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ANDROID BASED E-COMMERCE APPLICATION DESIGN FOR FASHION STORE

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Abstract

E-commerce is an online buying and selling platform that can make buying and selling transactions easily without the need for customers to come to the place to make purchases, just rely on cellphones, computers and the internet network to make transactions. Fashion Store is one of the many trading companies involved in the fashion world that only sells various products such as T-shirts, Jeans, Hats, Shoes etc. Fashion Shop products are products made locally, so far promotions from this shop have only been carried out via WhatsApp and Instagram media. In building an android-based sales system or commonly called e-commerce, the author uses code in the design. The method used is a prototype, where the data and information needed can be obtained through direct observation and interviews. By making this Android-based sales application, it can help sell products more efficiently, and can help manage sales data as well as product stock.

Keywords: E-Commerce, Android Based Application, Sales System

INTRODUCTION

E-commerce is an online buying and selling platform that can make buying and selling transactions without the need for customers to come to the place to make purchases, just relying on mobile phones, computers and internet networks to make transactions. With the development of increasingly sophisticated and easy-to-obtain information technology, the development of e-commerce is increasingly in demand by trading companies.

Fashion Store is one of the many trading companies involved in the fashion world that only sells various products such as T-shirts, Jeans, Hats, Shoes, etc. Fashion Store products are products that are made locally, so far the promotion of this store has only been done through WhatsApp and Instagram media.

In helping to solve the above problems, the author wants to create an Android-based e-commerce that will be designed using Kodular so that it does not take a long design time because this information system is still on a small scale so that the prototype is suitable for application in this design (Syarif and Wahyu, 2018).

Fashion is an inseparable part of everyday appearance and style. Items such as clothes and accessories worn are not just body coverings and decorations, more than that, they are also a means of communication to convey personal identity (Hendariningrum, R., & Susilo, ME 2019).

Application

The general definition of an application is an applied tool that is used specifically and in an integrated manner according to its capabilities. An application is a computer device that is used by users (Iftitah Amiliyah, 2021).

E-commerce

E-commerce or the abbreviation of Electronic Commerce which in Indonesian means electronic trade is an activity in the form of selling, buying or marketing products in the form of goods or services using the internet network. Simply put, e-commerce is the process of selling or buying products in the form of goods or services electronically. E-commerce is currently growing and can slowly replace stores that have real buildings or offline stores (Clara Liusputri, 2021)

Android

According to Athoillah and Irawan (in Afista Galih Pradana, 2019) Android is a Linux-based operating system used by mobile devices such as smartphones and tablets.

Figure 2.1 Development of the Android Operating System

The image above explains the development of an android version from its inception until now. And in the future android will continue to develop as with the development of increasingly advanced technology.

Fashion

According to the Big Indonesian Dictionary, fashion has the meaning of a variety of ways or forms (fashion styles, haircuts, patterns and so on) the latest in a certain period of time. Therefore, fashion can change and change quickly over time. The original meaning of the word fashion refers to activities, fashion is something that someone does, unlike today, which interprets fashion as something that someone wears. In the Journal of Communication Science, Volume 6, Number 2, May - August 2008, entitled Fashion and Lifestyle: Identity and Communication, it is written that Fashion comes from Latin, factio, which means to make or do. The original meaning of fashion also refers to the idea of fetish or fetish objects. This word reveals that fashion items and clothing are the most fetishized commodities, which are produced and consumed in capitalist society (Retno Hendariningrum and M. Edy Susilo, 2019)

Codular

Kodular is a website, which provides tools to create android applications with the concept of drag-drop block programming that resembles MIT App inventor to create android applications using block programming. No need to type the program code manually to create an android application. Kodular provides a theme costume

according to your wishes so that it is comfortable when using the site in creating or creating android applications (Nur Cholid and Herni Ambarwati, 2021).

