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Design and Construction of a Website-Based Online Sales Information System for Cake Products (Case Study: Vavivegga Business House, Halong)

Vanda Novelish Haullussy[1], Pieter Leunupun[2], Golda Tomasila[3]*
Universitas Kristen Indonesia Maluku
Corresponding Author: Golda Tomasila tomasilagolda@gmail.com

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ABSTRACT

Sales via the internet network can easily make trade connections without any access time limitations and can increase the number or turnover of sales, and can increase the area of marketing locations or product sales accurately. The aim of this research is to design an online sales information system for the Vavivegga business house in order to expand the business that has been created for a long time and to help make the business known to all in the community. Making web applications refers to the RAD Method. The results obtained from the design and development of a website-based online sales information system at the Vavivegga business house can help consumers see the cake products that are made without having to come to the business location, besides making it easier for consumers who want to place orders

INTRODUCTION

Today's very rapid technological developments provide many benefits in progress in various social aspects, including in the business world. Technology has made it easy for every group to obtain extensive information, such as information systems that can be a success for a business effectively and efficiently. Currently, business has experienced rapid progress (Siregar & Nasution, 2020). This is motivated by shifts in life among society in accordance with the strategies used to face competition. Having creative ideas can have a positive impact on preventing widespread competition and can help provide benefits to the economy, especially for business actors. In the business world, an online sales system has been introduced, known as e-commerce, which is useful for increasing sales coverage. An Information System is a system that has a role in collecting data, entering and managing and storing data to achieve the specified use goals (Hudaya et al., 2022). Sales information systems are also created to be used in running online trading businesses. Due to the explosion in popularity of this online-based sales system, people have become accustomed to spending a lot of time shopping online without having to go to the shopping destination.

Sales via the internet network can easily make trade connections without any access time limitations and can increase the number or turnover of sales, and can increase the area of marketing locations or product sales accurately. Advances in technology, especially in the business sector, are still found to be selling businesses by displaying menu books containing all the cake products being sold, as well as word of mouth offers, so this process is felt to be less efficient. With currently developed technology, this can be overcome because web-based online sales can be an opportunity to improve and develop the business you run.

The name Vavivegga Business House is a combination of the names of the four children of the business owner which were created a long time ago. The Vavivegga Business House has been built since 2016 and is managed by the business owner until now. Vavivegga Business House is located in Halong Tanah Merah, Haullussy Family. Cake products are made in the form of ordinary cakes and birthday cakes such as Chocolate Madonna cakes and Birthday cakes with Barbie characters. The process of making the cake is done directly at home.

Sales via the internet network can easily make trade connections without any access time limitations and can increase the number or turnover of sales, and can increase the area of marketing locations or product sales accurately. One of the functions of the internet is that it can provide progress, especially in business sectors that continue to make sales by displaying menu books of cake products with various flavors and variants, as well as offers by word of mouth, so this process is felt to be less efficient(Tizar & Azizah, 2023). With currently developed technology, this can be overcome because web-based online sales can be an opportunity to improve and develop the business you run.The ordering process only involves communicating via WhatsApp chat and there are consumers who come to their destination to order. Therefore, the current sales problem for business owners is that they still interact directly and manually, even by communicating via chat with consumers. This of course makes it difficult for business owners to sell these cake products due to the lack of extensive information regarding sales, and consumers do not know information about the business being made widely. So this design is expected to be able to help with problems that occur and is expected to provide solutions to problems faced by owners, so that sales information is provided widely and problems that occur to business owners can be resolved.

Thus, a new system design is needed that can attract the attention of buyers and can increase the quality of sales of cake products that are high, large and extensive. The design of the online sales information system at the Vavivegga business house will be designed as well as possible, in order to expand the business that has been created for a long time. Creating this website can also help and make it easier for business owners so that their business can be seen and known by all people.

METHODS

The research methodology used is the RAD (Rapid Application Development) Method. This method is a system development method that can be used by programmers to build applications in an affordable and fast time frame. (Chandra & Wahyuddin, 2022). RAD can be a reference for developing an information system that is superior in terms of design speed with the given time estimate. As in figure 1.

