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Design and Build a Robusta Coffee Shop Information System as a Website-Based Transaction and Promotion Media (Case Study: Kite Robusta Coffee Shop Pagar Alam

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ABSTRACT

Mosques play a central role in Muslim community life, not only as places of worship but also as centers for social and financial activities such as donations, alms management, and information dissemination. However, in the current era of rapid technological development, many mosques still rely on manual systems for financial management and communication. This condition often leads to recording errors, calculation inaccuracies, data loss, limited access to information, and reduced transparency, which can affect public trust in mosque management. Therefore, innovation in the form of information technology is needed to support more effective, accurate, and transparent mosque administration. This research aims to assist the management of Raudhatul Mukhlisin Mosque in improving the efficiency and accuracy of mosque financial data management through the development of a website-based information system. The system was developed using the Waterfall method, consisting of requirement analysis, system design, implementation, testing, and maintenance stages. This study employed qualitative research methods with data collection techniques including observation and literature review. The system was built using PHP, HTML, and MySQL, and tested using the Black Box method. The results indicate that the system facilitates financial data processing, reporting, and information access, while increasing transparency and accountability for mosque administrators and worshippers.

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1. Introduction

The development of technology has brought many benefits and resulted in convenience and helped humans in completing work. Technology can now be used in a variety of fields[1].

Information technology (internet) is one of the technologies that is developing in this era of globalization. The progress of the development of telecommunication devices and computer devices also encourages people to use the internet. The development of technology today is happening very fast.

Information technology has become a commonplace thing and a necessity in all aspects of life. Not only that, currently information technology has become the backbone of human life in the provision and provision of information[2].

A system is a working network of interconnected procedures, coming together to accomplish a specific goal. In general, systems can be found in various fields, such as in technology (e.g. computer systems), biology (human body systems), social (organizational systems), or in management (managerial systems). Each system has a specific purpose or function that must be achieved through the interaction between the parts within it[3].

Information is data that is processed into a more useful and meaningful form for the recipient. Information is also one of the keywords in this era. To obtain and generate information, computers and their technology are one of the most appropriate tools. The use of computers in the field of education includes computer-assisted learning media including e-learning, academic data processing tools, and information delivery media[4][5].

An information system is a system within an organization that brings together the needs of daily transaction management, supports the operational, managerial, and strategic activities of an organization and provides certain external parties with the necessary report

With the higher development of technology, it will be easier for humans to carry out their duties in the use of information technology today, both individuals, business units and other agencies. The role of computers has now become more widespread not only as a calculation tool such as the initial use of computers but also as a tool to solve problems faced by humans. The Internet makes the boundaries of vast territories seem to be narrow. Information from any part of the country can be known through various social media and information search engines. To access any information becomes very easy and fast by using the internet, including information to find desired products or services.

Technology is widely used as a means of promotion and information, especially in the field of websites which currently play a very important role in conveying information. A website is an application that contains multimedia documents (text, images, sounds, animations, videos) in which it uses the HTTP protocol (hyper transfer protocol) and to access it using software called a browser. The functions of the website include: Promotional media, marketing, information, education and communication.

Meanwhile, Information is data that is processed into a form that is more meaningful to its users that describes a real event, so that it can be useful and can be used in the current and future decision-making process. So it can be concluded that information media is the delivery of information that is presented in various types of information that are presented and managed in a clearer, meaningful, and useful form for users.

Promotion is matters related to the sale and delivery of information about products. Promotion comes from the word promote in English which is interpreted as a tool to increase sales. With promotions, traders can attract consumers to see and buy products and increase sales. The problem in this study is that the website is one of the tools used to promote a product so that it can be known and known by the wider community.

Pagar Alam City is a small town located + 300 KM away from South Sumatra Province. Pagar Alam City is also known as a mountainous tourist area, where the majority of souvenir shopping centers in Pagar Alam City are in each tourist area. The Pagar Alam city tourism office helps tourists to find out information about what souvenirs are the characteristics of the city of Pagar Alam, and also the tourism office can increase the potential and economy of the community in the city of Pagar Alam, most of which are farmers who work as farmers.

The city of Pagar Alam is not only famous for its natural beauty, this city also has a variety of typical souvenirs, but there are still many tourists who do not know how to get the typical souvenirs of the city of Pagar Alam. Therefore, the use of technology in the form of a website is felt to be one of the containers to get information about the location and types of souvenirs in the city of Pagar Alam. A website is one of the tools used to provide information and promote a product that can be known and known by the wider community. The purpose of this study is to help tourists or potential customers obtain information about Pagar Alam souvenirs and assist sellers in introducing or promoting Pagar Alam city souvenirs and can increase the economic income of Pagar Alam city.

Pagar Alam is one of the cities in South Sumatra Province, located at the foot of Mount Dempo so the geographical location of Pagar Alam is very strategic, surrounded by mountains and hills. South Sumatra is the largest robusta coffee producing province in Indonesia. Pagar Alam coffee is one of the most demanded Besemah coffees. Since a long time ago, this city has been a center of coffee plantations with production that could reach the Netherlands, because at that time the Queen of the Netherlands Yuliana liked the taste of this Besemah Coffee, the delicious taste of coffee was certainly produced from the supportive plantation environment [5].

