

Design and Implementation of the CRM Campus Management System Based on Java

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Abstract—With the development of high education and social technology, the traditional management of school information methods far from meeting the demands of the large data now. More importantly, the handling of campus affairs is modern, digital and information management. The CRM ideas have started to adopt the management about the department of campus information in practice. The Campus information management system based on CRM which centered on students and data information technology application emerges as the times require. The implication about the system could improve collaboration between departments as well as promote the development of the college. An advanced information system can raise greatly the level of college student work and improve the efficiency of college administration.

Keywords—Database, Campus Department Management, SSH, jQuery, JDBC, MVC

I. INTRODUCTION

We can give the campus management system a new idea of CRM, which is based on the understanding of others. According to business requirements, CRM campus department management system^[1] (For short CDMS) is not only optimizing the classroom teaching order but also creating a student-centered information management system. CDMS is composed of modules: reference department, study ministry department, education department and human resource department. Managers can appropriate for school information management, such as query, adding, deleting and modification and so on. Meanwhile, it can provide various statistics to all levels of users more quickly and accurately. Facts have proved that it is more convenient for the school to carry out real-time management of all kinds of personnel and improve work efficiency.

The system is designed in the mode of MVC, JSP, Servlet, JDBC, SSH and jQuery, so that the system have clear structure, good expansibility, maintainability and flat irrelatively. The application of Struts in SSH framework and the creation of database multi-tables are technical difficulties. JSP technology is used to match CSS, JS and jQuery plug-ins to achieve the display of the page, data transfer and verification and other functions in the front view layer. The JavaBeans components that implement the business logic form the model layer, Using action servlet to achieve page control and service, Hibernate3.0 framework for database add, delete, modify, query and other operations.

II. KEY TECHNOLOGY OF THE CRM CAMPUS MANAGEMENT SYSTEM

A. SSH

SSH is a popular open source framework, which is composed of Struts2, Spring and Hibernate. Struts2 provides Powerful function label, expression languages, and data validation. By using the Spring framework, it is convenient to assemble various application components into an application system, Decoupling your application components. Hibernate, as an ORM mapping tool, provides not only mapping from Java classes to data tables, but also data query and recovery mechanisms, it can reduce database usage greatly.

B. JSP and JQuery

A JSP is actually a Servlet, which is a dynamic web page for Java^[2]. It can interact with data through the server because of JSP files are compiled into servlets at run time. The main purpose of JSP^[3] is to write interfaces, while servlet is mainly responsible for business processing.

jQuery is a tag library that can be used to simplify JavaScript programming; developers needn't consider the browser compatibility because of its cross-platform. It can be used to easily operate HTML elements, with good extensibility, rich plug-ins and comprehensive documentation.

C. JDBC

JDBC (Java Database Connectivity) is a set of object-oriented application programming interface that establishes the standard interface for unified access to various relational databases. The function mainly has three aspects: making a connection to a database, sending SQL statements, processing the database to return results. The overall structure consists of four components, which are the application, driver manager, drive program and data source.

III. OVERALL DESIGN OF CRM CAMPUS DEPARTMENT MANAGEMENT SYSTEM

A. General Description of the System

This system architecture^[4] is developed by using J2EE three-tier technical framework of Struts +Spring+ Hibernate. It uses the B / S model, which can provide unified access and personalized content and services for different users. The architecture for CDMS classifies patterns into the following categories: presentation, controller, business logic, data services and persistent layer. From the overall framework design of the system, the following four requirements must

to configure the association of the primary foreign key. The second method, the primary key of the mapped student information table is jointly realized by the foreign key constraints transferUserID and formerUserID. And the association of the primary foreign key needs to be configured (that is, the mapping file needs to be configured: <many-to-one>).

(b) Students Affair Department

TABLE IV. STUDENT UPGRADE/ DEGRADE INFORMATION

表名 (中文)				表名 (英文)		字段解释
学生升级/留级信息表				Crm_Station	Crm	
序号	字段名	类型	长度	NULL	说明	
1	upID	varchar	50	no	升级留级主键ID	
2	studentID	varchar	50	yes	学员主键ID	
3	flag	varchar	50	yes	升级/留级 (标识), 1 表示升级, 2 表示留级, 可以通过选择留级的日期判断, 0 表示没有升级也没有留级	
4	stationTime	varchar	50	yes	经办人 (手动填写)	
5	operateTime	datetime		yes	操作时间 (当前时间)	
6	beforeClassID	varchar	50	yes	之前的课程ID	
7	afterClassID	varchar	50	yes	之后的课程ID	
8	remark	varchar	500	yes	备注	

The Students Affair Department mainly realizes the following function. I. Management the information of undergraduate. II. Register students for upgrade/degrade, analyzing the scores of current students, Teachers can arrange for students to be promoted or flunked, Ensure that students complete their studies according to their own conditions. III. Student turnover rate. Students who fail to complete their studies under special circumstances are considered to have lost students. This system mainly designs the information table of students' upgrading/ degrades, as shown in TABLE IV.

(c) Teaching Department

The main role of the Teaching Department is as follows. I. Course management. Information about management and statistics of all course including Java basics, Java employment, PHP basics, etc. II. Class management. Management and statistics of all class information that Majors include Java, PHP and graphic design, etc. This system mainly designs the information table of Course Type Form and Class and Grade Form, as shown in TABLE V and table VI.

