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UI/UX Design of An Android-Based Sales Application at Naureen Shop Using the User-Centered Design Method

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Abstract

The development of digital technology has shifted consumer behavior to prioritize convenience and efficiency through online shopping. Naureen Shop, a women's clothing business, currently faces operational constraints due to manual sales, promotion, and data recording processes, resulting in sub-optimal service. This study aims to design the User Interface (UI) and User Experience (UX) of an Android-based sales application for Naureen Shop to enhance business effectiveness. The method employed is User Centered Design (UCD), a design approach focusing on user needs and characteristics through stages of identifying the context of use, specifying user requirements, creating design solutions using Figma, and evaluation. The design testing results using the System Usability Scale (SUS) method with 15 respondents yielded an average score of 77.0. This score indicates that the application design falls into the "Acceptable" category with a "Good" Adjective Rating. Consequently, the resulting design solution fulfills functional aspects and provides a satisfying user experience to support transaction processes at Naureen Shop

Keyword: *UI/UX, E-commerce, Android, User Centered Design, System Usability Scale*

1. Introduction

The current digital era has transformed several societal habits. Digital-based applications, which offer a variety of conveniences, have transformed several user habits, including shopping. Consumers now prioritize fast and convenient shopping experiences without having to leave the house.The increasing trend of online shopping and people's dependence on mobile devices to meet their daily needs has made business competition in the digital era require business actors to provide platforms that are not only technically functional but also comfortable to use in order to increase sales conversion rates.

According to data from the Indonesian Internet Service Providers Association (APJII), 89.03% of people in Indonesia access the internet using mobile phones/tablets, and 21.26% use the internet for online shopping on e-commerce.[1]However, currently there are still many shops/MSMEswhich still uses manual recording or less efficient systems, so that data errors often occur or service to customers is slow.

Naureen shop is a shop that sells various kinds of women's clothing. Currently, Naureen shop is still operating manually, where buyers must come to see the clothes being sold directly or make purchases via WhatsApp. In addition, sales data recording is still done manually, namely recorded in a book, andpromotional activities are carried out via Instagram by uploading product images,With the current system in place at Naureen Shop, service and promotions are still far from optimal. Therefore, Naureen Shop needs an Android-based e-commerce platform to support the buying and selling process.E-commerce makes buying and selling much easier because almost everyone has internet access, making transactions easier. Design is a crucial element in e-commerce, not just about how attractive it is, but also about functionality and user-friendliness.[2].

UI/UX design is a very important element in an E-commerce website system so that users can easily use all the features.[3]. Therefore, designing the UI/UX of the Android-based sales application at Naureen Shop using the User-Centered Design (UCD) method is the right choice. User-Centered Design (UCD), also known as human-centered design, is an approach to developing interactive systems that focuses on creating useful systems.[4]User-Centered Design (UCD) can be defined as an iterative approach to interface design that focuses on the needs of the user (end-user) so that the final design is influenced by the user, resulting in an application that is not only functional but also able to provide an optimal shopping experience.[5].

In previous research conducted by Retno Tri Amanda and Raissa Amanda Putri with the title "Application of User-Centered Design Method in E-Commerce Sales System"that the application of the User-Centered Design (UCD) method has succeeded in creating an e-commerce system that is more responsive to user needs through an iterative design approach and a focus on interface comfort. By involving users in every stage of development—from context identification to final evaluation—the resulting design has been proven to be able to increase transaction efficiency, minimize navigation errors, and achieve a high level of user satisfaction, making this system feasible and effective for implementation on a wider operational scale.[6].

Previous research written by Hariansyah, Hersanto Fajri and Berlina Wulandari with the title "Implementation of the User Centered Design Method in the Design of the UI/UX Prototype of the Lacakin Application" The study concluded that the application of the User Centered Design (UCD) method successfully produced a goods tracking application (Lacakin) interface design that was in accordance with user characteristics and expectations. Through an iterative process that placed the user at the center of development, this study successfully identified crucial needs such as easy access to receipt information and clear visualization of shipping status. The final test results showed that the prototype had a high level of usability, was able to reduce navigation confusion, and provided a satisfying user experience. Overall, the UCD method proved to be the right approach to transform the functional needs of goods tracking into an intuitive and easy-to-operate application design.[7].

