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Design and Development of a Web-based Online Store Application for Yudistira Jaya Stationery Shop

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Abstract: The accelerated progress of information technology has fundamentally reshaped the landscape of the trade sector, with notable impacts on micro, small, and medium enterprises (MSMEs). This research aims to design and develop a web-based online sales platform tailored for ATK Yudistira Jaya, a stationery and photocopy service provider, to optimize operational efficiency and broaden market accessibility. The development process employs the Waterfall methodology, a systematic approach that ensures structured progression through distinct phases of system creation. The technological foundation of the platform is built using the Laravel framework for backend operations, paired with MySQL as the database management system to handle data storage and retrieval effectively. Findings from the system evaluation indicate that the developed platform adequately addresses the functional requirements of both administrators and end-users. Key features integrated into the system include a comprehensive product catalog for easy browsing, a streamlined order placement mechanism, secure payment integration through a trusted gateway, and robust order management tools to track and process transactions. The successful implementation of this digital solution is anticipated to empower MSMEs like ATK Yudistira Jaya by equipping them with the necessary tools to navigate the challenges of a digital marketplace, ultimately enhancing their competitive edge through strategic adoption of technology.

Keywords: Online Store; Laravel; MSMEs; E-Commerce; Waterfall.

1. Introduction

Information technology has profoundly altered trade transactions, shifting them from traditional, face-to-face interactions to digital platforms. This transformation poses significant challenges for micro, small, and medium enterprises (MSMEs) in Indonesia, which must adapt to these technological advancements to maintain their competitive edge in an increasingly digital marketplace. One viable strategy to enhance MSMEs' competitiveness is the adoption of web-based online sales platforms, which facilitate broader market access and streamline business operations. ATK Yudistira Jaya, a retailer specializing in office stationery and photocopy services, currently relies on conventional transaction methods that limit its operational efficiency and market reach. Consequently, the development of an online sales platform becomes imperative to improve operational effectiveness and expand customer base.

Numerous studies have underscored the transformative potential of digital solutions for MSMEs. For instance, Bashari, Alfarizi, Sitanggang, and Kurniawan (2024) highlight the efficacy of web-based online stores in enhancing market visibility and operational efficiency for small businesses through structured development methodologies like the Waterfall model [1]. Similarly, Widyagustina and Sewaka (2021) emphasize that e-commerce applications tailored for MSMEs serve as critical tools for boosting product marketing, particularly by enabling digital cataloguing and transaction processing that transcend geographical limitations [2]. These findings align with earlier research by Saleha and Ahmad (2020), who investigated e-commerce-based sales information systems at CV. Citra Bersama Banda Aceh. Their study identified a key challenge in the reliance on manual tools such as Microsoft Office Word and Excel for data management. This often resulted in inefficiencies. By employing field studies and literature reviews, their research culminated in a system capable of generating comprehensive reports on inventory, incoming goods, stock levels, and overall sales performance [3].

Further insights into the development process of such systems reveal the importance of systematic approaches. Bashari *et al.* (2024) elaborate on the application of the Waterfall methodology in designing online stores, describing it as a linear and sequential framework that encompasses stages of analysis, design, implementation, testing, and maintenance, ensuring a structured progression in system development [1]. This aligns with the perspective of Widyagustina and Sewaka (2021), who advocate for the integration of user-centric design in e-commerce platforms to address MSMEs' specific needs while enhancing user experience and operational outcomes [2]. Drawing from these prior studies, it is evident that online sales systems significantly simplify trade activities, offering substantial benefits to both sellers and buyers by reducing transactional friction and improving data management [3]. Digitalization of sales processes not only optimizes resource allocation but also provides MSMEs with actionable insights through data analytics, thereby fostering informed decision-making and strategic growth. In the context of ATK Yudistira Jaya, the implementation of a tailored online platform is expected to address the limitations of its current conventional system. This will pave the way for enhanced customer engagement and market expansion. This research, therefore, seeks to contribute to the growing body of knowledge on digital solutions for MSMEs. It does this by designing a web-based sales system that aligns with small-scale retailers' operational needs while leveraging established development methodologies.

2. Related Work

Digital technologies are rapidly changing the business environment, especially for micro, small, and medium-sized enterprises (MSMEs), making it more and more simple to move from offline to online sales. Researchers have investigated the design, adoption and impact of e-commerce systems for MSMEs, covering approaches, user behaviors and key success factors. This part discusses a comprehensive literature study that puts this study within perspective on developing the ATK @ Yudistira Jaya. A Study of Design of Web-based Online Sales @ Yudistira Jaya. Running and computer system design, consumer behavior in e-commerce, and the wider implications of digital marketplaces for small enterprises. A dominant field of study reports on the engineering of e-commerce systems that are particularly developed for MSMEs, offering a variety of methods and models. Setiawan, Nirwan, and Amelia (2018), studied the development of web-based marketplace applications for small and medium-sized businesses, focusing specifically on the purchasing sub-module. Their research emphasises the need to develop easy-to-use interfaces and well-defined procedures for making purchases to enhance the transaction effectiveness of small sellers [4]. Similarly, Bungsu *et al.* (2021) presented the development of a web-based e-commerce application for a gemstone ring MSME in Surabaya. They found that when companies use well-designed digital platforms, they substantially increase their ability to present and track sales of their products, thereby reducing small businesses' operational inefficiencies [5]. In line with these, Andipradana & Hartomo (2021) applied the Scrum method to construct an online web-based sales application that indicates the benefit of utilizing a flexible approach that can respond to the iterative

development feedforward and the evolutionary requirement during development. According to them the flexibility in design phases results in more adaptable and efficient ecommerce solutions [6]. Hiddayattullooh (2022), also employed Agile Software Development in creating a website for Win Herbal, an MSME serving as a branding and marketing strategy for the business. The research illustrates the significance of evolutionary development when crafting platforms able to better follow up business needs and consumer expectations, thereby extending market reach [7]. Together, they are indicative of the variety of approaches used to develop e-commerce systems, from planning to iterative software methods – and each having some advantages for how to develop systems to support the small firms' need.

