Journal of Artificial Intelligence and Engineering Applications

Website: https://ioinformatic.org/

15th June 2024. Vol. 3. No. 3; e-ISSN: 2808-4519

Analysis and Design of Inventory, Purchase, and Sales Information System at UD. Dicky

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Abstract

Technology is currently developing rapidly, so every business such as sales needs to implement an information system. UD.Dicky is a business that operates in the field of selling basic necessities in the form of rice, edible oil, sugar and other necessities located at Jl. Captain Muslim No.120, Dwi Kora, Kec. Medan Helvetia, Medan City, North Sumatra 20123. The problem with the ongoing business process at UD.Dicky is that there is no processing and storage of data on sales, purchases and inventory of goods so that errors often occur in recording transactions carried out and also making reports. The methodology used is SDLC (System Development Life Cycle). The results obtained from this research are a sales, purchasing and inventory information system design, if continued to the system development stage it can be used as a basis for developing the proposed system.

Keywords: *Information System, SDLC, Inventory System, Purchase System, Sales System*

1. Introduction

The development of science, especially in the field of computers, has become increasingly sophisticated and even all fields use computer devices as supporting tools to search for some of the information needed [1]. With today's computerized technology, information management makes all work more efficient and faster. Information systems can be interpreted as part of an organizational system from a combination of existing resources and users such as information control media with the aim of obtaining communication channels, conveying signals to management levels as a basis for information in decision making [2].
UD. Dicky is a business located on Jl. Captain Muslim No.120, Dwi Kora, Kec. Medan Helvetia, Medan City, North Sumatra 20123 which operates in the sales of basic necessities in the form of rice, edible oil, sugar and other necessities. However, in its business process, UD.Dicky does not yet have an information system, so there are several problems, namely the owner has difficulty finding information on sales, purchases and inventory, making reports takes a long time, and difficulty knowing the stock of goods. From the problems that have been found, the aim achieved in this final assignment is to design an information system for inventory, sales and purchases of goods that can help owners to find out information about sales, purchases and inventories, create reports and find out inventory stock effectively and efficiently. .
The aim of this research is to design an inventory, sales and purchase information system that can help owners find out sales, purchase and inventory information, create reports and find out inventory stock effectively and efficiently. The benefits are that the system built can speed up and make it easier for the owner to find out information about inventory, sales and purchases of goods, help the owner in making the required reports, and make it easier for the owner to find out and check the availability of goods for sale so that they do not experience losses.

2. Research Methods

The methodology used in this research is SDLC (System Development Life Cycle) which is a gradual approach in analyzing and designing systems that are developed through the use of specific analysis and user activities [3].
Development stages with SDLC as shown in the figure below:

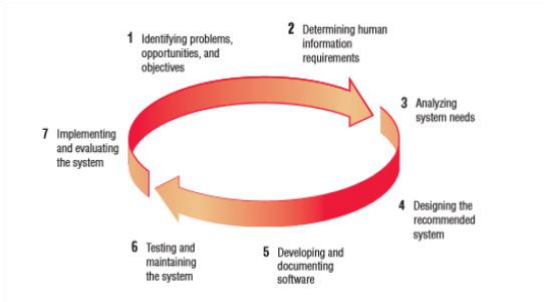

Fig. 1: System Development Life Cycle

There are seven stages in the system development life cycle as follows:

1. Identify problems, opportunities and goals
   In the first phase, the analyst must look properly to identify problems, opportunities, and goals. This phase is very important for the success of a project in dealing with a problem. The people involved in this phase are users, analysts, and system managers who function to coordinate the project.
2. Determine information requirements
   In this phase, to analyze a system it is necessary to know the details of the system's functions, namely who (people involved), what (business activities), where (work environment), when (time), and how (business being studied). Analysts will use interactive methods such as interviews, sampling, investigating raw data, creating questionnaires, observing decision maker behavior, and prototyping.
3. Analyze system requirements
   In this phase, the analyst also analyzes a structured decision that is made. To analyze a structured decision, there are three main tools needed, namely decision trees, decision tables and structured English. The tool used to describe the system in structured graphic form is data flow (DFD) which functions to compile input, process and output data.
4. Design the recommended system
   In this phase, the analyst designs a procedure to help them input data accurately so that the data enters the correct information system. The analyst must design backup procedures and a control that aims to protect the system, data and produce a specification package for each programmer.
5. Develop and document software
   In this phase, the analyzer works with the programmer to develop the required software. As a programmer, you have the task of designing, removing syntax from program code and creating code. Users can find out how to use the software and software problems from the documentation.
6. Test and maintain the system
   In this phase, testing activities can be carried out in several stages either by the programmer himself, together with system analysts and can even be tested starting from using example data to actual data from the existing system.
7. Implement and evaluate the system
   In the final phase of system development, the analyst implements the system that has been developed. This process includes converting files from the old format to the new format, creating a database, and installing a new tool [4].

The stages of system analysis and design in this research are [5], [6]:

1) Identify problems, opportunities and goals
   At this stage what is done is:
   a. Found the problems faced by UD. Dicky using a fishbone diagram
   b. Identify what could be an opportunity if the problem can be resolved.
   c. Define the goals to be achieved by designing this system.
2) Determine information requirements
   What is done at this stage is:
   a. Understand the profile and organizational structure of the company along with UD's responsibilities. Dicky
   b. Collect documents used in the system to be designed.
   c. Model the process by analyzing input documents and output documents in the running system using Data Flow Diagrams (DFD)
3) Analyze system requirements
   This phase is used to determine the extent of system requirements, both functional and non-functional requirements. The tool used to describe the system in structured graphic form is the Data Flow Diagram which functions to describe the flow of input, process and output
4) Design the recommended system [7], [8]
   At this stage, the researcher designs a procedure to help when inputting data accurately so that the data enters the correct information system. The activities carried out are:
   a. Describe the proposed system using a Data Flow Diagram (DFD).
   b. Design a proposed data dictionary.
   c. Designing Input and User Interface using Microsoft Visual Studio 2015.
   d. Designing Output Using Crystal Report
   e. Normalize
   f. Design a database using Microsoft SQL Server 2014.

3. Results

3.1. Proposed System Analysis

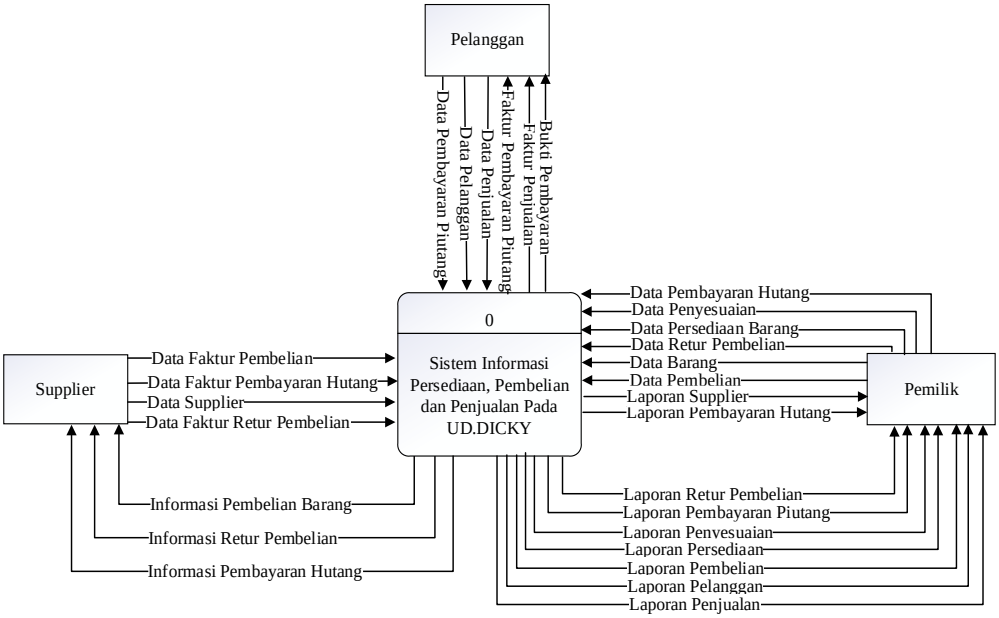

Fig. 2: Proposed System Context Diagram

The picture above is a proposed system for inventory, purchasing and sales information systems at UD. Dicky.