TABLE V. COURSE TYPE FORM

Table name (Chinese)					Table name (English)	Prefix
Course Type					Crm_lessonType	Crm_
No.	field Name	type	length	NULL	explanation	
1	lessonTypeID	varchar	50	no	Key ID for Curriculum	
2	lessonCost	double		yes	Course Price	
3	total	int		yes	Total Hours	
4	lessonName	varchar	500	yes	Course Description	
5	remark	varchar	5000	yes	Template for Course Introduction	

TABLE VI. CLASS AND GRADE FORM

Table name (Chinese)					Table name (English)	Prefix
Class and Grade					Crm_class	Crm_
No.	field Name	type	length	NULL	explanation	
1	classID	varchar	50	no	Key ID for Class and Grade	
2	lessonTypeID	varchar	50	yes	ID of the Course	
3	name	varchar	50	yes	Name Class and Grade	
4	beginTime	datetime		yes	Course Operating Time	
5	endTime	datetime		yes	Graduation Date	
...	
10	remark	varchar	500	yes	Other description	

IV. IMPLEMENTATION OF CRM CAMPUS DEPARTMENT MANAGEMENT SYSTEM

A. Implementation and Description about Login and Registration Page

1) User name and password login: its code is shown in Fig. 3.

```
function chkLength(obj,min,max){
    var val = obj.value;
    if(val.length<=max && val.length>=min){
        obj.nextSibling.innerHTML="";
    }else{
        obj.nextSibling.innerHTML="Length must
        be between "+min+" and "+Max +"bits";
    }
}
```

Fig. 3. Code for Login

2) New user registration

Through filling in "user name", "password" to complete the registration of employees. Click "register" to add data to the employee information table. Pay attention to that some data do not need to be saved. After employees log in the system, Use "human resources" and "employee management" to complete the edit and save the employee information that has been logged in. The detailed registration code is shown in Fig. 4.

```
function checkPwd () {
    var pwd1 = document.getElementById("pwd1");
    var pwd2 = document.getElementById("pwd2");
    //1. Get the first input value
    var pwdVal1 = pwd1.value;
    //2. Get the second input value
    var pwdVal2 = pwd2.value;
    //3. de fection
    if (pwdVal2.length != 0) {
        if (pwdVal1 != pwdVal2) {
            //4. Echo the test result
            document.getElementById("pwdDiv").innerHTML = "Sorry, the
            password is not correct twice!";
        } else {
            //4. Echo the test result
            document.getElementById("pwdDiv").innerHTML = "Congratulations,
            two correct inputs!";
        }
    } else {
        document.getElementById("pwdDiv").innerHTML = " Please enter your
        password again! ";
    }
}
```

Fig. 4. Registration Code

B. Implementation and Description about Consulting Department

1) Management consultancy of student

Click the menu of "student consultation management" and enter the interface of "student consultation management". The list query "student information form" is introduced here; Click the "add" button to enter the "add student consultation" page. Where the file date which cannot be edited is the default current time of the system; In order to obtain the name of the current logon from the Session and display it, the marketer ID should be saved; Students native and other information are manually filled in; Click the save button after editing, the system will complete the saving of TABLE I "student consulting table", and add data to TABLE II "student tracking table", indicating that the student has been tracked. Click "edit" to edit the "student consultation form" in TABLE I, echo the form and save it. If you click the view button, information about the student is displayed in a table.

2) Information of "Into Classes"

Here to query “CLASS TABLE VI” to display the class information. By filtering, only those classes that have not started in the class table are displayed. At this point, it will judge according to the starting date. If the current time is earlier than the starting, this data can be displayed.

If a student decides to learn, click the “enrollment class” button to get the information from the student consultation table. At the same time, detailed information can be edited on this page. After doing this, a piece of data will be added to TABLE I “student information table”. Meanwhile, Update the totalCount and number by adding 1, student data will be added to TABLE V “student upgrade/degrade information table” to track the learning status of students.

C. Implementation and Description about Students Affair Department

1) Management of current students

Click the “management of students in school” button, and the management chart of the current students will be displayed. The basic and detailed information about students will be edited. Have read-only abilities of the ordinary users: can see everything but do nothing. The employment status is determined by the start and end time of the class. If the current time is less than the start time, the state is not started. Otherwise, it is in the course. If the current time is greater than the end time: the state is employed.

2) Upgrade/Degrade

Click the “student upgrade/Degrade” button to find information about table 4. The name of the class can be queried by the class ID before or after the current time. The about “basic /detail” information is used to show the student's situation, Follow up information is used to inquire about the current consultation situation. Using the student ID, first consult table 1 to get the student ID; then use the student consulting ID to query table 2 to get the tracking information of the current student. And display it in a list (prompt: you can display it through Hibernate's set collection).

D. Implementation and Description about teaching

Due to space limitations, only part of the functions of

course categories are set.

Click the “course category” button to enter the relevant information in the “course category table” in query table 5, specify the query conditions, and display the list of course category information. You can also click the add button to add the relevant courses. Implement a form echo, using the primary key ID, query the object. Clicks “save” to update the course category. The course category includes (Java basic class and Java employment class). Only two types of courses are designed.

V. CONCLUSIONS

Java-based CRM campus department management system is implemented by using SSH framework, MySQL database and MyEclipse tools. CDMS is composed of modules: reference department, study ministry department, education department and human resource department. Managers can appropriate for school information management, such as query, adding, deleting and modification and so on. Meanwhile, it can provide various statistics to all levels of users more quickly and more accurately. In order to make the page display effect better, the system JSP page editor used JQuery technology.

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