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DESIGN OF E-COMMERCE DISTRO USING RAPID APPLICATION DEVELOPMENT (RAD) MODEL

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Abstrak

Information technology is developing so rapidly that it has become a significant need in all fields. One is in the Business of buying and selling clothes at the Celsius distribution. Sales are still carried out traditionally or using less good places for distribution because they rely only on customers who come to the store, so the innovation of online sales technology or e-business is needed. The creation is to build e-commerce as a medium for buying and selling online with a broader market coverage. E-commerce is a system designed to process goods and services' buying, selling, and marketing through an electronic system. They built this e-commerce using UML (Unified Modeling Language) and PHP-MySql programming language. Some UML diagrams are used, such as Usecases, Activity Diagrams, Sequence Diagrams, and Class Diagrams, and assisted with interface design before being translated into applications. Its e-commerce is built into two parts: the admin panel and the user panel on the system, where this e-commerce is based on a website. The admin panel is managed by the section owner as the manager of online sales management, while the board is the system user who makes transactions from the system. The tests involve random owners and users to get responses to the e-commerce so that they are implemented on an ongoing basis.

Keywords: Distro Celcius; E-Commerce; Rapid Application Development Model

Abstract

Teknologi informasi berkembang begitu pesat sudah menjadi kebutuhan utama segala bidang. Salah satunya yaitu di bidang bisnis jual beli pakaian pada Distro Celcius. Penjualan yang masih dilakukan secara secara tradisional atau menggunakan tempat kurang memberikan keuntungan bagi Distro tersebut karena hanya mengandalkan pelanggan yang datang ke toko sehingga diperlukan inovasi teknologi penjualan secara online atau e-business. Ivonasi yang dilakukan yaitu membangun e-commerce untuk digunakan pada sebagai media jual beli pakaian secara online dengan cakupan pasar yang lebih luas. E-commerce adalah sistem yang dirancang dimana proses membeli, penjualan dan pemasaran barang dan jasa melalui sistem elektronik. membangun e-commerce ini menggunakan alat bantu UML (Unified Modelling Language) dan bahasa pemrograman PHP-MySql. Beberapa diagram Uml yang digunakan seperti Usecase, Activity Diagram, Sequence Diagram, Class Diagram serta dibantu dengan interface design sebelum diterjemahkan menjadi aplikasi. e-commerce ini bangun menjadi dua bagian yaitu panel admin dan panel user pada sistem dimana e-commerce ini berbasiskan website. Panel admin dikelola oleh bagian owner bertugas sebagai pengelola manajemen penjualan secara online, sedangkan panel user adalah pengguna dari sistem yang melakukan transaksi dari sistem tersebut. Pengujian dilakukan melibatkan owner dan pengguna secara acak untuk mendapatkan respon terhadap e-commerce tersebut sehingga dapat diimplementasikan secara berkelanjutan.

Kata Kunci: Distro Celcius; E-Commerce; Rapid Application Development Model

INTRODUCTION

The development of information technology, especially in Indonesia, is happening very rapidly. It impacts all fields, including the economy, health, society, and education (Rizal et al., 2019). Especially in the economic area, the utilization obtained has incredibly provided changes that positively impact the economic progress of Business in Indonesia (Novalia et al., 2020). If done continuously, Indonesia will likely be able to compete on the international stage in the digital-based economy and Business. The role of information technology in human activities is very large, with the existence of information technology has made the primary facility for the actions of various sectors of life and contributed significantly to fundamental changes in the structure of the economy and Business. (Suryadi, 2019).

Changes that occur in the economic and Business fields are that there are many emerging E-commerce systems or applications that are used as digital sales media only by utilizing computing technology and being able to reach more comprehensive customers without being hindered by place and time. E-commerce is a medium for business activities by taking advantages such as buying, selling, and providing information services through a computer network connected to the internet. So that with e-commerce as an online transaction medium, it can make it easier for customers to make buying and selling transactions without having to come to the point of sale (Sri et al., 2011).