3.2. System Design

Based on the analysis of the proposed system, the researcher designed the system input and output display. Some of the main displays are as shown in the following figure:

1. Master Data Form
   In the master data form there is customer, supplier and goods data. The master data is as shown in the following figure:

Fig. 3: Master Data Form

2. Sales form
   This sales form is used to input sales transactions at UD. Dicky. The display is as follows:

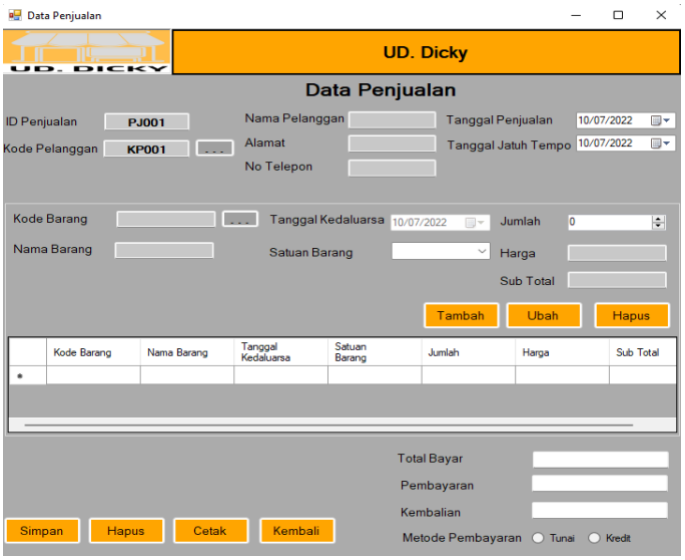

Fig. 4: Sales Form

3. Purchase Form
This sales form is used to input sales transactions at UD. Dicky. The display is as follows:

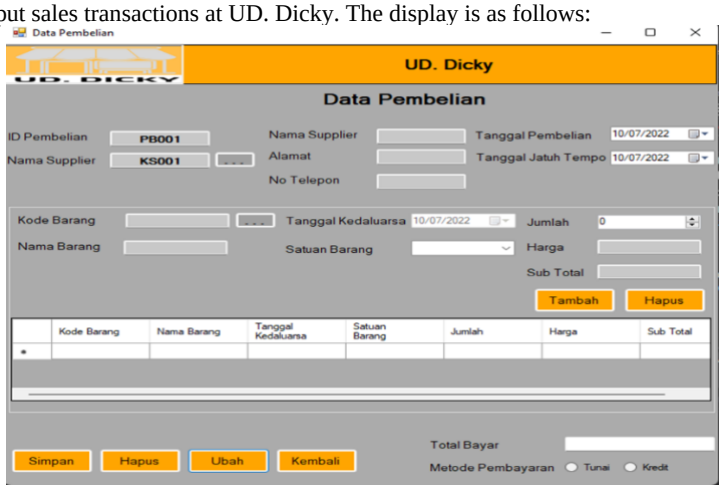

Fig. 5: Purchase Form

4. Purchase Return Form
This purchase returns form is used to return damaged or expired goods to the supplier.

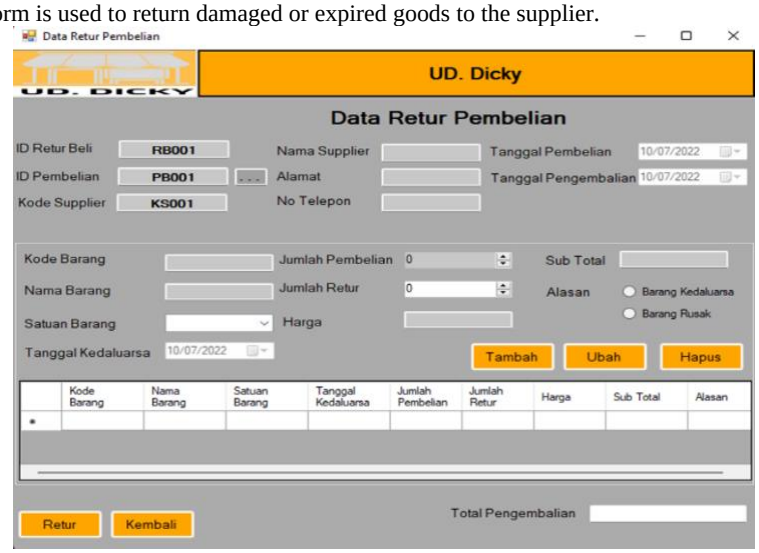

Fig. 6: Purchase Return Form

5. Inventory Data
This Inventory Form is used to view the current inventory of goods

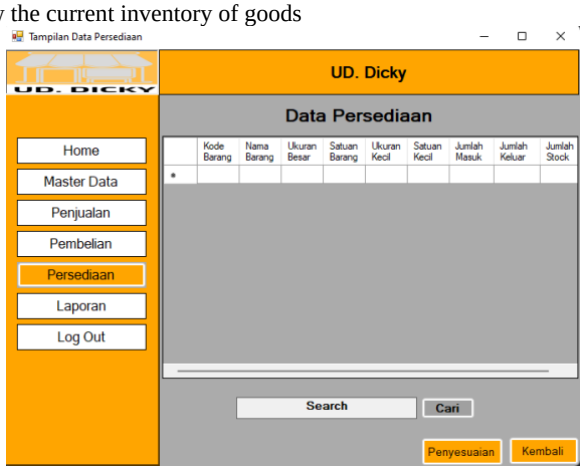

Fig. 7: Inventory Data

6. Sales Report
This sales report displays sales transactions based on a certain time period based on UD Dicky's needs.

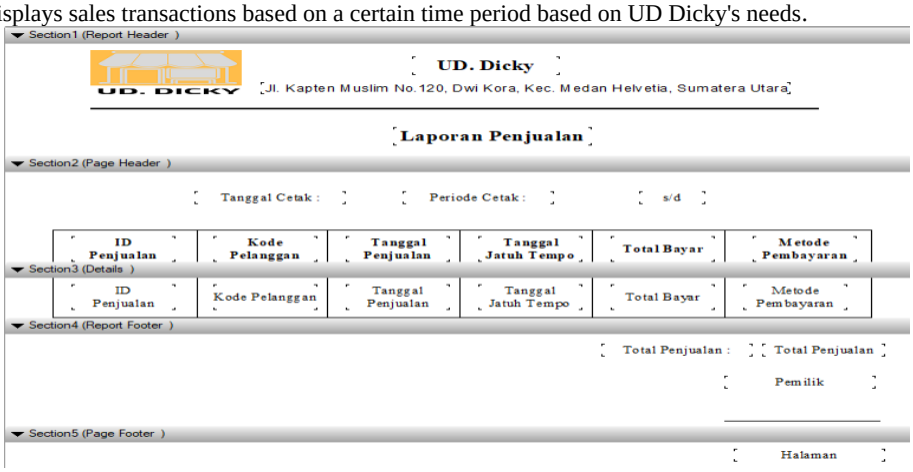

Fig. 8: Sales Report

7. Purchase Report
