

Design and Implementation of Financial Information Management System

Guang Zheng*

School of Computer Science and Technology, Zhoukou Normal University, Zhoukou 466001, China.

*Corresponding Author

Abstract

With the continuous normalization of the scale of modern enterprises, the financial department has to deal with a huge amount of data. In order to reduce the pressure of the financial department and improve the work efficiency, the modern management system of financial information has emerged. The system selects PHP, HTML as the development language, uses MySQL database for data storage and access, and programs on PHPStorm development tool. It completely realizes the recording, query and deletion of financial information, including account information management, bank account management, journal entry input and query and other basic functions. The application of the system improves the work efficiency of the financial department and realizes the rationalization of financial information management.

Keywords

Information Management; Finance; PHP; MySQL; PHPStorm.

1. Introduction

As human beings enter the information age, information can be seen everywhere in life, which has brought people a lot of convenience, but the subsequent difficulty is how to manage these huge data. Therefore, the operation of information management system is born.

Information management systems generally include information access and query functions. Financial information system is a subsystem of information management system. It inherits the basic functions of information management system: account information management, bank account management, journal entry input and query, etc. For a huge database, manual management often needs to consume a lot of human and financial resources, which must be eliminated in the information age. Therefore, using computers to manage financial information will save human and financial resources and greatly improve the speed.

1.1. System design background and significance

Due to the continuous expansion of the scale of modern enterprises, the transaction data generated by various departments are becoming larger and larger. If there is no special information management system to deal with these data, the security of financial information is prone to problems. People are always worried that their financial information is stolen or lost. Generally speaking, this concern is a demand of users, and the generation of this demand has virtually promoted the development of science and technology, and improved the financial information management system on the basis of the original system. It is feasible to develop a modern financial information system that meets people's needs by using advanced development technology and database. The financial information management system improves most of the problems of information security and fills the previous lack of function. A functional and practical system will bring people a different experience. People do not need to

write bookkeeping and manually find a large amount of information, and do not have to worry about the leakage of financial information. The development of this system saves the time for users to find information, and greatly improves the efficiency of bookkeeping. Convenient management is its greatest value and significance.

1.2. Introduction to relevant technologies

1.2.1. b/s architecture

The browser, web server, application server and database server composed of multi-layer architecture are called B / S architecture. The remarkable advantage of this architecture is that the client does not need maintenance, so it is very suitable for a large number of users or frequent changes in customer requirements. All clients in B / S architecture are browsers, so there is little need for maintenance.

1.2.2. PHP

PHP is a server-side programming language and can be directly embedded into HTML. It is a weak type object-oriented scripting language. Its syntax is close to C and Java, but it is relatively simple and easy to learn. PHP's robustness, security and high performance make it easy in the field of web development and enable Web developers to quickly realize the dynamic generation of web pages, Efficiency is self-evident.

PHP is a server-side scripting language. Before using this scripting language, developers must have a certain foundation of HTML and CSS. This general open source scripting language can be downloaded and used for free, so it is the preferred development language for many developers without economic foundation, and it is easy to get started. PHP also provides developers with many functions to adapt to the trend of the times. HTML and JavaScript codes can be included in PHP files, and their codes are executed on the server, The results are returned to the browser in pure HTML. It can not only generate dynamic page content, but also collect form data, receive and send cookies. Adding, deleting and modifying data in the database is its basic operation. The database often used with PHP is mysql, which has the characteristics of powerful function, cross platform support, fast running speed, object-oriented support, high security, low cost, support for various development languages, large database storage capacity, support for powerful built-in functions, etc. Its common functions include select to retrieve data tables, not or in to filter data (wildcards can also be used for filtering), and create calculation fields. At present, MySQL is the most popular open source database in the world. Considering comprehensively, MySQL is selected as the database of the system.

1.2.3. MYSQL

MySQL is a safe, cross platform and efficient relational database. It can be used with PHP, Java and other languages. The logo of MySQL is a dolphin called sakila, which represents the speed, power, accuracy and excellence of MySQL database. Mysql database is small, fast and low cost. The utilization rate of MySQL database is very high, and most small and medium-sized websites. Many companies use MySQL database to reduce costs, which is inseparable from its unique advantages.

1.2.4. ThinkPHP

ThinkPHP is one of the popular frameworks for PHP. Its original intention is to simplify enterprise application development and agile web application development. Since the birth of ThinkPHP, it has been designed to be simple and useful. It has excellent performance, minimal code and high ease of use. It has its own unique functions and characteristics, object-oriented development architecture and MVC mode. Detailed and easy to understand documents are also one of the advantages of it.

