

Development of an Integrated Accounting Information System with Point of Sale (POS) and Online Booking (Study Case: Coworking Space)

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Abstract— ABC Coworking Space Company is a service provider offering event space, meeting rooms, private offices, and coworking spaces for professionals. The company faces financial accounting challenges, particularly in recording sales transactions due to the limitations of the free Point of Sales (POS) system used, and complex, error-prone manual accounting processes. This research aims to develop an Accounting Information System (AIS) integrated with POS and online booking using the Rapid Application Development (RAD) method. The results show that the developed system minimizes inaccuracies in transaction recording, speeds up financial report preparation, and improves operational efficiency and customer satisfaction. The implementation of online booking features also successfully enhances the customer experience. With this new system, the company can manage sales, expenses, and financial reports in one integrated platform, significantly improving financial and operational management. Testing through User Acceptance Testing with the Blackbox method and interviews with front desk, finance staff, and customers indicates that the system meets user needs effectively.

Keywords— accounting information system, coworking space, online booking, point of sales, rapid application development

I. INTRODUCTION

ABC Coworking Space Company (pseudonym) is a provider of coworking space services in Semarang. As a service

company, its operational needs rely on equipment, buildings, and supplies [1]. Purchases of equipment are made not for resale, but to provide services to customers [2]. Nonetheless, the company still requires an accounting system to facilitate transaction recording, improve financial performance, and strengthen management control [1].

Currently, they face challenges in transaction recording and financial accounting processes. The free Point of Sales (POS) system they use has limitations, such as restricted database capacity, resulting in many transactions not being recorded and invoices having to be manually created using Google Docs. In accounting, the semi-computerized process using Google Sheets is also prone to errors and slows down the preparation of financial reports.

The company needs a technological solution in the form of an efficient and accurate information system to support business processes [3]. An information system, which consists of people, processes, data, and technology, is used to collect, process, and disseminate information within the organization [4]. It is generally used to speed up data processing and support decision-making [5]. This research aims to design and develop an Accounting Information System (AIS) that can minimize errors, expedite the preparation of financial reports, and automatically generate more accurate reports[6].

Additionally, the company also needs a system that supports online booking, which

is currently unavailable. Integrating online booking into the POS system will enhance the company's efficiency and responsiveness to customer needs [7]. With an online booking system, customers can make reservations anytime and anywhere, increasing the efficiency and effectiveness of the booking process [8], [9].

A good information system must be well-designed [10]. The Rapid Application Development (RAD) method is chosen for the system development because it focuses on rapid iterations and user feedback throughout the process, ensuring the results meet business needs [11]. Developing an AIS connected to the POS will integrate sales, expenses, and financial reporting systems into a single web-based platform. The ease of use of information technology is a significant factor in technology adoption [12]. This technology is expected to streamline sales processes and accounting management, providing significant benefits to the company for faster and more accurate decision-making.

II. METHOD

This research employs the Rapid Application Development (RAD) method for fast and flexible system development. The stages of the RAD method include requirements analysis to identify key features; detailed system design; development; and implementation with testing before deployment [13].

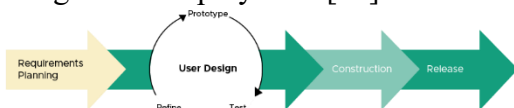


Figure 1. Rapid Application Development

In the implementation stage, User Acceptance testing is carried out using the black box method to verify that the system can function properly.

III. RESULTS AND DISCUSSION

The result is an Accounting Information System (AIS) with an integrated POS and online booking system. This solution addresses financial accounting challenges,

enhances operational efficiency, and improves customer satisfaction.

A. Requirement Analysis

A use case diagram is designed to outline the modules within the system and to separate functions according to user roles. There are four roles: customer, front desk, finance, and finance director, each with their respective authorities and access levels.



Figure 1. Use Case Diagram

B. System Design

The Entity-Relationship Diagram (ERD) for a Coworking Space Management System outlines the key entities and their relationships within the system.

