JTIF : Journal of Technology Information
Volume 1 No. 1, June 2024 p 15 – 21

E-ISSN: xxxx-xxxx
DOI:…

E-COMMERCE WEBSITE FOR CLOUD END DISTRO

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Article Info

Article history:
Received May, 1, 2024
Revised June, 5, 2024
Accepted July, 13, 2024

Keywords:
Internet,
Information,
Online,
Black box.

ABSTRACT

The rapid development of internet technology as the most effective and efficient means of communication, capable of addressing the highly competitive issues of today, is demonstrated by its global user base. The internet provides a wide range of fast, comprehensive, and accurate information needed by everyone worldwide in various fields, such as economic or business activities, which commonly use online platforms for buying and selling. Even service offerings can be published through the internet. In this research, the internet is applied to the business activities of clothing sales, which are usually conducted offline, through a platform called an e-commerce website. The research is conducted on Cloud End distro, which has been selling offline. The application development research method uses a descriptive approach that begins with analysis, software design, coding, testing, and maintenance. This e-commerce website provides detailed information about trendy clothing, ensuring customer satisfaction with the information presented. The result of this e-commerce website application development research is the creation of a reliable application that has undergone black box testing for all its features.

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1. INTRODUCTION

The development of information technology, commonly known as the internet, has changed everything [1]. In the past, the delivery of information was hindered by distance, time, geographical conditions, and the means of delivering the information or data, making the distance between the information provider and the receiver very noticeable [2].

The industrial revolution, followed by the technological revolution, and subsequently the digital system technology revolution leading to the revolution in technology and information systems (TSI), has truly transformed the landscape of modern development [3]. Everything has become easier, closer, more effective, and efficient, making it seem as though everyone is near with the rapid dissemination of technology and information [4]. Digital technology and computer (information) technology, which were once only accessible to certain groups, have now become widespread [5].

In recent decades, information technology has been able to assist humans in all their affairs, including business activities, which have experienced extraordinary development in modern times [6]. Information technology, commonly known as the internet, has become a reliable new business platform that truly surpasses conventional business practices [7]. Physical markets have been replaced by digital markets or supermarkets that don't require grand or large buildings. Business infrastructure has been replaced by networks, computers, servers, and couriers who deliver directly to customers' doorsteps at any time [8].

In this instance, research is conducted at a clothing store, Cloud End distro, a conventional store that has long sold clothing offline. To boost purchase interest, the store has been modernized and managed in a contemporary manner, even targeting the younger generation as its market segment, hence the name distro. However, the founder still feels that the prospect of selling online is more profitable. Therefore, it is deemed necessary to start expanding into the online clothing business as well [9].

To start an online business, a website technology known as an e-commerce website is necessary to display products. The research employs PHP and MySQL, utilizing the Laravel framework, to build a website for Cloud End distro. With this website, it is expected to help increase revenue and sales volume. A well-designed website with a reliable framework

like this one accelerates and simplifies the processes of searching, inputting, and managing data in transactions at Cloud End distro, making the data more structured and access processes easier. This application makes the transaction process more effective and efficient, thus, based on calculated predictions, it is expected to increase profit [10].

2. METHOD

In order to obtain reliable initial data in a research study, researchers must master research methods or techniques [11]. The research method used in this study is descriptive method, with specific characteristics including: focusing on solving actual problems and initially collecting data which is then arranged, explained, and analyzed. According to Presman (2010) [12], the detailed steps are as follows [13]:

a. Software requirement analysis
b. Software design
c. Coding
d. Testing and trial
e. Maintenance

3. RESULTS AND DISCUSSION

In this section, the results of the research are described based on the method followed and the explanation or discussion of the research implementation to achieve research outcomes.