2. Research Methods

This research uses a qualitative research approach where qualitative research as a scientific method is often used and carried out by a group of researchers in the field of social sciences, including education. A number of reasons were also put forward, the essence of which was that qualitative research enriches the results of quantitative research. Qualitative research is carried out to build knowledge through understanding and discovery. The qualitative research approach is a research and understanding process based on methods that investigate a social phenomenon and human problem. In this study, the researcher made a complex picture, examined words, detailed reports from the respondents' views and conducted a study on the natural situation[14]

2.1 Data Collection Methods

In the discussion of this data collection method, there are several data collection techniques that will be used in this study, namely [15]:

1. Observation
   By conducting a review or observation of the object directly being studied, the researcher made direct observations to the "Kopi Kite" Robusta Pagar Alam Shop. This direct observation helps researchers get a more real and detailed picture, so that the results of the study become more relevant and in-depth.
2. Interview
   The interview was conducted to obtain complete information through questions and answers.
3. Literature study
   To collect theoretical data, researchers conduct literature studies by reading and examining various relevant sources, such as books, scientific journals, articles, and other documents. These sources are carefully selected to fit the topic and problem being researched.

2.2 System Development Methods

Methods are the stages or rules for doing something. System Development Life Cycle (SDLC) is a logical process used by a system analyst to develop an information system that involves requirements, validation, training, and system owners.

System Development Life Cycle (SDLC) is the process of creating and modifying systems as well as the models and methodologies used to develop these systems. SDLC is also a pattern for developing software systems which consists of the stages of planning, analysis, design, implementation, testing, and maintenance.

The system development model used by the author in this study is the Waterfall Model. The waterfall method or what is often called the waterfall seing method is called the classic life cycle, the name of this model is actually "Linear Sequential Model" which describes a systematic and sequential approach to software development, starting with the specification of user needs and then continuing through the stages of planning, modelling, construction, and handing over the system to the users (deployment). which ends with support on the resulting complete software (Wahid, 2020)

This research method uses the waterfall method. These methods are used sequentially, if one has not been worked on then it cannot proceed to the next step. The stages of the waterfall method can be seen in the image below: (Setiaji & dkk, 2023)

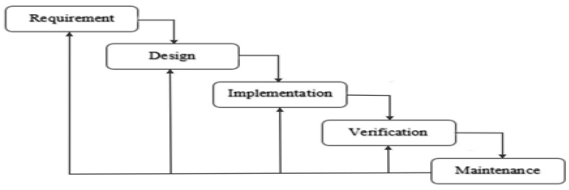

Figure 1. Waterfall Method

1. Requirement
   At this stage the system developer is required communication aimed at understanding the software expected by the user and the limitations of that software. Information can be obtained through interviews, discussions or live surveys. Information is analyzed to obtain the data needed by the user.
2. Design
   At this stage, the developer creates a system design that can help define the hardware and system requirements and also help in defining the overall system architecture.
3. Implementation

At this stage, the system is first developed in a small program called a unit, which is integrated in later stages. Each unit is developed and tested for functionality referred to as unit testing.

4. Verification
   At this stage, the system is verified and tested whether the system fully or partially meets the system requirements, submissions can be categorized into unit testing (done on a specific module of code), system testing (to see how the system reacts when all modules are integrated) and acceptance testing (done with or on behalf of the customer to see if all customer needs are satisfied).
5. Maintenance
   This is the final stage of the waterfall method. The finished software is run and maintained Maintenance is included in fixing errors that were not found in the previous step.

2.3 Research Time and Place

The research was carried out for four months from September to December. With this duration, it is expected to provide deep results and in accordance with the goals to be achieved**.** The research location is located in the Gang Nusa Indah area, Tebat Giri Indah, South Pagar Alam District, Pagar Alam City, South Sumatra. This area is known for its charming natural beauty and its ever-growing tourist attractions.

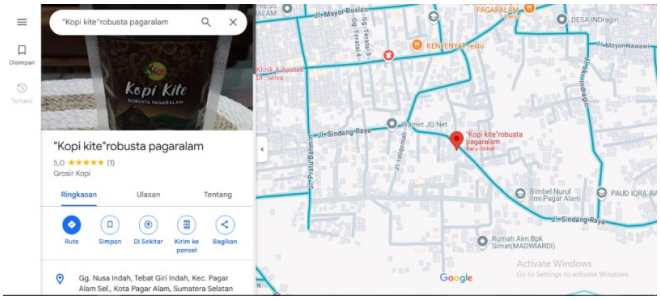

Figure 2. Research Place

3. Results and Discussion

This research succeeded in producing a website for selling Pagar Alam's typical robusta coffee using the Waterfall method. The process starts from the design of the interface with a simple appearance according to the user's needs.

3.1 Yag System Running

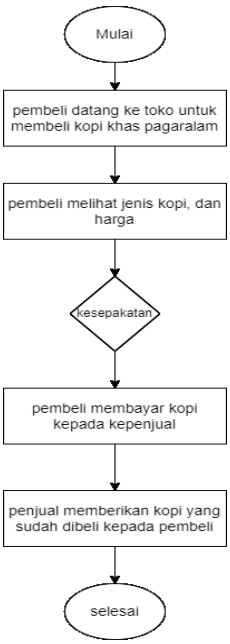

Figure 3. Running Systems

In the picture above, it is explained that the process of buying Pagar Alam coffee is manual, the process that is carried out is that buyers come directly to the Pagar Alam Typical Coffee Shop. Buyers can directly choose the coffee and the price. After the buyer chooses the coffee they want to buy, then it is given to the seller to calculate the total price. After calculating the total price the seller gives the total price to be paid to the buyer.

