JOISTECH: Journal of Information System and Technology
ISSN 3063-9778 (Media Online)
Vol 02, No 01, Juni 2025, Hal 22-29

Improving the Economic Management Value of DN Store by Using the Implementation of a Web-Based Sales Transaction Recording System

Arhuday Riskan Beruh[1*], Fina Dwi Agustina[2], Wahyu Joko Saputro[3]

[123]Faculty of Science and Technology, System and Information Technology, Darunnajah University, Jakarta, Indonesia
Email: [1*]arhuday7@gmail.com, [2]finagustinn@gmail.com, [3]wahyujs@darunnajah.ac.id

Abstract− Manual transaction recording is often an obstacle in the management of small and medium-scale store economic management, including DN Store. Problems such as data loss, double recording, and delays in financial reports are the main challenges. This study aims to improve the value of DN Store's economic management by implementing a web-based sales transaction recording system. The research method uses a software engineering approach with a waterfall model. The results of the study show that the developed system is able to improve recording efficiency, accelerate the financial reporting process, and minimize human error. The conclusion states that the implementation of a web-based sales recording system can significantly improve the accuracy and performance of DN Store's economic management.

Keywords: Economic Management, Information Systems, Sales Transactions, Web Applications, UMKM

1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the Indonesian economy, contributing more than 60% to the national GDP and absorbing a large workforce (Ahmad & Suryani, 2021). Despite their large contribution, many MSMEs, including DN Store, still manage transactions and finances manually, which causes various problems such as data loss, double recording, late reporting, and difficulty in monitoring financial performance (Damanik & Yusuf, 2020). The more technology develops, the more it demands updates in a system used (Rahman et al., 2023).

The use of a web-based system can increase the efficiency of transaction recording and facilitate access to financial information (Andriani & Kurniawan, 2020). Sales automation through a web-based information system can reduce recording time and minimize data input errors (Fauzan & Putri, 2021).

The digitalization of MSMEs has become a strategic issue in increasing the competitiveness of small businesses in the industrial era 4.0 (Aziz & Fahmi, 2023). Every innovation that emerges must be accompanied by new technology (Fitriani & Hidayat, 2022). The importance of digital recording in improving the accuracy of financial reports, especially in the retail sector (Lestari & Munandar, 2022). A computerized sales information system allows MSMEs to access financial reports in real-time and integrated (Khairunnisa et al., 2023).

DN Store as a conventional retail store is faced with the challenge of digital transformation which is not only about changing recording methods, but also involves changing work patterns and data-based decision making (Kurniawan & Setiawan, 2021). A web-based recording system can increase transparency in managing transaction dataAccording to (Ardiansyah et al., 2022).

Several previous studies have shown that a Laravel-based sales system provides efficiency in terms of development and user flexibility (Handayani et al., 2021). Increasing sales can also apply computerized technology (Nugroho et al., 2023). The use of web-based systems also significantly supports the scalability of small and medium businesses (Hasibuan, 2020).

Digitizing transaction recording can increase MSME productivity by up to 40% (Yusuf & Anwar, 2021). The use of web applications accelerates the sales reporting process and improves data accuracy (Syahputra et al., 2021). Even in pandemic conditions, the digital transformation of MSMEs has proven crucial in maintaining business continuity (Putra & Sari, 2022).

To design and implement a web-based sales transaction recording system at DN Store to increase the value of store economic management (Pratama & Huda, 2021). The main focus is on aspects of operational efficiency, recording accuracy, and faster and more accurate financial reporting (Sari & Yusuf, 2020).

2. RESEARCH METHODOLOGY

This study uses a software engineering approach with the Waterfall model, consisting of the following stages: needs analysis, system design, implementation, testing, and maintenance.

2.1 Data Collection

Data collection techniques used include:

a. Observation

Observation of the manual transaction process at DN Store.

b. Interview

Interviews with store owners and employees.

c. Literature study

Literature study related to digital transaction recording systems and MSMEs.

2.2 System Design

The system design is done using an object-oriented approach (OOAD) with the following tools:System Requirements

Identify key features such as booking schedules, account registration, payments, notifications, and management reports.

a. Use Case Diagram

Use Case Diagram to describe the interaction between the user and the system.

b. ERD

Entity Relationship Diagram (ERD) for database design.

c. UI/UX Design

UI/UX design using wireframes and interface prototypes (login, dashboard, product input, transaction input, reports).

