A Design and A Development of
A Web Based Purchase Information System

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Abstract—**The desire to manage a company to move forward is always there and will almost certainly have become one of the planned long-term targets since founding the company. As more and more competition in the business world we need accurate information. Thus, the required information could be obtained by providing good data that will be processed in the transaction among supplier companies so that these operations are performed thoroughly, quickly and efficiently in accordance with the times. This research will be applied to CV. Barokah Abadi. Development methods used in building design of this system is waterfall method. Software to build this system is CodeIgniter, Xampp which there is PHP, MySQL as the database. This system can be used for data processing purchases of goods made by the company. So that transaction data processing is not done manually anymore. This system also uses the LAN in the processing of selling and buying. By which, it can use many separate computers perform the purchases, but the processes run from the same system so that transactions are quicker and more efficient.**

Keywords-Waterfall; CodeIgniter; Information System; the purchase.

I. INTRODUCTION

The use of the internet in the current era of globalization is globalizing in every area of human life. The existence of the internet provides direct and indirect benefits to the world of business, education, community, and many more from small scale to large scale. With the development of technology, something in the form of information is generally presented in the form of a computer system so that information can be received and reviewed by the community. With the spread of information in the world today, all forms of information are made as easy as possible to reach the public.

The speed of delivering information and accessing data is one of the supporters in winning a competition in the business world. The design of a system as the right and optimal information material will be able to improve the performance of the company which in the end with the support of other aspects will be able to realize the goals of the company.

A good data information system is needed to support the system that will be implemented. Computers are one of the right information technology tools to process routine data. The use of computers has a high level of accuracy, speed in processing data and saving in energy and time. The right information will be needed as a basis for the decisions of a leader. The importance of a well-organized system will be felt by all members involved.

This also motivates a shop selling leather products to be able to take advantage of these technological advancements. CV. Barokah Abadi is a business that is engaged in buying and selling leather products between distributors / suppliers. However, by looking at the business processes that have been carried out so far, it is felt that there needs to be a change in the sale and purchase system documenting business transactions carried out every day.

The business processes carried out so far by CV. Barokah Abadi is a process carried out in two ways, namely:

1) Business processes are carried out through the sale and purchase of no less than 17 distributors. Each distributor offers the type of goods to CV. Barokah Abadi, then the CV. Barokah Abadi will record the types of goods included in a book specifically used to document each transaction that occurs. CV. Barokah Abadi will first consider the type / item of goods, quantity, price and quality of the items to be received. If there has been an agreement between the CV. Barokah Abadi with the distributor, the two parties will make an agreement in the form of a cooperation agreement for the sale and purchase transaction.

2) Some items that are owned or sold by CV. Barokah Abadi comes from home-based craftsmen who have made cooperation agreements with CV. Barokah Abadi. Every craftsman will deposit the craft to CV. Barokah Abadi every week. In this case the CV. Barokah Abadi will conduct a selection process of the goods received including the type and quality of the goods produced. After that the CV. Barokah Abadi will record every activity that has been done before in the book for sale transactions.

3) Of all items owned and obtained from both distributors and home-based craftsmen who have collaborated with CV. Barokah Abadi all these items will then be resold by CV. Barokah Abadi to other business people.

In carrying out its business processes CV. Barokah Abadi is still doing data processing manually which includes recording the type of goods, the number of items, the price, the time of transaction, the number of inventory items, the supplier code, the name of the supplier and the person in charge of the transaction. Every transaction is done well by CV. Barokah Abadi to suppliers or between CV. Barokah Abadi with craftsmen will be recorded in a ledger with the possibility of very high error rates such as errors in the number of shipments of goods, errors in the transaction schedule (including date writing errors, month writing errors and transaction year errors), errors in giving sales note number (such as the exchange of sales notes), errors in supplier name writing and errors in data collection on the total amount of goods both received and resold.

Another thing that was a problem in the transactions carried out by CV. Barokah Abadi is the absence of an item return system which results in if a transaction has been carried out and then wants to be canceled or replaced with items such as the type of goods or the amount of goods purchased or sold cannot be exchanged again. The difficulty of getting clear information regarding the amount of stock and the length of time an item is ordered, the communication between the distributor or supplier does not work well.

By seeing a lot of problems in the CV. Barokah Abadi needs to make a website application that can assist in the data processing of sales and purchase transactions between distributors carried out by CV. Barokah Abadi.