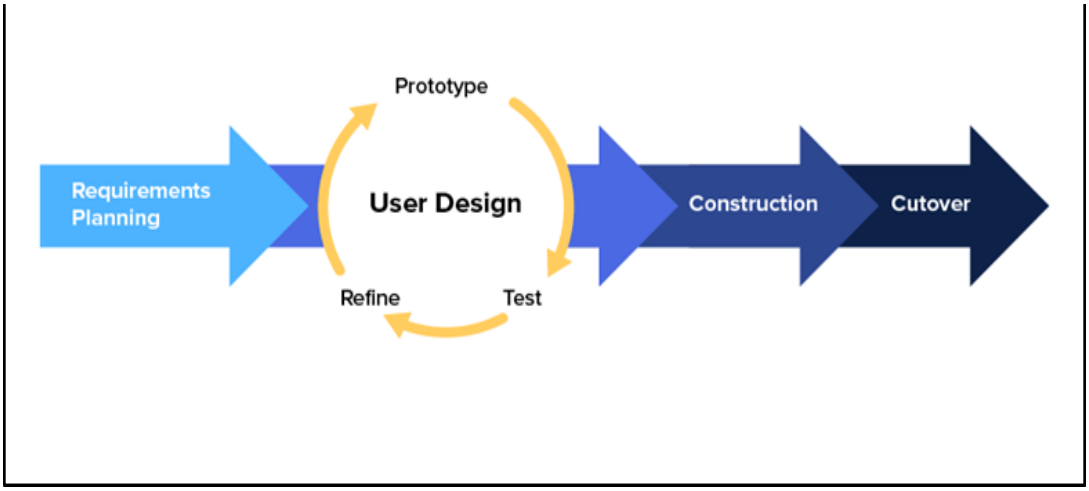

Figure 1. Rapid Application Development (Chandra & Wahyuddin, 2022).

1. Requirements planning is a planning stage for collecting data about what is needed in research; (Chandra & Wahyuddin, 2022).
2. System Design Process (Design System) : At this stage, the activeness of the users involved determines whether to achieve the goal because in this process the design process is carried out and improvements are made if there are design discrepancies between the user and the analyst;
3. Construction : At this stage, developers move to the rapid construction phase and gather feedback. In this phase the developer will develop the application in a series of stages, namely, designing, coding, feature integration and testing.
4. Implementation : In this phase, the developer will complete software development, carry out final testing and provide training to users to use the software.

RESULTS

1. Needs Analysis

In creating this online sales website, the author needs several things that support the project needs. For this reason, the author made direct observations at the Vavivegga Business House in order to find out the needs for the website system that will be designed. The results of the analysis regarding website needs are listed in table 1.

Table 1. Website Needs Analysis

Website Users	Needs Analysis
Users	● Login ● View the product ● Add the product to the shopping cart ● Make an order
Admin	● Login ● View the product ● Adding products ● Editing products ● View orders

2. System Design Planning

After knowing the Vavivegga Business House's needs for the website they wanted to design, the researcher created several Unified Modeling Language (UML) diagrams first to make it easier to understand and map the flow of the website, including use case diagrams, activity diagrams and sequence diagrams. The following is the flow of the website system:

1. Use Case Diagrams

In the following use case diagram, it is explained that there will be two actors who play a role on the website, namely admin and user. The admin will be in charge of managing the website, while the user is a cake shop customer.