Technical issues aside from platform development, consumer behavior and trust in online shopping have been raised as significant subjects for investigation. Gefen (2002) was one of the earliest researchers in internet retailing in exploring trust as a key antecedent for continuity of purchase and long-term relationships with web businesses. His work emphasises the importance of building trust in secure transactions and dependable service delivery to maintain relationships with customers in digital marketplaces [8]. Continuing on this, Nurpratama, Hurriyati, Sugiama, Widjajanta, and Irawan (2023) investigated the perceived ease of use and usefulness influence on consumer intention through online shopping in Bandung City, Indonesia. Their results make sense in that perceived usefulness and perceived ease of use play a significant role in predicting the intention to use an e-commerce system in the case of urban users with relatively high levels of digital literacy [9]. Took, Kwong and Chen (2026) also examined the mediation of trust between online consumer reviews and purchase intention, following a similar line of research to Rosania and Wilujeng (2023). Their research has shown that positive reviews increase consumer confidence, which in turn drives online purchase behavior [10]. This finding is also supported by Sudirjo and Tjahyadi (2023) in the study of the determinants of online shopping adoption by Indonesian consumers. They cited as key drivers of digital shopping adoption convenience, perceived safety and the range of products available. This stresses the urgency of the development of user-centric features in MSME e-commerce systems [11].

Other studies have focused on certain aspects of customer satisfaction as well as online shopping decision-making. Ridho, Hartono, and Istiqomah (2021) studied the effect of ease of use, quality of service and timeliness of delivery on customer satisfaction. This research indicates that operational effectiveness in fulfilment and responsiveness in customer service are critical means to maintain a superior level of experience for customers in e-commerce [12]. Globally, Rahman and Rahman (2020) studied the online shopping behaviour of Bangladesh during the Coronavirus pandemic, and they found that the concern about health, convenience and promotional offers were one that influenced consumer decisions. Their results reveal the flexibility of online platforms to accommodate situational challenges, a lesson applicable to MSMEs wishing to succeed in crises through digital transformation [13]. Also, Adamu, Ibrahim and Lawan (2018) investigated the acceptance of social-media online shopping in Nigeria by using the term "shoppie" to represent the concept. Their study underscores the increasing importance of social media as a shopping medium, fueled by ease of access and peer influence. It indicates that MSMEs may combine such platforms with their own e-commerce websites to target younger consumers [14].

This combination develops a comprehensive insight into e-commerce in relation to MSMEs, encompassing technological development, consumer psychology and market behavior. From a developmental point of view, Setiawan *et al.* (2018), Bungsu *et al.* (2021), Andipradana and Hartomo (2021) and Hiddayattullooh (2022) who, combined, advocate for a customised (flexible and structured) approach, which will result in smaller business digital platforms that are better capable of fulfilling operational and strategic requirements of the busines [4][6][7]. The findings of these studies also highlight the importance of the system's scalability and flexibility as well as its generality to respond to the changing trends in information and communication technology (ICT) markets among MSMEs. From the consumer's perspective, Gefen (2002), Nurpratama *et al.* (2023), Rosania and Wilujeng (2023) and Sudirjo and Tjahyadi (2023) reinforced the significance of trust, usability and service quality in influencing online shopping behavior [8][9][10][11]. For MSMEs such as ATK Yudistira Jaya, these considerations are particularly relevant as they put consumer trust at the centre of contention. In addition, they enable the ability to establish a loyal customer base that will enable sustained growth through stable digital interaction. Furthermore, findings from Ridho *et al.* (2021), Rahman and Rahman (2020) and Adamu *et al.* (2018) notes hundreds of other external factors including delivery performance, shock shopping behaviour and social media trends that MSMEs need to be aware of when looking to move online [12][14].

On the combination of these results a conclusion is made that there is a need for development of online sales platform for MSME should make strong technical implementation and understand the consumer's expectations. Technical studies provide practical methodologies for designing operational and business systems. At the same time, behavioral studies can provide useful directions to promote user trust and satisfaction, which is essential to the acceptance and use of E-commerce systems. Wholesomely aggressive methodologies, such as the agile counterpart as applied by Andipradana and Hartomo (2021) and Hiddayattullooh (2022) facilitate rapid priteering on the basis of user feedback, while foundational items such

as, among others, trust (Gefen, 2002) and ease of use (Nurpratama *et al.*, 2023) are claimed to guarantee that the finished item would entice the desired audience through its usage [6][8]. Moreover, the worldwide and regional dimensions that Rahman and Rahman (2020) and Sudirjo and Tjahyadi (2023) provide, serve as a reminder of the multiple dimensions in which online shopping adoption is shaped, from cultural underpinnings to economic circumstances that MSMEs have to deal with to stay in the game [11][6].

This literature supports the present research as it gives a broad view and framework to building and developing a web-based sales system to satisfy the specific requirements of this research in ATK Yudistira Jaya. Through synthesizing technical understanding (system development methodologies) and behavioral analysis (ONLSD) on online shopping drivers, this study attempts to mitigate service operation inefficiency, but also improving customer stickiness and market penetration. By integrating user-centered design principles as recommended by several scholars, the system will fulfil the pragmatic requirements of both the company and the customers. And it is the aid of trust and service quality that will help to inform the veracity of secure payment systems and responsive support services. This is as per consumer expectations in a digital marketplace. In the final analysis, this research adds to the emerging body of knowledge with respect to e-business for MSMEs by providing a context-specific solution that is built upon existing best practice but mitigates the particular challenges facing small-scale retailers in a digital world.

