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"Digital Transformation and Sustainable Business: Challenges and Opportunities for Higher Education Research and Development"

Cash Flow Information System at Cafe and Resto Tepi Coffee Samosir Based on Desktop Application

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Abstract

The advancement of information technology provides opportunities for businesses to manage operations more efficiently, including cash flow management. Cafe and Resto Tepi Coffee Samosir requires a structured and accurate financial system to support decision-making. A desktop-based cash flow information system was developed to simplify the recording of cash inflows and outflows and generate accurate financial reports. Built using Visual Basic .NET with a MySQL database and integrated with Crystal Report, the system features income and expense transaction recording, daily and monthly cash flow reports, and cashier shift management. It helps reduce manual recording errors and accelerates financial data recap. System testing shows the application performs well and supports real-time financial monitoring for business management.

Keywords: Cash Flow, Information System, Visual Basic .NET, MySQL, Crystal Report.

Introduction

The rapid development of information and computer technology has fundamentally transformed the way data and information are managed across various fields, including financial management within organizations. Technology's ability to accelerate, simplify, and enhance the accuracy of financial transaction recording has made the implementation of financial information systems a fundamental necessity for various types of businesses. However, many small and medium-sized enterprises, such as cafés and restaurants, still rely on manual recording methods, which pose risks of errors and delays in financial information that can hinder timely and accurate decisionmaking.

The cash flow statement is one of the crucial financial reports for assessing a business's financial condition and operational sustainability. Poorly structured cash flow management can lead to serious problems, including the inability to control finances in realtime and an increased risk of liquidity crises. Therefore, the design and implementation of a computer-based cash flow information system is essential to enhance the effectiveness, efficiency, and accuracy of financial management.

This study focuses on the design of a desktop-based cash flow information system for **Cafe and Resto Tepi Coffee Samosir**, a business that still relies on manual methods for recording cash receipts and disbursements. This research is particularly interesting as it addresses real-world issues commonly faced by medium-sized enterprises, while offering a practical, technologybased solution. With this system, it is expected that the process of recording and reporting cash transactions can be carried out automatically, quickly, and accurately, thereby supporting management in making better and more timely decisions.

This research is important because it provides a tangible contribution to improving the quality of financial management in small and medium-sized enterprises, while also reducing the risk of human error commonly associated with manual recordkeeping. In addition, the results of this study can serve as a reference for the development of similar financial information systems in other businesses facing the same challenges.



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Literature review

System

A system refers to a combination of various structures that are regularly interconnected. It is also an overall set of components that are systematically linked and function together to initiate or achieve a specific goal (Simangunsong et al., 2022).

Information Systems

Information is defined as data that is collected and processed with the purpose of enhancing its value for the recipient and reducing the vulnerability of dynamic cycles to conditions, so that it can be used as a basis for more accurate and effective decision-making (Infryanty Hutapea, Marlyna et al., 2022).

An information system is a method of collecting, inputting, processing, and storing data. It also includes organized ways to store, process, control, and report data so that an organization can achieve its goals (Ginting et al., 2021).

Cash Flow

Cash flow is a report that classifies transactions based on activities (operating, financing, and investing) to provide information about the amount of money received and spent by an organization during a specific period. (Harto, n.d., 2018).

A cash flow information system is a system that manages cash flow, which refers to the amount of cash that flows in and out as a result of a company's activities. In other words, cash flow consists of cash inflows into the company, cash outflows from the company, and the balance for each period (Purwantini et al., 2022).

Cash flow is a report that presents information regarding a company's cash receipts and disbursements during a specific period. This report reflects changes in cash flow resulting from operating, investing, and financing activities, thereby allowing the company's cash position or balance to be determined (Iswandi et al., 2024).

According to (Alyaa Zafira Darmawan et al., 2023) A cash receipts accounting system is a recording procedure established to carry out cash receipt activities originating from various sources, namely:

- a) Cash sales
- b) Sale of fixed assets
- c) Loans
- d) New capital contributions

(Mulyadi, 2021). Cash receipts are records made to carry out the activity of receiving money from cash sales or from receivables that are readily available and free to be used for the company's general operations.

(Mulyadi, 2021) In the book titled *Accounting System*, cash disbursement is defined as a record made to carry out disbursement activities, whether by check or cash, used for the company's general operations. Disbursements are also activities that result in a decrease in the company's cash balance, either through cash payments or non-cash transactions.

