

Implementation of Automatic Mobile Application for Ordering Flower Arrangements and Partner History using Android-Based Human-Centered Design (Case Study: Rensya Florist Cinta)

Annisa Widya Sudarto^{1*}, Yono Cahyono²

^{1,2} Teknik Informatika, Universitas Pamulang
annisarensya24@gmail.com^{1*}, dosen00843@unpam.ac.id²

Abstract

Toko Cinta Rensya Florist is a service provider specializing in flower arrangements that aims to improve service efficiency, as it currently does not rely on a formal system. Orders are still placed through phone calls and WhatsApp, transaction records still rely on downloaded bank statements, and partner history has not been recorded, making it time-consuming to retrieve partner information for future orders. This research aims to design a more organized Android-based system for order processing, transaction recording, and partner history management by applying the Human-Centered Design (HCD) approach, which consists of four stages: understanding the user context, specifying user requirements, producing a design solution (mockup), and evaluating the design. Testing was conducted through a System Usability Scale (SUS) survey administered to the business owner, staff, and prospective users. The test results show an average score of 73 with a grade scale of “B” in the “Good” category, indicating that the application is acceptable and can be used effectively by users. It is concluded that applying the HCD method produces a flower-arrangement ordering system that is effective, efficient, and well suited to the needs of Toko Cinta Rensya Florist users.

Keywords: Flower Arrangement Ordering; Partner History; Human-Centered Design; Mobile Application; Android System

1. Introduction

Technological advancement provides substantial benefits for business operators in carrying out and recording their work without consuming more time than necessary. One type of business that requires technological support for managing its information is the florist business. Toko Cinta Rensya Florist, located in Rawa Belong, West Jakarta, is a flower-arrangement service provider that still relies on phone calls and WhatsApp chats to receive orders, depends on bank statement mutations to record transactions, and has no recorded history of its external partners. This condition causes the order-fulfillment process to become less effective due to human error, which, although infrequent, consumes considerable time and effort.

Based on these problems, this research proposes an automated, Android-based ordering system that can be accessed flexibly, shortens ordering time, facilitates the recapitulation of monthly financial reports without the need to download bank statements, and records a summary of partner history and profiles (location, contact, capital cost, and performance) to make future information retrieval easier.

Several prior studies indicate that the digitalization of Android-based florist services can improve sales and marketing effectiveness [1], accelerate communication between sellers and customers [2], and increase transaction speed to under three minutes [3]. Other research has also shown that digitalizing a bouquet business through a mobile application can measurably improve service effectiveness, as quantitatively demonstrated through user satisfaction testing [4]. Meanwhile, the application of the Human-Centered Design method to a wedding-vendor booking application has proven to deliver a high level of effectiveness from both the vendor and the user side [5], which is one of the considerations underlying the use of a similar method in this research.

The method chosen for designing this system is Human-Centered Design (HCD) because it focuses on the context and the primary needs of the user. This method consists of four stages according to the international standard ISO 9241-210 [6]: understanding and specifying the context of use, specifying user requirements, producing a design solution, and evaluating the design. A similar approach has also been used in designing the user interface of a sales and store-management information system to optimize operational needs and user comfort [7]. This approach was chosen because it can produce an interface that is easy and comfortable to use for staff and admins who do not yet have in-depth technical skills.

The objective of this research is to build an Android-based flower-arrangement ordering system for Toko Cinta Rensya Florist using the Human-Centered Design method so that it can meet user needs, improve operational efficiency, and simplify transaction recording and partner history management, based on direct testing with the system's users.

2. Research Method

This research uses the Human-Centered Design (HCD) method, which consists of four main stages as illustrated in Figure 1.

