



Development and Implementation of Mobile Applications Standing Instructions (SI) Services for Customers with the DevOps Method

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Abstract: The provision of financial services adhering to banking principles as mandated by Indonesian law is central to the operations of PT BPR Aruna Nirmaladuta. To enhance customer convenience, the institution offers pick-up services and standing instructions for fund transfers via WhatsApp. However, challenges such as data security vulnerabilities, potential fraud by marketing staff, and transaction processing delays have been identified. Addressing these concerns necessitates the development of a mobile-based standing instruction (SI) application. This application aims to enhance data security through OTP codes, minimize fraud risks, and streamline transaction processes. The system design employs Unified Modeling Language (UML) within a DevOps methodology. System testing utilized black box techniques, resulting in all functional requirements being successfully met. The application was verified to handle input validation, transaction processing, and error management effectively, ensuring that all processes functioned as intended without critical failures. Consequently, this system is anticipated to facilitate transaction processes for PT BPR Aruna Nirmaladuta, ensuring improved security and ease for customers.

Keywords: Standing Instruction, Mobile Application, DevOps Method.

Introduction

Challenges in data security, fraud risks, and transaction inefficiencies have become prominent issues in the current standing instruction (SI) system implemented by PT BPR Aruna Nirmaladuta (BPR Aruna). Utilizing WhatsApp for transaction instructions exposes the system to potential misuse of customer information and fraudulent activities, such as marketing staff forging customer signatures, resulting in discrepancies in deposit records [1]–[6]. Additionally, the manual process of handling high transaction volumes often leads to delays, duplicate transactions, and increased customer complaints.

Standing Instruction (SI) is a payment mechanism where customers authorize the bank to transfer a specified amount of funds at a predetermined time from their deposit account to the recipient's account. However, due to regulatory constraints from the Financial Services Authority (OJK) under Regulation No. 12/POJK.03/2016, BPR Aruna cannot offer online transaction services, including e-banking, as it falls under the BPRKU 2 category with a core capital of IDR 22 billion. Consequently, fund transfer services are facilitated through WhatsApp, where customers submit transfer instructions.

The existing process requires customers to register their transfer instructions by filling out a form and listing up to three destination accounts. Transactions are initiated via WhatsApp messages, including customer details, source and destination account

numbers, and the transfer amount. A reviewer staff member verifies the data's accuracy before an approval staff processes the transaction [7]–[10]. The transfer receipt is then sent to the customer through WhatsApp.

Given these operational challenges, there is an urgent need to develop a dedicated mobile-based SI application. This solution aims to enhance data security by integrating OTP verification, reduce the potential for fraud, streamline transaction processing, and prevent duplicate transactions. The application is expected to facilitate easier verification and processing for staff, while ensuring secure and efficient service for customers.

The research's objective is to design and implement a reliable SI application that addresses current system weaknesses. The solution is expected to contribute to operational efficiency, data security, and customer satisfaction. Additionally, the research contributes to the broader discourse on enhancing financial service processes in institutions with limited online service capabilities.

By leveraging this innovative approach, BPR Aruna can improve its service offerings, mitigate security risks, and enhance transaction accuracy, ultimately benefiting both the institution and its customers.

Methods

This research adopts the DevOps approach as the system development methodology [11]–[15] for designing and implementing a mobile-based standing instruction application.

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DevOps integrates development and operational processes to accelerate the development cycle, enhance team collaboration, and ensure that the designed system can be deployed swiftly and efficiently.

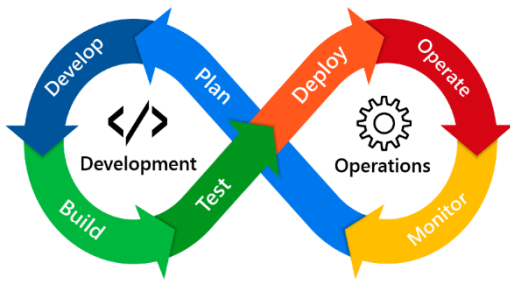


Figure 1. DevOps Method Flow

During the initial phase, data collection was conducted through interviews and observations to gather essential information required for system development. Interviews aimed to obtain accurate data regarding the existing system workflow and the common challenges faced by staff members who interact directly with the system. Meanwhile, observations were carried out by directly monitoring the ongoing fund transfer processes. The observations revealed that BPR Aruna has utilized technology for fund transfer instructions by using WhatsApp as the communication medium between customers and the bank.