Based on the concept of e-commerce, one thing that needs to be done is innovation and renewal of buying and selling, namely the Celsius Clothing Distro. Celcius Distro is a store or distribution that sells quality men's and women's clothing. Previously, the sales process was only done traditionally with buying and selling transactions in stores, so the profits obtained were based on the customers who came (Widodo & Sutopo, 2018). To get greater profits and develop businesses already using an internet computing network system, e-commerce at the store needs to be created. This system aims to get big profits with a broader range of customers and improve and follow current competitive trends (Alfiah et al., 2020). Applications built with the concept of Business to Customer utilize design tools such as diagrams from UML and interface design and are made using the PHP programming language and MySQL database with Website-based implementation.

E-commerce is a way for customers to be able to buy desired items online that are promoted using the internet both for consumers (Business to Consumer) and for businesses (Business to Business). Firm to the Customer is one of the e-commerce models that have business processes between sellers (producers) dealing directly with the buyer (Customer) by accessing the e-commerce website provided by the seller (Alfiah et al., 2020). Business to Customer has a different problem. The mechanism for approaching the consumer uses various approaches, such as using the concept of "portal" or "electronic shopping mall" (Widodo & Sutop.

RESEARCH METHODS

Unified Modeling Language (UML)

Unified Modeling Language (UML) is a graphical modelling language commonly used to describe, describe, construct, and document into a software system. (Voutama & Wahyono, 2020). UML can be used as a standard to create a blueprint for a system, which includes conceptual things such as business processes and system functions and tangible items such as programming language statements, database schemas, and components. system (Ilmiah et al., 2022). UML consists of 13 diagrams grouped into three categories (Voutama, 2022). The division of categories and types of diagrams are shown in Figure 1.

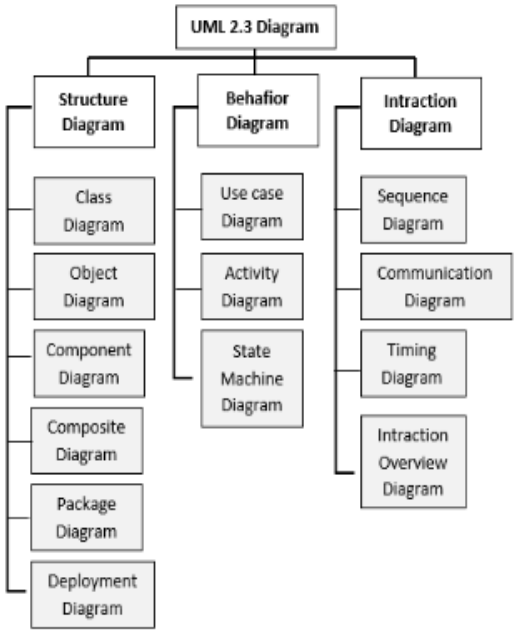

Figure 1. UML Diagram

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UML is use in designing and building software by documenting and specifying and can be developed in object-oriented systems because UML is a modelling language that describes an object-oriented software development system. (Primadasa & Juliansa, 2020).

Previous research related to this research became a reference in this development, such as the research conducted by Fifit Alfiah et al. 2020, with the title "Designing an E-Commerce System for Selling Clothing at A&S Stores," which in this study resulted in a website-based e-commerce system the store uses technology-based sales. Then the research was conducted by Alexander and Handy 2018, under the title "Utilization of E-Commerce as an Innovation Solution in Maintaining Business Sustainability," where the research carried out resulted in an e-commerce system that aims to maintain Business Sustainability on the object under study.

Furthermore, some previous studies used many system design tools using UML, as in the 2018 study, with the research title "Designing a Technician Work Order System With Unified Modeling Language (UML) Modeling Based on Mobile Applications at the Wangaya Regional General Hospital." UML as a design tool before being translated into a mobile application (Suwardika, 2018). Then the research was conducted in 2018 with the title Analysis and Design "Online Meeting Information System FMIPA UNTAN uses UML," which in this study uses UML as a design tool (Sari & Istikoma, 2018). Based on this, developing an e-commerce sales system intended for Celsius clothing distributions is necessary to increase sales and profits and compete with technological trends in this business field.

