

## Use of the Codeigniter Framework in the Design and Development of the Balance Sheet-Based "Sikmajo" Financial Information System

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### ABSTRACT

*Sikmajo is an online store that provides a place for users to buy and trade the products they want to trade. Currently, sikmajo does not yet have a good financial reporting system. By utilizing the codeigniter framework to design the application design to simplify and speed up the manufacturing process. Model, View, and Controller, or what is often called (MVC) is one of the supporters of making applications. The implementation of the Balance Sheet system in the Sikmajo online store is used for financial reporting. The purpose of this research is to provide convenience in the process of inputting income and expenditure data, helping speed up the performance of the finance department, and improving accuracy in financial reporting. With this system, it is hoped that it will make work easier for people. So that online business processes will develop rapidly. This study examines the development of a web-based Financial Information System by utilizing the CodeIgniter Framework. Especially in accurate and efficient financial management. The CodeIgniter framework was chosen as the basis for the development of this system because it provides an organized work structure with the Model-View-Controller (MVC) pattern and has security features that are able to protect the integrity of data and financial information. In testing this system, the author uses the Black Box method to ensure that the system functions and output are as expected. This system provides solutions for companies to overcome financial management problems and has the potential to increase operational efficiency and effectiveness.*

**Keywords:** Marketplace, Framework Codeigniter 3, Neraca.

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### INTRODUCTION

The development of the business world is accompanied by the increasingly rapid development of information technology, especially in the business world where information technology has greatly helped companies in obtaining more accurate and faster data. Successful MSMEs require strong financial management skills. Proper financial management ensures optimal cash flow, income, and expense management, allowing businesses to thrive in the long term. This involves careful planning, recording, reporting, and other practices to avoid financial problems. Financial management practices encompass all aspects of management that influence a company's finances and are necessary to achieve overall organizational goals ((Wicaksana & Rachman, 2018).

Financial reports serve as a way to hold management accountable for meeting the needs of external parties by providing information on company performance. They also help companies make decisions such as evaluating management performance, determining compensation and bonuses, and providing dividends to shareholders(Sari & Afriyenti, 2021). In light of this, the SIKMAJO financial system project was created to serve as a marketplace model for IKM or MSMEs in the community, particularly in the Jombang district (Yaqin *et al.*, 2022). This model was created due to the lack of data provided by Yung Sudan's marketplace or e-commerce for the cooperative department, and the inability of MSME actors to meet their work needs. The main purpose of this system is to streamline processes and simplify performance while recording income and payment transactions made by customers on this marketplace. To achieve this, a financial information system design proposal titled "Use of the Codeigniter framework in the design and development of a balance sheet-based 'Sikmajo' financial information system" has been presented.

## METHOD

When it comes to creating and testing new products, research and development methods are often used. According to the book *Research and Education Methods* (Haryati, 2012), R&D involves a process of either improving an existing product or developing a completely new one. The aim of development research is to identify the problem that needs to be solved and the specifications required to solve it. As long as these two aspects are addressed in the problem formulation, the development research is considered successful. The ultimate goal of development research is to aid decision-making throughout the product development process and equip developers with the skills to create similar products. (Syaodin, 1967)

In developing the design of the Sikmajo financial system, the steps taken are:

- collect information related to the Sikmajo financial system regarding expenditure, income and balance sheets in data.
- The purpose of this system is to regulate expenditure and financial income in the goods sales system.
- in the system development stage. Researchers need a coding system, CodeIgniter 3 framework, PHP, laptops and data in the market place.
- Next, researchers will test this system in Sikmajo.
- Then the researcher revised the system to make the system even better, and in the final step of this project it was ready to be used as a data base processing system..

## RESULT AND DISCUSSION

The design of the system involves creating a login system, an entry menu, and options for adding income and expenditure data, as well as balance sheets. The login system enables user access. The entry menu displays a list of goods entering the market. The add income option allows for the addition of new income data. The expenditure system tracks data leaving the market, and the add expenditure option records data that comes out of the market. The balance menu helps determine whether the business is operating at a profit or loss over a three-month period. If there are recurring losses, a warning is issued.