3.2 Proposed System

This proposed system is an overview of a system where buyers can access online websites. Buyers can see the products available on the Kopikite website, besides that buyers can also see the details of each coffee product, if the tenant wants to buy the coffee it will be moved to the cart page by clicking the buy button on the kopikite website, but before proceeding to the cart page, buyers are required to register or log in first to proceed to the cart page.

After accessing the cart page, the buyer is redirected to the checkout page and sets the delivery location, if you have finished setting the delivery location the buyer is returned to the main page to view the order history. Buyers can upload proof of payment on the order history to continue shipping the goods to the specified location.

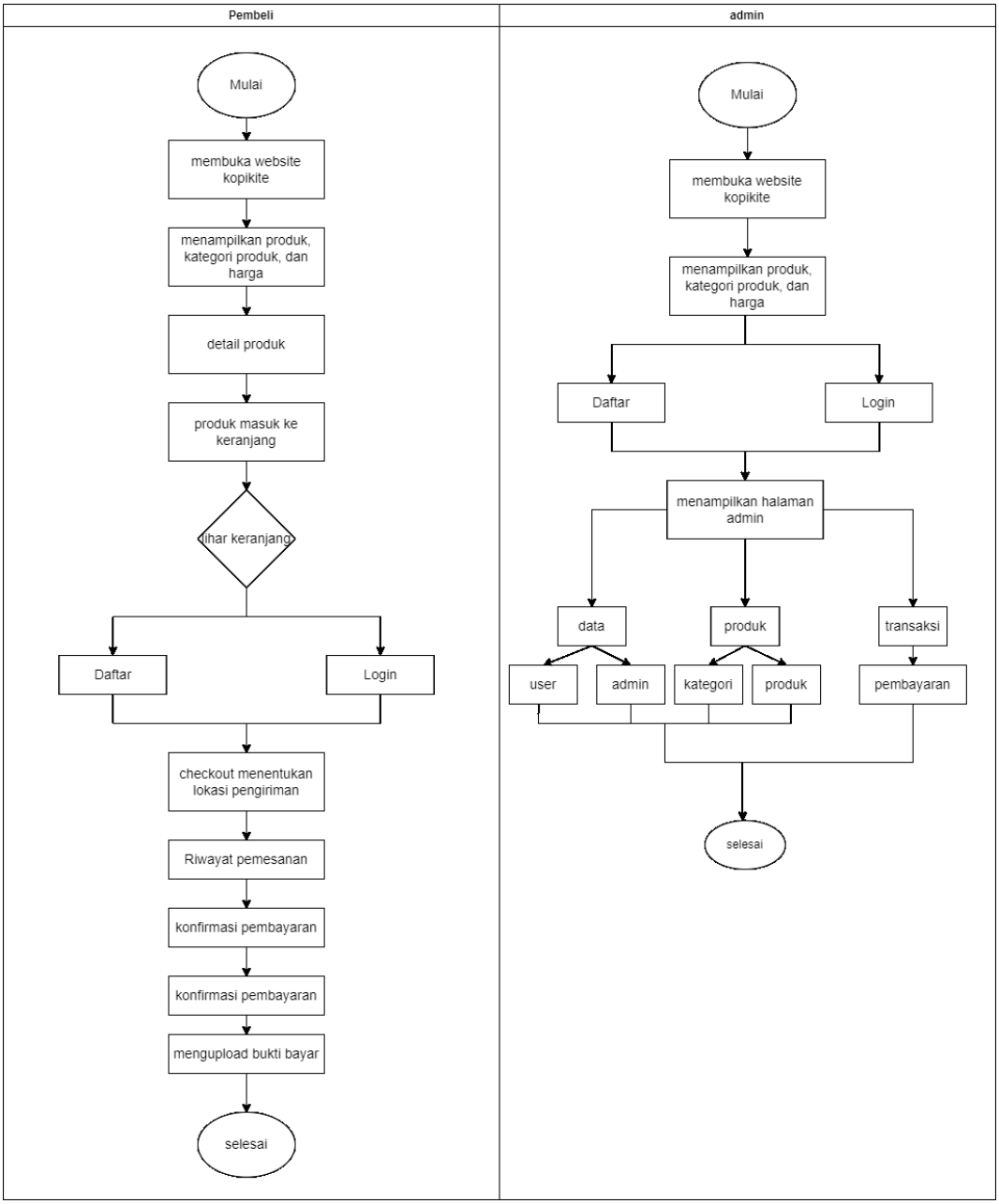

Figure 4. Proposed System

3.3 System Planning

System design is an important process in the development of a software that aims to create or improve the system so that it can work better, effectively, and efficiently. The end goal is to ensure that the system is able to complete tasks according to user needs, in an easier, faster, and more precise way. This stage also involves an in-depth analysis to understand how the system will function, what needs need to be met, and how the system interacts with other elements. (Bahrun & dkk, 2017)

In designing a website, one of the approaches that is often used is to utilize the Unified Modeling Language (UML). UML is a visual modeling language that helps to describe systems clearly and structurally, both in terms of design and interaction within them. Using UML, developers can create diagram-like illustrations that make it easier for them (and other stakeholders) to understand the system as a whole.

3.4 Use Case Diagram

Figure 4.3 below explains the Use Case Diagram in the design of the kopikite system, there are 2 actors who can access the system determined by the account level, among them.

1. Customer
   Customers have access to register, login, select products, purchase products, specify delivery locations and make payments
2. Admin
   Admins have access to login, manage user data, manage transactions and manage product data.

