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DVPOSitive: Effective Sales Application and Smart Stock for Distributor Companies PT Indofood Sukses Makmur Tbk Based on Microsoft Access

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ABSTRACT

This project activity is carried out to create an application that can help the sales process and stock management of goods more easily, quickly, and regularly. This application is built using Microsoft Access because it is easy to use and suitable for small business needs. In application development, database design, input and output forms are created, and automatic report preparation is carried out. The app can record purchase and sale transactions, monitor stock of goods directly, and present reports needed by users. The results of using this application show that the transaction recording process becomes faster and errors in stock management can be reduced. With this application, the sales process becomes more efficient and effective. This application is suitable for business actors who want to start using digital systems without having to use complicated or expensive applications.

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INTRODUCTION

PT Indofood Sukses Makmur Tbk is a leading manufacturing and distribution company in Indonesia engaged in the production and sale of various branded food and beverage products, such as instant noodles, liquid milk, snacks, cooking spices, and other beverage products. In its distribution activities, the company has an extensive network and serves product delivery to various regions through its internal distribution division.

In daily operations, especially in the product distribution line, PT Indofood Sukses Makmur Tbk handles various important activities such as recording sales transactions, receiving goods from production units, and managing stock of goods in warehouses. As market demand increases and the volume of daily transactions increases, manual recording using conventional books or spreadsheets is increasingly inefficient and prone to errors.

Problems that often occur include delays in reporting stocks, errors in recording the number of incoming and outgoing goods, and difficulties in monitoring stock positions in real-time. This condition can have an impact on the effectiveness of the sales team and warehouse management, as well as hinder managerial decision-making processes such as product reprocurement and sales performance evaluation.

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To overcome these problems, an application system is needed that is able to automate the sales process as well as manage stock in an integrated manner. However, because commercial point of sales (POS) software solutions generally have high implementation costs and require certain technical infrastructure, a more economical and practical alternative is a relevant option for the company's internal distribution division.

This research offers a solution by building a sales and stock management application based on Microsoft Access, which is considered appropriate to support the distribution operational needs of PT Indofood Sukses Makmur Tbk. This application is designed with key features such as recording sales and receipt of goods from production units, automatic stock updates, and the creation of daily, monthly, and stock reports.

The selection of Microsoft Access as a development platform was based on considerations of ease of use, low cost, and its ability to effectively integrate data and user interfaces without the need for advanced technical expertise. Several previous studies have also shown that Microsoft Access-based sales information systems are able to improve work efficiency, reduce recording errors, and speed up the report preparation process (Rahmawati, 2021; Siregar & Anggraini, 2022).

LITERATURE REVIEW

A literature review in this project was conducted to understand the Point of Sales (POS) system, the basics of using relational databases, and the application of Microsoft Access as an application creation tool. The POS application developed is called DVPOSitive, and is used to assist the operational process at PT Indofood Sukses Makmur Tbk, especially in recording purchase, sell, and stock data of goods.

The POS system is one of the main components in the operational management of companies engaged in trade and manufacturing. According to Laudon and Laudon (2018), POS is a computer-based system that is used to record sales at the time they occur, store transaction data directly, and provide reports that help with decision-making. Modern POS not only records sales transactions, but can also be used to track inventory, reorganize stock, and analyze sales performance.

In designing a POS system, a deep understanding of relational databases is needed. According to Connolly and Begg (2015), a relational database is a data management system that stores information in the form of interrelated tables. Each table represents a specific entity, such as an item, a sales transaction, or a purchase. The relationships between the tables are created to ensure the integrity of the data and facilitate the processing of information. In the DVPOSitive application, the database structure consists of the Goods table, the Purchase and Purchase Details table, and the Sales and Sales Details tables. The relationships between these tables are designed to support the need for fast and accurate reporting.

Microsoft Access is one of the most easily operated relational database management software for general users. Based on the opinions of Rob and Coronel (2007), Microsoft Access provides visually simple application development features, including form creation , queries, and reports, which are very suitable for use in administrative work environments. Access also allows for direct data integration and reporting without the need for complex programming. This advantage is one of the reasons why DVPOSitive was developed using this platform.