3. Research Method

This section outlines the methodological approach employed in the development of the online sales system for ATK Yudistira Jaya. The methodology encompasses the system development method and the architectural framework that underpins the application design. The following explanation is structured to provide a comprehensive, detailed, and clear overview of the development process, including the rationale behind the chosen methods and technologies.

3.1 Development Method

The development method adopted for this project is the Waterfall model, a traditional approach to software development that is linear and sequential in nature. This method was selected due to its structured framework, which ensures that each phase is thoroughly completed before proceeding to the next, making it suitable for projects with well-defined requirements from the outset. Additionally, the Waterfall model facilitates neat documentation and strict project control, which are crucial for ensuring that the developed system aligns with user needs. Below is an illustration of the Waterfall method process applied in this project:
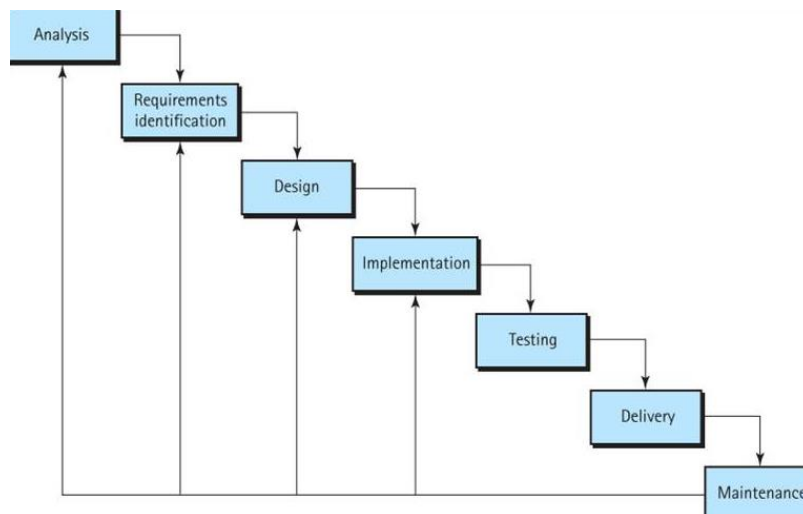

Figure 1. Waterfall Method

Stages of the Waterfall Method implemented include:
1) Requirements Analysis
   The initial stage aims to deeply understand the system requirements. This process involves interviews with the owner and staff of ATK Yudistira Jaya to identify challenges faced in conventional sales methods. Furthermore, direct observation is conducted to examine the current workflow, such as inventory management and customer interactions. The outcome of this stage is a requirements specification document that outlines the essential features the system must have, such as product and order management.

2) System Design

In this stage, the identified requirements are translated into a technical design. The system design includes the creation of an Entity Relationship Diagram (ERD) to map the relationships between data entities in the database, such as product, order, and customer tables. Additionally, the user interface design is developed with a focus on ease of use for both admin and customers, utilizing wireframes and mockups as visual guides before implementation.

3) Implementation

The implementation stage involves coding the system based on the prepared design. For backend development, the Laravel framework is used due to its ability to expedite web application development with built-in features like routing and authentication. The database chosen is MySQL, selected for its reliability and seamless integration with Laravel to store product, order, and transaction data. Meanwhile, the frontend is developed using HTML, CSS, and JavaScript to create a responsive and interactive interface, ensuring an optimal user experience across various devices.

4) Testing

Once the system development is complete, the testing phase is conducted to ensure all features function according to specifications. The black-box testing method is applied, where the system is tested without considering the internal code structure, focusing instead on input and output. Each feature, such as product addition, order processing, and payment integration, is tested to verify reliability and accuracy.

5) Maintenance

The final stage involves ongoing maintenance to address any bugs or issues that arise after deployment. This phase also includes feature enhancements based on user feedback to ensure the system remains relevant and effective in meeting the evolving needs of ATK Yudistira Jaya and its customers.

3.2 System Architecture

The application is developed using the Model-View-Controller (MVC) architectural pattern, which separates the system into three interconnected components to enhance modularity and scalability. This architecture is chosen for its ability to organize code efficiently, making it easier to manage and update the application over time. The main features of the system, built within the MVC framework, are as follows:

1) Product Management

Admins can add, edit, and delete products, ensuring that the inventory displayed on the platform is always up-to-date.

2) Order Management

Admins have the ability to view and process customer orders, streamlining the workflow from order placement to fulfillment.

3) Transaction System

Integration with a payment gateway is implemented to facilitate secure and convenient online payments for customers.

4) Notification System

Customers receive timely updates and information regarding their orders, enhancing communication and transparency throughout the purchasing process.

By adopting the MVC architecture, the system ensures a clear separation of concerns, where the Model handles data and business logic, the View manages the user interface, and the Controller coordinates interactions between the two. This structure not only improves maintainability but also supports future scalability as the business grows or additional features are required.

4. Result and Discussion

4.1 Results

4.1.1 System Design

This chapter elaborates on the design, development, and testing phases of the web-based sales application for ATK Yudistira Jaya. It covers the functional requirements analysis, database design, system workflows, user interface design, implementation details, and testing results to ensure the system meets the specified needs. Based on the observations conducted, it was identified that the transaction process at ATK Yudistira Jaya is still carried out manually. Customers must physically visit the store to purchase the items they need. However, if there are obstacles preventing customers from visiting the store in person, such as time constraints or geographical distance, this can pose significant challenges for them. Consequently, this limitation impacts the store's sales turnover, leading to potential revenue loss. To address this issue, a web-based sales application is proposed to enable online transactions, allowing customers to browse and purchase products

remotely. The system aims to improve accessibility, enhance customer convenience, and ultimately boost sales performance.
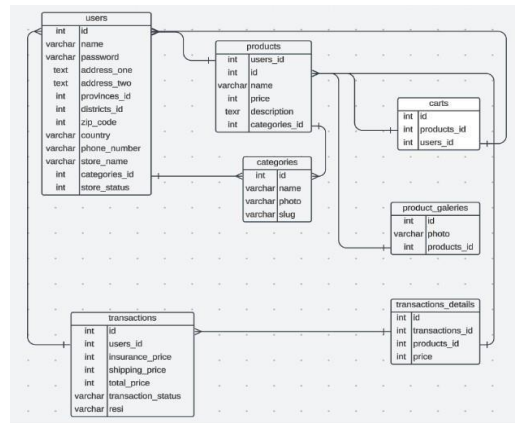

