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Design and Implementation of Enterprise Office Management System Based on PHP

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Abstract. Using a network to manage enterprise office affairs is an important means of improving efficiency of the office management and achieving standardization for the enterprise business. The major technology about using PHP and MySQL to develop an enterprise office management system was illustrated in this paper. The contents including the realization of functional modules were discussed, such as: The foreground web page module used by employees, business management module, design of the database tables and web management technology of administrator. The system has features of full-featured, high-efficiency, advanced technology. The systems provide an important reference platform to help enterprise reduce management costs, improve internal management, and enhance competition in the market for comprehensive competitiveness.

Keywords: PHP, enterprise, office management, system design.

1 Introduction

This system was the enterprise office management system, with full function and good maneuverability. The system was divided into the foreground use part and background management part. Its main function was to manage enterprise's daily affairs, office data management and maintenance. The foreground part was used by employees, therefore its interface design should mainly be user-friendly operation, beautiful interface, efficient and practical. Background management part was used by the system administrator. The system administrator will complete data management and updates in the system in the background. The system mainly used PHP and MySQL as a development tool, and Apache as a server. The network technology was applied in the enterprise management. It was easy for the employee and enterprise managers to operate or use. It provided the convenient, fast and practical software for the enterprise's daily management.

PHP (Hypertext Preprocessor) is a server scripting language, which is designed specifically for the Web. PHP codes can be embedded in an HTML page, which were executed when the page was accessed in each time [1]. PHP has advantages in many aspects, such as: PHP is very fast, with high performance; PHP are open source software, with a very good development space and scalability, and it can also be effective to make horizontal extension for a large number of servers; PHP can be applied on all major operating systems, and its code can be run without any modification in different systems; PHP supports multiple databases, and it can be connected to any database providing ODBC driver; PHP is free, in which a lot of open source codes are available. If modifying or adding new features to the language, it can be free of charge, therefore the cost of using PHP is low [2]. The unique syntax of PHP is the mixture of C, Java, Perl and PHP own syntax [3].

MySQL is a relational database management system. The relational database is the most common type of database, because of its faster access, and more flexible for data expression. MySQL supports structured query language SQL, so data query is simple and quick. For medium-sized enterprises, MySQL function can be fully met. The advantages of MySQL are its small in size, fast, cross-platform, and open-source. It is especially the feature of the open-source that a lot of free resources can be obtained, which causes many small and medium sized websites to choose MySQL as a database support of website background, in order to reduce the overall cost of the website. MySQL is a true multi-user, multi-threaded SQL database server. MySQL is small and exquisite database server software, which is ideal for small application system [4].

Apache server is an open source Web server of Apache Software Foundation. Apache has a good cross-platform and can run on almost any computer platform widely used.

The system was developed with today's most popular PHP and MySQL softwares. Two functions of the foreground use and background management were considered in this system. The database of this system was built scientifically, and each module function was carefully designed. Furthermore, it was a full-featured office management system, with the nice interface and simple operation, in order to satisfy the demands of all aspects of daily office management.

In the era of information, office collaboration in different place and office business in the business trip were often required for the modern enterprise. The network framework of this system was based on the application mode of a wide area network. Therefore, this system can achieve cross-regional business processing [5]. This was also another utility of the system.

2 Study Background

According to the survey, the current many enterprises exist many problems in the office management, such as low office efficiency, big proportion of artificial management, manpower and resource waste, some works still finished in manual, but can be done automatically, etc. Although some companies have bought the office software, the office automation becomes a "stopping, frozen", and office level is still in a backward state due to the backward software version, complicated interface not easy to operate, and poor maneuverability, etc. factors. It was the common desire of

the people, and was also the main target of this system design to develop an office software with the humanized interface, enterprise office management level improved, the office efficiency of internal enterprise improved. The choice of development tools was also considered carefully. At present, there are a lot of development systems based on Web technology, but the three main kinds of dynamic technology are PHP, JSP and ASP.NET, etc. [6], each technology has its own characteristics.

PHP is a completely free, and the source code can be downloaded freely. It is a development tool favored by a lot of programmers. PHP is a simple, efficient and dynamic scripting language, with the advantages of cross-platform, powerful database support [7]. As the PHP is independent on the platform, it can run in a relatively high safety system platform [8]. Therefore, it has more advantages for system background construction. PHP (Professional Hypertext Preprocessor) technology and MySQL database have many advantages. Therefore, they are the best combination to develop the dynamic website. There are many software developed using them as a main tool.

PHP outstanding characteristics are fast in performance, a powerful CGI script language, more efficient to use memory, which can take up less memory consumption. PHP has good portability, and Web back-end CGI programs written in PHP can be easily transplanted to different operating systems.

3 System Overall Design

The enterprise office management system is an office management system with a collection of network and computer technology and full functions. It is mainly composed of two parts of the foreground use and background management. The overall structure of the system was shown in Figure 1. The use function module block of the foreground included the notice information, file transfer, attendance, employee information, salary information, online communication and user registration and other parts. Background management function module included the section management, notice management, document management, salary management, online communication management, employee information management, system management, attendance management, user management, system management, and other parts.