The design phase involves creating system plans that outline the processes to be implemented. The design of the standing instruction application employs Unified Modeling Language (UML) tools, including Use Case Diagrams, Activity Diagrams, Sequence Diagrams, and Class Diagrams, to provide a comprehensive representation of the system's structure and processes.

Usecase Diagram

The use case diagram describes an interaction between one or more actors and the information system to be created. There are 4 actors who interact directly with the system, namely Admin, Customer, Reviewer, and Approval.

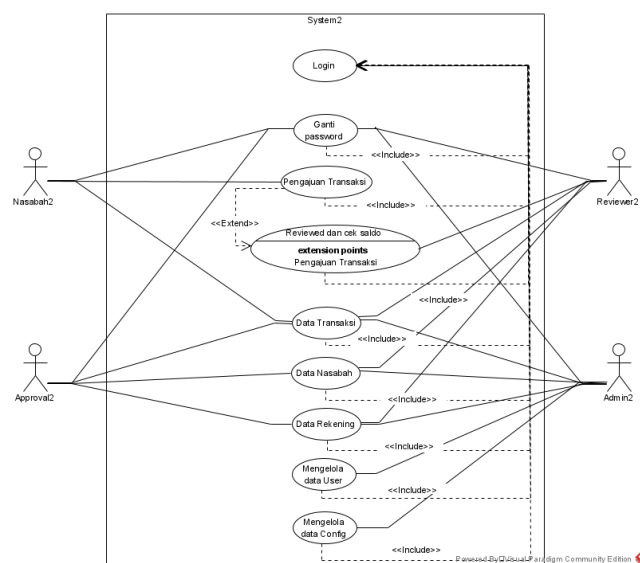


Figure 1. Usecase Diagram

Results and Discussion

A. System Implementation

This system has two types: web-based, which is used by BPR Aruna staff, and mobile-based, which is used by customers. In the web-based type, there are three types of users, including the admin who manages master data such as user data, customer data, account data, transaction data, and config data. The reviewer staff manages incoming transactions by verifying transaction data. The approval staff manages the transaction process by transferring funds via internet banking from BPR Aruna.

Customer Page

The Customer Page is a display of the customer page where the customer will be provided with the ability to make transfer orders, transaction data history, notification data, and account data.

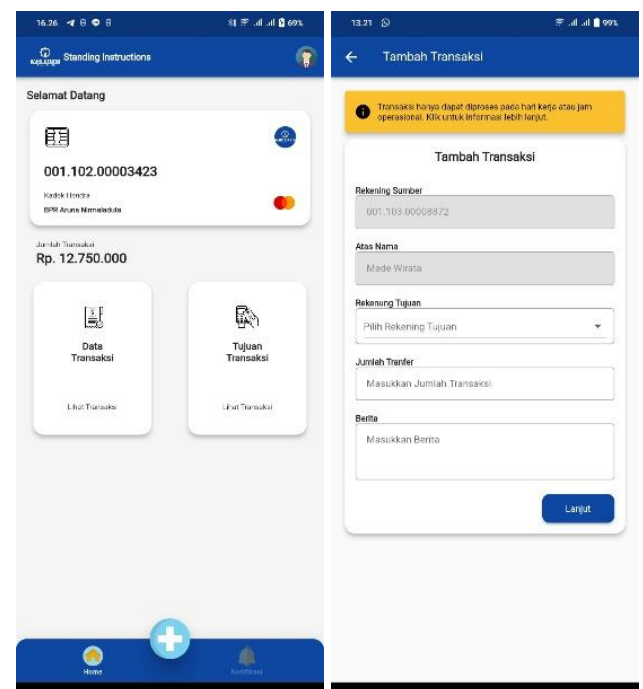


Figure 3. Customer Page

When the customer is about to make a fund transfer order, they will click the "Add" button which will take them to the fund transfer form page. On this page, the customer will enter the destination account, the transfer amount, and the transfer message. After that, the customer will receive an OTP code to verify the transfer order.

Approval Page

The Approval Page is a page where approval processes transfer orders from customers by making transactions via BPR Aruna internet banking. In the SI system, the process of changing data and uploading proof of transaction and transaction status changes will be carried out so that customers can find out about successful transactions.

