

DESIGN AND DEVELOPMENT OF A WEB-BASED DIGITAL INFORMATION SYSTEM FOR KOPI PEDALAMAN

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ABSTRACT

Kopi Pedalaman is a café that offers local Kerinci coffee and incorporates cultural values into its products. However, the management of menus, orders, and reservations has not been fully digitalized and integrated, resulting in inefficiencies in business operations and customer service. This study aims to design and develop a web-based information system to support integrated menu management, ordering, reservations, user management, and reporting. The study employed a qualitative method, while the system was developed using the Waterfall model. System design utilized Unified Modeling Language (UML), including Use Case, Activity, and Sequence Diagrams. The system was developed using the Laravel framework with MySQL as the database management system. The results show that the system can support integrated business management effectively. User Acceptance Testing (UAT) confirmed that all system features functioned according to user requirements. User satisfaction evaluation using a Likert scale obtained a score of 81.2%, indicating that the system is categorized as very good and feasible for implementation. The developed system is expected to improve operational efficiency and service quality at Kopi Pedalaman.

Keywords: Information System, Website, Online Ordering, Reservation, Waterfall, Uat.

INTRODUCTION

The development of information technology has significantly transformed various business sectors, including the culinary industry and coffee shop businesses. Digital technology enables business owners to provide information, conduct promotional activities, improve service quality, and manage interactions with customers more effectively. A website is one of the digital platforms that can provide structured information and be accessed by customers at any time. In addition to serving as an information medium, a website can support brand identity, expand market reach, and digitalize business services in an increasingly competitive environment.

Kopi Pedalaman is a café in Jambi City that offers a distinctive concept by serving local coffee originating from Kerinci, Sumatra. In addition to providing various food and beverage products, Kopi Pedalaman offers exclusive merchandise, such as T-shirts and packaged coffee products, which represent the café's identity and local cultural values. This concept provides added value and distinguishes Kopi Pedalaman from other cafés. However, despite its unique business concept and product identity, Kopi Pedalaman has not yet implemented an integrated digital information system that can be directly accessed by customers.

Currently, most promotional activities, information delivery, and customer interactions are conducted through social media platforms such as Instagram and WhatsApp. Although social media is useful for promotional activities, it has limitations in presenting information in a structured and integrated manner. Customers may experience difficulties in obtaining complete information regarding menus, prices, operating hours, locations, and product descriptions. The limited availability of structured price information may also affect customer convenience when selecting products according to their needs and budgets.

Another problem involves the reservation process and merchandise sales. Table reservations are not yet managed through a centralized digital system, and the reservation process still depends on direct communication through social media platforms. This

condition may reduce service efficiency and create difficulties in managing reservation information. Furthermore, merchandise sales are still limited to customers who visit the café directly, which restricts the potential market reach of these products. In the long term, these limitations may affect business competitiveness, particularly as customers increasingly rely on digital platforms to access products and services.

The implementation of a web-based information system can provide a solution to these problems. A website enables information regarding the café profile, menus, prices, operating hours, location, and merchandise products to be presented through a single integrated platform. In addition, a digital reservation feature can allow customers to select reservation dates, times, and the number of visitors more conveniently. The integration of information services, reservations, and merchandise sales within one system is expected to improve service efficiency and provide a better customer experience.

Several previous studies have discussed the implementation of digital systems in café and coffee shop businesses. Arifin and Sari [1] examined a digital branding strategy for local cafés through interactive websites and found that digital platforms can improve customer engagement and strengthen business identity. However, the study primarily focused on digital branding, whereas the present study integrates business information and branding with reservation and merchandise sales features.

Fadhilah and Prasetyo [2] developed an online reservation and sales system for a coffee shop using the Waterfall method. The system supported digital reservation and ordering processes to improve service efficiency. Similarly, Lestari and Nugroho [3] developed a web-based digital information system for cafés to support reservations and menu ordering. Their study demonstrated that web-based systems can facilitate customer services and organize business processes more effectively.

