The Design and Implementation of Human Resources Management Information System (HRMIS) Based on B/S Structure

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ABSTRACT

To carry out human resource management information system (HRMIS) in vocational colleges based on B/S structure, this paper puts forward its design and implementation plan. In addition, this paper introduces the design and implementation method of VS.NET and SQL Server system.

INTRODUCTION

With the deepening of informatization, human resource has become one of the most important resources in the modern society. As vocational colleges serve to be the base of higher education and professional education, the development of teachers and the management of teachers and human resources has become the important indicator to measure the level of vocational colleges. Therefore, how to strengthen the construction and management of human resources in vocational colleges, to improve the utilization of human resources plays a great role of defining the competitiveness of vocational colleges.

In this case, having taken the situation of teachers in colleges into account, this paper utilizes B/S model to design and develop a human resource management information system based on VS.NET.

Currently, the majority of software development companies tend to adopt B/S and C/S (browser/server and client/server) technology. Although C/S can give full talent to the processing ability of PC, which is faster than B/S, there exist some disadvantages in C/S, for example: a. It can only be used in small local area network (LAN), which cannot meet the need of the development of network technology, and science and technology. So as to extend it, there must be the corresponding specialized technology to solve the problem of remote access; b. Special client software needs to be installed.
(1), and computers installed with the client should be isolated and removed the
virus, and updated its system, which makes the cost of use and maintenance very high,
and it therefore, does not adapt to the development of market economy well. B/S
model, then, can make up for the disadvantages of C/S and solve the problems
mentioned above. The biggest advantage of B/S is to make it available that PC get
access and manipulate the system anytime and anywhere. This is done without the
installation of any software, and the later maintenance and extension goes well, too.
The system can be used according to the assigned authorization of administrator. As
long as one has the authority to the system administrator, he/she can use the system
according to the assigned permissions.

SYSTEM REQUIREMENTS

The system discussed in this article has applied Microsoft Visual Studio 2008 of
VS.NET to its design and development based on B/S. Since VS2008 has introduced
more than 250 new features. It integrates the object, the relational data and XML
access, and its language is more concise. This system can help develop efficient Office
applications and Mobile applications. Furthermore, it enables users to operate easily,
administers to update, maintain and manage the system conveniently.

System Structures

B/S model is generally called the browser/server structure, through which users
can login in and access to the system by accessing the browser. There are three layers
in the B/S model. The outermost layer is the customer display layer, which provides
customers with graphical interface of application service; the second one is the
business logic layer. This layer is the main logic processing one, and its role is to
perform the application strategy; the third layer is the data layer, which serves mainly
the function of data processing and maintenance, and its form is the data code (2).

Functional Requirements

a). Information management of faculty. This function can add, modify and delete
the information about the persons, their positions, and their faculties.

b). Distribution of the role management. Role management is the important index
of the portal system. In this system, users who login in must be given the reasonable
authority and distribution of administrative authority to ensure that the classified
information in the system will not leak. In this way, the stability and use of the system
can be guaranteed, too.

c). Realization of the function of query and statistics. The aim of any system is to
achieve the report function, offering convenient statistic and filtering for various types
of data. Therefore, the realization of data query and statistics is an essential function.

d). Function innovation of the information input and output. This system discussed
has applied VS. NET to provide serialization to export custom formatting of EMP
files, which makes up for the deficiency of the traditional EXCEL table.
SYSTEM DESIGN

Function Module

Function modules of the system discussed is to set based on the functional requirements of the system. In terms of some vocational colleges, there are already two systems, that is, the professional titles application system and the position appointment system. Then, the system discussed in the article could integrate the two existing systems. As a general rule, the conventional faculty management should be included in the human resources management in colleges, among which the most important is the building of the database of teachers’ information. The information should be about the teachers who are in active service, those who are of part-time, those who do temporary work, and also those who have already retired whose database is separately managed. With the help of the existing database and systems, teachers could not only choose the positions and professional titles they would like to apply, but also seek the information about their salary, bonus and welfare. The relevant interface is linked to the existing salary query system in the college.

Role Identification

In order to improve the security of the system, it is important for users to be verified identities and to be authorized the system so that they can login in and carry out related operations. The system is assigned three roles according to the actual situations of schools and system requirements, namely, system administrators, system operators and ordinary users. The authorities that each role has are as follows: a). The system administrators are in charge of the system upgrade and maintenance, the set of login names and initial passwords of system operators and users. And they can also give the password to unlock services. Moreover, the system administrators can edit the information about all the persons, including their positions; the system administrators can also adjust and improve the system for its better use. b). System operators can add, edit, delete, and add up the data, and do reports according to the requirements of data. But system operators cannot adjust the system.

Data Cleaning Extraction and Restructuring

In the process of database operation and application, there will appear some messy scattered data, namely what we often call system fragment or garbage data. It may reduce the running speed of the entire database, and that of system software. It may also degrade the performance of each part of the function module. In that case, the unnecessary data fragments shall be restructured and eliminated, or the data cleaning. This discussed system adopts the Bohn model to clean and restructure the data in system. One of the features Bohn model is that it can test and review data first, and analyze grammar and lexical features of the data, then correct the errors, and in the end, match the record.
KEY TECHNICAL PROBLEMS AND SOLUTIONS

Technical Problems

a. Technical problems about data importing and exporting: with the constant improvement of the management information system, the traditional ways of data importing and exporting cannot meet the demand of the operators, and this requires new technology to be developed to solve this problem.

b. Technical problems about data maintaining: the data of system has been in continuous change and update, so how to make better the data maintenance is also an urgent problem.

The Solution

This system proposed adopts the serialization via VS.NET to export EMP files custom format, which solves the problem of personnel assignment record (4).

Serialization is to support user-defined types of fluidization mechanism in the VS.NET runtime environment. Its aim is to form a storage which renders the custom object persistent, or it can transmit the objects from one place to another one. VS.NET has provided three ways of serialization: one is via BinaryFormatter; The second is via SoapFormatter; The third is via XmlSerializer for serialization. The first way provides a simple type of binary data flow and some additional information, and the second one formats data stream for XML storage. And XmlSerializer, is actually the simpler way of XML format for storage, which simplifies a lot of specific additional information of the SOAP. Here, in order to simplify the process of operation, we adopt the BinaryFormatter, the first method for the data importing and exporting. The details of the implementation process are as follows:

(1) The serialization method:
IFormatter formatter = new BinaryFormatter();
string fullName = HttpContext.Current.Server.MapPath("temp/" + employeesNo + ".emp");
FileStream stream = newFileStream(fullName, FileMode.Create, FileExcel Write, FileShare.None);
formatter.Serialize(stream, emp);
stream.Close();

(2) The deserialize method:
IFormatter formatter = new BinaryFormatter();
Employees.emp = (Employees) formatter.Deserialize(fromStream);

CONCLUSION

The article has proposed a design and implementation plan in colleges’ human resource management information system (HRMIS) based on B/S structure and VS.NET technology. The design and implementation of the system can give insight to the personnel administration department about the management of human resources. It facilitates for the statistics and summary of various kinds of information. At present, the system is gradually upgraded, but there still exist some deficiencies in such aspects.
as system upgrade. It is expected to get further improvement in the future through its application.

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