This salted use case describes the access that can be made by users, and admins as follows:

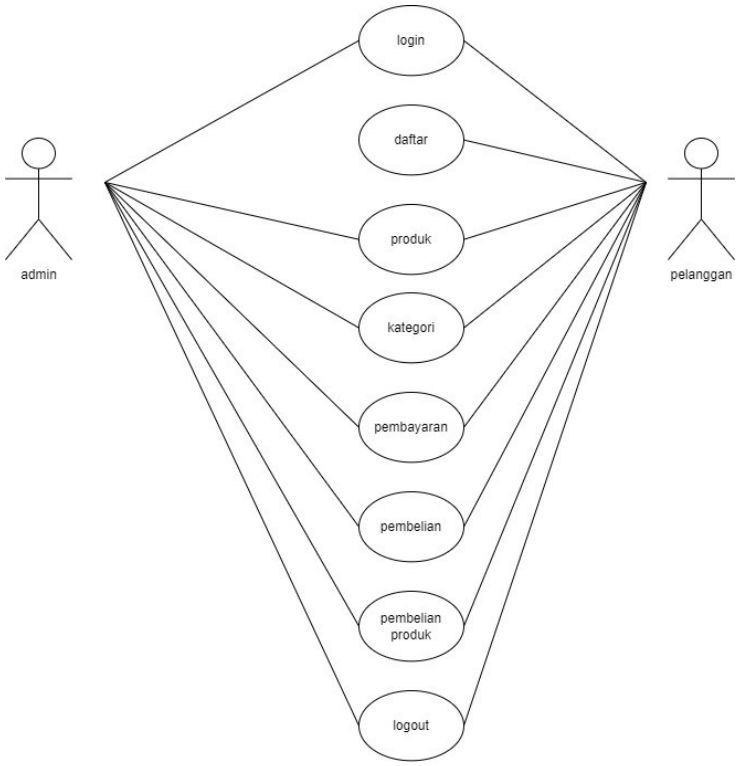

Figure 5. Use Case Diagram Coffee Kite

3.5 Activity Diagram

The following is an explanation of the Activity Diagram on the Kopikite Website in Pagar Alam using the Waterfall method, as follows:

A buyer's customer activity diagram is a flow designed for any stage of the activity performed by the buyer. Further explanation can be seen in Figure 4.4 as follows:

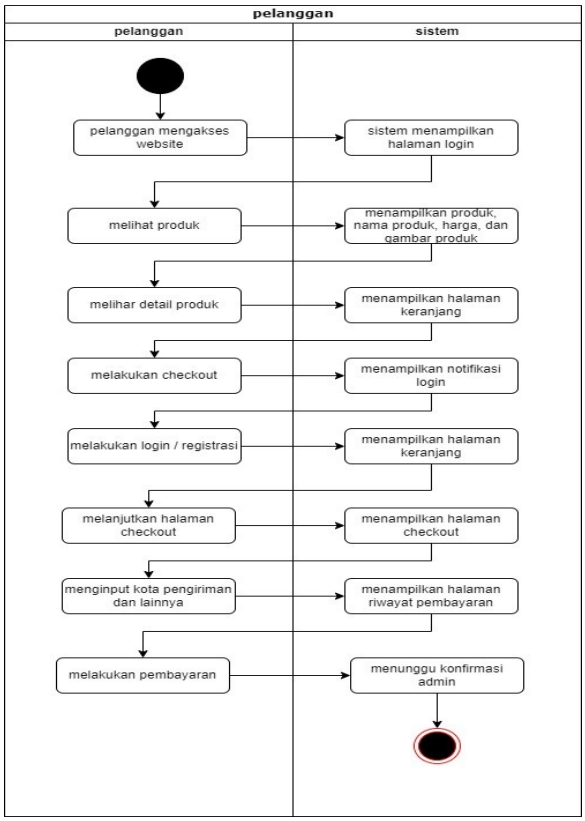

Figure 6. Buyer Activity Diagram

3.6 Class Diagram

The image below explains the class diagram about the relationship between entities used on the kopikite website in the city of Pagar Alam.

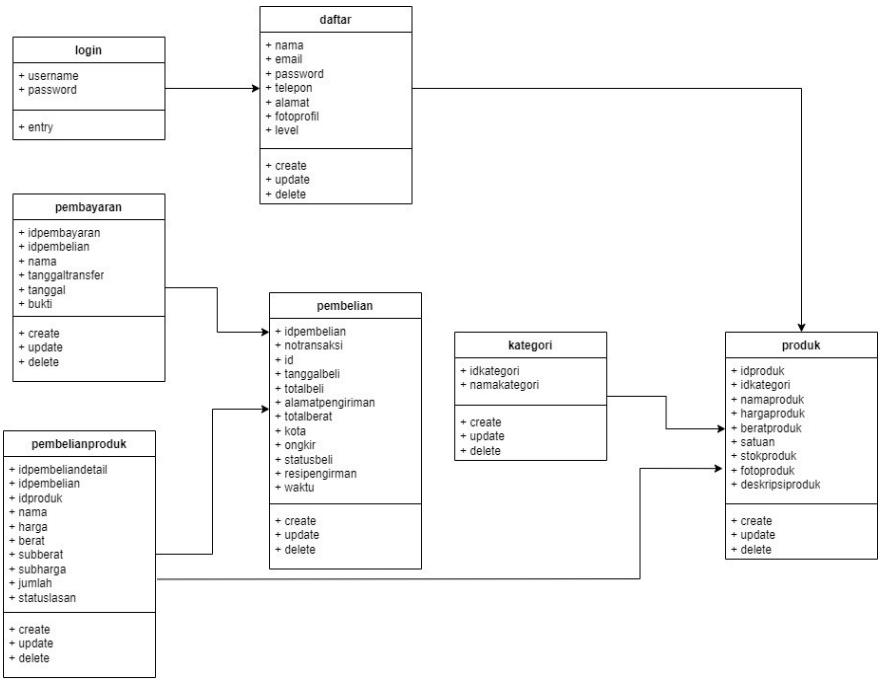

Figure 7. Kite Coffee Diagram Class

Figure 7 is a design class diagram from the Pagar Alam city kopikite website. There are several entities contained in the kopikite diagram class, namely: login, list, product, category, payment, purchaseproduct, purchase.