Setiawan and Rahayu [4] developed a web-based online reservation system that enabled customers to reserve tables and helped reduce waiting times. Meanwhile, Mahmud et al. [5] developed a web-based information system for ordering café products and merchandise, enabling customers to access and purchase products online. These studies demonstrate that web-based systems can support various aspects of café services, including digital branding, reservations, product ordering, and merchandise sales.

Based on previous studies, web-based systems have been implemented to support individual business functions, such as digital branding, table reservations, and online product sales. However, the reviewed studies generally focused on specific services rather than integrating business information, digital branding, table reservations, and merchandise sales into a single platform. Therefore, the research gap identified in this study is the need for an integrated web-based information system that combines these services according to the operational requirements of Kopi Pedalaman.

The proposed system is designed to provide several features, including café profile information, menus and prices, operating hours, location information, table reservations, and an online merchandise catalog. Customers can make reservations by selecting the preferred date, time, and number of visitors. The merchandise sales feature supports product selection, shopping cart management, payment through bank transfer, and proof of payment uploads. Payment verification is conducted manually by the administrator to ensure transaction confirmation.

The system development process applies the Waterfall model, consisting of requirements analysis, system design, implementation, and testing. System modeling is conducted using the Unified Modeling Language (UML), including Use Case Diagrams, Activity Diagrams, and Sequence Diagrams. The system is developed using the Laravel framework and MySQL as the database management system. User Acceptance Testing

(UAT) is conducted to evaluate whether the developed system functions according to user requirements and to measure user acceptance of the system.

Based on the identified problems and research gap, this study aims to design and develop a web-based digital information system for Kopi Pedalaman. The proposed system is expected to integrate business information, digital branding, table reservations, and online merchandise sales into a centralized platform. The contribution of this study lies in the integration of these business services into a single web-based system designed according to the needs of Kopi Pedalaman. The developed system is expected to improve operational efficiency, facilitate customer access to information and services, enhance service quality, and support the digital development of the business.

METHODOLOGY

This study employed the Waterfall method to develop a web-based Digital Information System for Kopi Pedalaman. The Waterfall model was selected because it provides a systematic and sequential approach to software development, in which each development stage is completed before proceeding to the next stage. The research involved problem identification, literature study, data collection, system requirements analysis, system design, system development and implementation, system testing, user evaluation, and report preparation. The collected data and identified requirements were used as the basis for designing and developing the proposed system.

RESULTS AND DISCUSSION

Overview of Kopi Pedalaman

Kopi Pedalaman is a culinary business located in Jambi City that provides coffee, non-coffee beverages, food, and merchandise. Its natural atmosphere and view of Sipin Lake are among its main attractions.

However, merchandise sales, table reservations, and transaction reporting are still managed manually through direct communication, social media, and WhatsApp. This condition may cause difficulties in managing transaction, stock, reservation, and reporting data. Therefore, a web-based Digital Information System was developed to integrate information delivery, merchandise ordering, table reservations, payment verification, and reporting.

Requirements Planning

a. Existing System

The existing merchandise sales and table reservation processes are still conducted manually. Customers must visit the coffee shop or contact staff to obtain information about merchandise, prices, stock, and table availability. Transactions and reservations are recorded manually, which may cause recording errors, data loss, and double bookings.

Promotional information is mainly distributed through Instagram and WhatsApp and is not integrated with ordering and reservation processes. The existing system is presented in Figure 2.