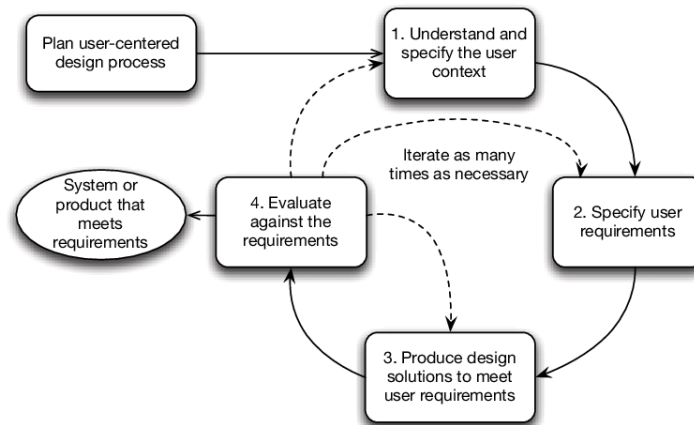


Fig.1: Stages of Human-Centered Design

2.1. Specifying the Context of Use

This stage was carried out through observation and interviews with prospective users to determine who would use the system, including the store owner, florist staff, admin, and customers.

2.2. Specifying User and Organization Requirements

At this stage, a more in-depth exploration of user requirements was carried out so that the objectives of the designed system could be achieved, covering the requirements for ordering features, transaction recording, and partner-history management.

2.3. Producing the Design Solution

Design was carried out using mockups based on the results of the user-requirement identification, which were then tested with prospective users based on the previous observation and interview results. The system design was also supported by an Entity Relationship Diagram (ERD) for the MySQL database structure, as well as Unified Modelling Language (UML) diagrams consisting of use case diagrams, activity diagrams, sequence diagrams, and class diagrams to describe the business-process flow of the ordering, transaction-recording, and partner-history management system.

2.4. Evaluating the Design

The evaluation stage was carried out to ensure that the mockup design from the previous stage had met user requirements through functional testing using the black box testing method, as well as usability testing using a System Usability Scale (SUS) questionnaire administered to ten respondents consisting of the store owner, staff, and prospective users.

2.5. System Implementation

The system was implemented using the Kotlin programming language for the Android-based application, PHP as a RESTful API backend layer connecting the Android application to the server, and MySQL as the database management system. Development was carried out using Android Studio and Visual Studio Code, with API testing performed using Postman.

3. Results and Discussion

3.1. Analysis of the Existing and Proposed Systems

The system currently running at Toko Cinta Rensya Florist is still manual: orders are placed through WhatsApp or phone calls, transaction records rely on printed bank statements, and the history of cooperation with out-of-town partners has not been documented. The proposed system is designed so that the ordering process becomes more structured and automated, transactions are recorded systematically to support report generation, and partner history can be stored and easily retrieved by the seller.

3.2. Database Design

The database design is illustrated through an Entity Relationship Diagram (ERD), as conceptually defined by Idhom [8]. The system comprises the main entities users, pesanan (orders), transaksi (transactions), detail_transaksi (transaction details), products, categories, payment_method, message, mitra (partners), histori_mitra (partner history), wilayah_ongkir (shipping zones), and ulasan (reviews). The customer entity has the attribute `id_pelanggan` as the primary key, along with `nama_pelanggan`, `nomor_hp`, and `alamat`, which are related to the order and partner entities to form an integrated data structure.