Basis Data

A database is a collection of data items that are interrelated and organized according to a specific schema or structure. This data is stored on computer hardware and manipulated using software, which allows for modification, retrieval, processing, and deletion of data for specific purposes (Fikry M Basis Data., 2019)

System Design

System design is the process of creating or designing a system, either a new system or an improvement of an existing one, with the goal of meeting user needs and producing a system that is better, more efficient, and more effective. This process procedures, as well as the design of inputs, outputs involves determining operational steps in data processing, supporting, and files.

Current System Analysis

The cash flow information system process currently in place at **Cafe and Resto Tepi Coffee Samosir** is not yet computerized, as daily and monthly reports are still prepared by manually recording each cash receipt and disbursement.

1. The cash balance is recorded in the ledger and then handed over by the admin to the cashier with the same balance each day, except in cases of sudden large expenditures.
2. Cash receipt and disbursement transactions occur at the cashier section
3. Before ending the shift, the Admin and Cashier record expenditures that occurred during that shift into the logbook.
4. Recording cash receipts from payments made in cash, via QR code, and by bank transfer.
5. The admin will calculate the daily cash receipts, cash disbursements, and net income, subtracting the petty cash balance that will be carried over to the next shift.

The flowchart of the current system is as follows:

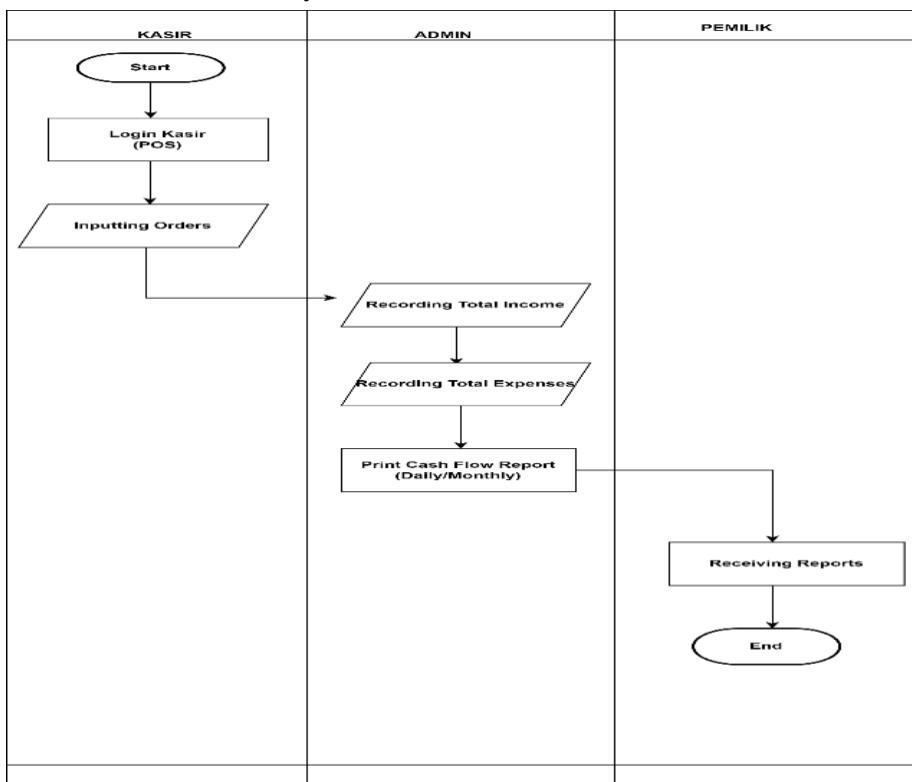


Figure 1. Flowchart Current System

PROPOSED SYSTEM ANALYSIS

This analysis aims to evaluate the current financial management system in the business and propose a new system that can improve efficiency and accuracy in financial management. The proposed system is a computerized financial system designed to replace manual record-keeping. This system is intended to make financial recording at Cafe and Resto Tepi Coffee more organized, faster, and more accurate.

