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Design Of Office Stationer Inventory Management Application Using The Laravel Framework

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ABSTRACT

In the rapidly advancing digital age, a stationery trading firm is facing multiple challenges in managing its office supply inventory. These include difficulties in estimating the required stock, shortages that hinder operations, and the need for real-time inventory monitoring and efficient record-keeping. This research aims to develop and implement a web-based solution to address these challenges. The application is built using the PHP programming language, the Laravel framework, and MySQL as the database. The initiative aims to enhance the operational efficiency of the trading company by streamlining the office supply replenishment process and improving customer satisfaction through increased availability. In addition to its practical benefits, this research also has the potential to contribute to the development of knowledge related to web-based applications and the inventory management of office supplies in general.

Keywords: Inventory Management, ATK Restocking, PHP, Laravel, MySQL, Web-Based Application.

INTRODUCTION

The advancement of information technology and the internet has brought significant changes to the business world, particularly in inventory management. As companies strive to remain competitive, efficient inventory management has become a crucial element for success. (Manik, 2023) This is especially true in industries such as retail, distribution, and manufacturing, where the ability to manage stock levels effectively can have a direct impact on overall operational efficiency and customer satisfaction.

In many organizations, traditional methods of managing inventory still prevail. For instance, one trading company responsible for office supplies currently relies on manual processes to restock items. (Ginting et al., 2022) Employees monitor stock levels by observing supplies that are nearly depleted. This outdated approach often leads to errors in estimating the quantities of office supplies that need to be restocked, resulting in either overstocking or stockouts, both of which can disrupt business operations and negatively impact customer service. (Syahril et al., 2023)

Moreover, the company's inventory recording system is still based on manual notebooks. This reliance on paper records creates significant challenges in terms of monitoring and accuracy. Manual entries are prone to human error, and retrieving information can be a time-consuming process. As a result, the company faces difficulties in maintaining an accurate inventory overview, which in turn hampers its ability to respond quickly to changing demand and operational needs. (Setiyawan & Sudarmilah, 2023)

To address these challenges, the company needs to adopt modern inventory management solutions that leverage technology. Implementing a digital system can streamline the restocking process, ensuring that inventory levels are monitored in real-time and reducing the likelihood of errors. By transitioning to an automated system, the company can enhance its operational efficiency, improve customer satisfaction through better product availability, and ultimately position itself for greater success in a rapidly evolving market.

Application

According to Pramalegawa et al., (2025), design is the process of defining a system or product using various techniques, including descriptions of the architecture, component details, and the limitations that will occur during the development process.

Application is an abbreviation of the word "application," which means the act of applying or using something. In general, an application refers to a computer program that has been written and is ready to be used to perform certain functions for users or other applications, and may be utilized by its intended target audience.

Supply

According to Arini Alvi Oktavia et al. (2022), management is a process, method, and act that involves executing specific activities by mobilizing the efforts of others. Furthermore, management is a process that formulates an organization's policies and objectives while overseeing all facets of their implementation and attainment.

According to Khakim (2024), inventory, commonly referred to as "inventory," consists of the main goods in a trading company. This inventory falls under the category of the company's current assets and plays a vital role in generating profit. Generally, the phrase 'inventory' is used to refer to items maintained for resale or utilized to make goods that will be sold, notably in trading companies.

Office stationery

According to Ahmad et al., (2022), office supplies are items used in the daily responsibilities of administrative workers. This assortment of office supplies includes pens, pencils, ink, typewriter ribbons, blank forms, carbon paper, files, and paper clips.

Laravel Framework

According to the Journal of Computing Chen et al., (2022), Laravel is a PHP framework distributed under the MIT license. This framework is based on the MVC (Model-View-Controller) paradigm and is used for creating MVP (Model-View-Presenter) based websites. Laravel seeks to enhance software quality by minimising initial development and maintenance costs, while simultaneously offering an improved working experience through its expressive, clear, and efficient syntax in terms of time.

According to the website Priyambodo Syuharyadi et al., (2025), Laravel is a framework built on top of the PHP programming language that enhances the website development process. Utilising Laravel will render the website more dynamic.

This project is to develop a web-based application that monitors office supply inventory in real-time, issues notifications for low supplies, and enables digital inventory management. This application is expected to enhance office supply management, improve the monitoring

system, and streamline record-keeping, as per the requirements articulated by the manager of a trading company in Bandung.

METHOD

This research employs a descriptive methodology. This approach delineates the procedure for managing office supply inventory at a trading company in Bandung, encompassing inventory estimation, record-keeping, the restocking process, and its implications for the company's operations. The descriptive method ¹ provides a comprehensive analysis of the challenges and remedies associated with managing office supply inventory.

