

Android Based Rosella Tea Sales Application as Digital Innovation

Lusia Septia Eka Esti Rahayu^{1*}, Marlia Sari², Muhammad Junaid³

Universitas Satu Nusa Lampung, Bandar Lampung, Indonesia^{1,2}

Institut Teknologi dan Bisnis Diniyyah Lampung, Pesawaran, Indonesia³

lusiaunisan@gmail.com¹, keisyala120413@gmail.com²,

muhammdjunaidi1180@gmail.com³



Riwayat Artikel:

Received on 11 October 2025

1st Revision on 12 November 2025

2nd Revision on 19 November 2025

Accepted on 19 November 2025

Abstract

Purpose: This study aims to develop an Android-based sales application for Rosella Tea as a digital innovation, addressing the need for efficient marketing and sales management among Women Farmers Groups (KWT) in East Ambarawa Village, Lampung.

Methodology/approach: The research utilizes the System Development Life Cycle (SDLC) method, with stages including needs analysis, system design using the Unified Modeling Language (UML), coding with Java, and data storage via Firebase.

Results/findings: The developed application successfully operated on Android devices, presenting products informatively and enabling real-time transactions and sales management. It enhances marketing efficiency and expands the market reach of Rosella Tea, improving transaction processes between sellers and buyers.

Conclusion: The Android-based application serves as an innovative solution to promote Rosella Tea digitally, offering better sales management, expanding market access, and increasing business efficiency for women farmers.

Limitations: This study did not explore the full range of features needed, such as integration with various payment methods and e-commerce platforms.

Contribution: The application provides a digital pathway for women farmers' groups to manage and promote local products, contributing to their economic empowerment and aligning with government initiatives to support MSMEs' digitalization.

Keywords: *Android Application, Digital Innovation, Rosella Tea, Sales Information System*

How to Cite: Rahayu, L. S. E. E., Sari, M., & Junaid, M. (2025). Android Based Rosella Tea Sales Application as Digital Innovation. *Jurnal Ilmu Siber dan Teknologi Digital*, 4(1), 1-14.

1. Introduction

The development of information and communication technology in the digital era has brought significant changes to people's lifestyles, including in the economic and trade sectors. Digitalization has become a primary requirement for businesses to manage, promote, and market their products effectively. The adoption of mobile application-based technology is not only a trend but also a crucial strategy for increasing business competitiveness, particularly for Micro, Small, and Medium Enterprises (MSMEs), which play a significant role in the Indonesian economy. One group has significant potential to develop a locally based creative economy.

They act as agricultural producers and agents of economic empowerment for families and communities. One of the leading products produced by women's farming groups in various regions, including Lampung Province, is Rosella Tea. This product has a high selling value owing to its health benefits, distinctive taste, and broad market opportunities. However, the reality on the ground shows that Rosella Tea is still marketed conventionally through direct sales, word-of-mouth promotion, and bazaars. This

method is considered ineffective in reaching a wider consumer base amid the rapid development of the digital market. The main problems faced by women's farming groups include limited access to information technology, a lack of digital promotion capabilities, and an under-managed sales recording system. Consequently, the potential for increased turnover and market expansion cannot be optimally achieved.

Therefore, digital innovation is needed in the form of a system that can support practical, efficient, and integrated marketing and transaction processes in the tourism industry. The arrangement advertised in this study is the improvement of an Android-based Rosella Tea deals application. This application is designed to provide convenience for consumers in ordering products and assist sellers in automatically managing product data, transactions, and sales reports. The Android platform was chosen because it has the largest user base in Indonesia, is easily accessible to various levels of society, and allows integration with various digital features, such as social media and online payment systems.

With this application, it is hoped that women's farmer groups can transform into a modern, technology-based marketing system. In addition to increasing sales efficiency and effectiveness, this innovation is also expected to be a concrete step in supporting government programs related to the digitalization of MSMEs and the empowerment of women in the productive economic sectors. Based on this background, the problem formulation in this study is as follows: How is the process of developing an Android-based Rosella Tea sales application as a form of digital innovation? This study has the following objectives: 1) to develop an Android-based Rosella Tea sales application that supports digital promotion and transaction processes. 2) Designing application features that can help female farmer groups manage sales data and monitor business results in real time. 3) Analyzing the results of application implementation to increase efficiency, effectiveness, and user satisfaction in the sales process.

2. Literature Review and Hypothesis Development

2.1. Information Systems

From these expert definitions, it is concluded that an information system is a collection of interconnected elements that interact to facilitate decision-making and create new products, thereby organizing a system within an organization to achieve more effective and efficient goals. The components of an information system include: (1) hardware, (2) software, (3) telecommunications networks, (4) databases, (5) human resources, and (6) procedures or processes (Herath, Herath, & Cullum, 2023). A Management Information System (MIS) uses information technology, people, and business processes to record, store, and process data to produce data-driven information that helps managers make decisions for organizations (El-Ebiary et al., 2023). A Management Information System (MIS) is a framework or structure consisting of software, hardware, procedures, and personnel working together to collect, store, manage, and present relevant information to leaders and managers within an organization to support effective decision-making processes (Mutoffar, Bahar, & Mustafa, 2024).