The flowchart for the proposed system analysis is as follows:

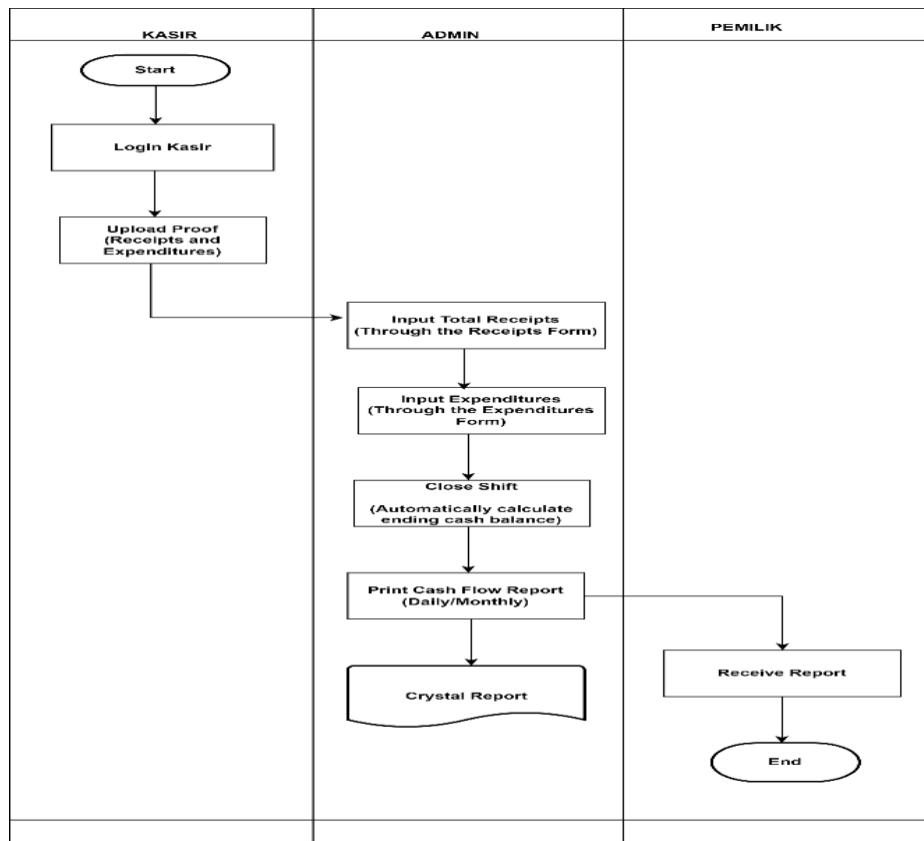


Figure 2 Flowchart Proposed System

RESULTS AND DISCUSSION

Login Page

The login screen is the initial page of an application used to verify the identity of users before accessing the system. This screen consists of a form that requires users to enter their username and password.

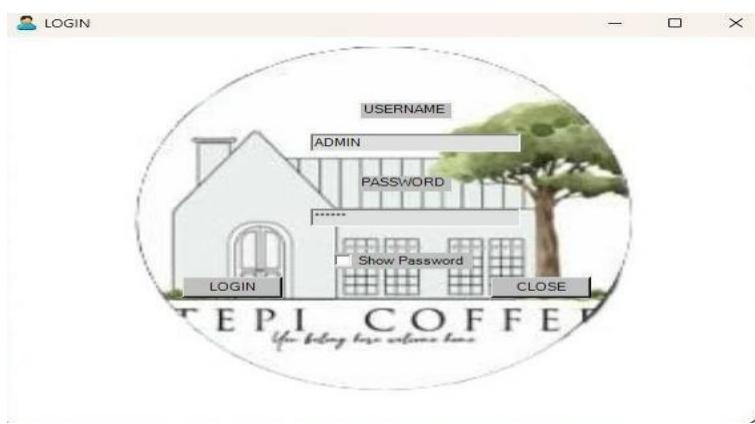


Figure 1 Login Page Display

Main Menu Display

The main display is designed to show the processes within the information system to be developed. When the program is run, the login screen will appear first. After a successful login, the main form will be displayed, consisting of Master, Transactions, and Reports menus.



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The Master menu includes submenus such as Cashier Data Input and Admin Data Input, which, once filled out, will automatically be saved to the database and enable system operation.

The Transactions menu has submenus for Receipt Transactions, Expenditure Transactions, and Daily Report Transactions.

The Reports menu contains submenus for Receipt Reports and Expenditure Reports, which can be searched according to the desired date.



