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DESIGN OF RAW MATERIAL INVENTORY APPLICATION IN PHARMACEUTICAL COMPANY

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ABSTRACT

The advancement of technology in the information sector drives every company or organization to stay updated, particularly in terms of information technology developments that are relevant to their operations. Pharmaceutical companies that supply drugs to pharmacies and hospitals play a crucial role in tracking drug inventory, ensuring both viable stock and expired medications are properly recorded. This ensures that drug stock is well-managed and can be distributed efficiently to meet demand. This research aims to develop a raw material inventory application for a pharmaceutical company. To address issues present in the existing system. The development of the raw material inventory system in a pharmaceutical company incorporates database design and system interface design.

ABSTRAK

Kemajuan teknologi di bidang informasi mendorong setiap perusahaan atau organisasi untuk selalu mengikuti perkembangan, khususnya dalam hal perkembangan teknologi informasi yang relevan dengan operasionalnya. Perusahaan farmasi yang memasok obat ke apotek dan rumah sakit memegang peranan penting dalam pelacakan persediaan obat, memastikan stok obat yang masih layak pakai maupun obat yang sudah kadaluarsa terekam dengan baik. Hal ini memastikan bahwa stok obat terkelola dengan baik dan dapat didistribusikan secara efisien untuk memenuhi permintaan. Penelitian ini bertujuan untuk mengembangkan aplikasi persediaan bahan baku untuk perusahaan farmasi. Untuk mengatasi permasalahan yang ada pada sistem yang ada. Pengembangan sistem

persediaan bahan baku di perusahaan farmasi menggabungkan perancangan basis data dan perancangan antarmuka sistem.

INTRODUCTION

The rapid advancement of information technology over time enables human tasks to be completed more efficiently. Technology is a commonly utilized tool in various human activities. Technology plays a crucial role in simplifying information processing, ensuring that the generated information is valuable to its users. Fast, accurate, and efficient data and information processing is essential for every company or organization to enhance productivity, save time, and reduce costs. With the advancement of information and communication technology, competition in the system industry is becoming increasingly intense. The growing number of companies continues to drive efforts and strategies to sustain their businesses. A company's success in sustaining its business is closely tied to its ability to manage inventory effectively, ensuring it can meet consumer demand optimally. Companies that effectively control and manage their inventory can fulfill consumer needs and ensure the sustainability of their business. Inventory management is crucial for a business, as it helps track stock in the warehouse, ensuring products are available for sale to consumers. Therefore, business owners and traders must efficiently and effectively manage inventory to achieve the company's objectives.

A Pharmaceutical Company is a pharmaceutical manufacturing company engaged in the production of chemical drugs and traditional medicines, which is a company that does not sell finished drugs in general but distributes them to certain hospitals, so that the drugs will be given to consumers through doctors with the prescriptions given.

Pharmaceutical companies always monitor and record the stock of raw materials that will be produced to be made into medicine. So far, the processing of raw material inventory data is still done manually by the Warehouse Admin, namely for recording raw materials entering and leaving the Warehouse. Raw material stock data is recorded in a ledger containing the name of the raw material, the amount of raw material, the Expired Date and the Retest Date of the raw material. So that from these problems sometimes errors occur in the calculation of raw materials because expired raw materials are still considered suitable for use, difficulties in recording and making reports on incoming and outgoing raw materials are many and in certain months there is a shortage and difficulty in finding the required raw material data due to the accumulation of records.

Based on the background above, it is necessary to conduct research on "Designing a Warehouse Raw Material Inventory Application in a Pharmaceutical Company" which can facilitate the handling of the raw material stock inventory process, recording incoming and outgoing raw materials.

Research Goal

The purpose of this study is to design a good application for raw material inventory in a pharmaceutical company.

METHOD

Theories Related to Systems

Theories related to systems include systems, information, and information systems.

System

According to Sutabri, a system is a group of elements that are closely related to each other, which function together to achieve certain goals.

According to Fathansyah, a system is an arrangement consisting of a number of functional components with specific functional units and tasks that are interconnected and together aim to fulfill a certain process.

Information

Various definitions of information quoted from several sources as follows:

According to Nugroho, Information is one of the elements in company management. In order for information to flow smoothly, managers need to place information in a system framework.

