**FRONT-END ANALYSIS AND IMPLEMENTATION FOR DESASA
HOME DECOR STORE INFORMATION SYSTEM WITH
E-COMMERCE INTEGRATION**

(Undergraduate Thesis)

By

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NPM 2017051041**

**FACULTY OF MATHEMATICS AND NATURAL SCIENCES
LAMPUNG UNIVERSITY
BANDAR LAMPUNG
2024**

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**As
One of the requirements to attain a
Bachelor's degree in Computer Science**

Within

**The Computer Science Department,
on the Computer Science Bachelor's Program**

**FACULTY OF MATHEMATICS AND NATURAL SCIENCES
LAMPUNG UNIVERSITY
BANDAR LAMPUNG
2024**

ABSTRACT

FRONT-END ANALYSIS AND IMPLEMENTATION FOR DESASAHOME DECOR STORE INFORMATION SYSTEM WITH E-COMMERCE INTEGRATION

By

Karina Adityas Ramadhanti

Founded in 2015, Desasa Home Decor offers stylish interior solutions and leverages Shopee for broader market reach. However, managing transactions across multiple platforms introduces challenges, such as variations in order quantities and inventory. This study proposes an integrated system using User-Centered Design (UCD) for a user-friendly experience and CodeIgniter 4 for its intuitive interface. Extreme Programming (XP) will be adopted as the development methodology to ensure flexibility and rapid iteration. Testing methods will include the System Usability Scale (SUS) for user feedback, Responsively App for cross-device compatibility, Lighthouse by DevTools for performance evaluation, and Axe by Deque for accessibility assessment. The objective is to enhance Desasa Home Decor's competitiveness, improve customer service, and streamline operations in the dynamic e-commerce environment.

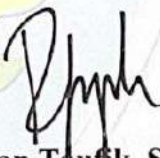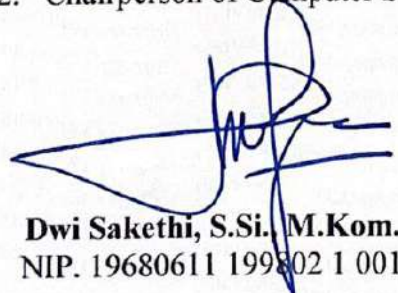|		
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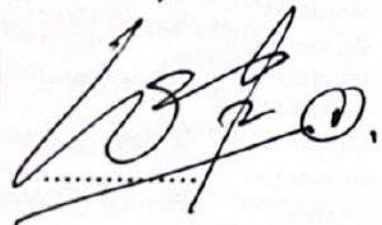
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STATEMENT

I, the undersigned below,

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Hereby declare that my thesis entitled, "Front-End Analysis and Implementation for Desasa Home Decor Store Information System with e-Commerce Integration" is my own work and not the work of others. All writings contained in this thesis have adhered to the academic writing regulations of Universitas Lampung. Should it be proven in the future that my thesis is the result of plagiarism or created by someone else, I am prepared to face consequences, including the annulment of the degree I have received.

Bandarlampung, July 15th, 2024

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BIOGRAPHY

The researcher was born on November 23, 2001, in Bandarlampung, as the eldest of two children of Mr. Diyanto Adhie Winarko and Mrs. Retno Kuntratih. They completed their primary education at SD Negeri 2 Rawa Laut in 2014. Subsequently, they pursued secondary education at SMP S Xaverius 2 Bandarlampung, graduating in 2017. The researcher continued their education at SMA S Xaverius Bandarlampung, where they finished their studies in 2020. That same year, they began their undergraduate studies in the Computer Science Department at the Faculty of Mathematics and Natural Sciences, University of Lampung, having been admitted through the SBMPTN entrance exam. Throughout their academic career, the researcher participated in a variety of activities, including:

1. Digital Marketing Staff of External Relations (AIESEC in Universitas Lampung) for the 2021/2022 term.
2. Organizing Committee of Marketing and Communication of Impact Circle 3.0 (AIESEC in Universitas Lampung) in April – May 2021.
3. Organizing Committee Vice President of Marketing and Communication of Join AIESEC: Youth Today (AIESEC in Universitas Lampung) in August – September 2021.
4. Organizing Committee Vice President of Marketing and Communication of Impact Circle 4.0 (AIESEC in Universitas Lampung) in November – December 2021.

5. Organizing Committee Vice President of Brand and Marketing in IYLC Sub-event (AIESEC in Indonesia) in November 2021.
6. Creative Marketing Specialist (AIESEC in Indonesia) for March – August of 2022 term.
7. UI/UX Specialist (AIESEC in Indonesia) for July 2022 – January 2023 term.
8. Asistant Lecturer of Multimedia (Universitas Lampung) from August – December 2022.
9. Conference Committee of First Gen Summit (AIESEC in Indonesia) from October – September 2022.
10. Asistant Lecturer of Information Technology (Universitas Lampung) from February – June 2023.
11. Asistant Lecturer of System Analytic and Design (Universitas Lampung) from February – June 2023.
12. Completed Fieldwork Practice (PKL) for the first period of 2023 at Chemistry Department of Mathematics and Natural Sciences Faculty.
13. Participated in Kuliah Kerja Nyata for the second period of 2023 in Terbaya, Kotaagung Pusat, Tanggamus.

MOTTO

"We were wanting to grow up every weekend,
now we're watching the moments as they're leaving."
–*Ground*, Wallows.

"I hope we can sometime, wish we could cancel time,
or let it all fly by, just tell me that it's over now."
–*Guitar Romantic Search Adventure*, Wallows.

"My life's going by, but it's just begun."
–*Guitar Romantic Search Adventure*, Wallows.

DEDICATION

With heartfelt thanks to Allah Subhanahu Wa Ta'ala, and sending blessings and peace upon Prophet Muhammad Shallallahu 'Alaihi Wasallam, I dedicate this work to those who matter most in my life.

My dearest parents

and

My beloved family

To those who have guided and raised me with trust, patience, love, prayers, and unwavering support throughout my journey towards success:

My close friends

and

Department of Computer Science at the University of Lampung

I am deeply grateful for their presence and the profound influence they have had on my personal and academic growth.

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With profound praise and gratitude to Allah Subhanahu Wa Ta'ala for His blessings, I am honored to present this thesis entitled "Front-End Analysis and Implementation for Desasa Home Decor Store Information System with e-Commerce Integration". This undergraduate thesis is submitted in partial fulfillment of the requirements for the degree in Computer Science at the Department of Computer Science, Faculty of Mathematics and Natural Sciences, University of Lampung.

The author faced numerous challenges during the research and thesis writing process. However, with the unwavering support and assistance from many individuals, the author was able to successfully complete this thesis. Therefore, the author would like to express heartfelt gratitude to:

1. My heartfelt gratitude goes to my parents, Bapak and Mama, as well as to my younger sibling, Tyas. Their unwavering support—be it physical, material, or spiritual through their prayers—has been invaluable throughout this journey.

2. I extend my sincere appreciation to my extended family members, including Bude Neny, Mbak Sasa, Mbak Riri, Kak Hilman, and Pakde Sidik. Their steadfast encouragement and support have been a pillar of strength and inspiration throughout this endeavor.

3. I am deeply grateful for the joy and love brought into my life by my beloved nephews, Raka and Rayi. Their laughter and innocence have enriched my days and filled my heart with boundless happiness and warmth.

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and unwavering support have been crucial in shaping this thesis and enriching my academic experience.

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10. I extend my gratitude to all the lecturers for their guidance, expertise, and dedication, which have played a pivotal role in shaping my academic journey and fostering my growth as a student.

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14. I am grateful to Hatta, my cherished internet friend. His consistent support, encouragement, and virtual companionship have been a beacon of positivity,

illuminating and enhancing every step of this journey in ways I deeply appreciate.

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16. I'm immensely thankful to Dylan Minnette, Cole Preston, and Braeden Lemasters of Wallows. Their music has been a guiding light, offering solace and inspiration during challenging times.

17. I'm grateful for my cats: Ollie, Misty, Foggy, Bobba, Butter, Nugget, Sky, Olaf, Chester, and Wewet. Their presence brings so much joy and comfort into my life.

18. Lastly, I extend my gratitude to all my friends in the field of computer science.

The researcher acknowledges that this thesis is not without imperfections. However, it is hoped that it will provide value, particularly for the researcher and the broader community, including students, academics, and others seeking to advance their knowledge.

Bandarlampung, July 15th, 2024

Karina Adityas Ramadhanti
NPM. 2017051041

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I.   INTRODUCTION

1.1.Background

The evolution of contemporary lifestyle has led to a notable transformation in the realm of furniture and interior design. Emphasizing both beauty and functionality, interior design products now play a crucial role in shaping comfortable and visually pleasing spaces. Since its establishment in 2015, "Desasa Home Decor" has been at the forefront, offering distinctive, visually appealing, and cost-effective interior design solutions. Committed to delivering top-notch products and unparalleled services, the store has emerged as a go-to destination for those who value the art of enhancing their living spaces.

The digital era has fundamentally transformed the business landscape. Small and medium-sized businesses, including Desasa Home Decor, specializing in selling furniture to beautify homes, have undergone significant changes in their sales strategies. In the effort to reach a broader market, they actively adopted popular e-commerce platforms such as Shopee. This platform has proven to be a powerful tool for marketing products and reaching new customers.

Although adopting the e-commerce platform provides significant benefits in terms of market reach, managing transactions from two different platforms can be a complex and time-consuming task (Raihan Mubaroq, 2023). One of the most challenging aspects is the order quantity. Order quantity involves careful calculation of all orders received through Shopee, including product prices, shipping costs, discounts, and taxes. Errors in calculating this quantity can result in serious financial losses and damage the business's reputation.

Despite the importance of this issue, Desasa Home Decor still manages it manually, consuming valuable time that could be used for other strategic activities. Additionally, with the increasing sales volume, it becomes increasingly difficult to maintain accuracy in manual calculations. Other issues faced by Desasa Home Decor include transaction management and order quantity being handled separately on each platform, a lack of identification of sales trends, inventory only being recorded through books, and frequent occurrences of out-of-stock items for sale. All of these factors disrupt operational processes and consume more time.

In a previous study titled "Design of a Multichannel e-Commerce Integrated System Based on the Website at PT XYZ", they proposed a solution related to inconsistent stock information through data integration in the proposed system. However, it is true that the solution focused only on the stock issue and did not encompass the management of other data. Therefore, further development may be necessary to expand the system's scope so that it can address various aspects of data management relevant to PT XYZ (Benedictus et al., 2022).

In this context, this research aims to develop an innovative and efficient integrated management information system that can assist the owner of Desasa Home Decor Store in extracting data on the quantity of purchases made through Shopee. This system solves business challenges and offers benefits like managing all transactions in one place, ensuring accurate purchases, and improving sales tracking. It efficiently handles inventory, allowing the owner to focus more on product development and customer experience. Overall, it aims to enhance business operations and performance.

Based on Paskalis (2015) in his journal titled "Implementasi User Centered Design untuk Merancang Antarmuka Sistem Informasi Eksekutif pada PT Pos Indonesia", based on research conducted by User Interface Engineering, Inc., it was revealed that 60% of wasted time is due to users struggling to find the information they need. The impacts of this include a decline in client interest in accessing the site and a decrease in the effectiveness of data delivery. Therefore, an approach is needed to address this issue, and one applicable strategy is the User-Centered Design (UCD) method. The fundamental concept of UCD prioritizes users as the

primary focus in system development, with all aspects based on user needs and preferences (Yulistiana, 2022).

Usability is the measurement of how easily users can navigate and interact with an application. To create an effective information system for users with a high level of comfort and usability, a method centered around potential users is required. In this research, User-Centered Design (UCD) is employed as the primary method. UCD is chosen because the system development process, from initiation to completion, focuses on potential users. UCD is an interactive process involving design and evaluation steps from the early stages of the project to the implementation phase (Fanani et al., 2018).

The development of a shop management information system application by applying the User-Centered Design method means designing a system that is oriented towards user needs. This method emphasizes the interests and desires of users regarding the designed system, ensuring that the resulting system is beneficial and easy to use for the users (Utomo, 2019).

User involvement in the use of the application necessitates alignment between the user and the developed website. In this regard, there is a need for Front-end Analysis and Implementation in the Integrated Management Information System with e-Commerce designed using CodeIgniter 4 by applying the User-Centered Design method. CodeIgniter 4 is preferred due to its user-friendly interface, straightforward and easily comprehensible framework. It stands out as an optimal choice because it facilitates the easy detection and handling of errors. Additionally, it empowers developers to isolate specific sections of their code, restricting user access. The Model-View-Controller architecture provided by CodeIgniter 4 ensures developers have complete control over the functionality of their applications. It is expected that this approach will facilitate users in creating a website with high usability (Lena Charles, 2022).

In the context of an increasingly competitive business environment, an efficient and integrated management information system, as proposed by this research, can assist Desasa Home Decor Store in staying competitive, enhancing customer service, and optimizing their overall operations. Furthermore, with the continuous

growth in e-commerce and social media platforms, this system will be the valuable asset enabling the business to grow and thrive in the future.