Rapid Application Development (RAD) Model

RAD to develop superior information systems in speed, accuracy, and lower costs (Nurman Hidayat & Kusuma Hati, 2021). The research method used in this development uses the RAD (Rapid Application Development) model. The RAD model is an object-oriented approach to system development that includes a development method and software (Adhi Pamungkas et al., 2021). The RAD model is a System Development Life Cycle (SDLC) model with a linearly sequential software development process, emphasizing a concise development cycle (Adhi Pamungkas et al.. Creating a system using the RAD model consists of several stages. The description of these stages is shown in Figure 2.

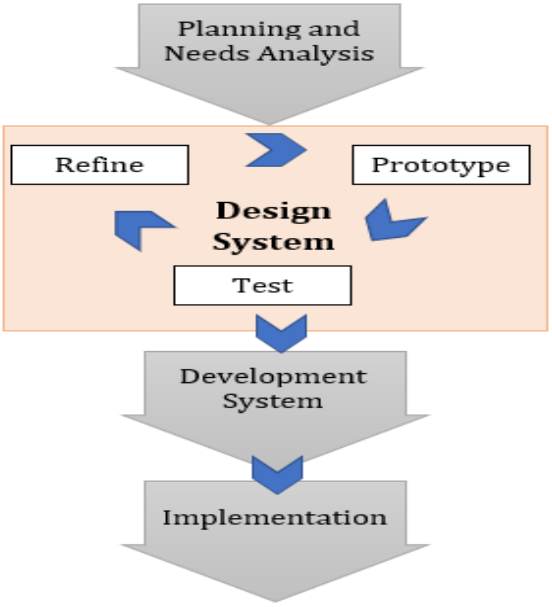

Figure 2. Research Methods

Planning and Needs Analysis

The goal of the e-commerce application or system is determined, and the requirements for the analysis process are described. (Alifarchan & Wahyuni, 2021).

Design System

This stage is the implementation of the RAD model, where at this stage, it is divided into sub-stages starting from prototype design, testing or test design, making repairs, or refining. If errors are found, correct them with the same concept (Alifarchan & Wahyuni, 2021).

Development System

At this stage, coding is carried out from the results of the designs that have been previously made into an application, where at this stage, the application made is the Celsius clothing distribution e-commerce. This development uses the PHP programming language with the MySQL database.

Implementation

At this step, the application's creation system is tested for implementation and functionality to ensure the software serves the intended purpose.

RESULTS AND DISCUSSION

UML Design

The design starts from the initial stage of determining the actors involved in this e-commerce system, namely the Customer and admin. After that, the initial design uses a Usecase diagram to show an

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overall picture of the system (Novalia et al., 2022). as seen in Figure 3.

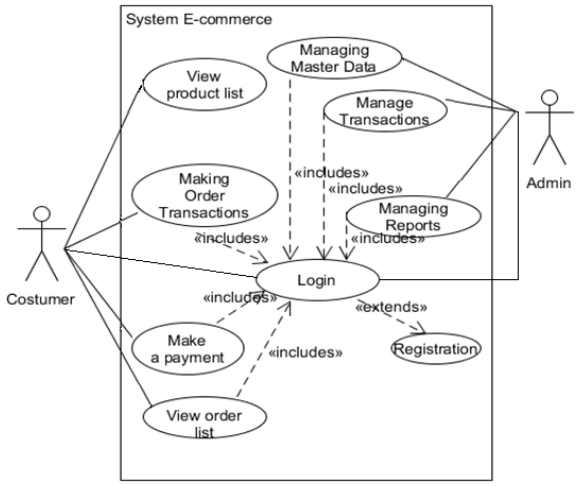

Figure 3. Usecase Diagram

Figure 3 shows an overview of the system to be made. After that, make a design using an Activity diagram to show the activities of each actor so that you can see what activities are being carried out by the two users. The following are some activity designs that describe the Customer's actions, which are seen in Figure 4.

