E-ISSN: 2962-6110
P-ISSN: 2964-7843
JSRET
Journal of Scientific Research, Education, and Technology
jsret.knpub.com

Enhancement Of Mobile-Based Coffee Product Marketing And Stock Management Application Features

Mifta Janatun Khonaza, Yuli Asriningtias
Universitas Teknologi Yogyakarta

ABSTRACT

The advancement of information technology has driven innovation in facilitating various activities, including the small and medium-sized enterprise (SME) sector in coffee marketing. Challenges such as manual marketing, stock monitoring, and sales recap often result in inefficiencies and limited market reach. This study aims to develop a mobile and web-based application that optimizes stock management and transactions while adding a coffee delivery feature. This feature enables customers to order coffee online with direct delivery, while the redesigned user interface enhances a more intuitive user experience. With a more responsive and stable system, the application is expected to reduce manual errors, support more effective management, and expand digital market reach. This solution is designed to enhance customer convenience, business efficiency, and the competitiveness of coffee SMEs in the technology era.

Keywords: information, stock management, efficiency, transactions, web and mobile

Corresponding author
Name: Mifta Janatun Khonaza
Email: miftajanatun17@gmail.com

INTRODUCTION

The rapid advancement in information technology has led to various innovations aimed at simplifying and improving the efficiency of human life(Semuel et al, 2023.) . Information technology has now become a crucial element in facilitating various daily activities, ranging from buying and selling to stock monitoring and transactions, all of which can now be conducted online using digital devices connected to the internet.(Khonaza & Asriningtias, 2024).

One of the challenges faced by many small to medium-sized businesses in marketing coffee products is the limited marketing system that is done manually. Processes such as promotion, stock monitoring, and sales recap are often carried out manually, which increases the risk of data loss and inefficient decision-making. The limitations in marketing reach make it difficult for products to be introduced to a wider market.

The coffee product marketing application was previously published by the author. However, the application has several shortcomings that need improvement. One of the main issues is the absence of a feature to view the list of available products, making it difficult for customers to check the stock and variations of products directly. Additionally, the order delivery process is not yet integrated into the application, as packages are handed over to couriers who are not directly connected to the application system. As a result, customers cannot track the delivery status through the application. When placing an order, customers can only provide data such as name, phone number, and complete address without receiving further information about the package's status. Furthermore, the application does not yet offer features for checking package status or delivery process details, leaving customers unable to determine whether the package has been shipped or is still in process.

As a solution to address these issues, the development of this application will focus on adding relevant features and system updates. Some of the new features to be integrated include a real-time product list display to make it easier for customers to select products. Additionally, the application will be equipped with an integrated delivery feature, allowing the entire process from ordering to delivery to be carried out directly on a single platform. To enhance transparency, a package tracking feature will be added, enabling customers to monitor the delivery status from order processing to the package's arrival at the destination. Detailed information about the delivery process, such as the courier's name, estimated time, and the current package status, will also be provided. Moreover, the application will undergo updates to its user interface design to improve the customer experience. This development is expected to improve the operational efficiency of the application while providing convenience and comfort for customers.

The research conducted by (Ramadani et al 2023) on the development of a mobile and web-based Point of Sales (POS) application at Browenz Coffee focused on a system that facilitates order recording, sales transactions, and raw material stock management. This application is equipped with features for automatically generating sales and stock reports, which help in making faster and more accurate decisions. However, this study only focused on the system itself and did not include a delivery feature that could ease customers' purchasing process with delivery services.

A previous study conducted by (Ariza et al., 2023) on the design of an information management system for coffee shops discusses how the use of digital application technology can improve the operational efficiency of coffee shop businesses, particularly in stock management, transaction recording, and promotion. With this application, processes that were previously done manually can be automated, reducing the risk of data loss, speeding up decision-making, and improving accuracy in business operations. Furthermore, the use of digital technology allows businesses to reach a broader market online. However, this study did not include an online transaction feature, which makes it difficult for customers to make payments.

With the development of this application, it is expected that the new system will be more responsive, stable, and capable of reducing manual errors in sales and stock

management. By utilizing the latest technology, this application is designed to support more effective management, enable online market expansion, and enhance convenience for consumers as well as efficiency for business managers in the digital era.