The development of a web-based sales system can automate transactions and stock recording, thereby reducing manual errors and speeding up the creation of sales reports (Mulyati et al., 2023). In Technology Innovation in Sales Management: Web-Based Point of Sales Application for MSMEs, Web-based POS implementation (Laravel framework) enables real-time management of stock, transactions, and purchases; black-box testing shows increased accuracy and efficiency of recording (Andy & Widiono, 2024). The implementation of a web system (PHP/MySQL) solves manual recording problems, makes it easier to monitor stock and create reports, and is effective in improving the sales performance of UMKM. (Nata et al., 2024). Thus, the information system in this study will be a framework for an Android-based rosella tea sales application as a tool for improving operational efficiency and decision-making.

2.2. Digital Sales & E-Commerce for UMKM

Digital sales is the process of marketing and transacting products/services using digital platforms (websites, mobile apps, marketplaces, social media) so that buying and selling interactions occur

electronically without geographical or time constraints. E-commerce (electronic commerce) is a broader umbrella concept encompassing digital marketing activities, online ordering, electronic payments, logistics management, and after-sales service. Digital sales enable UMKM to automate many traditional business functions, such as product catalogs, stock management, transactions, and reporting (Purnomo, Nurmalitasari, & Nurchim, 2024). E-commerce has a significant positive influence on the use of e-commerce on UMKM income. The explanation relates to market expansion, increasing the number of customers, and business legitimacy (Dauda, Paris, Megawaty, Hendriadi, & Kausar, 2023). Kondo et al. (2023) described e-commerce models that increase market reach, brand awareness, and competitiveness of UMKM and discussed the integration of digital platforms with local business strategies.

2.3. Mobile Application

A mobile application is a software specifically designed to run on mobile devices, such as smartphones or tablets, enabling real-time user interaction and integration with digital systems. Mobile application technology enables business processes, marketing, transactions, and payments to be conducted easily from anywhere and at any time. In the context of UMKM, mobile applications provide a fast and flexible digital channel for product marketing and sales, including digital catalogs, online ordering, and automated reporting (Heni, Ratnaningrum, Myra, Titin, & Erlinda, 2022). Mobile applications have become an integral component of digital marketing, with a profound impact on both financial performance and business marketing strategies (Balaka, Kuswinardi, Wilyadewi, Efendi, & Zulfikhar, 2023).

2.4. Digital Innovation

Digital innovation is defined as the application of digital technology to create new value, transform business processes, and provide better user experiences. The journal "Technological Innovation in Online Store Applications as a Support for UMKM in Indonesia" states that features such as digital payments, inventory management, and sales data analysis are part of technological innovation (Godwin, Junaedi, Hardini, & Purnama, 2024). Android application development offers significant opportunities for creating productive and efficient digital innovations, particularly in business and public service activities. This book explains that Android-based systems enable the integration of local and cloud databases, allowing for the real-time management of transactions, stock, and customer data.

Android applications also offer high flexibility, as they can be developed with various open-source frameworks and libraries, making them ideal for UMKM to implement cost-effective yet functional digital sales systems. This innovation not only improves operational efficiency but also expands market reach through high mobile accessibility (Oktavia & Dewantara, 2024). In UMKM research, digital innovation is not only about technology adoption but also about business model updates, digital human resource development, and integration into operational processes. The journal "Model Innovation in Increasing UMKM Competitiveness in the Digital Era" confirms this fact. In this study, digital innovation refers to an Android-based Rosella tea sales application that not only facilitates transactions but also helps with product management, sales recording, and market analysis (Sutrisman & Susyanti, 2025).

2.5. Application Development Methods

The stages of Android application development range from installation, layout, and widgets to testing and publication. The use of the SDLC/Rapid Application Development (RAD) model allows for faster and more efficient application development (Martin, 1991). The journal "Literature Study: Analysis of the Implementation of Mobile Application Use in MSMEs in Indonesia" emphasizes that application development for MSMEs needs to pay attention to usability, functionality, and reliability. In this study, the R&D or SDLC method will be used to design, develop, and test an Android-based rosella tea sales application. (Metode & Perangkat, 2023) developed mobile applications that improve customer experience and ordering efficiency, through structured stages of analysis, design, development, implementation, and evaluation (Rakhmat & Handayani, 2024).

2.6. Empowerment of Women Farmers Groups (KWT) and UMKM

Women's Farmers Groups (KWT) are formal or semiformal organizations initiated by women (especially in rural areas) as a forum for organizing agricultural activities, processing agricultural products, and empowering family economies through women's participation. KWT are often associated with agriculture, horticulture, agricultural processing, and home business development. Through KWT, women farmers can gain access to training, mentoring, product innovation, and adequate marketing networks (Priyanto & Armin; Wulandari et al., 2023). Many activities within the KWT operate as Micro, Small, and Medium Enterprises (UMKM), such as agricultural processing, Rosella tea production, home-grown food production, local product marketing, and more. Within the context of digitalization and the creative economy, MSMEs managed by KWT can leverage information technology to expand their markets, improve operational efficiency and strengthen local product brands (Nabil & Dwiridotjahjono, 2024).

3. Methodology

3.1. Types and Research Approaches

This research is a Development Research (Development Research) that aims to produce a product in the form of an Android-based Rosella Tea sales application as a digital innovation for the Women Farmers Group in East Ambarawa Village, Pringsewu Regency. The Waterfall system development method was used, which emphasizes a systematic, sequential, and structured work process starting from needs analysis to system implementation. The Waterfall method is a linear-sequential software development model in which each stage must be completed before moving on to the next stage (Supiyandi, Zen, Rizal, & Eka, 2022).