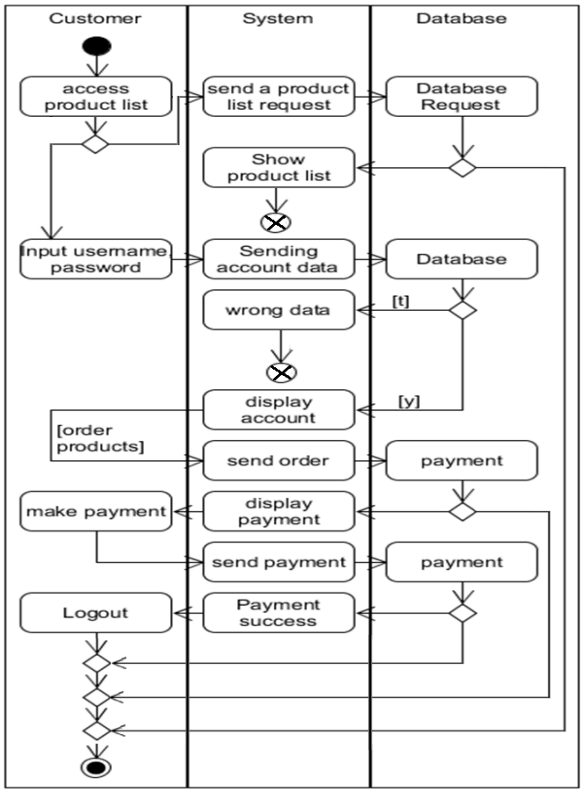

Figure 4. Customer web page activity

Next is the activity design from the admin, where the admin seems to be doing many activities to manage the e-commerce, as seen in Figure 5.

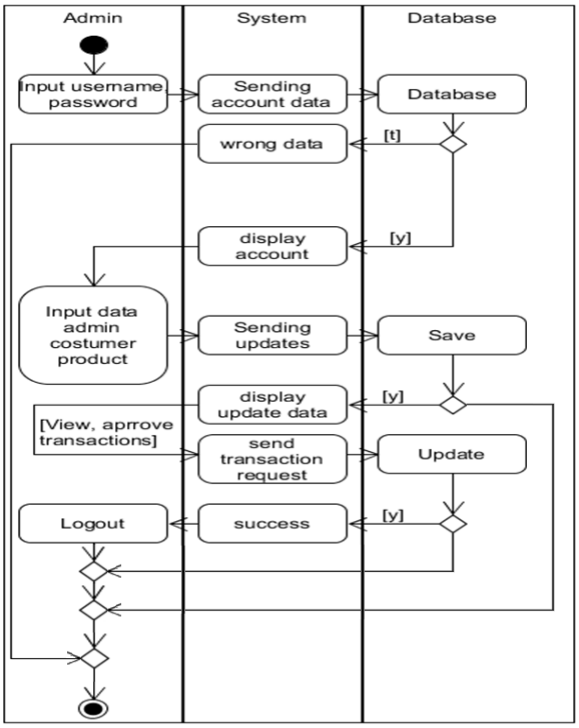

Figure 5. Admin page activity

The following design details every activity customers and admins can do using Sequence diagrams. Some designs have been made, which are seen in Figures 6-9.

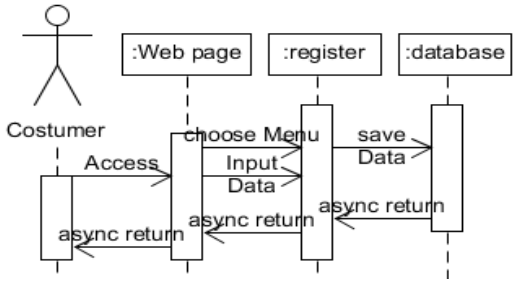

Figure 6. Sequence customer registration

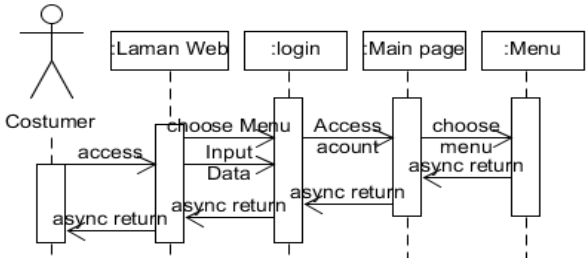

Figure 7. Customer login page sequence

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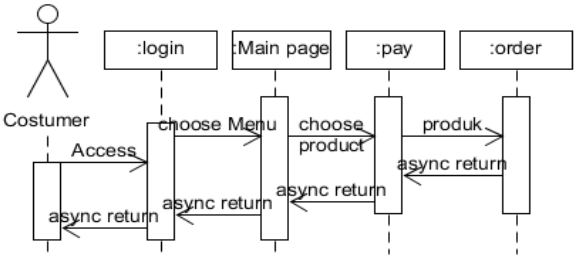