METHOD

1. Research Method

   The steps undertaken in the implementation of the research can be seen in the diagram below:

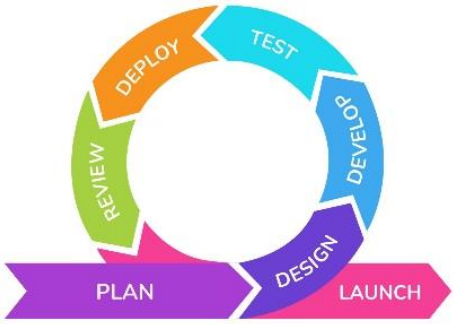


Figure 1. Research Stages (*Sumber: Binary.co.id)*

The software development method is an approach used to design, plan, and manage the stages in the creation of an information system. (Badrul, 2021). The method used by the author in this development is Agile Development Methods, which is a group of software development methodologies based on the same principles, as well as short-term system development that requires rapid adaptation from developers to any form of change.(Apriliyani et al., 2022)In addition, Agile is a project management method that uses relatively short development cycles, also known as "sprints," which focus on continuous improvement in the development of a product or service (Lutfiani et al., 2020). This makes the Agile method quite flexible with changes during the development process. In its implementation, Agile requires a framework that aligns with the concept, one of which is Scrum. Scrum is a framework that can be implemented to support the Agile method concept. Scrum functions to transform the Agile principles into actionable steps. An important aspect of Scrum is the sprint. A sprint is an activity with a maximum duration of 30 days, consisting of several activities, namely sprint planning, daily scrum, sprint review, and sprint retrospective.e (Ardytia Febrian Amarta & Gita Anugrah, 2021).

FINDING AND DISCUSSION

1. System Requirements Analysis

System analysis serves to formulate and explain in detail the requirements within the system. Through this process, it is expected that all system components can be thoroughly described, enabling the identification and evaluation of various

issues and needs that must be addressed. Based on the analysis conducted on coffee product management, the following points can be identified:

a. Analysis of the Existing System

The current system in the coffee product marketing application provides basic features for ordering coffee beans and ground coffee. However, it has significant limitations, such as the lack of a feature to display a list of available products, making it difficult for customers to know the stock and product variations they can order. This often results in an inefficient and less informative ordering process for customers. Additionally, the delivery process is not integrated with the application. After customers place an order, the package is handed over to a courier who is not connected to the system, causing customers to be unable to track the delivery status in real-time. The order information provided, such as name, phone number, and complete address, is only used for initial processing, without providing updates on the package status. Moreover, the application lacks a feature for checking the package status or delivery details, leaving customers unsure whether their package has been shipped, is in transit, or has reached its destination. This lack of transparency in the delivery process could diminish customer trust and satisfaction with the service.

b. The proposed new system

aims to address the shortcomings of the existing system by adding essential features that can enhance efficiency and customer convenience. First, the system will provide a product stock list feature, allowing customers to view real-time product information. This feature will include details about the product type, stock availability, and variations offered. With this feature, customers can make purchasing decisions more easily and quickly. Next, to improve transparency in the delivery process, the system will be equipped with a package status tracking feature. This feature will allow customers to monitor the status of their orders from processing to delivery. Customers will not only know whether their package is in transit but will also receive real-time updates on the current status. Additionally, the system will provide detailed tracking information to give customers more comprehensive details, such as the courier's name, estimated arrival time, and the current status of the delivery process. This feature not only helps customers track their orders more transparently but also boosts customer trust in the service provided.

Through the development of these features, the proposed system is expected to effectively solve the issues of the previous system. In other words, better technology integration will create a better customer experience, improve operational efficiency, and drive overall business success.

2. Design System

a. ERD (Entity Relationship Diagram)