A. System Analysis

In this system analysis, the depiction of the system creation process is built through the requirements established in each applied and utilized design component. The purpose is to detail the process of developing a system. Initially, researchers gather data on the requirements for building an e-commerce website for Cloud End distro. This system analysis facilitates the development process. The stages of this system development are as follows:

1. Analysis of the built system
   The development of the Cloud End distro e-commerce website serves as an information platform for online clothing sales services, allowing customers to purchase items online without visiting the store directly.
2. Data analysis
   During this stage, analysis is conducted on the data processed in the current system or procedure. During data analysis, there is also an analysis of the required data, namely: admin data, and content (text/images).
3. Procedure Analysis
   In this procedure analysis, researchers understand the regulations for creating information systems, namely: 1. Detailed procedure for accessing information page permissions. 2. Procedure for administrator management by admins, performed after logging in so that admins can delete all data on the page in the database, meaning that admins manage all the contents of this online sales.
4. Global Process and Structure
   In the running system of information systems, namely: 1. Main menu settings, 2. Administrator processing, 3. User/visitor processing, 4. Information pages (Main page, price list, About Us, shipping and payment, shopping cart, and catalog).

B. System Requirements Analysis

The following is an analysis of the system requirements to be built:

1. Software Requirement Analysis
   Software is a critical aspect in developing an e-commerce website for Cloud End distro. Based on experience in software development, there are important considerations to ensure that the system is well-designed as expected. Software analysis tends to emphasize resource utilization aspects (Software). Design is the development of existing resources without rendering existing resources worthless. Based on this analysis description, it can be categorized into several important factors:
   a. The software must be operable on different systems and accessible from various computers without limitations on the operating system.
   b. The software must support the owned database server and support the running application programs.
2. Hardware Analysis
   Hardware analysis supports the network system and has internet connectivity. The hardware specifications for this research are: Acer Aspire 4750G, Processor: Intel Core i3, Harddisk 500 GB, and RAM: 2048 MB.
3. Required System Categories
   This e-commerce website for Cloud End distro aims to meet the system users' needs to obtain information about the clothes they intend to purchase and provide profit for Cloud End distro.
4. User Analysis
   Estimated users of the Cloud End distro e-commerce website can be categorized as: a. Regular visitors and buyers, b. Administrators
5. Cost Analysis
   The estimated costs required for building this website include: hosting, domain, website design, and printing.

C. System Design Analysis

The design of the website is visualized in the form of modeling as an advanced stage to produce a functional application that meets the requirements. To understand the needs of the application being built, an application design is created that depicts the stages of program design through a modeling tool, namely:

1. Use Case Diagram

The use case diagram illustrates the interaction between actors (users) and the system. Here is the use case diagram of the website.

Figure 1. Use Case Diagram

In Figure 1 above, it is predicted that this system will have 3 actors: Visitor (General), Contributor, and Admin. The Visitor (General) can only view items on the Cloud End distro, such as information and products, and can shop for the products sold, add or modify shopping orders, send payment confirmations, and send messages through the contact information page.

Meanwhile, Contributors can add, modify, or delete activities, which can be done after successfully logging in and making a purchase on the Cloud End distro website.

The Admin, on the other hand, has full authority over managing the data published on this e-commerce website. This includes adding, modifying, or deleting all features presented on the website, such as deleting user accounts, adding/deleting product data, enhancing product descriptions for clarity and attractiveness, adjusting product prices, and more.

2. Activity Diagram

The application's activity diagram consists of: login page activity, customer, products, orders, payment confirmation, returns, return of goods, admin, product attributes, modify product attributes, delete products, order confirmation, add page, modify page, delete page, add product category, modify category, delete category, add menu, modify menu, delete menu, add user, modify user, delete user, add product data, modify product data, delete product data, and respond to customer messages. Here is the activity diagram for modifying product data.

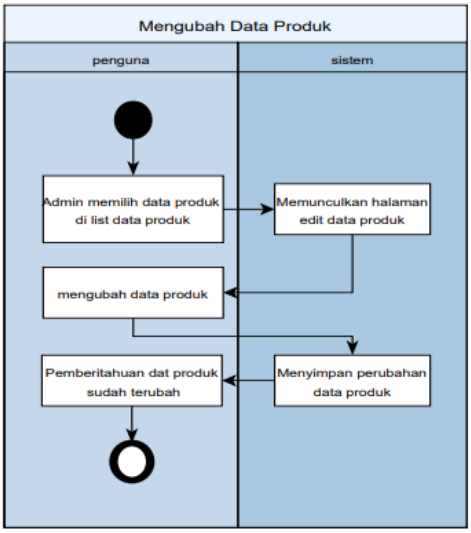

Figure 2. Activity Diagram for Modifying Product Data

D. System Design & Website Design

System design is a modeling form as an advanced stage to produce a system that is feasible and functions well. To understand the system requirements being built, a design is created that illustrates the stages of program design through a modeling tool.