Figure 8. Customer order sequence

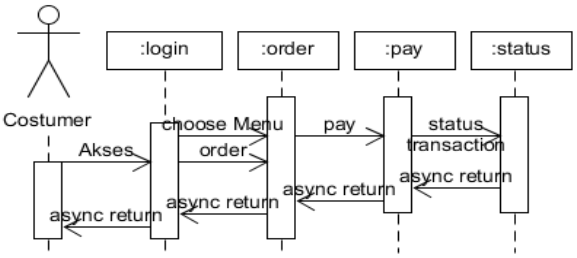

Figure 9. Customer payment sequence

The following is a design Sequence diagram of admin activities, which can be seen in Figures 10-12.

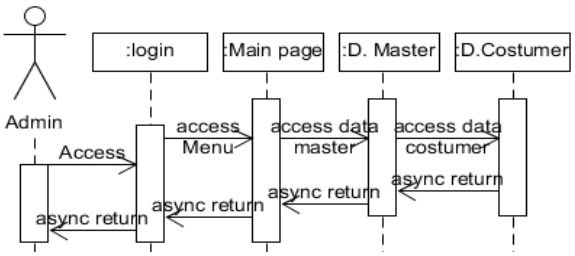

Figure 10. Sequence diagram for see customer data

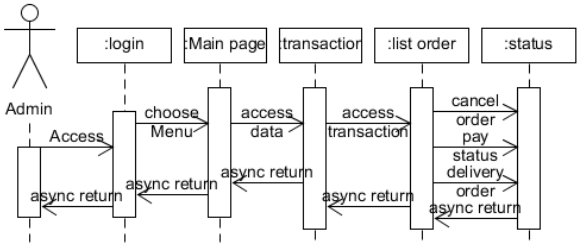

Figure 11. Sequence diagram for viewing purchase data

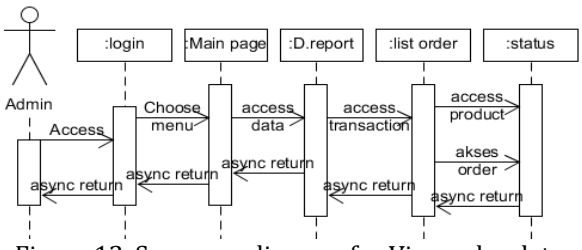

Figure 12. Sequence diagram for View sales data

Furthermore, the design of the class diagram is to show the relationship between each class so that relations can be determined and become a reference in the database in building the system database, as seen in figure 13.

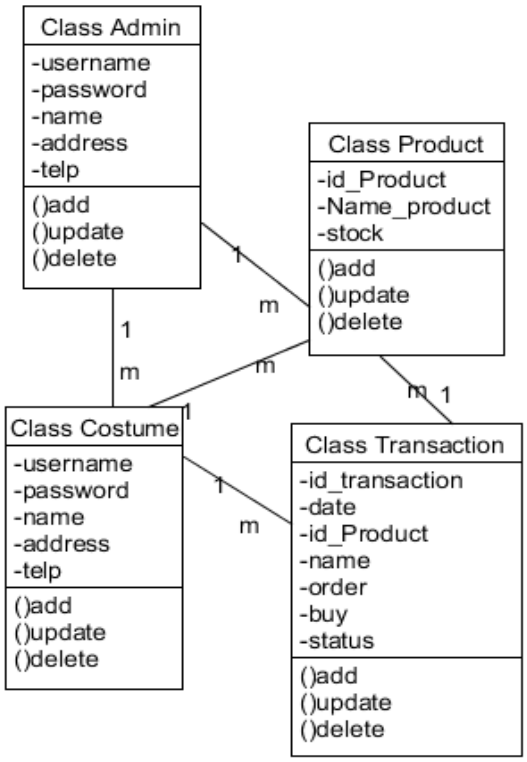

Figure 13. Class diagram design

User Interface Design

This interface design aims to provide an overview of the appearance of the designed information system. It can be seen in Figure 14 and Figure 15. Before coding is done, it is necessary to create a plan because it will affect the use of the system.