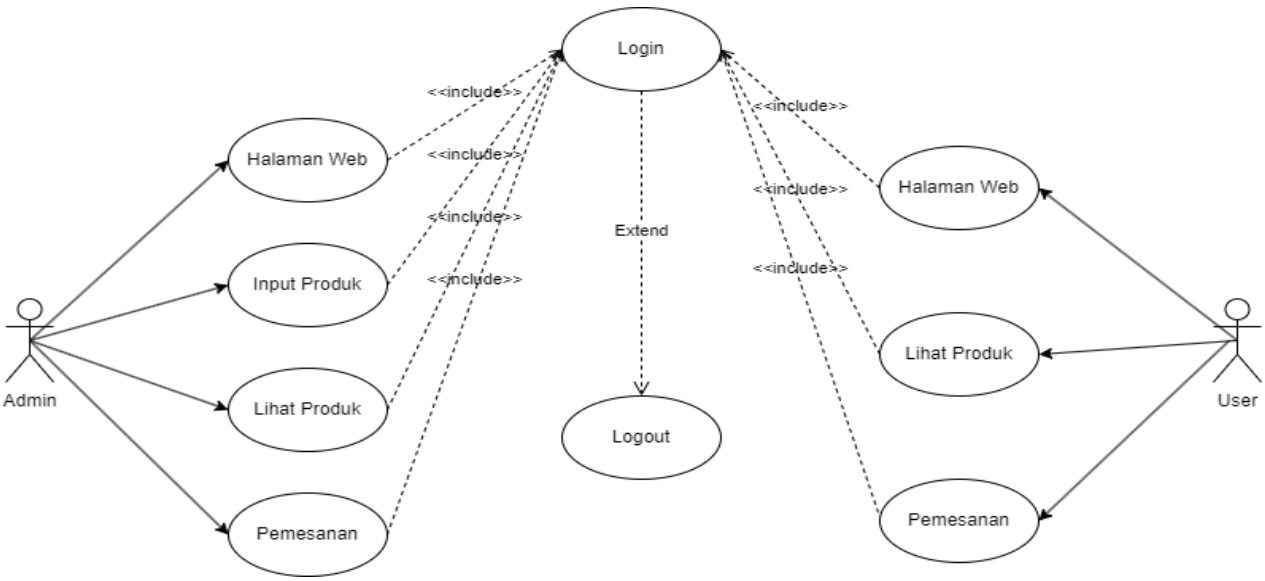

Figure 2. Use Case Diagram

a. Activity Diagram

The diagram in Figure 3 depicts the flow of customers as users in ordering products on the cake shop website.

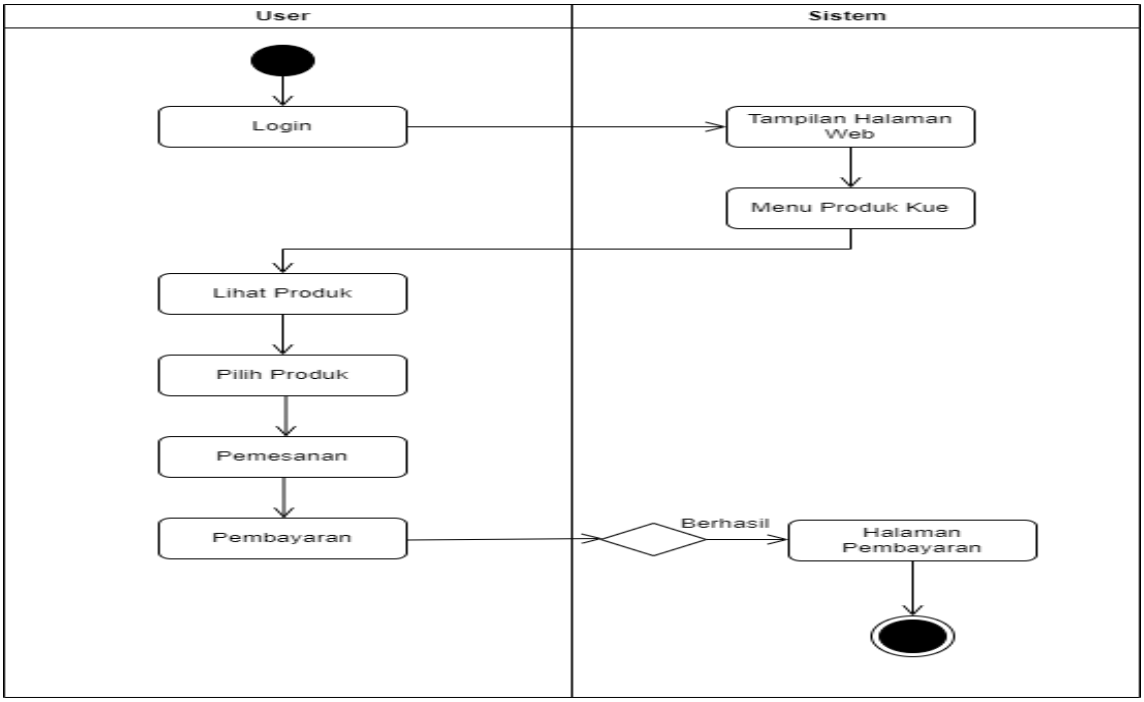

Figure 3. Activity Diagram

b. Sequence Diagram

Figure 4 shows a series of steps or scenarios carried out by users as interactions with products offered on the website system.