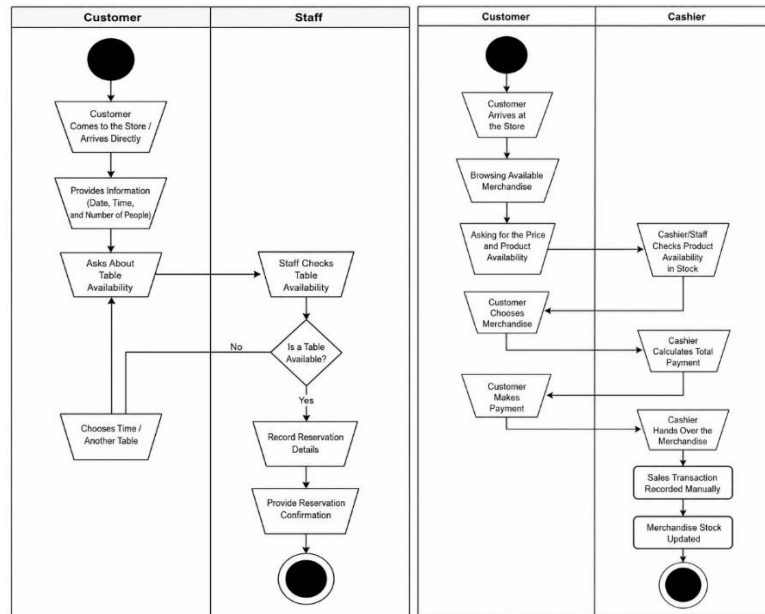


Figure 2. Existing Merchandise Sales and Table Reservation System

b. Proposed System

The proposed system is a web-based Digital Information System involving two main users: Admin and User/Customer. Users can register, log in, view information, order merchandise, make table reservations, and upload payment receipts.

Admin can manage products, users, orders, payments, reservations, and reports. All data are stored in the database to support more structured and efficient operational management. The proposed system is presented in Figure 3.

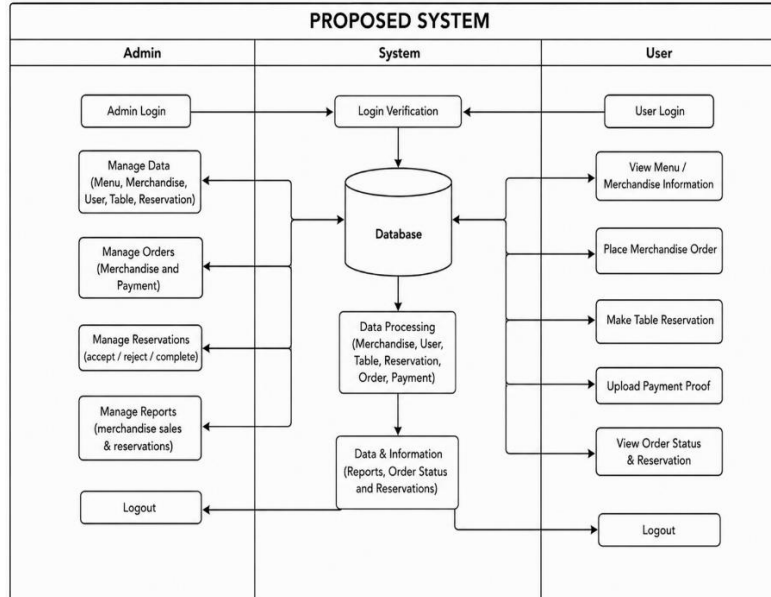


Figure 3. Proposed Digital Information System

System Modeling

a. Use Case Diagram

The Use Case Diagram illustrates interactions between the administrator, the general public, and the Web-GIS. Administrators manage road data, while the public accesses road condition information through the interactive map.

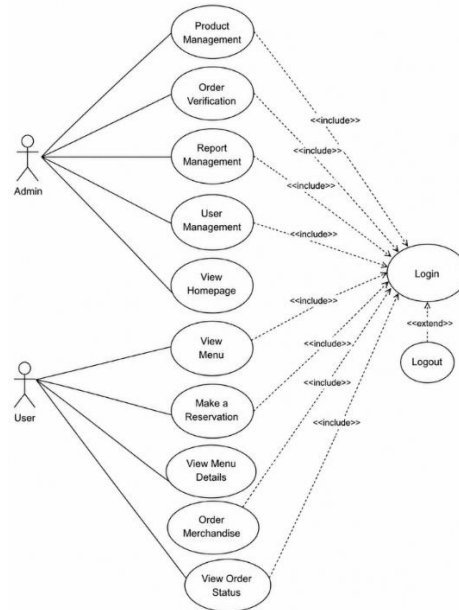


Figure 4. Use Case Diagram

b. Activity Diagram

The Activity Diagram describes the main workflows of the system, including login, merchandise ordering, table reservation, and product management.

