

## Analysis and Design of Modern Style Kebaya Store Sales System Using PIECES and OOAD Methods

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### ABSTRACT

Toko Kebaya Style Modern is a business engaged in the sale of kebaya clothes, which is located in at Jalan Besar Delitua Kab. Deli Serdang. Promotion system and a conventional data collection and manually create outreach than the market share gained by Toko Kebaya Style Modern. Therefore, they invented a way of marketing and sales through the Internet or ECommerce which aims to provide convenience to the seller and the buyer in the process of buying and selling and collection of products and customers. The method used in this research is the method of object-oriented approach Object methods Orientd Analysis Program (OOAD) as well as visual modeling that helps to capture the structure and behavior of objects. This visual modeling using the Unified Modeling Language (UML) and feasibility analysis menggunakan PIECES (Performance, Information, Economic, Control, Efisiensi, and Service). E-commerce system can help Toko Kebaya Style Modern in the sales process, data collection and management products that are online as well as disseminating information about the product rapidly and expand the coverage area of marketing and improving the quality of services better to their customers so as to strengthen the relationship between the company and customers, and ultimately bring benefits to the company in the market and meet customers' needs for information is up to date.

**Keyword : E-Commerce; OOAD; PIECES; UML**

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### 1. INTRODUCTION

The development of Information Technology which is accompanied by the development of the internet supports each other to give birth to the concept of Internet-based Information Technology (Afriyanti, L., & Junaidi, K., 2022) whose development is increasingly widespread and is increasingly being applied to the company's business in various fields (Beckie et al., 2019). One of the trends that accompany business on the internet network is E-Commerce (Dumanska et al., 2021; Zakir, A et al., 2022), both Business to business customers and business-to-business (Dotzel, T., & Shankar, V., 2019; Dwivedi, Y. K et al., 2021). By bringing internet advantages such as 24-hour service, access from all directions at a relatively low cost, and other conveniences, it is not surprising that now many business organizations are venturing into E-Commerce.

Information technology industry sees e-commerce activities as the application and application of e-business related to commercial transactions (Setyowati, W et al., 2021), such as transfer of funds electronically, SCM (supply chain management), e-marketing (e-marketing), or online marketing, online transaction processing, electronic data interchange (EDI) (Syafrizal, M., 2021; Gian, M., & Ikate, S, 2021; oshi, S. V., & Deshpand, 2022). In addition to website network technology, e-commerce also requires database technology (databases), electronic mail (e-mail), and other forms of non-computer technology such as goods delivery systems, as well as payment instruments for this e-commerce (Hasyim, H et al., 2022; Norhan, L, 2021; Al-Mahbubah & Nurwakhidah, 2021).

Creation and development of an e-commerce system can be developed using various methods, one of which is the OOAD (Object Oriented Analysis and Design) method such as the research conducted by Purwaningtias (2018), in this study taking a case study at PT Musi Utama Bercahaya Palembang which is engaged in sales. The sales system is still done conventionally, moreover, to process

transactions it takes 30 minutes. So it is necessary to make improvements to improve the company's services to make transactions easier by designing a sales system via the web. In addition, there is also research conducted by Maulidy and Prehanto (2022), in this study a mobile platform-based convenience store sales system application was developed using the OOAD method.

Currently, the Kebaya Style Modren Store is a business engaged in the sale of kebaya-type clothing located on Jalan Besar Delitua Kab. Deli Serdang. At the Kebaya Style Modren Store, transaction processing, data processing, and report generation have been managed using a computer. Currently, the Kebaya Style Modren Store is still doing promotions by word of mouth, with the state of the promotion system can result in the widening of marketing reach being slow and even running in place. Along with the development and advancement of technology, At Kebaya Style Modren Store wants an increase in sales, widening its reach (Global research) and increasing the revenue chain (Up to value chain), and earning even greater profits. The author chose E-Commerce as an online sales system aiming to further improve in terms of selling products, marketing products, and paying for products in the form of kebaya online.

E-Commerce system that will be designed is expected to help the Kebaya Style Modren Store in accelerating the sales process, widen the sales network, and increase the competitive value of sales as well as maximize fast service to loyal customers of the Kebaya Style Modren Store. With the description above, a Business-to-Customer E-Commerce site will be designed, so the author raises research on the theme Analysis and Design of Modern Style Kebaya Store Sales System Using PIECES and OOAD Metode Methods.