3.2. Research Location and Time

This study was conducted at the Rosella Sejahtera Women's Farmers Group (KWT) in East Ambarawa Village, Pringsewu Regency, Lampung Province. The research period was from May to November 2025, encompassing the needs analysis, system design, application development, testing, and implementation.

3.3. Research Objects and Subjects

The research object is an Android-based Rosella Tea sales application developed to assist with product promotion and transaction processes. The research subjects were members of the Rosella Sejahtera Women's Farm (KWT) and application users (sellers and buyers).

3.4. System Development Model

The Waterfall Model was used for system development (Saifudin et al., 2022). This model consists of five main stages.

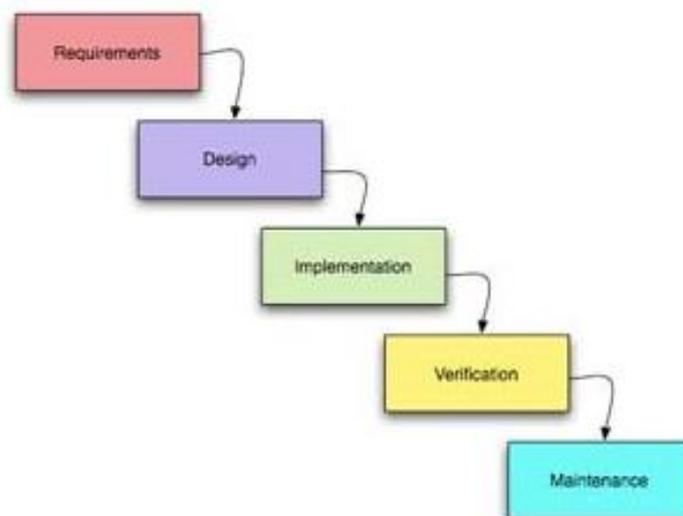


Figure 1. Waterfall Method
Source: (Wahid, 2020)

- 1) Requirements Analysis: This stage aims to gather information regarding user and system needs. The steps taken included Interviewing KWT members to understand issues related to product sales and promotion. Observing conventional sales activities: Compiling a list of system requirements, including functional (application features) and non-functional (security, appearance, and performance) requirements.
- 2) System Design: This stage translates user requirements into a system design. Activities include creating UML diagrams, such as Use Case Diagrams, Activity Diagrams, and Class Diagrams, to illustrate system interactions and flows. The user interface was designed using Canva.
- 3) Implementation: This stage involves the coding process of the system design into a real application.
- 4) Testing (System Testing): This stage is conducted to ensure that all application functions run according to user needs and are free from errors (bugs).
- 5) Maintenance (System Maintenance): This stage includes activities to fix errors found after implementation and adapt the application to new needs that may arise in the future.

3.5. Data Collection Technique

To support each stage in the Waterfall method, the following data collection techniques were used: 1) Observation: Observing the conventional sales process and the obstacles faced by KWT. 2) Interviews: Exploring the feature needs and promotional obstacles of KWT administrators and members. 3) Questionnaires: Data were collected from users to assess satisfaction, ease of use, and effectiveness of the application. 4) Documentation: Collecting product data, sales reports, and photos of the tea production activities.

4. Results and Discussion

System design is the process of drawing, planning, and creating a system by integrating several separate elements into a single, unified whole to clarify the system's form. The following are the design stages of the Android-based rosella tea sales information system. A context diagram is the highest level in a data flow diagram and contains only one process that shows the system as a whole. The following is a general overview of the Android-based rosella tea sales information system design.

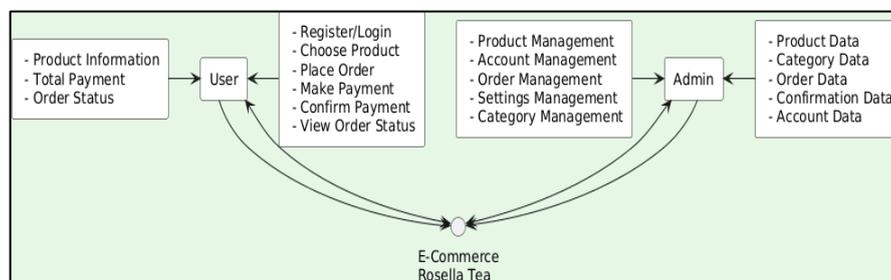


Figure 2. Context Diagram

Source: (Safitri, Novianti, & Noviriandini, 2018)

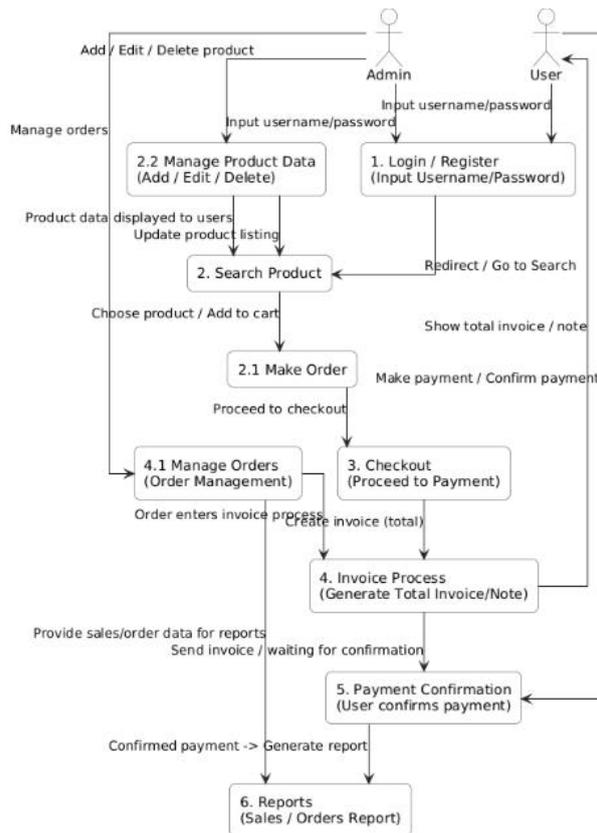


Figure 3. Data Flow Diagram Level 1
 Source: (Satyaningrat, Hamijaya, & Rahmah, 2023)

