



## **Design and implementation of enterprise personnel information management system**

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**Abstract:** with the continuous increase in the number of enterprises, the traditional paper file management method has exposed a great disadvantage, which requires an enterprise management system software to help managers manage the personnel information of the enterprise. This paper adopts B/S architecture pattern, Thinkphp5 as the development framework, PHP as the development language, and MySQL as the database. The basic functions of the system include: administrator login, administrator management, work department management, staff information management, important links management, search staff information. The management system helps the administrator to manage the information of enterprise personnel efficiently and quickly.

**Keywords:** B/S; Thinkphp5; MySQL; PHP.

### **1. Introduction**

With the development of computer technology and the Internet, the trend of information technology has begun to play its role in all walks of life, promoting the development of society and the progress of productivity. Nowadays, many enterprises have realized the importance of information development and started to replace paper data with electronic data. This change in thinking and concept also promotes the emergence and development of enterprise management system [12]. Now many companies have started to implement paperless office, save their data into the enterprise management system to implement unified management, so as to greatly improve the efficiency of management and avoid the disadvantages of paper management, and at the same time make enterprises start to conform to the information age.

## **2. Research background and significance**

Under the influence of China's rapid economic development and the Internet era, China's commerce is booming, the scale of enterprises is constantly expanding, and the number of enterprise personnel is constantly increasing. The traditional enterprise personnel management method began to expose a large number of shortcomings, such as the slow information query, data is not easy to keep, management trivial no rules to follow, and so on, these phenomena show that the traditional enterprise personnel management method is not suitable for today's Internet information era. By contrast, the enterprise management system has the characteristics of fast information query, strong reliability, large information storage capacity and low cost, which makes the enterprise personnel management informatization become the general trend, and companies begin to actively use the enterprise management system to manage personnel information [10].

## **3. Technical introduction**

### **3.1 Thinkphp framework**

Thinkphp framework is an object-oriented lightweight PHP framework that simplifies enterprise application development and agile WEB application development [1]. The framework has absorbed a lot of foreign excellent framework ideas and made innovations based on them. Its development mode conforms to the MVC three-layer model and encapsulates CURD's routine operation internally, which has good expansibility [2]. Thinkphp is well known in China and widely used. The Thinkphp framework can be easily used to build websites [11]. Its MVC model design is detailed as follows.

### **3.2 BeyondAdmin**

BeyondAdmin is a multi-purpose management theme template based on bootstrap framework. The template has rich styles and functions, and the interface design is clean, elegant and beautiful. The design of the enterprise management system interface makes full use of the style controls in the framework, saves a lot of time and the trouble of self-design and achieves a good foreground visual effect.

### **3.3 B/S architecture**

B refers to the Browser, S refers to the Server, B/S architecture is the Browser and Server architecture. In the B/S architecture, users only need a browser to use the software, connect to the server through the network, and put most of the functional logic on the server, while a small part of the functional logic on the browser, forming a 3-tier structure [5.6]. The enterprise management system is based on B/S architecture,

users only need to enter the url in the browser can access the system login page.

### 3.4 MySQL database

MySQL is a relational database, and the SQL language it USES is a standardized language for accessing the database, which is favored by small and medium-sized enterprises due to its fast speed, low cost and small memory consumption [7]. At present, it can support almost all operating systems and is perfectly integrated with the PHP language [8]. MySQL is also one of the most popular databases in the world and is an open source database [9]. In view of the above characteristics the system USES MySQL database.

## 4. System analysis

Enterprise management system is mainly used for the personal information management of employees, its main functions are: administrator login, administrator management, enterprise department management, staff information management, important link management, search and query staff information function. These functions are the basic functions of the enterprise management system to achieve enterprise management. Through analysis and research, the workflow of the enterprise management system for processing the information of enterprise employees and other data is made clear. After the administrator enters the user name and password and logs in through the authentication, not only can a new administrator be added through the management module, but also the user name and password of the administrator can be modified, edited and deleted. Through the enterprise department management module, the subordinate relationship between departments and departments can be seen, which is convenient for managers to clarify the framework of enterprise department and facilitate their management. Through the staff information management module, the detailed information of employees can be viewed, such as name, age, entry time, certificate number, position, evaluation and other information, and the functions of adding, editing and deleting the information of employees can be added, edited and deleted to facilitate the administrator to manage the information of employees. Through the search query module can enter the employee id number (id number only) to query the information that is relevant to specific employees and to edit, and delete operations of its information, as long as know the employee's id number for the administrator can want to find the employee information conveniently, largely saves time, improve the working efficiency. Through the important link management module, you can see the important links that the enterprise needs, such as the link to download the relevant working software or the link to the relevant address to query information.