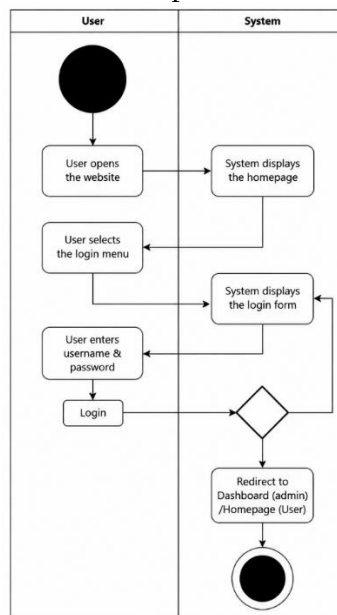


Figure 5. Activity Diagram

c. Class Diagram

The Class Diagram illustrates the system structure and relationships among the main entities, including users, products, orders, payments, reservations, and reports.

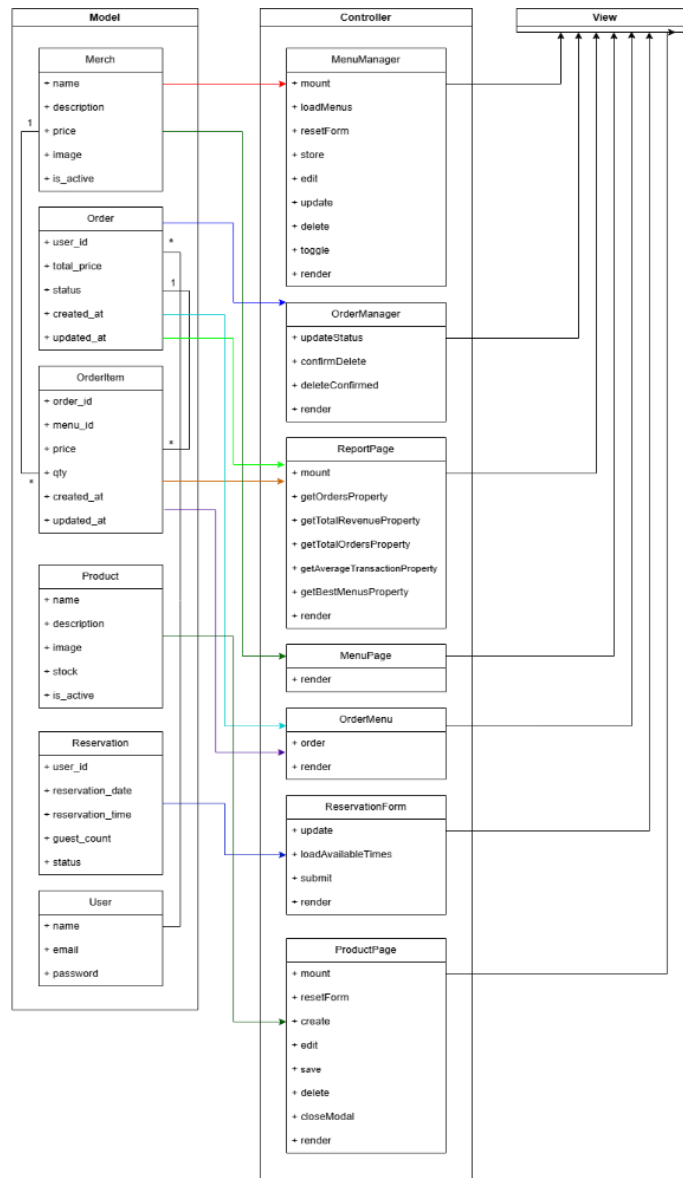


Figure 6. Class Diagram

d. Sequence Diagram

The Sequence Diagram illustrates the chronological interaction between users, administrators, and system objects during key processes, including login, merchandise ordering, table reservation, and data management. The main objects involved are User, Admin, System, Product, Order, Reservation, and Database.