E-Commerce Rosella Tea Data Flow Diagram (DFD)
 Level 1

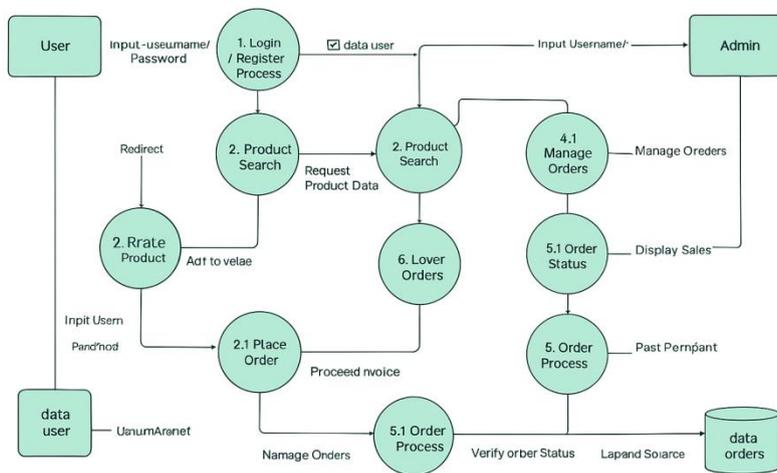


Figure 4. Data Flow Diagram Level 2
 Source: (Ariyanto, 2023)

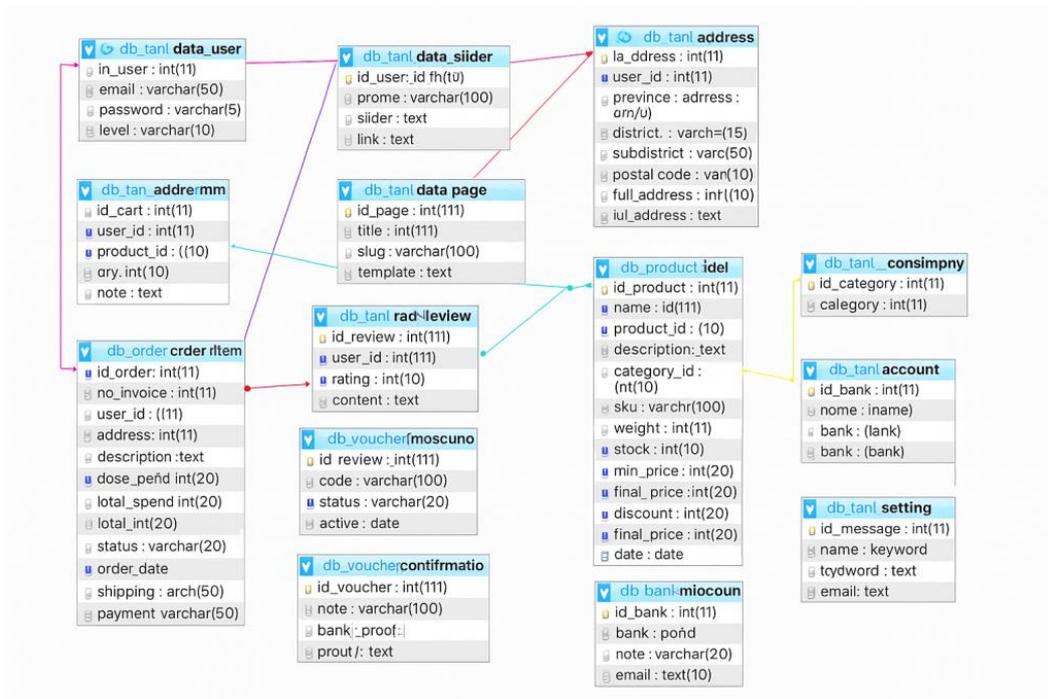


Figure 5. Entity Relationship Diagram (ERD)
 Source: (Indarta, Ranuharja, Sukardi, Samala, & Dewi, 2022)