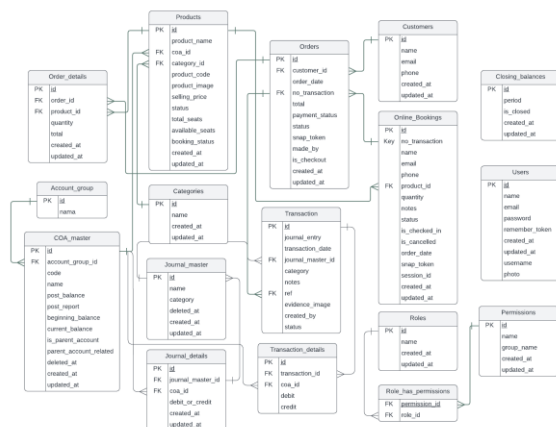


Figure 2. Entity Relationship Diagram

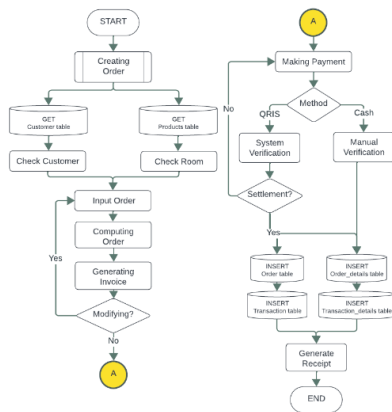


Figure 3. Point of Sales Flowchart

The flowchart outlines the process flow for the POS system. It begins with creating an order, followed by generating an invoice. Then proceeds to making a payment. The process ends with generating a receipt.

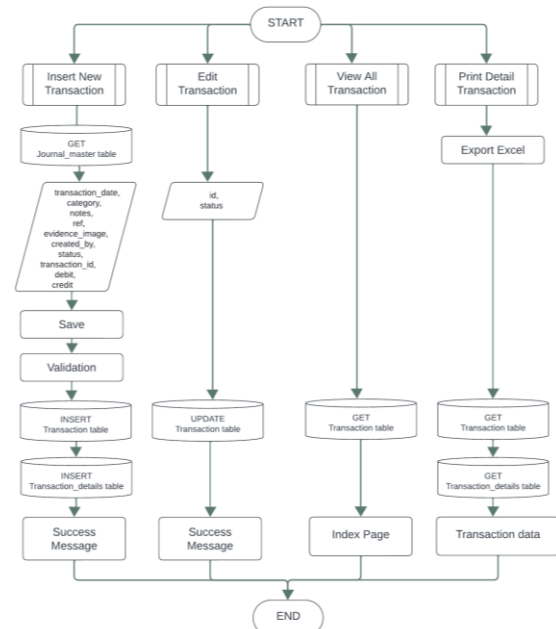


Figure 4. Transaction Flowchart

This flowchart details the process of managing transactions in the POS system. Steps include inserting, editing, and viewing transactions, validating and saving data, and displaying success messages. Options to view detailed reports and export data to Excel are also included.

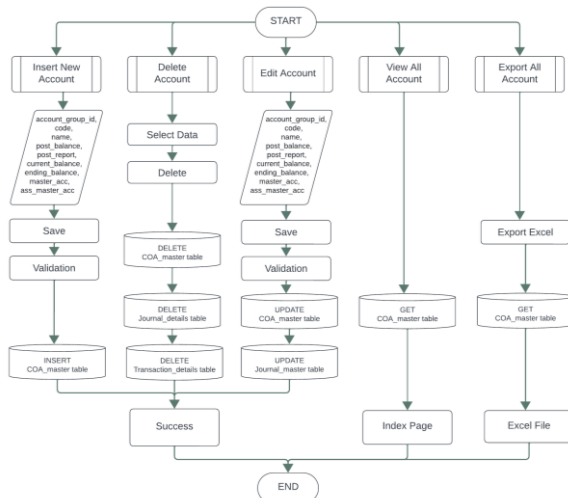


Figure 4. Chart of Accounts Flowchart

The flowchart outlines account management processes: inserting, deleting, editing, viewing, and exporting accounts. Each starts with specific user actions followed by steps.



Figure 5. Report Flowchart

This flowchart shows the process from the selection of a report type to the generation and printing of the report. The flow includes data retrieval from different tables depending on the report type and the eventual printing of the report

in the Chart of Accounts (COA). It includes action options for viewing, editing, and deleting each account entry.