Data Transaksi

No	Waktu	Nama nasabah	No KTP	No Rekening	Nama Bank	Atas Nama	Jumlah	Status	Aksi
1	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
2	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
3	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
4	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
5	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
6	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
7	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
8	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail
9	2022-09-09 10:00:00	Kadhi Henda	10040101000001	10010001	BCA	Kadhi Henda	Rp 1.000.000	✓	Detail

Data Rekening

No	Nama nasabah	No KTP	No Rekening	Nama Bank	Atas Nama	Aksi
1	Kadhi Henda	10040101000001	10010001	BNI	Kadhi Henda	Detail
2	Kadhi Henda	10040101000001	10010001	BNI	Kadhi Henda	Detail
3	Kadhi Henda	10040101000001	10010001	BNI	Kadhi Henda	Detail

Figure 4. Approval page

Admin Page

The Admin Page is a page where the admin can manage master data, including adding, changing, activating and deactivating customers and users, and printing transaction reports. The master data that can be managed by the admin includes user data, customer data, account data, transaction data, and settings data.

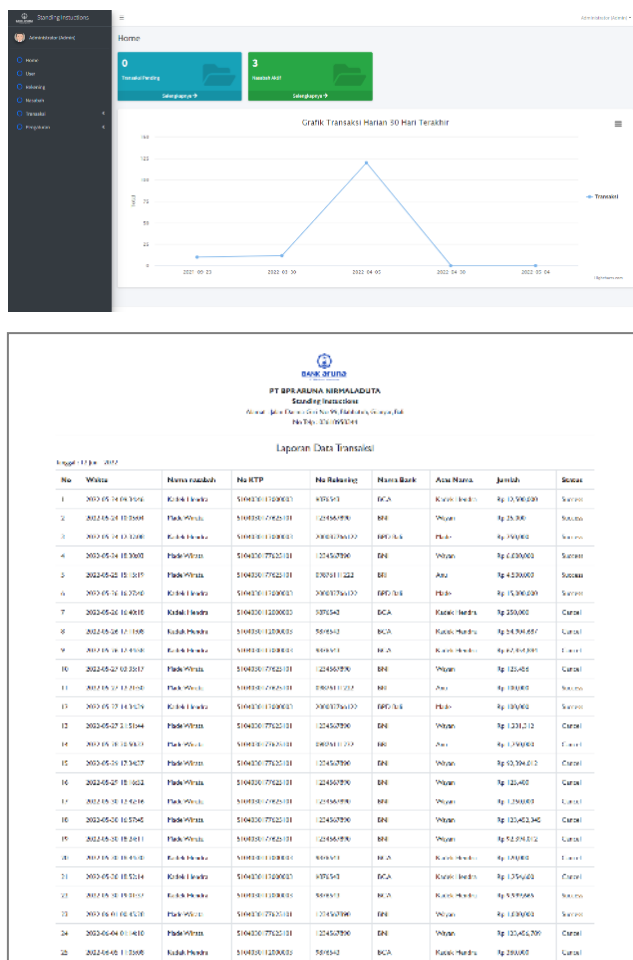


Figure 5. Admin Page

Conclusion and Suggestions

In conclusion, the development of the Mobile-Based Standing Instructions (SI) Application for PT BPR Aruna Nirmaladuta was successfully accomplished through several stages, starting with data collection via observations and interviews with the bank's management to gather essential information. The application enhances customer convenience by enabling secure transaction instructions using OTP verification and supports the bank's operational efficiency in processing these transactions. Furthermore, system testing conducted with the Black Box Testing method confirmed that all system functions operated correctly and in accordance with the intended design.