In the researchH. Ramadani and BP Tatwo with the title "Designing the User Interface (UI) and User Experience (UX) of the Blue Economy Application: Blue Economy Innovation in Realizing a Sustainable Sea". This study concludes that the User-Centered Design (UCD) method successfully transforms the complex concept of the blue economy into an educational and functional digital platform. Through a user-oriented approach, the research team succeeded in creating an interface that is able to socialize the importance of marine ecosystem sustainability (Sustainable Sea) in an attractive and easily understood way by the wider community. Technically, the conclusion of this study emphasizes that the visual aesthetic aspect and ease of access to information are key factors in increasing user awareness of environmental issues. The test results show that the design of this application not only functions as a transaction or information tool, but also as a digital innovation that can support sustainable development targets. The UCD method has proven effective in ensuring that the application features are aligned with the needs of the target audience, thereby minimizing barriers to using niche applications.[8].

2. Research Methodology

The research methodology outlines the stages involved in the current research. The research stages can be seen in Figure 1 below:

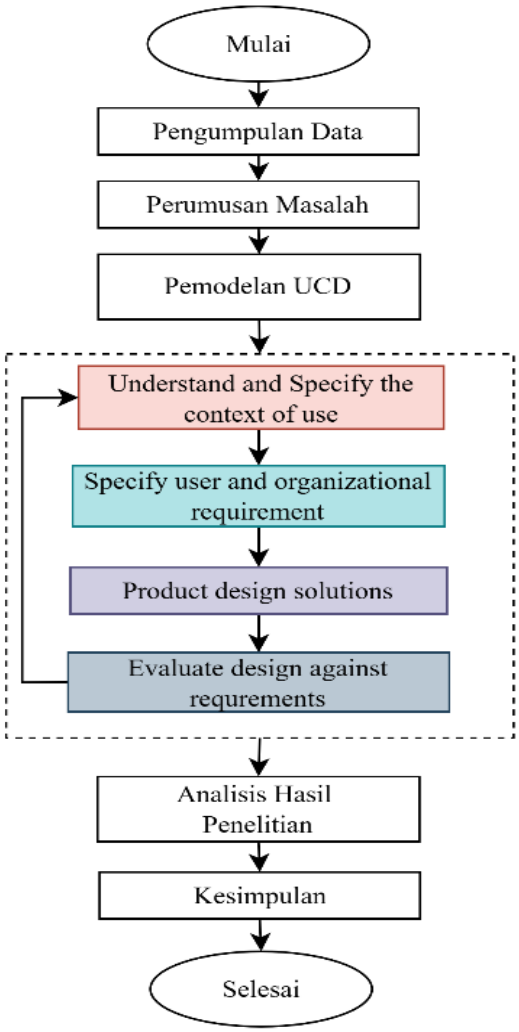

Fig. 1: Research Stages

The analytical method used in this research is User-Centered Design (UCD), which focuses on the user as the center of system development to produce an appropriate design solution that meets user needs. There are several stages in User-Centered Design, namely:

1. Understand and Specify The Context of Use
   At this stage, the process of identifying who the users of the system to be designed are and knowing the context of application use.
2. Specify User and Organizational Requirements
   This stage is the process of identifying user needs for the sales application to be designed. During this stage, researchers conducted interviews with the owner of Naureen Shop and customers who would purchase the product.

3. Product Design Solutions
   The next stage will be the User Interface (UI) and User design stage*Experience*(UX) using figma tools prototype android-based sales application.
4. Evaluate Design Against Requirements
   The aim of this stage is to evaluate the design directly with users to determine the needs of a sales application that suits user needs using the methodSUS (system usability scale).

3. Results And Discussion

3.1 User Centered Design Analysis

The following is a discussion of the analysis and design stages of the UCD method:

1. Understand and Specify The Context of Use

At this stage, there is a process of understanding the context of application use and identifying the characteristics of users of the Android-based sales application that will be created.

Based on the results of interviews conducted with the owner of Naureen Shop, the characteristics of users and the context of using the sales application can be explained as follows:

a. Owner/Employee is an admin who manages the smooth operation of the entire sales system, is responsible for product management and updates to detailed product information, manages product orders and delivery.
b. Buyers are users of the Sales Application, who can access all the features available in the Android-based sales application, can add, reduce and update products in the cart, make orders and payments easily and quickly, and are guaranteed security.
c. Application users are customers who are interested in shopping online using a mobile phone/tablet, and understand how to use the internet.