1.2. Problem Statement

Based on the context described above, the problem statements in this research are as follows:

1. How to develop an information system that simplifies data management to reduce the workload of business owner at Desasa Home Decor Store?
2. How to develop an information system using the User-Centered Design (UCD) approach?
3. How to implement the front-end of an information system that can integrate with the Shopee platform?

1.3. Problem Limitation

Based on the explained background, the scope of this research includes the following limitations:

1. The research focuses on the development of the front-end analysis of the integrated management information system based on a website.
2. The system developed is exclusively designed for Desasa Home Decor Store's use.

1.4. Research Objective

Based on the background provided, the aim of this research is to create an information system using the User-Centered Design method and to develop the front-end part of an integrated shop management system that connects with Shopee for web-based data management at Desasa Home Decor Store.

1.5.Research Benefit

Based on the described background, the benefits of this research are as follows:

1. Reducing operational costs and the time required to run the store.
2. Easing the workload of employees at Desasa Home Decor Store.
3. Simplifying the process of managing transaction reports for Desasa Home Decor Store.

II.   LITERATURE REVIEW

2.1. Prior Studies

This study references several previous researches, including:

A. Rancang Bangun Aplikasi Pelaporan Keuangan Berbasis Open API Dari E-Commerce

The research addresses the inadequate provision of financial reports for Small and Medium Enterprises (SMEs) utilizing e-commerce platforms. Current reporting features are limited to transaction summaries. The objective is to design and develop an application with an open-API for SMEs using e-commerce. Store owners are the primary users, and the financial information system automatically updates transaction data through approved API access to the Shopee server. The system successfully presents periodic sales information, cost of goods sold, and profit or loss. Future research could further explore the comprehensive needs of financial information and information system presentation (Ardiansah, Sadida, Mardinawati, Hidayati, & M, 2022).

B. Perancangan Sistem Terintegrasi Multichannel e-Commerce Berbasis Website pada PT XYZ

PT XYZ is a company operating in the shoe distribution industry, engaging in a business process that involves numerous brands, product types, and a large customer base. The company's product range encompasses various types of shoes, including school shoes, casual footwear, and formal shoes.

This study utilizes User Acceptance Testing (UAT) employing the Unified Theory of Acceptance and Use of Technology (UTAUT) approach for assessment. The examination specifically targets elements such as Performance Expectancy, Effort Expectancy, and Behavioral Intention as outlined by Yesa, Maharani, and Yonata (2022).

C. Integrasi Website Pemasaran Multi-Channel Untuk Industri Pakaian (Studi Kasus: Signature Store)

In response to evolving marketing trends, Signature Store has embraced social media and e-commerce platforms as channels for product sales. However, this shift requires administrators to manually upload each product to various social media and e-commerce platforms, leading to a time-consuming process for updating the product listings.

The website caters to both customers and administrators. The research also involved Black Box Testing, and the results, as presented in a questionnaire, indicate that users find the Signature Store website easy and comfortable to navigate.

Unfortunately, Signature Store faces challenges in integrating with e-commerce platforms such as Tokopedia and Shopee. This is attributed to difficulties in the registration process for obtaining API access rights, as highlighted in the research findings (Mubaroq, Ahmad, & Dirgantoro, 2023).

2.2. Theoritical Framework Description

The theoretical framework employed in this thesis includes:

A. System

A system is a collection of two or more components that interact and are interrelated to achieve specific goals. Typically, these systems consist of smaller subsystems that support the functions of the larger system. (Nistrina & Rahmania, 2021). A company is also a system. The components or elements within it, such as marketing, sales, research, accounting, and human resources, all work together to

achieve profits for both its employees and the owners of the company (Gani et al, 2023).

B. Information

Data serves as the raw material, describing events and real-world entities. When this data undergoes processing to become more useful and meaningful, it transforms into information. Information is the refined output that can be comprehended and utilized by others (Kelly, 2011).

C. Archive

Sedarmayanti (2015:32) defines archives as a collection of manuscripts or documents stored in a room or building managed by an organization or institution. Archives serve as evidence of information related to the functions, purposes, and activities of other organizations. According to The Liang Gie (in Nuraida, 2014:92), archives are a collection of systematically organized documents or letters that can be reused, influencing the ease of rediscovering archives. Meanwhile, according to Sugiarto & Wahyono (2015:2), archival management is the process of storing and arranging letters or files within archives so that they can be retrieved when needed. Thus, archives can be considered as written forms and evidence of organizational purposes, such as letters, documents, or manuscript books, containing information generated and received by companies or institutions (Susanti, 2020).

D. Website

According to Sholechul Azis (2013) in his research titled, "Panduan Menguasai Internet Secara Otodidak", a website is an information page provided through internal channels to be accessible worldwide, as long as it is connected to the internet (Saifulo Bakri et at, 2022). Websites are divided into several categories, namely:

a. Static Website, is a web page that has fixed or unchanging content. This means that if there is a need to make changes to a page, it is done manually by modifying the code within the website.

b. Dynamic Website, a structured web page created to facilitate frequent content updates on the website. This website is using dynamic website since there will be updates on the website about constant changing on product stock, expenditure data, et cetera.

c. Interactive Website, an interactive website is a platform where users can engage in interactions and share opinions about ideas with each other.

E. Management Information System

The Management Information System comprises a set of interlinked information subsystems designed to efficiently convert data into usable information, thereby enhancing productivity based on predefined quality standards (Wijoyo et al., 2021). It is a computer-based system delivering information tailored to the needs of various users. This information encompasses past, present, and future potentials of the company or its core systems. Such information formats include regular reports, specialized reports, and outcomes from mathematical models. Both managers and non-managers within the organization utilize this information output to make informed decisions tackling their encountered challenges.

F. Cascading Style Sheets (CSS)

CSS, or Cascading Style Sheets, is a design language that separates the presentation from the structure and content of HTML or XML documents. It applies style rules centrally to elements, enabling better control over the layout. CSS serves as an additional layer on top of HTML or XML, allowing for consistent appearances, easy maintenance, and responsive designs across different devices and screen sizes.

G. Front-end

Front-end is a part of application or website development responsible for displaying web pages and handling user interactions. The front-end utilizes technologies such as HTML, CSS, and JavaScript to create dynamic and responsive web pages. The goal of the front-end is to ensure that users have a good and intuitive experience when using a website or application. Front-end developers collaborate with back-end developers to ensure that the website or application functions well and performs effectively (Firda Rahayu Nursolihah, 2022).

H. Framework CodeIgniter 4

According to L. Afuan et al. (2016) in their research titled, "Design and Build a Career Center Information System Using the CodeIgniter Framework Case Study at Universitas Jenderal Soedirman Using Waterfall Method", CodeIgniter 4 is the latest version of the popular PHP framework, CodeIgniter. This framework is developed to assist developers in creating fast and efficient web applications using the Model-View-Controller (MVC) architecture. CodeIgniter 4 introduces several new features and improvements compared to its predecessor, including support for PHP 7, modular architecture, and the addition of new helpers and libraries. CodeIgniter 4 streamlines the web application development process, providing the tools and resources needed to efficiently create web applications. It enables developers to focus on business logic rather than writing boilerplate code. CodeIgniter 4 is a suitable framework for developers who want to build web applications quickly and efficiently, without having to worry about common tasks such as authentication, validation, and routing (M. F. Rivaldi et al, 2022).

I. Bootstrap
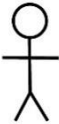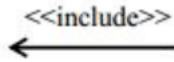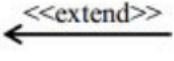
Bootstrap is a popular front-end framework for creating responsive, mobile-first websites. It includes a responsive grid system, pre-styled components like buttons and forms, and JavaScript plugins for enhanced functionality. Bootstrap ensures cross-browser compatibility and offers extensive customization. Easy to integrate

via CDN or download, it simplifies building modern, sleek user interfaces (Bootstrap, n.d.).

J. Use Case Diagram

A use case diagram is one of the various types of Unified Modeling Language (UML) diagrams that depict the interaction relationships between a system and actors. Use cases describe the types of interactions between the user of the system and the system itself (Sumirat et al., 2023). The explanation of the attributes of a use case diagram is presented in Table 1.

Table 1. Use Case Diagram's attribute

Symbol	Description
	An actor represents the role of a person, another system, or a tool when communicating with a use case.
	Use case is an abstraction representing the interaction between a system and an actor.
	Association is an abstraction of the connection between an actor and a use case.
	Generalization indicates the specialization of an actor to participate in a use case.
<<include>>	Include indicates that a use case entirely encompasses the functionality of another use case, typically represented by the 'include' relationship in a use case diagram.
<<extend>>	Uses 'extend' to indicate that a use case provides additional functionality to another use case under specific conditions or when a certain condition is met.

K. Activity Diagram

The activity diagram is a graphical representation modelling various processes that occur within a system. Details of these system processes are depicted vertically. The activity diagram is an extension of Use Case that encompasses the sequence of activities. These details or activities can consist of a series of menus or steps in the business process within the system. According to the book 'Software Engineering' by Rosa A. S. (2014), 'The activity diagram does not provide a portrayal of actor behavior. This can be interpreted as meaning that the activity diagram is specifically used to illustrate the workflow or activities of the system alone.' The explanation of the attributes of a use case diagram is presented in Table 2.

Table 2. Activity Diagram's attributes
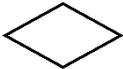
Symbol	Name	Description
●	Start State	An activity diagram starts with an initial state, usually a solid circle, indicating where the depicted process begins.
▭	Action State	The system performs activities, initiated by verbs, detailing its interactions within and outside the system.
◇	Decision Node	A branching occurs when there are multiple choices of activities.
──	Join	Merging happens when multiple activities converge into a single point, streamlining the workflow for unified actions.
◉	End State	The system concludes with a final state; an activity diagram includes an end state.

Table 2. Activity Diagram's attributes

Symbol	Name	Description
	Swimlane	A swimlane separates business organizations responsible for the occurring activities.

L. Extreme Programming

Extreme Programming (XP) is one of the branches of Agile software development methods aimed at assisting in fulfilling software development needs. XP simplifies development stages compared to other methods, enabling systems to operate more efficiently and flexibly (Pohan dan Firdaus, 2017). The development of software using XP comprises various stages, as outlined by Carolina et al in 2019.
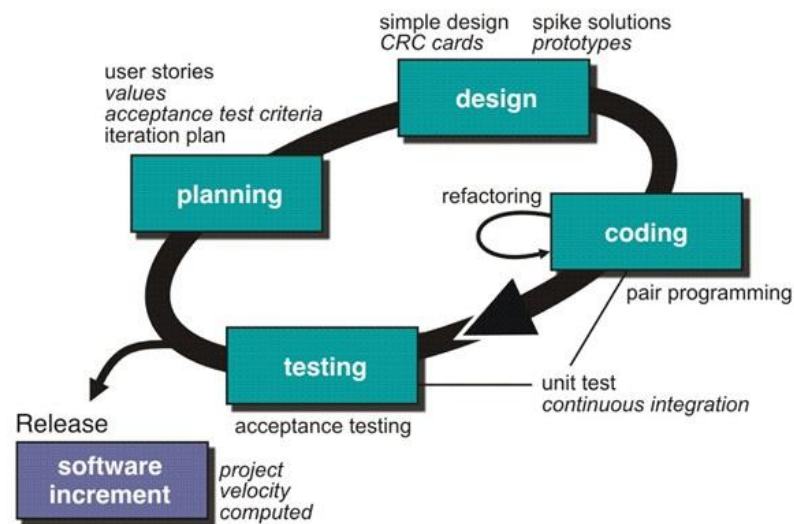
Figure 1. Extreme Programming method

The explanation of the stages of Extreme Programming is provided below:

a. Planning

The planning phase begins by understanding the business context of the application, defining the desired outcomes (output), specifying the features to be included in the application, detailing the functions of the developing application, setting the schedule and budget for application development, and designing the flow of application development.

b. Design

The emphasis during the design phase is on formulating the application design with a straightforward approach.

c. Coding

During the coding phase, the primary activity in XP application development is pair programming, where two or more programmers collaborate in creating the program.

d. Testing

The testing phase focuses on testing the features within the application to ensure the absence of errors and to ensure that the application aligns with the business processes desired by the client (customer).

M. Usability

Usability pertains to how user-friendly and satisfying the interaction with a product or system is. It encompasses the ease of user interaction, the efficiency in task completion, and the overall satisfaction experienced. An international standard defining usability, it can be characterized as the "ability of a software product to be utilized by a specific user to achieve particular goals effectively, efficiently, and satisfactorily within a specified usage context" (Arthana et al., 2019). This standard offers a broad framework for comprehending and evaluating usability.