According to Sutabri, information is data that has been classified or processed or interpreted for use in the decision-making process.

Information System

Various definitions of information systems quoted from several sources, such as the following:

According to Laudon, an information system can be defined as a series of interrelated components that collect (or obtain), process, store, and distribute information that supports decision making and control within an organization.

Inventory

Various definitions of inventory quoted from several sources as follows:

According to Martono, inventory is all types of goods owned by a company and used to support its business processes.

According to Assauri, inventory is the stock of an item or resource used in a company organization.

Below is a picture of the Waterfall System Development Method to design application a raw material inventory system in a pharmaceutical company.

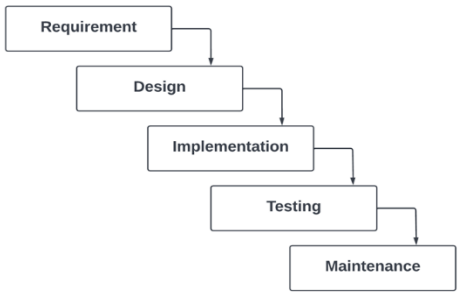

Figure 1. Waterfall System Development Method

Figure 1 is a picture of the Waterfall Method and the research conducted only reached the Design stage.

RESULT AND DISCUSSION

Analysis of the Running System

After conducting observations and analyzing at the Pharmaceutical Company, it can be seen that the system currently running is still less effective, because data collection for processing raw material data is still recorded manually. Analysis of the current procedure systematically describes the activities that occur in the process of recording raw material stock inventory at the Pharmaceutical Company.

Database Design

Table design is a table design that will be created in a database to meet the needs of business functions defined in the business modeling phase. The following is the proposed table design. :

1. User Table

   The user table is used to store user data containing id, username, email, permission and password. The following Table 1 explains the contents of the user table :

   Table Name : *user*
   Primary Key : id
   Foreign Key : -

Table 1 User Table

No.	*Field*	Type	Size	Keterangan
1.	Id	Int	11	Primary Key
2.	*User*name	Varchar	32	*User*name
3.	Email	Varchar	50	E-mail
4.	*Permission*	Int	11	Kewenangan
5.	*Password*	varchar	16	*Password*

2. Master Materials Table

   The user table is used to store master materials containing id, raw material code, raw material name, raw material vat and raw material unit. The following Table 2 explains the contents of the user table :

   Table Name : *Master Materials*
   Primary Key : id
   Foreign Key : -

Table 2 Master Materials Table

No.	*Field*	Type	Size	Keterangan
1.	Id	Int	11	Primary Key
2.	kode_bahanbaku	Varchar	32	Kode Bahan Baku
3.	nama_bahanbaku	Varchar	50	Nama Bahan Baku
4.	vat_bahanbaku	Int	11	Vatt Bahan Baku
5.	satuan_bahan baku	varchar	12	Satuan Bahan Baku

3. All Materials Table

   The user table is used to store data for all materials containing id, code, name, analysis_no, exp_date, re_date, qty, vat, unit and description. The following Table 3 explains the contents of the user table :

   Table Name : All Materials

Primary Key : id
Foreign Key : -

Table 3 All Materials Table

No.	*Field*	Type	Size	Keterangan
1.	Id	Int	11	Primary Key
2.	Kode	Varchar	32	Kode Bahan Baku
3.	Name	Varchar	50	Nama Bahan Baku
4.	no_analisa	Varchar	9	Nomor Analisa Bahan Baku
5.	Exp_date	Date	8	Expired Date Bahan Baku
6.	re_date	Date	8	Re-*test* Bahan Baku
7.	Qty	Int	11	*Quantity* Bahan Baku
8.	Vat	Int	11	Vatt Bahan Baku
9.	Satuan	Varchar	12	Satuan Bahan Baku
10.	Description	Varchar	50	Description

4. Log Table

The user table is used to store log data containing id, date, and description. The following Table 4 explains the contents of the user table :

Table Name : *Log*
Primary Key : id
Foreign Key : -

Table 4 Log Table

No.	*Field*	Type	Size	Keterangan
1.	Id	Int	11	Primary Key
2.	Tanggal	Date	8	Tanggal *Log*
3.	Keterangan	Varchar	50	Keterangan *Log*