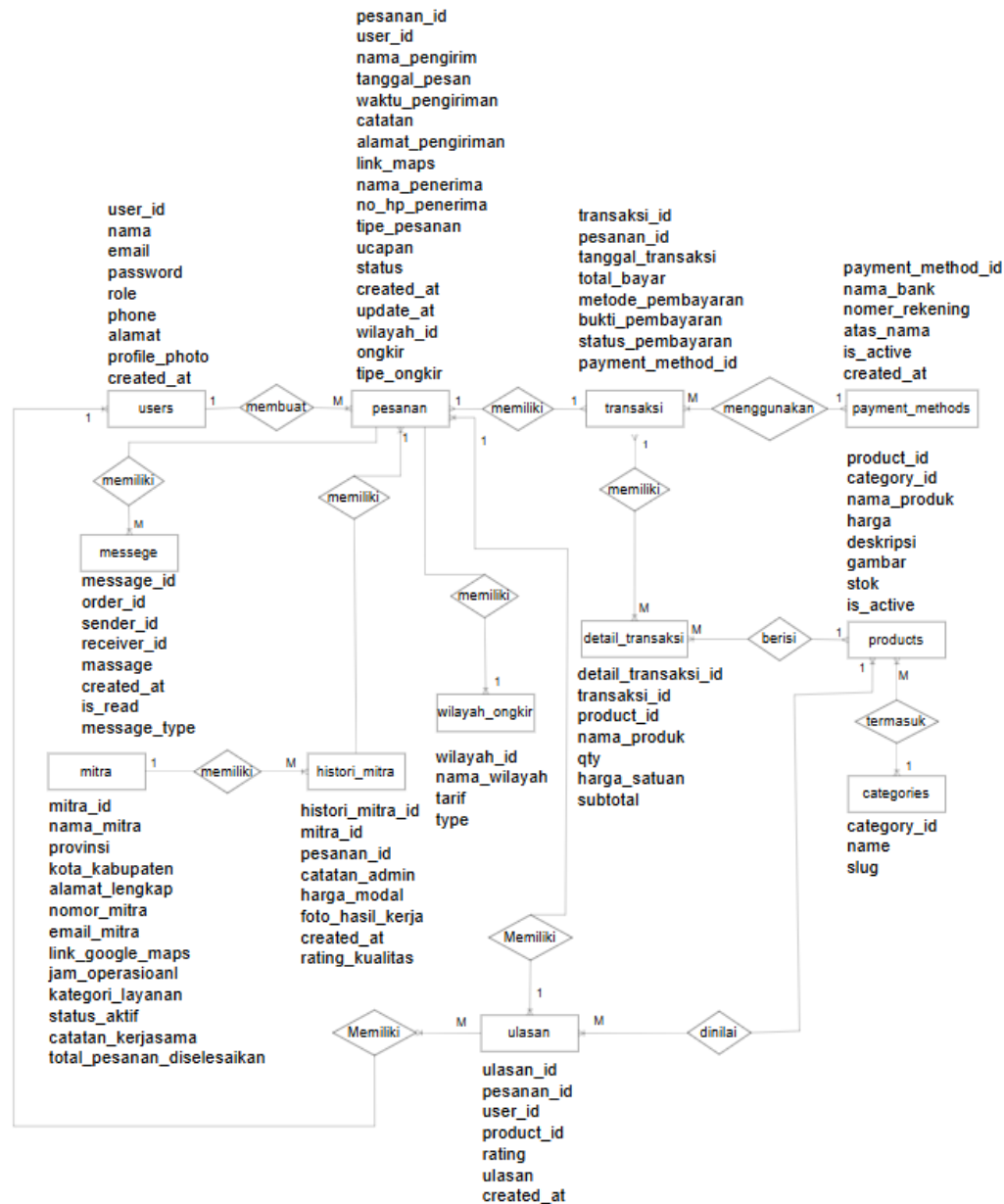


Fig. 2: Entity Relationship Diagram (ERD) of the System

3.3. UML Design

The system design is illustrated through Unified Modelling Language (UML) [9], [10] consisting of use case diagrams for customers, admins, and florist staff; activity diagrams and sequence diagrams for the login and registration processes; and a class diagram describing the class structure, attributes, and methods of the application. The system's backend implementation uses PHP connected to a MySQL database [11]. The login process for each actor begins with entering an email and password; if the data is invalid, the system displays an error message, and if valid, the system directs the user to the main page according to their respective role.