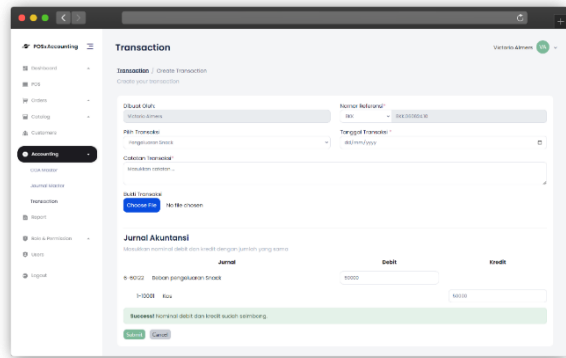


Figure 11. Add Transaction Page

On the transaction addition page, accountants or front desk personnel will enter transactions. They do not need to input journals but can utilize existing templates from the journal templates. Therefore, a front desk employee without accounting knowledge can more easily perform transactions.

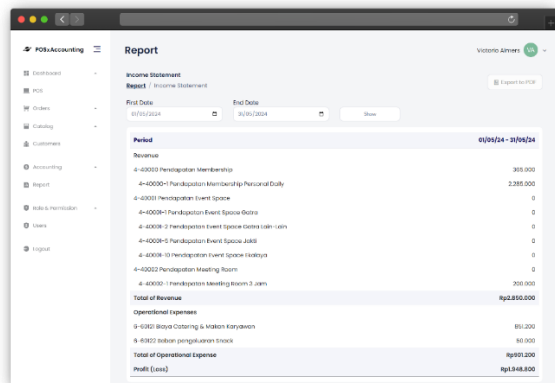


Figure 12. Income Statement Report

Figure 12 illustrates a sample report, specifically the profit and loss statement generated for the selected period. This report can be exported in PDF format.

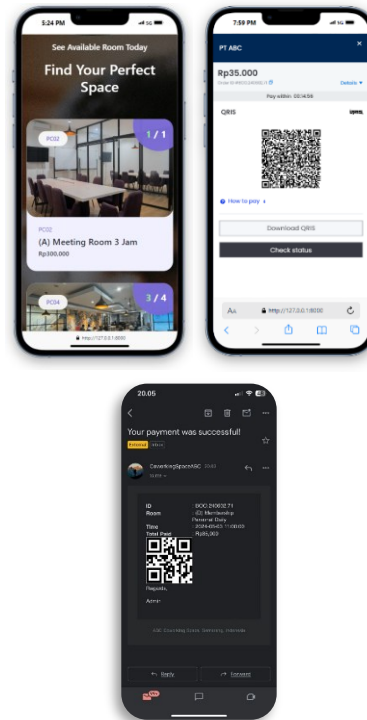


Figure 13. Customer Online Booking

Figure 13 displays the mobile interface for the online booking page, designed to be responsive and user-friendly for customers to make bookings and payments using QRIS. Afterward, they receive an email containing a QR code which they will show to the front desk during check-in.

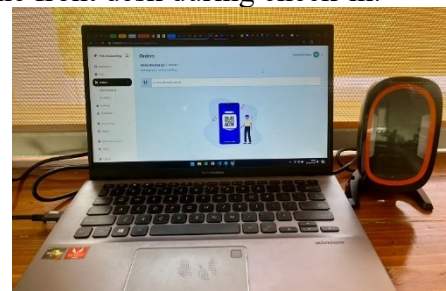


Figure 14. QR Code Scanner

Figure 14 illustrates the process where the front desk scans the customer's QR code to initiate the check-in process. Staff will use a QR Code Scanner device to read the customer's booking data stored within the system.

D. Implementation

The testing process will be conducted using User Acceptance Testing (UAT) with a Black Box approach, where testing is performed without considering the internal details of the system.