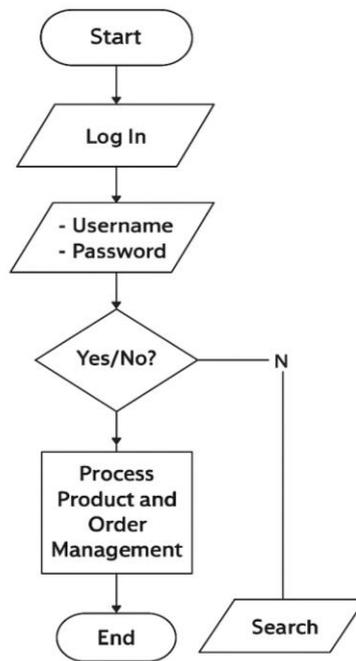


Figure 6. Admin Flowchart

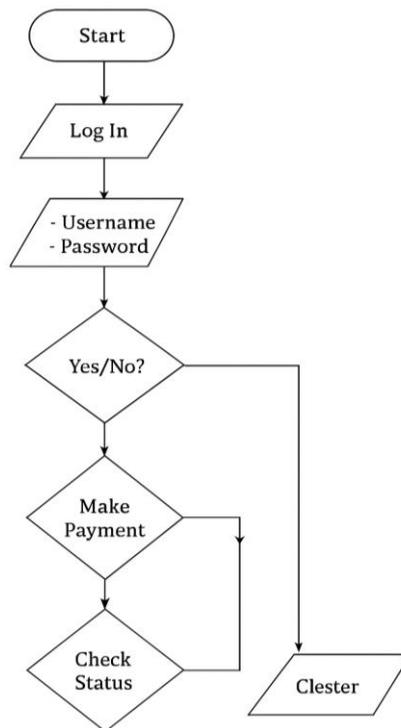


Figure 7. User Flowchart
Source: (Hibatullah & Hananto, 2025)

4.1. Program Implementation

The main page is the first page of the Rosella Tea Sales Information System.

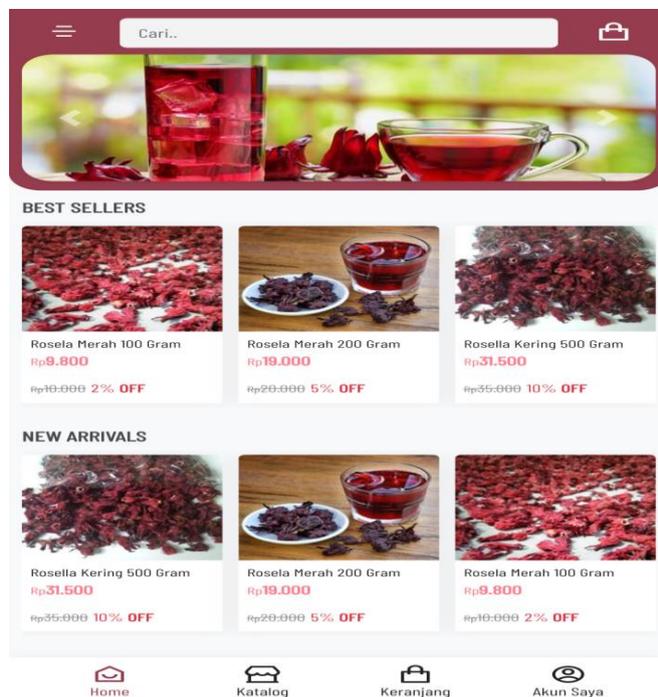


Figure 8. Main Page (Basatha et al., 2022)

The product detail page provides information about the product selected by the user.

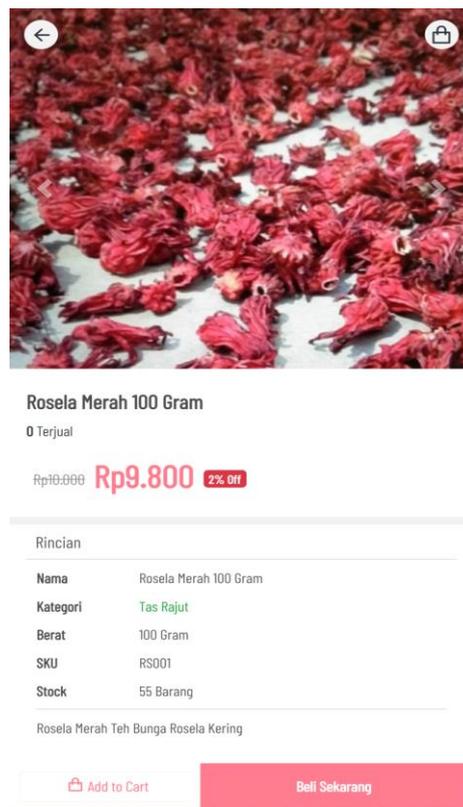


Figure 9. Product Detail Page (Ardhana et al., 2025)

The shopping cart page displays the products that the user has added to the cart.

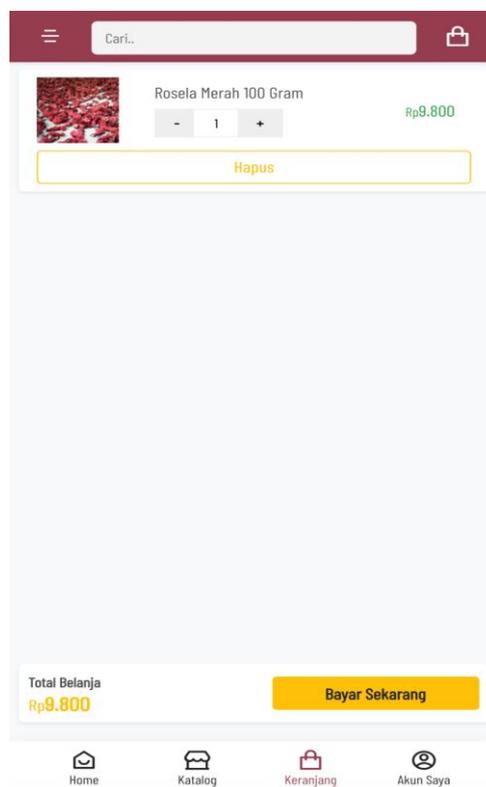


Figure 10. Shopping Cart Page (Alja, Daniati, & Ristyawan, 2024)

The payment page is a page for determining the delivery address, delivery service, and payment method before the order is paid by the user.