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Claudius

Ihsan, Suhaman, and Hidayat, stated that basically Cloudinary has 2 options provided, upload via API and Web. To upload via the Web, the concept is the same as in Google Drive, just browse, participants are given access to create directories there as freely as you and just click upload to upload images, videos or other data, Cloudinary is a SaaS technology company headquartered in Santa Clara, California, with offices in Israel, England, Poland, and Singapore (Medy and Saharuddin, 2022).

Google Sheets

A spreadsheet is a computer program used to store, display and process data in the form of rows and columns. Usually use number labels 1,2,3 and so on. Columns use A,B,C and so on. Data processing in Spreadsheets is stored in a cell. The naming is in accordance with the use of labels in the columns and rows used, for example A1, A2, A3 and so on.

Spreadsheets themselves are tables in a computer that contain rows and columns that can be used to manipulate and organize data (Suwiji, 2020).

METHOD

The method used in this study is the prototype method, aimed at developing an Android-based e-commerce application for a fashion store. The prototype method was chosen because the application development process is still on a small scale and requires a fast design so that it can be immediately tested and refined according to user needs (Syarif and Wahyu, 2018). The data and information needed for application development were collected through direct observation Pugu, et al (2022), interviews with the fashion store owner who is the research subject, ensuring that the developed application truly meets their business needs.

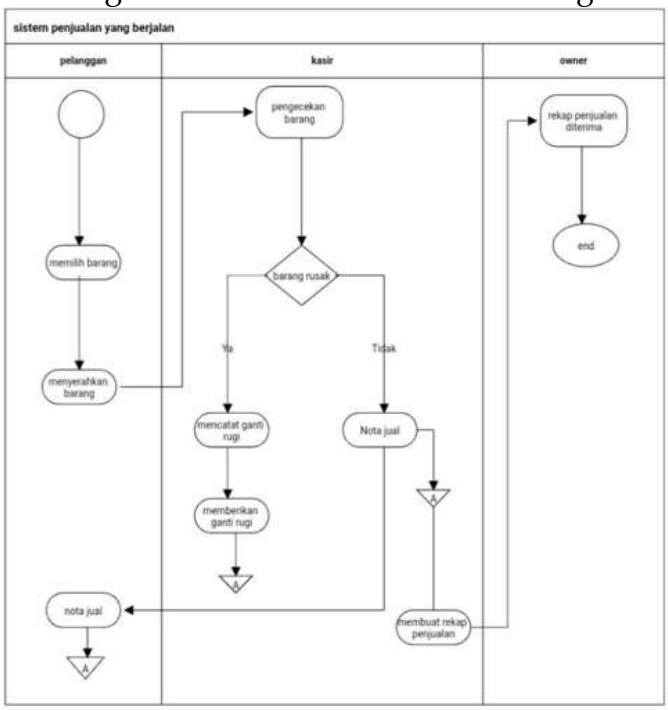
The application development was carried out using Kodular, a web-based platform that allows the creation of Android applications with a drag-and-drop block programming concept without having to write code manually. Kodular facilitates the design process by providing theme customization features and extension support that make it easier for developers to develop the application (Nur Cholid and Herni Ambarwati, 2021). For data storage, the application uses Google Sheets as a database to store, display, and process sales transaction data, product stock, and customer data in an organized manner (Suwiji, 2020).

The system analysis stages include understanding the business processes running in the fashion store, from product selection by customers, stock checking by cashiers, payment, to sales report generation. Based on this analysis, the system design was then carried out, including activity diagrams, use case diagrams, sequence diagrams, and class diagrams that describe the interaction between users and the system in detail. System implementation took into account hardware specifications such as a computer with an Intel Core i3 processor and a minimum Android version of 8.0 to ensure the application runs optimally. Additionally, testing was performed using the black box testing method to ensure application features, such as user registration, function as expected without errors.