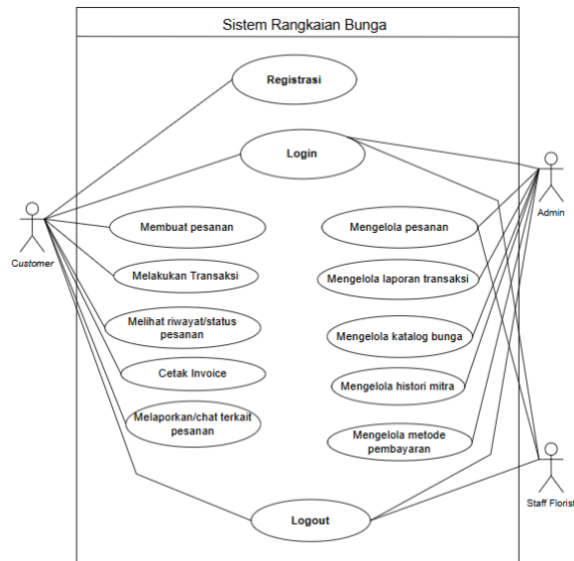


Fig. 3: Use Case Diagram of the Flower Arrangement System

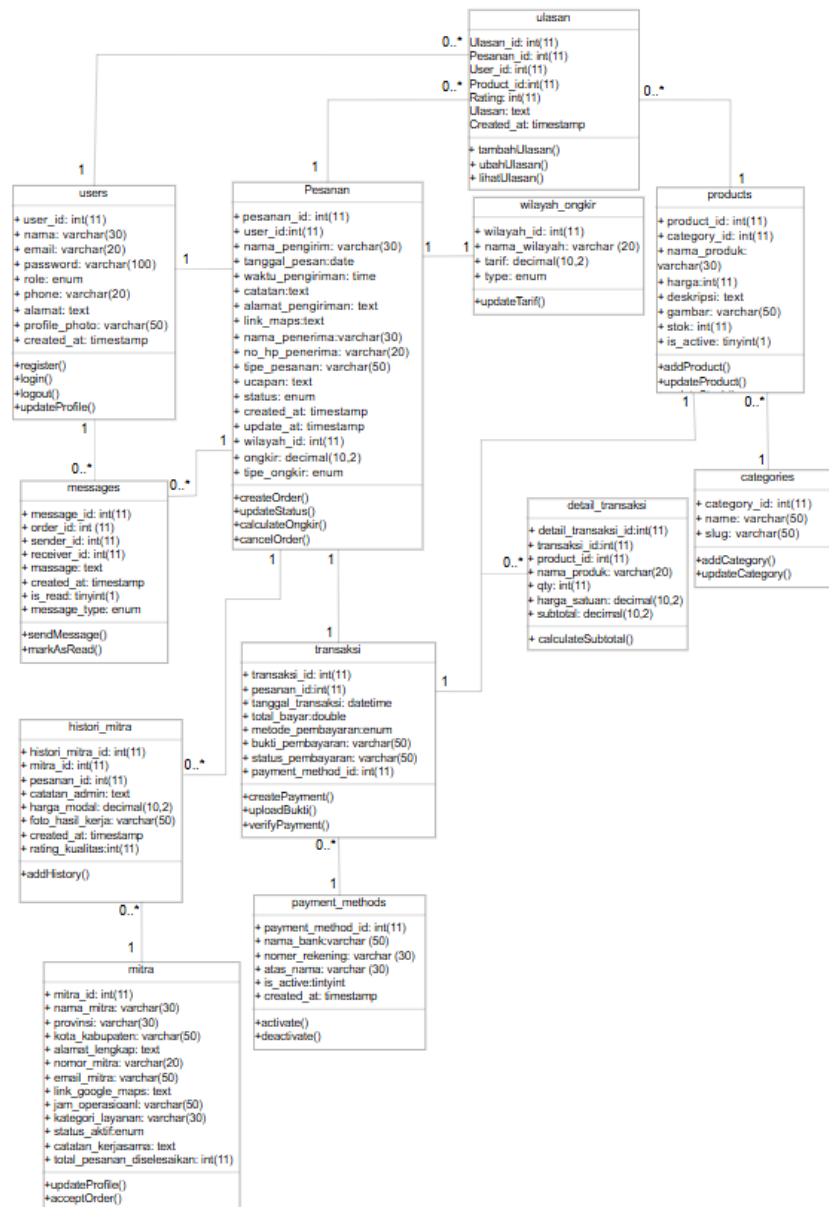


Fig. 4: Class Diagram of the System

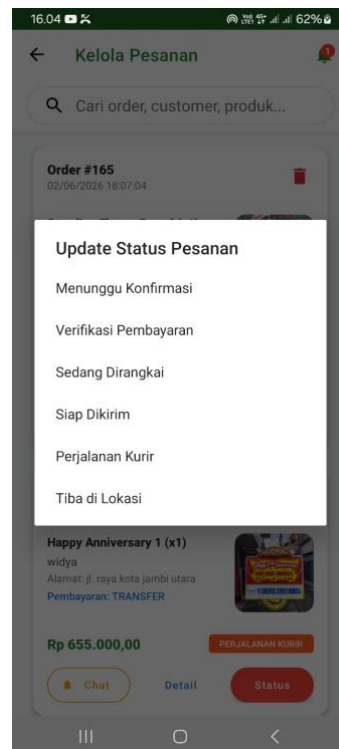
3.4. Interface Implementation

The interface implementation covers the customer registration and login pages, the product catalog and ordering pages, the order- and transaction-management pages for the admin, and the partner-history management page, which stores partner name, province, city/regency, address, WhatsApp number, Google Maps link, operating hours, service category, capital cost, and partner quality rating. This feature makes it easier for the admin to retrieve partner data in the future and supports decision-making for future orders.



The screenshot shows a mobile application interface for creating a new account. At the top, the status bar displays the time 17:46 and a 34% battery level. The title 'Buat Akun Baru' is centered. Below it are five input fields: 'Nama Lengkap' (Full Name), 'Email', 'Password' (with an eye icon for visibility), 'Nomor HP' (Phone Number), and 'Alamat Lengkap' (Full Address). A green button labeled 'DAFTAR SEKARANG' (Register Now) is positioned below the fields. At the bottom, a link reads 'Sudah punya akun? Login di sini' (Already have an account? Login here).

Fig. 5: Customer Registration Interface