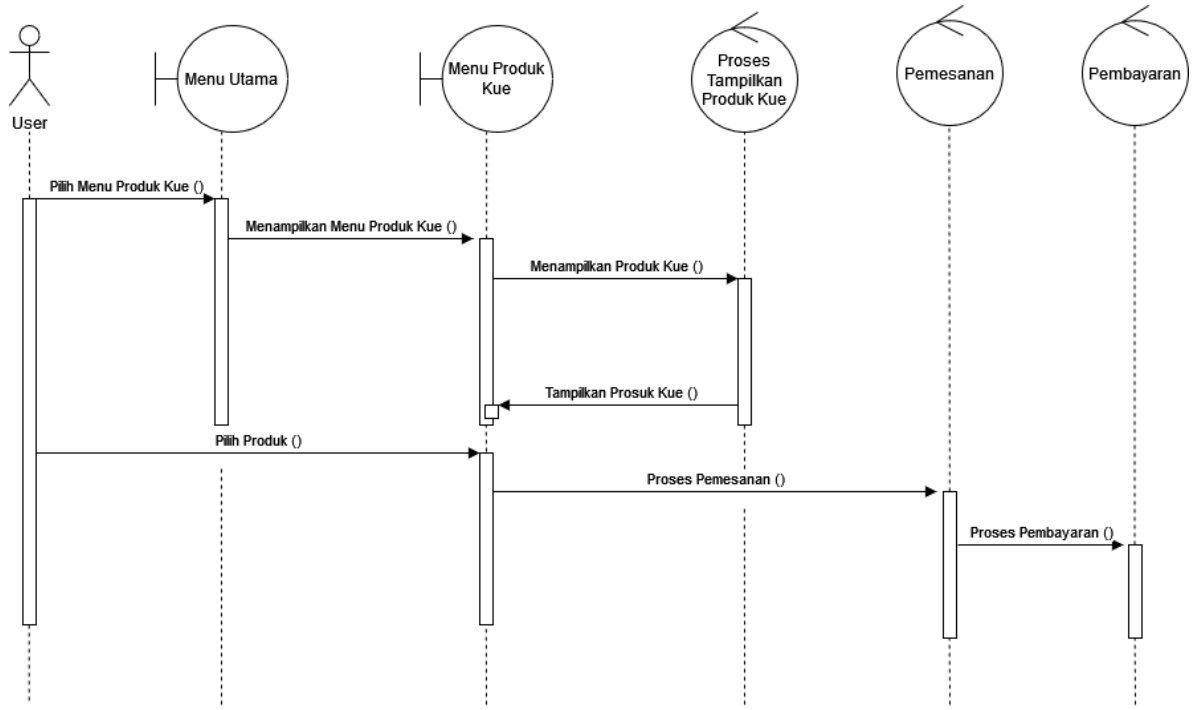

Figure 4. Sequence Diagram

2. Website Construction and Implementation

The following are the results of creating a website based on the system design that was created previously:

a. Main page

The following is a display of the main page of the cake shop sales website. Customers and admins can see the initial appearance of the sales website at Vavivegga Business House as in Figure 5.

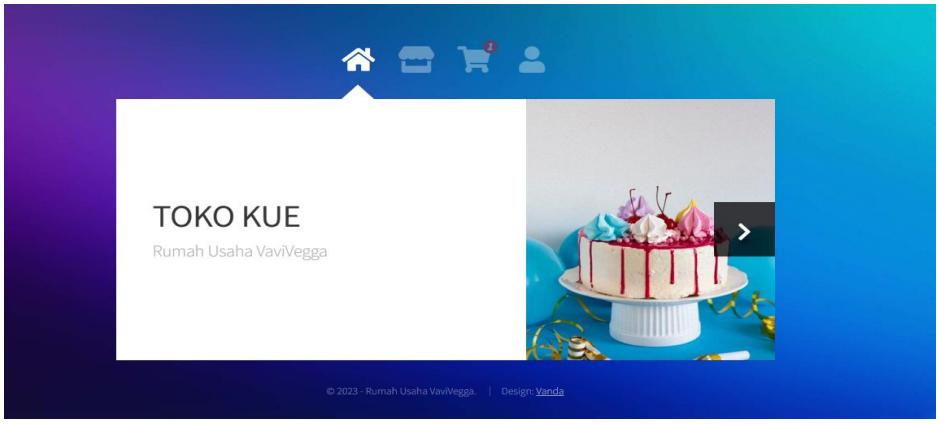

Figure 5. Store Website Appearance

b. Registration Page / Register Account

If you don't have an account, users must register first to be able to place an order. Users are required to enter their full name, password and email.

