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Design and Development of Pharmacy Drug Information Management System

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ABSTRACT: With the development of computer technology, the choice of using computer to manage data has become the need of the times, especially for pharmacy managers, because there are many kinds of drugs in pharmacies and the workload is heavy. Only by improving work efficiency can they survive in a competitive society. From the technical point of view, the pharmacy drug information management system uses the B / S three-tier architecture model, and realizes the memory operation of the data by using the MySQL database with small storage space and complete functions. The system development technology is applied to JSP technology. The pharmacy drug information management system realizes the functions of drug management, employee management and so on, so that the pharmacy managers can overcome the problems of long delay time of data information and complex data processing process.

KEYWORDS: Pharmacy Medicine, Information Management, B/S Architecture, SSM Technology.

I. INTRODUCTION

In the process of pharmacy management, the management of all kinds of data has always been a trouble for managers, because with the development of pharmacies, customer demand gradually increased, the number and types of drugs will be more and more, only rely on manual records, employees for such a wide range of drug information is difficult to achieve timely summary records. Therefore, for pharmacies, only by pursuing innovation and using software systems to manage drug information can they effectively and accurately manage drug information, improve information processing efficiency, and improve the safety of drug management.

[2].Computer development in recent years ushered in a new wave of development, ' Internet + ' concept into people 's lives, a variety of applications are constantly developing and applied to various fields in the pharmacy management computer technology has been very mature. Both single pharmacies and chain pharmacies are trying to change the way of information management. They want to apply the results of the rapid development of computer technology to the management of pharmacies. However, due to the large base, it takes some time to achieve the level of international information management. Computer technology has developed early. With the advent of the information age, computer management has gradually penetrated into every aspect of people 's lives, so the management of pharmacies has also undergone changes. [1].Song and Oyang proposed a dynamic implementation based on metadata editing database and data table according to the B / S structure system, described the principle of the program, compared it with the static database and form created, and then analyzed and explained the implementation in detail. Finally, the application of the program was expounded through a case. The current development of the pharmacy information management system has gradually moved towards specialization, standardization, and scale, which is compatible with the pharmacy management norms. It has become the basis for pharmacies to maintain normal business operations and establish the core competitiveness of enterprises.

[2].The development of a pharmacy drug information management system, through the use of computer management, can not only solve the existing sales management problems, but also can improve the accuracy of the pharmacy drug information, reduce the cost of the pharmacy. The system is written in Java language, managed by MySQL database, and developed by B / S mode. Java language is simple, high security, strong robustness ; MYSQL 's small size, fast ; B / S mode development program maintenance cost is low, easy to manage. Therefore, this study applies the B / S architecture model to pharmacy drug management, aiming to improve the efficiency of pharmacy management and achieve accurate and efficient management of pharmacy drug information.

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II. REQUIREMENT ANALYSIS SYSTEM DESIGN

Traditional drug management mainly relies on manual operation of employees. Due to the large number of drug data, more energy needs to be invested, and there are problems such as low work efficiency and error-prone. The pharmacy drug information management system can enable managers to effectively manage pharmacies, reduce the needs of pharmacy employees, reduce the operating costs of pharmacies, and also reduce the work pressure of employees and improve the accuracy of drug information.

Pharmacy drug information management system is the system is the use of Web services B / S (Browser / Server) multi-layer service system, Spring Boot rapid development framework, MySQL database as the main development technology to meet the pharmacy managers of drug information management and query. The system includes two operating roles : administrator and employee. Administrators have higher authority to manage employees, including modifying employee information, while employees retain basic drug management and other functional modules. An administrator function structure diagram, as shown in Figure 1.