Table 1 Black Box Testing Login

Test Case	Result	Status
Incorrect Username/Email and Password	Login failed with a warning message displayed.	Passed
Correct Username/Email and Password	Successful login redirects to the dashboard.	Passed

Table 2 Black Box Testing Dashboard

Test Case	Result	Status
Accounting Analytics	Displays accounting charts and data.	Passed
Sales Analytics	Displays sales charts and data.	Passed

Table 3 Black Box Testing POS

Test Case	Result	Status
Input and edit Cart	Successfully inputs product data (name and quantity) and customer into the cart.	Passed
Invoice Page	Displays order details and prints the invoice	Passed
Cash Payment	Successfully processes payment via cash	Passed
QRIS Payment	Successfully processes payment via QRIS using "Midtrans" payment gateway.	Passed
Customer Email Notification	Customer receives an email with payment details.	Passed
Product Availability	Available seats change automatically.	Passed

Table 4 Black Box Testing Order

Test Case	Result	Status
Display Order Data	Successfully displays daily order data and totals	Passed
Print Receipt	Receipt can be printed and saved as PDF.	Passed

Customer Checkout	Customer status and room availability are updated.	Passed
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Table 5 Black Box Testing Produk

Test Case	Result	Status
CRUD Products	Product data can be added, updated, or deleted.	Passed

Table 6 Black Box Testing Customer

Test Case	Result	Status
CRUD Customers	Customer data can be added, updated, or deleted.	Passed

Table 7 Chart of Account Master Testing

Test Case	Result	Status
COA Data	Displays structured company Chart of Accounts (COA) data.	Passed
CRUD COA	Ability to add, modify, and delete COA entries.	Passed
Current Balance	Current balance updates correctly when closing the balance.	Passed

Table 8 Journal Master Testing

Test Case	Result	Status
Journal Data	Successfully displays company journal template data.	Passed
View Journal Template	Displays the structure of an accounting journal for a transaction	Passed
CRUD Journal	Ability to add, modify, and delete journals.	Passed
Journal Warning	Warning when a journal has problematic Chart of Accounts (COA).	Passed

Table 9 Transaction Testing

Test Case	Result	Status
Sales Transaction Data	Orders via POS and successful bookings are automatically generated as transactions	Passed
Add Manual Transaction	Successfully adds a transaction using a journal template.	Passed
Balance Validation	Displays alert for balanced/unbalanced input of debit and credit.	Passed
Transaction Details	Displays different transaction details between JM (Journal Memorial), JKM (Jurnal Kas Masuk), and JKK (Jurnal Kas Keluar).	Passed
Cancel Expense Transaction	Cancels transactions in memorial journals and expenditures.	Passed

Table 10 Report Testing

Test Case	Result	Status
Select Report	Successfully navigates to respective report menus.	Passed
Generate General Ledger	Displays a well-organized general ledger for each account.	Passed
Generate Profit and Loss	Displays a comprehensive profit and loss statement.	Passed
Generate Balance Sheet	Displays a well-organized and comprehensive balance sheet statement	Passed
Print Report	Reports can be printed or saved as PDF.	Passed

Table 11 Closing Balance Testing

Test Case	Result	Status
Closing Book Validation	Closing the books can only be done once at the end of the month	Passed
Closing Statement Report	Displays the Closing Statement Report	Passed

Test Case	Result	Status
Close Balance	Executes the closing balance process.	Passed

Table 12 Roles & Permissions Testing

Test Case	Result	Status
CRUD Roles and Permissions	Ability to add, modify, and delete roles and permissions.	Passed
Role-Based Menu Access	Logging in with different roles displays different menu access.	Passed

Table 13 Online Booking (Customer) Testing

Test Case	Result	Status
Fill Booking Form	Successfully fills out the booking form up to the checkout process.	Passed
Payment Process	Successfully makes QRIS payment via Midtrans.	Passed
Order Cancellation	Order data is deleted and removed upon cancellation.	Passed
Email Notification	Receives an email containing order details and QR code.	Passed

Table 14 Online Booking (Admin) Testing

Test Case	Result	Status
Booking Data	Displays booking data.	Passed
Cancellation via Admin	Booking status changes to "Cancelled".	Passed
Check-in Menu	Successfully scans customer QR code using a QR Scanner device.	Passed

IV. CONCLUSION

Based on the research, it is concluded that:

1. The implementation of Accounting Information System (AIS) improves efficiency and accuracy in sales recording and accounting processes through automated journaling, profit