## **5. Design and implementation of main functional modules of the system**

### 5.1 Login of administrator

On the login page, you need to enter the administrator's name, password and verification code, in which the verification code is added with the onclick click event. If you can't see clearly, you can click on the verification code picture, and generate a four-digit verification code randomly through the `math.random()` method and the captcha configuration item defined in the configuration file in the Thinkphp5 framework. If the verification code to verify success through the controller post method to send data to the background layer in the Login module index method, then by instantiating the Admin in the model layer object and call the Login method to deal with the front desk sent data in the view layer, and use the `db()` helper function to link `bk_admin` table in the database, the `where()` method to query data in the database, through the `find()` method to read the corresponding data, and carries on the judgment. If the administrator does not exist, the return value of 1 is given to the index method, and the error is reported to jump back to the login page through the error method. If the administrator exists and the password is wrong, the return value of 3 is given to the index method, and the error is reported to jump back to the login page through the error method. If the login information is correct, the system will save the administrator's information to the session and return the value of 2 to the index method. The success method will display the login success and jump to the main page.

### 5.2 Administrator management module

The information that this module stores in the database is the administrator's id number, name, and password. In the front display page is the administrator's id and name information, and can be added to the administrator's information, delete, change the function.

Display operation: Admin module controller in the background layer in the LST method, through the instantiation model layer Admin object and call the `getadmin` method, in this method through the link to the database `db(a)` the auxiliary function `bk_admin` paging handling and use the `paginate`, make it at the front desk to each page 5 data printing, and through the `assign` method to allocate data in the LST method, at the front desk in the module through `volist` method to display the data coming from the background, Page render in the foreground module through the `render()` function.

Add operation: At the front desk in the add form by post method transfer data need to be added to the background, in the `add` method of the controller layer Admin module receives over data should be sent to the front desk and through Thinkphp5 provided in the `validate` method to verify, if authentication is successful the instantiation model layer in the Admin object, and call the object defined in the `addadmin` method to judge

data add success, if success through the save () method to save the data, and send the add method of true, send false failure. If the add method receives true, it will call the success method to show success and jump to the display page; if it receives false, it will call the error method to show failure and return to the original page.

Modification operation: Foreground display page click edit, the controller will send the administrator id to the background layer in the Admin module edit method, through the link database bk\_admin db (a) the auxiliary function and according to the id number to query the data needed for, if the query data does not exist, it proved that the administrator does not exist error calling display failure, if the query data is received at the front desk to modify the form page in the backend edit method via the post method passed in the need to modify the data, and verify whether the information the modified specification, If the information specification is modified, the db() auxiliary function will be called to link the bk\_admin database, update the database information through the update() method, and determine whether the modification is successful. If it succeeds, the success method will be called to display the success and jump to the display page. If it fails, the error method will be called to display the failure and return to the original page.

Delete operation: front desk display page click delete, the administrator of the controller id sent to the background layer in the Admin module del method, this method receives the id number at the front desk, invoke the model layer of the destroy () method according to the id number to delete data, to delete a successful call success method show success and jump to display the page, then call the error method show failure to return to the original page.

### 5.3 Work department management module

The information stored by the working department module in the database includes the department id number, the department name, and the pid number (the id number of the superior department), which are displayed on the front page by the subordinate relationship between departments. This convenient administrators to understand the framework of the corporate sector and the administrator can also for the operation of the department information to add, delete, change, when to delete if delete one department, and so on by the ministry of the subclass department will also delete all the staff in the department information, so the administrator be cautious when making department delete operation.

Display action: the LST method defined in the Cate module in the background controller layer, by instantiating the Cate object in the model layer, and calling the catetree method in the object. In this method is used in combination by using the recursive foreach loop method, the information of the department id number compared

with the pid number, if it is equal to its identified as a subclass of the id department division and comparing the pid number as id number to continue, if id number with any pid are not equal, it is identified as the parent class, and in the process of the recursive data stored in the static static array, such as after the recursive method will return the array to LST, and by the method of the assign distribution data in the method, In the foreground, the information passed from the background is displayed using the volist method.

Add action: the foreground form sends the data that needs to be added to the background via the post method, with the pid number and department name. Cate in the controller layer module definition in the background of the add method, the first instantiation Cate objects in the model layer, and receive the front desk to send data, through the validate method verifies the format, if authentication is successful the call instance objects in the save () method to save data need to be added, and determine whether to add success, if a successful call success method to display the successful jump to display the page, then call the error method show failure to return to the original page.

Modification operations: the controller in the background layer in Cate module defines the edit method, the first instantiation Cate objects in the model layer, by receiving the front desk and click edit from the id used to instantiate objects of the find () method to find the appropriate data, and through the instantiation objects catetree method to get the corporate sector information, both distribution data, by means of the assign method using array at the front desk volist way messages need to be modified. At the front desk after modify the information with the post method will be modified by the method of data transfer to edit, format through the validate method validation, if authentication is successful through a call to instantiate objects of the update () method to update the database information, and determine whether to modify success, if a successful call success method showed to jump to display the page, call the error method show that failure to return to the original page.