3.7 Interface Design Results

1) Home

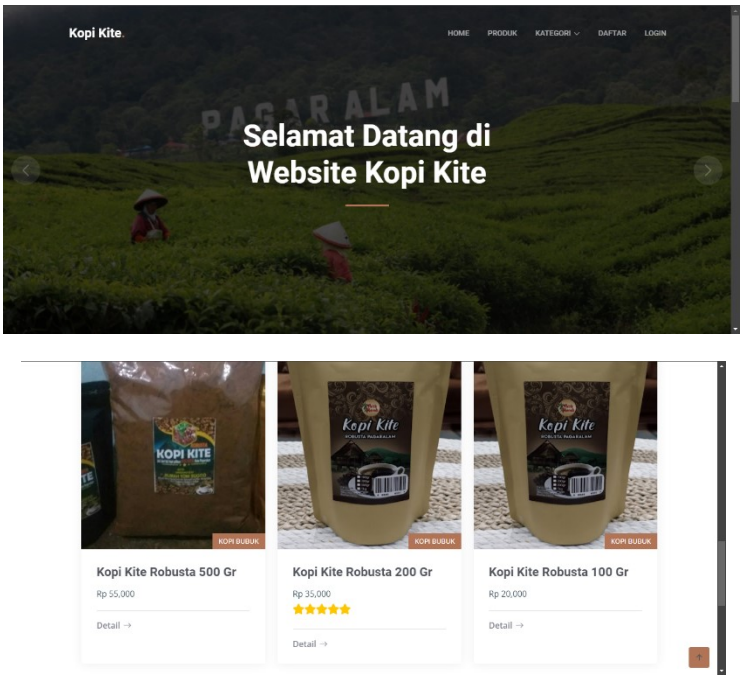

Figure 8. KopiKite Website Home Page

2) Product Page

Product page to display products available from the kopikite website.

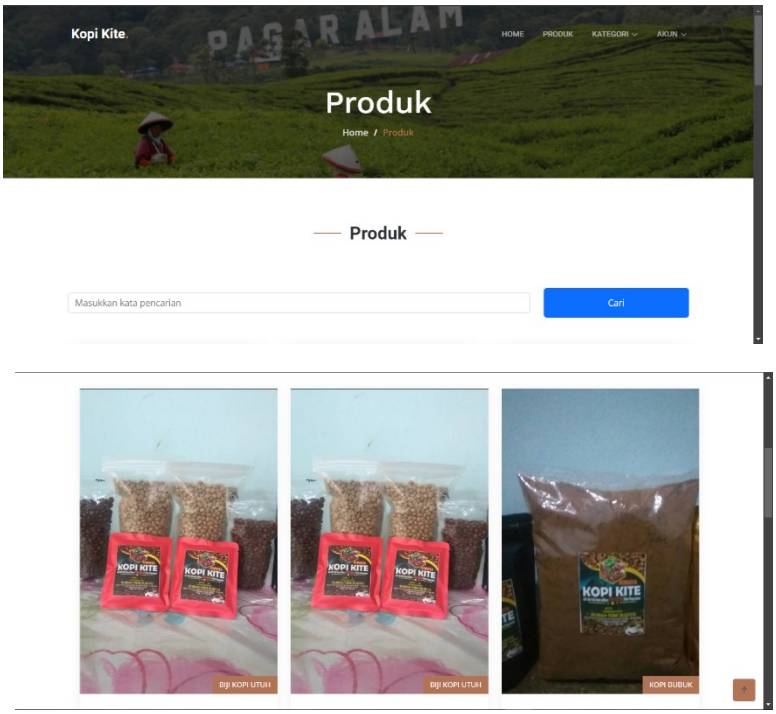

Figure 9. Product Page

3) Category Pages

The category page is a page for the types of products on the kopikite website.