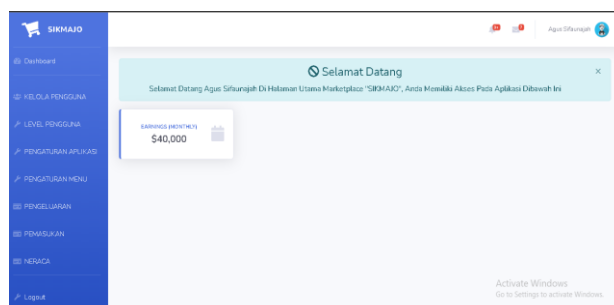
### Result

The following is a display of the login system.



**Figure 1** login system

In the login menu, it is used to enter the marketplace and as a user identity by filling in the username and password. The following is the main menu display.



**Figure 2** Main Menu Page

The main page menu features multiple display options within its menu.  
The following is a display of the entry system:

ID	TANGGAL	KETERANGAN	NOMINAL	Action
1	2023-10-01	produk F	400000	[Edit] [Delete]
2	2023-09-02	lefas	400000	[Edit] [Delete]
3	2023-08-10	Biaya Pengembangan Aplikasi	100000	[Edit] [Delete]
4	2023-07-12	penjualan produk R	350000	[Edit] [Delete]
5	2023-07-01	penjualan produk R	480000	[Edit] [Delete]
6	2023-06-29	penjualan produk Q	300000	[Edit] [Delete]

**Figure 3** Income

The income menu displays a list of items that have been added and are shown in the income table. This is where we can review incoming data and make any necessary changes or deletions by using the editing or deleting buttons located on the right side of the data. Additionally, we can add new data by accessing the add data menu. The following shows the menu for adding income data:

TAMBAH DATA PEMASUKAN

Tanggal: mm/dd/yyyy

Keterangan: keterangan

Nominal: nominal

[Create] [Kembali]

**Figure 4** Add Income Data

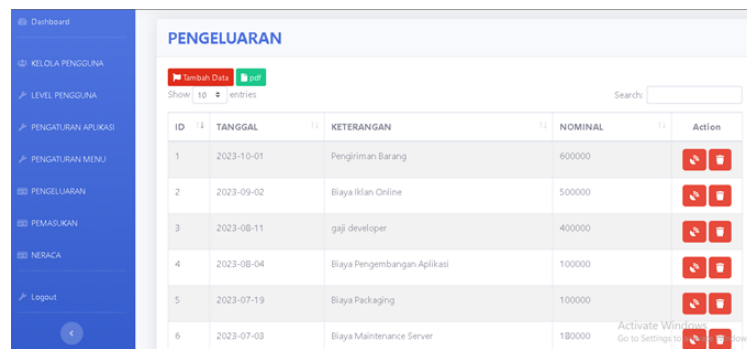
In the added income data section, we can add new items that are entered into the marketplace, by entering the date, description and nominal, then after filling in all the items, they will appear in the income data section above. The following is a printed PDF of the income:

No	TANGGAL	KETERANGAN	NOMINAL
1	2023-01-12	penjualan produk B	300000
2	2023-01-18	penjualan produk C	400000
3	2023-02-15	penjualan produk E	300000
4	2023-02-17	penjualan produk D	600000
5	2023-02-19	penjualan produk F	400000
6	2023-03-03	penjualan produk G	500000
7	2023-03-18	penjualan produk H	250000
8	2023-03-30	penjualan produk H	450000
9	2023-04-06	penjualan produk I	300000
10	2023-04-19	penjualan produk J	400000
11	2023-04-30	penjualan produk K	600000
12	2023-05-01	penjualan produk L	500000
13	2023-05-14	penjualan produk M	400000
14	2023-05-31	penjualan produk N	500000
15	2023-06-02	penjualan produk O	350000
16	2023-06-15	penjualan produk P	380000

**Figure 5** Print income

In this print section, we can print the results of the income that has been made and then print it as a PDF file.