References

- [1] Rifauzi, R., Susilo, H., & Sutisna, M. A. (2023). Perancangan Aplikasi IT Helpdesk Berbasis Web pada PT Bank X Rawamangun. *Krisnadana Journal*, 2(3), 362-374.
- [2] Rohman, M. A., & Subarkah, P. (2024). Design and Build Chatbot Application for Tourism Object Information in Bengkulu City. *TECHNOVATE: Journal of Information Technology and Strategic Innovation Management*, 1(1), 28-34. doi: 10.52432/technovate.1.1.2024.28-34.
- [3] Fanani, R. D., Wiguna, I. K. A. G., Iskandar, A. P. S., & Parwita, W. G. S. (2024). Innovative UI/UX Analysis of Cooperative Apps through Design Thinking. *Jurnal Galaksi*, 1(1), 33-42.
- [4] Maulidah, S. B. J., Sudipa, I. G. I., Fitryani, Y. P., Widiartha, K. K., & Winatha, K. R. (2024). Determination of MSMEs Business Feasibility Decisions using the Profile Matching Method. *Sinkron: jurnal dan penelitian teknik informatika*, 8(3), 1313-1325. doi: 10.33395/sinkron.v8i3.13638.
- [5] Putri, R. M. A., Parwita, W. G. S., Handika, I. P. S., Sudipa, I. G. I., & Santika, P. P. (2024). Evaluation of accounting information system using usability testing method and system usability scale. *Sinkron: jurnal dan penelitian teknik informatika*, 8(1), 32-43. doi: 10.33395/sinkron.v9i1.13129.
- [6] Putri, N. P. M. E., Sudipa, I. G. I., Wiguna, I. K. A. G., Sarasvananda, I. B. G., & Sunarya, I. W. (2024). Decision Making Model for Temple Revitalization in Bali Using Fuzzy-SMARTER Combination Method. *Sinkron: jurnal dan penelitian teknik informatika*, 8(1), 61-74. doi: 10.33395/sinkron.v9i1.13177.
- [7] Sudipa, I. G. I., Ariantini, M. S., Pomalingo, S., Ridwan, A., Primasari, D., Ariana, A. A. G. B., ... & Yanuarsyah, I. (2023). *Buku Ajar Rekayasa Perangkat Lunak*. PT. Sonpedia Publishing Indonesia.
- [8] Yanti, C. P., Sudipa, I. G. I., & Aditama, P. W. (2023). Design Thinking Testing of AR/VR Application for Bali's Lontar Prasi Preservation. *Jurnal Multidisiplin Madani*, 3(9).
- [9] Sudipa, I. G. I., Harto, B., Sahusilawane, W., Afriyadi, H., Lestari, S., & Handayani, D. (2023). *Teknologi Informasi & SDGs*. PT. Sonpedia Publishing Indonesia.
- [10] Dewantara, R., & Giovanni, J. (2023). Analisis Peramalan Item Penjualan dalam Optimalisasi Stok Menggunakan

- Metode Least Square. *Krisnadana Journal*, 3(1), 59-66. doi: 10.58982/krisnadana.v3i1.504.
- [11] Sudipa, I. G. I., Udayana, I. P. A. E. D., Rizal, A. A., Kharisma, P. I., Indriyani, T., Asana, I. M. D. P., ... & Rachman, A. (2023). *Metode Penelitian Bidang Ilmu Informatika (Teori & Referensi Berbasis Studi Kasus)*. PT. Sonpedia Publishing Indonesia.
- [12] Rachmad, Y. E., Tampubolon, L. P. D., Purbaratri, W., Sudipa, I. G. I., Ariana, A. A. G. B., Faried, M. I., ... & Kurniawan, H. (2023). *Rekayasa Perangkat Lunak*. PT. Sonpedia Publishing Indonesia.
- [13] Fauzi, A. A., Kom, S., Kom, M., Budi Harto, S. E., Mm, P. I. A., Mulyanto, M. E., ... & Rindi Wulandari, S. (2023). *Pemanfaatan Teknologi Informasi di Berbagai Sektor Pada Masa Society 5.0*. PT. Sonpedia Publishing Indonesia.
- [14] Kherismawati, N. P. E., Sudipa, I. G. I., Ayuni, N. P. A., & Wibawa, I. K. R. M. Integration of Customer Relationship Management (CRM) for Optimizing Service Operations in the Automotive Industry. doi: <https://doi.org/10.5281/zenodo.14762842>.
- [15] Gunawan, I. K. A. B., Sudipa, I. G. I., Wardhana, G. W., Radhitya, M. L., & Sandhiyasa, I. M. S. (2024, December). DESIGNING A DIGITAL DUES APPLICATION TO ENHANCE FINANCIAL TRANSPARENCY AND EFFICIENCY AT THE HAMLET LEVEL. In *Proceeding International Conference on Information Technology, Multimedia, Architecture, Design, and E-Business* (Vol. 3, pp. 428-435).