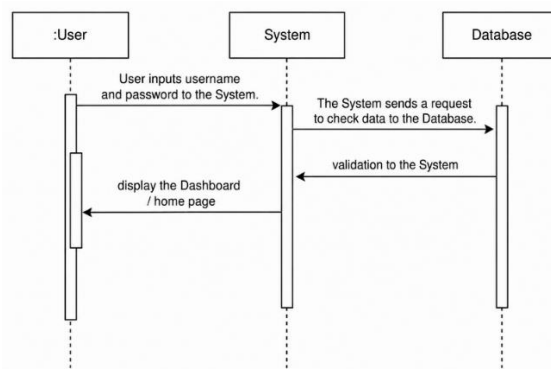


Figure 7. Sequence Diagram

Implementation

The implementation stage presents the main interfaces of the developed Web-Based Digital Information System at Kopi Pedalaman. The system is designed to support customers in accessing menus, placing orders, and making reservations, while administrators can manage products, users, orders, reports, and system settings.

a. Home Page

The Home Page is the initial interface displayed when users access the website. It presents the business identity, main navigation, and available products, including product images, names, prices, and ordering options. Users can access this page without logging in.



Figure 7. Home Page

b. Login Page

The Login Page provides an authentication form using a username or email and password. The system validates the entered credentials against the database. Upon successful authentication, administrators are directed to the Admin Dashboard, while users are returned to the Home Page with an active login session.

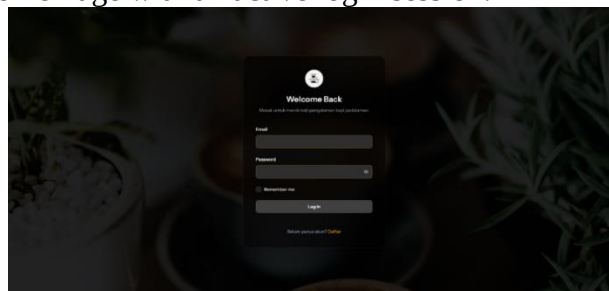


Figure 8. Login Page

c. Registration Page

The Registration Page allows customers to create a new account by entering their name, username or email, password, and password confirmation. After successful registration, users can log in to access ordering and reservation features.

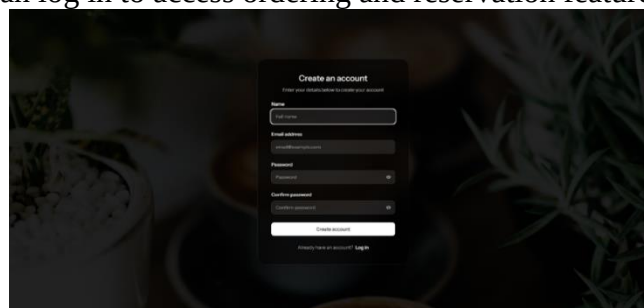


Figure 9. Registration Page

d. Admin Dashboard

The Admin Dashboard serves as the main control interface for administrators. It provides summary information on orders and reservations and access to the main management features, including Order Verification, Product Management, User Management, Reports, and Settings.

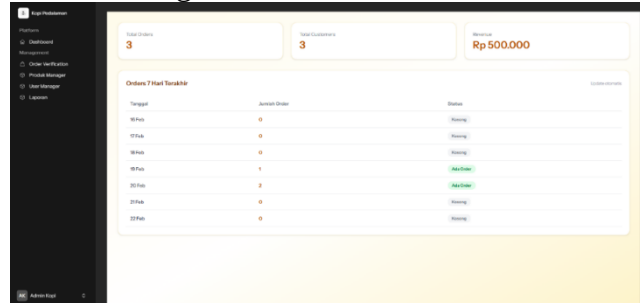


Figure 10. Admin Dashboard

e. Order Verification Page

The Order Verification Page allows administrators to view and manage customer orders. The page displays customer information, ordered products, quantities, total prices, and order status. Administrators can update order statuses according to the ongoing process.