N. User-Centered Design

User-Centered Design (UCD) is a design method that revolves around fulfilling user needs. In the context of Information Systems, UCD is an essential part of the System Development Life Cycle (SDLC). This ensures that the application's design is entirely centered on meeting the requirements of end users, aiming to satisfy their needs without necessitating significant changes in behavior (Stephen Draper, 2022). While the specific steps and names of the phases may vary slightly depending on the source or methodology, a common framework includes the following four phases:
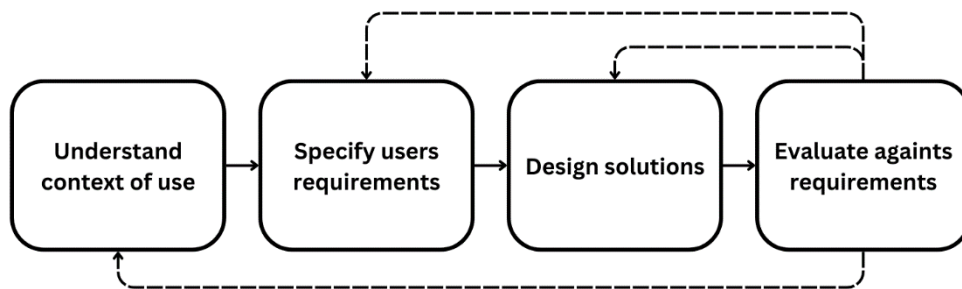
Figure 2. User Centered-Design flow

a. Understand context of use

Initiate the design process by conducting thorough research to understand the users, their behaviors, and the context of product usage. Develop user personas and gather valuable insights through methods like interviews and surveys.

b. Specify user requirements

Utilize the gathered knowledge to generate design solutions. Employ visual tools like sketches, wireframes, and prototypes to conceptualize potential solutions. Collaboration with diverse teams and stakeholders ensures a well-rounded approach to design.

c. Design solutions

Transition into the development phase, turning design specifications into the actual product. Throughout this stage, continuously test and collect user

feedback to detect and address issues promptly. This iterative process facilitates continuous improvement.

d. Evaluate against requirements

Conduct thorough usability testing and gather feedback on the final product. Evaluate its alignment with user needs and expectations. Incorporate quantitative measures, such as analytics data, to understand user behavior. The insights gained guide ongoing refinements and enhancements in subsequent iterations.

O. System Usability Scale

System Usability Scale (SUS) has become a widely-used tool for assessing the usability of various systems. This adaptable instrument, applicable to hardware, software, mobile applications, and websites, relies on a simple questionnaire to generate usability scores. Its universal appeal makes it invaluable for gathering user feedback across different industries, contributing to the iterative process of design and development. The SUS remains relevant as technology evolves, offering actionable insights to enhance user experience and satisfaction (John Brooke, 1986).

P. ResponsivelyApp

Responsively App, built with Electron, is a powerful tool for web developers. It offers simultaneous multi-device previews, real-time updates, customizable profiles, and mirrored interactions. Integrated with Chrome DevTools, it provides network throttling and customizable layouts, including dark mode. Available for Windows, macOS, and Linux, it ensures consistent design and functionality across all devices, streamlining responsive web development (Carlos Delgado, 2020).

Q. Lighthouse by DevTools

Neil Patel (n.d.) emphasizes the significance of Lighthouse as a pivotal tool in comprehending Google's evaluation process for websites. Lighthouse offers comprehensive insights into various aspects of website performance, including page load speed, accessibility, SEO, and user experience. By leveraging Lighthouse, users can conduct thorough audits, identify areas for improvement, and enhance their site's performance and visibility on search engine results pages. Thus, Lighthouse plays a crucial role in aligning websites with Google's best practices, driving greater online success and visibility (Nadiyah Rahmalia, 2022).

R. aXe by Deque

Often called digital accessibility testing tools, their purpose is to identify usability issues that hinder individuals with disabilities so that they can be addressed. Numerous tools are available to assist in doing this. Some are able to test for a narrow range of barriers, while others are fully or partially automated. It's critical to choose a tool that won't produce false positives, which squander crucial development time (Deque, n.d.).

The testing elements for aXe by Deque categories are written in Table 3.

Table 3. Testing Elements for aXe by Deque Categories

Category	Testing Elements
Serious	1. Links must have discernible text 2. Elements must meet minimum color contrast ratio thresholds 3. Missing language attribute 4. Improper use of ARIA
Moderate	5. Inconsistent heading structure 6. ARIA landmarks missing

Table 3. Testing Elements for aXe by Deque Categories (Continous)

Category	Testing Elements
Moderate	7. Non-descriptive headings 8. Missing skip link
Critical	9. Select element must have an accessible name 10. Buttons must have discernible text 11. Forms without accessible labels
Minor	12. Redundant ARIA roles 13. Decorative images without alt attributes 14. Inconsistent font size 15. Suboptimal focus indicators

III. RESEARCH METHODOLOGY

3.1. Time and Location of the Research

This research was conducted at Desasa Home Decor Store, located at Gajah Mada Street, Punai Alley, Number 17, Bandar Lampung, also at Lampung University, situated at Prof. Dr. Ir. Sumantri Brojonegoro Street, Number 1, Bandar Lampung.

3.2. Research Phases

There are three stages of research conducted at Desasa Home Decor Store: data collection, system development, and report writing. The stages of research can be seen in Figure 3.
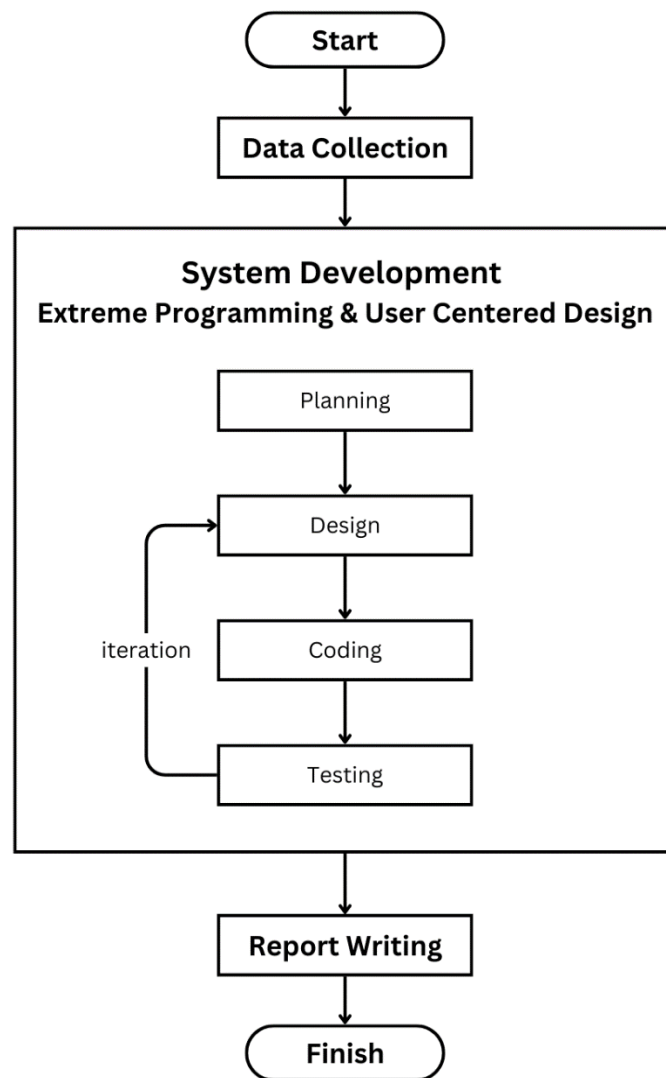
Figure 3. Stages of Research

A. Data Collection

The data collection in this research is as follows:

a. Observation

In this stage, the author conducted direct observations at Desasa Home Decor Store.

b. Interview

During this phase, meetings and direct question-and-answer sessions were conducted with Mrs. Sinta Dias Dewantary, one the owner of Desasa Home

Decor Store. The interview process aimed to gather information about the ongoing business processes and challenges faced.

c. Literature Review

In this stage, data and information were collected through documents from journals, books, the internet, and other sources related to the research topic.

B. System Development

The next stage involves developing the system using the extreme programming method. This method encompasses several phases, namely planning, design, coding, and testing.

1. Planning

The planning stage is undertaken to identify issues, analyze system requirements, and determine the implementation of system development. One of the key steps in this stage is to understand the context of use as part of the User-Centered Design (UCD) method. This involves researching and comprehending how users will interact with the system in their real-world environment.

a. Functional Requirements

Functional requirements refer to specifications or descriptions that define the functions a software system must have to meet user needs. Here are the functional requirements for the management information system at Desasa Home Decor store.

Table 4. Functional Requirements

Requirement	Actor
1. Can log into the system. 2. Can access the homepage. 3. Can access the supply page. 4. Can access the product page. 5. Can access the transaction page. 6. Can add supply data. 7. Can delete supply data. 8. Can edit supply data. 9. Can add product data. 10. Can delete product data. 11. Can edit product data. 12. Can add product data. 13. Can delete product data. 14. Can edit product data.	Owner, Employee
15. Can add financial data. 16. Can delete financial data.	Owner

b. Non-functional Requirements

Non-functional requirements serve as conditions for the functionalities that have been built to operate effectively. Some examples of non-functional requirements include the following.

a. Security Requirement

The system being developed necessitates employees and owners to undergo a login process using both a username and password to access their respective sections.

b. Hardware Requirements

a) The hardware requirements for building an integrated management information system with e-commerce are as follows:

    i. System Manufacturer: Lenovo

    ii. System Model: Ideapad Slim 5i

    iii. Processor: 11th Gen Intel(R) Core ™ i7-1165G7 @ 2.80GHz 2.80 GHz

    iv. Memory: 16.0 GB (15.8 GB usable)

b) The necessary hardware to operate an integrated management information system with e-commerce includes the following:

    i. Processor: Intel i3/AMD Ryzen 3

    ii. Memory: 4 GB

c. Software Requirements

a) Operating System: Windows 11

Windows 11, the successor to Windows 8.1, is utilized for building the system and generating reports in this research.

b) Visual Studio Code

Visual Studio Code, an open-source source code editor developed by Microsoft, is employed for writing code scripts in the development of an integrated management information system with Shopee.

c) XAMPP Version 8.1.6-0

XAMPP is employed for website development.

d) Web Browser

Web browsers such as Chrome is used to access the developed website pages.

e) Canva

Canva is the website used for creating wireframes. A wirefrme is a basic, simplified visual outline of a design, such as a website or app, showing its structure and layout without detailed graphics or styling.

f) Microsoft Office

Microsoft Office is used for report creation.

g) Shopee

Shopee, a leading e-commerce platform in Indonesia, is utilized to obtain its API.

h) ResponsivelyApp

A program that provides mirrored interactions, real-time updates, simultaneous previews on several devices, and customized profiles. It offers customizable layouts, including dark mode, and network throttling.

i) Lighthouse by DevTools

Lighthouse provides thorough insights into a range of website performance metrics, such as user experience, accessibility, SEO, and page load speed.

j) aXe by Deque

aXe by Deque exist to surface usability barriers for people with disabilities so that they can be fixed.

2. Design

The design stage in Extreme Programming (XP) focuses on creating a simple, flexible, and adaptive system architecture. Integrating the User-Centered Design (UCD) method, particularly the user requirements specification stage, ensures that the system aligns closely with user needs and expectations.

a. Use Case Diagram

In this use case diagram, interactions between the user and the system are outlined. There are two actors serving as users: the owner and the employee. These will be illustrated through a use case diagram, which can be seen in Figure 4.
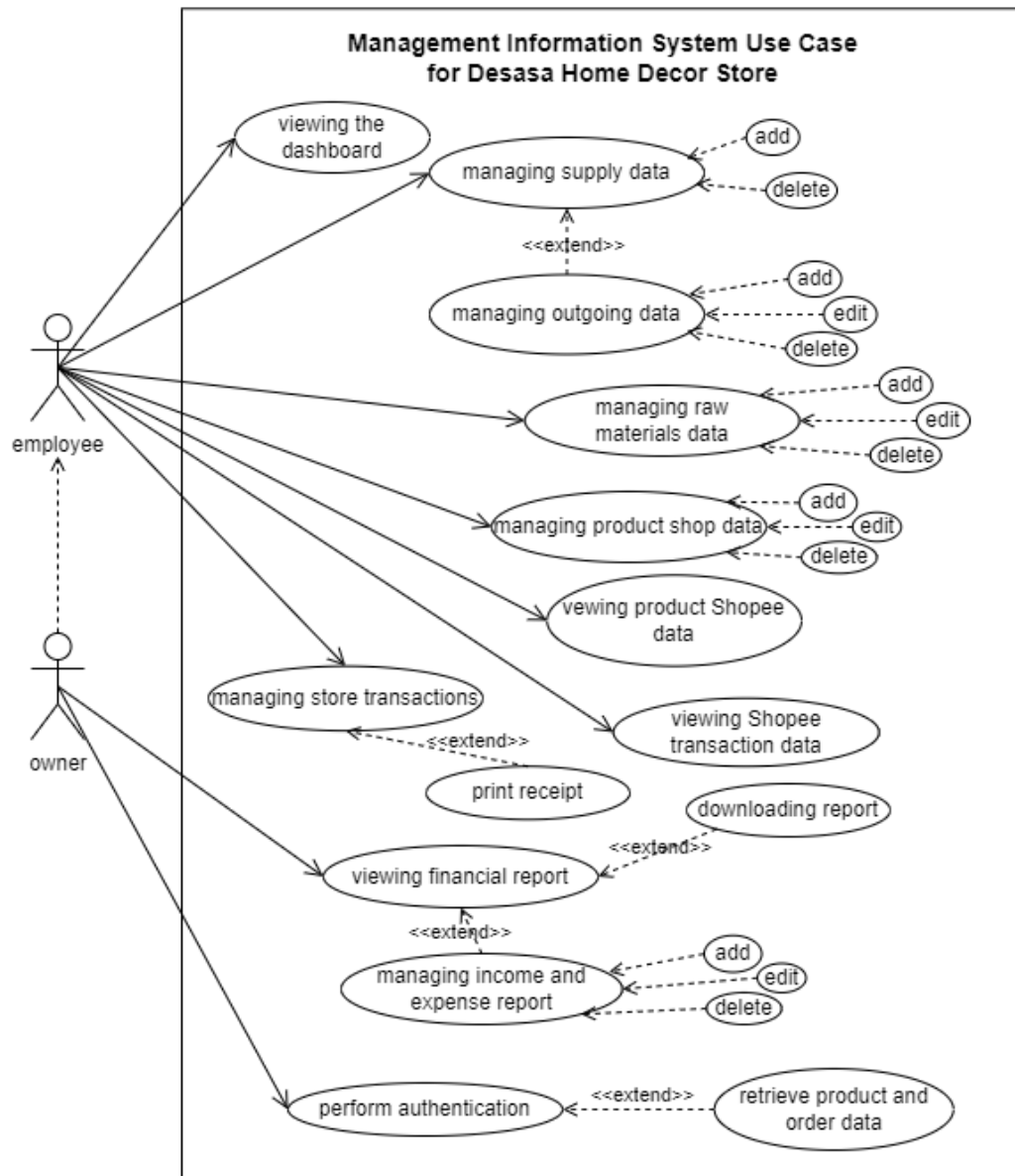
Figure 4. Use Case Diagram for Management Information System for Desasa
Home Décor Store

b. Activity Diagram

In this activity diagram, the flow of each process in the system is outlined. This activity diagram is an extension of the use case diagram above, providing the sequence of activities for each process.