With the prototype method and Kodular development tools, this application is expected to help the fashion store improve online sales efficiency, expand market reach, and facilitate real-time management of sales data and product stock (Syarif and Wahyu, 2018; Nur Cholid and Herni Ambarwati, 2021; Suwiji, 2020)

Design analysis is a valuable method for solving problems by breaking down a system into its components to evaluate how well each part functions and interacts to achieve the desired outcomes. This process helps identify the strengths and weaknesses of the system and serves as a reference when developing or proposing improvements. Design itself, according to Soetam Rizki, is defined as a process that involves using various techniques to define an object, including describing its architecture, components, and the constraints encountered during its operation (Efmi Maiyana, 2018). For example, in a fashion store sales system, an activity diagram can illustrate the current business process flow, showing how different activities are executed within the system. This can currently be seen in the following image:

Figure 3.1 Business Process Running



Procedure for goods leaving the Fashion Store:

a. Customers who come choose goods according to their wishes
b. Shop assistant/cashier checks the availability of goods

c. After the goods the customer wants are available, the customer makes payment to the store cashier.
d. If there is a defect or damage to the clothes purchased before the customer leaves the store, the cashier is obliged to replace them with new ones.
e. The store cashier gives the purchase note to the customer and hands over the goods.
f. The store cashier creates and provides sales reports to the owner.

Proposed System Process

Based on the analysis of the running system above and the shortcomings of the current running system, the researcher proposes a solution to solve the problem so that it is hoped that this system can help with the existing problems. The following solutions that the author proposes are:

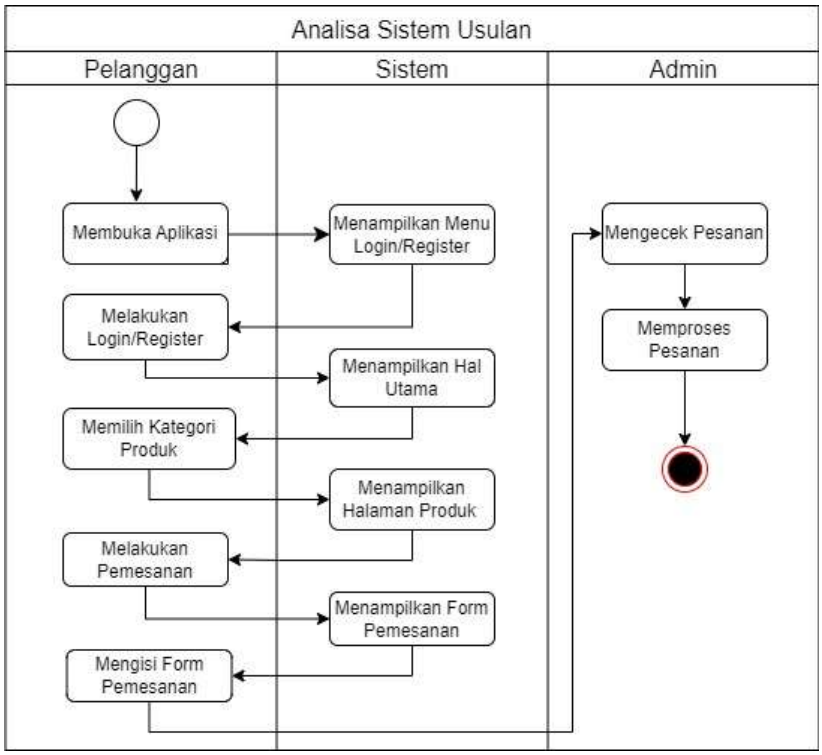
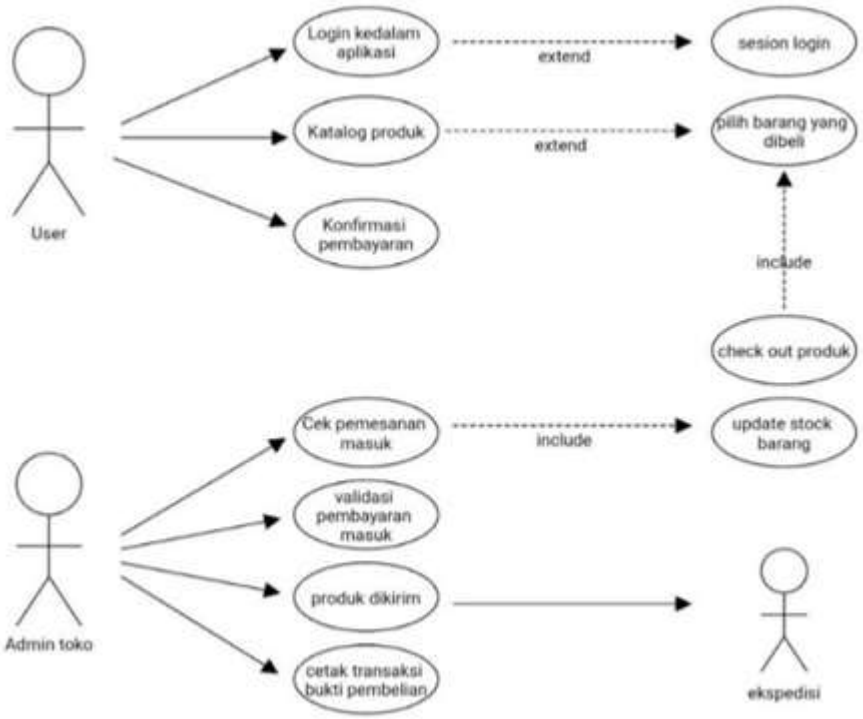


