Macro excel (VBA) implementation in designing booking information systems in uniform convection (Case Study: Kholidi Taylor SME, Medan Denai)

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Abstract. The development of information technology today is very influential in every field of work, especially in Small and Medium Enterprises (SME) which often require the implications of these technologies to support their work. This information technology is expected to help work become faster, more accurate, flexible, and efficient. Kholidi Taylor Convection SME is a business that produces uniforms or printed screen printing that can be customized by its buyers. Therefore, this SME needs an information system that can provide a place for buyers to order the uniform they want easily. This study uses the VBA Macro Excel application where this application will be used by buyers to order the desired uniform. Data Flow Diagrams (DFD) are needed to determine the most important entities and their correlation in order to create a good VBE ordering application.

1. Introduction

Small and informal businesses are business sectors that have proven to play a strategic or important role in overcoming the consequences and impacts of the economic crisis that hit Indonesia in 1997. On the other hand, the small and informal business sector has also been able to contribute in boosting Indonesia's economic growth so far [1]. The strategic position of the small and informal business sector is also because this sector has several advantages over large / medium enterprises. The advantages of this sector include the ability to absorb labor and use local resources, and its relatively flexible business [2].

It is useful for the promotion of all SMEs and as a medium of information about superior products. So that it is expected to be able to develop new business potentials and be better known by the wider community. The weakness of this website is that it does not have features for ordering and reporting facilities. On the off chance that the consequences of QC tests can't satisfy the acknowledgment models, the aftereffects of examination of the entire arrangement of the estimations on that day must be eliminated or should be re-dissected, and an incomplete or full re-approval of the strategy considered [11].

The existence and role of information technology has brought a new era of development in all fields, but these developments have not been matched by an increase in human resources that determines the success of the institution's goals. Utilization of information technology needs to be implemented in small businesses that want to develop their businesses, one of which is Kholidi Taylor, which is engaged in uniform convection. This SME is located on Jl. Denai Gg. Amal No.1 Medan
Kholidi Taylor SME still uses the ordering system manually. Costumer must come to SME to order and see uniform examples so that the ordering system becomes less efficient.

One of the supporting factors for SME to grow is the website. Consumers on e-commerce can interact with SME using the website. Measuring the quality of the website can be done with tools and surveys.

2. Theoretical Background

2.1. Information Systems

An information system is a collection of any physical or non-physical subsystems that are interconnected with one another and work together in harmony to achieve one goal, namely processing data into meaningful and useful information [3].

The measured success of an information system based on the purpose of manufacture depends on three main factors, namely (1) conformity and quality of data, (2) organizing data, and (3) procedures their use. Every system information presents three main aspects: (1) data collection and entry, (2) storage and data retrieval, and (3) application of data, which is in terms of information systems including data display [4]. System analysis is defined as how to understand, and expressing with details what to do by the system [5].

2.2. Data Flow Diagrams (DFD)

Data Flow Diagrams (DFD) are used to describe data flows logically on a system that is running or an old system or that will be developed without regard to the physical environment in which the data flows. DFD is a presentation in a system that uses four forms of symbols, in illustrating how data flows through interconnected processes. DFD is usually developed using a tiered way. Starting with the Context Diagram (CD), DFD level 1, DFD, level 2, DFD level 3 and so on according to the complexity of the system to be developed [6].

2.3. Microsoft Excel

Microsoft Excel is a spreadsheet application program created and distributed by Microsoft Corporation that can run on Microsoft Windows and Mac OS [7]. Microsoft Excel is one of the application programs called spreadsheets, which enable users to supply data and instructions in the form of commands and formulas to make the desired computations. A spreadsheet is not a computer language used to write a program; it is an application program with which a user can organize procedures for making calculations in a tabular form. Microsoft Excel is a powerful program that can be used to analyze data of an experiment in physics. This application program is quite easy to use and it is supported by adequate internal utilities for making calculations and graphs [8].

2.4. Excel Macros

In contrast to Visual Basic, programming code created using Macros can only be built into Excel programs. Microsoft Excel VBA allows Microsoft Excel users to automate several aspects of Microsoft Excel, such as budgeting and forecasting, analyzing scientific data, creating invoices and other forms, making graphics from data, and so on. Macro Excel is a development of Visual Basic programming used in Microsoft Office applications, including Microsoft Excel. Unlike Visual Basic, programming code created using Macros can only be built in Excel programs.

Using the Macro feature in Excel has the following advantages:

- Save time. Completion of a job using macros is faster compared manually
- Save energy. Apart from saving time, using job completion. Macros can also save energy because the process is automatic
- Reducing the error rate. The possibility of errors in completing a job manually can occur, even if you are a very skilled at using Excel. Completion of a job using Macros will consistently
complete the job based on the instructions written in the program code so that the error rate that may arise is very small. Errors will only occur if there is an incorrect command in the program code [9].