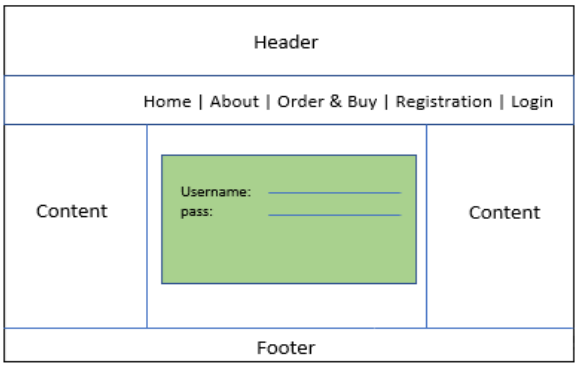

Figure 14. Design Interface login costumer

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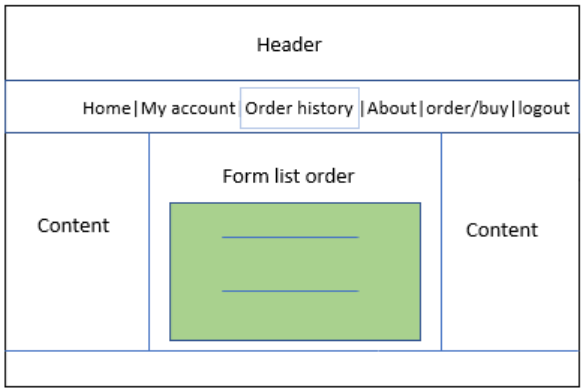


Figure 15. Design Interface order costumer

Here is the admin interface design, which is displayed in the following image. It is shown in Figure 16 and Figure 17.