This purchase report is used to display purchase transactions based on a certain time period.

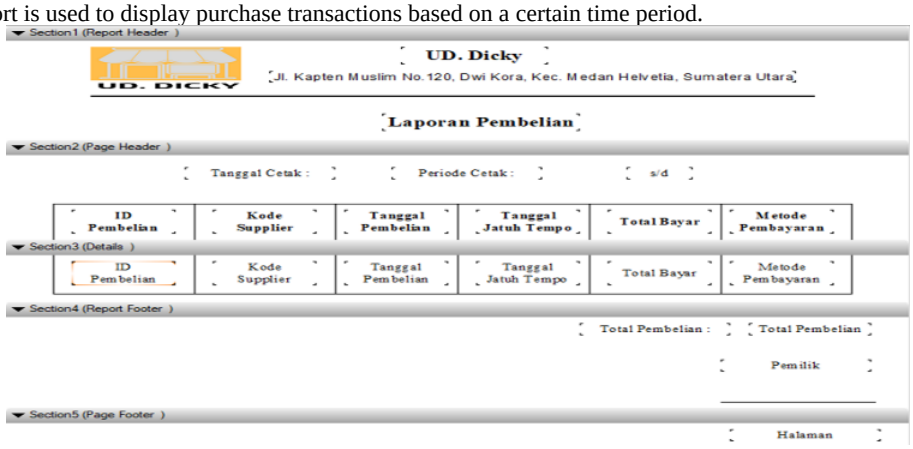

Fig. 9: Purchase Report

8. Inventory Report
This inventory report is used to display the inventory amount of each item in a certain period.

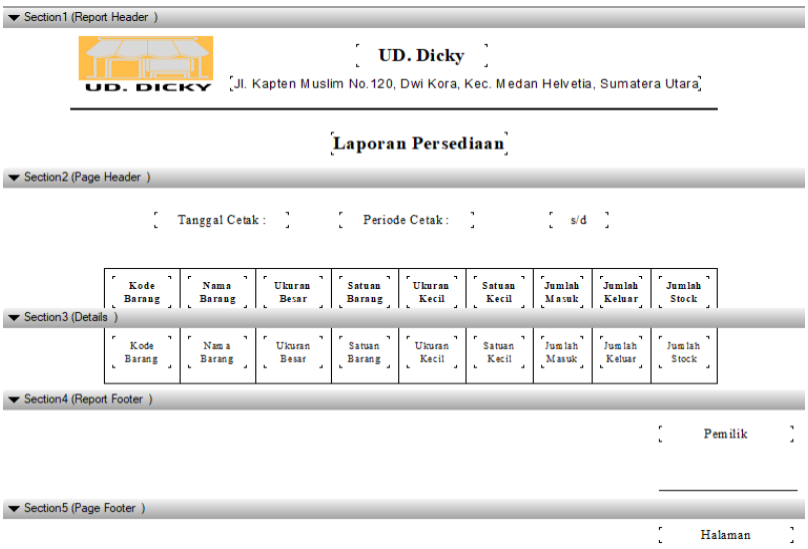

Fig. 10: Inventory Report

4. Discussion

The advantage of the running system is that it does not require large costs because the work is carried out without using the system. While the shortcomings of the current system are:

1. Sometimes it is difficult to search for sales, purchase and inventory transaction data because you have to look for invoices for each transaction due to the lack of structured management
2. There are no reports such as inventory, sales or purchase reports per time period.

The advantages of the proposed system are:

1. The information system designed can make it easier for the owner to find out up to date inventory information so that the owner can manage the inventory of goods for sale or needed to make purchases
2. The information system designed can help the owner to create sales, purchase and inventory reports per required time period so that they can be used for decision making or business development planning for the next period
3. The information system is designed to store data in an organized manner so that it is easy for owners to search for the data they need.

The weakness of the proposed system is that there is no barcode feature to facilitate the transaction process and input of item details.

5. Conclusion

Based on the results of Analysis and Design of Information Systems at UD. Dicky, the conclusions obtained from the author are as follows:

1. With the information system designed at UD.Dicky, it will make it easier for owners to store and print transaction data quickly and accurately.
2. With the information system designed at UD.Dicky, it makes it easier for owners to make the required reports.
3. With the information system designed at UD.Dicky, it will make it easier for owners to find out the stock of goods in the warehouse.

In this section you should present the conclusion of the paper. Conclusions must focus on the novelty and exceptional results you acquired. Allow a sufficient space in the article for conclusions. Do not repeat the contents of Introduction or the Abstract. Focus on the essential things of your article.

Acknowledgement

Thank you to UD Dicky and the Research Team for our collaboration so that this research can be completed well.

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