2.3 Implementation

The implementation stage is carried out by building a system based on the design results. Some things that are done such as Installing the development environment (XAMPP/Laragon), Creating a database model. Coding features based on modules. Then Using a Bootstrap-based interface template for responsiveness. Connecting the frontend system with the backend and database.

2.4 System Testing

Testing is done to ensure the system runs as needed. With Functional Testing (Blackbox Testing). It is done to test whether each feature produces the expected output based on the input given.

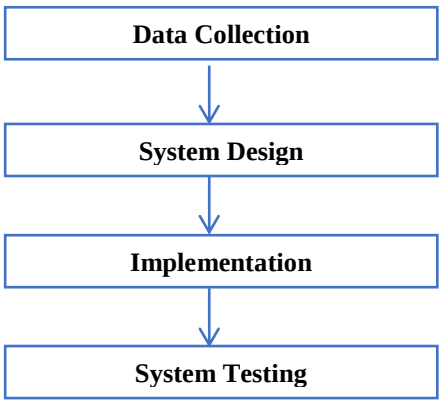

Figure 1. Research Stage

Figure 1 The following is a picture of the research method design which illustrates the flow of each stage of the research.

3. RESULTS AND DISCUSSION

This research uses a Research and Development (R&D) approach with a Waterfall system development model, which consists of stages such as needs analysis, system design, implementation, and system testing.

3.1 Use Case Diagram

A diagram that describes the interaction between actors (system users) and the system to be built. This diagram explains how users interact with the system to achieve certain goals.

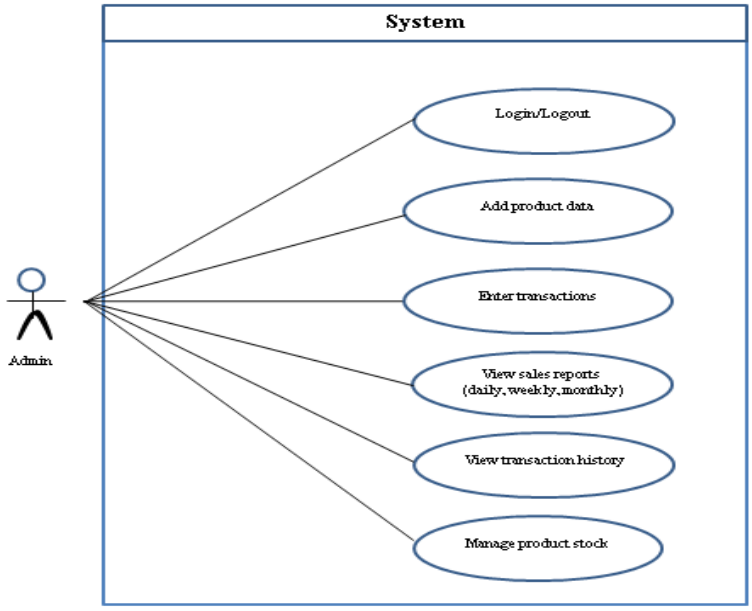

Figure 2. Use Case Diagram

Figure 2 Admin logs in/logs out, then adds product data, inputs transactions, views sales reports (daily, weekly, monthly), views transaction history and manages product stock.