## 2. RESEARCH METHOD

The framework and stages carried out in this research are presented in Figure 1 below:

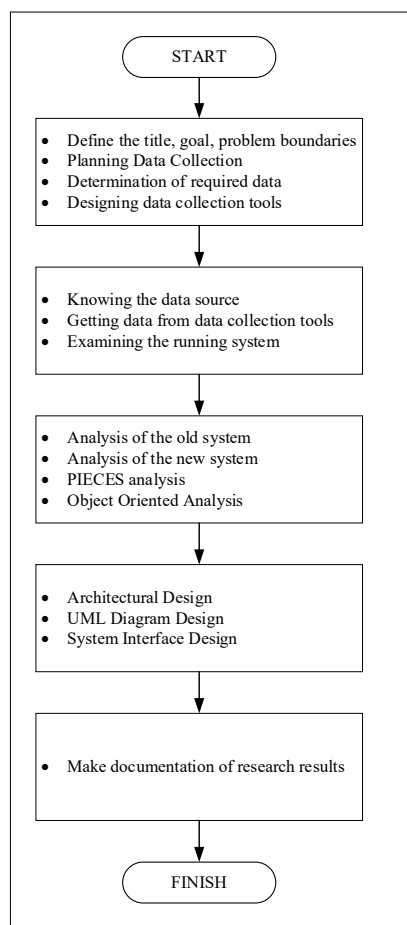


Fig 1. The framework and stages carried out in this research

The explanation of the research framework in Figure 1 is as follows:

1. Planning  
Before an information system is developed, it must first begin with a policy and plan to develop the system itself. Without good planning, system development will not run as expected. The planning stage is a guideline for conducting, system development.
  - a) Define title
  - b) Planning data collection (data collection time)
  - c) Determine the required data
  - d) Designing a data collection tool (in the form of an interview form)
2. Data collection stage
  - a) Observation Study  
Reviewing and seeing firsthand the physical condition of the company and seeing transaction and sales processes.
  - b) Interview  
Conduct interviews with the Company (Owner) about sales processes at the Kebaya Style Modren Store.
  - c) Study of Literature  
Data collection by viewing and recording data in documents and sales processes in the Kebaya Style Modren Store.
3. Analysis and design stage  
Steps for system development:
  - a) Analysis of the old system  
Analyze the current system to find out where the weaknesses are. Analysis of the old system that is running, starting from prospective buyers seeing the product, to paying for the product.
  - b) Analysis of the new system  
As for the design of the new system analysis, it is described here that prospective buyers do not have to bother coming to a store that costs a lot and takes a long time to buy a product they want. It is enough with just one click to choose the product they want through the store's website, wherever the prospective buyer is, the service can be accessed 24 hours, without being limited by the store's opening hours.  
The system analysis method that will be used is the OOAD (Object-Oriented Analysis and Design) method using a visualization tool called UML (Unified Modeling Language), which is a language based on graphics/images for visualizing, specifying, building, and documenting a system development method. OO (Object-Oriented) based software, designing and documenting software systems. UML offers a standard for designing models of a system.
  - c) Needs analysis  
Analyze the system requirements of the company that can help companies overcome current problems.
  - d) System analysis  
As a measuring tool to determine whether the new system is feasible or not, because 6 aspects must experience an increase in size that is better than the old system.
  - e) Design  
At this stage, the system architecture design will be carried out, starting from purchase to delivery of goods. Then proceed again to create a data dictionary.
4. Conclusion and documentation stage  
Make documentation of research results in the form of reports on making system documentation in accordance with the applicable thesis preparation format and make procedures for using the system to make it easier for users to use.

### 3. RESULTS AND DISCUSSION

#### A. Problem Identification Using PIECES Analysis

To identify the problem, it is necessary to analyze the performance, information, economy, security, efficiency, and service. This guide is known as PIECES analysis (Performance, information, economic, control, efficiency, service). From this analysis, several problems can be obtained, and finally, the main problem can be found. This is important because usually what appears on the surface is not the main problem but only symptoms of the problem or not the main problem.