1) Dashboard

 After logging in, user will see the dashboard website interface. The activity diagram can be seen down below in Figure 5.

Activity Diagram: Managing Incoming Data

Employee/Owner	System	Database

selecting the dashboard menu

searching for data in the database

transaction data, financial data

displaying the dashboard
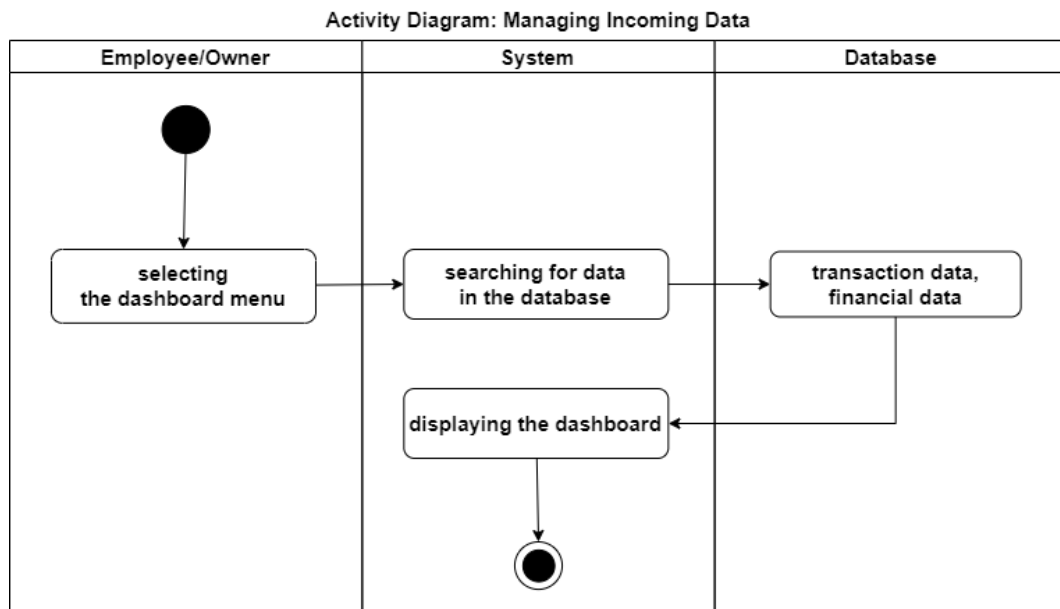
Figure 5. Activity Diagram: Managing Incoming Data

2) Managing Incoming Goods Data

 User can manage incoming goods through "Supply" menu. User can add another incoming data, edit data, or delete data. The activity diagram can be seen in Figure 6.
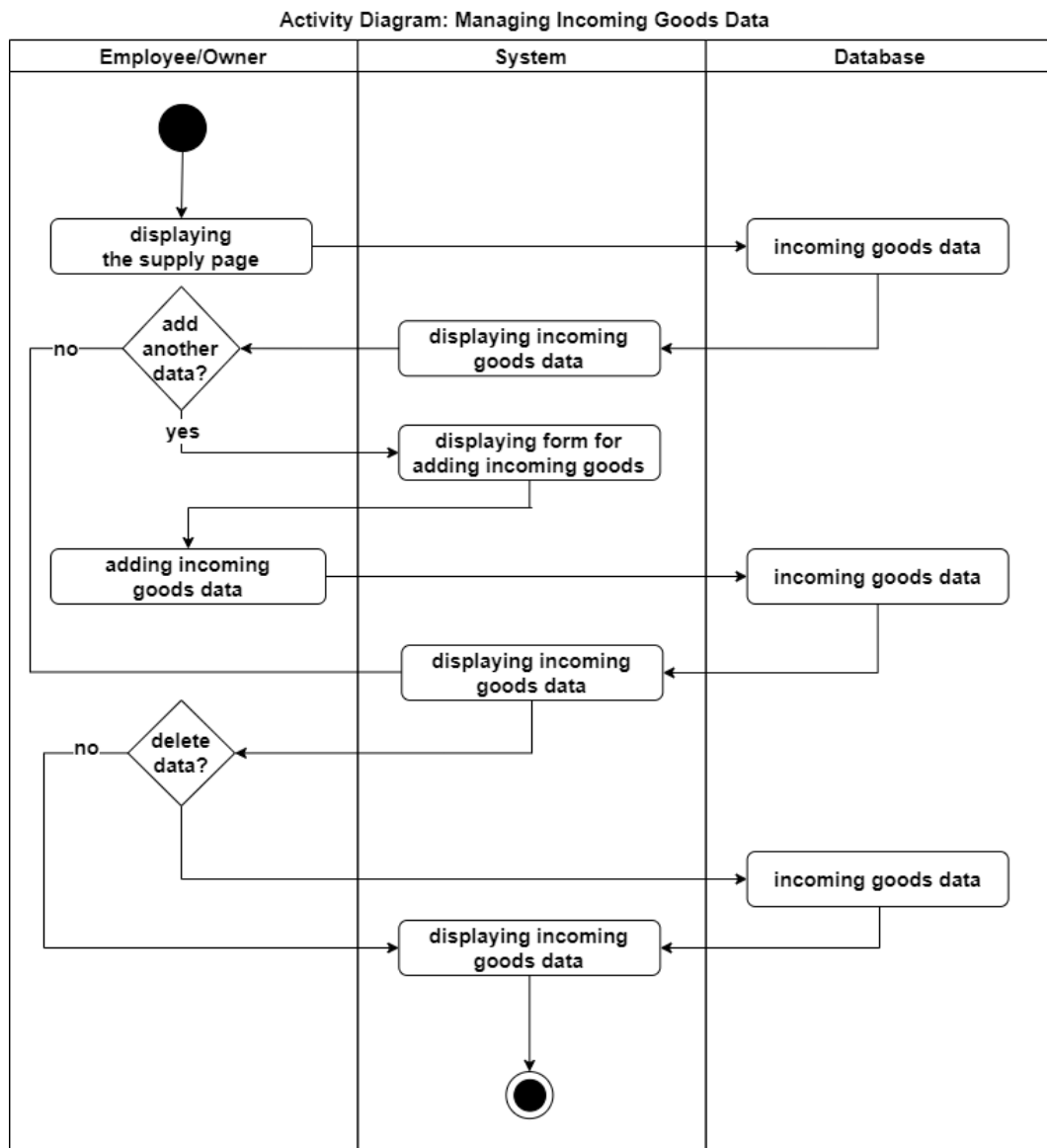
Figure 6. Activity Diagram: Managing Incoming Goods Data

3) Managing Outgoing Goods Data

User can manage outgoing goods through "Supply" menu. The user has the capability to add new outgoing goods data, modify existing data, or remove data. The activity diagram is illustrated in Figure 7.
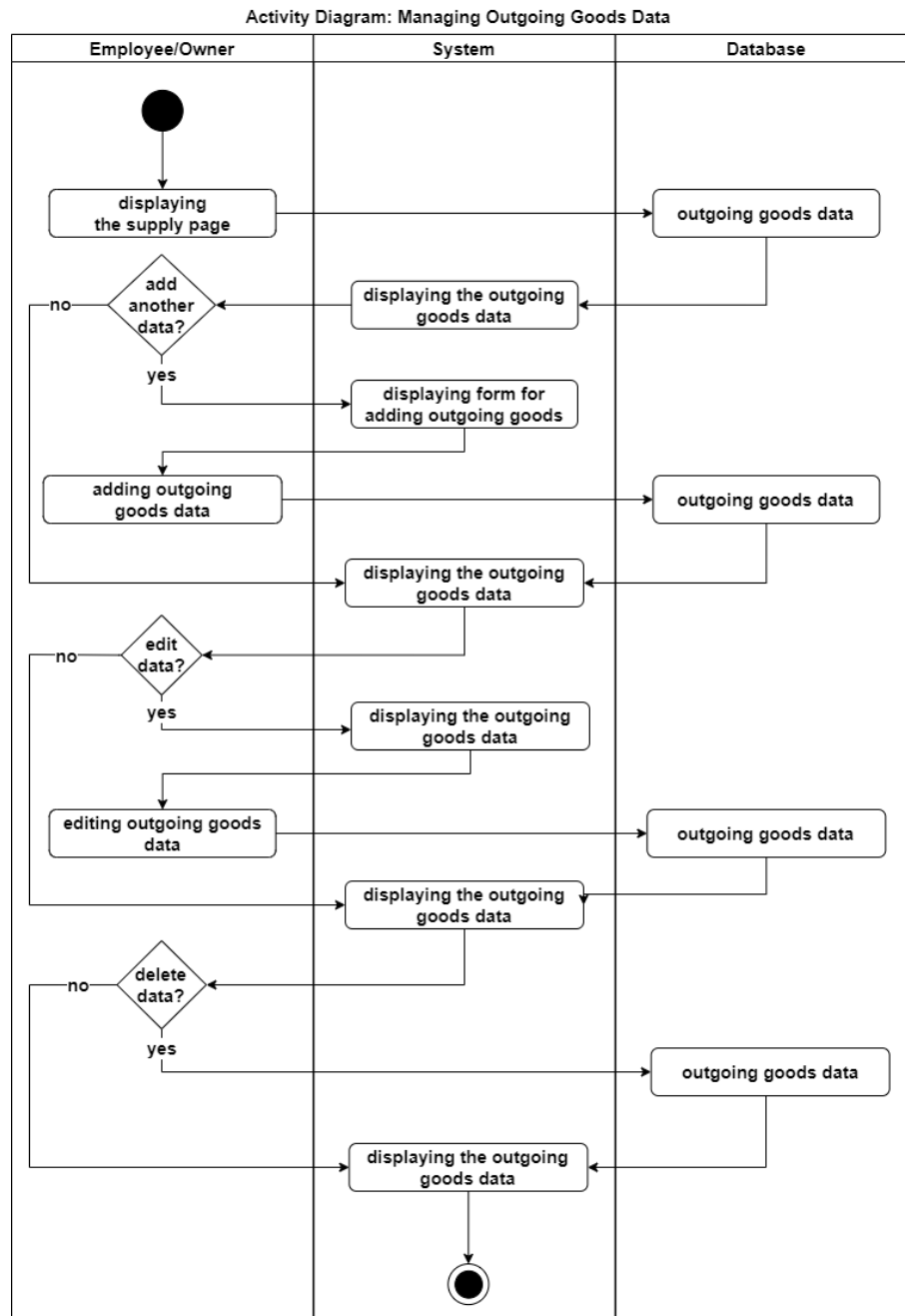
Figure 7. Activity Diagram: Managing Outgoing Goods Data