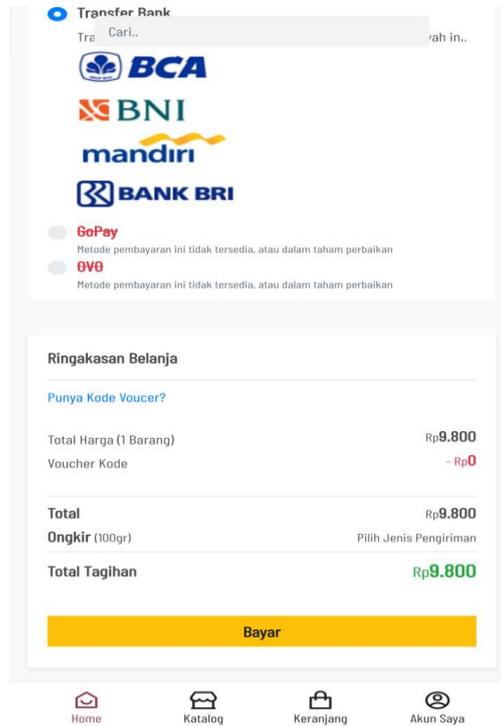


Figure 11. Payment Page
Source: (Wijonarko, Musyaffa, & Sastra, 2025)

The product data page displays all product data managed by the administrator.

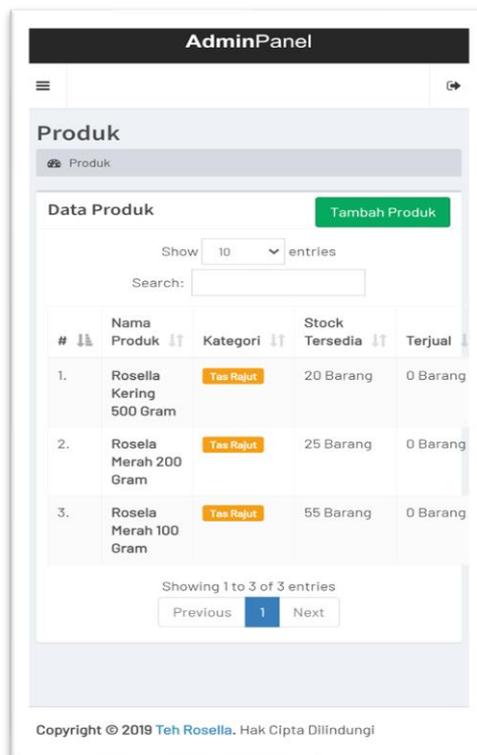


Figure 12. Product Data
Source: (Muthmainnah, Achmady, & Salat, 2023)

The order data page displays all orders in the system.

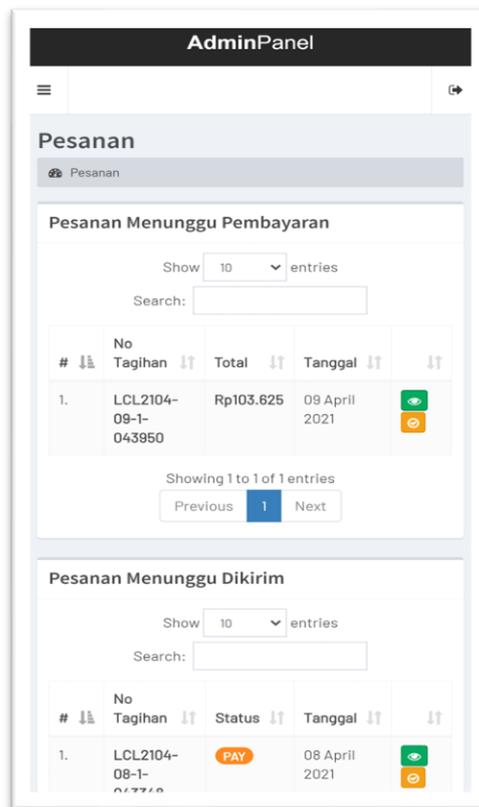


Figure 13. Order Data
Source: (Fa et al., 2023)

4.2. Analysis of Research Results

Based on the research conducted on the Design of Android-based Rosella Tea Sales Information System, it has several advantages. First, in operations, it does not require many resources, so it will provide speed in transactions and product and order management. Second, this e-commerce system supports automatic shipping cost calculation so that the invoice/note will be in accordance with the total existing payment. The drawback that still exists in this e-commerce system is the absence of a system for automatic payment confirmation; to process buyer payments, the admin will check one by one, which will take a lot of time, resulting in late payments.

5. Conclusions and Suggestions

5.1. Conclusions

Based on the results of research and development that has been carried out, it can be concluded that: 1) An Android-based Rosella Tea sales application was successfully developed using the Waterfall method, which encompasses needs analysis, a system design, implementation, testing, and maintenance. This process resulted in a structured system that meets the needs of users, particularly the members of the Women Farmers Group (KWT) in East Ambarawa Village. 2) This application provides an innovative solution for digitally marketing and managing Rosella Tea sales, expanding market reach, and increasing transaction efficiency between sellers and buyers. 3) The computerized advancement through this application essentially contributes to the financial strengthening of women within the rural segment by rearranging the advancement process, recording deals, and expanding the competitiveness of nearby items within the digital period.