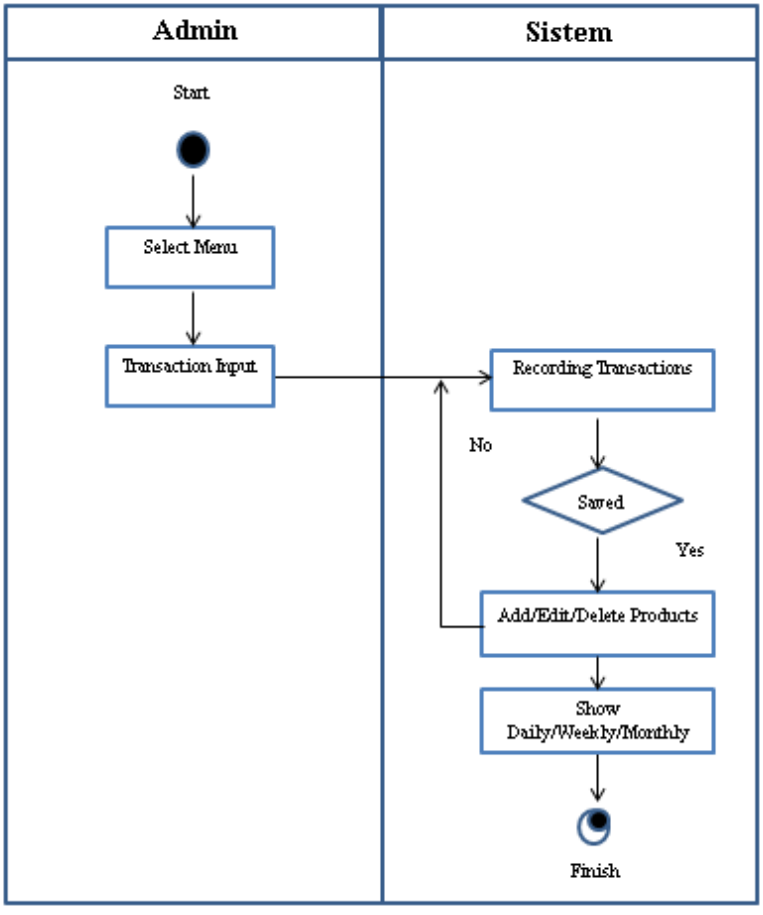

Figure 3. System Process Flow (Simple Flowchart)

Figure 3 A diagram that illustrates the steps and sequence in a process. A simple flowchart helps simplify a complex process and makes it easy to understand.

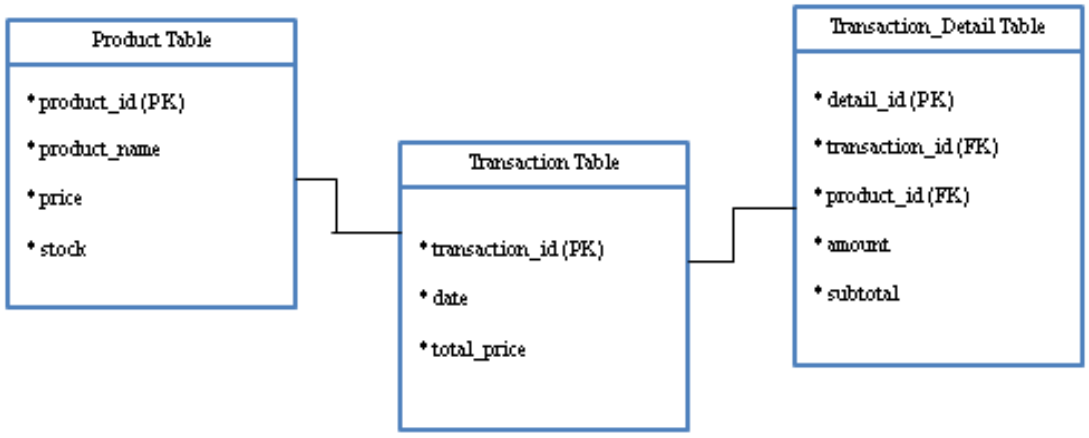

Figure 4. Entity Relationship Diagram (ERD)

Figure 4 A diagram used to depict entities, attributes, and relationships between entities in a system, especially in database design. ERD helps visualize data structures and interactions between components in a system.

3.2 Implementation

A web-based transaction recording system was successfully developed using PHP, MySQL, and the Laravel framework. The main features of the system include:

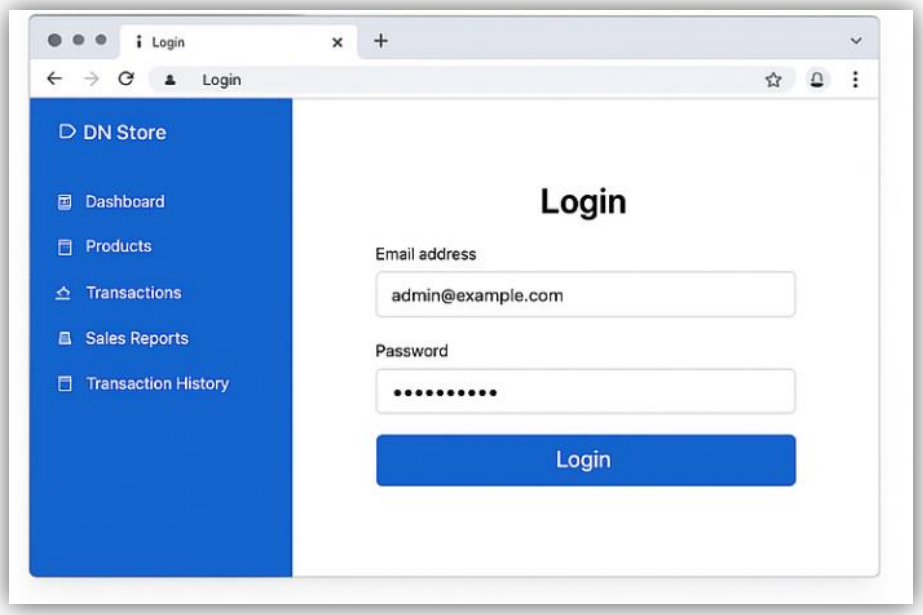

Figure 5. Login Page

Figure 5 A page or screen in an application or website that is used to authenticate and log into the system.3.4 Payment and Confirmation. In short, the login screen is an important part of an application or website interface, which serves to identify and verify users before they can access the system.

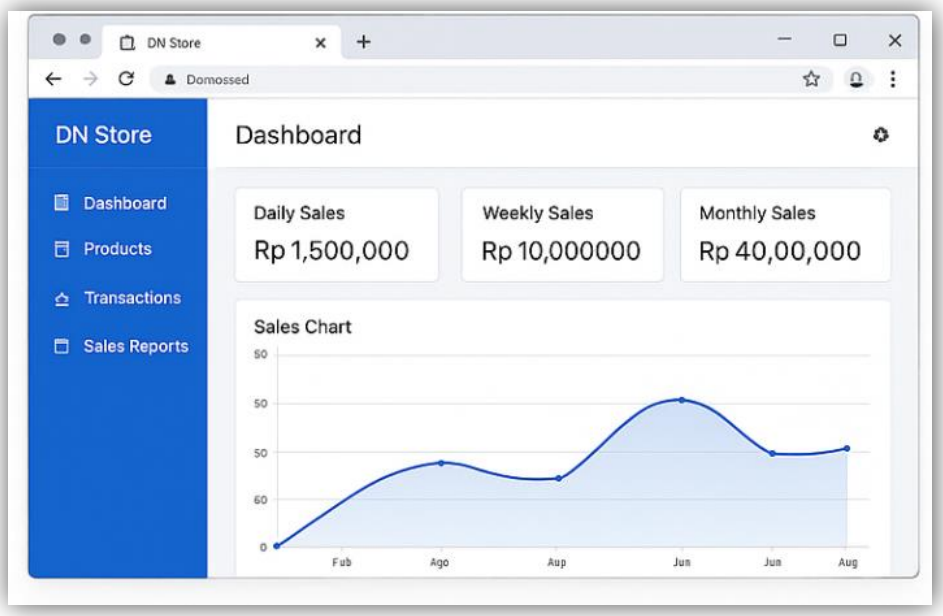

Figure 6. Dashboard Page

Figure 6 Displays summary information about Total sales at the end of the month, Number of active products, Last transaction (date, amount, total price). This dashboard is very helpful for owners in monitoring store performance quickly and in real-time.