System User Interface Design

1. Login Page

This page is the login page that will be used for users to enter the system. Below is the admin login page design :

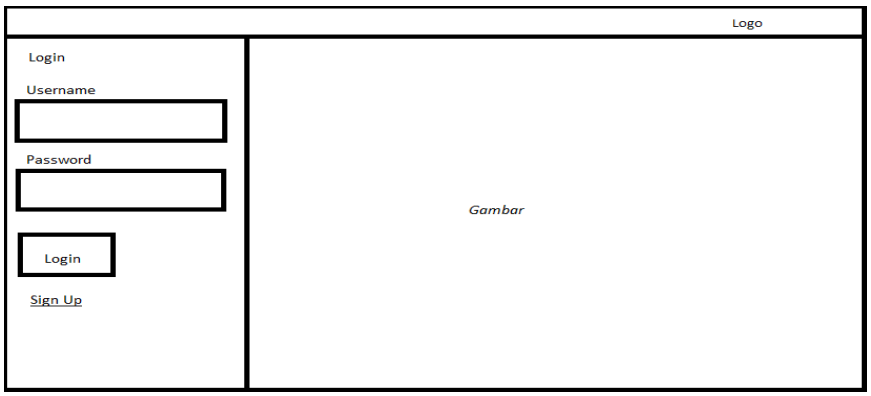

Figure 2. Login Page Design

On the login page design, the company logo can be inserted in the upper right corner. On the left side of the image there is a username and password input design for those who already have an account. For users who do not have an account, they can register on the sign up menu link.

2. Register Page

This page is a design of the register page, for users to register themselves to have an account to access the application. Below is the design of the register page :

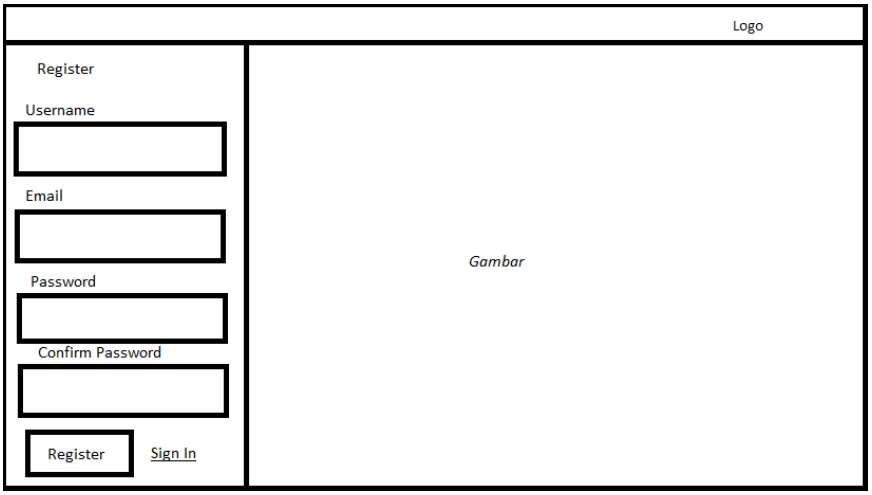

Figure 3. Register Page Design

In the design of the registration page, there is a menu for inputting username, email, password, confirm password, register button, and sign in. On the right side, there is a design of the image and company logo in the upper right position..

3. Home Pgae

On this page is the initial page design that will be used by the user. Below is the initial page design :