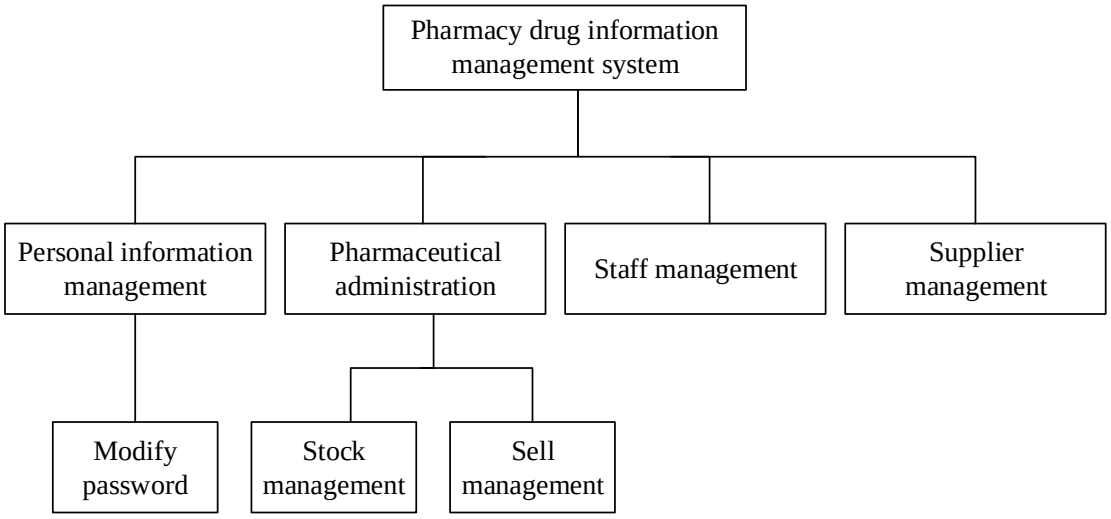

Fig.1 Structure diagram of administrator function

III. TECHNOLOGY REALIZE

In the B / S architecture, the user sends requests to many servers distributed on the network through the browser. The server processes the browser 's requests and returns the information required by the user to the browser. The rest of the work such as data request, processing, result return, dynamic web page generation, database access and application execution are all done by Web Server. As Windows embeds browser technology into the operating system, this architecture has become the preferred architecture for today 's application software. The client makes an HTTP request to the server, the web service layer in the server can process the HTTP request, and the application layer part of the server invokes the business logic method. If necessary, the server will exchange data with the database, and then render the template and data into the final HTML, returned to the client.

A. IDENTITY AUTHENTICATION

[3].Authentication is to identify the user (application) before accessing a separate resource, authorized to appear after authentication, the purpose is to confirm the user 's access to resources, unauthenticated users belong to anonymous users, authentication is the main function of the network application 's own security. The system mainly uses ' form ' to perform authentication. In the formal authentication process, if the user 's authentication fails to pass the verification, it jumps to the display error interface until the credentials entered by the user are confirmed by the system. The resources submitted for application can be obtained by the user, which is the main feature of the model. In addition, another authentication model feature is that after successful login, ASP.NET automatically creates a cookie cache, completes user identity document (ID) verification in subsequent HTTP requests, and saves the cookie in the local cache.

B. DATABASE ACCESS

The system uses DAO to operate the database. DAO (Data Access Objects) is an

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application program interface (API) provided by VB, which allows programmers to access the Microsoft Access database. DAO objects include the data engine function of Access. Through the data engine function, it can access the structured query language (SQL) database. DAO usually includes three parts : DAO interface, DAO implementation class, DAO factory class. DAO interface defines all user operations, such as add records, delete records and query records; the DAO implementation class implements the DAO interface and implements all the methods defined in the interface ; the DAO factory class is a factory that generates DAO object instances. It can rely on different parameters or configuration information to obtain different types of DAO object instances. Define a DAO interface, and add the method of operating the database, the general implementation of the data content changes to check.

C. BUSINESS PROCESS

It is mainly controlled by the Service layer. The main work of the Service layer is to encapsulate one or more DAO into one service again. The Service layer calls the DAO layer interface, receives the data returned by the DAO layer, and completes the basic function design of the project. The design of the completed function is the same as the DAO layer, which first designs the interface, then creates the class to be implemented, and then configures the association of its implementation in the configuration file. Next, the interface can be called in the Service layer to process the business logic application, which is beneficial to the independence and reusability of the business logic.

D. LOGICAL CONTROL

The Controller layer is used to control the business logic. This layer is responsible for front-end and back-end interaction, receiving front-end requests, calling the Service layer, receiving data returned by the Service layer, and finally returning specific pages and data to the client. In this system, the Controller is responsible for the control of specific processes, and the Service layer is responsible for the design of business modules. The control process is the method that the Controller layer calls the Service layer, and the Service layer calls the method in the DAO layer, in which the parameters called are passed using the model layer. This forms a hierarchy to achieve hierarchical decoupling, reuse, ease of testing and maintenance purposes.

IV. SYSTEM IMPLEMENTATION

A. DRUG MANAGEMENT SUBSYSTEM

(1) Basic information management of drugs. Drug management is mainly the effective entry of drug price, drug function and drug information. In addition, it also includes drug details and drug expiration time. The drug management subsystem settings include query and editing functions. Drugs can be searched according to drug coding, naming, and use. All drug information can be entered in time through system settings. As shown in Figure 2.