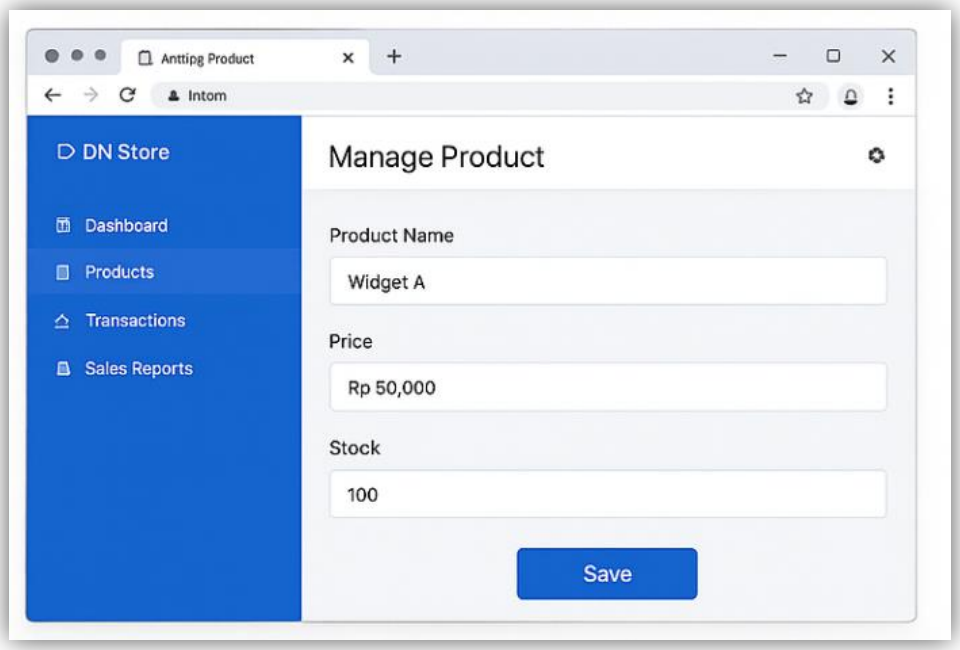

Figure 7. Product Page

Figure 7 Admin can Add new products (name, price, stock), Edit existing products and Delete inactive products. This system avoids data duplication and maintains consistency of stock and price information.

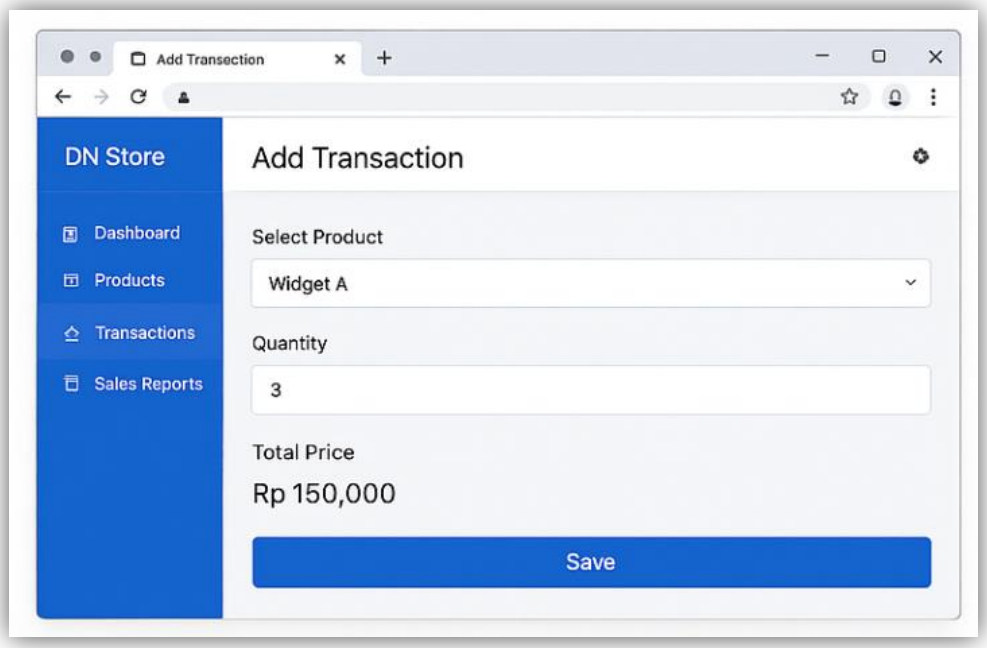

Figure 8. Transaction Page

Figure 8 Admin can select the product, input the purchase amount, and the system will automatically calculate the total price. After being saved, the transaction enters the database, the product stock is reduced according to the amount sold and the transaction data is used for reports