4) Managing Raw Materials Data

Users can manage raw materials data via the "Supply" menu. They possess the ability to add new raw materials data, adjust existing data, or delete data. Please refer to Figure 8 for the depiction of the corresponding activity diagram.
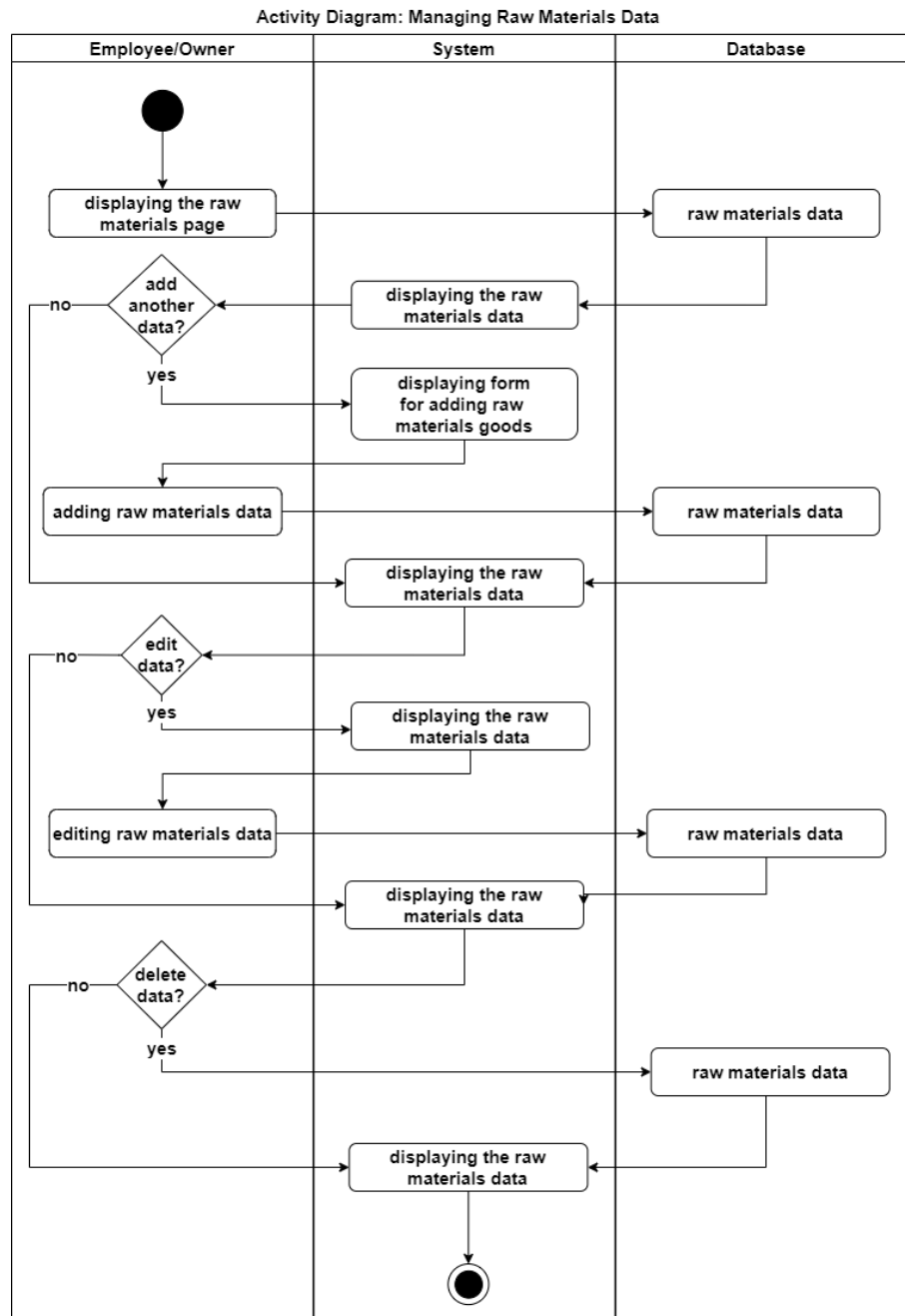
Figure 8. Activity Diagram: Managing Raw Materials Data

5) Managing Product Data

User can manage product data through "Produk" page. Users have the option to include additional managing product information, make changes to existing data, or delete entries. Refer to Figure 9 for the corresponding activity diagram.
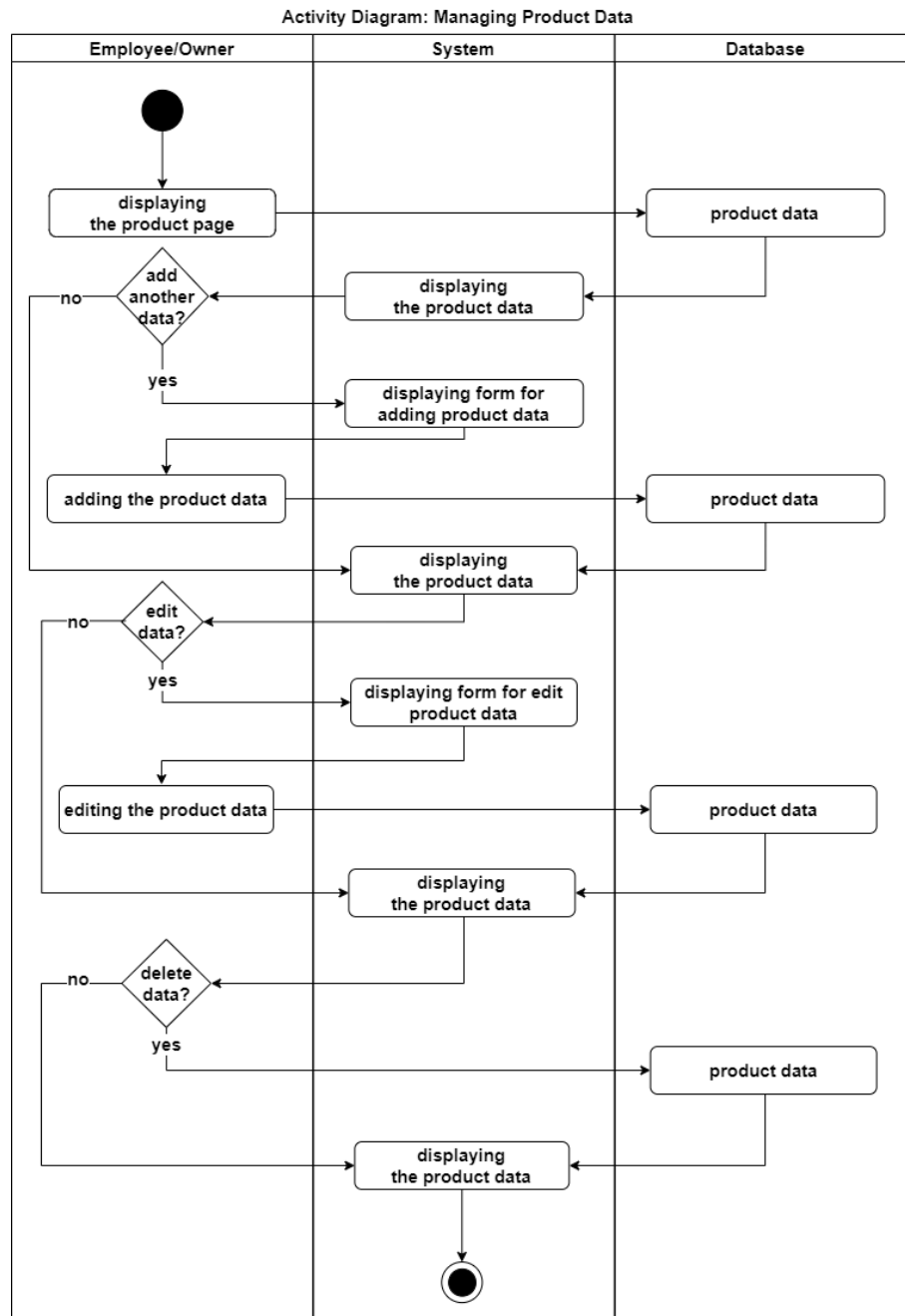
Figure 9. Activity Diagram: Managing Product Data

6) Viewing Shopee Transaction Data

Users can access Shopee transactions via the "Transaksi" page. The corresponding activity diagram is presented in Figure 10.

Activity Diagram: Viewing Shopee Transaction Data
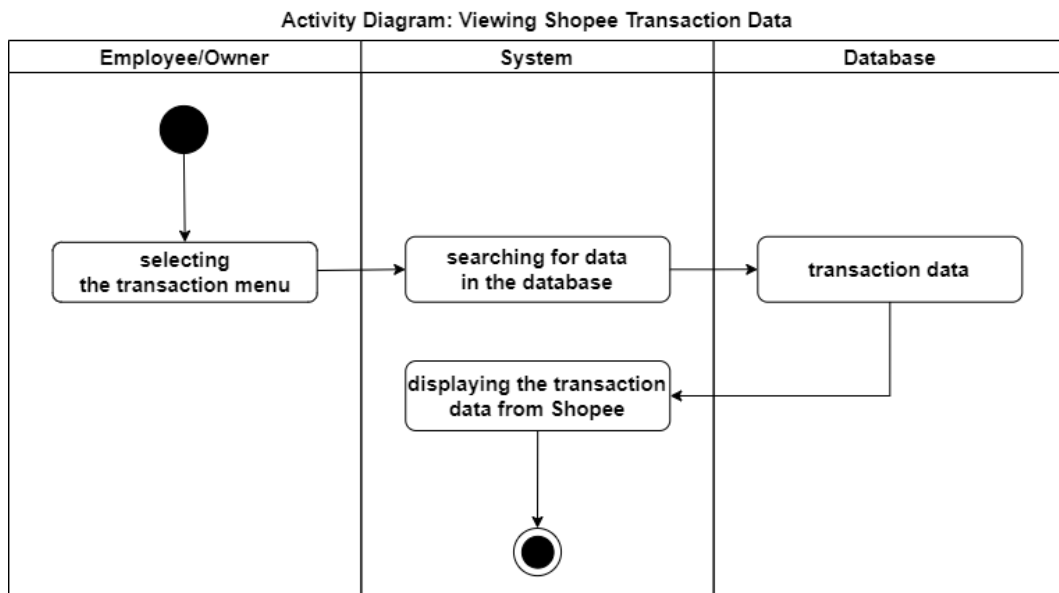
Figure 10. Activity Diagram: Viewing Shopee Transaction Data

7) Viewing Shopee's Product Data

Users can view Shopee's product data via the "Transaksi" page. The corresponding activity diagram is available in Figure 11.

Activity Diagram: Viewing Product's Shopee Data
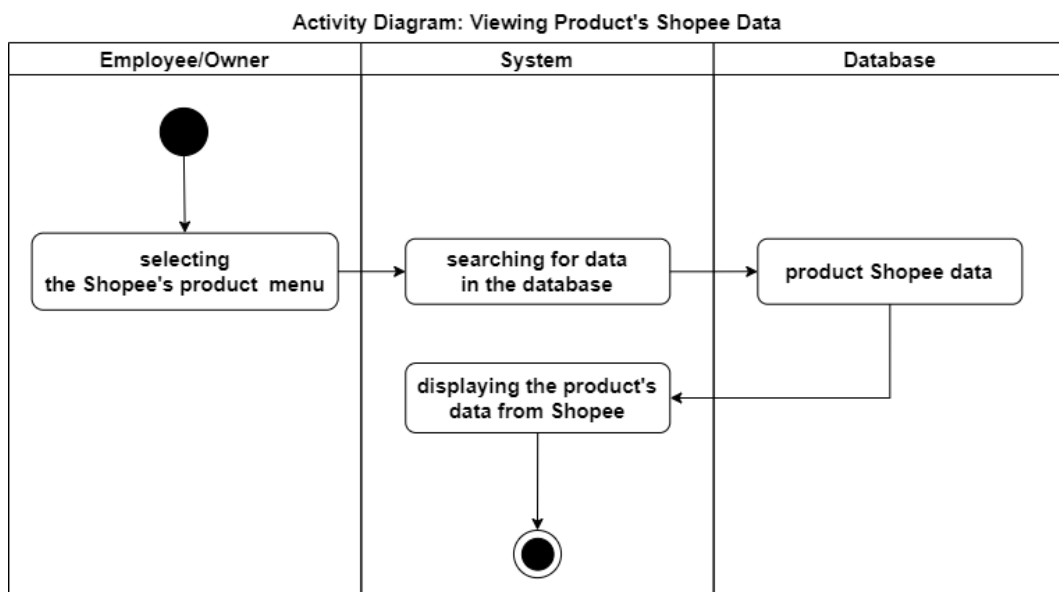
Figure 11. Activity Diagram: Viewing Shopee's Transaction Data

8) Managing Store Transaction Data

User can manage store transaction through "Transaksi" page. They have the ability to input additional store transaction data, edit existing information, or delete entries. Refer to Figure 12 for the corresponding activity diagram.
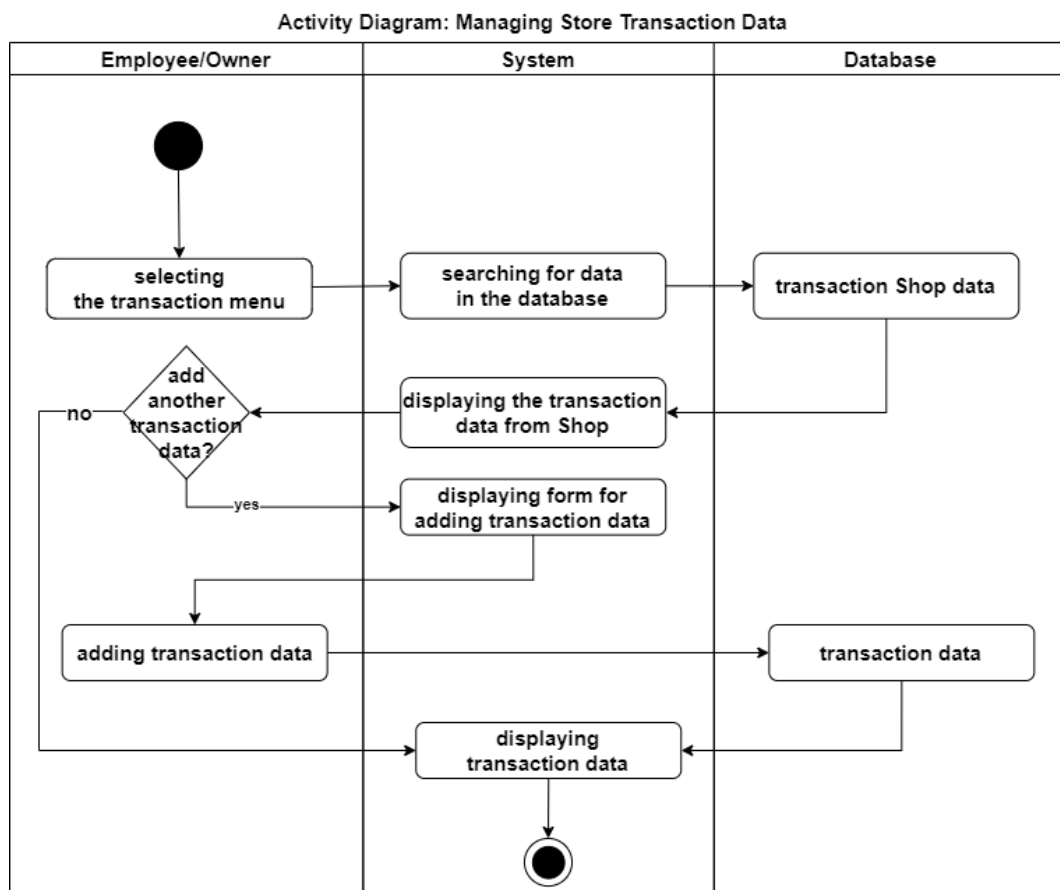
Figure 12. Activity Diagram: Managing Store Transaction Data

9) Downloading Store Transaction Data

Users have the option to download store transaction data through the "Transaksi" page. The corresponding activity diagram is depicted in Figure 13.