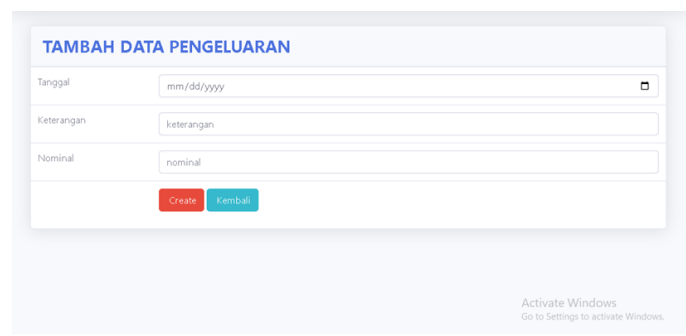
The following is a display of expenditure data



ID	TANGGAL	KETERANGAN	NOMINAL	Action
1	2023-10-01	Pengiriman Barang	600000	[Edit] [Delete]
2	2023-09-02	Biaya Iklan Online	500000	[Edit] [Delete]
3	2023-08-11	gaji developer	400000	[Edit] [Delete]
4	2023-08-04	Biaya Pengembangan Aplikasi	100000	[Edit] [Delete]
5	2023-07-19	Biaya Packaging	100000	[Edit] [Delete]
6	2023-07-03	Biaya Maintenance Server	180000	[Edit] [Delete]

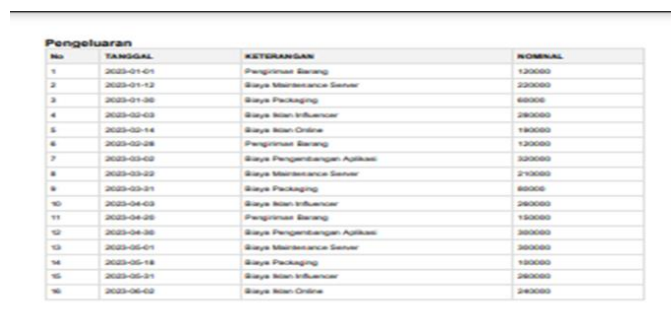
**Figure 6 Expenditures**

In this section of the expenditure menu, there is a display of data that comes out of the marketplace which is displayed in this expenditure table so that we can find out what items have come out. Apart from that, we can also check whether there are errors when we input the expenditure data, if there is data that is incorrect. Accordingly, we can also delete or change the buttons on the right that have been provided. If we want to add new data that comes out, we can go to the add data section above. The following is a display of added expenditure data



**Figure 7 Add expenditure data**

In the added expense data section, we can add items that come out by filling in according to the conditions such as date, description and nominal. After that, when everything is filled in, we can immediately create. After that, the expense data to be added will appear on the expense menu. The following is the display of the printed output:



No	TANGGAL	KETERANGAN	NOMINAL
1	2023-01-01	Pengiriman Barang	1200000
2	2023-01-12	Biaya Maintenance Server	2200000
3	2023-01-26	Biaya Packaging	600000
4	2023-02-03	Biaya Iklan Influencer	2800000
5	2023-02-14	Biaya Iklan Online	1800000
6	2023-02-28	Pengiriman Barang	1200000
7	2023-03-03	Biaya Pengembangan Aplikasi	3000000
8	2023-03-23	Biaya Maintenance Server	2100000
9	2023-03-31	Biaya Packaging	600000
10	2023-04-03	Biaya Iklan Influencer	2800000
11	2023-04-26	Pengiriman Barang	1300000
12	2023-04-26	Biaya Pengembangan Aplikasi	3800000
13	2023-05-01	Biaya Maintenance Server	3800000
14	2023-05-18	Biaya Packaging	1800000
15	2023-05-31	Biaya Iklan Influencer	2800000
16	2023-06-02	Biaya Iklan Online	2400000

**Figure 8 Print expenses**

In this section, we can print the expenses and save them as a PDF file..

The following is a view of the balance sheet:



**Figure 9** Balance sheet

In this section of the balance sheet, there is a display on the balance sheet form which contains the month, debit, credit status and amount. In this part of the balance sheet, we can find out the profit or loss every 3 months automatically and when we change the date to find out the profit or loss, the data will automatically change. The following is a printed balance sheet:

Neraca			
No	Bulan	Debit	Kredit
1	2023-09-01	800000	1100000
2	2023-08-01	900000	1600000
3	2023-07-01	1730000	1880000

**Figure 10** Print balance sheet

In this section, we can print the created balance sheet to a PDF file.