Figure 3.2 Proposed System Business Process

Use Case Diagram

The usecase diagram below will be used in the design of the Fashion Store application.

Figure 3.5 Usecase Diagram design that will be used



Scenario:

a. User List

Table 3.1 Usecase Diagram User List

Use Case Diagram	:	User list
Actor Name	:	User
Objective	:	Register for membership to view the catalog and make purchases.
Initial Conditions	:	Buyer is on the login menu
Final Condition	:	Buyers are on the main page
Description	:	Buyers are required to create an account first to be able to view the catalog on the Fashion Store application.

Activity Diagram

Activity Diagram describes the flow of activities in the system being designed, how each flow begins, the decisions that may occur, and how they end.

Activity Diagram Register

The following is a picture of the Registration Activity Diagram in Figure 3.6:

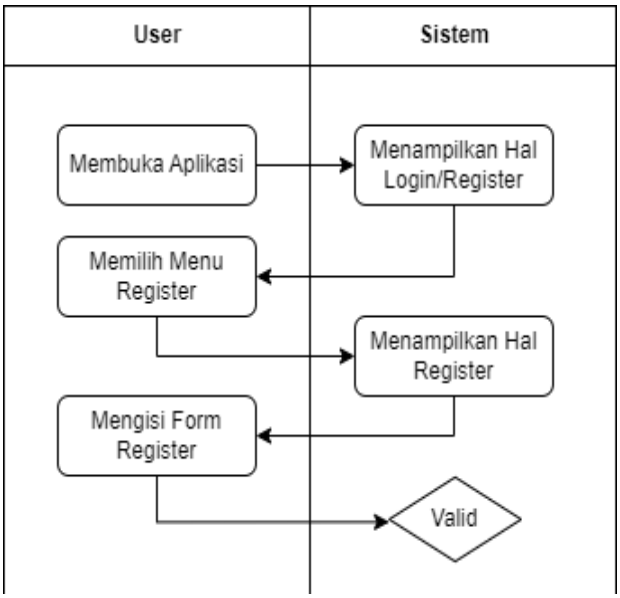


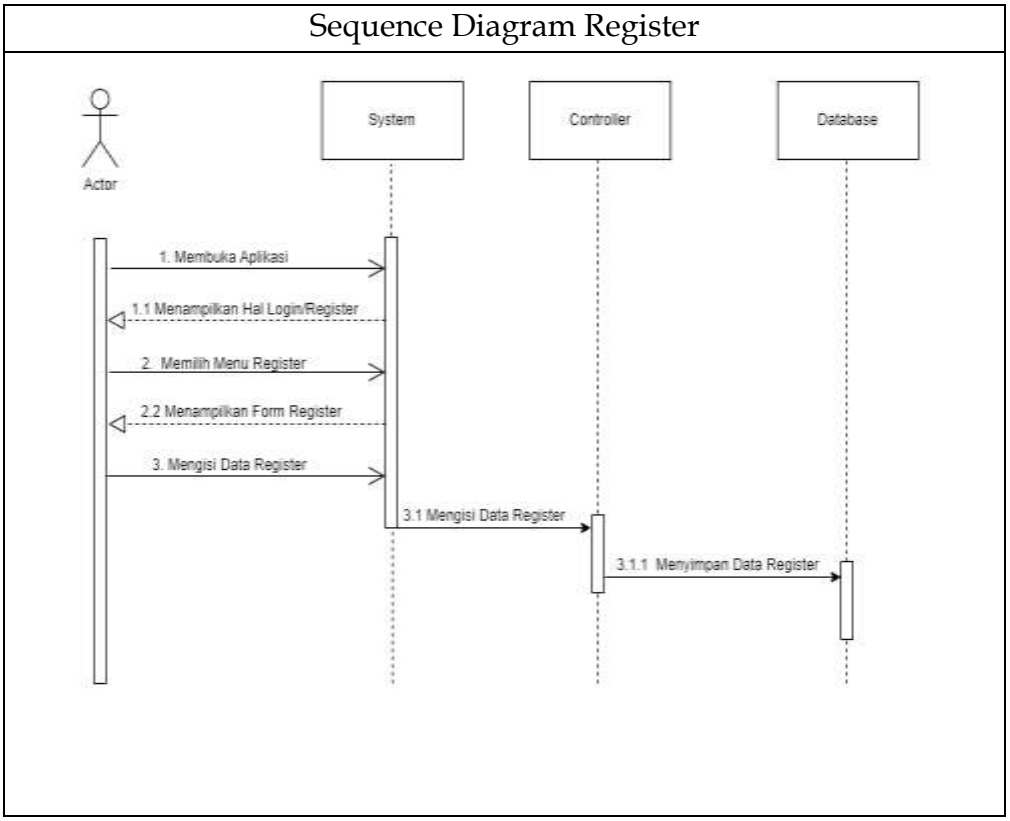
Figure 3.6 Activity Diagram Register

Sequence Diagram

Sequence Diagram describes the interaction between objects in and around the system. The following is an e-commerce sequence diagram for an Android-based Fashion Store:

Sequence Diagram User List

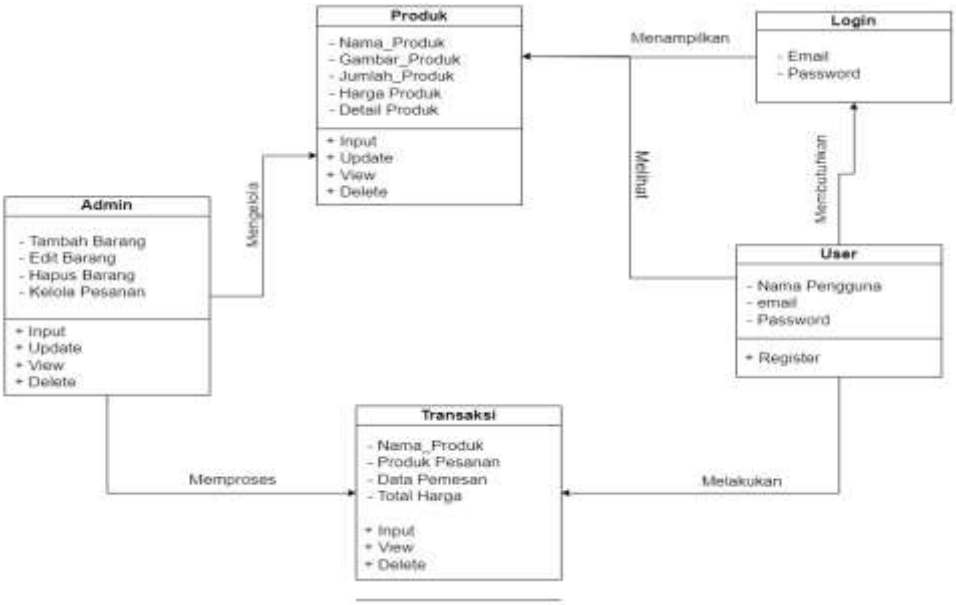
The following is a picture of the User List Sequence Diagram in Figure 3.14