5.2. Suggestions

1) Future application development could include digital payment features (e-wallets) and automated delivery systems to make transactions more efficient.

- 2) Continuous training is needed for KWT members to enable them to manage the application independently and optimally.
- 3) Integration with social media and marketplaces could be implemented to promote Rosella Tea products to a wider market.
- 4) Regular evaluation of the application's performance is necessary to ensure its sustainability and relevance to user needs.

5.3. Limitations and Further Studies

In this study, the application created still has limited features and does not fully meet all user needs, such as integration with a wider variety of payment methods. Further research is recommended to add features such as sales analysis, product recommendations, and integration with other e-commerce platforms to the chatbot.

Acknowledgements

With deep gratitude, the author would like to thank all parties who have supported and contributed to this research, especially the members of the Rosella Tea Farmers Group, who willingly participated in this research and provided invaluable information and input. Your courage and dedication to developing your business are an inspiration to the author. To all friends who have directly or indirectly assisted in this research. Hopefully, this research will benefit the development of micro-enterprises and improve the welfare of farmer groups and serve as a first step in the digitalization of local products.

References

- Alja, F. M., Daniati, E., & Ristyawan, A. (2024). Perancangan Ui/Ux E-Commerce Menggunakan Metode User Centered Design (Ucd). *Journal of Information System Management (JOISM)*, 6(1), 93-101. doi:<https://doi.org/10.24076/joism.2024v6i1.1669>
- Andy, F. A. M., & Widiono, S. (2024). Inovasi Teknologi dalam Manajemen Penjualan: Aplikasi Point of Sales Berbasis Web untuk UMKM. *Infomatek*, 26(2), 161-174. doi:<https://doi.org/10.23969/infomatek.v26i2.19007>
- Ardhana, V. Y. P., Rahma, D. W., Baun, H. M., Kom, S., Kom, M., Satrinia, D., . . . Muftikhali, Q. E. (2025). *Rekayasa Perangkat Lunak: Teori dan Konsep*: Mega Press Nusantara.
- Balaka, M. Y., Kuswinardi, J. W., Wilyadewi, I., Efendi, B., & Zulfikhar, R. (2023). Aplikasi mobile dalam pemasaran digital: Analisis literatur tentang pengaruhnya terhadap keuangan dan strategi pemasaran bisnis. *Jurnal Pendidikan Tambusai*, 7(3), 21979-21988. doi:<https://doi.org/10.31004/jptam.v7i3.10002>
- Basatha, R., Kristianto, A., Rahmawati, T., Adiwena, B., Sutjiadi, R., Hariyanti, N. T., & Wirapraja, A. (2022). *UI/UX Design: Panduan, Teori dan Aplikasi*: Ikado Press.
- Dauda, P., Paris, P. P., Megawaty, M., Hendriadi, H., & Kausar, A. (2023). Pengaruh Electronic Commerce (E-Commerce) terhadap Peningkatan Pendapatan pada UMKM di Kabupaten Gowa. *JEMMA (Journal of Economic, Management and Accounting)*, 6(1), 105-111. doi:<https://doi.org/10.35914/jemma.v6i1.1789>
- El-Ebiary, Y. A. B., Hatamleh, A., Al Moaiad, Y., Amayreh, K. T., Mohamed, R. R., Al-Haithami, W. A., & Saany, S. I. A. (2023). A review of the effectiveness of management information system in decision making. *Journal of Pharmaceutical Negative Results*, 14(2), 1281-1288. doi:<https://doi.org/10.1109/CSET58993.2023.10346819>
- Godwin, G., Junaedi, S. R. P., Hardini, M., & Purnama, S. (2024). Inovasi bisnis digital untuk mendorong pertumbuhan umkm melalui teknologi dan adaptasi digital. *ADI Bisnis Digital Interdisiplin Jurnal*, 5(2), 41-47. doi:<https://doi.org/10.34306/abdi.v5i2.1172>
- Heni, S., Ratnaningrum, R., Myra, A., Titin, H., & Erlinda, S. (2022). *Kinerja Bisnis UMKM di Era Digital*: Eureka Media Aksara.
- Herath, T. C., Herath, H. S., & Cullum, D. (2023). An Information Security Performance Measurement Tool For Senior Managers: Balanced Scorecard Integration For Security Governance And Control Frameworks. *Information Systems Frontiers*, 25(2), 681-721. doi:<https://doi.org/10.1007/s10796-022-10246-9>