2. System analysis and design

2.1. System feasibility analysis

The network gradually covers the world, and the information management system has become a trend. Customers can process all kinds of information related operations on the network without going out. System feasibility analysis refers to the analysis of the difficulty of realizing the system function and whether it has development value. Specifically, there are four points: legal, technical, operation and economic feasibility. First, it is legally feasible, because this system does not involve interest transactions, only as my graduation project; Secondly, it is technically feasible. I have accumulated enough system development experience in the four years of University, especially the "PMA" technology has been more skilled; Moreover, the running environment is simple and easy to get. You only need to install Apache as a server and a browser with parsing code and displaying data to run smoothly. Finally, there is no analytical significance in terms of economy. The function of this system is simple and not enough to be put into the market to produce economic value. Through the above analysis, I will use PHP technology, MySQL database and Apache server to develop the system.

2.2. System requirements analysis

In the past, most financial management used the method of handwritten bookkeeping. This management method has a small workload for individuals or families. However, for enterprises and companies with a slightly larger scale, handwritten bookkeeping and salary payment need a lot of time and spirit of the financial department. It is easy to make mistakes if they are careless, resulting in economic losses to the boss, This requires the use of modern computer technology to realize the real-time monitoring of data to ensure the security of data, which will become the first choice of current financial management. After knowing the problem, if you want to meet the needs of users, you must design a system that can accurately find financial data, that is, enter a search condition, which can accurately output the corresponding results, and it is also convenient for users to record information. After a large amount of market research, I found that adding, modifying, deleting and checking are the basic operations of the financial management system.

2.3. System function module design

The system mainly contains two main modules: setting module and financial module. Details are as follows: setting module: responsible for login account management, access permission setting, display setting and form setting. Login account management: manage the existing account information in the database. Access permission setting: role operation permission can be modified. Display settings: decimal places, language and miscellaneous can be set. Table settings: change the number of next references to the table.

Financial module: responsible for bookkeeping input, bookkeeping query and bank account management. Bookkeeping input: write the account information into the database to be lost and forgotten, and facilitate future search. Bookkeeping query: fuzzy matching results can be obtained by entering search criteria. Bank account management: there are bank accounts held by the finance department, which can also be added, modified or deleted.

3. Database design

3.1. Database table E-R diagram

E-R diagram is also called entity relation diagram. Its full English name is entity relation diagram. It intuitively expresses the relationship between entities and what attributes each entity contains. Entity refers to the objects existing in reality, including concrete or abstract. Connection refers to the relationship between entities. This relationship between entities is

abstracted as connection. Attributes refer to some characteristics of entities. For example, students' student number is the attribute of students. Among them, the relationship between entities includes one-to-one, one to many, many to many, etc. It expresses the data in the form of graphics. The commonly used graphics include rectangle, diamond and ellipse. The entity is placed in the rectangle, the contact name is placed in the diamond, and the attribute of the entity is generally placed in the ellipse. The development of this system mainly designs three data tables in the design of data tables. The login account information table includes field names such as ID, name, password and permission. The field names contained in the account information table include: ID, section name, date, voucher, summary, debit and credit amount, bookkeeper's name, remarks, etc. The bank account information table has the following field names: account name, type, currency, GL, bank, bank address, etc.

3.2. Database table design

The system uses MySQL for data storage. The following describes the three table information of the database. Login account information data table: the primary key of this table is the ID number, and the variable data includes password, permission, etc., with a unified length of 45; All fields are not nullable. Account information data table: the data table has two primary keys, namely voucher and ID. the variable data includes date, department name, etc., and the length is unified 45; Items are not allowed to be null except summary and comments. Bank account information data table: the primary key of the data table is ID, the length is 45, and all of them are variable shaping data, including account name, type, currency, GL, bank, bank address, etc. the bank address can be blank, and other items except bank address are not allowed to be blank.

4. Detailed design and implementation of the system

4.1. Account information management function

Account information management is a function that almost all systems should have. The system has the initial administrator system administrator, who is the owner of all permissions of the system. It can manage all permissions such as system, setting, maintenance and transaction, and can give ordinary users various permissions. When we need to add a new administrator or ordinary user, we can click the account information management function module. At the top of the interface, all the information already owned in the account information table in the database is displayed, including user login name, name, telephone, e-mail, last access time, access level and other information. The most important one is the access level column, because it will determine the operation permission of the user. Therefore, when adding new administrators and ordinary users, pay attention to the setting of access rights. We can submit information through this form, then click the submit button to trigger the connection to the database, use post to receive the submitted data, and finally write the data into the data table by adding SQL statements. In addition, the original account information can also be updated by clicking the pencil identification button. The principle is to trigger the update function by clicking the update button. At this time, the program will first read the original account information and display it in the update form in strips. When the administrator or user modifies the new information, click Update, and the information in the form will be submitted to the database again. The account information management interface is shown in Figure 3 below.