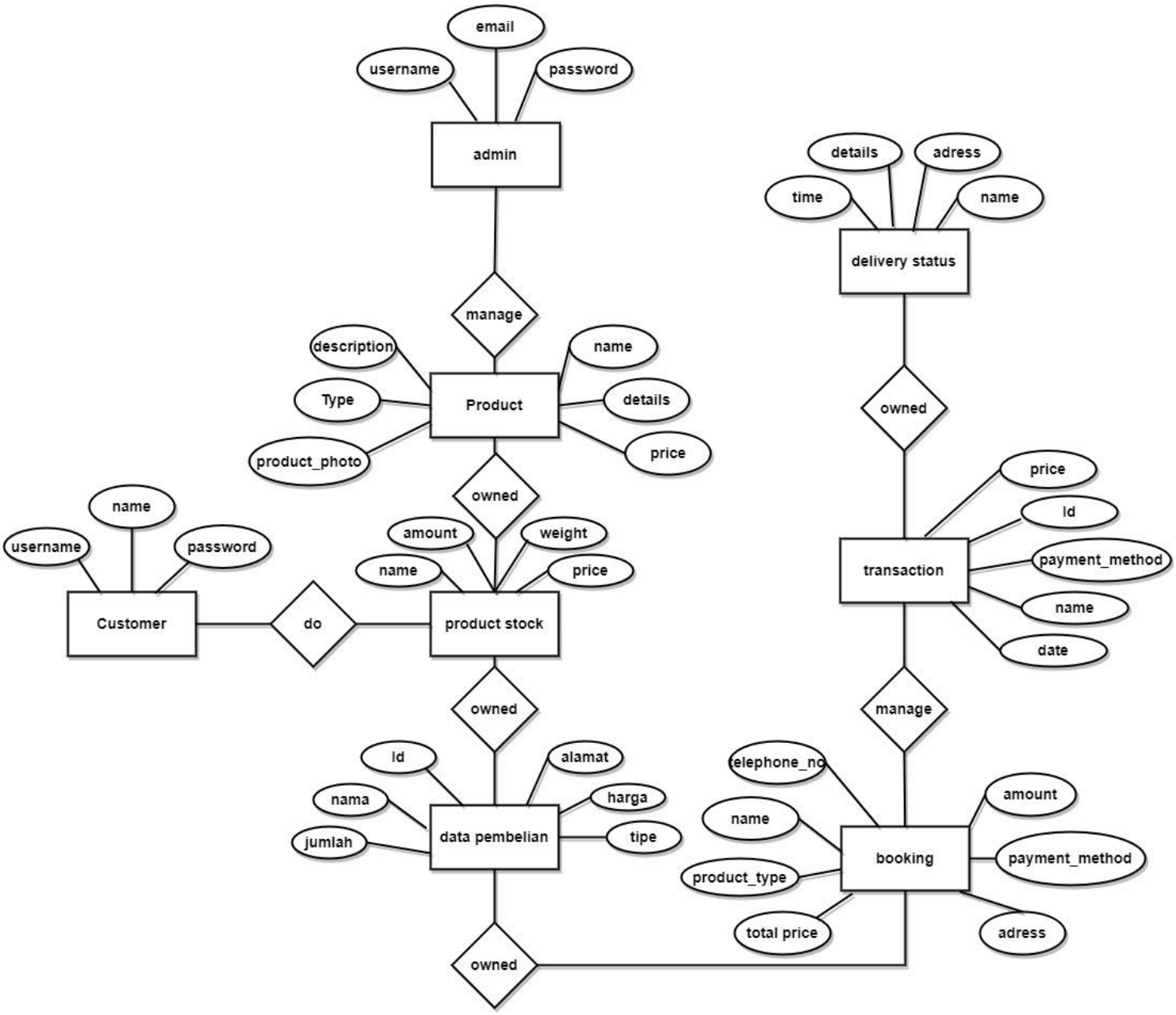


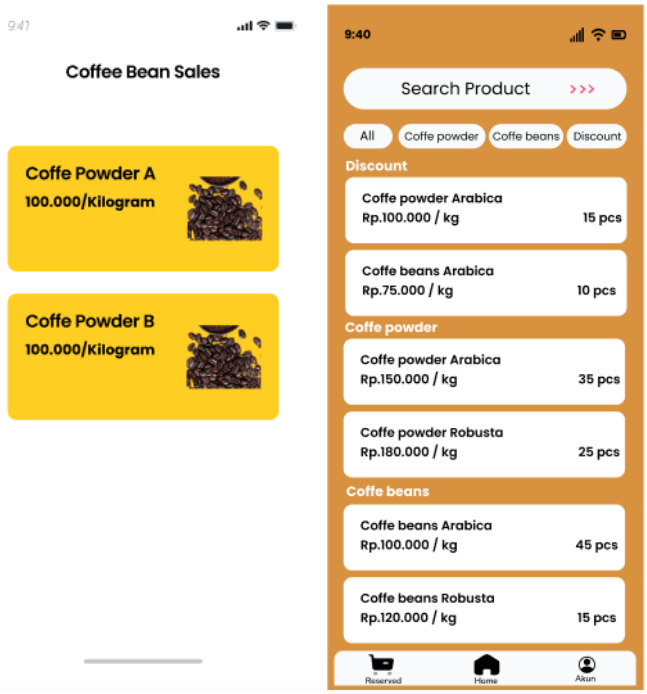
Figure 2. Entity Relationship

Entity Relationship Diagram (ERD) is a diagram used to design a database, which is used to show the relationships or connections between entities or visible objects along with their attributes. In other words, an ERD serves as a model to explain the relationships between data in a database based on the fundamental data objects that have relationships between them. In addition, an ERD aims to model the data requirements of

an organization, typically by system analysts during the project requirements analysis phase of system development. (Syafruddin Akbar & Haryanti, 2021).