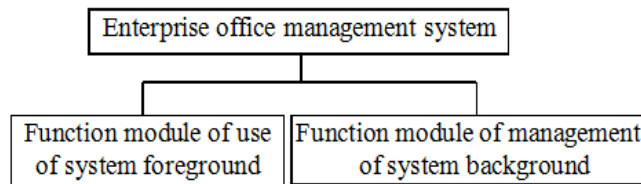


Figure 1. Overall structure of enterprise office management system

3.1 Foreground function design of the system

The notice information modules in the foreground function of the enterprise office management system can complete the notice query, notice release and news alerts, and other functions. The file transfer module can complete the file upload, file access and file deletion, etc. Functions. The employee information module can complete staff recruitment, information inquiry, staff training, and other functions. The business attendance module can complete the functions such as employee attendance, leave management and attendance report. The salary information module can complete the salary query, report and printing, etc. the online communication module can complete the user login and online communication, etc. The user registration module can complete the registration information, account setting and user logged off, etc. The foreground module of the system is the interface used by common users, and the access to the system was restricted. The foreground use function module of the enterprise office management system was shown in Figure 2.

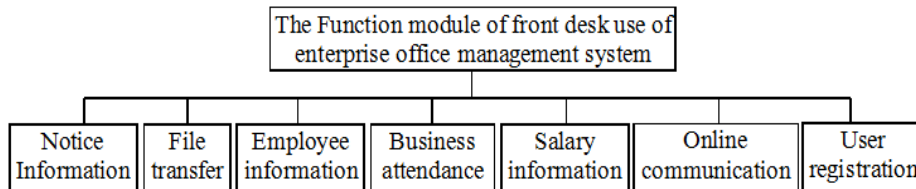


Figure 2. The Function module of foreground use of enterprise office management system

3.2 Background function design of the system

The background function in the enterprise office management system included all data information management involved in foreground functions, such as documents, employees, salary, and etc. information management. In addition, the section information management and system management were included. The management to the section can include the query, add, delete and modify, etc. to section information. The management work of the system background should be done by the system administrator. The system administrator was conferred the management function of the system, therefore, his access right was bigger than that of normal users. The background management function module in the enterprise office management system was shown in Figure 3.

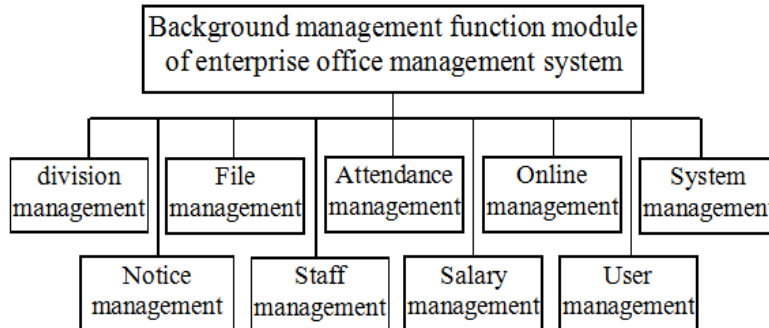


Figure 3. Background management function module of enterprise office management system

4 Design of the System Data Tables

The development and implementation of the enterprise office management system involves the analysis and design to the database and database tables, including the design of the data entities, attributes, entity relation, etc. Two kinds of operation permissions users were designed in this system: common users and administrators. According to the permission categories, the operating range for different users was limited [9]. System mainly involves the table structure design, the establishment of the link between tables, the establishment of the records in the table, etc. in the relational model. There were 31 table files involved in the database of the system. The structure of each table file table was carefully designed. On the premise of minimum redundancy guaranteed, links between tables were established scientifically to improve the efficiency of system running time, and take up less storage space. The table structure of employee basic information table (employee), department information table(dept), the announcement information table(notice), staff attendance sheet(sign), users of the system table(sysuser) and file information table (file) were given here, as shown in table 1 to table 6. The other table files involved in the system will not be illustrated here.

Table 1. Staff basic information table (employee)

Field name	Data type	Length	Whether primary key	Description
emplid	varchar	6	Yes	Working ID
name	varchar	16	No	Name
sex	varchar	6	No	Gender
age	int	4	No	Age
birthday	datetime	8	No	Date of birth
Birthplace	varchar	20	No	Native place
nation	varchar	16	No	nationality
maristatus	varchar	4	No	Marital status
eduback	varchar	20	No	Education background

degree	varchar	12	No	Degree
eduschool	varchar	30	No	School of graduation
title	varchar	10	No	title of a technical post
position	varchar	20	No	Duty
wage	money	8	No	Basic salary
dept	varchar	30	No	Section
tel	varchar	20	No	Phone
address	varchar	80	No	Address
email	varchar	50	No	E-mail
onlinesta	varchar	4	No	Online status
image	Text	20	No	Photo path