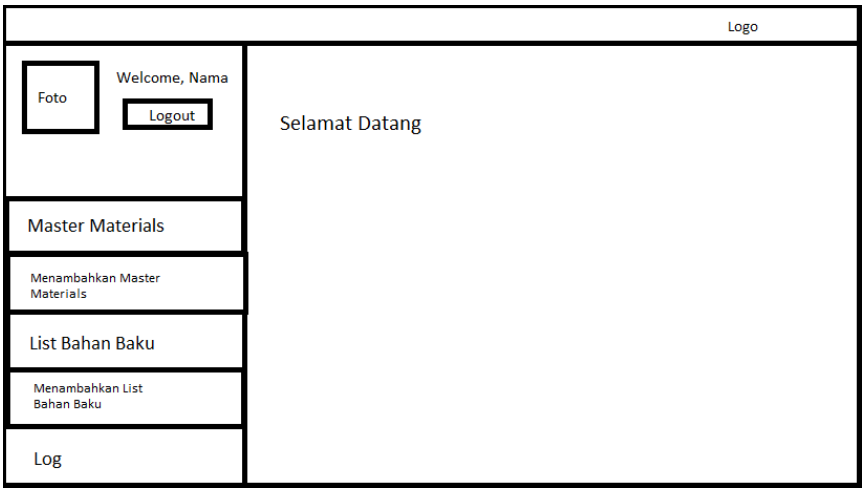

Figure 4. Home Page Design

On the design image of the Home Page there are Photos and welcome along with the user's name, Master Materials menu, menu to add Master Materials, menu to List Raw Materials, menu to add List Raw Materials, and Log menu. On the right side there is a design image and company logo.

4. Master Materials Page

This page is the design of the Master Materials page, so that users can see the master materials data. Below is the design of the Master Materials page :

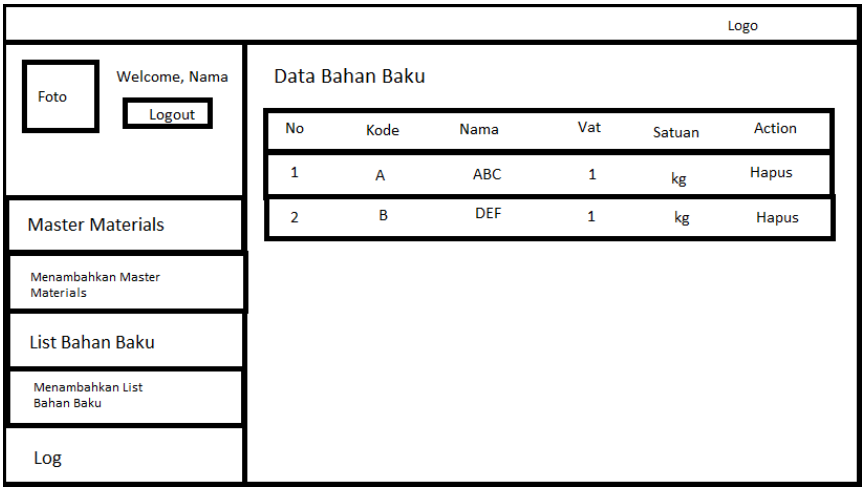

Figure 5 : Master Materials Page Design

The Master Material page has a display on the left side of the User photo, Log out button, Master Material menu, Add Master Material menu, Raw Material List menu, Add Raw Material List menu, Log menu. On the right side, there is Raw Material Data consisting of Number, Code, Vat, Unit, and Action displays.

5. Add Master Materials Page

This page is the design of the Add Master Materials page, to add master materials data to the master page. Below is the design of the Add Master Materials page :

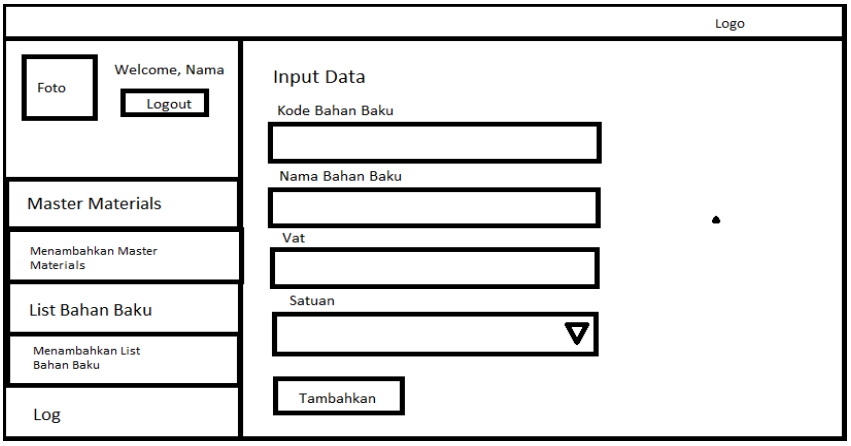

Figure 6. Laman Add Master Materials Page

The Add Master Material page consists of the left side is the user's photo and welcome along with the user's name, there is a Master Material menu, a menu to add master material, a menu to List Raw Materials, a menu to add List Raw Materials, a menu to Log. On the right side is the Data Input menu consisting of Input Raw Material Code, Raw Material Name, VAT, Unit, and the Add button. On the top right is the Company Logo.