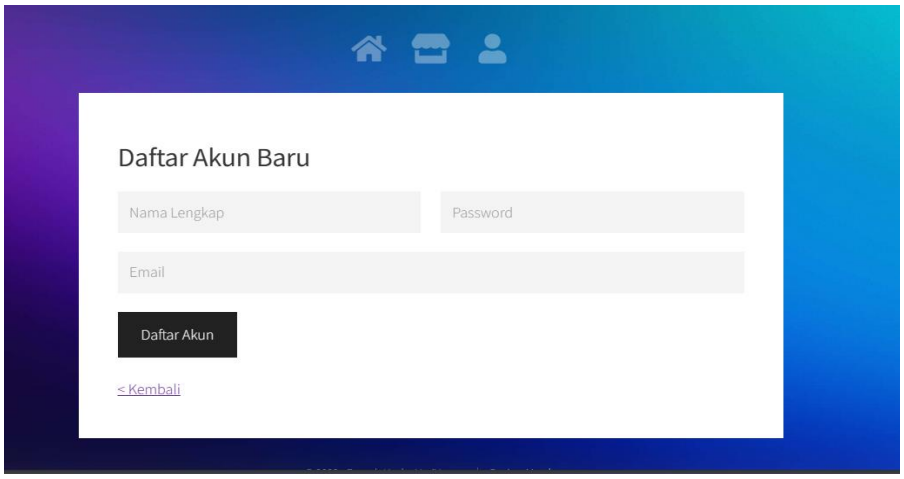

Figure 6. Account List Display

c. Login Page

If you have registered, the user can log in to his account by entering the registered email and password.

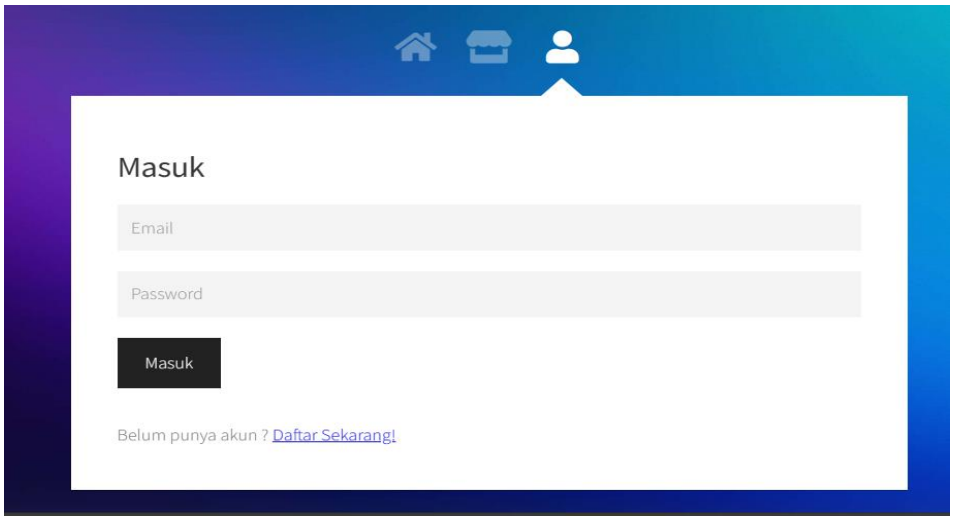

Figure 7. Login Display

d. Product Page

If the user has not logged in, then the user can see the cake products listed on the sales website as in Figure 8. However, if the user has registered and then logged in, the user can use the basket feature as in Figure 9.