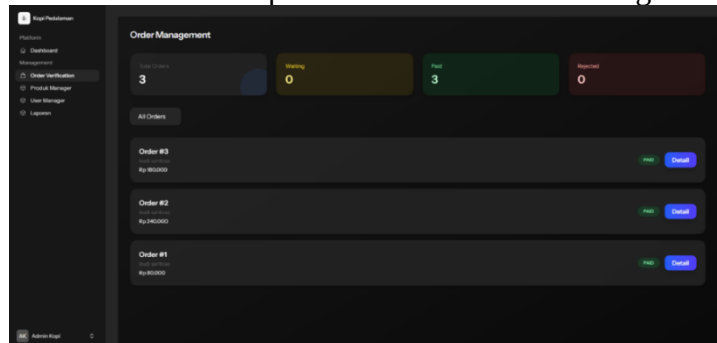


Figure 11. Order Verification Page

f. Product Management Page

The Product Management Page is used to manage menu or product data. Administrators can add, edit, and delete products. Changes made to product data are stored in the database and automatically reflected on the menu displayed to customers.

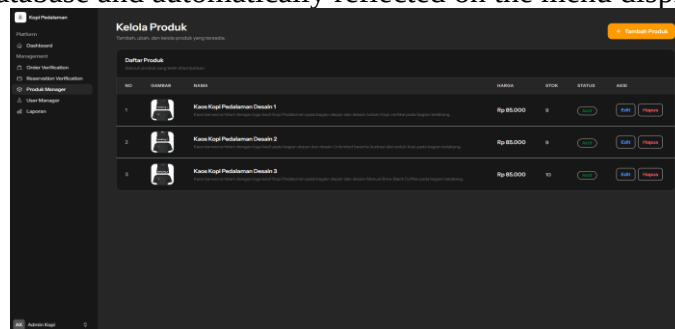


Figure 12. Product Management Page

g. User Management Page

The User Management Page allows administrators to manage registered customer data. The page displays user information such as name and email and provides an option to delete user accounts when necessary.

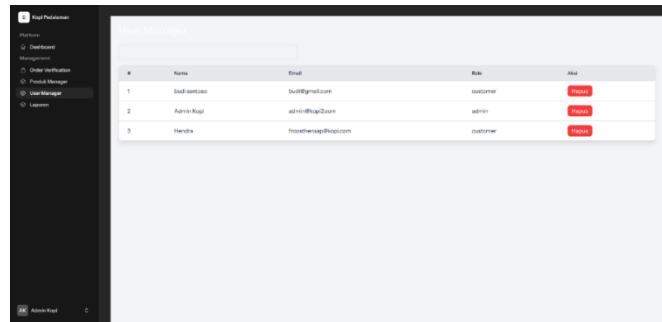


Figure 13. User Management Page

h. Report Page

The Report Page provides transaction recapitulation based on order data. Administrators can filter reports by a specific period and view information such as transaction date, customer name, ordered products, quantity, and total transaction value.

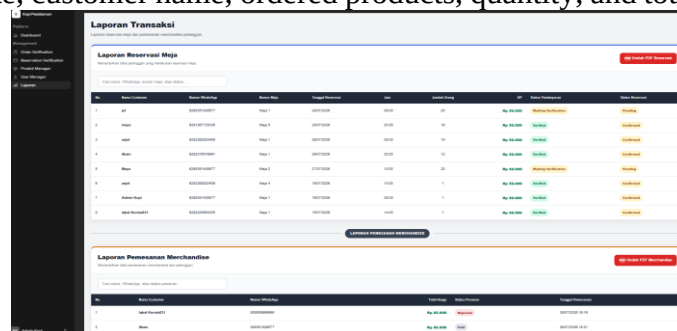


Figure 14. Report Page

i. Settings Page

The User Management Page allows administrators to manage registered customer data. The page displays user information such as name and email and provides an option to delete user accounts when necessary.