Figure 2. Class Diagram

The database design for the ATK Yudistira Jaya web-based sales application is represented through an Entity Relationship Diagram (ERD). The ERD illustrates the relationships between various entities within the system. It consists of seven main entities: Users, Categories, Products, ProductGalleries, Carts, Transactions, and TransactionDetails. These entities are structured to manage user data, product categorization, inventory, shopping carts, and transaction records efficiently.
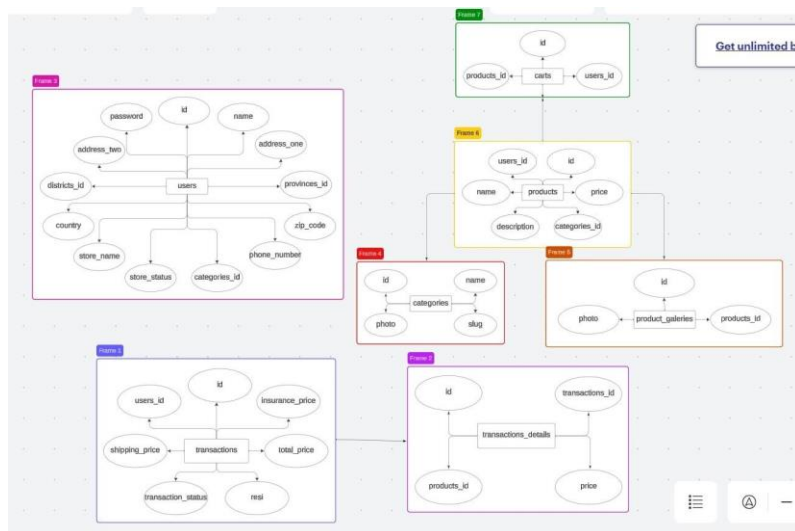
Figure 3. Entity Relationship Diagram (ERD)

The ERD serves as a blueprint for the database structure, ensuring data integrity and facilitating seamless interactions between different components of the application. The Use Case Diagram for the ATK Yudistira Jaya web application outlines the interactions between users (customers and admins) and the system. It highlights the primary functionalities that each user role can perform, such as browsing products, placing orders, managing inventory, and processing transactions.
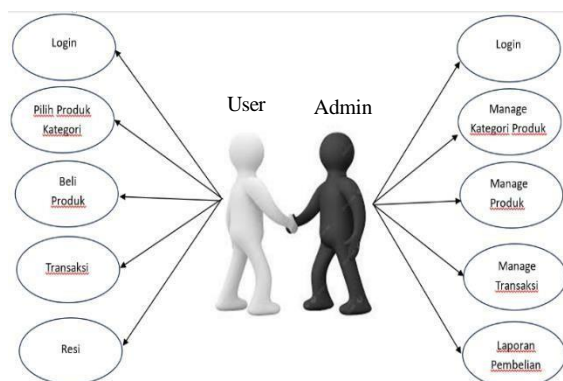

Figure 4. Use Case Diagram

The flowchart below represents the complete process flow of the ATK Yudistira Jaya web-based application, divided into two main user roles: Customer (User) and Admin.
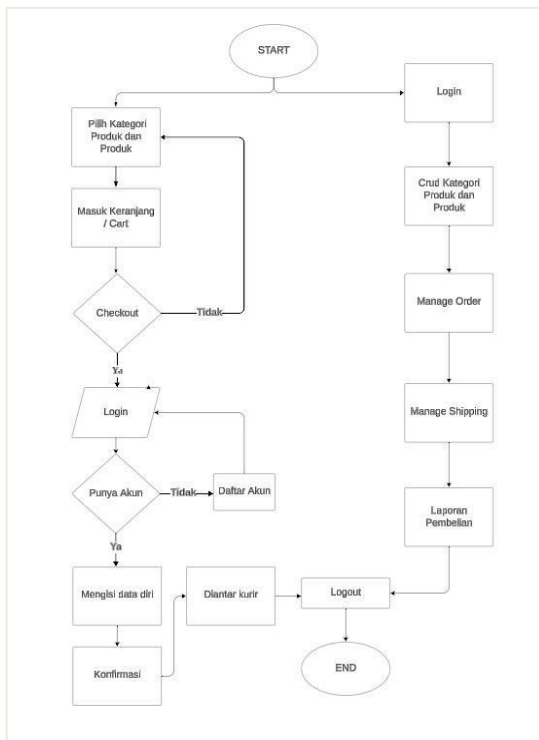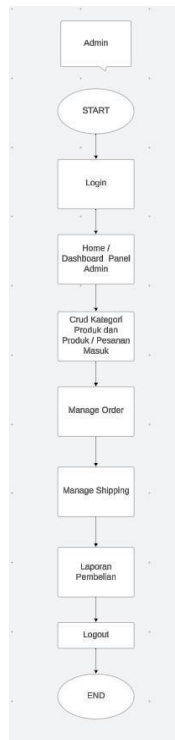