The preparation of transaction reports is an important component of the information system. In a business context, reports are needed to see the performance of purchases and sales, as well as monitor the condition of stock of goods. Stair and Reynolds (2016) explained that reports generated from information systems must be able to present data that is relevant, timely, and easy to understand by management. Therefore, DVPOSitive is designed to generate several main types of reports, namely

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purchase reports by date, daily or monthly sales reports, and inventory reports that show the amount of stock available and sold.

However, in compiling this literature review, there were obstacles in finding references that specifically discussed the implementation of Microsoft Access for POS systems in large manufacturing companies. The majority of previous studies have reviewed POS in the retail sector or small and medium enterprises. However, this condition actually strengthens the position of this research as a new effort that provides added value in the context of developing simple but targeted information systems in medium to large scale companies.

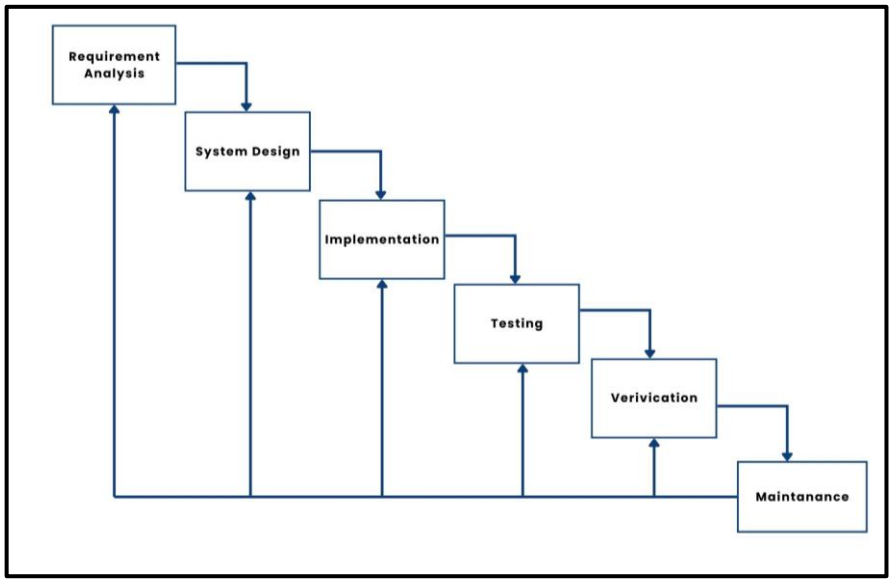
The development of DVPOSitive has a strong theoretical basis. This system is built based on the company's real needs, by referring to the principles of information systems, database management, and effective business reporting. With the right approach, this application is not only useful for PT Indofood Sukses Makmur Tbk, but can also be used as a reference for other companies that want to develop an efficient and integrated internal transaction recording system.

METHODS

The system development method in making sales applications and managing stock of goods uses the Waterfall approach which is part of the Software Development Life Cycle (SDLC). SDLC itself is a conceptual framework used in software development, by describing the systematic stages that must be passed to build a structured information system.

Of the various approaches within SDLC, the Waterfall model was chosen because of its linear and structured flow, so that it fits the needs of Microsoft Access-based application development, where the needs of the system have been determined from the beginning. This approach makes it easier for developers to build applications in a gradual and planned manner.

The waterfall approach model consists of six stages with stages as shown in the following Figure:



Picture 1. System Development Flow with Approach *Waterfall* SDLC

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a. Requirement Analysis

In the development of sales applications and stock management, this starts with the process of collecting and analyzing system needs. There were no direct interviews with users, but needs were analyzed through observations of similar applications available on the internet and online reference studies. The results of these observations are used to formulate functional needs such as entering goods data, recording sales transactions, automatic stock reduction, and making sales reports. This system analysis includes the identification of problems, the scope of the system, the benefits of the system, the needs of the system, and the ability of the system to support sales business operations.*System Design.*

b. System Design

The design stage is carried out based on the results of the needs analysis, including designing the user interface (input forms of goods, transactions, and reports), database table structures such as Goods, Transactions, and Transaction Details tables, as well as system logic flows. In this study, visual design approaches such as *Entity Relationship Diagram* (ERD) and inter-table relationship schemas in Microsoft Access are used to facilitate data integration and transaction processes.