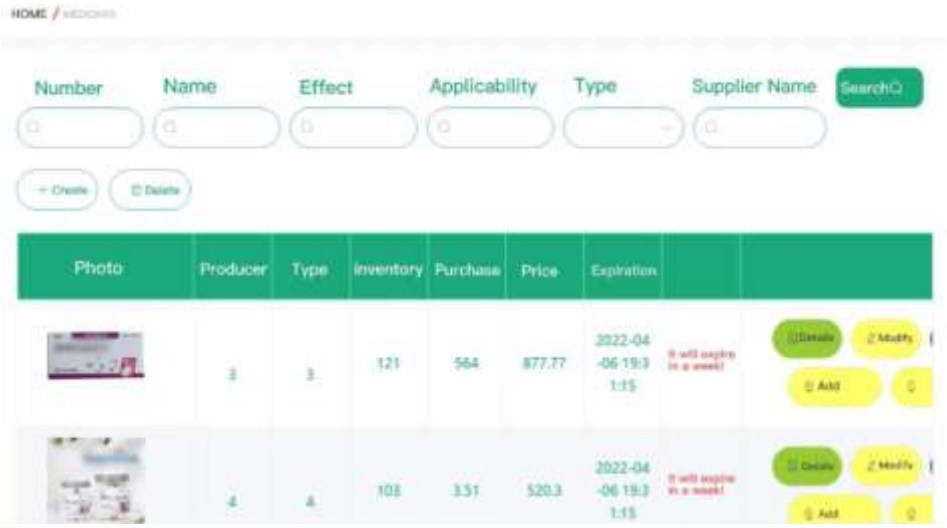

Fig.2 Drug information management

(2) Drug type management. The interface records the different types and type codes of drugs in detail. It can modify and delete the types of drugs, or query the specified types of drugs, as shown in Figure 3.

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Fig.3 Management of drug types

(3) Drug outbound management. The sales interface is to display drug information, record drug sales records, including the name of the employee responsible for sales, sales number, etc., generate sales statements, and more biased towards employee performance assessment records. In addition, a sales report is added to intuitively understand the sales of each drug. You can select any date to query the sales of the date, as shown in Figure 4.

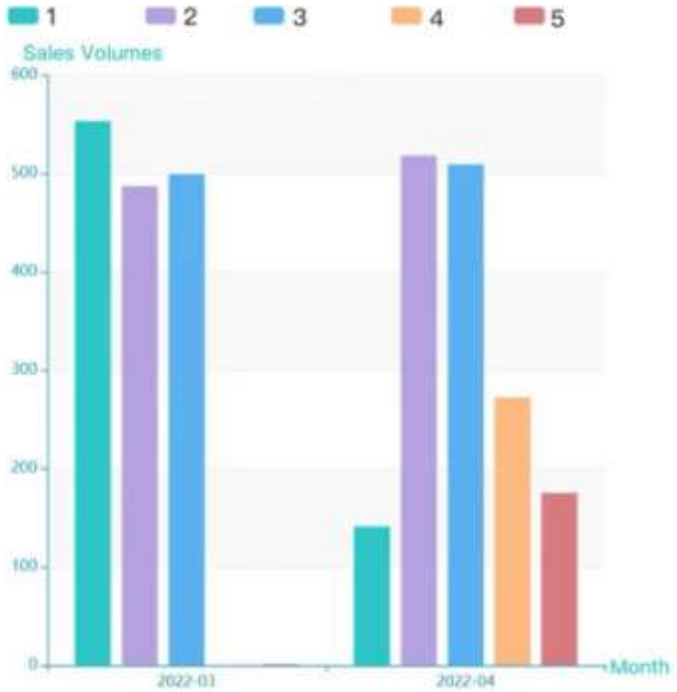

Fig.4 Display of drug sales report

(4) Drug planning and procurement management. [4].Managers need effective management and reasonable planning in daily drug procurement. B / S architecture can be achieved in the daily drug procurement of scientific and effective drug procurement control and management, change the past drugstore managers based on procurement experience to the pharmaceutical factory to purchase drugs, can not

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keep up with drug demand, often out of stock or inventory backlog phenomenon .

B. **Employee Management Subsystem**

(1) Basic employee information management. Pharmacy staff registration basic information to facilitate the pharmacy managers to manage employees, including the modification of employee information, when the contact information of employees to change, the system should also be updated employee information, you can click to modify the button to modify. As shown in Figure 5.

Fig.5 Employee information modification interface

(2) Employee turnover management. When the scale of the pharmacy expands, more and more employees need to be managed, so it becomes troublesome to find employees. You can set the search button. By entering the name of the employee to be found, click the search button. If the search employee exists, the employee details are displayed. If the employee leaves, you can tick the employee, and then click the delete button to delete the employee. In order to prevent the administrator from mistakenly selecting, the delete confirmation prompt box is set.

V. CONCLUSION

The system uses a three-tier structure, namely the user interface layer, function module layer, and data access layer. The purpose of this structure is to make the system structure more clear, more clear division of labor, is conducive to later maintenance and upgrading. The drug information management system based on B / S architecture can strengthen the scientific and standardized management of drug resources, simplify the manual operation process, reduce the workload of pharmacy staff, and improve the efficiency of drug management. The system has the advantages of rich functional modules, good interface vision, convenient platform operation, and strong drug information data storage capacity. However, it still needs to improve the interface and function of the system to improve the rationality of the system and standardize the system.

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