- and loss statements, and financial reports.
2. Integrating AIS with POS and online booking systems simplifies transactions and online reservations, enhancing operational efficiency and customer experience.
 3. System testing shows improved transaction accuracy, faster financial reporting, and enhanced customer satisfaction through online booking.
- ### REFERENCES
- [1] A. et al Afdhal, *Sistem Akuntansi Perusahaan Jasa*. Gita Lentera, 2023.
 - [2] S. Siregar, *Pengantar Akuntansi Dasar (Perusahaan Jasa, Dagang dan Manufaktur)*. umsu press, 2022.
 - [3] D. N. Ridwansyah; Rifqie, "Sistem Informasi Inventaris Toko berbasis Web untuk UMKM Penyewaan Kostum," *J. Teknol. Dan Sist. Inf. Bisnis*, vol. 5, no. 3, 2023, [Online]. Available: <https://doi.org/10.47233/jteksis.v5i3.874>.
 - [4] A. et al Rukmana, *Pengantar Sistem Informasi: Panduan Praktis Pengenalan Sistem Informasi & Penerapannya*. Sonpedia Publishing Indonesia, 2023.
 - [5] A. Jauhari, *Analisis dan Desain Sistem Informasi: Pendekatan Pengembangan System*. Media Nusa Creative (MNC Publishing), 2023.
 - [6] I. E. N. . Hastuti, D.T;Ghozali, "The Effect of International Financial Reporting Standars on the Real Earnings Management and Internal Control Structure as a Moderating Variable," *Int. J. Econ. Financ. Issues*, vol. 6, no. 4, pp. 1807–1814, 2016.
 - [7] K. Asrani, Hitesh; Vishwakarma, Shubham; Asrani, Deepak; Asrani, "Point of Sale Systems," *Int. J. Innov. Res. Comput. Sci. Technol.*, vol. 12, no. 1, 2024, [Online]. Available: <https://doi.org/10.55524/CSISTW.2024.12.1.63>.
 - [8] T. Oktavia, Irni; Irfan, Deddy; Ambiyar;Imanuel, "Aplikasi Booking Online Untuk Meningkatkan Kepuasan Pelanggan dan Mengoptimalkan Customer Relationship Management(CRM)," *J. Inf. Technol. Comput. Sci.*, vol. 3, no. 2, pp. 365–379, 2020.
 - [9] R. Diantara, "Web-Based Online Booking Service System Application Design using Software Development Life Cycle Method," *J. Media Comput. Sci.*, vol. 1, no. 1, pp. 19–24, 2022.
 - [10] R. Chrismastuti, A.A; Sitawati, "Internal auditor involvement in developing information system to support good corporate governance," *Eur. J. Econ. Financ. Adm. Sci.*, no. 20, 2010.
 - [11] T. Z. Pricillia, "Perbandingan Metode Pengembangan Perangkat Lunak (Waterfall, Prototype, RAD)," *Bangkit Indones.*, vol. 10, no. 1, 2021, [Online]. Available: <https://doi.org/10.52771/bangkitindonesia.v10i1.153>.
 - [12] T. D. Hastuti, R. Sanjaya, and F. Koeswoyo, "The Readiness of Lasem Batik Small and Medium Enterprises to Join the Metaverse," *Computers*, vol. 12, no. 1, 2023, doi: 10.3390/computers12010005.
 - [13] R. Suryasari, Suryasari; Wiratama, Jansen; Ikana, "The Development of Web-based Sales Reporting Information Systems using Rapid Application Development Method," *Ultim. InfoSys J. Ilmu Sist. Inf.*, vol. 13, no. 2, pp. 110–116, 2023, [Online]. Available: <https://doi.org/https://doi.org/10.31937/si.v13i2.3005>.
 - [14] S. Sholihin, *Membangun Web Dengan Framework Laravel 8*. Pascal

Books, 2022.

- [15] Z. Subecz, “Web-Development With Laravel Framework,” *Gradus*, vol. 8, no. 1, pp. 211–218, 2021, [Online]. Available: <https://doi.org/10.47833/2021.1.CSC.006>.