2. Specify User And Organizational Requirements

At this stage, specific user needs are identified for the sales application design to be created. This step is crucial before the design phase. User needs identification is obtained through interviews with future sales application users, namely the Naureen Shop owner and regular customers. The following are the results of the user needs identification for the Android-based sales application at Naureen Shop:

a. Admin can manage products, manage product categories, manage customer data, manage sales reports, and manage applications.
b. Customers can access the product search feature based on category, view product pages and product detail pages, view the cart, checkout page, payment page and seller's social media features.

3. Product Design Solution

At this stage, the solution design process is offered based on the various ideas gathered. This design solution produces a sitemap and user flow diagram, as well as a prototype of the Android-based sales application for Naureen Shop.

1. Sitemap and Userflow design

*Sitemap*is a clear explanation of the design concept and organization of knowledge of a website, so it is considered the basis of the site.[9]In the application or website design phase, a sitemap plays a crucial role in establishing a navigation path that is easy for users to understand. With a sitemap, developers can organize pages in an organized manner, allowing all features and content to be accessed quickly and efficiently.[10].

*Userflow*is a user workflow in a system or application to complete a task. Userflow is a diagram depicting a user's journey scenario when accessing a system.[11]The purpose of user flow is to help designers plan the steps before creating a website interface design and avoid overly complicated navigation to make it easier for users.[12]. The design of the sitemap and user flow of the sales application can be seen in Figures 2 and 3 below:

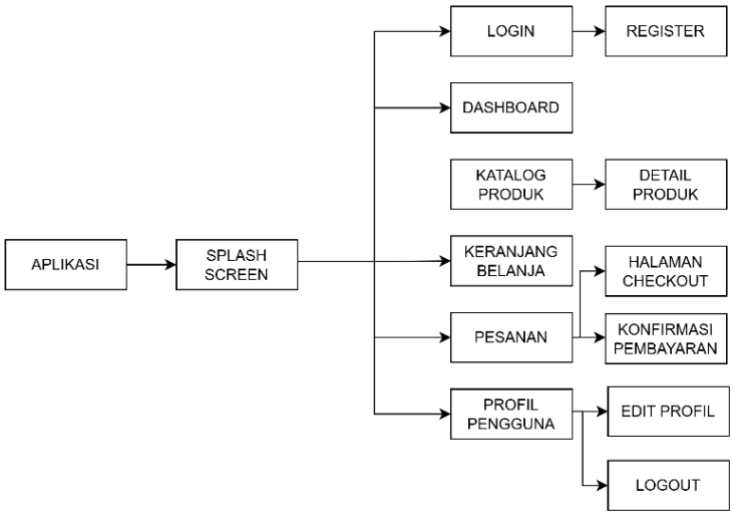

Fig. 2: Sitemap

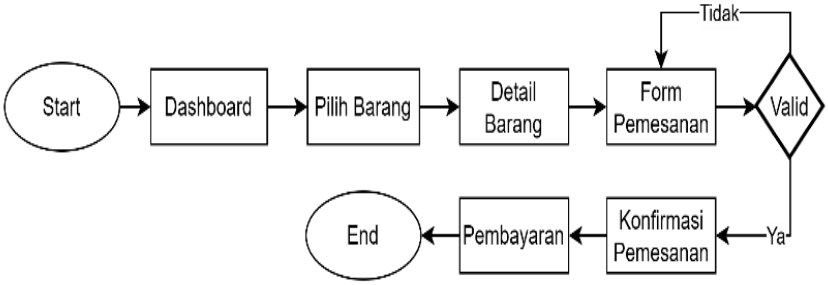

Fig. 3: Ordering user flow

2. Prototype Design

During the prototype stage, the Android-based sales application for Naureen Shop was designed. Figma was used to design this sales application. This process began with sketching each page or section of the Android-based sales application, expressed as a low-fidelity wireframe.

Wireframe of the login and user registration page on the Android-based sales application on Naureen Shop which displays the username and password columns as well as user personal data which can be seen in Figures 4 and 5 as follows:

Fig. 4: Login Page Wireframe

Fig. 5: Wireframe of the User Account List Page

Next comes the interface design. Figure 6 shows a prototype design for the Android-based sales application at Naureen Shop, specifically the login and new user registration menus. The prototype design was tailored to the user needs and characteristics previously identified.