1. Performance Analysis
  - The marketing process at the Kebaya Style Modren Store still uses the conventional method, namely waiting for customers who come automatically, only using the facilities and information obtained by word of mouth.
  - Slow response time to information provided to customers who are quite far away.
  - The resources they have already had knowledge of operating systems and websites, but they are not supported by a manual sales system.
2. Information Analysis
  - Information about products is quite slow because the source of the information received depends on the shop owner or resources.
  - Information about the product is quite relevant and has benefits for customers.
3. Economic Analysis
  - The costs required for cataloging and promotion costs are quite large.
  - Limited store opening hours make the benefits generated not increase or slow.
4. Control Analysis
  - Control over product prices is less stable and not fixed.
  - The leader's control over subordinates is not optimal because the leader is always out of town.
5. Efficiency Analysis
  - A lot of workloads such as customer data collection and ineffective goods data collection.
6. Service Analysis
  - The service received is limited to store opening hours.
  - Service is not optimal when busy buyers come to the store.

#### B. Problem Solving

By seeing and analyzing the problems that occur in the company, the solutions that can be taken include:

1. To facilitate business operations and facilitate transactions at the company, it is necessary to create a Web-based sales system (online ordering) that can save time, especially in the delivery or exchange of information (data, sample product images, etc.), product orders, and transactions can be done anywhere. At any time without the barriers of distance and time by customers wherever they are.
2. Web design tailored to the needs of the company and customers, especially with regard to product information kebaya, ordering and other supporting information that can be accessed by customers at any time.
3. Web Design in Modern Style Kebaya Stores as a means to expand marketing or sales with the aim of increasing transaction volume and declining sales turnover.

#### C. Design Process Business Toko Kebaya Style Modern

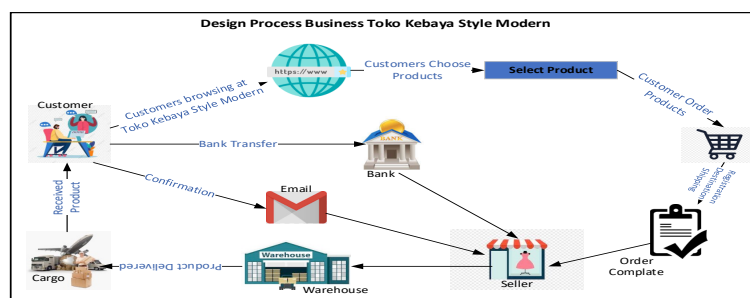


Fig 2. Design Process Business Toko Kebaya Style Modern

The basic architecture of this web application is the client-server architecture. This means that the processing of this application is carried out involving both sides, namely the central server machine side and the client side.

The one who acts as a client is the customer. The task of the customer is to process product requests, and payments until the product is received. While acting as a server is the seller, the task of the admin is to enter and process requests from customers and maintain product and customer data.

**D. Design Process Business System With UML**

1. Use Case Diagram on the Developed System

From the results of the analysis that has been done, the researchers designed an overview of the system to be implemented. System design uses UML (Unified Modeling Language) to specify, visualize, and construct the basic building blocks of software systems, including modeling business rules. In this step, the first thing to do is to model the system/software that will be created using a use case diagram. Use Case Diagrams offer a systematic and intuitive way to capture requirements specifications with focus.

Actors involved in the use of the system are customers and Admin (manager).

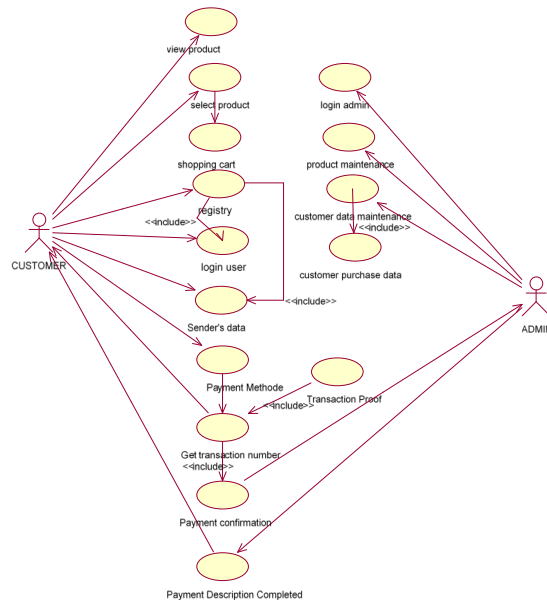


Fig 3. Use Case Diagram Design System

Figure 3 it is explained the user and admin, the user consists of inputting, saving, and editing buyer data, viewing products, viewing articles and about, and inputting transaction data. While the admin input product data, delete product data, input data about articles, view buyer data, and process transaction data.