Activity Diagram: Downloading Store Transaction Data
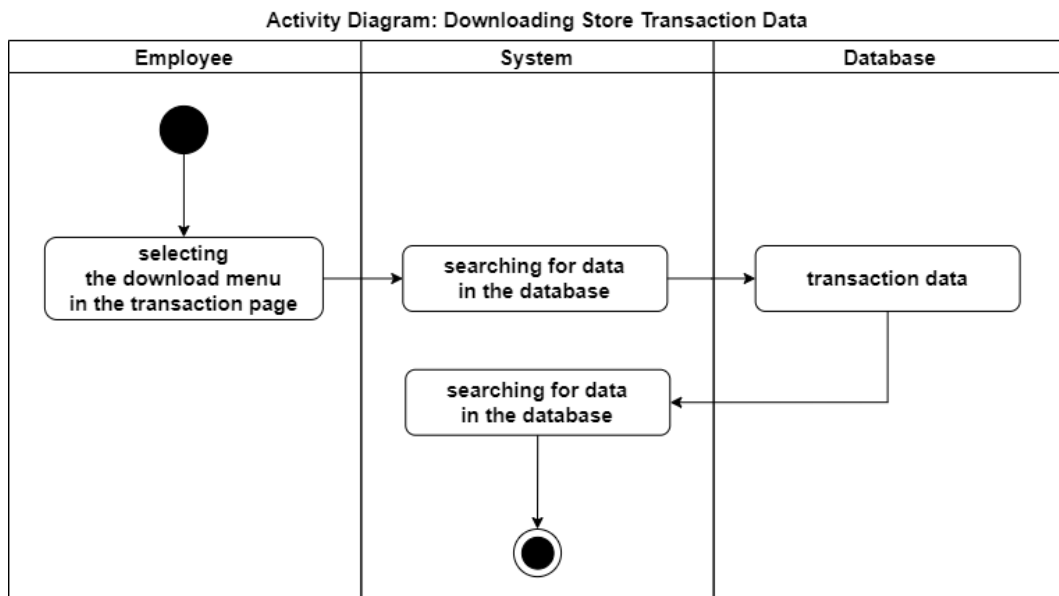
Figure 13. Activity Diagram: Downlading Store Transaction Data

10) Print Receipt

Users have the capability to print receipt on "Kasir" page. They can print the proof of the transaction that happened on store. The activity diagram is depicted in Figure 14.

Activity Diagram: Print Receipt
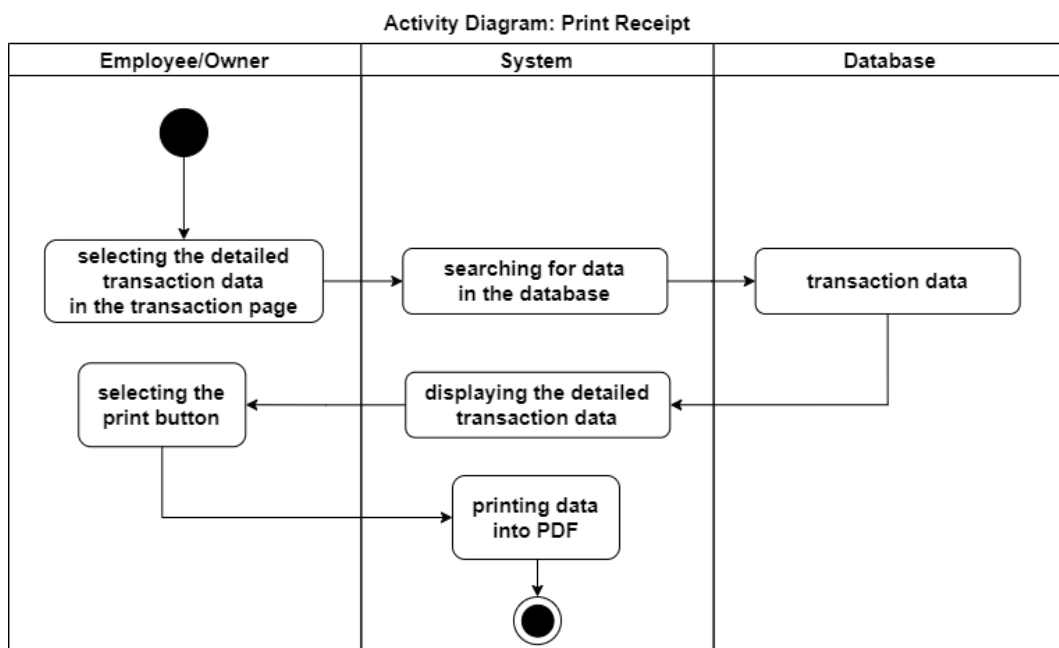
Figure 14. Activity Diagram: Print Receipt

11) Managing the Expenditure Data

Users have the ability to manage the expenditure data from the "Keuangan" page. Users can add, delete, and edit the expenditure data. The corresponding activity diagram is illustrated in Figure 15.
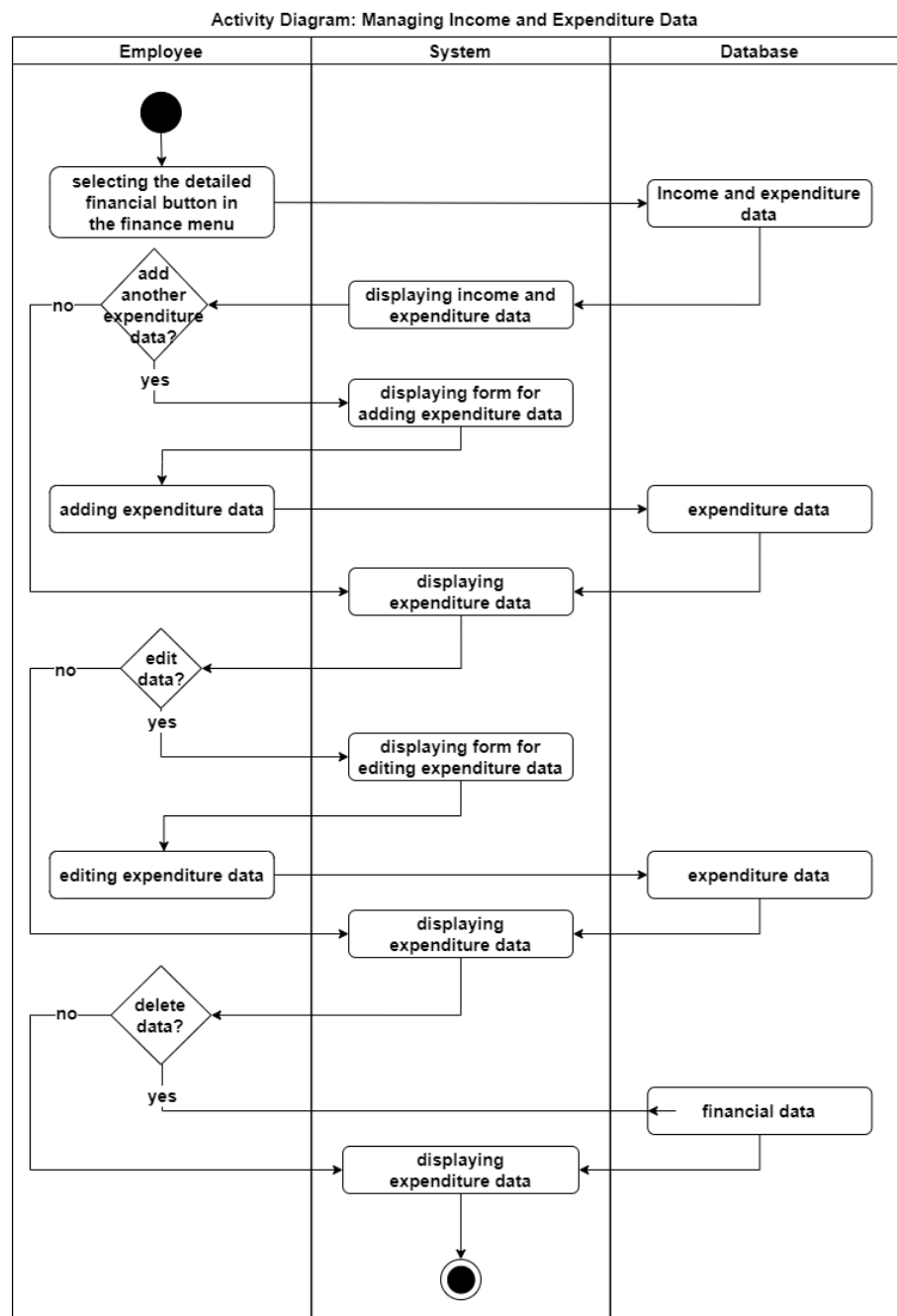
Figure 15. Activity Diagram: Downloading the Expenditure Data

12) Download the Financial Report Data

Users have the capability to download the financial report data from the "Keuangan" page. The corresponding activity diagram is illustrated in Figure 16.
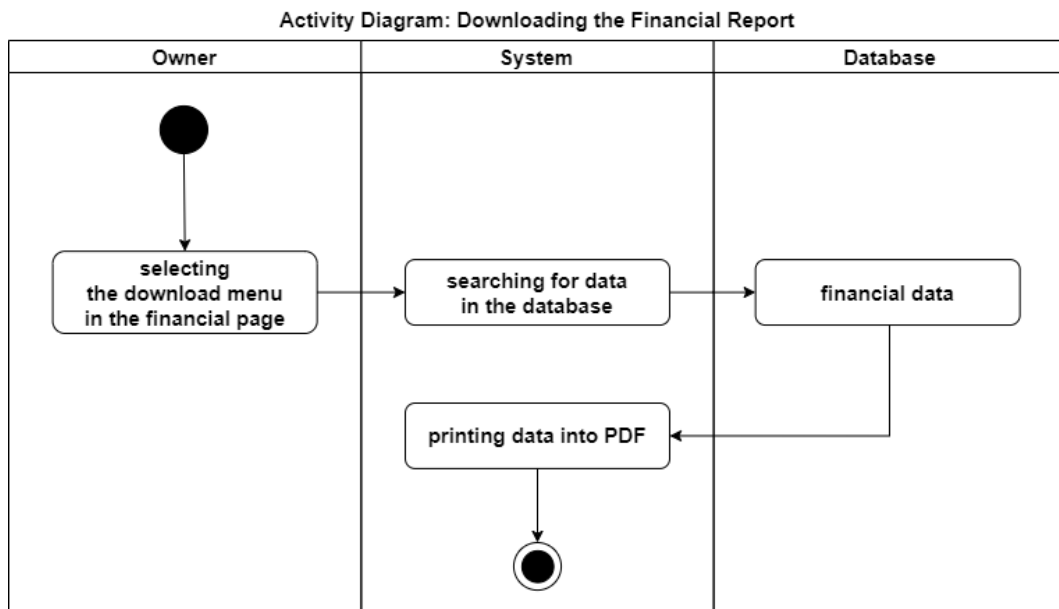
Figure 16. Activity Diagram: Download the Financial Report Data