c. Implementation

The designed system design is then implemented into the application using **Microsoft Access**. This process includes creating **forms**, **queries**, **tables**, and **reports**. Modules such as item input forms, sales transactions, and sales reports are built in an integrated manner, and are supported by automation logic using **Visual Basic for Applications (VBA)** to execute certain processes such as automatic stock reduction.

d. Testing

After the application is completed, the testing stage is carried out with the Black Box Testing method which focuses on testing the function and appearance of the application without looking at the internal structure of the program. Testing is carried out on all major modules to ensure that the system runs according to the user's needs, including data input, transaction processes, and report output. The test also aims to find faults in the system that have not been detected before.

e. Maintenance

Maintenance is carried out to fix bugs, improve system performance, and make adjustments to new needs that may arise. Maintenance is carried out periodically so that the application remains optimally used in operational activities, sales and stock management.

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RESULT AND DISCUSSIONS

a. System Analysis

In several work units or internal distribution sections of PT Indofood Sukses Makmur Tbk, the process of recording sales and managing stock is still carried out manually or semi-manually using Excel. This causes information not to be presented in real-time, prone to input errors, and makes it difficult to make stock and sales reports quickly and accurately. Therefore, a Microsoft Access-based application is needed that can help record transactions, automatically update stock, and generate structured reports, making the work process more efficient, faster, and organized.

b. System Design

Designing a simple app that can automatically connect inventory recording with sales. With this system, every time there is a sales transaction, the amount of stock of goods will immediately decrease according to the goods sold. This makes inventory data always updated in real-time, so that management can easily determine the right time to make a repurchase, to ensure that the availability of goods is maintained and customer needs can be met. The design of the inventory and sales information system is made using *Microsoft Access,* which consists of several main components, namely:

- Main menu
- Inventory data input form
- Sales transaction form
- Purchase transaction form
- Report menu

c. System Implementation

1. Main Menu

The Main Menu will be displayed on the screen once the user has successfully logged into the system. Through this menu, users can choose the type of activity or process they want to do, such as entering inventory data, recording sales transactions, making purchases of goods, or viewing reports. This menu is designed to make navigation easy and gives you quick access to all the key features available in the app.

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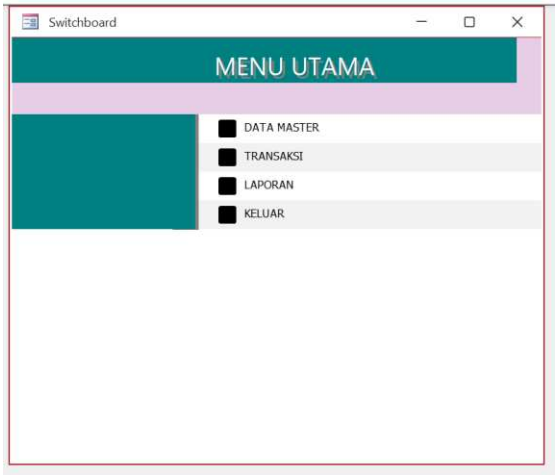

Picture 2 DVPOSitive MS Access Application Main

2. Goods Data input form

The Goods Data Input Form section functions to record all goods available for sale at PT Indofood Sukses Makmur Tbk. Through the main menu display, users can directly access this form without the need to log in first. In this form, users fill in the goods data starting from the Item Code, Item Name, Unit, Purchase Price, and Selling Price. In addition to adding new data, users can also edit, store, and delete item data that have been previously inputted.