6. Raw Material List Page

This page is a design of the raw material list page, for users to see the raw material list. Below is the raw material list page :

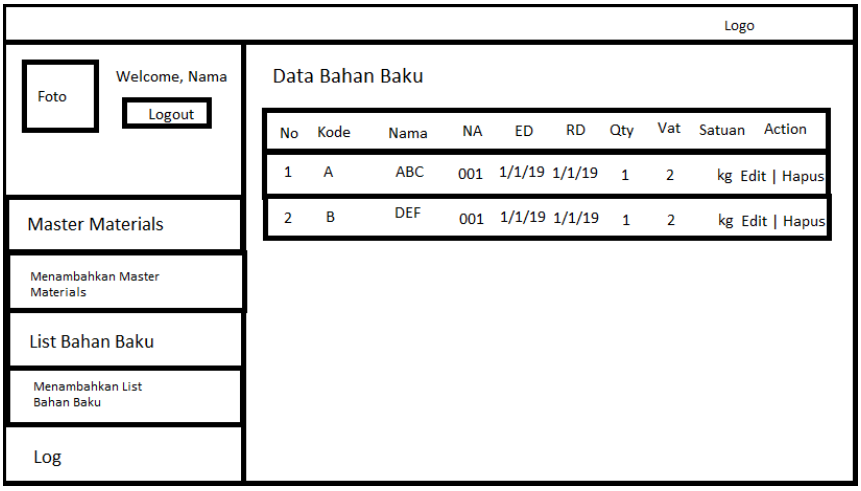

Figure 7. Raw Material List Page Design

On the Raw Material List Page, the left display contains a Photo and welcome, Log out button, Master Material menu, Raw Material List menu, Add Raw Material List menu, Log menu. The image on the right is the design of the Number, Code, Name, NA, ED, RD, Qty, Vat, Unit, and Action columns.

7. Add Raw Material Page

On this page is the design of the page adding a list of raw materials that will be used for users to add raw materials to the list of raw materials, the following is the design of the page adding the list of raw materials :

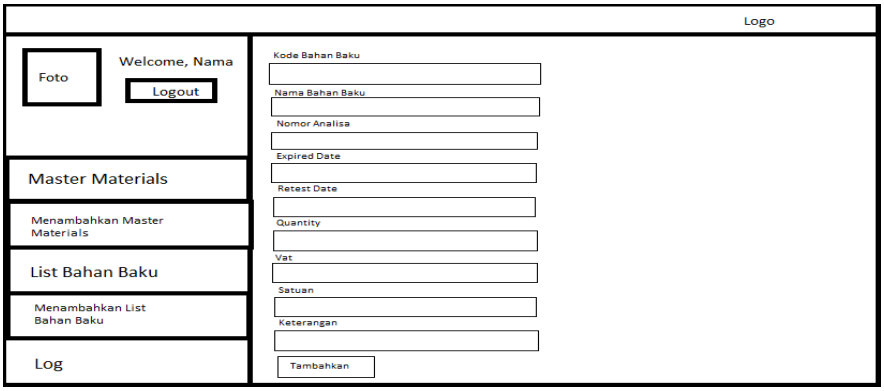

Figure 8. Add Raw Material Page Design

On the Adding Raw Materials page, there is a User Photo menu, Welcome, Log Out button, Master Material Menu, Adding Master Material Menu, Raw Material List menu, Adding Raw Material List menu, Log menu. On the right side, there is a Raw Material Code Input menu, Raw Material Name, Analysis Number, Expired Date, Retest Date, Quantity, Vat, Unit, Description, and Add button.

CONCLUSION

Has successfully designed a Raw Material Inventory Application in a Pharmaceutical Company using a database design consisting of a User Table, Master Materials Table, All Materials Table, and Log Table.

This designed application can reduce errors in inputting raw material data and checking stock so that finding the information needed becomes easier. This Raw Material Inventory System can minimize manual work.

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