II. PURPOSE

The purpose of making this system are:

1) Developing web based purchase information system on CV. Barokah Abadi

2) Implementing web based purchase information system on CV. Barokah Abadi

III. RESEARCH METHODES

A. Data Collection Methodology

To find out how the system works, several research methods are needed to obtain accurate data so as to produce a good system. In this research, the methods used include:

1) *Literature Study:* studying the theory / literature and scientific books, articles, or sources related to the topic, including digital libraries from search results on the internet related to this research.

2) *Interview:* conduct interviews with managers and employees to obtain complete and concrete data regarding this research.

3) Observation: make direct observation of the process and activities of CV. Barokah Abadi employees to get more detailed data about system requirements.

4) Questionnaire: all parties will be involved, including managers, employees and system users, both admin as people who regulate the running of business processes and suppliers as opposed to their business.

B. Identifiaction of Problems

Based on the introduction above, the problems that can be formulated in this research are:

1) How to present "Web-Based Purchasing Information System" on CV. Barokah Abadi.

2) How to implement "Web-Based Purchasing Information System" on CV. Barokah Abadi.

C. Application Development

System development method used in this research is Waterfall methodology. Waterfall method is one of the classical approach methods. The classical approach method develops the system by following the stages in the *System Life Cycle*. This approach emphasizes that developing the system will succeed if it follows the stages in the system life cycle [1]. The Waterfall methodology in sequence consist of [2]:

1) Analysis

At this stage, classifying data that has been collected for developing the website, thus facilitating workmanship at the implementation stage.

2) Design

At this stage, the system requirements or specifications from the previous stage will be transformed into a software architecture that is easy to understand and easy to implement.

3) Coding

This stage is also called the implementation stage. Though, the design will be implemented in the form of code that can be understood by computers with programming languages.

4) Testing

Testing is the end of the implementation phase. At this stage, the system that has been developed will be tested both from the level of success of the design or the error.

5) Maintenance

Maintenance is the final stage that is usually done after the system is really perfect. The purpose of this maintenance phase is to find out whether there are errors or shortcomings of the system that have been implemented so far.

IV. SYSTEM DEVELOPMENT USING WATERFALL

A. Analysis and Design

1) DFD (Data Flow Diagram)

Data Flow Diagram is a diagram that is intended to help analyze a system that is viewed from the current data in the system. The first step in making this flow diagram is to create a context diagram to make a diagram as a whole, then systems

that are still global are reduced to become sub-sub smaller and detailed. Data Flow Diagram on this system can be seen in Fig. 4.1 to 4.11.
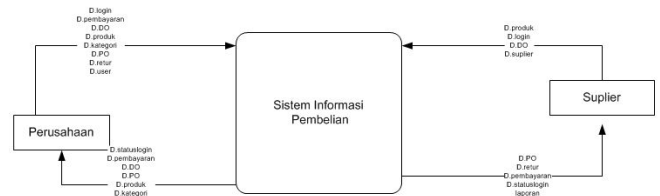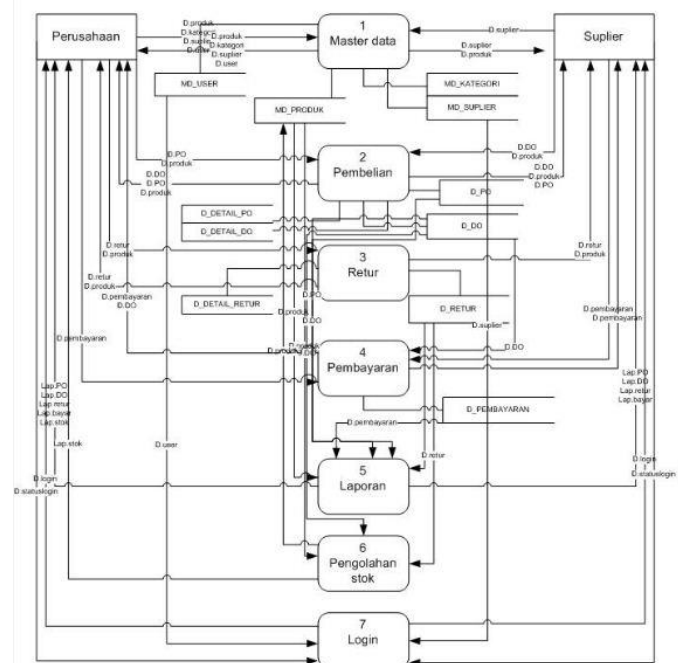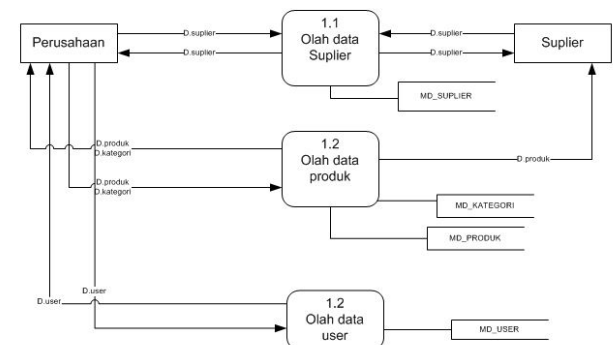