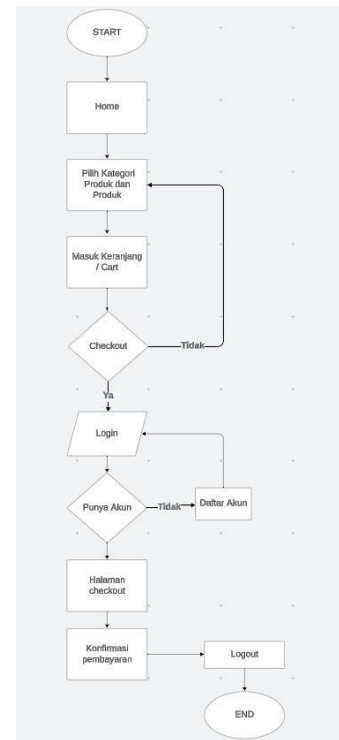Figure 5. Flowchart System

Figure 6. Admin Activity Diagram

Figure 7. Customer Activity Diagram

When the application is accessed, customers can browse products, select desired items, and add them to their shopping cart. If they decide to purchase, they proceed to check out. At this stage, customers with an existing account are directed to the login page, while new users can register first. After logging in, customers must provide personal details such as their address, confirm their order, and complete the payment process. Once payment is successful, the order is processed, and the products are shipped via courier. Admins or store employees must log in using pre-registered credentials. Within the admin dashboard, they can manage product categories and inventory using CRUD (Create, Read, Update, Delete) operations. Additionally, admins can view and manage order details through the "Manage Order" feature. The flowchart below details the specific processes and activities performed by the admin within the ATK Yudistira Jaya web application. The admin workflow includes logging into the system, managing product categories and listings (via CRUD operations), and overseeing customer orders to ensure smooth operation of the online store (Figure 6). The flowchart below illustrates the transaction process from the perspective of a customer using the ATK Yudistira Jaya web application (Figure 7). The customer journey involves browsing products, adding items to the cart, proceeding to checkout, logging in or registering, filling in personal details, confirming payment, and awaiting delivery of the purchased items.

4.1.2 System Implementation, Testing, and User Interface Design

ATK Yudistira Jaya web sales application has been successfully developed with several functional features to support efficient search mechanisms and user experience. At the heart of the system is the Admin Dashboard, a comprehensive control tool for managing categories, products, and customer orders within a single interface. This serves as a time-saving and powerful tool for administrators aiming to efficiently handle sales operations. The Product Catalog displays a wide range of products on the website, allowing customers to search and select items effortlessly. Moreover, the Ordering System is designed to support a straightforward ordering process, including payment and payment method selection. This ensures customers can complete transactions with options that suit their needs. The system also incorporates robust payment solutions to facilitate secure financial transactions. The efficient and secure Payment Gateway system ensures payment processing with guaranteed trust and reliability.

To verify the functionality and performance of the ATK Yudistira Jaya web application, Black-Box Testing method was employed. This method focuses on analyzing the system's input-output behavior without relying on the internal code structure, ensuring that the system meets user requirements from an external perspective.

The output of the testing process exceeded expectations for several components. The Login and Registration Features operated flawlessly, enabling users to access the platform seamlessly. Additionally, the Product and Category Management aspects demonstrated impeccable CRUD (Create, Read, Update, Delete) operations, ensuring efficient inventory control. No inconsistencies or issues were detected with the Order and Payment Processing functionalities. Furthermore, the application's responsive design proved effective, as it displayed correctly and remained accessible across various devices. This met diverse user requirements and enhancing overall accessibility.

This section outlines the design and functionality of the primary interfaces of the ATK Yudistira Jaya web application. These interfaces have been meticulously crafted to provide an accessible, user-friendly, professional, and efficient experience for both customers and administrative users. The Home/Dashboard Page (Figure 8) serves as the initial access point for users. It includes sections such as Trend Categories, highlighting popular product categories, and New Products, showcasing newly added items to attract customer interest. The Categories Page (Figure 9) features an All Categories section, which lists all available product categories, and an All Products section, which filters and displays products based on the selected category, facilitating purposeful browsing.
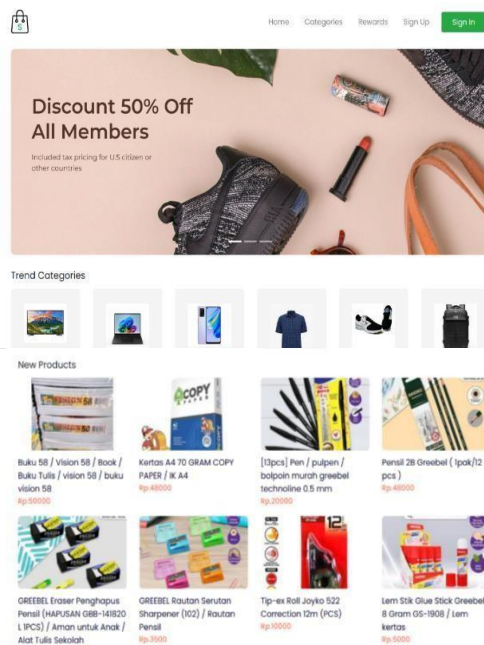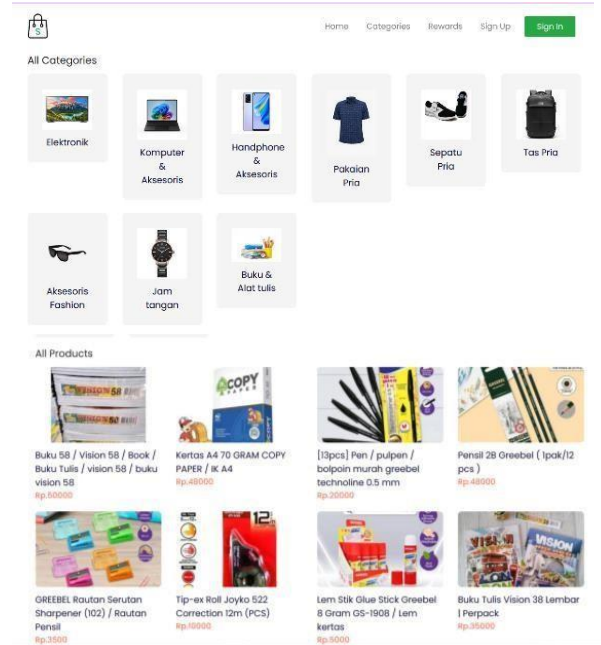