Delete operation: Click delete at the front desk will be deleted when the department id number to the background of Cate delsoncate method of module, receiving data and instantiate the method of model layer Cate object, and call the getchilderid method, this method is similar to catetree method are using recursive thought to find the corresponding data, this method the data is deleted department department of id and use the delete () method to delete, In the delsoncate method, the foreach method and the delete() method are used to delete all the employee information under the deleted department, so as to complete the deletion of the department.

#### 5.4 Employee information management module

The front page of the staff information management module displays the detailed information of the staff, which is convenient for the administrator to browse the staff information, and the administrator can add, delete and change the staff information, making it easier for the administrator to manage the staff data.

Display operation: the LST method in the background controller layer People module links the bk\_people database through the db() auxiliary function and paginate() method to make it read 4 pieces of data each. The Cate object in the model layer is instantiated and the catetree method is called to get the information of the enterprise department. The volist method is used in the foreground to display the data from the background and the render method is used in the foreground for paging rendering.

Add operation: Front desk form by post method transfer data need to be added to the background, the add method of setting module receives the controller layer of data should be sent to the front desk, and by the time () method to add time information in the data (in time), the validate method is used to validate whether the information format specification, if the specification and upload pictures have employees information is in the call the save () method before trigger event incident response of the model layer, By using the before\_insert event behavior to perform the image upload function before inserting new data into the database, upload the image to the uploads folder using the move method, splitter the image address and save it to the data, and then save the information to the database using the save() method.

Modification operation: This operation with the method of implementation of department management module modification operations are similar, the difference is that a picture data coming from the front desk will invoke model layer in the update () method before trigger event incident response of the model layer, through the use of before\_update event behavior before change the database using file\_exists () method to determine whether a photo has been uploaded to the uploads folder, if there is the delete folder inside the photos, and through the move method to upload new photos to the folder, splicing image save it to the address in the data, After this sequence of operations is completed, the update() method is executed to update the database information.

Delete: this operation with the administrator management module of the delete operation method, the difference is that in the use of the destroy () method before trigger event incident response of the model layer, through the use of behavior before\_delete events before deleting data delete uploads pictures in folder, after execution of the execution destroy () method, and according to the front desk staff id number to delete the corresponding data from the.

### 5.5 Important link management module

The important link management module displays the id number, title, link address and description information in the foreground. The administrator can distinguish the different function of each website by describing the information, and the administrator can add, delete, change the operation of the link information, convenient administrator management.

Display operations: the LST method in the Link module in the background controller layer performs paging operations by calling the paginate() method in the model layer, and assigns the data. The foreground through the volist method to display the data from the background, and use the render method in the foreground pagination rendering.

Add operations: the foreground form sends the data to the background through the post method, the add method in the Link module of the controller layer receives the data sent by the foreground, and verifies whether the data is standard through the validate method, if the standard links the bk\_link database through the db() auxiliary function, and calls the insert() method to insert the data.

Modification operations: the front desk by clicking the edit button shows the information need to be edited, edit submitted after the completion of the data through the post method to send data to the background and the controller layer in the edit Link module method receives data from the front desk, and through the validate method to verify whether the data specification, if the specification is instantiated model layer in the Link object to invoke the update () method to update the data.

Delete operation: when the foreground clicks to delete, the id number of the Link information is sent to the background. The del method in the Link module in the background controller layer receives the data sent by the foreground, and the corresponding data is deleted according to the id number by calling the destroy() method in the model layer.

### 5.6 Employee information search module

This module finds the corresponding employee information by inputting the employee's id number, which is convenient for the administrator to quickly query the specific employee information, saves time and improves work efficiency. Moreover, the administrator can also delete and modify the employee information found, which is convenient for the administrator to query and manage the employee information.

The implementation method of the employee information search module is basically the same as that of the employee information management module. The main difference is that the display page of the employee information search module is realized by using the where() method to find the corresponding employee information

according to the employee identification number received from the front desk. When the modification and deletion operations are completed, the id number information should be passed to the display method LST through the url method, so that the display page can display the changed data.

## **6. System testing**

System test is a black box testing methods for testing and black box testing and functional testing, the test system as an invisible the internal structure of the black box, without considering the internal structure and the logical end of the test methods and input all conceivable case, test whether or not the system output is the result of the ideal, and improved according to the results of the output system, make the system infinitely close to the ideal state without holes. The test of the enterprise management system adopts the method of black box test, and the test results are shown in the following table.

## **7. Summary**

The enterprise management system has been basically completed, its function has realized the administrator information management, the enterprise departments between the subordinate relationship management, staff information management, link information management and search function. The management system has the advantages of simple, quick and easy to use, so that the administrator in a short time to understand and skilled operation. Although most of the functions of the system have been completed, there are still some loopholes due to the tight schedule of the graduation project, such as some monotonous page content, the lack of security of the system, and the failure to consider the administrator's permission Settings. These problems remain to be solved at a later stage.

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