13) Download the Financial Report Data

Users have the capability to download the financial report data from the "Keuangan" page. The corresponding activity diagram is illustrated in Figure 17.
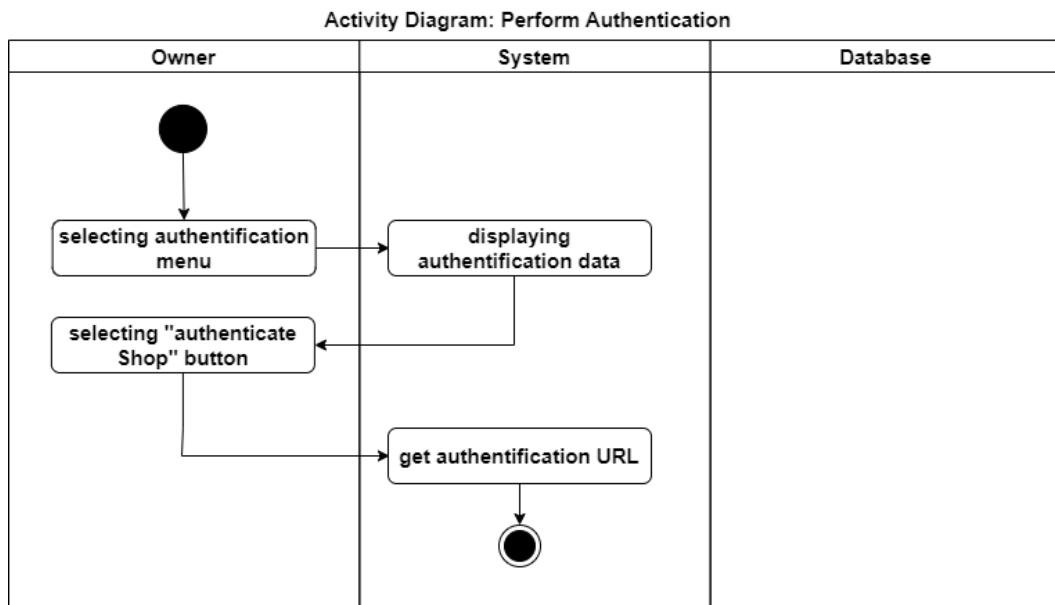
Figure 17. Activity Diagram: Download the Financial Report Data

3. Encoding

The design stage in Extreme Programming (XP) integrates User-Centered Design (UCD) methods, focusing on simplicity, flexibility, and user needs. Detailed user research informs personas and scenarios, guiding the creation of initial design concepts and detailed specifications. Interactive prototypes are developed for user testing. Emphasizing simplicity, continuous refactoring, and collaboration through pair programming and workshops, the system remains user-focused. For Desasa Home Decor Store, this approach involves creating a comprehensive management information system that integrates with Shopee using CodeIgniter 4 and CSS, with Dita Faradila handling the back-end and me handling the front-end development.

4. Testing

In the User-Centered Design (UCD) process, the "evaluate against requirements" phase involves assessing the usability and effectiveness of a product or system against the defined requirements and goals. This phase typically includes

several methods and tools to gather feedback and measure performance. One such tool mentioned in your context is the System Usability Scale (SUS).

The System Usability Scale (SUS) is a widely used questionnaire-based tool designed to evaluate the usability of a system. It consists of a set of 10 Likert scale questions, each with five response options ranging from "strongly disagree" to "strongly agree," as described by Nathan Thomas (2022). Users are asked to rate their agreement with statements about the system's usability based on their experience. The questionnaire questions for the System Usability Scale should also be arranged in a sequential order, namely:

Table 5. Questions for System Usability Scale

No	Question
1	I think that I would like to use this system frequently.
2	I found the system unnecessarily complex.
3	I thought the system was easy to use.
4	I think that I would need the support of a technical person to be able to use this system.
5	I found the various functions in this system were well integrated.
6	I thought there was too much inconsistency in this system.
7	I would imagine that most people would learn to use this system very quickly.
8	I found the system very cumbersome to use.
9	I felt very confident using the system.
10	I needed to learn a lot of things before I could get going with this system.

During the "evaluate against requirements" phase of UCD, SUS can be employed to gather quantitative data on users' perceptions of the system's usability. The scores from SUS can provide valuable insights into how well the system meets

the specified usability requirements and whether it aligns with user expectations and needs.

The method for calculating the results of the System Usability Scale (Nathan Thomas, 2022) is as follows:

a. Subtract one from the score of each odd-numbered question. For instance, if question 1 has a score of 4, subtract 1 from 4 to get a score of 3 for question 1.
b. For each even-numbered question, subtract its score from five. For example, if question 2 has a score of 1, subtract 1 from 5 to obtain a score of 4 for question 2.
c. Sum the values of the even and odd-numbered statements. Then, multiply the total by 2.5.

Although it may not assist in identifying specific problematic factors or features in the system, the System Usability Scale can help determine whether the system is usable. The average System Usability Scale score is 68. Therefore, if the score is below 68, it indicates potential issues affecting the usability of the system (Nathan Thomas, 2022).

When evaluating SUS scores, three perspectives are taken into account: acceptability, grade scale, and adjective rating. Acceptability measures the degree of user acceptance of the software, the grade scale is a measure of the software's level or grade, and adjective rating assesses the value or rating of the software (Ependi et al, 2019). Figure 18 illustrates these three assessment categories.
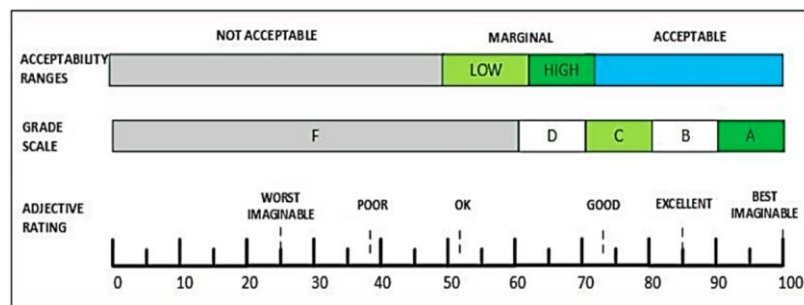
Figure 18. Scoring category for System Usability Scale (SUS)

5. Report Writing Stages

The reporting phase aims to furnish details on the conducted research and ensure comprehensive documentation of the activity. This research report serves to clarify the undertaken tasks for the reader and serves as a reference point for future research endeavors. Below is the research flowchart included in Table 6.

Table 6. Research Timeline

Research Stages	November 1	2	3	4	December 1	2	3	4	January 1	2	3	4	February 1	2	3	4	March 1	2	3	4	April 1	2	3	4	May 1	2	3	4	June 1	2	3	4	July 1	2	3	4
	2023																				**2024**															
Data Collection		X	X																																	
Planning				X	X																															
Design						X	X	X	X																											
Drafting							X	X	X	X	X	X	X																							
Proposal							X	X	X	X	X	X	X																							
Proposal Seminar													X	X																						
System Coding								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
System Display																												X	X							
Testing																												X	X							
Drafting Result																			X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Result Seminar																																X	X			
Comprehensive Examination																																		X	X	

V. CONCLUSION AND RECOMMENDATION

5.1.Conclusion

Based on the result and discussions in this study, the conclusions drawn are as follows:

1. The front end of an integrated management information system with Shopee e-commerce has been developed based on website using CodeIgniter 4 framework. This information system can assist users (owners and employees) in managing product data both in offline stores and on Shopee.
2. The integrated management information system for Shopee e-commerce, developed using a user-centered design approach, is now successfully implemented. This ensures the system meets user needs, enhancing satisfaction and operational efficiency.
3. The front end of this system has been tested using SUS, ResponsivelyApp, Lighthouse by DevTools, and aXe by DevTools. The final result of the System Usability Scale yielded 87.5%, indicating that this system is highly suitable for use.

5.2.Recommendation

Based on the implementation results of the system that has been developed, the following recommendations are suggested for this study:

1. The integration of Shopee and store products should be seamless.

2. All Shopee products should be easily retrievable in bulk.

3. Adding pagination feature for all tabled data.

4. Make a new feature for controlling the new supplies with different price range.

5. Seamless integration with other e-commerce platforms should be possible.

6. The system should allow for direct modification of product details without relying on Shopee's interface.

BIBLIOGRAPHY

Ardiansah, M. N., Sadida, A., Hidayati, U., M, A. W., Akuntansi, J., Semarang, P. N., & Soedarto, J. P. (2022). Rancang Bangun Aplikasi Pelaporan Keuangan Berbasis Open API. *Prosiding Seminar Hasil Penelitian Dan Pengabdian Masyarakat*, *4*, 63–75.

Arthana, I. K. R., Pradnyana, I. M. A., & Dantes, G. R. (2019). Usability testing on website wadaya based on ISO 9241-11. *Journal of Physics: Conference Series*, *1165*(1).

Auliadi, M., Muttakin, F., & Rahmawita Munzir, M. (2023). The use of usability testing in usability testing the SIKULI website based on ISO 9241-11. *TEMATIK*, *10(1)*, 167–174. https://doi.org/. https://doi.org/10.38204/tematik.v10i1.1300

Bootstrap. (n.d.). *Bootstrap · The most popular HTML, CSS, and JS library in the world.* Retrieved June 12, 2024, from https://getbootstrap.com/

Carolina, I., & Rusman, A. (2019). Penerapan Extreme Programming Pada Sistem Informasi Penjualan Pakaian Berbasis Web (Studi Kasus Toko ST Jaya). *Jurnal Invotek Polbeng*, *4(2)*.

Charles, L. (2022). *Top Reasons Why Codeigniter is the Preferred Choice of Web Developers | Geek Culture*. https://medium.com/geekculture/14-reasons-why-codeigniter-is-the-preferred-choice-of-web-developers-22b48b7791ef

Deque. (2020). *Axe: Accessibility Testing Tools and Software*. Deque. https://www.deque.com/axe/

Deque, aXe by. (n.d.). *Axe Tools - Accessibility Guide*. Retrieved June 1, 2024, from https://ionic.io/docs/accessibility/axe

Ardiansah, M. N., Sadida, A., Hidayati, U., M, A. W., Akuntansi, J., Semarang, P. N., & Soedarto, J. P. (2022). Rancang Bangun Aplikasi Pelaporan Keuangan Berbasis Open API. *Prosiding Seminar Hasil Penelitian Dan Pengabdian Masyarakat*, *4*, 63–75.

Arthana, I. K. R., Pradnyana, I. M. A., & Dantes, G. R. (2019). Usability testing on website wadaya based on ISO 9241-11. *Journal of Physics: Conference Series*, *1165*(1).

Auliadi, M., Muttakin, F., & Rahmawita Munzir, M. (2023). The use of usability testing in usability testing the SIKULI website based on ISO 9241-11. *TEMATIK*, *10(1)*, 167–174. https://doi.org/. https://doi.org/10.38204/tematik.v10i1.1300

Bootstrap. (n.d.). *Bootstrap · The most popular HTML, CSS, and JS library in the world.* Retrieved June 12, 2024, from https://getbootstrap.com/

Carolina, I., & Rusman, A. (2019). Penerapan Extreme Programming Pada Sistem Informasi Penjualan Pakaian Berbasis Web (Studi Kasus Toko ST Jaya). *Jurnal Invotek Polbeng*, *4(2)*.

Charles, L. (2022). *Top Reasons Why Codeigniter is the Preferred Choice of Web Developers | Geek Culture*. https://medium.com/geekculture/14-reasons-why-codeigniter-is-the-preferred-choice-of-web-developers-22b48b7791ef

Deque. (2020). *Axe: Accessibility Testing Tools and Software*. Deque. https://www.deque.com/axe/

Deque. (n.d.). *Axe Tools - Accessibility Guide*. Retrieved June 1, 2024, from https://ionic.io/docs/accessibility/axe

Deque. (n.d.). *axe: Accessibility Testing Tools and Software*. Retrieved June 10, 2024, from https://www.deque.com/axe/

Eugenia, M. P., Abdurrofi, M., Almahenzar, B., & Khoirunnisa, A. (2022). Pendekatan Metode User-Centered Design dan System Usability Scale dalam Redesain dan Evaluasi Antarmuka Website. *Seminar Nasional Official Statistics*, *2022*(1), 573–584. https://doi.org/10.34123/semnasoffstat.v2022i1.1454

Fanani, L., Ananta, M. T., & Brata, K. C. (n.d.). *User-Centered Design dalam Pengembangan Aplikasi Pencarian Gedung Berbasis Android*.

Gani, G., Dewi, P. F., & Sugiharto, A. (2023). Sistem Informasi Point of Sale Berbasis Web pada Dapur Caringin Tilu Bandung. *JSI (Jurnal Sistem Informasi) Universitas Suryadarma*, *10(2)*.

Intern, D. (n.d.). *Contoh Use Case Diagram Lengkap dengan Penjelasannya - Dicoding Blog*. Retrieved January 9, 2024, from https://www.dicoding.com/blog/contoh-use-case-diagram/

Karsen, M. (n.d.). *What is Usability Testing – School of Information Systems*. Retrieved January 25, 2024, from https://sis.binus.ac.id/2021/05/04/what-is-usability-testing-2/

Mubaroq, R. (2023). *Integrasi Website Pemasaran Multi-Channel Untuk Industri Pakaian (Studi Kasus : Signature Store) Website Integration Multi-Channel Marketing For Fashion Industry*. *10*(1), 419–428.

Nistrina, K., & Rahmania, A. (2021). Sistem Informasi Point of Sale Berbasis Website Studi Kasus: Pt Barokah Kreasi Solusindo (Artpedia). *Jurnal Sistem Informasi*, *03(02)*.