2. Class Diagram on the Developed System

The following is a class diagram developed in this research.

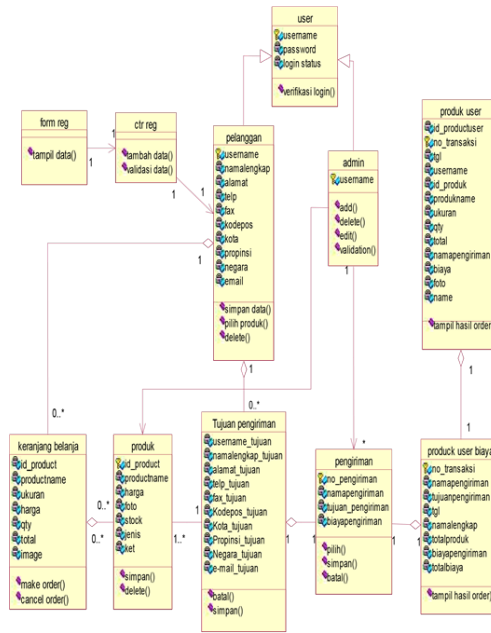


Fig 4. Class Diagram Design System

**E. Discussion**

Based on the analysis of the system that has been developed, it is possible to formulate a comparison of the old system with the new system based on the benefits gained from the advantages possessed by E-Commerce. The following are the results of an analysis of the old system and its comparison with the new system offered at the Kebaya Style Modren Store.

Table 1. Analysis of Comparison Results

Indicator	Running System	Improvement
Performance Analysis	<ol style="list-style-type: none"> <li>The marketing process at the Kebaya Style Modren Store still uses the conventional way, namely waiting for customers who come by themselves, only using the facilities of places of worship as a stopover and information obtained by word of mouth.</li> <li>Slow response time to information provided to customers who are quite far away.</li> </ol>	<ol style="list-style-type: none"> <li>Increased sales market share. Can be reached by customers anywhere and anytime.</li> <li>Can receive information quickly without space and time constraints.</li> </ol>
Information Analysis	<ol style="list-style-type: none"> <li>Information is quite accurate because information can be done by interacting directly, and knowing the emotional attitude of customers.</li> <li>Uncertain shipping information.</li> </ol>	<ol style="list-style-type: none"> <li>With the new sales system, the accuracy of the information provided to customers depends on the resources they have because of the possibility of human errors in uploading information.</li> <li>With the new system information about new products is very fast and information about the</li> </ol>

Economy Analysis	Companies must prepare costs for promotion and print media information about clothing information in the media every time they print a catalog.	length of time for delivery of goods can be seen directly. There is no need to prepare costs for presenting information because the admin only needs to do the process of uploading the latest information into the system.
Control Analysis	Control of product prices is less stable and not fixed.	With the system, the control of product prices becomes more stable and does not change because there is no direct emotional interaction in the system.
Efficiency Analysis	The workload caused is increasing, such as delivering information repeatedly, a lot of workloads such as data collection of customers and data collection of goods.	With the new system, it is hoped that the information provided to customers regarding clothing information will be more accurate and less repetitive. and the workload on data collection is decreasing because the data received is done digitally.
Service Analysis	The service received is limited to store opening hours, and the service is not optimal when busy buyers come to the store.	Can provide information, process sales transactions without space and time limits

#### 4. CONCLUSION

The conclusions from this research are as follows:

1. Using object-oriented methods or an unstructured approach makes data wrapped in each function/procedure and protects against unwanted changes from different functions outside.
2. Designing an E-Commerce system to become a medium for selling kebaya at the Kebaya Style Modren Store.
3. By using UML as a visualization medium of system design can make the designed model closer to reality. This makes it easier for developers to develop the system.
4. Referring to the purpose of this study where the problems faced by the company are reviewed from the preliminary analysis and PIECES analysis that the limitations in selling products can be proposed using information technology media, namely E-Commerce, to overcome the limitations of the company.
5. Recommended for use at the Kebaya Style Modren Store to support the company's business from transactions that were previously offline leading to sales, purchases, stock updates, and online transactions for ease or smoothness in transactions.
6. To facilitate the implementation phase of E-Commerce.