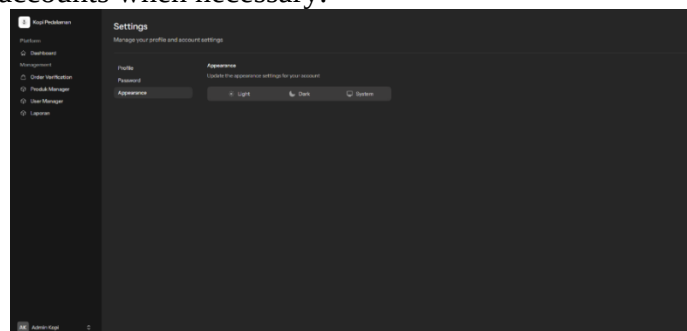


Figure 15. Settings Page

System Testing

System testing was conducted to evaluate the functionality and usability of the developed web-based digital information system. The testing methods consisted of Black Box Testing and User Acceptance Testing (UAT) using a five-point Likert scale.

a. Black Box Testing

Black Box Testing was conducted to evaluate system functionality based on predefined test scenarios without examining the internal program code. Testing was performed on the main system features, including login, menu access, ordering, reservation, product management, user management, order verification, reports, settings, and logout.

The testing results showed that all tested functions operated according to the expected results. Therefore, the system was considered functionally valid and able to support the main operational requirements of Kopi Pedalaman.

b. User Acceptance Testing

User evaluation was conducted using a questionnaire consisting of five statements and a five-point Likert scale. The evaluation assessed ease of use, interface design, system functionality, information clarity, and navigation. A total of 10 respondents participated in the evaluation. The results for each statement were as follows:

No.	Evaluation Aspect	Score	Percentage
1	Ease of use and understanding	35	70%
2	Interface appearance and structure	41	82%
3	System functionality	43	86%
4	Information clarity	38	76%
5	Navigation convenience	46	92%
Total		203	
Average			81.2%

Based on the five-point Likert scale, the overall score was calculated as follows:

Percentage = (Total Score / Maximum Score) × 100

= (406 / 500) × 100

= 81.2%

The overall result of 81.2% indicates that the system falls into the Very Good category. This result shows that the developed system was well accepted by users in terms of usability, interface design, functionality, information clarity, and navigation.

CONCLUSION

Based on the design, implementation, and testing results, the Web-Based Digital Information System at Kopi Pedalaman was successfully developed using the Waterfall development method and Unified Modeling Language (UML). The system integrates menu management, ordering, reservations, user management, order verification, and transaction reporting into a structured and digitalized system to support more efficient and effective business operations.

The Black Box Testing and User Acceptance Testing (UAT) results showed that the implemented features operated according to the defined requirements without significant functional errors. User evaluation using a five-point Likert scale resulted in an overall score of 81.2%, categorized as Very Good. Therefore, the developed system is considered feasible and well accepted by users and can support the operational activities of Kopi Pedalaman in a more effective, efficient, and integrated manner.

REFERENCE

- A. L. Dalimunth, "Universitas Labuhanbatu," 2022.
- A. R. Azizah, R. A. Putra, and M. Mahendra, "Digitalisasi marketing UMKM melalui penggunaan media sosial," *Journal of Brilliant Society*, vol. 3, no. 1, 2025.
- A. Wahid, "Analisis metode Waterfall untuk pengembangan sistem informasi," *Jurnal Ilmu-Ilmu Informatika dan Manajemen STMIK*, 2020.
- B. Fachri, "311-Article Text-1160-1-10-20230215 (1)," 2021.
- B. Ilham, A. Magister, P. Sumber, and D. Manusia, "Sistem informasi manajemen (SIM) sebagai sarana pencapaian e-government," vol. 14, 2022.
- C. Tania, R. Hurdawaty, P. S. Jakarta, J. Kemiri, N. 22 Pondok, C. Pamulang, and T. Selatan, "Perilaku konsumsi kopi sebagai budaya masyarakat di kedai kopi Starbucks Mal Artha Gading," *JPP (Jurnal Pendidikan dan Perhotelan)*, 2022.
- G. A. Pratama, "Perancangan sistem informasi Cafe CW Coffee berbasis web," vol. 12, no. 1, 2024.