Figure 8. Dashboard / Home Page

Figure 9. Categories page

The Sign In and Register Pages, depicted in Figures 10 and 11 respectively, are designed with simplicity and functionality in mind. This allows users to log in or create accounts comfortably without being overwhelmed by a cluttered interface. Upon logging in, users and administrators can access their respective control hubs via the User Dashboard (Figure 12) and the Admin Dashboard (Figure 13). The User Dashboard presents essential information such as account details, orders, and user activities. The Admin Dashboard equips store managers with an overview of store performance, sales, order management, shipping status, and order tracking details, among other functionalities.
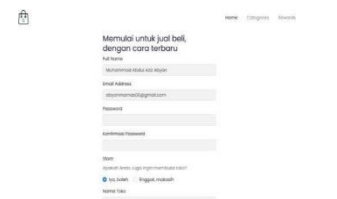

Figure 10. Sign Page
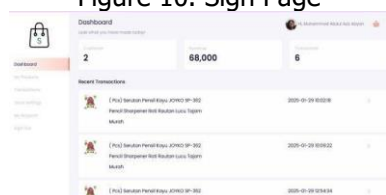

Figure 11. Register Page

Figure 11. User Dashboard Page

Figure 12. Admin Dashboard Page

To enhance administrative capabilities, the Admin Product Dashboard (Figure 14) facilitates product listing management, allowing operations such as adding, editing, deleting, and updating details like price, category, and availability. Complementing this, the Product Gallery Dashboard (Figure 15) is dedicated to managing visual content for products, enriching the visual appeal of the online store. The Admin Category Dashboard (Figure 16) simplifies the organization of product categories based on type or business requirements, leading to clear product structure visibility, streamlined category-specific product display for an improved user experience, and providing administrators with the flexibility to adapt categories to evolving business needs.
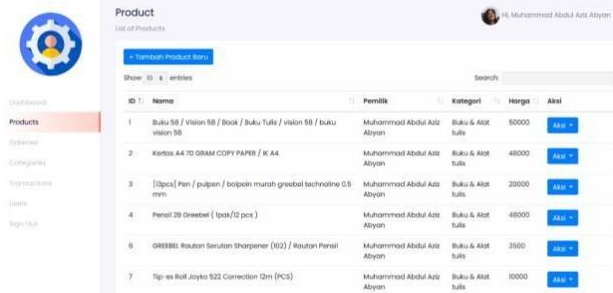

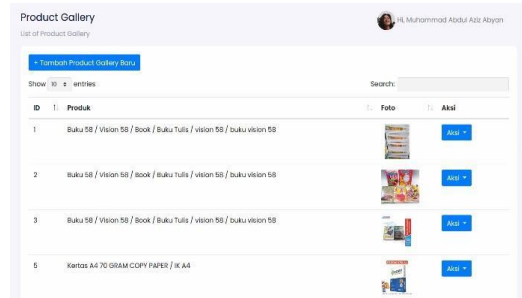Figure 13. Product Admin Dashboard

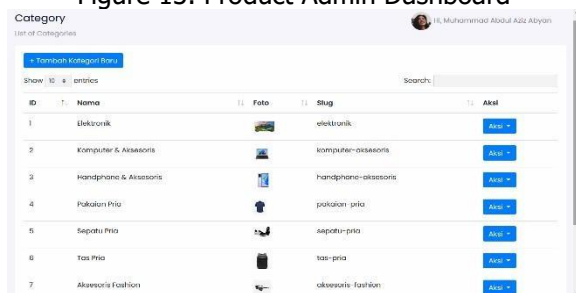Figure 14. Product-Gallery Admin Dashboard
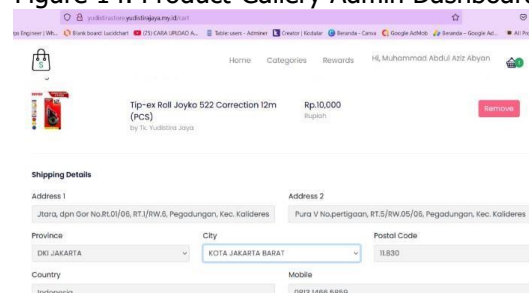

Figure 15. Admin Category Dashboard

Figure 16. Home / Cart Page

A fundamental component of the e-commerce framework, the Cart Page allows users to review and manage selected items before proceeding to purchase, thereby streamlining the buying process. The integration of the Midtrans Payment Gateway (Figure 17), coupled with Transaction Status Notification via Gmail (Figure 18), ensures a safe and efficient transaction process. Midtrans offers a comprehensive solution supporting multiple payment methods with a simple user interface, bank transfer options, and automatic, secure payment confirmations. This is without manual intervention. Its seamless integration with the Yudistira Store platform further guarantees a smooth transaction experience.
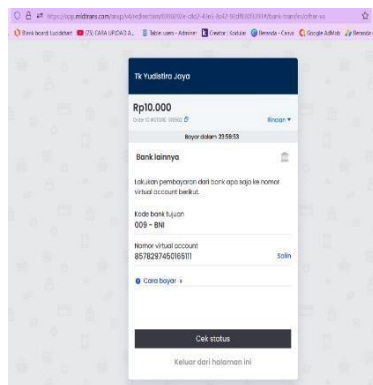