4.2. Bank account management function

The good or bad of a system design lies in whether it can meet the real needs of users. As far as the financial information management system is concerned, the most important thing is to realize the management of financial information, which is reflected in the bank account management function in this system.

As the name suggests, bank account management is the unified management of bank account information owned by enterprises, companies and families. The so-called management includes adding bank accounts, modifying bank accounts, deleting bank accounts and so on. At the top of this function interface, all bank account information of enterprises, companies and even individual families is displayed. The display information includes account name, type, currency, general ledger (GL) account, bank, bank account, bank address and other information. The table is finally updated and deleted. If a user or administrator with operation authority wants to modify one of the account information, click the pencil identification button in the last column of the account information to trigger the program reading operation, read all the information of the corresponding bank account and display it in the form below. After the operator modifies the data, click the update button, The data in the form will be resubmitted to the corresponding location in the database according to the ID number. Of course, the function of this form is not only to update data. When the operator wants to add new bank account information, he can enter the information into the form, including bank account name, account type, currency of bank account, default currency account, etc. Finally, click Add to. The input () assistant function of the trigger program is compared with the original account information in the database. If the new information is an old account, it will display "add failed", otherwise it will display "add succeeded". The bank account management interface is shown in Figure 4 below.

4.3. Journal entry input and query function

In addition to the bank account information management function, which is the core function of the financial information management system, the journal function is also one of the highlights. The journal function meets the bookkeeping needs of users, and transforms the traditional handwritten bookkeeping into system bookkeeping, eliminating the trouble of many traditional bookkeeping information and the trouble of query engineering. The following describes the entry input and information search performance of the journal function of the system. Journal entry input: includes date, account description, reference value, account description, demand, debit, credit, remarks and other information. When users have bookkeeping requirements, they only need to carefully fill in the above information in the form, and click the process journal entry key to trigger the program to submit the data to the account information data table. However, there is a simple information verification mechanism, that is, to judge the accuracy of the submitted information, so as to prevent the information from being vague and inconvenient to find in the future. If the accuracy is not enough, it will be displayed "You must enter at least one journal line" Journal query: the purpose of journal is to facilitate the query of future information. The journal query function module of the system includes multiple filter values, including reference value, type, from, date period and remarks. The SQL query mechanism of fuzzy matching is adopted. After entering query criteria, users can click search to trigger the query and filter out qualified entries in the database In order to optimize the user experience, a page turning button is also set in the lower right corner of the form.

5. System test

5.1. Purpose of system test

Generally speaking, program testing is the process of executing the program. The purpose is to find out the impact of unknown operation errors and logical errors on the system and ensure the quality of the design and development of financial information management system.

5.2. System test method

The test method of financial information management system is black box test, which only adheres to the principle of whether the program can meet the actual needs of users: first, test the operation of entering the system, log in with the randomly entered user name and password,

and then log in with the existing user name and password to observe whether it can enter the system normally. For the test of add operation, enter some accounts at will Information, observe whether the system can add the information entered in the table to the corresponding data table of the database. The last step is to test whether the query function can accurately find the qualified information. Through the above test items and methods, it is confirmed that the user login function, addition and query functions can operate stably.

6. Summary

Financial information management system in "amp" Under the combined mode, the system is designed and developed by using PHP technology and MySQL database. The system mainly includes bank account information management function and journal entry input and query function. The bank account information can be added, updated, deleted and queried in the bank information management function module; the user journal can be realized in the journal entry input and query function module The functions of information input and query greatly meet the needs of users. There is no front desk and registration, and the background can only add users and grant permissions through super administrators. Therefore, the system is suitable for the financial system of the company's financial department and individual families. The advantages of the system are simple and comfortable system interface, high speed and efficiency of information writing and searching, and high program efficiency The response time is within people's feeling and visual comfort, and the accuracy is high. When interacting with the database, the data recording and query positioning are required to be accurate. The system needs to be improved: the front-end page of the system is rough, the interface is old, the front-end technology needs to be improved, the page layout design is not reasonable, the system has too many functions, the classification is chaotic, it is redundant, and And some functions are not perfect for the time being.

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