3. IMPLEMENTATION

a. Product Stock Feature



(a) **(b)**

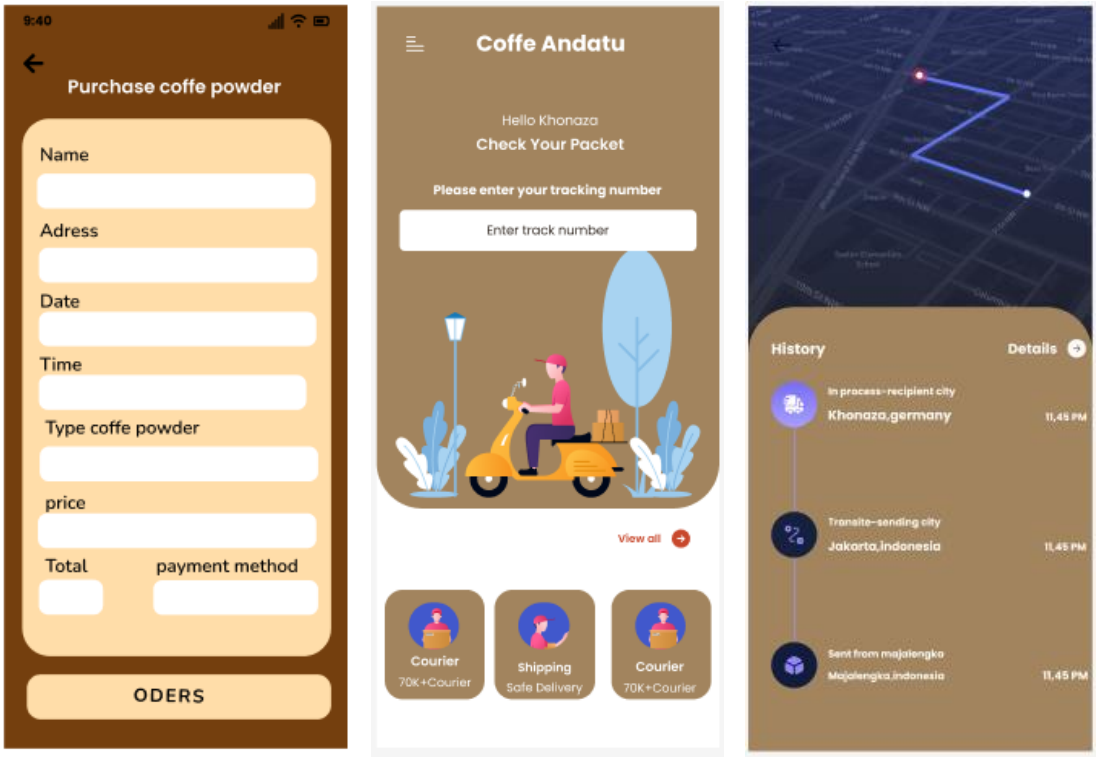
Figure 3. Old Product Stock Feature

Before the development, the Stock Product feature in the application only allowed users to view a list of products, specifically coffee beans, with very limited information, such as photos, prices, and product weight. However, this feature had several drawbacks, including the absence of a search button to help users find specific products easily, as well as the lack of product categories that could filter products based on the customer's needs. Additionally, information regarding product stock, discounts, and price details was not displayed, so users had to rely on the minimal information provided.

After the development, the Stock Product feature underwent significant improvements. Now, there is a search button that allows users to easily find the products they want. Additionally, a category feature has been added, with options such as "All Products," "Coffee Products," and "Ground Coffee," making it easier for users to sort products according to their preferences. Information about product discounts is also clearly displayed, offering added value for users seeking attractive deals. Furthermore, product price and stock details are now available, providing more transparency about product availability. With these enhancements, the application has become more

interactive, informative, and capable of offering a much better user experience, while also supporting more effective product marketing.

b. Ground coffee order page and product delivery tracking details.



(a) **(b)** **(c)**

Figure 4. Old order page and new delivery tracking details

Before the development, the ordering feature in the application had limitations in providing customers with information about their order status. In the old feature, buyers could only enter purchase data, including the shipping address, and then press the order button to complete the ordering process. However, once the order was completed, buyers had no access to monitor their package status, whether the order was being processed or had already been shipped. This was due to the lack of supporting features such as delivery tracking, package status checks, or tracking details. This limitation often caused uncertainty for customers and reduced the user experience of using the application.