Data collection technique:

1. Observation

Data will be gathered by direct observation of the existing stationery inventory management system at a trading company in Bandung. This observation aims to understand the stationery restocking procedure carried out by the Store Manager.

2. Interview

Structured interviews will be employed to acquire more comprehensive information from the Store Manager. The interviews will focus on the office stationery replenishment process, obstacles encountered, and requirements and expectations related to the development of the Office Stationery Inventory Management application.

3. Literature Study

Data will be acquired via a literature review, examining references and literature pertinent to the design of office stationery inventory management apps and associated technologies. The literature review is conducted to understand the concepts, theories, and technologies required for application development.

System Development Methods

The methodology employed for developing an office stationery inventory management application for a trading company in Bandung is Object-Oriented Analysis and Design

(OOAD). Object-Oriented Analysis and Design (OOAD) is a methodology that evaluates system requirements through the lens of the classes and objects present in the domain of interest.

DISCUSSION

System Analysis and Design

a) Analysis of the running system

The following is the business process flow at a trading company in Bandung:

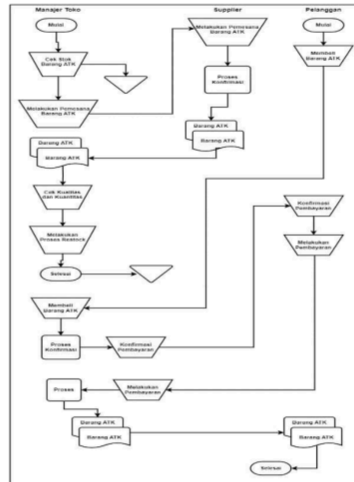
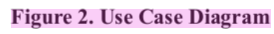


Figure 1. Analysis of the running system

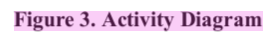
b) Proposed analysis

The following is an analysis of the proposed system at a trading company in Bandung:

2



Activity I



Sequence Diagram



c) System Design

i. Database Design



Barang_atks				
No	Nama	Tipe	Size	Keterangan
1	Id	BIG INT	20	Primary Key
2	Nama_atk	VARCHAR	255	
3	Kategori_id	UNSIGNED INT	20	Foreign Key
4	Stok	INT	11	
5	Harga	INT	11	

Figure 5. Database Design

ii. Interface Design

The screenshot shows the 'Fotocopy HBA' application with a menu bar (Menu, Menu, Menu, Menu, Menu, Menu, Menu, Menu). The main window is titled 'ATK List' and contains a table with columns: ATK Name, Category, Stock, Price, and Option. The table has one row of data: 'XXXXXXXX', 'XXXXXX', 'XXX', 'XXXX', and 'Option'. Below the table are buttons for 'Add ATK', 'Search Bar', 'Edit', and 'Delete'. There is also a 'Search' button and a 'Page' indicator showing '1 of 1'.

Figure 6. Interface Design

System Implementation

The system implementation phase involves converting previously developed application plans and designs into a functional product or system that meets specified requirements.

a) Database Implementation

The screenshot shows the MySQL database table structure for 'barang_atk'. The table has the following columns: 'id' (BIGINT(20), UNSIGNED, PRIMARY KEY), 'nama_atk' (VARCHAR(255), UNSIGNED), 'kategori_id' (UNSIGNED INT(11), UNSIGNED, FOREIGN KEY), 'stok' (INT(11), UNSIGNED), and 'harga' (INT(11), UNSIGNED). The table is located in the 'fotocopy_hba' database.

Figure 7. Table barang_atks

b) Interface Implementation

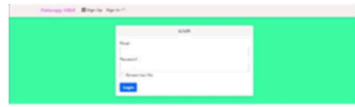


Figure 8. Login Page View



Figure 9. Stationery Item Dashboard Display



Figure 10. Add Stationery Item Display



Figure 11. ATK Item Edit Display

CONCLUSION

The findings from this final project research highlight notable progress in managing office supply inventory. By utilizing a Laravel-based inventory management application, the efficiency of the inventory management process has seen a remarkable improvement. This programme enables the proprietor of Pd—Fotocopy H&A to monitor the influx and efflux of office supplies precisely. The precise and detailed data generated serves as a foundation for management to make informed, fact-based decisions. The intuitive layout and pertinent features of the application facilitate access and management for the store manager.

To further enhance the application, several suggestions have been proposed. Implementing comprehensive testing across diverse scenarios and workloads can guarantee optimal performance and reliability in practical applications. Emphasizing data security is crucial to protect sensitive information about office supply inventory and business transactions. Integrating the inventory management programme with current systems, such as accounting or online ordering, may enhance overall efficiency. The ongoing acquisition of user feedback will facilitate the identification of areas for improvement. At the same time, sufficient technical support and regular maintenance will ensure the application operates efficiently and securely over time.

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