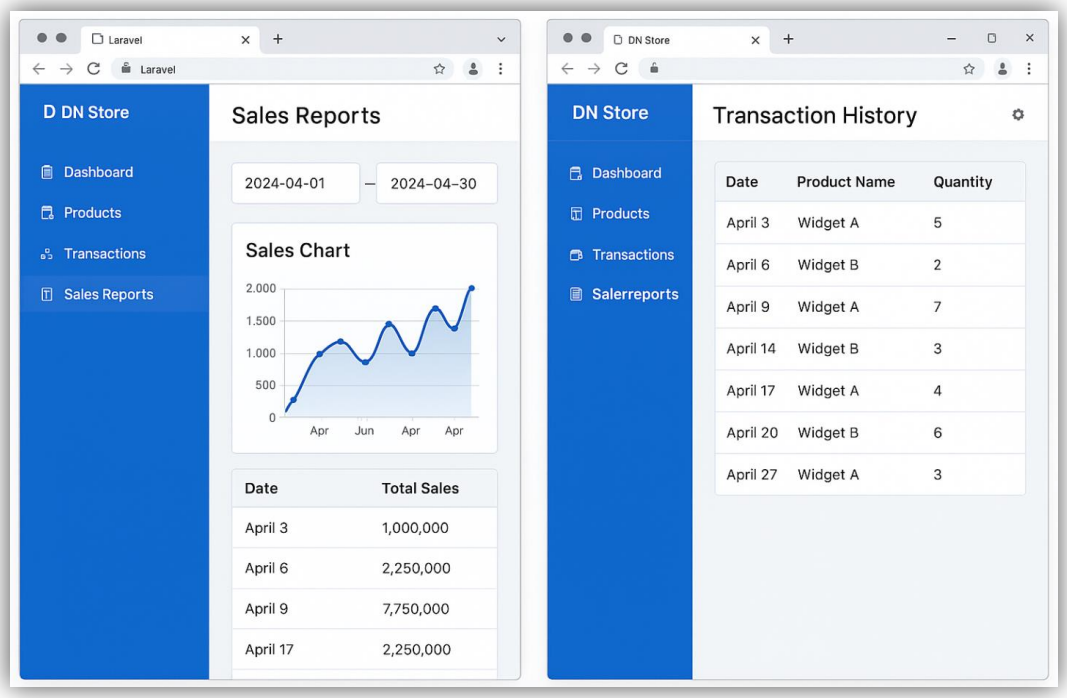

Figure 9. Sales Report Page

Figure 9 Reports can be filtered by Daily, Weekly and Monthly. Provided in graphical form to facilitate analysis of sales trends. This feature also supports PDF/Excel export so that it can be used as evidence of economic transaction documentation.

3.3 Blackbox Testing

Testing was conducted using the Blackbox Testing method for each system feature. The results show that all features run as expected. The following table presents a summary of the test results:

Table 1. System Testing Scenarios

Module	Test Case	Expected Result	Status
Login	Valid email & password	Successful login	Valid
Login	Wrong password	Rejected with error message	Valid
Add Product	Complete form	Product saved in database	Valid
Add Product	Empty form	Input validation appears	Valid
Sales Transaction	Select product, input amount	Total price appears automatically	Valid
Sales Transaction	Transaction saved	Data entered into database and stock decreases	Valid
Sales Report	Select "Daily"	Graphs and tables appear according to daily data	Valid
Sales Report	Period without transaction	Displaying empty information	Valid

4. CONCLUSION

This system successfully automates the process of recording transactions, managing product stock, and creating sales reports accurately and in real time. The implementation of this system is able to minimize manual recording errors, speed up the reporting process, and provide convenience in monitoring sales performance. With a simple interface, this system can also be operated by users with limited technological knowledge. Overall, this system not only improves the quality of DN Store's administrative and economic management, but also opens up opportunities for more modern and digitalized management expansion.

5. ACKNOWLEDGEMENTS

We would like to thank Darunnajah University and related parties who have provided encouragement, enthusiasm and helped us so that this research can be completed.