a. Categories Ground Coffee

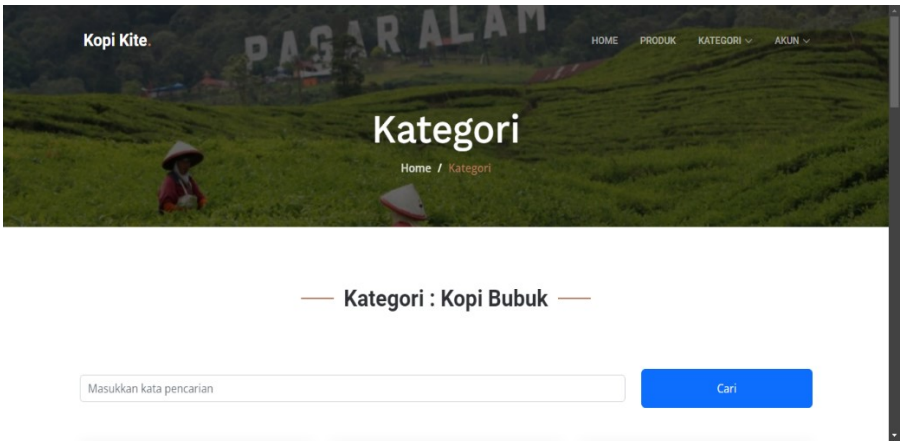

Figure 10. Ground Coffee Category Page

b. Whole Coffee Bean Category

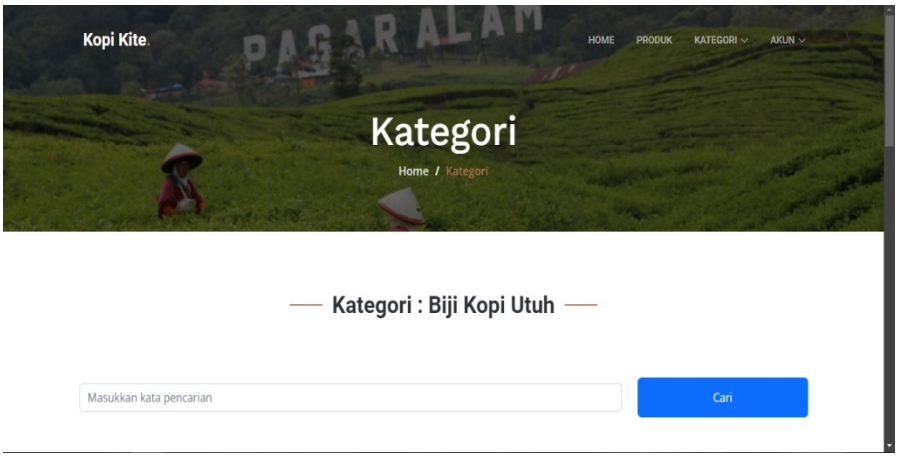

Figure 11. Whole Coffee Bean Category Page

c. Login Page

The login page is an entry form into the kopikite website. On this login page, it has a feature that can be selected as

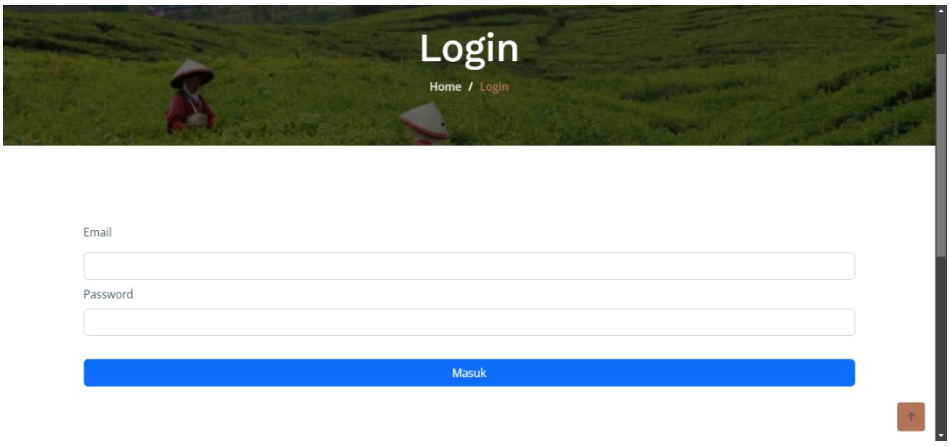

Figure 12. Login Page

d. Product Detail Page

This page serves as a display of details of each product and displays the description, stock quantity, and price price.