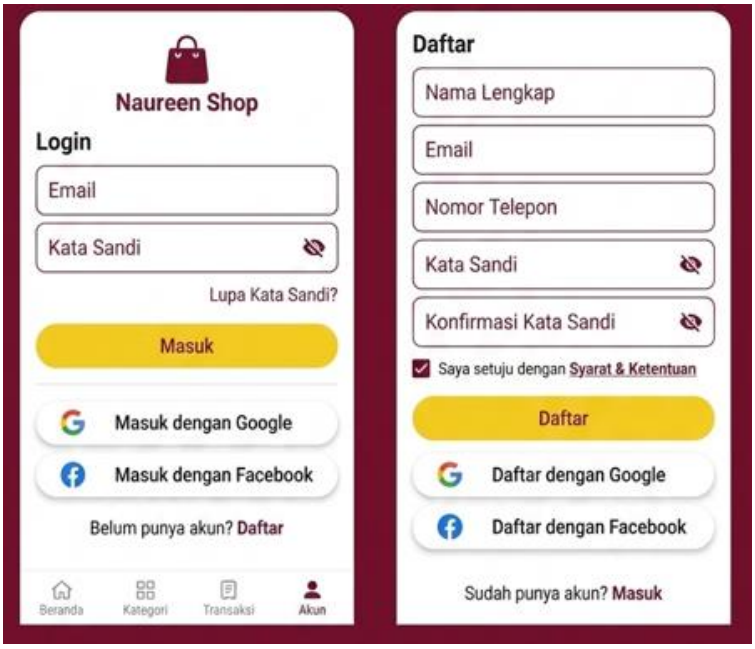

Fig. 6: Prototype Design of New User Login and Registration

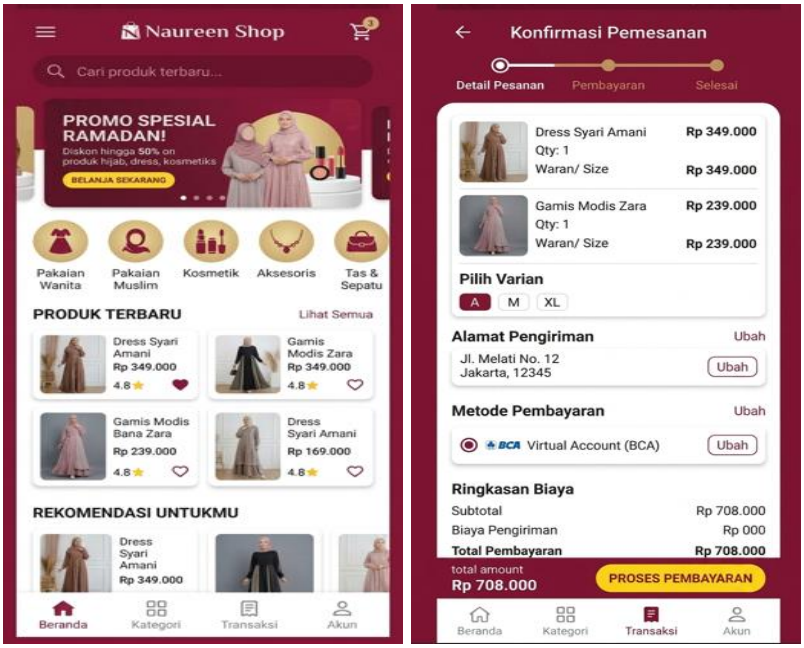

Fig. 7: Prototype Design of Home and Order Pages

Figure 7 above shows the prototype design for the homepage of the Android-based sales application on Naureen Shop, which displays several product categories, a transaction menu, a shopping cart, a product search menu, and a user account. The order confirmation page contains the recipient's address, payment method, a cost summary, and a payment process menu. The menus on the homepage and order confirmation were created based on interviews with the owner of Naureen Shop.