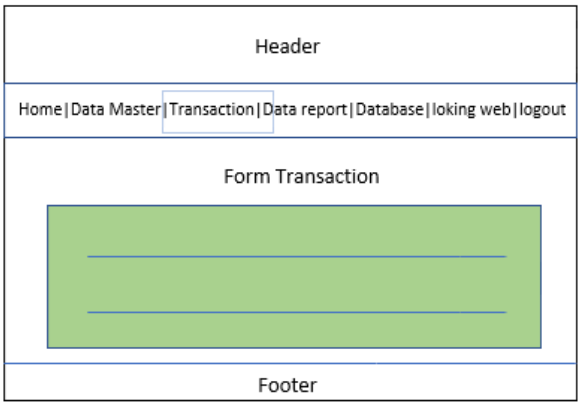


Figure 16. Admin transaction interface design

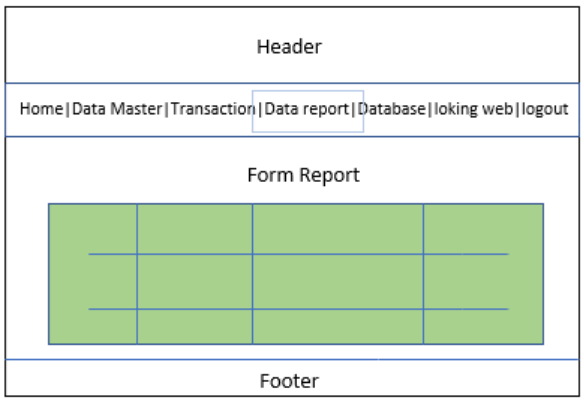


Figure 17. Admin report interface design

System Implementation

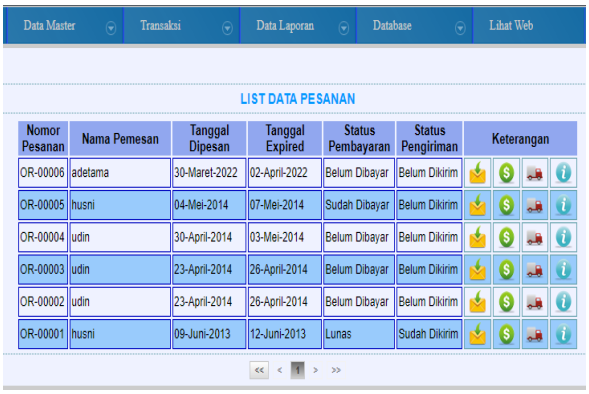
This stage results from developing a system using the PHP and MySql programming languages. The display consisting of the Customer and the admin, shown in Figure 18, shows the view of the customer page when using the e-commerce system that has been created. The picture shows the testing of each system page to suit the purpose. Can be seen in Figure 18.

Figure 18. E-commerce page view

Customers can order clothing products if they have logged in to the account so that on this page, the Customer can make product purchase transactions and confirm payments, as shown below. They are displayed in Figure 19.

Figure 19. Product purchase display

In the admin view, the admin can manage all the activities of e-commerce, and the admin can see data from the Customer and confirm the transactions that have occurred. Can be seen in Figure 20. The following displays the admin page confirming a customer's purchase.



Nomor Pesanan	Nama Pemesan	Tanggal Dipesan	Tanggal Expired	Status Pembayaran	Status Pengiriman	Keterangan
OR-00006	adetama	30-Maret-2022	02-April-2022	Belum Dibayar	Belum Dikirim	
OR-00005	husni	04-Mei-2014	07-Mei-2014	Sudah Dibayar	Belum Dikirim	
OR-00004	udin	30-April-2014	03-Mei-2014	Belum Dibayar	Belum Dikirim	
OR-00003	udin	23-April-2014	26-April-2014	Belum Dibayar	Belum Dikirim	
OR-00002	udin	23-April-2014	26-April-2014	Belum Dibayar	Belum Dikirim	
OR-00001	husni	09-Juni-2013	12-Juni-2013	Lunas	Sudah Dikirim	

Figure 20. Purchase confirmation display

Result Analysis

After the e-commerce system is complete, testing is carried out internally and using users, namely the owner and several customers, who are

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carried out randomly. From the usage that users have used, the rating of the application by distributing questionnaires to approximately 30 users both from the owner and the Customer, where the questionnaire consists of several questions with a rating level where B = Bat, G = Good, E = Excellent, as in table 1 following.

Table 1. Respondent level questionnaire

No.	Questions	B	G	E
1	How do you rate this E-commerce?	0	4	26
2	What is your assessment of the facilities that exist in e-commerce and can interact with you?	0	7	23
3	How do you rate the visual appearance of this e-commerce application?	2	8	20
4	How do you rate the ease of using this e-commerce application?	0	5	25
5	How do you evaluate the transaction stage when buying products through this e-commerce?	0	3	27
6	How would you rate the speed and responsiveness of e-commerce when it interacts with you?	0	6	24
Results		2	33	145

From the results of the service above, obtaining a level of user satisfaction where the lousy rating level is 2, the sound rating level is 33, and the excellent rating is 145. E-commerce analysis results are displayed in Figure 21.

Figure 21. E-commerce results analysis

CONCLUSIONS AND SUGGESTIONS

Conclusion

This e-commerce can help the owner in this case, namely the Celsius clothing distribution, where this system can help the party utilize business technology and e-commerce as an online sales tool to get greater profits and consumers. It is broader because it only makes transactions through the application, saving space and time. Based on a survey conducted among users, both store employees and several customers at random, the results obtained were the response at the poor level of satisfaction was 2, the sound rating level was 33, the excellent rating level reached 145—the reasonable rate of 18%, excellent rate of 81%.

Suggestion

E-commerce is beneficial for sales of this clothing store in following current business trends, so it is necessary to carry out regular maintenance and updates to adjust to developing technological trends, especially in terms of appearance and more complete facilities so that they can be even better modern.

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