Figure 2. Main Menu Display

Cashier Data Input Screen

The cashier data form is a screen within the application used to input new cashier data into the system. This form contains several input fields such as cashier ID, cashier name, username, and password. After all the data is filled in, the user can press the save button to store the cashier data into the database.

id_kasir	nama_kasir	username	password
1	ROMA	KASIRROMA	112233
2	LEO	KASIRLEO	445566
3	HELEN	KASIRHELEN	778899
3	HELEN	KASIRHELEN	778899
0	GELIS	Gels123	1234

Figure 3. Cashier Data Input Screen

Admin Data Input Screen

The screen in the application used to input new admin data into the system. This form contains fields such as admin ID, admin name, username, and password. After all the data is correctly filled in, the user can press the save button to store the admin data into the database. This form aims to add new admins who have broader access rights, such as managing cashier data, viewing financial reports, and configuring other system settings.

id_admin	nama_admin	username	password
111	YASHINTA	ADMIN	111111
112	KESYA	ADMINKESYA	222222

Figure 4 Admin Data Input Screen



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Employee Data Display

This form displays employee data as well as payroll information, which will be linked to the expenditure form when processing payroll disbursements.

nomor	nama_karyawan	bidang	jumlah_gaji
N001	Leo Nabaho	Bar	Rp 3,200,000
N002	Roma Nabaho	Bar	Rp 3,100,000
N003	Helen Siburan	Bar	Rp 3,050,000
N004	Gelis Ndrahra	Bar	Rp 2,550,000
N005	Rani Nining	Dapur	Rp 3,200,000
N006	Bohal Sinaga	Dapur	Rp 3,000,000

Figure 5 Employee Data Input Form

Proof Upload Form

This form is used as a place to input proof of expenditures and receipts, which will be linked to each receipt and expenditure form when the proof is uploaded.

Figure 6 Upload Proof Screen

Receipt Transaction Input Screen

The receipt transaction form is a screen within the application used to record every incoming cash transaction into the system. This form includes input fields such as Receipt ID, Transaction Date Total Receipt, Source of Receipt, Description, and Cashier Name. These fields capture details of the transaction, the amount of money received, and other receipt categories. Once all the data is completely filled in, the user can press the save button to store the transaction into the database.

Figure 7 Receipt Transaction Input Screen

Expenditure Transaction Input Screen

This screen in the application is used to record every amount of money going out of the system. The form contains fields such as Expenditure ID, Expenditure Date, Total Expenditure, Description, and Cashier Name, which record the details of the expenditure, the amount of money spent, and other expenditure categories. After all the data is filled in completely, the user can press the save button to store the expenditure data into the database.



Figure 8 Expenditure Transaction Input Screen

Daily Transaction Screen

This Daily Report form is a screen within the application used to record cashier shift changes while automatically calculating the ending cash balance. In this form, the user first inputs the current shift date. Once the date is entered, the system automatically retrieves and displays the total receipts and total expenditures based on transactions that occurred on that date. After the beginning cash balance is entered, the system automatically calculates the ending cash balance using the formula:

Ending Cash Balance = Beginning Cash Balance + Total Receipts – Total Expenditures.



Figure 9 Daily Data Display

Report Form Display

The report form is a display within the application used to present both the receipt reports and expenditure reports on a single page. This form includes a ComboBox option that allows users to select the type of report they wish to view, either the receipt report or the expenditure report.



Figure 10 Report Display

Receipt Report Display

The receipt report display is a section of the report form that specifically shows all data related to receipt or income transactions. In this display, the data is presented in a table format containing information such as the receipt date, the name of the cashier who recorded the transaction, receipt description, and the amount of money received.



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The screenshot shows a Windows application window titled "FormLaporan". The dropdown menu "Jenis Laporan" is set to "LAP. PENERIMAAN". The date range is set from "1/1/2025" to "1/31/2025". The "TAMPAK" and "CETAK" buttons are visible. The main area displays a table with the following data:

ID PENERIMAAN	TGL PENERIMAAN	JUMLAH	SUMBER PENERIMAAN	KETERANGAN	NAME_KASIR	BUKTI_PENERIMAAN
1	1/1/2025	169733000	PENGJUALAN MENU	Makanan & Minuman	ROMA	
2	1/2/2025	450000	PENGJUALAN MENU	Cake & Roti	ROMA	
3	1/2/2025	13000100	PENGJUALAN MENU	Makanan & Minuman	LEO	
4	1/3/2025	6230000	PENGJUALAN MENU	Makanan & Minuman	LEO	
5	1/3/2025	3450000	RESERVASI	RESERVASI ACARA	HELEN	
6	1/3/2025	5120000	PENGJUALAN MENU	Makanan & Minuman	HELEN	
7	1/4/2025	6020000	PENGJUALAN MENU	Makanan & Minuman	ROMA	

Figure 11 Receipt Report Display

Expenditure Report Display

Expenditure Report Display is a section of the report form that specifically presents all expenditure transactions or cash outflows. This display also includes features such as filtering by date period, a column to show specific entries, and a print button to print the expenditure report as needed.