**Discussion**

Black box testing of the login process is carried out first when the user does not have an account and wants to register by clicking the create account button on the login form system. The command is carried out successfully if the system displays the status "registration successful". The next step is to input username and password data, both of which are still empty or not entered, then the system will display the message "Failed to log in, failed to enter the system". However, on the other hand, if the username and password data input action is correct, the system will check the account first so that the user will immediately enter the real system. The test table can be seen in table 1 as follows:

**Table 1** Black box testing of the login process:

No	Test activity	Expected realization	Test result
1	Create an Account	After entering the data, it will return to the login form.	Succeed
2	Enter Username data and Password in empty	Rejection by the system for access and displays Failed login	Succeed
3	Enter username data and the password in accordance	The system will check account based on access rights and go to the dashboard	Succeed

To perform a Black Box test on the entry mechanism, first click on the entry menu. The system will then guide you to the entry form. From there, click on the "add data" button which will take you to the add data entry form. To return to the expenditure form, click again. Fill out the form with the required data and the system will save it. To create new data, the system will save it in the entry form. Finally, to print the data, click on the print menu and the system will print the entry data.

**Table 2** Black Box Testing Mechanism of entry

No	Test activity	Expected realization	Test result
1	Click the enter button on the menu.	Once clicked, you will be directed to the entry form.	Succeed
2	Click the Add Input Data button and the form is cleared	Rejection by the system for access to add data and failure to add data	Succeed
3	Input the income data according	The system will check the data according to	Succeed

No	Test activity	Expected realization	Test result
	to the form	the form	
4	Click the cancel button. In the form menu, add income data.	The system will delete all income data on the added data entry form that has been filled in by the user.	Succeed
5	Create income data	After the form is filled in, the system will save the data in the income table.	Succeed
6	Click print	The system will print the income data	Succeed

To perform Black Box testing on the expenditure mechanism, simply click on the expenditure menu. The system will then direct you to the expenditure form. From there, select the "add data" button which will take you to the add expenditure data form. Once you have entered the necessary information according to the form, click on "Create data" and the system will save the data on the expenditure form. If you wish to print the data, simply click on the print menu and the system will print the expenditure data for you.

**Table 3** Black box testing Mechanism of removal

No	Test activity	Expected realization	Test result
1	Click the expenses button on the menu.	After clicking, it will be directed to the expenditure table.	Succeed
2	Click the Add Expenditure Data button and the form is cleared	Rejection by the system for access to add data and failure to add data	Succeed
3	Input expenditure data according to the form	The system will check the data according to the form	Succeed
4	Click the check button on the form menu to add expenditure data.	The system will delete all expenditure data on the additional expenditure data form that has been filled in by the user.	Succeed
5	Create expense data	After the form is filled in, the system will save the data in the expenditure table.	Succeed
6	Click print	The expenditure data will be printed by the system.	Succeed

At this stage of the balance system, we can conduct black box testing to determine the profit or loss over a period of three months. This can be done automatically by selecting the desired month from our laptop calendar and refreshing the balance system. Once the data appears, we can simply click "print" to obtain the balance sheet information.

**Table 4** Black Box Balance Test

No	Test activity	Expected realization	Test result
1	Click the balance button on the menu.	After clicking, it will be directed to the balance sheet form and will automatically display data according to the month we want to see.	Succeed
2	When experiencing gains or losses	Then the balance form will display a notification automatically.	Succeed
3	Click print	The balance data will be printed by the system.	Succeed

## CONCLUSION

Financial Information Systems play a critical role in the business world, particularly in the current age of information technology. The development of web-based information systems, utilizing information technology, can provide effective solutions to business issues, especially in financial management.

By implementing the CodeIgniter Framework in the creation of the "SIKMAJO" Financial Information System, numerous benefits are gained. This framework provides an organized work structure, utilizing the Model-View-Controller (MVC) pattern, to separate business logic, views, and controllers effectively. CodeIgniter also prioritizes security and protection from attacks, ensuring data and financial information integrity.

However, it is crucial to consider the specific needs and demands of the company during the development and implementation process. Compatibility between the system being developed and existing business practices must be ensured. System testing is a vital step to guarantee expected performance and functionality. Ultimately, utilizing the CodeIgniter Framework in the creation of the web-based "SIKMAJO" Financial Information System provides structured solutions for financial management problems. This can have a positive impact on the company's operational effectiveness and efficiency.

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