1. System Design Development

Based on observations and analysis, several issues were identified at the Cloud End distro in Cianjur. Based on these findings, the researcher provides solutions to these problems through the designed website:

a. The e-commerce website at Cloud End distro can provide information about the distro clothing available in Cianjur.
b. Information dissemination can be connected anytime and anywhere.

2. Database Design

The database in this application consists of several tables, namely: Attribute Table, Product Attribute Table, Product Image Table, Category Table, Content Table, Meta Content Table, Master City District Table, Master Province Table, Menu Table, Meta Table, Migrations Table, Order Address Table, Order Detail Table, Visitor Table, Orders Table, Password Resets Table, Price Influence Table, Product Table, Users Table, Discount Table, Payment Table, Message Table, Return Table, Return Detail Table. Here is the Return Detail Table.

Table 1. Return Detail Table.

Name	Type	Size	Description
id	int	10	Id
Retur_kode	varchar	20	Kode retur
Atribut_produk_id	Int	10	Id atribut produk
jumlah	decimal	14	Jumlah
ket	varchar	255	Keterangan
gambar	varchar	255	gambar

Table 1 is an example of a table used in the e-commerce website application being developed. It serves as a table to facilitate returns made by customers of Distro. The fields consist of id, return code, product attribute, quantity, description, and image of the returned product.

E. Menu Structure

Here is the menu structure of the website application to understand the estimated and structured menu built on the website.

1. Design of Customer Menu Structure

In the design of the customer menu structure on the e-commerce website at Distro Cloud End.

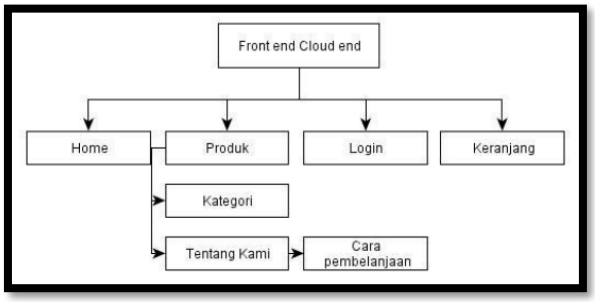

Figure 3. Design of Customer Menu Structure

Figure 3 depicts the description of the customer menu structure, where customers can only access the corresponding features based on their access rights.

2. Design of admin menu structure

In designing the structure of the admin menu display on the ecommerce website on the cloud end distro.

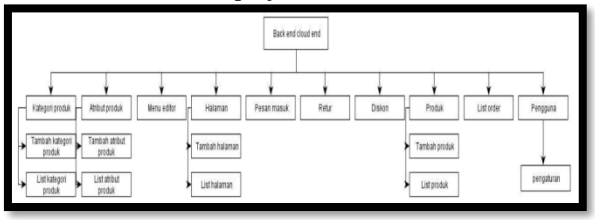

Figure 4. Design of admin menu structure

Figure 4 depicts the design of the admin menu structure, showing that the admin can access all menus within the application and perform maintenance and data modifications.

F. Design & Interface Design

The application design consists of: home interface display, login, product details (homepage), shopping guide, create message, register, invoice payment, checkout, payment confirmation, customer order list, customer product returns,

incoming messages, shopping cart, customer profile, admin page, operator page, product attributes, add/edit product attributes, product list, add product, product categories, add/edit product categories, page list, add/edit pages, users, add/edit users, discounts, order confirmation, order details, admin messages, return confirmation, settings, menu editor, return details. Below is an example interface, detailing the return interface.