Table 2. Sector information table (dept)

Field name	Data types	Length	primary key or not	Description
deptid	varchar	4	yes	Sector ID
deptname	varchar	30	No	Sector name
memo	Text	50	No	Sector description

Table 3. Notice information table (notice)

Field name	Data types	Length	primary key or not	Description
noticeid	varchar	6	yes	Notice ID
noticetitle	varchar	40	No	Notice title
noticetime	datetime	8	No	Notice time
noticeperson	varchar	20	No	Notice peopole
noticecontent	Text	50	No	Notice contents

Table 4. Attendance table (sign)

Field name	Data types	Length	primary key or not	Description
signid	varchar	6	yes	ID
datetime	datetime	8	No	Date and time
employee Name	varchar	20	No	Employee Name
late	varchar	4	No	Late or not

quit	varchar	4	No	Leave early or not
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Table 5. System user table (sysuser)

Field name	Data types	Length	primary key or not	Description
userid	varchar	6	yes	ID
username	varchar	20	No	User name
userpwd	varchar	20	No	User password
logintime	datetime	8	No	Login Time
system	varchar	4	No	System Administrator or not
sign	varchar	4	No	Online Logo

Table 6. File information table (file)

Field name	Data type	Length	Whether primary key	Discription
fileID	int	4	yes	File ID
fileName	varchar	30	no	File name
fileSender	varchar	20	no	Delivery man
filereceiver	varchar	20	no	Recipient
fileTitle	varchar	50	no	File header
fileTime	datetime	8	no	Delivery time
fileContent	Text	30	no	File discription
path	varchar	100	no	File path
recsta	varchar	10	no	Receiving state

The relation among the data tables in the system database was more complex, and more table files were involved, such that the employee information management involves the operation and run of many table. Its link establishment must be accurate to reduce the redundancy of database. Only when created, stored procedure was compiled. Afterwards, recompiling was not needed whenever executing the stored procedure. Therefore, the efficiency of database access can be improved when using the stored procedure [10].

5 Introduction to the System Realization Technology

In the PHP program, there was a `common.inc.php` file, in which some constants, configuration files, path of the session, host information, database information, global function, etc. were stored to ensure important information needed for the program at runtime [11]. In the development system, constants were defined and `"$magic_quotes = get_magic_quotes_gpc ()"` was used in order to increase the readability of the code and ease use. The automatic escape function was shut down, and self-defining functions `escape` was used. The database encoding and references to the parameters configuration page were completed by the program, therefore, the modularization of the program was realized, which is easy for maintenance and modification in the future.

The development of this system also involves image processing, encoding and decoding, compressed file processing, XML parsing, identity authentication of HTTP, POP3, SNMP, database processing, network interface application, security coding mechanism, and other functions. Using PHP + MySQL technology can solve these above problems well. API function supplied in MySQL in PHP can be used to operate the database. The database management, maintenance, and data retrieval and other various operations can be completed through the MySQL function library.

Much more module designs were involved in the system development, of which each module had personalized design in the design process. Such as: the main function of the background page design in the employee information management was to achieve the management and maintenance to the enterprise staff information, therefore, ordinary users can query, but can't modify. Only admin can modify operations. Next example: file transfer management page design was to save files uploaded and downloaded to the server. The path of transferring files in the server was saved to the database for the receiver to download again. All employees had permission to upload and download files. Online communication design was a complex link, because it was a web page on which the enterprise employee can transfer information online, make real-time communication, with more services demanded in the Web service, stronger required to the interactivity and instantaneity [12]. The attendance management page design was an important means for the enterprise to manage staff. It included signing in, signing out, taking a vacation, attendance statistics, etc. functions, which were used to compare and appraise staff. They were main indicators for the enterprise to evaluate staff performance. The design of the user password Settings page involves two levels of ordinary users and administrators super users. The user password settings page was for enterprise employees to reset the password, in order to ensure the safety of employees account. All employees in the enterprise can reset personal password, but the admin user had permissions to modify any employee's passwords. Employee salary management is an important part of the function, therefore, not only the real-time update should be considered, but also the security and confidentiality of data should be considered.

In short, a variety of different design technology, from hardware to software, was involved in the development and design process of the whole system, therefore, not

only the development of the system should be completed well, but also the later system maintenance work should be considered.

6 Discussion and Implication

Today's advanced PHP + MySQL development tools were adopted in a PHP-based enterprise office management system. The system provided more comprehensive management functions, which enables the administrator and ordinary users to operate and manage conveniently. It is a relatively ideal office management platform of the enterprise. The system improves the work efficiency of the office management, reduces the waste of resources, and gets rid of the nuisance manual operation. The deficiency is that the system running speed will be slow down while the video function of online communication was used, and user's personalized printing function remains to be perfect. These will be further improved in the follow-up development process of the system.

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