#### REFERENCES

- Afriyanti, L., & Junaidi, K. (2022, September). Pendampingan Pengenalan Literasi Digital untuk Pengembangan Santripreneur Sebagai Penggerak Ekonomi Kreatif di Pondok Pesantren: Digital Literacy Accompanied For Santripreneur Development As Creative Economic Activator At Islamic Boarding School. In SENTIMAS: Seminar Nasional Penelitian dan Pengabdian Masyarakat (Vol. 1, No. 1, pp. 495-500).
- Al-Mahbubah, R. A. M., & Nurwakhidah, A. (2021). The Frame of Sharia Economic on Paylater Payment System. *Islamiconomic: Jurnal Ekonomi Islam*, 12(1).
- Beckie, H. J., Ashworth, M. B., & Flower, K. C. (2019). Herbicide resistance management: Recent developments and trends. *Plants*, 8(6), 161.

- Dotzel, T., & Shankar, V. (2019). The relative effects of business-to-business (vs. business-to-consumer) service innovations on firm value and firm risk: An empirical analysis. *Journal of marketing*, 83(5), 133-152.
- Dumanska, I., Hrytsyna, L., Kharun, O., & Matviets, O. (2021). E-commerce and M-commerce as Global Trends of International Trade Caused by the Covid-19 Pandemic.
- Dwivedi, Y. K., Ismagilova, E., Rana, N. P., & Raman, R. (2021). Social media adoption, usage and impact in business-to-business (B2B) context: A state-of-the-art literature review. *Information Systems Frontiers*, 1-23.
- Gian, M., & Ikate, S. (2021). Development of Electronic Business from the Historical Point of View of an E-Commerce Concept. *Journal Dimensie Management and Public Sector*, 2(2), 19-24.
- Hasyim, H., Simarmata, J., & Nasirwan, N. (2022). Building marketing performance through digital marketing and database-based networking capability in Indonesian SMEs. *International Journal of Data and Network Science*, 6(4), 1125-1134.
- Joshi, S. V., & Deshpand, P. K. K. (2022). Cyber Crime Education. *Sanshodhan*, 11(1), 97-101.
- Maulidy, F. R., & Prehanto, D. R. (2022). Rancang Bangun Aplikasi Penjualan Barang Toserba Menggunakan Metode OOAD (Object Oriented Analysis Design) Berbasis Mobile Platform Pada CV FCH Kema Pole Indonesia. *Journal of Emerging Information System and Business Intelligence (JEISBI)*, 3(3), 33-42.
- Norhan, L. (2021). Web-Based E-commerce Application at Narmada Furniture Store. *ITEJ (Information Technology Engineering Journals)*, 6(1), 1-34.
- Purwaningtias, F. P. (2018). E-Commerce Penjualan berbasis metode ooad. *Jurnal Cendikia*, 16(1 April), 1-5.
- Setyowati, W., Widayanti, R., & Supriyanti, D. (2021). Implementation Of E-Business Information System In Indonesia: Prospects And Challenges. *International Journal of Cyber and IT Service Management*, 1(2), 180-188.
- Syafrizal, M. (2021). Web-Based SME Online Marketing System (E-Commerce). *International Journal Software Engineering and Computer Science (IJSECS)*, 1(2), 75-79.
- Zakir, A., Lubis, H., Syahputra, E. R., & Rumbiarmytha, D. A. (2022). Pemanfaatan Website Sebagai Media Promosi Pada Usaha Kursus Jahit LKP Zere Amin. *Community Development Journal: Jurnal Pengabdian Masyarakat*, 3(1), 184-190.