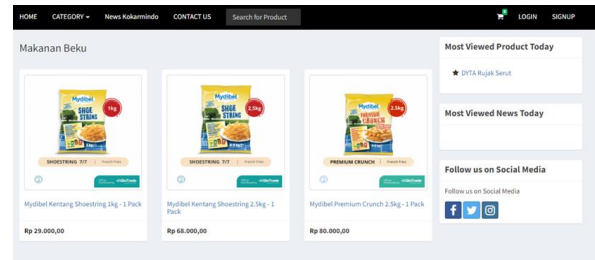


Fig. 10. Display Product by Category

Fig 11 below is a display of detailed products being sold. The information displayed starts from the product name, product image, product category, product stock, product description and product price.
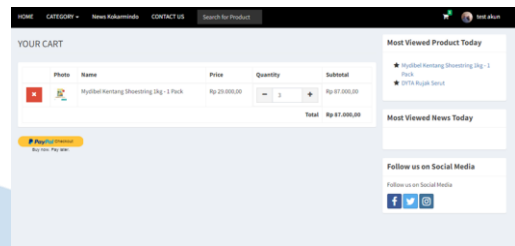


Fig. 11. Display Detail Product

Fig 12 below is a display of cart that contains products to be purchased by an employee.
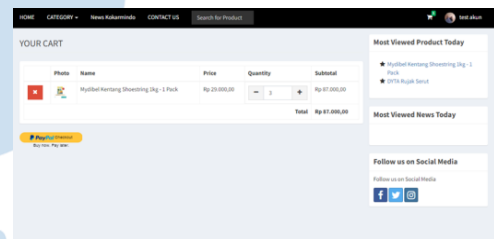


Fig. 12. Display Cart

Fig 13 below is a payment page. Users can choose the desired payment method using Midtrans or Paypal.
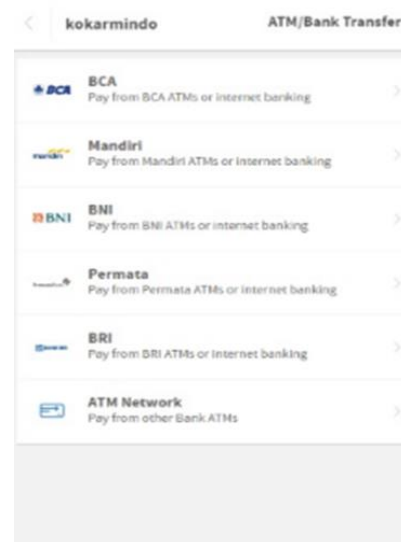


Fig. 13. Display Payment Midtrans

Fig 14 below is a profile page and purchase transaction where users can check their purchase transactions, and also edit their biodata.
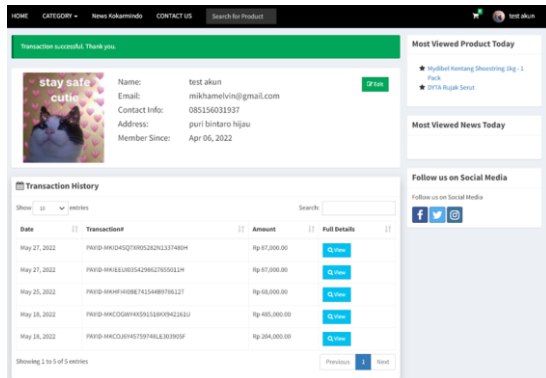


Fig. 14. Display Transaction History

There are several differences between the cooperative before and after using the system. Starting with selling products online and making it easier to monitor transactions that occur in real-time. Table 1 details the differences.

TABLE I. COMPARISON OF OLD SYSTEM AND PROPOSED SYSTEMS

| Category | Old System | Proposed System |
|---|---|---|
| Monitoring | Monitoring related to sales transactions is still done manually by checking the Ms. Excel file of sales transactions | Monitoring can be done at any time because it can be easily accessed through the website |
| Sales | Sales transactions are carried out using chat media such as WhatsApp. | Sales transactions are done online through the website. |
| Recording | Transaction recording is still done using Microsoft Excel and it takes a long time to document the report. | Sales recording is done by the system to make it easier for administrators to see real-time product sales summaries. |

## V. CONCLUSION

This E-Commerce website can improve the performance of cooperatives in making sales and reduce loss of sales report data. The system can expand the marketing of products sold by cooperatives and can be accessed quickly, therefore may increase sales and orders for cooperative products.

To make the system even better, there are suggestions to the next research, such as:

1. The system needs to be connected to a third party as a delivery service provider.
2. There is a need for push notifications via email if there are new products uploaded to the system or if there are products that are on sale.

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