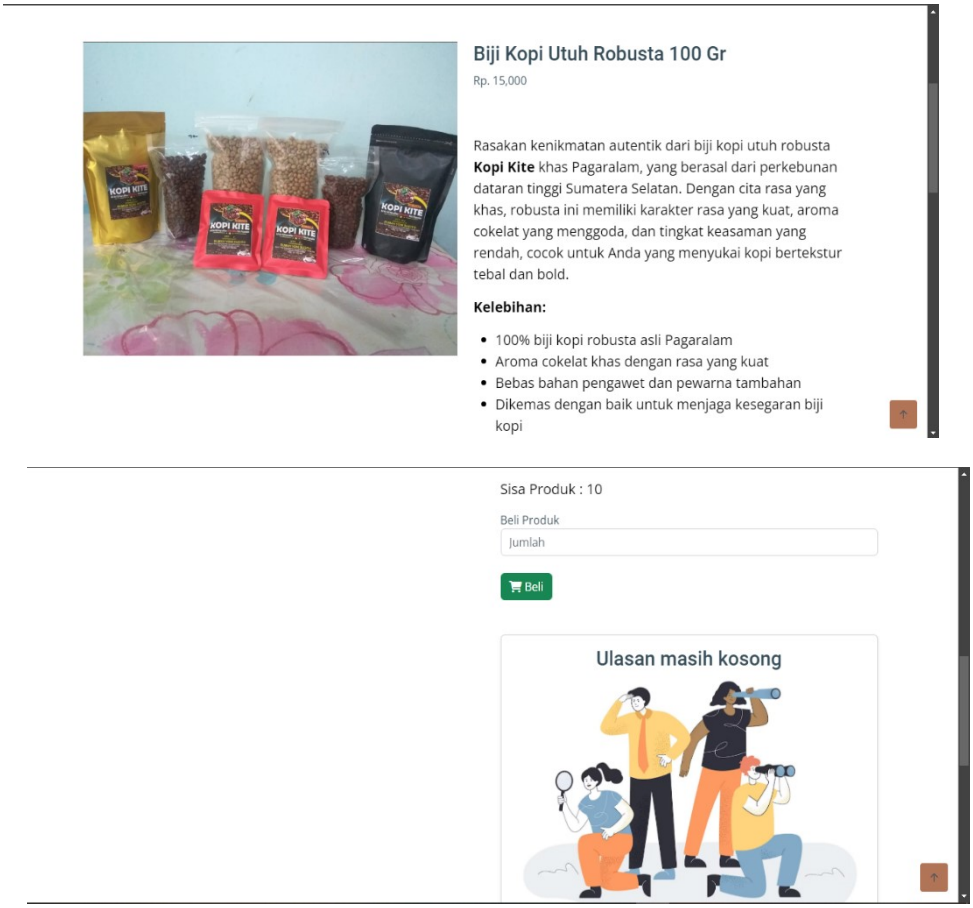

Figure 12. Product Detail Page

e. Cart Pages

This page serves to enter the products you want to buy into the cart page before making a payment.

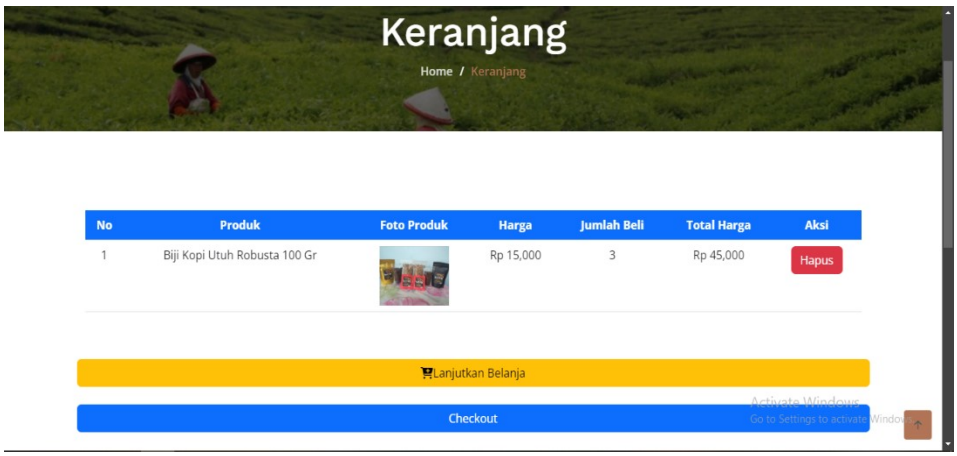

Figure 13. Cart Pages

f. Payment History Page
This page serves as a place to view kopikite order history

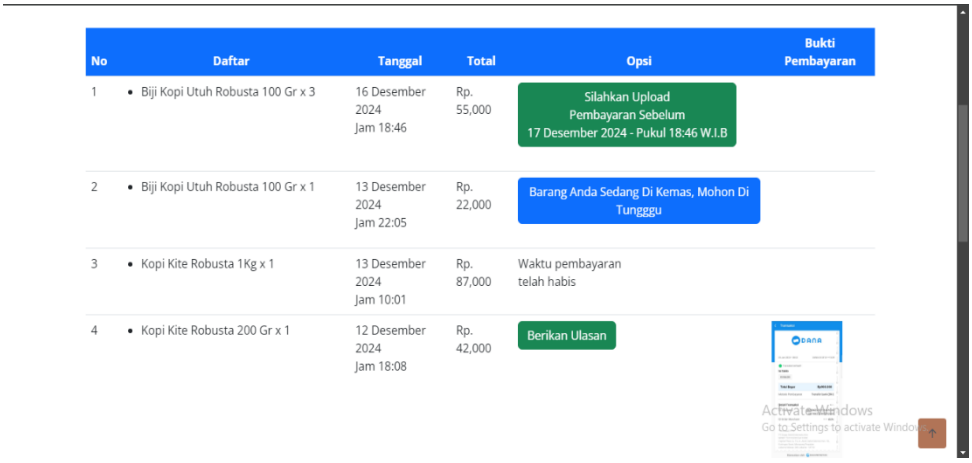

Figure 14. Order History Page

4. Conclusion

Based on the discussion and description of the results of the research in the previous chapters, the following conclusions can be drawn:

1. Utilization of Information Technology
   The website is designed to meet the needs of Robusta Coffee Shops in providing clear and structured information about the products offered, such as the type of coffee, price, and product description. This makes it easier for customers to get information without having to come directly to the store.
2. Increased Promotion Efficiency
   The website also serves as an effective promotional medium, providing features such as displaying product details, product descriptions as well as integration with social media to expand market reach. Promotion through websites helps stores reach a wider audience than traditional promotional methods.
3. Ease of Access and Customer Interaction
   A website-based information system makes it easy for customers to access information anytime and anywhere. Additionally, interactive features, such as online ordering forms and review columns, enhance the user experience while helping stores build better relationships with customers.
4. Data Management Support
   This system is also designed to support the management of product, customer, and transaction data in a more organized manner. With an integrated database, data management becomes more efficient and accurate, thus supporting better decision-making for store managers.
5. Use of a User-Friendly Interface
   The website is equipped with a simple, responsive, and user-friendly interface, making it easier for both customers and admins to operate the system.