The screenshot shows a Windows application window titled "FormLaporan". The dropdown menu "Jenis Laporan" is set to "LAP. PENGELUARAN". The date range is set from "1/1/2025" to "1/31/2025". The "TAMPAK" and "CETAK" buttons are visible. The main area displays a table with the following data:

ID PENGELUARAN	TGL PENGELUARAN	JUMLAH	KETERANGAN	SUB_KETERANGAN	NAME_KASIR	NAME_KARYAWAN	BUKTI_PENGELUARAN
1	1/1/2025	300000	PENGELUARAN OPERASIONAL	Bahan Baku	ROMA		
2	1/1/2025	80000	PENGELUARAN OPERASIONAL	Makan Team	ROMA		
3	1/2/2025	100000	PENGELUARAN OPERASIONAL	Bahan Baku	LEO		
4	1/2/2025	1002000	PENGELUARAN OPERASIONAL	Bahan Baku	LEO		
5	1/2/2025	100000	PENGELUARAN OPERASIONAL	Makan Team	LEO		
6	1/3/2025	100000	PENGELUARAN OPERASIONAL	Makan Team	HELEN		

Figure 12 Expenditure Report Display

Print View of Expenditure Report

The process of printing all expenditure transaction data that has been displayed in the expenditure report form. After the user selects the period or type of data to be printed, the system retrieves the expenditure data shown in the table. This report can then be printed directly to the printer using the "Print" button available on the form. The report is also designed with automatic calculations, where the total amount can be seen in the Total Expenditure section.

The screenshot shows a Crystal Report print preview window titled "LAPORAN PENGELUARAN TER COTICE". The report header includes the address "Jl. Cileungsi No. 13/Pn. Pengurungan, Kecamatan Sempor". The main table displays the following data:

ID PENGELUARAN	TGL PENGELUARAN	JUMLAH	KETERANGAN	SUB_KETERANGAN	NAME_KASIR
1	01/01/2025 12:00:00AM	300,000.00	PENGELUARAN OPERASIONAL	Bahan Baku	ROMA
2	01/01/2025 12:00:00AM	80,000.00	PENGELUARAN OPERASIONAL	Makan Team	ROMA
3	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Bahan Baku	LEO
4	01/01/2025 12:00:00AM	1,002,000.00	PENGELUARAN OPERASIONAL	Bahan Baku	LEO
5	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Makan Team	LEO
6	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Makan Team	HELEN
7	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Asinan	HELEN
8	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Makan Team	ROMA
9	01/01/2025 12:00:00AM	300,000.00	PENGELUARAN OPERASIONAL	Bahan Baku	ROMA
10	01/01/2025 12:00:00AM	800,000.00	PENGELUARAN OPERASIONAL	Asinan	ROMA
11	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Makan Team	HELEN
12	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Asinan	HELEN
13	01/01/2025 12:00:00AM	900,000.00	PENGELUARAN OPERASIONAL	Makan Team	LEO
14	01/01/2025 12:00:00AM	100,000.00	PENGELUARAN OPERASIONAL	Makan Team	LEO

At the bottom of the report, there is a summary table:

ITEM	AMOUNT
Total Pengeluaran	10,000,000.00

Figure 13 Expenditure Report Print View

Receipt Report Print View

Printing the receipt report involves the process of printing all receipt transaction data that has been displayed in the receipt report form. After the user selects the period or type of data to be printed, the system will retrieve the receipt data shown in the table. The total amount of receipts will be automatically calculated and displayed at the bottom of the report. This report can then be printed directly to the printer using the "Print" button available on the form.