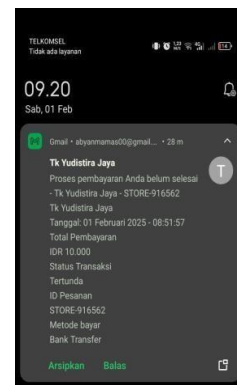Figure 15. Payment Gateway by Midtrans

Figure 17. Gmail Notification of Transaction Status

To facilitate transaction monitoring, the Midtrans Transaction History (Figure 19) assists administrators in tracking transactions, monitoring payment statuses, tracing received funds, and retrieving data in the event of payment discrepancies. Similarly, the Admin Transaction Dashboard (Figure 20) simplifies customer transaction management, provides real-time visibility into payment statuses, and empowers administrators to manage orders with specific payment conditions. Finally, the Shipping Receipt (Resi) feature (Figure 21) fulfils critical functions within the transaction dashboard, such as monitoring shipment status, providing proof of delivery, ensuring transaction security, and supporting customer service and complaint resolution.
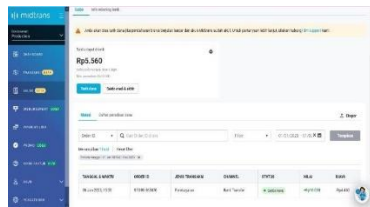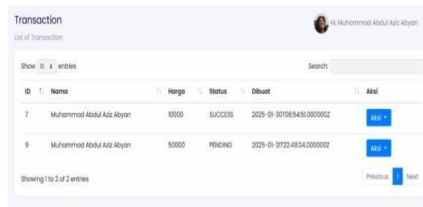
| Figure 18. Midtrans Transaction History | Figure 19. Admin Transaction Dashboard | Figure 20. Receipt |

4.2 Discussion

Based on the results of the research and development of the ATK Yudistira Jaya web-based online store application, it can be concluded that the application of the Laravel framework in the system development process has proven effective at improving security and scalability. Laravel provides built-in security features, such as protection against CSRF (Cross-Site Request Forgery) and XSS (Cross-Site Scripting) attacks, which are critical elements in maintaining user transaction security [15]. In addition, this framework facilitates database management using MySQL and implements the MVC (Model-View-Controller) architecture, so that the development process becomes more structured, organized, and efficient [15][16]. This approach allows developers to build systems that are secure and easily scalable to meet growing business needs.

In addition, the integration of Payment Gateways such as Midtrans into the ATK Yudistira Jaya online store application simplifies the transaction process for users. As illustrated in Figure 17, this feature supports various payment methods with a user-friendly interface, bank transfer options, and secure automatic payment confirmation without manual intervention. Research shows that website design quality and ease of transaction significantly influence consumers' online purchasing decisions [17][18]. Responsive and user-friendly interface design, as illustrated in Figures 8 to 16, contributes to enhancing the user experience, which ultimately fosters customer loyalty to the platform [20][21][8]. In addition, perceived ease of use and usefulness are key factors in shaping customers' intention to shop online. This reinforces the importance of intuitive design and seamless payment systems [9].

Furthermore, online sales, especially in the context of the pandemic, highlight the importance of leveraging technology to meet consumers' need to shop without having to physically visit a store. This is in line with the finding that web-based applications can help SMEs such as ATK Yudistira Jaya survive and expand their market reach amidst economic challenges [19][1][2]. As illustrated in Figures 5 to 7, a well-designed transaction flow—from product browsing and adding items to cart to payment completion—ensures accessibility for customers who were previously limited by time and geographic barriers. Features such as Shipping Receipt (Receipt) in Figure 21 and transaction status notification via Gmail in Figure 18 provide transparency and build trust during the delivery process, which is critical for customer satisfaction and retention [12][13]. The development of this application not only addresses the limitations of manual transactions identified in Section 4.1.1 but also supports operational efficiency through the Admin Dashboard (Figure 13) to manage products, categories, and orders. The Black Box Testing results described in Section 4.1.2 show that all core functions, including login, registration, product management, and payment processing, operate smoothly, smoothly. This meetss from an external perspective. Therefore, this web application not only improves ATK Yudistira Jaya's sales performance but also strengthens customer loyalty through optimal system quality, information, and service delivery [20][21][10][11]. The application of this technology is in line with global trends in online shopping behavior, behavior. This istors such as trust, timely delivery, and social media influence play an importaa significanthaping consumer decisions [13][14].

5. Conclusion and Recommendations

Based on the research findings, it can be concluded that the web-based online store application for ATK Yudistira Jaya successfully meets user needs in managing transactions and products more efficiently. The implementation of the Laravel framework significantly enhances the system's security and scalability, ensuring a robust platform for online operations. Furthermore, the integration of a payment gateway simplifies the transaction process, providing a seamless and secure experience for users. This contributes to increased customer satisfaction and operational effectiveness.

For further development and improvement of the application, the following suggestions are proposed:
1) Development of a mobile application
   Creation of a mobile app to enhance user accessibility and convenience, allowing customers to shop anytime and anywhere.

2) SEO Optimization
   Implementing search engine optimization strategies to improve the online store's visibility and ranking on search engines, thereby attracting more potential customers.
3) Social Media Integration
   Incorporating social media platforms to facilitate product promotion, expand market reach, and engage with a broader audience.
4) Enhanced security measures.
   Adopted advanced encryption techniques and additional security protocols to further protect user data and ensure trust in the platform.
5) Live Chat Feature
   Added a real-time communication tool to enable direct interaction between customers and support staff, improving customer service and addressing inquiries promptly.