- Hibatullah, M. H., & Hananto, A. L. (2025). Perancangan Website E-commerce Menggunakan Metode Waterfall pada Penjualan Alat Komputer. *Jurnal SINTA: Sistem Informasi dan Teknologi Komputasi*, 2(3), 116-124. doi:<https://doi.org/10.61124/sinta.v2i3.61>
- Indarta, Y., Ranuharja, F., Sukardi, S., Samala, A. D. S., & Dewi, I. P. (2022). Web Application Development for Syari Online Shop Using 4D Model Development. *Sinkron: jurnal dan penelitian teknik informatika*, 6(2), 720-728. doi:<https://doi.org/10.33395/sinkron.v7i2.11376>
- Kondojo, M., Langi, H., Putung, Y., & Kumaat, A. (2023). Model e-commerce untuk meningkatkan daya saing umkm dalam ekosistem kewirausahaan digital di sulawesi utara. *Technomedia Journal*, 8(2), 221-234. doi:<https://doi.org/10.33050/tmj.v8i2.2089>
- Martin, J. (1991). *Rapid application development*: Macmillan Publishing Co., Inc.
- Mulyati, S., Hapipah, R., Rahman, A., Bagus, A., Wahidar, A., & Saifudin, A. (2023). Perancangan Sistem Informasi Penjualan Berbasis Web pada Toko Pakaian. *vol*, 6, 12-18. doi:<https://doi.org/10.32493/jtsi.v6i1.22638>
- Muthmainnah, N., Achmady, S., & Salat, J. (2023). Rancang bangun aplikasi e-commerce penjualan ms glow dan muthmainnah fashion berbasis framework materialize css dan codeigniter 3. doi:<https://doi.org/10.47647/jrr.v5i1.1138>
- Mutofar, M. M., Bahar, A., & Mustafa, F. (2024). The Role of Management Information System Innovation as a Catalyst to Enhance Profitability in the Contemporary Digital Business Era. *Jurnal Minfo Polgan*, 13(1), 172-180. doi:<https://doi.org/10.33395/jmp.v13i1.13510>
- Nabil, N., & Dwiridotjahjono, J. (2024). Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah. *Al-Kharaj: Jurnal Ekonomi, Keuangan & Bisnis Syariah*, 6(2), 2547-2562. doi:<https://doi.org/10.47467/alkharaj.v6i9.2466>
- Oktavia, C. A., & Dewantara, R. (2024). Implementasi sistem informasi berbasis Android untuk promosi dan pemasaran UMKM jamur tiram. *Cyberspace: Jurnal Pendidikan Teknologi Informasi*, 8(2), 69-79. doi:<https://doi.org/10.22373/cj.v8i2.26170>
- Priyanto, D. A., & Armin, A. P. Pengembangan MEDIA Pengenalan Produk UMKM Makanan Khas Tegal Berbasis Augmented Reality. *Jurnal Ilmu Siber dan Teknologi Digital*, 3(2), 111-130. doi:<https://doi.org/10.35912/jisted.v3i2.5094>
- Purnomo, S., Nurmalitasari, N., & Nurchim, N. (2024). Digital transformation of MSMEs in Indonesia: A systematic literature review. *Journal of Management and Digital Business*, 4(2), 301-312. doi:<https://doi.org/10.53088/jmdb.v4i2.1121>
- Rakhmat, M. D. K., & Handayani, I. (2024). Pengembangan Aplikasi Berbasis Mobile untuk Meningkatkan Pengalaman Pelanggan dan Efisiensi Pemasaran dengan Metode ADDIE. *Journal of Information System Research (JOSH)*, 5(2), 374-383. doi:<https://doi.org/10.47065/josh.v5i2.4584>
- Safitri, M., Novianti, A., & Noviriandini, A. (2018). Sistem informasi lowongan kerja berbasis web. *Jurnal PILAR Nusa Mandiri*, 14(1), 49-54. doi:<https://doi.org/10.33480/pilar.v14i1.89>
- Saifudin, A., Saputra, A., Saputra, B., Subhan, F., Maulana, F., & Kusyadi, I. (2022). Pengembangan Aplikasi Sistem Informasi Persediaan Barang Menggunakan Model Waterfall. *Jurnal Teknologi Sistem Informasi dan Aplikasi*, 5(4), 247-254. doi:<https://doi.org/10.32493/jtsi.v5i4.21197>
- Satyaningrat, L. M. W., Hamijaya, P. D. N., & Rahmah, K. (2023). Analisis Pemodelan Data Flow Diagram pada Sistem Basis Data Wisata Kuliner di Kota Balikpapan: Analysis of Data Flow Diagram on Culinary Tourism Database System in Balikpapan City. *MALCOM: Indonesian Journal of Machine Learning and Computer Science*, 3(2), 236-246. doi:<https://doi.org/10.57152/malcom.v3i2.920>
- Supiyandi, S., Zen, M., Rizal, C., & Eka, M. (2022). Perancangan Sistem Informasi Desa Tomuan Holbung Menggunakan Metode Waterfall. *JURIKOM (Jurnal Ris. Komputer)*, 9(2), 274. doi:<https://doi.org/10.30865/jurikom.v9i2.3986>
- Sutrisman, D. Y., & Susyanti, J. (2025). Model Innovation dalam Meningkatkan Daya Saing UMKM di Era Digital. *Jurnal Rumpun Manajemen dan Ekonomi*, 2(3), 151-159. doi:<https://doi.org/10.61722/jrme.v2i3.4420>
- Wahid, A. A. (2020). Analisis metode waterfall untuk pengembangan sistem informasi. *J. Ilmu-ilmu Inform. dan Manaj. STMIK*, no. November, 1(1), 1-5.

- Wijonarko, B., Musyaffa, N., & Sastra, R. (2025). Implementasi Layanan Payment Gateway Pada E-Commerce Penjualan Toko Sprei Berbasis Web. *Reputasi: Jurnal Rekayasa Perangkat Lunak*, 6(2), 156-165. doi:<https://doi.org/10.31294/reputasi.v6i2.10171>
- Wulandari, I., Setiyoko, A., & Lestari, R. D. (2023). Pelatihan Tertib Administrasi dan Manajemen Keuangan Pada Kelompok Wanita Tani Sewagati Gamping Yogyakarta. *Jurnal Pengabdian Kepada Masyarakat Nusantara*, 4(3), 2263-2269. doi:<https://doi.org/10.55338/jpkmn.v4i3.1436>