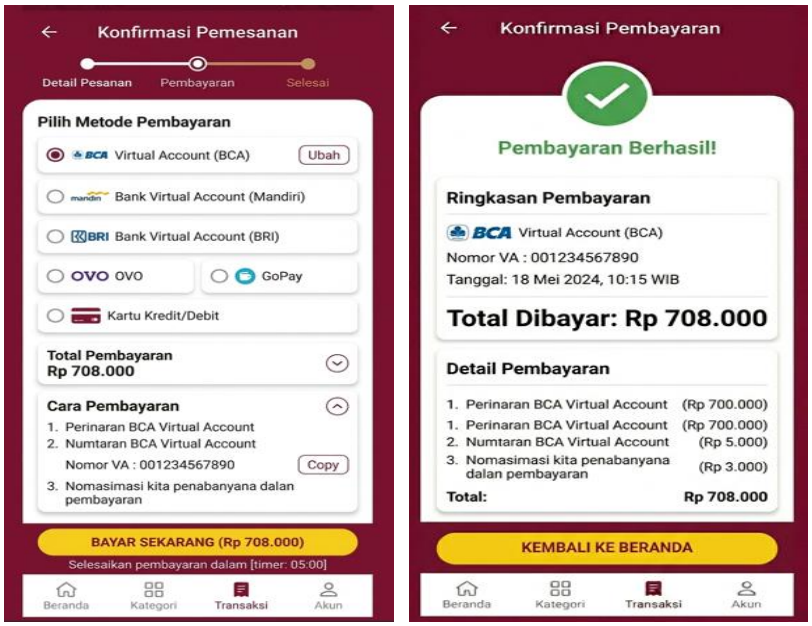

Fig. 8: Payment Page Prototype Design

Figure 8 shows a prototype design of the payment and payment confirmation page. On the payment page, buyers can select their preferred payment method. Once selected, they can select the "pay now" menu and proceed with the payment. After successful payment, a successful payment notification will appear on the payment confirmation page.

Fig. 9: Prototype design of the Transaction History and logout page

The prototype design for the transaction history page in Figure 9 above contains details of a buyer's successful order. The logout menu will display a confirmation message asking the buyer to log out of the Naureen Shop Android-based sales app.

4. Evaluate Design Against Requirements

This stage is the final stage after the UI/UX design is complete. This stage is carried out to assess and evaluate the results of the UI/UX design. Testing was conducted using the SUS (system usability scale) method using a Google form. The Google form was filled out by 15 respondents consisting of the Naureen Shop owner and regular customers at Naureen Shop. The results of the SUS test can be seen in the following table:

Table 1: SUS Test Results

Respondents	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	SUS Score
R1	4	1	5	2	4	1	5	1	4	2	77.5
R2	5	2	4	1	5	2	4	2	5	1	75.0
R3	4	2	4	2	4	2	4	2	4	2	70.0
R4	5	1	5	1	5	1	5	1	5	1	100.0
R5	4	2	5	2	4	1	4	2	4	2	72.5
R6	3	2	4	3	3	2	4	2	4	2	62.5
R7	5	1	4	1	4	1	5	1	4	1	85.0
R8	4	1	4	2	5	1	4	1	5	1	85.0
R9	5	2	5	2	4	2	5	2	4	2	77.5
R10	4	2	4	1	4	1	4	2	4	2	70.0
R11	5	1	5	1	5	1	5	1	4	1	92.5
R12	4	2	4	2	4	2	4	2	4	2	70.0
R13	3	2	4	2	3	2	3	2	3	2	55.0
R14	5	1	5	1	4	1	5	1	4	1	90.0
R15	4	1	4	2	4	1	4	2	4	2	72.5
Average											**77.0**

Based on the calculation results using the System Usability Scale (SUS) formula, the Sales application design obtained a final score of 77.0. This value falls into the ACCEPTABLE category in the acceptability range and is at the GOOD level for the adjective rating. With this score, it can be concluded that this application design has a high level of usability and is able to provide a satisfactory

experience for its users. This score also indicates that the features and user flow in the application are considered easy to understand and support user needs well.

4. Conclusion

Based on the design results and discussion regarding the UI/UX of the sales application at Naureen Shop, several conclusions can be drawn as follows:

1. The application of the User Centered Design (UCD) method successfully transformed the functional needs of shop owners and customers into a structured application design.
2. The UCD stage ensures that every feature, such as the product catalog, shopping cart, and payment confirmation, is designed based on the characteristics and workflow (user flow) desired by the user.
3. The results of the design evaluation using the System Usability Scale (SUS) method on 15 respondents showed an average score of 77.0.
4. This score places the application in the ACCEPTABLE category and the adjective rating level GOOD, which means that the application design is considered easy to understand and able to provide a satisfying user experience.

5. Suggestion

For further system development to perfect the Naureen Shop application, the following suggestions can be made:

1. Develop this prototype into a real Android application implementation stage so that it can be used immediately in business operations.
2. Adding other supporting features such as automatic payment integration (payment gateway) and real-time tracking of goods delivery status to increase customer trust.
3. Conduct retesting after the application is fully implemented with a wider number of respondents to get more varied feedback.
4. Regularly updating the interface following the latest design trends and direct feedback from active users to maintain user satisfaction levels.

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