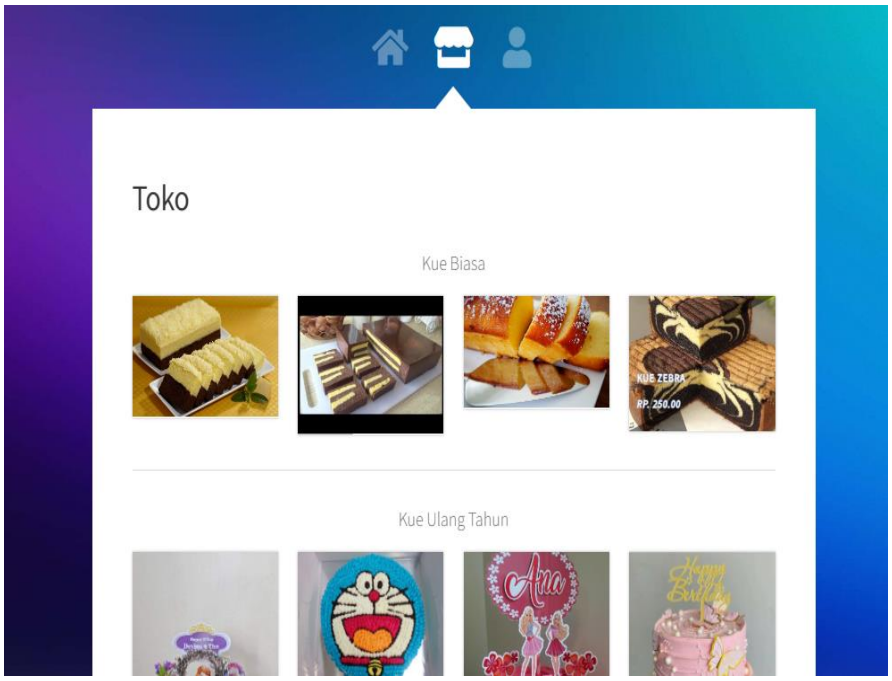

Figure 8. Product Display for Users who Have Not Logged in

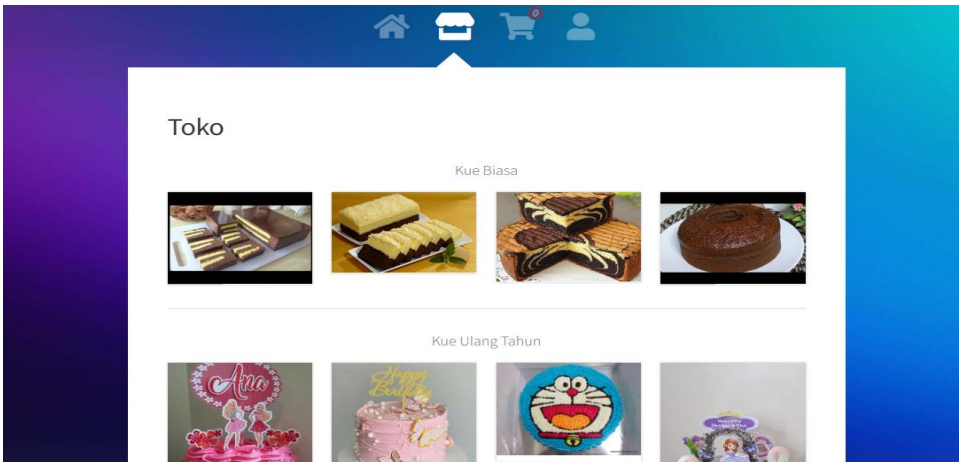

Figure 9. Display of the Product Page that Has Been Logged in

On the cake product page, various cake variants are displayed which are sold from the Vavivegga business house. Details of cake variants will appear when the user hovers the mouse over one of the products. The 'add to basket' feature will also appear in the form of a basket icon. Users can directly add products to their order basket.

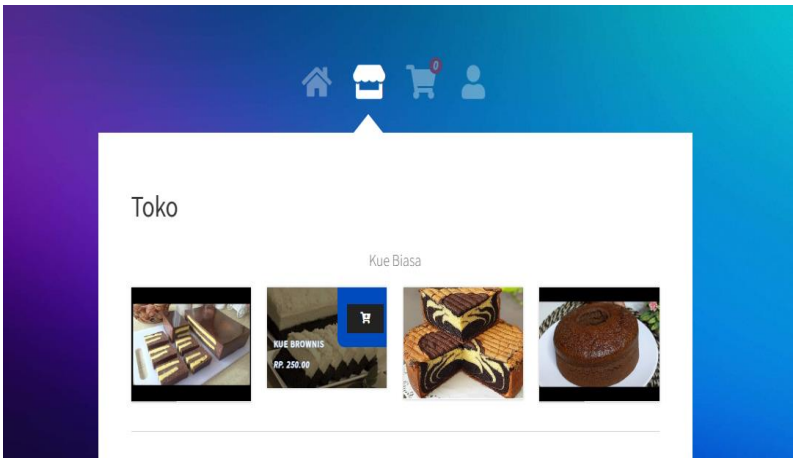

Figure 10. Cake Product Details Display

e. Shopping Cart Page

This page displays what cake products have been added by the user, the number of products, and the total order price before checking out.