Picture 3 DVPOSitive MS Access Application Item Input Form

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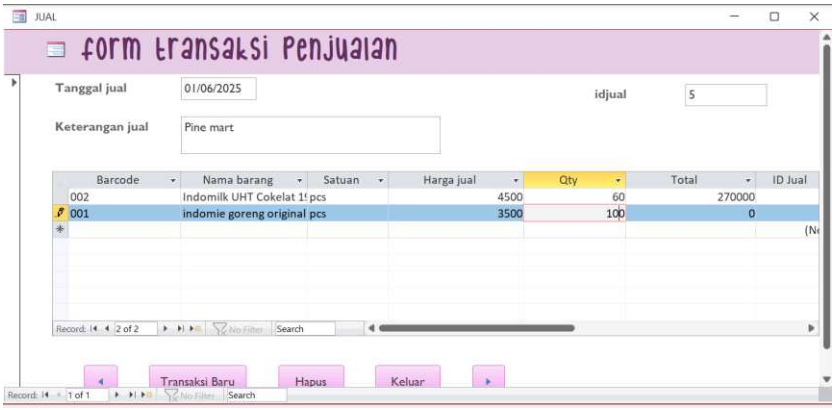
3. Sales Transaction Form

In this form, users can record every sales transaction that occurs. The data filled in includes Transaction Date, Description, Transaction ID, Item Code, Item Name, Unit, Selling Price, Quantity, and Total Price. The system will automatically calculate the total price based on the number of goods and the selling price per unit. This form is directly integrated with inventory data, so that each sale will automatically reduce the stock of available goods.



Picture 4 DVPOSitive MS Access Application Sales Transaction Form

4. Purchase Transaction Form

The Purchase Transaction Form is used by the user to record every activity of purchasing goods. The data that needs to be filled in includes the Transaction Date, Description, Transaction ID, and other information displayed in the form. All recorded data will automatically increase the amount of stock of goods available in the system. This form helps ensure that every purchase transaction neatly and accurately documented.

Picture 5 DVPOSitive MS Access Purchase Transaction Input Form

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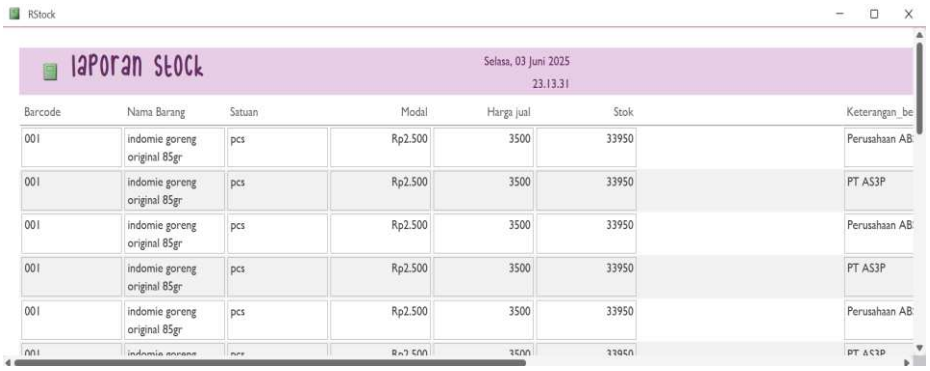
5. Report Menu

Every transaction or activity that has been done before will be recorded and can be displayed in the form of a report. The system provides several main types of reports, namely Goods Stock Data Reports, Sales Reports, and Purchase Reports. The following is an example of what the three reports look like:

Picture 6 DVPOSitive MS Access Goods Purchase Report Form

Picture 7 DVPOSitive MS Access Goods Sales Report



Picture 8 DVPOSitive MS Access Goods Stock Report

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CONCLUSION

DVPOSitive was successfully developed as an effective, simple, and cost-effective sales recording and stock management application, especially for small to medium-sized distributor companies. The use of Microsoft Access shows that the digitization of business processes can start from an easily accessible solution without the need for a complex system. The app supports operational efficiency through transaction features, stock management, and report generation. However, the project has limitations, such as its reliance on Microsoft Access which is not suitable for large-scale multi-user use as well as limited integration with external systems. These limitations have the potential to impact the flexibility and scalability of applications going forward, so further development is recommended so that the system can be adapted to a more robust and flexible platform to address more complex business challenges.

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