The screenshot displays the 'Kelola Pesanan' (Manage Orders) section of an admin dashboard. The top bar shows the time 16:04 and a 62% battery level. A search bar is present with the placeholder text 'Cari order, customer, produk...'. Below the search bar, an order card for 'Order #165' is shown, dated '02/09/2025 18:07:04'. A modal window titled 'Update Status Pesanan' (Update Order Status) is open, listing seven status options: 'Menunggu Konfirmasi', 'Verifikasi Pembayaran', 'Sedang Dirangkai', 'Siap Dikirim', 'Perjalanan Kurir', and 'Tiba di Lokasi'. The background card also includes a 'Happy Anniversary 1 (x1)' note, the name 'widya', the address 'Alamat: jl. raya kota jambi utara', the payment method 'Pembayaran: TRANSFER', the amount 'Rp 655.000,00', and buttons for 'Chat', 'Detail', and 'Status'.

Fig. 6: Admin Order Management Interface

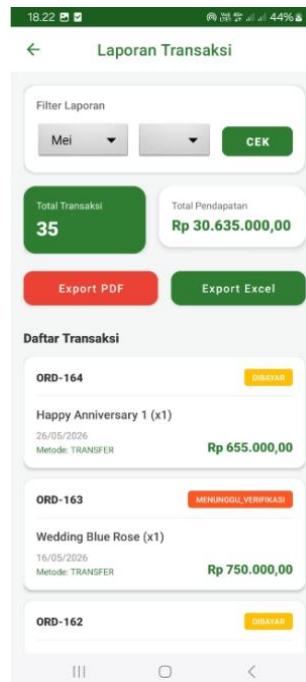


Fig 7: Admin Transaction Report Management Interface

3.4.1. System Testing

Software testing encompasses multiple techniques [12]. In this research, functional testing was specifically carried out using the Black Box Testing method [13], [14] on the registration, login, and order-management modules for customers, admins, and florist staff, with all test scenarios showing valid results. Usability testing was carried out using a System Usability Scale (SUS) questionnaire [15] consisting of 10 questions (Figure 8) administered to 10 respondents. The processed SUS score results are shown in Table 1.