below:

Figure 3.14 Sequence Diagram of User List

Class Diagram



The relationship between each class or table in the e-commerce information system database is shown in the Class Diagram. The login, user, product, transaction, administrator, and transaction tables are all classes or tables in the e-commerce information system.

RESULT

System Implementation

System implementation is the stage of implementing or executing a system that is ready to run according to the design and analysis of system requirements. The following are the specifications of supporting devices for the system implementation process in the form of hardware and software.

Hardware Implementation

Hardware is one of the physical components that functions to help design this android-based Fashion Store sales application. Hardware must have adequate specifications in the design, and the following are the specifications used:

Computer/Laptop Specifications

The following are the hardware specifications used on computers/laptops in application design:

- Intel(R) Core(TM) i3-6100U processor
- CPU 2.30GHz 2.30 GHz
- RAM 8.00 GB (7.86 GB usable)
- 64-bit operating system, x64-based processor

Android Specifications

The following are the hardware specifications used on Android in application design:

- Redmi Note 5 Pro
- 3/32 GB RAM
- Android 10 Version

- Indonesian Version

Software Implementation

Software is a computer program that functions as a link between users and hardware. To help design software must have adequate specifications in the design, and the following are the specifications used:

Computer/Laptop Specifications

The following are the software specifications used on computers/laptops in application design:

- Windows 10 Home Operating System
- Google Chrome
- Kodular io
- Google Sheets
- Internet Network

Android Client Specifications

The following are the software specifications required by the client so that the application can operate optimally:

- Android Version 8.0
- Kodular Companion
- Google Chrome
- Internet Network
- Google Sheets

User Interface Implementation

The implementation of the interface is a display that will directly connect the application with the user, so that the application can be run easily. The following is a display of the interface that has been created on an android-based e-commerce application:

User Login Page

Figure 4.5 below is a display of the User Login Page on the application:

Figure 4.5 User Login View

The image above shows the login page for users which functions as the user login page before entering the main page of the application.

User Home Page

Figure 4.7 below is a display of the User Main Page on the application:

Figure 4.7 User Main Page View

The image above shows the main page that will be seen by the user. Where on this main page will display all information about the main menu dashboard

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The following are the software specifications required by the client so that the application can operate optimally:

a. Android Version 8.0
b. Kodular Companion
c. Google Chrome
d. Internet Network
e. Google Sheets

Database Implementation

At this stage, the implementation of the database design that was carried out previously is carried out and as explained in the material above, the database used is a spreadsheet.

The following is a display of database implementation in an Android-based e-commerce application:

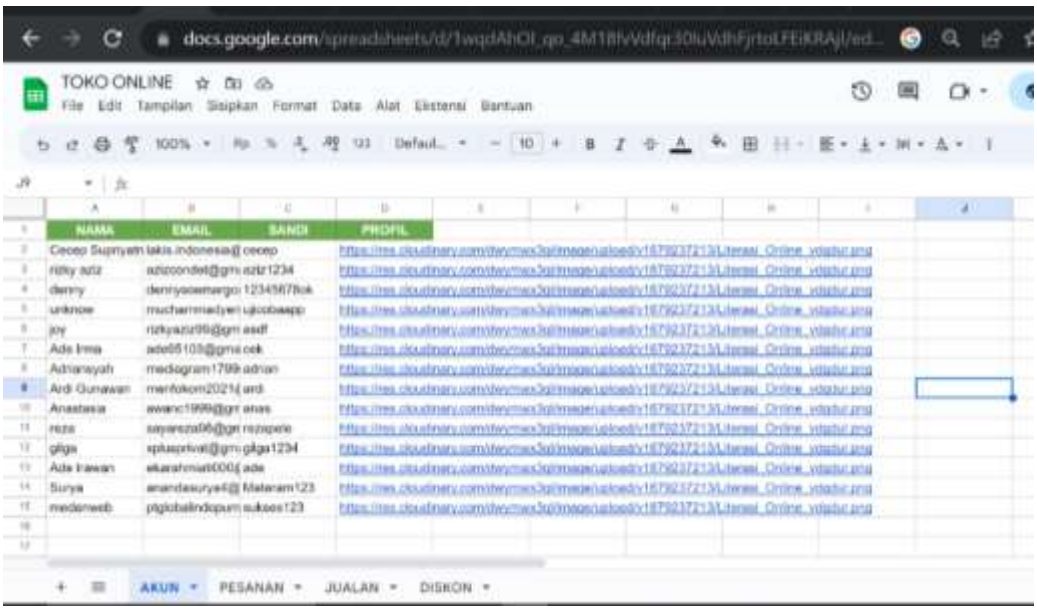

Figure 4.1 Database Use Implementation

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Testing

The testing process is carried out after the system is completed, at this stage it will be explained about the testing that has been carried out on the system. Testing aims to find errors in the software being tested.

Black Box Testing Register Testing

Table 4.1 below will show the register testing that will be carried out by the author, the following is the register testing table:

Table 4.1 User Register Test Results

No	Scenario	Test Case	Expected results	Test Results	Conclusion

1.	Register with your registered email		The system will reject the registration.		Valid
2.	Register with an email that has never been registered before		The system will accept the registration and will enter the main page.		Valid

The table above explains two tests that have been carried out by the author according to the scenario, namely:

2. Conduct testing by registering an account using an email that is already registered, with the result that the account registration failed and a popup appeared that the email was already registered.
3. Conducting a test by registering an account using an email that has never been registered, with the results obtained being that the registration was successful and the user was immediately taken to the main dashboard page.

CONCLUSION

The conclusion of this research and development of an Android-based e-commerce application for a fashion store highlights the crucial role of digital technology in enhancing the efficiency and effectiveness of online product sales. By employing the prototyping method during application development, the author was able to directly identify business needs through observations and interviews with the store owner, ensuring that the application aligns closely with real-world requirements and supports the existing business processes. The use of the Kodular platform, which features drag-and-drop programming, simplified the application development process by eliminating the need for manual coding, thereby accelerating the design and development phases.

The implementation of the application, utilizing Google Sheets as the database, provided convenience in managing transaction data, product stock, and customer information in an organized manner with real-time accessibility. The system design involved comprehensive analysis, including the creation of activity diagrams, use case

diagrams, sequence diagrams, and class diagrams, which detailed the interaction between users and the system as well as illustrated the current and proposed business processes. The hardware and software specifications were carefully selected to ensure optimal application performance, and black box testing demonstrated that key features, such as user registration, operated correctly without significant errors.

This e-commerce application development offers tangible benefits for local fashion stores by expanding market reach, reducing reliance on conventional social media promotions like WhatsApp and Instagram, and improving sales efficiency through a more structured and user-friendly system. Automated stock and sales data management assist store owners in making business decisions based on accurate and timely information. Additionally, the simple and intuitive user interface enhances user experience and accessibility.

Overall, this application provides an effective solution to the challenges of digitalizing retail fashion businesses and serves as a solid initial step for local fashion stores transitioning to the digital marketplace. Future development could include features such as integration with online payment methods, delivery services, and advanced sales analytics to better meet the dynamic and competitive market demands. Consequently, the application not only facilitates direct sales but also adds value by simplifying management and enhancing the competitive advantage of fashion stores in today's digital era.

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