Nurhakim, L. (2021). System Usability Scale (SUS). *Iron and Steel Technology*, *15*(8), 41–47. https://www.usability.gov/how-to-and-tools/methods/system-usability-scale.html

Nursolihah, F. R. (2022). Perancangan Front End Website dengan Memanfaatkan Template Bootstrap di Diskominfo Kabupaten Garut. *Pendidikan Sistem Dan Teknologi Informasi*, *1*.

Paskalis, P., Hidayati, & Darwiyanto, E. (2015). *Implementasi User Centered Design untuk Merancang Antarmuka Sistem Informasi Eksekutif pada PT Pos Indonesia*.

Pohan, S. D., & Firdaus, I. (2022). Implementation Of Extreme Programming Method In The Development Of Pekanbaru Community Training Information System. *Jurnal Pendidikan Teknologi Informasi*, *6(1)*.

Pol, T. (2023). *What Is Google Lighthouse?* https://neilpatel.com/blog/google-lighthouse/

Rahmalia, N. (2022). *Google Lighthouse: Apa Itu, Cara Menggunakan, dan Metrik-metriknya*. Https://Glints.Com/Id/Lowongan/Google-Lighthouse-Adalah/. https://glints.com/id/lowongan/google-lighthouse-adalah/

Refsnes Data. (2023). *Responsive Web Design - Media Queries*. W3Schools. https://www.w3schools.com/css/css_rwd_mediaqueries.asp

Rendi Juliarto, intern J. C. writter di D. (2021). Apa itu Activity Diagram? Beserta Pengertian, Tujuan, Komponen - Dicoding Blog. In *10 Maret*. https://www.dicoding.com/blog/apa-itu-activity-diagram/

ResponsivelyApp. (n.d.). *Responsively App: A modified browser built using Electron that helps in responsive web development | Our Code World*. Retrieved June 1, 2024, from https://ourcodeworld.com/articles/read/1276/responsively-app-a-modified-browser-built-using-electron-that-helps-in-responsive-web-development

Rivaldi, M. F., Afuan, L., & Nugroho, A. K. (2022). Design and Build A Career CENTER Information System Using the Codeigniter Framework Case Study at Universitas Jenderal Soedirman Using Waterfall Method. *Teknik Informatika (Jutif)*, *3(3)*, 731–738.

Siallagan, T. F. P. (2020). Rancang Bangun Sistem Pengidentifikasi Travel Bag Pada Kelompok Biro Perjalanan Umroh/Haji Berbasis Web. *Jurnal Teknologi, Informasi, Dan Komunikasi*, *13*.

Stephen, D. (2022). *What is User Centered Design? | IxDF*. The Interaction Design Foundation. https://www.interaction-design.org/literature/topics/user-centered-design

Sumirat, L. P., Cahyono, D., Kristyawan, Y., & Kacung, S. (2023). *Dasar-Dasar Rekayasa Perangkat Lunak*. Madza Media. http://repository.unitomo.ac.id/3449/

Susanti, M. R. (2020). Analisis Sistem Penyimpanan Dan Prosedur Temu Kembali Arsip Dinamis di PT Artojoyo Langgeng Jaya Abadi (JH Tech Sidoarjo). *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, *8(2)*.

Thomas, N. (2022). *How to Use The System Usability Scale (SUS)*. Usability Geek. https://usabilitygeek.com/how-to-use-the-system-usability-scale-sus-to-evaluate-the-usability-of-your-website/

Utomo, R. B. (2019). *Aplikasi Pembelajaran Manasik Haji dan Umroh berbasis Multimedia dengan Metode User Centered Design (UCD)*.

w3 Schools. (2015). *CSS Introduction*. Refsnes Data. https://www.w3schools.com/css/css_intro.asp

Waseem, & Hammouri, A. I. (2016). Responsive Web Design Techniques. *International Journal of Computer Applications*, *150*, 18–27.

Wasino, Herwindiati, D. E., Setyawan, I. R., & Maupa, H. (2023). *Desain Situs Web Yang Responsif Berdasarkan Strategi Agile Sebagai Pendukung Pemasaran Destinasi Wisata*. *10*(1), 526–540.

Web.dev. (n.d.). *Largest Contentful Paint (LCP) | Articles | web.dev*. Retrieved June 1, 2024, from https://web.dev/articles/lcp

Wijoyo, H., Ariyanto, A., Sudarsono, A., & Wijayanti, K. D. (2021). Sistem Informasi Manajemen. *Insan Cendekia Mandiri*.

Yesa, B., Maharani, H., & Yonata, Y. (2022). Perancangan Sistem Terintegrasi Multichannel E-Commerce Berbasis Website pada PT XYZ. *Jurnal Telematika*, *17*(1), 42–48.

Yulistiana, W. (n.d.). *Implementasi User Centered Desugn (UCD) Pada Pengembangan Aplikasi Manajemen Rumah Sakit*.
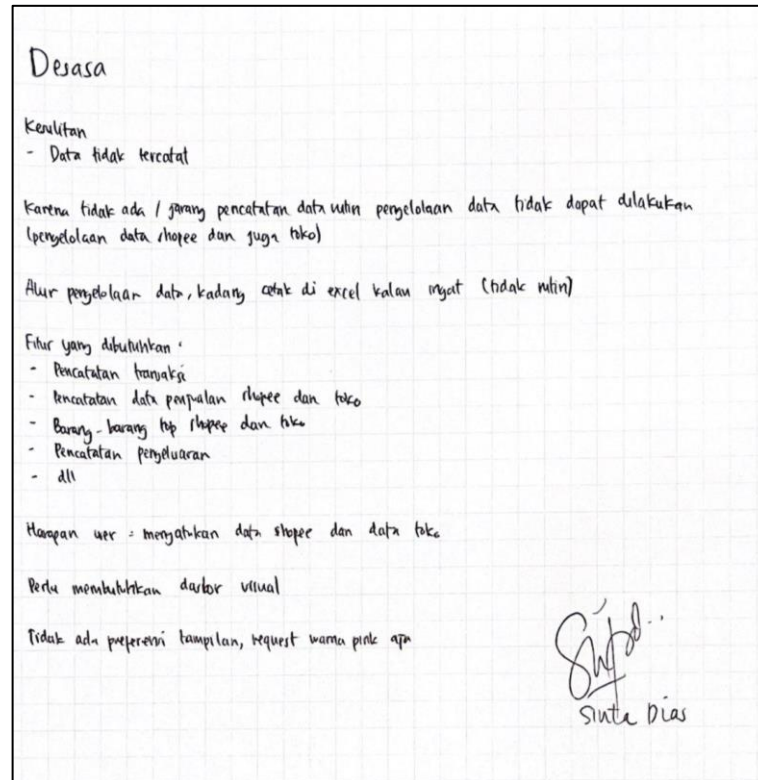
ATTACHMENT

Figure 1. Interview Results with the Potential User (Owner of Desasa)

Figure 2. Desasa Home Decor's Production House

Figure 3.Desasa Home Decor's Production House

Figure 4. Desasa Home Decor's Production House

Figure 5. Desasa Home Decor's Production House

Figure 6. Desasa Home Decor's Production House

PENGUJIAN SYSTEM USABILITY SCALE TERHADAP SISTEM
INFORMASI MANAJEMEN TOKO DESASA HOMEDECOR
TERINTEGRASI DENGAN E-COMMERCE

Nama : Sinta Dias Dewantary
Status : Owner.

Jawablah pertanyaan pengujian System Usability Scale berikut!

No	Pertanyaan	Skala				
		1	2	3	4	5
1	Saya rasa saya akan sering menggunakan sistem ini.					V
2	Saya merasa sistem ini terlalu rumit.	V				
3	Saya pikir sistem ini mudah digunakan.					V
4	Saya rasa saya akan memerlukan bantuan dari orang teknis untuk dapat menggunakan sistem ini.		V		X	
5	Saya merasa berbagai fungsi dalam sistem ini terintegrasi dengan baik.					V
6	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini.	V				
7	Saya membayangkan bahwa kebanyakan orang akan cepat belajar menggunakan sistem ini.					V
8	Saya merasa sistem ini sangat membingungkan untuk digunakan.	V				
9	Saya merasa sangat percaya diri menggunakan sistem ini.				V	
10	Saya perlu mempelajari banyak hal sebelum bisa mulai menggunakan sistem ini.		V		X	

PENGUJIAN SYSTEM USABILITY SCALE TERHADAP SISTEM
INFORMASI MANAJEMEN TOKO DESASA HOMEDECOR
TERINTEGRASI DENGAN E-COMMERCE

Nama : Hilman Budianto.

Status : Owner.

Jawablah pertanyaan pengujian System Usability Scale berikut!

No	Pertanyaan	Skala				
		1	2	3	4	5
1	Saya rasa saya akan sering menggunakan sistem ini.					✓
2	Saya merasa sistem ini terlalu rumit.	✓				
3	Saya pikir sistem ini mudah digunakan.					✓
4	Saya rasa saya akan memerlukan bantuan dari orang teknis untuk dapat menggunakan sistem ini.		✓			
5	Saya merasa berbagai fungsi dalam sistem ini terintegrasi dengan baik.					✓
6	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini.	✓				
7	Saya membayangkan bahwa kebanyakan orang akan cepat belajar menggunakan sistem ini.					✓
8	Saya merasa sistem ini sangat membingungkan untuk digunakan.	✓				
9	Saya merasa sangat percaya diri menggunakan sistem ini.					✓
10	Saya perlu mempelajari banyak hal sebelum bisa mulai menggunakan sistem ini.		✓			

PENGUJIAN SYSTEM USABILITY SCALE TERHADAP SISTEM
INFORMASI MANAJEMEN TOKO DESASA HOMEDECOR
TERINTEGRASI DENGAN E-COMMERCE

Nama : Pitriyana
Status : Admin

Jawablah pertanyaan pengujian System Usability Scale berikut!

No	Pertanyaan	Skala				
		1	2	3	4	5
1	Saya rasa saya akan sering menggunakan sistem ini.					✓
2	Saya merasa sistem ini terlalu rumit.	✓				✓
3	Saya pikir sistem ini mudah digunakan.					✓
4	Saya rasa saya akan memerlukan bantuan dari orang teknis untuk dapat menggunakan sistem ini.			✓		
5	Saya merasa berbagai fungsi dalam sistem ini terintegrasi dengan baik.				✓	
6	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini.		✓			
7	Saya membayangkan bahwa kebanyakan orang akan cepat belajar menggunakan sistem ini.					✓
8	Saya merasa sistem ini sangat membingungkan untuk digunakan.		✓			
9	Saya merasa sangat percaya diri menggunakan sistem ini.					✓
10	Saya perlu mempelajari banyak hal sebelum bisa mulai menggunakan sistem ini.			✓		

PENGUJIAN SYSTEM USABILITY SCALE TERHADAP SISTEM
INFORMASI MANAJEMEN TOKO DESASA HOMEDECOR
TERINTEGRASI DENGAN E-COMMERCE

Nama : Via Dentalin

Status : Admin 2.

Jawablah pertanyaan pengujian System Usability Scale berikut!

No	Pertanyaan	Skala				
		1	2	3	4	5
1	Saya rasa saya akan sering menggunakan sistem ini.					✓
2	Saya merasa sistem ini terlalu rumit.	✓				
3	Saya pikir sistem ini mudah digunakan.					✓
4	Saya rasa saya akan memerlukan bantuan dari orang teknis untuk dapat menggunakan sistem ini.			✓		
5	Saya merasa berbagai fungsi dalam sistem ini terintegrasi dengan baik.					✓
6	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini.		✓			
7	Saya membayangkan bahwa kebanyakan orang akan cepat belajar menggunakan sistem ini.					✓
8	Saya merasa sistem ini sangat membingungkan untuk digunakan.		✓			
9	Saya merasa sangat percaya diri menggunakan sistem ini.					✓
10	Saya perlu mempelajari banyak hal sebelum bisa mulai menggunakan sistem ini.			✓		

PENGUJIAN SYSTEM USABILITY SCALE TERHADAP SISTEM INFORMASI MANAJEMEN TOKO DESASA HOMEDECOR TERINTEGRASI DENGAN E-COMMERCE

Nama : Ayu Lidya Sari
Status : ADMIN

Jawablah pertanyaan pengujian System Usability Scale berikut!

No	Pertanyaan	Skala				
		1	2	3	4	5
1	Saya rasa saya akan sering menggunakan sistem ini.					✓
2	Saya merasa sistem ini terlalu rumit.			✓		
3	Saya pikir sistem ini mudah digunakan.					✓
4	Saya rasa saya akan memerlukan bantuan dari orang teknis untuk dapat menggunakan sistem ini.			✓		
5	Saya merasa berbagai fungsi dalam sistem ini terintegrasi dengan baik.					✓
6	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini.	✓				
7	Saya membayangkan bahwa kebanyakan orang akan cepat belajar menggunakan sistem ini.					✓
8	Saya merasa sistem ini sangat membingungkan untuk digunakan.	✓				
9	Saya merasa sangat percaya diri menggunakan sistem ini.					✓
10	Saya perlu mempelajari banyak hal sebelum bisa mulai menggunakan sistem ini.					✓