No.	Pertanyaan
1.	Saya berpikir akan menggunakan sistem ini lagi.
2.	Saya merasa sistem ini rumit untuk digunakan.
3.	Saya merasa sistem ini mudah untuk digunakan.
4.	Saya membutuhkan bantuan dari orang lain atau teknisi dalam menggunakan sistem ini.
5.	Saya merasa fitur-fitur sistem ini berjalan dengan semestinya.
6.	Saya merasa ada banyak hal yang tidak konsisten (tidak serasi) pada sistem ini.
7.	Saya merasa orang lain akan memahami cara menggunakan sistem ini dengan cepat.
8.	Saya merasa sistem ini membingungkan.
9.	Saya merasa tidak ada hambatan dalam menggunakan sistem ini.
10.	Saya perlu membiasakan diri terlebih dahulu sebelum menggunakan sistem ini.

Fig. 8: System Usability Scale (SUS) Questionnaire Items

Table 1: Recapitulation of System Usability Scale (SUS) Scores

Responden	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Skor SUS
R1	4	4	4	4	4	4	4	4	4	4	40
R2	5	1	5	2	5	1	5	1	5	2	95
R3	4	3	3	3	4	3	4	3	4	4	57,5
R4	5	2	5	3	4	1	4	1	4	3	80
R5	5	1	5	1	5	1	5	1	5	5	90
R6	4	2	5	3	4	3	4	2	4	4	67,5
R7	5	1	5	2	5	1	5	1	5	2	95
R8	5	1	5	1	5	1	5	1	5	1	100
R9	3	3	4	3	4	2	3	2	3	3	60
R10	4	5	4	4	3	3	4	4	4	5	45
Nilai rata-rata											73

The average SUS score of 73 falls within the “Good” range with a grade scale of “B” according to the SUS acceptability ranges [15], indicating that the application is acceptable and can be used effectively by users. Respondent feedback was also used for iterative

improvement during the design-evaluation stage, including adding a product rating and review feature, adding a direct order button on the catalog detail page, and adding a zoom-in feature for product images so that details can be seen more clearly by both customers and admins.

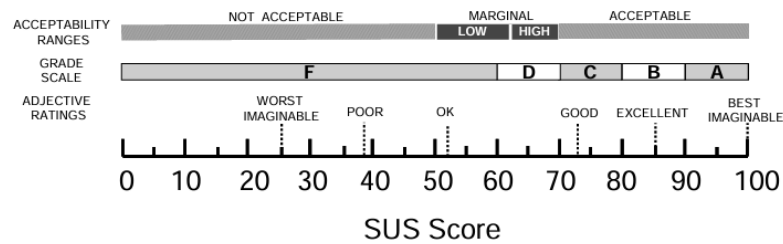


Fig. 9: SUS Score Grade Scale

4. Conclusion

Based on the design and testing results, it can be concluded that the mobile application for flower-arrangement ordering and partner history at Toko Cinta Rensya Florist is able to automatically record order data with a minimal risk of data error, as has been tested during the design-evaluation stage using the Human-Centered Design method with positive results. The system is also able to manage monthly transactions with a filter feature according to user needs, producing valid financial reports without having to download bank statements, and is able to automatically store a list of partner history along with their performance, making it easier for the store owner to retrieve partner data more efficiently and in a more structured manner. The System Usability Scale (SUS) testing results obtained an average score of 73 with a grade scale of “B”, which falls within the “Good” category, so the application is considered suitable for use by users.

Future research is recommended to improve application security through OTP code notifications via WhatsApp or SMS, to integrate the system with digital payment methods connected directly to a bank, and to integrate partner history with partner applications so that the ordering process in the future becomes more structured and efficient.