- G. A. Tondang, M. Lathief, I. Nasution, and B. Dharma, "Pengaruh suasana cafe, harga, variasi menu terhadap minat kunjungan konsumen (studi kasus: Dbest Cafe Tuamang)," *Jurnal Rumpun Ekonomi Syariah*, vol. 6, no. 1, 2023.
- I. Yulia and R. Susanto, "Pengaruh digitalisasi UMKM terhadap peningkatan branding café lokal," *Jurnal Ekonomi Digital dan UMKM*, vol. 5, no. 1, pp. 45–57, 2023.
- L. Widiastuti and A. D. Handayani, "Sistem informasi pemesanan makanan dan minuman pada Cafe Ozora berbasis web," *Jurnal IntekSis*, vol. 12, no. 2, 2024.
- M. A. Taufan, D. S. Rusdianto, and M. T. Ananta, "Pengembangan sistem otomatisasi Use Case Diagram berdasarkan skenario sistem menggunakan metode POS Tagger Stanford NLP," vol. 6, no. 8, 2022.
- M. Mais, I. W. J. Ogi, M. C. Raintung, and J. Manajemen Fakultas Ekonomi dan Bisnis, "The influence of lifestyle, café atmosphere, and customer experience on revisit intention among young people at De'Kersen Café Manado," vol. 12, no. 1, pp. 37–49, 2024.
- M. P. Sirappa, R. Heryanto, and Y. R. Silitonga, "Standarisasi pengolahan biji kopi berkualitas," 2024.
- N. R. Sari, D. Andriani, and M. Aryanto, "Implementasi sistem informasi penjualan berbasis web pada Crumbz Café," *Jurnal Manajemen dan Informatika UMMAT*, vol. 6, no. 1, 2024.
- N. Syarif, A. Amar, N. Pambudiyatno, and W. Utomo, "Rancang sistem presensi dan rekapitulasi jurnal kegiatan OTJ menggunakan Visual Studio Code berbasis web di Airnav Cabang Matsc," in *Prosiding Seminar Nasional Inovasi Teknologi Penerbangan (SNITP)*, 2023.
- R. Fauzi, H. N. Nasution, F. Hastini, A. Zainy, and Y. R. Lumban Tobing, "Penggunaan media Adobe Flash terhadap hasil belajar siswa SMKN 1 Tantom Angkola," *Jurnal Education and Development*, vol. 11, no. 1, 2022.
- R. Hafsari, E. Aribé, and N. Maulana, "Perancangan sistem informasi manajemen inventori dan penjualan pada perusahaan PT. Inhutan V Peramcan," vol. 10, no. 2, 2023.
- R. Kivania, A. Novianti, and R. Firmansyah, "Analisis implementasi peranan sistem reservasi pada bisnis di sektor industri," *Sosial dan Humaniora*, vol. 1, no. 1, 2023.
- S. E. Prasetyo, A. H. Purnomo, and R. Hardiansyah, "Implementasi website company profile dan menu digital pada UMKM Simalis Cafe," *Jurnal Intekom*, vol. 17, no. 2, 2025.
- T. Arianti, A. Fa'izi, S. Adam, M. Wulandari, and P. Aisyiyah Pontianak, "Perancangan sistem informasi perpustakaan menggunakan diagram UML (Unified Modelling Language)," vol. 1, no. 1, 2022.
- U. Pancasakti Makassar and Anirwan, "Pelayanan publik era digital: Studi literatur digital era public services: Literature review," vol. 4, no. 1, pp. 23–31, 2023.