Figure 1. DFD Level 0

Figure 2. DFD Level 1
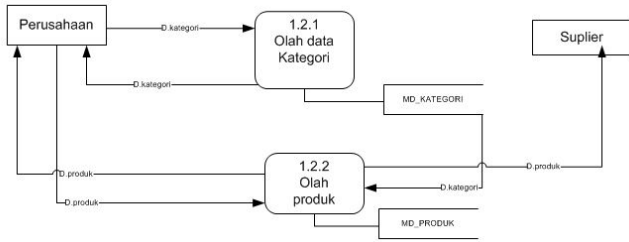

Figure 3. DFD Level 2 Master Data

Figure 4.   DFD Level 3 Product Data Processing

Figure 5.   DFD Level 2 Purchase

Figure 6.   DFD Level 3 Order

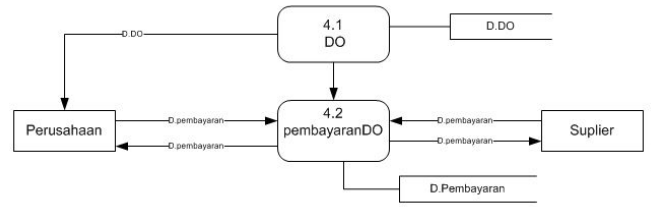Figure 7.   DFD Level 3 Pengiriman Order

Figure 8.   DFD Level 2 Retur

Figure 9.   DFD Level 2 Pembayaran

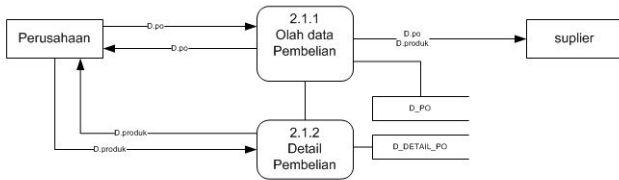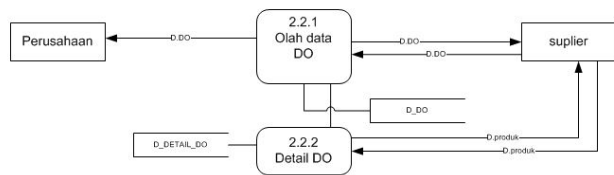
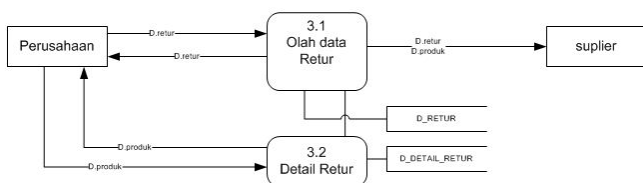Figure 10. DFD Level 2 Stok

Figure 11. DFD Level 2 Login

2)   ERD (Entity Relation Diagram)

Entity Relationship Diagram (ERD) is a conceptual model that describes the relationship between data stores. The relationship between entities will involve two components that state the bond that occurs, namely the degree of relationship and relationship participation [3]. ERD is used to model data structures and relationships between data. ERD also uses data notations and symbols to evaluate structures and relationships between data. The data model is used to describe the relationship between one and another entity that is owned by relations with certain limitations. ERD on the leather craft purchasing system can be seen in Fig. 12.