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References

- [1] Dendi Apriansya, Yuntari Purbasari, and Nurmayanti, “Rancang Bangun Aplikasi Penjualan Buket Pada Toko Ce Florist Di Kabupaten Pali Berbasis Android,” *Jl. Patra No. 50 Sukaraja Kota Prabumulih, Telp.*, vol. 17, no. 1, p. 322418, 2024, doi: 10.51903/elkom.v17i1.14099.
- [2] I. Mukhilisin, “PERANCANGAN APLIKASI PENJUALAN PAPAN BUNGA BERBASIS ANDROID PADA KEMBAR FLORIST KOTA JAMBI (Doctoral dissertation, UNAMA),” 2022.
- [3] M. Al, M. Ramadano, and R. M. N. Halim, “TRANSFORMASI DIGITAL DI CV. DANU FLORIST BERBASIS ANDROID MENGGUNAKAN MODEL V-SHAPE,” 2025.
- [4] Z. Meilany, E. Rohman, N. Sofiana, and R. Ripai, “Transformasi Digital Bisnis Buket melalui Sistem Penjualan Online Berbasis Aplikasi Mobile,” *Blend Sains Jurnal Teknik*, vol. 4, no. 1, pp. 105–115, Jul. 2025, doi: 10.56211/blendsains.v4i1.986.
- [5] N. Hilmy, R. S. Sianturi, and A. P. Kharisma, “Perancangan Pengalaman Pengguna Aplikasi Pemesanan Vendor Acara Pernikahan berbasis Mobile menggunakan Metode Human Centered Design,” 2022. [Online]. Available: <http://j-ptiik.ub.ac.id>
- [6] ISO 9241-210, “ISO 9241-210:2019 Ergonomics of Human-System Interaction—Part 210: Human-Centred Design for Interactive Systems,” Geneva, Switzerland, 2019.
- [7] W. Aprilan, P. Putra, W. Sukmo Wardhono, and M. C. Saputra, “PERANCANGAN ANTARMUKA PENGGUNA SISTEM INFORMASI PENJUALAN DAN PENGELOLAAN TOKO ‘OEMAH NGEBUG’ MENGGUNAKAN PENDEKATAN HUMAN CENTERED DESIGN (HCD),” 2025. [Online]. Available: <http://j-ptiik.ub.ac.id>
- [8] M. Idhom, *Basis Data*. Thalibul Ilmi Publishing & Education, 2024.
- [9] S. W. Ramdany, S. Aulia Kaidar, B. Aguchino, C. Amelia, A. Putri, and R. Anggie, “Penerapan UML Class Diagram dalam Perancangan Sistem Informasi Perpustakaan Berbasis Web,” 2024.
- [10] Siska Narulita, Ahmad Nugroho, and M. Zakki Abdillah, “Diagram Unified Modelling Language (UML) untuk Perancangan Sistem Informasi Manajemen Penelitian dan Pengabdian Masyarakat (SIMLITABMAS),” *Bridge : Jurnal publikasi Sistem Informasi dan Telekomunikasi*, vol. 2, no. 3, pp. 244–256, Aug. 2024, doi: 10.62951/bridge.v2i3.174.
- [11] R. A. Aziz, A. Sansprayada, and K. Mariskhana, “Perancangan Sistem Administrasi Penjualan pada PT SurMoRin dengan Menggunakan PHP dan MYSQL,” *Jurnal Minfo Polgan*, vol. 13, no. 2, pp. 1641–1650, Oct. 2024, doi: 10.33395/jmp.v13i2.14148.
- [12] I. R. Dhaifullah, M. Muttanifudin, A. A. Salsabila, and M. A. Yakin, “Survei Teknik Pengujian Software,” 2022.
- [13] M. Mintarsih, “Pengujian Black Box Dengan Teknik Transition Pada Sistem Informasi Perpustakaan Berbasis Web Dengan Metode Waterfall Pada SMC Foundation,” *Jurnal Teknologi Dan Sistem Informasi Bisnis*, vol. 5, no. 1, pp. 33–35, Feb. 2023, doi: 10.47233/jteksis.v5i1.727.
- [14] M. Jibril and M. Amin, “PENGUJIAN SISTEM INFORMASI E-MODUL PADA SMPN 1 TEMPULING MENGGUNAKAN BLACK BOX TESTING 1,” 2024.
- [15] A. Bangor, P. Kortum, and J. Miller, “Determining What Individual SUS Scores Mean: Adding an Adjective Rating Scale,” 2009.