Designing sales and purchase information system on Cooperative “Z” using unified modelling language

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Designing sales and purchase information system on Cooperative “Z” using unified modelling language

Y Wibawanti*, Z Niswati, D R Wardhani, F A Mustika, A Primawati, M Firdaus and I B Rangka
Universitas Indraprasta PGRI, Jakarta, Indonesia

* yuniwib206@yahoo.com

Abstract. Information is data that is processed so that it has more value that is useful for its users. Useful information should be relevant, timely, and accurate so it is useful in making decisions for management. In Cooperative “Z”, recording of member Koperasi transactions is done using written records. This is at risk of inaccurate recording of transactions. For that, required an application system sales and purchases. The purpose of making this application is to facilitate the process of data processing purchases and sales to know the income and profits of Koperasi every month. With this application management can view monthly reports that are complete and can be printed on time as needed. Applications created will assist the Koperasi in recording members, transactions, and suppliers. This application will also generate reports that will help evaluate the performance of the Koperasi. This application is designed using JAVA programming language and analysis is done by using Unified Modelling Language (UML). The resulting application makes it easy for Koperasi managers in performing data processing Koperasi transactions every month. With this information system, Koperasi performance reports can be available on time as needed.

1. Introduction
In a market characterized by stiff competition, the organization ensures its survival through business that it achieves and bids that it wins[1], [2]. The information system is a system that is interconnected and integrated with each other and aims to provide information to support operations, management and decision-making functions within an organization [3]–[5]. Information is data that is processed so that it has more value that is useful for its users. Useful information should be relevant, timely, and accurate so it is useful in making decisions for management[6]–[10].

The development of technology is very rapidly affect the development of information systems of an organization[11]–[13]. The development of information systems plays a role in helping the organization’s operations become more efficient and effective.

Koperasi have a role in the national economy. Koperasi also play a role in meeting the needs of the general public and members of Koperasi such as savings and loans or buying and selling of goods every day. But not all Koperasi have the quality that is expected to sustain the national economy. One that occurs in Cooperative “Z” that has not maximized its role. Cooperative “Z” has not fully utilized...
information technology in its operational activities. Recording transactions are still using conventional methods. The impact of this is the unrecorded transaction details in the database. While the database will be very helpful in the process of making transaction reports. Every day there is a sale and purchase transactions and every month required a transaction report to see the condition of the koperasi. The transaction report will help to see the actual condition of the koperasi so that it can know the things needed to make the progress of the koperasi.

Cooperative “Z” has many active members who routinely make transactions. Currently members of the koperasi do not yet have a special membership card that can be used in each transaction. The recording of member koperasi transactions is done using written records. This has the risk of inaccurate recording of transactions occurring especially if some members are shopping at the same time.

Seeing the problems that occur required an application system sales and purchases to overcome them. In this application will include registration of members, recording transactions and supplier records.

This application will be designed using JAVA programming language and analysis is done by using Unified Modeling Language (UML). Unified Modeling Language (UML) is a “language” that has become the industry standard for visualizing, designing and documenting software systems. UML offers a standard for designing a system model. Using UML can create a model for all types of software applications, where the application can run on any hardware, operating system and network, and written in any programming language [14]. UML is a set of modeling conventions used to define or describe a software system associated with an object [15]. UML makes it easy to perform sustainable application development as per business requirements.

Java is an object-oriented programming language, has the advantage that is universal [16]. By using the application JAVA provides convenience in performing input transaction and report generation.

The purpose of making this application is to facilitate the process of data processing purchases and sales to know the income and profits of Koperasi every month. With this application management can view monthly reports that are complete and can be printed on time as needed.

Applications created will assist the koperasi in recording members, transactions, and suppliers. This application will also generate reports that will help evaluate the performance of the koperasi. Usability or ease of use can make products and systems easier to use, and allow them to adapt more closely to learners' requirements [17].

2. Research Method
This research uses developmental research method or system development with qualitative approach. Data collection was done by conducting interviews, observation and documentation study. The design of koperasi information system is done using object-oriented system design (Object Oriented Modeling) with tools development system Unified Modeling Language (UML) and JAVA programming language.

3. Result and Discussion
3.1 UML Design
UML (Unified Modeling Language) is a modeling language for object-oriented systems or software [18]. UML is a modeling language that has a vocabulary and a way to represent the conceptual and physical focus of a system. UML is not only a visual programming language, it can also be directly linked to various programming languages, such as JAVA, C++, Visual Basic, or even directly connected to an object-oriented database.

3.2 Use Case Diagram
To illustrate the whole system of trading information on the Cooperative “Z”, use the use case diagram. Use case diagrams graphically illustrate the interactions between systems, external systems
and users. In other words use case diagrams graphically describe who will use the system and in what way the user expects interaction with the system [19].

Use Case involved in this system of sale and purchase information include: (a) Registration, (b) Sales Transactions, (c) Purchase, (d) Member Data Report, (e) Receipt, (f) Supplier Data Report, (g) Official Data Report, and (h) Goods stock.

![Use Case Diagram Member Registration](image1)

**Figure 1.** Use Case Diagram Member Registration

![Use Case Diagram Buy and Sell](image2)

**Figure 2.** Use Case Diagram Buy and Sell

### 3.3 Interfaces
#### 3.3.1 Display Input Member Data

In the input menu data members entered biodata koperasi members with provisions according to AD / ART Koperasi. The member form is used to add, store, modify and delete data of members of koperasi record. This form is made during member registration of the koperasi.
3.3.2 Display Input Data Menu Officer

The picture above is a menu view of data input of koperasi officers.

3.3.3 Display Form Supplier

The supplier form is used to add, store, modify and delete recorder data of the suppliers that cooperate with the koperasi.
3.3.4 Display Sales Form

Sales form used to add, delete, change sales data of Koperasi and total sales.

3.3.5 Display of Purchase Form

The purchase form is used to add, delete, change koperasi purchasing data and total purchase amount. The report of sales and purchase data is used to know the income and profit of koperasi every month. The data can also be used to calculate the SHU (Residual Result of Business) which will be obtained by members of the koperasi.
Tests on the system generated through several levels, among others, validation testing, testing the questionnaire and application testing. Based on the test results can be concluded that Koperasi Information System designed to improve the performance of koperasi viewed from the monthly reports are complete and can be printed on time according to management needs.

4. Conclusion
Based on the results of analysis and design of the system of sale and purchase in the koperasi conducted concluded that by using the system of sale and purchase information generated facilitate the manager of koperasi in performing data processing koperasi members as well as data purchase and sales to know the income and profits of koperasi every month. With this information system, koperasi performance reports can be available on time as needed.

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