Suggestion

From the above conclusion, the author provides suggestions, including:

1. Website Feature Enhancement
   Implement live chat features to help customers get quick responses to their questions or concerns.
2. Website Optimization
   Optimize website speed so that the user experience is not disrupted, especially for customers with slow internet connections. Make sure the website is mobile-friendly, so that it can be accessed well on various devices, especially smartphones.
3. System Security

Improve website security by using HTTPS protocol, strong authentication systems, and data encryption to protect customer and store information.

4. Promotional Feature Development
   Integrate the system with social media platforms to make it easier for stores to promote products more widely and effectively.

With the implementation of these suggestions, the information system of the Robusta Coffee Shop can continue to develop, increase competitiveness and provide a better experience for customers.

Reference

[1] Febriantoro, W. . (2018). Studies and Strategies to Support the Development of E-Commerce for MSMEs in Indonesia. Managerial:. Journal of Management and Information Systems, 17(2), 184-207.

[2] Setiaji, et al. (2023). The development of an e-voting application for the RT/RW election uses the waterfall method in the community of the Macan Lindungan Bukit area. National Journal of Computer Science. Vol. 4, No. 4,, 63-78.

[3] Ahmad, R. F, & Hasti, N. . (2018). Web-Based Sandals Sales Information System. Journal of Information and Technology, 8(1), 67-72.

[4] Andrianof, H. (2018). Design and build a promotional and sales information system for web-based ruminant stores. Journal of Education and Information Technology Vol. 5, No. 1,, 11-19.

[5] Andriyanto, I. (2019). Strengthening the competitiveness of micro, small and medium enterprises through e-commerce. Business: Journal of Islamic Business and Management, 6(2),, 87-100.

[6] Anggraini, et al. (2020). Web-based bicycle sales information using the Codeigniter framework (Case Study: Orbit Station). Journal of Information Technology and Systems (Jtsi), 1(2),, 64-70.

[7] Apjii. (2017). Penetration and Behavior of Indonesian Internet Users. (online), (Http://Www.Apjii.Or.Id), retrieved 1 August 2018.

[8] Bahrun, et al. (2017). Design and build a web-based marketing and sales survey information system. Journal of Electrical and Informatics Transistor, 2(2),, 81-88.

[9] Effendi, et al. (2024). Design of a Coffee Powder Sales Information System for Lematang Indah MSMEs, Pagar Alam City. Journal of Information Systems Technology, 5(2),, 199-211.

[10] Haviluddin, H. . (2016). Understanding the Use of UML (Unified Modelling Language). Informatics Mulawarman: Scientific Journal of Computer Science, 6(1),, 1-15.

[11] Hidayat, K. M. W, & Sumarno, P. S. . (2022). Development Of A Web-Based Thesis Title Submission Information System: A Case Study At The Muhammadiyah University Of Palembang. International Cister, 1(02),, 72-75.

[12] Hutahaean, J. . (2019). Web-Based Fertilizer Procurement Information System. Vol, 1, 6.

[13] Imtihan, F. H, & Achlaq, M. M. (2024). Geographic Information System for Mapping Access Points in the Surabaya City Government. Jati (Informatics Engineering Student Journal), 8(6), , 12664-12671.

[14] Irmeilyana, I, & et al. (2019). Description of the profile and character of the Pagar Alam coffee farming business based on descriptive statistics and correlation. Journal of Infomedia: Informatics, Multimedia, and Network Engineering, 4(2),, 60-68.

[15] Lestari, D. P. (2015). Analysis of online boutique internet marketing strategy in Surabaya through Instagram. Commonline Department of Communications, 4(2), 412-424.

[16] Naibaho, R. S., & Simarmata, L. (2025). The Sidikalang Coffee Sales Information System (Walmanso Farm) uses a web-based waterfall method. Kakifikom (Collection of Scientific Papers of the Faculty of Computer Science), 49-55., 49-55.

[17] Nugroho, et al. (2014). Development of Online Marketing of Water Hyacinth and Pandan Handicraft Business in Lopait Village, Tuntang District, Semarang Regency. Journal of Transformatives, 12(1), 19-23.

[18] Nurlailah, et al. (2023). Website design as a media for information and promotion of typical souvenirs of Pagaralam City. Jipi (Journal of Research Science and Information Learning., vol. 8, no. 4, 1175–1185.

[19] Nurlailah, E, & Wardani, K. R. N. (2023). Website design as a media for information and promotion of typical souvenirs of Pagaralam City. Jipi (Scientific Journal of Informatics Research and Learning), 8(4),, 1175-1185.

[20] Nurmalina, et al. (2024). Robusta Coffee Marketing System in Pagar Alam City, South Sumatra. Journal Of Indonesian Agribusiness, 12(1).
[21] Samodra, J. (2019). Web-based Digital Village Market as a promotional medium for MSMEs. Karinov Journal Vol. 2 No. 3 (2019), 177–180.
[22] Sugiyono. (2017). Quantitative, Qualitative and R&D Research Methods. Bandung: Alvabeta.
[23] Triawan, et al. (2019). Design and Build a Web-Based E-Commerce System in Cahaya Sejahterah. Journal of Informatics, 8(1), 67 - 78.
[24] Wahid, A. A. (2020). Analysis of Waterfall Method for Information Systems Development. Journal of Informatics and Management Sciences, Issn: 1978-3310 | E-Issn: 2615-3467.
[25] Yusri, A., & et al. (2022). The average daily traffic information system is web-based using the Laravel framework. Journal of Informatics Engineering Students, 446-453.