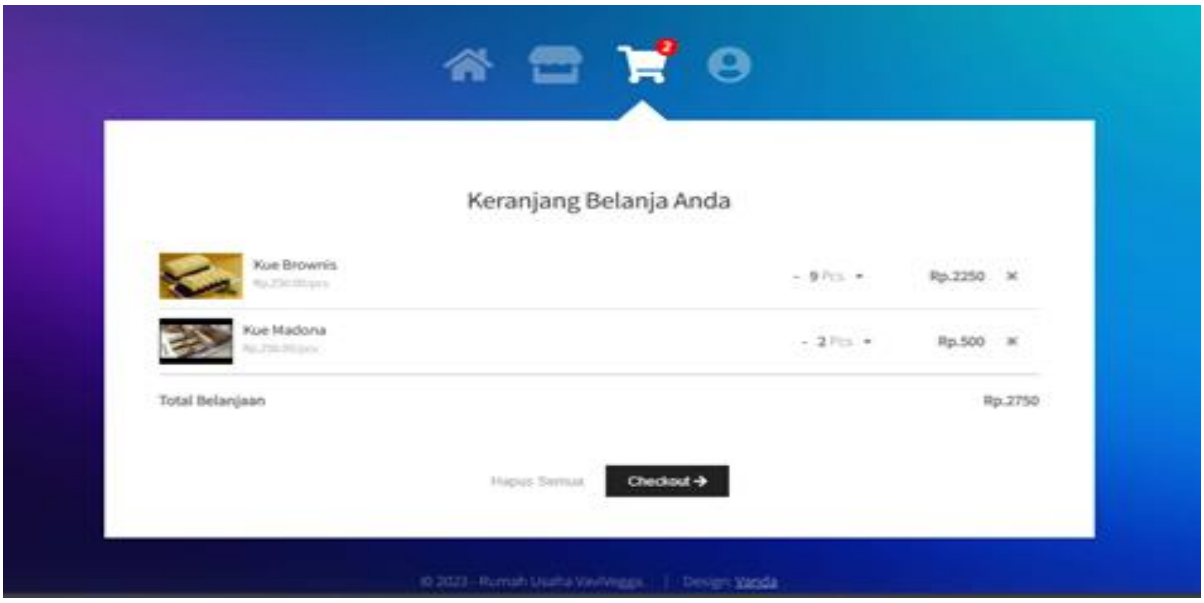

Figure 11. Shopping Cart Page Display

f. Order Details

After checking out, a display of order details will appear which will be sent automatically to the buyer. Buyers will make payments according to the payment method offered by the business owner.

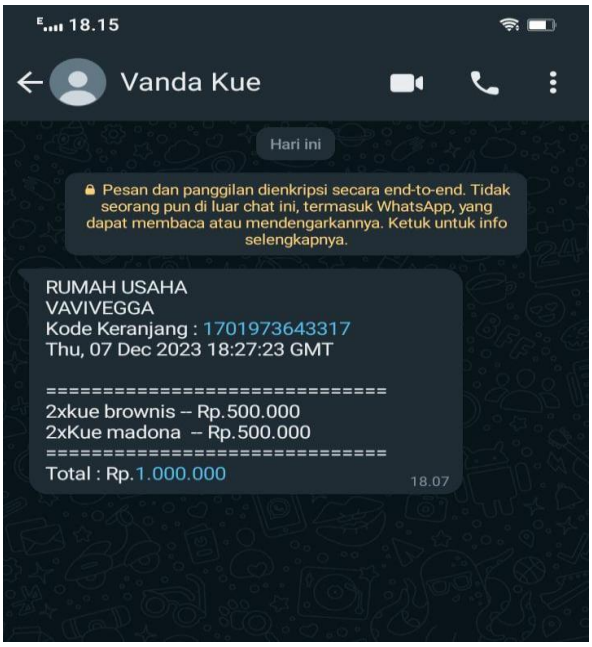

Figure 12. Example of Order Details Sent to WhatsApp

3. Website Testing

To ensure the website runs properly, researchers carry out tests using the black box testing method manually