Figure 12. ERD

Figure 13. User's Home Page
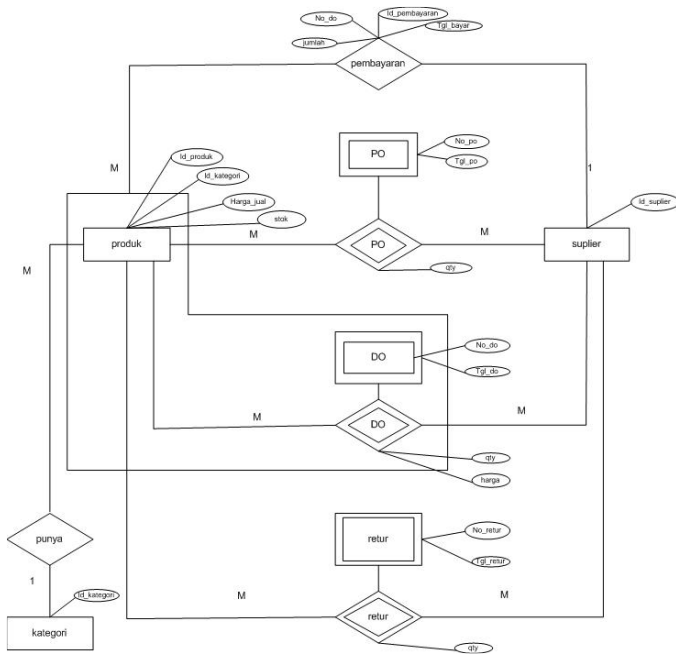
3) Table Design

To store data from suppliers which includes all transactions ranging from the order process to returns, namely by making several function tables. The conceptual design will show the entity and its relationship based on the process desired by the organization [4]. All tables are interconnected so that it can be used to produce reports needed by management, in this case admin. A list of tables can be seen in the Table 1.

Figure 14. Login Page

TABLE I.   LIST OF TABLE

No.	Table Name	No.	Table Name
1.	MD_KATEGORI	7.	D_DETAIL_DO
2.	MD_PRODUK	8.	D_RETUR
3.	MD_SUPLIER	9.	D_DETAIL-RETUR
4.	D_PO	10.	D_PEMBAYARAN
5.	D_DETAIL_PO	11.	MD_USER
6.	D_DO		

Figure 15. User's Home Page

B. Implementation and Testing

Implementation is an activity carried out to get results from a design that will become input and output of information. In the implementation phase, menus that have been previously designed will be displayed both on the side of the user (supplier) and admin (the company). The following display from several menus. The final stage in system design is system testing. This system uses two types of testing, black box test and alpha test. From the results of the assessment of this system, it can be concluded that the system is feasible to be used to make purchase transactions by CV. Barokah Abadi. Figures 13-21 show the implementation of our system.
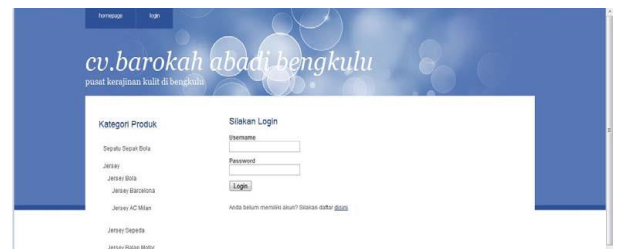

Figure 16. User's Home Page

Figure 17. User's Home Page

Figure 18. Admin's Login Page

Figure 19. Admin's Login Page

Figure 20. Admin's Login Page

Figure 21. Admin's Login Page

The last step is the system testing. This system uses two types of testing, *black box test* and *alpha test*. From the results of the assessment of this system, it can be concluded that the system is feasible to be used to make purchase transactions in CV. Barokah Abadi.

V. CONCLUSION

In this research the author can conclude:

1) After analyzing, designing, developing, and evaluating the system, the Web-Based Purchasing Information System has been successfully created and this system is able to become a Purchasing Information System that is beneficial to the company (CV. Barokah Abadi) which is capable of presenting product stock information in the company, making purchase orders to suppliers, presenting delivery order information from suppliers, and making returns to suppliers if necessary.

2) After the Web-Based Purchase Information System was successfully developed, the system can be implemented in the company. In its implementation this system has two sides of view, namely the user side (the supplier) and the admin side (company). From the user side, you can see purchase order details from the company and respond to the purchase order by sending a delivery order. While from the admin side, it can make purchase orders to all registered suppliers, see the purchase orders that the supplier responds to in the form of a delivery order, and from this side the company can make defective product returns to certain suppliers.

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