3. Research Methodology
This research was conducted at Kholidi Taylor SME which is engaged in uniform convection, located on Jl. Denai Gg. Amal No.17 Medan Denai District. The research was carried out starting from field observations, data collection to journal making. Variables in this study include: sales information systems, product information systems, and financial information systems. In this study will use data collection methods such as the following:

- Observation Method
  The Observation Method is used to learn and know firsthand the types and ways of making products. This data collection is done by directly observing the problems in the SME.
- Interview Method
  Interview is an activity by conducting question and answer directly to one of the workers in the SME to ensure the data obtained is really in accordance with the facts and get data on objects related to research.
- Literature study method
  Literature study is a method of collecting data which is done by searching, reviewing information or data in the literature relating to this research, both from articles, previous research or from the website, as well as studying and analyzing the literature.

4. Result
There are some weaknesses in the Kholidi Taylor SME ordering system because they still use conventional systems. Analysis of the problem and its solution can be seen in Table 1.

| Benchmark              | Analysis                                                                 |
|------------------------|---------------------------------------------------------------------------|
| Ordering Sistem        | Customers who want to order must come to the location of SME to make an order that is considered less efficient. This can be overcome by making an application so that bookings can be made at any time without the need to come to SME. Customer data on the application can also be used as a database of SME as both history and evaluation. |
| Ordering Specification | Kholidi Taylor's SME ordering system still uses a conventional system. The customer places an order by coming to the SME location to provide order specifications. This can be overcome by ordering detail features which include the amount, type of fabric, size, and additional details. |
| Data Storage           | Uniform sample data is usually sent to customers by SME employees but is not archived so SME do not have uniform sample data that can be used as a reference. This can be overcome by creating a database in the form of a uniform catalog to make it easier for customers to find uniform references to be made. |
| Price Calculation      | Price calculation is more accurate because it uses |
software so that it can calculate the total price when 
an order has been input. The prices listed and 
calculated have also been adjusted to the selection 
of uniform material types so that the calculations 
are more accurate and easier to analyze and 
evaluate.

Sales Report

So far, sales are recorded manually, to avoid risks 
such as lost records and others on the application 
there is an order verification page so that the 
system stores sales data to facilitate the making of 
sales reports so that analysis and evaluation can be 
done more easily.

4.1. Implementation and Discussion

4.1.1. Program Implementation. In making a booking system using Macro Excel, Microsoft Excel 
software is needed to create a program view and Microsoft Visio software for making Data Flow 
Diagrams (DFD).

Data Flow Diagrams (DFD) are process models that are used to describe the flow of data 
through a system and the tasks or data processing performed by the system [10]. The notation of each 
level in DFD uses the De Marco and Jourdan notation to describe the Data Flow Diagram (DFD) 
uniform ordering information system on Kholidi Taylor SME.

• Data Flow Diagram (DFD) Level 0 Login Process
  The following is a data flow diagram (DFD) level 0 login process.

![Data Flow Diagram Level 0 Login Process](image1)

**Figure 1.** Data flow diagram (DFD) level 0 login process

• Data Flow Diagram (DFD) Level 1 Order Process
  The following is a Level 1 Data Flow Diagram (DFD) ordering process.

![Data Flow Diagram Level 1 Order Process](image2)
Figure 2. Data flow diagram (DFD) level 1 ordering process

4.1.2 Program Display

- Login Form Display
  Login form is a form where the customer will fill in the username and password that was previously registered in the database. The following is a display of the login form.

Figure 3. Login form display

After successfully logging in the display will appear as follows.

Figure 4. Login successfully displays
• Order Form
The order form contains the details of the uniform that will be ordered, namely the type of uniform, type of fabric, examples of uniforms in the uniform catalog, the number of orders according to size, and additional notes if the customer wants additional details on the order.

![Order Form Display](image)

**Figure 5. Order form display**

• Uniform Catalog Display
The uniform catalog page contains examples of uniforms that have been ordered by the customer before, type of fabric and price. In the DFD level 1 information system customer orders can previously be entered into a uniform catalog database.
• Order Verification Display

It is a verification of a customer order containing all the details and the amount of price that must be paid by the customer.
5. Discussion
This research was conducted by the author with the aim to simplify the ordering system of SME Kholidi Taylor by utilizing information system technology to be easily accessed by the customer and database maker of each product so that the data will be neatly arranged and easy to evaluate.

6. Conclusion
After making an order application on SME Kholidi Taylor, the conclusions that can be drawn are, with this application the customer can place an order both according to the catalog or with the desired specifications anywhere and anytime. SME can create a uniform catalog to facilitate customers and can be used as history data for SME that can be used in terms of design evaluation. The application minimizes calculation errors when calculating prices. Financial statements are more controlled because the system stores sales history.

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