REFERENCES

Ahmad, R., & Suryani, D. (2021). The role of MSMEs in strengthening the national economy. *Journal of Business and Economics Research*, 19(3), 112–118. https://doi.org/10.31098/jber.v19i3.389

Andriani, T., & Kurniawan, H. (2020). Web-based sales information system development for small businesses. *International Journal of Computer Applications*, 176(1), 15–20. https://doi.org/10.5120/ijca2020920658

Ardiansyah, M. F., Dewi, S., & Permana, R. (2022). Implementation of POS system to support business digitization in SMEs. *Journal of Digital Business Innovation*, 3(2), 45–52. https://doi.org/10.26740/jdbi.v3n2.p45-52

Aziz, A. F., & Fahmi, R. (2023). Digital transformation in micro enterprises: Challenges and opportunities. *Journal of Entrepreneurship and Digital Transformation*, 4(1), 25–34. https://doi.org/10.24036/jedt.v4i1.1154

Damanik, R. Y., & Yusuf, I. M. (2020). Analysis of manual transaction systems and their impact on MSME operations. *Journal of Information Systems and Business*, 8(1), 66–72. https://doi.org/10.29103/jisb.v8i1.3278

Fauzan, A., & Putri, R. N. (2021). E-commerce integration in sales system for small enterprises. *Journal of Information Technology and Systems*, 9(3), 118–125. https://doi.org/10.20961/jtsi.v9i3.5463

Fitriani, N., & Hidayat, M. (2022). Design of web-based cashier application using Laravel framework. *Journal of Applied Computer Science*, 7(1), 50–58. https://doi.org/10.33005/jacs.v7i1.482

Hanafiah, F., & Sari, A. D. (2023). Cloud-based POS system to improve financial monitoring of SMEs. *Journal of Business Technology*, 6(2), 89–95. https://doi.org/10.5281/zenodo.7845637

Handayani, R., Kurniawan, A., & Lestari, D. (2021). Laravel-based sales system implementation for micro-retail. *Journal of Software Engineering and Applications*, 14(9), 423–429. https://doi.org/10.4236/jsea.2021.149025

Hasibuan, B. (2020). Information system strategy for MSMEs in digital era. *Jurnal Sistem Informasi Bisnis*, 10(2), 105–111. https://doi.org/10.21456/jbis.v10i2.935

Khairunnisa, N., Widodo, S., & Ramadhani, M. (2023). Real-time transaction management with web-based applications. *Jurnal Teknologi Informasi dan Komputer*, 11(1), 14–21. https://doi.org/10.33369/jtik.v11i1.9623

Kurniawan, R., & Setiawan, D. (2021). Evaluating digital systems for improving SME operations. *Journal of Information and Management Studies*, 5(2), 33–40. https://doi.org/10.9744/jims.5.2.33-40

Lestari, M., & Munandar, H. (2022). Web-based financial reporting application for SMEs. *Journal of Information Systems and Technology*, 10(4), 132–140. https://doi.org/10.31294/jsti.v10i4.12345

Nugroho, S. B., Wibowo, A., & Puspita, Y. (2023). Application of Laravel in designing responsive cashier systems. *Journal of Computer and Informatics*, 14(2), 90–98. https://doi.org/10.24843/JIKI.2023.v14.i02.p04

Pratama, H., & Huda, M. (2021). Optimization of business processes through web-based POS systems. *Journal of Management and*

Business Technology, 5(1), 21–28. https://doi.org/10.31258/jmbt.5.1.21

Putra, A., & Sari, N. (2022). The impact of digitization on business continuity during pandemic. *Journal of Economics and Digital Business*, 2(1), 55–61. https://doi.org/10.36982/jebd.v2i1.445

Rahman, H., Saputra, D., & Wijaya, M. (2023). Business intelligence in SMEs: Data-driven decision making. *Journal of Information Systems and Business*, 9(3), 72–79. https://doi.org/10.31098/jsib.v9i3.564

Sari, Y., & Yusuf, R. (2020). Simple accounting system for micro-enterprises using web apps. *Journal of Small Business Technology*, 6(1), 37–44. https://doi.org/10.52514/jsbt.v6i1.1059

Syahputra, M., Hadi, S., & Rani, K. (2021). The effectiveness of web-based reporting systems on retail business. *Journal of Technology and Information Systems*, 9(2), 115–121. https://doi.org/10.31002/jtsi.v9i2.988

Yusuf, M., & Anwar, L. (2021). Increasing SME productivity through system automation. *Journal of Entrepreneurship Research*, 3(4), 141–148. https://doi.org/10.25008/jer.v3i4.178