a. Login Feature

Table 2. Blackbox Testing Login Testing

No	Testing Scenarios	Test case	Expected results	Test result	Conclusion
1	Username and password are not entered	Username (Blank) Password (Blank)	The system will provide a message or notification "Please enter username and password"	According to expectations	Valid
2	Enter your username and password, then log in	Username : abcde Password: (Blank)	The system will give the message "Password has not been entered"	According to expectations	Valid
3	Enter the password, and the	Username : (Blank)	The system will give the message "Username has not been entered"	According to expectations	Valid

	username is not filled in	Password: 12345			
4	Enter an incorrect or incorrect username and password then log in	Username : bbbbb Password : bb123	The system will give the message "The username and password you entered are incorrect"	According to expectations	Valid
5	Enter the appropriate or correct username and password	Username : abcde Password : 12345	The system automatically receives login access and then the system will display the initial appearance of the website	According to expectations	Valid

b. Adding Products to Cart Feature

Table 3. Blackbox Testing Add Product to Cart

No	Testing Scenarios	Test case	Expected results	Test result	Conclusion
1	Select the cake product you ordered into your basket	Number of Madonna Cakes (0) Number of Brownie Cakes (1)	The system will automatically provide a message or notification “Please enter a valid amount” “Cake product added successfully”	According to expectations	Valid

c. Adding Products Features (Admin)

Table 4. Blackbox Testing Add Product Testing by Admin

No	Testing Scenarios	Test case	Expected results	Test result	Conclusion
1	Name, price, category and image are not filled in then click the add button	Name (Blank) Price (Blank) Category (Empty) Image (Blank)	The system will automatically provide a message "Please fill in this column"	According to expectations	Valid
2	Enter name, price, category, empty image then click the add button	Name: Madonna Cake Price (Blank) Category (Empty) Image (Blank)	The system will automatically provide a message "Please fill in this column"	According to expectations	Valid
3	Enter the price, and name, category, image is not filled in then click the add button	Name (Blank) Price (Rp. 250,000) Category (Empty) Image (Blank)	The system will automatically provide a message "Please fill in this column"	According to expectations	Valid

4	Enter the category, name, price, empty image then click the add button	Name (Blank) Price (Blank) Category (Ordinary Cake) Image (Blank)	The system will automatically provide a message "Please fill in this column"	According to expectations	Valid
5	Enter the image, name, price, category and then click the add button	Name (Blank) Price (Blank) Category (Empty) Image (Image input)	The system will automatically provide a message "Please fill in this column"	According to expectations	Valid

DISCUSSION

This research began by analyzing user needs. The results of this analysis provide insight into user preferences and expectations for the cake shop website that will be developed. These findings form the basis for all website design and development. The conclusion of the analysis of user needs, as shown in Table 1, explains that buyers can access several features on the website such as logging in, seeing what products are being sold, and adding products to their shopping basket. Meanwhile, the admin in charge of managing the website can log in, view products, add products you want to sell, edit product details, delete products, and view every order ordered by buyers.

Website system design carried out using the RAD method allows researchers to build websites in a structured manner and helps in making prototypes quickly. The UML diagram listed in the Results section also helps researchers to describe the structure and relationships between system components, thereby producing a website display construction that suits user needs. Researchers used the PHP programming language and MySQL as a database management system in implementing the cake shop website system.

After the website was successfully created, researchers also tested the website features to ensure the website was running properly. Testing was carried out using the manual black box testing method. Where in this test, researchers focused on the user interface, as well as input and output from

the website system. The test results show that the features on the website work well. Thus, overall, this research succeeded in creating a cake shop website that is responsive to user needs, with structured system design and feature testing that produces optimal performance.

CONCLUSION

The conclusions derived from the research on the design of a website-based online sales information system at Vavivegga Business House, specifically the cake shop website, can assist consumers in viewing cake products without the need to visit the physical store. Additionally, it facilitates an easier ordering process for consumers.

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