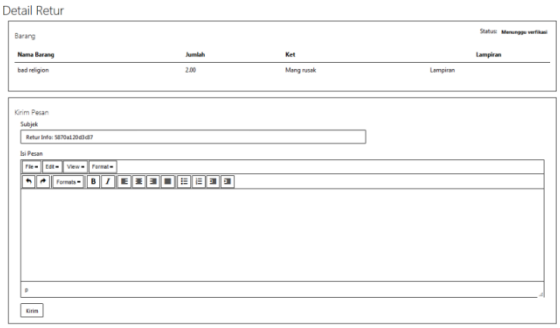

Figure 5. Detail Return Interface

G. Implementation and system testing

This section covers the implementation stage of the design built in the previous phases.

1. Implementation

Implementation is the stage of applying the design outcomes whose processes have been outlined in the previous section. The implementation includes, among others, converting the interface design into web pages, converting the data structure design into database tables, and creating program code. The requirements for implementing this program are as follows:

a. Hardware implementation: AMD A8 computer, 4GB memory, 500GB hard disk.
b. Software implementation: Windows 7 operating system.
c. Interface

The interface implementation stage involves converting the designs created during the design phase into actual web pages (menus). The results of the interface design implementation are presented as follows: main page, product detail, shopping cart, checkout, order history, buyer profile, return item profile, messages page, inbox, payment confirmation, payment invoice, shopping guide, about page, customer list, login, admin, product categories, product category list, product attributes, product attribute list, editor, page menu, page menu list, add product, product list, order list, order details, inbox messages, returns, return details, discounts, users, website settings, operator menu.

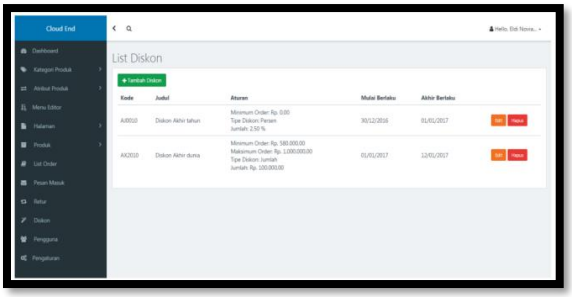

Figure 6. Discount Screen

Figure 6 is an example of the output for the discount screen design in the application.

2. System Testing

Once the website application has been implemented, it is tested to ensure that it meets expectations. The following is a description of the web testing:

Table 2. Testing Plan

Kelas uji	Butir uji	Jenis uji
Login	Email verification Password verification	Blackbox
Processing product categories, product attributes, pages, menu editor, products, user discounts	Input, update, and delete data	Blackbox

Table 2. This is the design for the tests that will be conducted on the application.

3. Performance Testing
This testing is conducted on the developed application to assess its reliability.

Table 3. Website application testing results

Test	Test point	Resukt
Login	Testing admin login	success
	Testing operator login	
Product categories	Input product categories	success
	Delete product categories	
Menu pages	Add new page	succes
	Modify page data	
	Delete page	
Product attributes	Input product attributes	success
	Modify product attribute data	
	Delete product attribute	
Produk	Input product data	success
	Modify product data	
	Delete product data	
Diskon	Input discount data	success
	Modify discount data	
	Delet discount data	
User	Input user data	success
	Modify user data	
	Delete user data	

Table 3 shows the results of the tests conducted on the developed application.

4. DISCUSSION

We can find numerous studies or journals discussing the creation of e-commerce websites published in various journals or searchable through search engines [14][15]. However, each study, including this one, presents significant differences in terms of content, substance, and uniqueness, maintaining its own distinct characteristics.

5. CONCLUSION

Based on the discussion above, the researcher can conclude that using this clothing sales application expands market share, increases revenue and profit, and reduces business development costs by eliminating the need for additional expenses such as employees, permits, physical locations, and so on. Furthermore, selling through a website provides convenience in purchasing clothes, as customers can order without visiting the store directly but simply by ordering through the website. Moreover, a website is something familiar to people or society, making sales through website access very helpful and fast in development, both economically and technologically.

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