References

[1] Bashari, F. R., Alfarizi, M. R., Sitanggang, H. R., & Kurniawan, H. (2024). Rancang bangun toko online berbasis web pada Zelay Store menggunakan metode Waterfall: Design and build a web-based online store at Zelay Store using the Waterfall method. *Jurnal Komputer Teknologi Informasi dan Sistem Informasi (JUKTISI)*, *3*(1), 673–680. https://doi.org/10.62712/juktisi.v3i1.205

[2] Widyagustina, I., & Sewaka. (2021). Rancang bangun aplikasi e-commerce pada UMKM berbasis web sebagai sarana untuk meningkatkan pemasaran produk (Studi kasus: UMKM Hoki Donut's). *Journal of Artificial Intelligence and Innovative Applications (JOAIIA)*, *2*(4), 292–299.

[3] Saleha, S., & Ahmad, A. (2020). Sistem informasi penjualan barang berbasis e-commerce pada CV. Citra Bersama Banda Aceh. *Journal Informatic, Education and Management (JIEM)*, *2*(1), 41–54.

[4] Setiawan, I., Nirwan, S., & Amelia, F. M. (2018). Rancang bangun aplikasi marketplace bagi usaha mikro, kecil, dan menengah berbasis web (Sub modul: Pembelian). *Jurnal Teknik Informatika*, *10*(3), 37–43.

[5] Bungsu, A. R., *et al.* (2021). Rancang bangun aplikasi e-commerce berbasis website pada UMKM Batu Cincin Mandiri Surabaya. *Jurnal Sistem Informasi dan Komputer Akuntansi*, *10*(4), 102–109.

[6] Andipradana, A., & Hartomo, K. D. (2021). Rancang bangun aplikasi penjualan online berbasis web menggunakan metode Scrum. *Jurnal Algoritma*, *18*(1), 161–172. https://doi.org/10.33364/algoritma/v.18-1.869

[7] Hiddayattullooh, R. (2022). Rancang bangun website UMKM Win Herbal sebagai media branding dan pemasaran menggunakan Agile Software Development. *Prosiding Sains Nasional dan Teknologi*, *12*(1), 513–519. https://doi.org/10.36499/psnst.v12i1.7240

[8] Gefen, D. (2002). Customer loyalty in e-commerce. *Journal of the Association for Information Systems*, *3*(1), 27–53. https://doi.org/10.17705/1jais.00022

[9] Nurpratama, M. R., Hurriyati, R., Sugiama, A. G., Widjajanta, B., & Irawan, R. L. (2023, September). Perceived ease of use and perceived usefulness of intention in shopping online Bandung. In *7th Global Conference on Business, Management, and Entrepreneurship (GCBME 2022)* (pp. 1661–1666). Atlantis Press. https://doi.org/10.2991/978-94-6463-234-7_174

[10] Rosania, A., & Wilujeng, I. P. (2023, May). How online customer reviews affect purchase intention mediated by trust. In *BISTIC Business Innovation Sustainability and Technology International Conference (BISTIC 2022)* (pp. 243–253). Atlantis Press. https://doi.org/10.2991/978-94-6463-178-4_25

[11] Sudirjo, F., & Tjahyadi, I. (2023). Assessing factors influencing online shopping adoption among Indonesian consumers: A quantitative study. *West Science Interdisciplinary Studies*, *1*(5), 194–200. https://doi.org/10.58812/wsis.v1i05.73

[12] Ridho, F., Hartono, S., & Istiqomah, I. (2021). Ease, quality of service, and timeliness of delivery to customer satisfaction. *Almana: Jurnal Manajemen dan Bisnis*, *5*(2), 184–191. https://doi.org/10.36555/almana.v5i2.1552

[13] Rahman, A., & Rahman, M. M. (2020). Online shopping in Bangladesh: Exploring the factors influencing customers' decisions during the coronavirus outbreak. *China-USA Business Review*, *19*(3), 91–101. https://doi.org/10.17265/1537-1514/2020.03.004

[14] Adamu, M. A., Ibrahim, A. M., & Lawan, A. K. (2018). Let's go 'shoppie'—Social media shopping's cool! Nigerian students' acceptance of online shopping via social media. *New Media and Mass Communication*, *77*. https://doi.org/10.7176/nmmc/77-05

[15] Defni, D., & Lestari, T. (2020). Implementing Laravel framework for e-commerce: Case study at Indonesian Farmer Shop Center. *International Journal of Advanced Science Computing and Engineering*, *2*(1), 14–20. https://doi.org/10.62527/ijasce.2.1.46

[16] Sunardi, A., & Suharjito, S. (2019). MVC architecture: A comparative study between Laravel framework and Slim framework in freelancer project monitoring system web-based. *Procedia Computer Science*, *157*, 134–141. https://doi.org/10.1016/j.procs.2019.08.150

[17] Hayu, R., Surachman, S., Rofiq, A., & Rahayu, M. (2020). The effect of website quality and government regulations on online impulse buying behavior. *Management Science Letters*, 961–968. https://doi.org/10.5267/j.msl.2019.11.015

[18] Wu, W., Lin, C., Fu, C., & Wang, H. (2013). How can online store layout design and atmosphere influence consumer shopping intention on a website? *International Journal of Retail & Distribution Management*, *42*(1), 4–24. https://doi.org/10.1108/ijrdm-01-2013-0035

[19] Rokhmah, S., & Muslihah, I. (2021). Pendampingan pemanfaatan website untuk membantu pemasaran UMKM terdampak COVID-19 pada Al Ihsan Store. *Budimas Jurnal Pengabdian Masyarakat*, *3*(1). https://doi.org/10.29040/budimas.v3i1.2261

[20] Pee, L., Jiang, J., & Klein, G. (2018). E-store loyalty: Longitudinal comparison of website usefulness and satisfaction. *International Journal of Market Research*, *61*(2), 178–194. https://doi.org/10.1177/1470785317752045

[21] Putri, W., & Pujani, V. (2019). The influence of system quality, information quality, e-service quality, and perceived value on Shopee consumer loyalty in Padang City. *The International Technology Management Review*, *8*(1), 10. https://doi.org/10.2991/itmr.b.190417.002.