In the latest feature development, the application is equipped with a package tracking function that provides more transparency to customers. Customers can now monitor the status of their orders by entering their name in the provided search column. After that, customers can view the current status information, such as whether the order is being packaged or has already been shipped to the destination address. With this feature, the application becomes more interactive and provides comfort and trust to customers, as they can track their orders in real time. This development not only improves

the functionality of the application but also strengthens the relationship between customers and the business service.

4. Testing

In the testing of this system development, the black-box method was used to identify errors in each program execution.

No	Testing Scenario	Test Case	Expected Outcomes	Result
1.	Entering a buyer's name who has placed an order, but inputting a different name	Bella	Displays the message: "Name not found."	Valid
2.	Leaving the name field empty	[kosong]	Displays the message: "Name cannot be empty."	Valid
3.	Entering special characters	!@#$%$%$^%$^	Displays the message: "Invalid name."	Valid
4.	Entering "Naza," matching the order name	Naza	Displays the package status: "In process."	Valid

Figure 5. Black-box testing on the package tracking

The testing results indicate that the system functions well in validating the customer's name. The system is able to display appropriate error messages, such as "Name not found," "Name cannot be empty," and "Invalid name," for scenarios where the name does not match, the name field is left empty, or special characters are entered. Furthermore, the system is able to correctly recognize valid names associated with orders and accurately display the package status. This demonstrates that name validation and order status retrieval have been implemented effectively as expected.

CONCLUSION

The testing results indicate that the system functions well in validating the customer's name. The system is able to display appropriate error messages, such as "Name not found," "Name cannot be empty," and "Invalid name," for scenarios where the name does not match, the name field is left empty, or special characters are entered. Furthermore, the system is able to correctly recognize valid names associated with orders and accurately display the package status. This demonstrates that name validation and order status retrieval have been implemented effectively as expected.

REFERENCES

Apriliyani, N., Setiawan, E., & Muchayan, A. (2022). Implementation of Agile Method in the Development of Web-Based Cultural Introduction Application. Jurnal Ilmu Komputer Dan Bisnis*, 13(1), 8–21*. https://doi.org/10.47927/jikb.v13i1.261

Ardytia Febrian Amarta, A., & Gita Anugrah, I. (2021). Implementation of Agile Scrum Using Trello as Project Management at PT Andromedia. Jurnal Nasional Komputasi Dan Teknologi Informasi, *4(6)*.

Badrul, M. (2021). Implementation of the Waterfall Method for the Design of Inventory Information System at Bintang Terang Ceramic Store**.** *8(2)*

Khonaza, M. J., & Asriningtias, Y. (2024). Mobile-Based Marketing Application For Coffee Beans And Ground Coffee At Andatu Store. Engineering And Technology Journal, 09(10). Https://Doi.Org/10.47191/Etj/V9i10.26

Lutfiani, N., Harahap, P., Aini, Q., Dimas, A., Ahmad, A. R., & Rahardja, U. (2020). Infotekjar: National Journal of Informatics and Network Technology Attribution-Noncommercial 4.0 International. Some Rights Reserved Project Management Innovation Using the Agile Scrumban Method. *5(1)*. https://doi.org/10.30743/infotekjar.v5i1.2848

Ramadani, R., Lukman Nulhakim, A., Raya Tengah No, J., Gedong, K., Rebo, P., & Timur, J. (2023). Design of Coffee Shop Management Information System Based on Java. Jurnal Riset Dan Aplikasi Mahasiswa Informatika (JRAMI), 04.

Semuel, K., Mulyadi, Y., & Tarigan, M. (N.D.). Design and Build of Inventory Control Application for Niscala Coffee Shop Based on Android. JIK: Jurnal Ilmu Komputer, 08(01), 2527–9653. https://doi.org/10.47007/komp.v%vi%i.6832

Sihotang, R., Saputro, H., Novari, S., Asia, M., Jenderal Ahmad Yani No, J., Baru, T., Baturaja Timur, K., Ogan Komering Ulu, K., & Selatan, S. (2021). Pages 28-36 Roida Sihotang, Haris Saputro, Satria Novari**.** Jurnal Teknik Informatika Mahakarya (JTIM), Vol. 4, Issue 1.

Syafruddin Akbar, I., & Haryanti, T. (2021). Development of Entity Relationship Diagram Database for IRA Surabaya Online Store. Jurnal Ilmiah Computing Insight (Vol. 3, Issue 2*)*.