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LAPORAN PENERIMAAN TEPI COFFEE						
Jl. Danau Toba No. 15/Pa, Pangururan, Samosir, Kabupaten Samosir						
02/03/2025						
id_penerimaan tgl_penerimaan jumlah sumber_penerimaan keterangan nama_kasir						
1	1/1/2025 12:00:00AM	16,973,300.00	Pembelian Menu	Makanan & Minuman	ROIMA	
2	1/2/2025 12:00:00AM	450,000.00	Pembelian Menu	Cake & Roti	ROIMA	
3	1/2/2025 12:00:00AM	13,000,160.00	Pembelian Menu	Makanan & Minuman	LEO	
4	1/3/2025 12:00:00AM	6,730,000.00	Pembelian Menu	Makanan & Minuman	LEO	
5	1/3/2025 12:00:00AM	3,430,000.00	Reservasi	Reservasi Acara/Raga	HELEN	
6	1/3/2025 12:00:00AM	5,120,000.00	Pembelian Menu	Makanan & Minuman	HELEN	
7	1/4/2025 12:50:00AM	6,070,000.00	Pembelian Menu	Makanan & Minuman	ROIMA	
8	1/4/2025 12:00:00AM	1,205,000.00	Pembelian Menu	Cake & Roti	ROIMA	
9	1/4/2025 12:00:00AM	7,000,000.00	Pembelian Menu	Makanan & Minuman	HELEN	
10	1/4/2025 12:00:00AM	1,000,000.00	Pembelian Menu	Cake & Roti	HELEN	
11	1/4/2025 12:00:00AM	14,300,000.00	Pembelian Menu	Makanan & Minuman	LEO	
12	1/5/2025 12:00:00AM	2,000,000.00	Reservasi	Reservasi Acara/Raga	LEO	
13	1/7/2025 12:00:00AM	13,471,000.00	Pembelian Menu	Makanan & Minuman	ROIMA	
14	1/7/2025 12:00:00AM	200,000.00	Pembelian Menu	Cake & Roti	ROIMA	
15	1/7/2025 12:00:00AM	631,000.00	Reservasi	Reservasi Acara/Raga	ROIMA	
16	1/8/2025 12:00:00AM	9,080,000.00	Pembelian Menu	Makanan & Minuman	LEO	

Figure 14 Receipt Report Print View

Profit/Loss View

The Profit and Loss form view is designed to determine whether a business is experiencing a profit or a loss by subtracting the total expenditures from the total receipts during a given period.

FormLabaRugi	
Total Penerimaan: Rp. 303.433.400	
	keterangan total
	Cake & Roti 21341000
	Makanan & Minuman 274360400
	Reservasi Acara/Raga 5632000
	Reservasi Wedding 2100000
	sub_keterangan total
	Air 38000000
	Aisan 13500000
	Bahan Baku 11900000
	Beban Gaji 1800000
	Gaji 53100000
	HITUNG CETAK
Laba Bersih: Rp. 213.923.400	
	<input type="checkbox"/> Penerimaan <input type="checkbox"/> Pengeluaran
	Main Report
Current Page No.: 1	Total Page No.: 1
	Zoom Factor: 100%

Figure 15 Profit/Loss View

Profit and Loss Report Print View

Displays the results of receipts minus expenditures for the specified period, with the result shown as net profit before tax.

Cafe and Resto Tepi Coffee	
Laporan Laba/Rugi	
Periode Januari 2025	
KETERJAHANAN	TOTAL
Penerimaan:	Rp. 21341000.00
Cake & Roti	Rp. 274360400.00
Makanan & Minuman	Rp. 9,632,000.00
Reservasi Acara/Raga	Rp. 2,400,000.00
Reservasi Wedding	Rp. 563,200.00
TOTAL	Rp. 303.433.400.00
PENGELUARAN	
Air	Rp. 3,800,000.00
Aisan	Rp. 13,500,000.00
Bahan Baku	Rp. 11,900,000.00
Beban Gaji	Rp. 1,800,000.00
Kebutuhan	Rp. 531,000.00
Lainnya	Rp. 2,300,000.00
Makan Team	Rp. 9,080,000.00
TOTAL	Rp. 213.923.400.00
Laba Bersih Sebelum Pajak	
Current Page No.: 1	
Total Page No.: 1	
Zoom Factor: 100%	

Figure 16 Print Preview of Profit and Loss Report

Conclusion

1. This system helps and facilitates Cafe and Resto Tepi Coffee Samosir in managing its financial reports.
2. In the developed application, not all users can log in and access the system—only those with registered accounts are permitted to log in and manage the financial data.
3. The system is capable of generating Receipt Reports, Expenditure Reports, and Profit and Loss Reports.
4. With the implementation of this information system as a supporting tool, the cash flow management process is expected to become more effective and efficient.



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