

# Design and Implementation of Sports Performance Management System in Higher Vocational Colleges Based on Data Mining

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**Abstract.** This paper introduces the design and implementation of sports performance management system, firstly, introduces the research background, the domestic and foreign research status, theory gives the project development and use of the Web technology and data mining, and then a detailed analysis of the needs of users, combined with the demand, the system's data flow is analyzed; secondly, discussed in detail the system architecture and database design, based on the realization of sports performance management of each function module are given, and discusses the application of data mining in the system; finally, gives the system test program, verify the correctness of the system function; the sports performance management system developed by ASP.NET technology. The database platform using SQL Server 2005 program, the development platform for the Visual Studio 2008, using the three layer architecture. Based on the above scheme, the achievement of this thesis are: the development of a sports performance management system, the system includes function module test type management, test project management, performance management, sports system transformation, through this system, teachers can complete the sports performance management, statistics work, teachers will come out from the data management of complex free to focus on improving the quality of PE teaching; decision tree ID3 algorithm based on the combination of sports, student test scores, data mining analysis, the formation of students' physique feature value information for teachers' teaching materials, provides reference data, so as to achieve the improvement of PE teaching the quality of the.

**Keywords:** Sports performance management; data mining; decision tree; ASP.NET Technology

## 1 Introduction

With the widening of the reform of education system and the method of education, society is becoming more and more requirements of high-quality and comprehensive physical talent, students can not just good grades and good fitness, so as to competent future work. Therefore, more and more attention has been paid to the teaching of physical education, and the Ministry of education has also developed a series of training standards and performance standards for the education curriculum. Physical examination is also included in the student's academic performance [1], as part of the comprehensive quality of students. In the physical fitness test, mainly includes two aspects: Students' body shape and body function. For

different physical exercise, there are different ways of training and test methods, such as running, usually with the length of time or location of the location, minutes, seconds or meters. These results should be used to indicate the score, to be included in the total score of the exam, so usually students in the completion of these courses, education is responsible for these sports scores in accordance with the relevant standards of the state to be converted. But due to the large number of students, and physical education curriculum contains a lot of content, involved in the data very much, teachers should these data conversion, and then these data were input into the educational system to that of workload in the process is very large, and this process need to teacher manual to complete, so that the work efficiency is low. This also restricts the development of physical education to a certain extent. Therefore, according to the actual situation of sports teaching, an urgent need to have a can let teachers from a large number of repeat complex data statistics and analysis of the system, to solve the practical problems faced by the colleges and universities, the work become more simple, also makes teachers focus more on the improvement of discipline of the summary and accomplishments. So as to give full play to the guiding role of teachers in students, improve the quality and effect of teaching [2].

## **2 Introduction of Related Technologies**

Net technology, makes the software market a. Net application tide, a lot of software developers will be to use this technology for the software design, and in a certain extent improve the traditional technology of application of drawbacks, both the development efficiency and software quality, significantly more than the previous. Soon became the mainstream of the market software development technology, get everyone's favorite. Especially when the combination of .NET technology and HTML application, its function and performance have been greatly improved, but also an important progress in the history of software development. Sports performance management system is the development of this technology, the following is a detailed introduction of ASP.NET technology. ASP. Net is based on ASP technology in the evolution, which combined ASP. Net technology of a new development technology. The technology is mainly used for dynamic page design. It has a the advantages of a variety of techniques, is not limited to these advantages, the software market in the most commonly used to a technology occupies a large share of the market sales. ASP. Net technology is by American Microsoft should be the needs of the vast number of consumers and the development of which is making some software based on. Net platform design, more of the technology is used to build dynamic web pages, is dependent on the network. Network brings people convenience is the most direct and network people avoid the many simple repetitive work, freed from the heavy work, also can through the computer in the network world soar, surfing the Internet, study and work, you can also entertainment in the cyber world. It has played an important role in improving people's living standards.

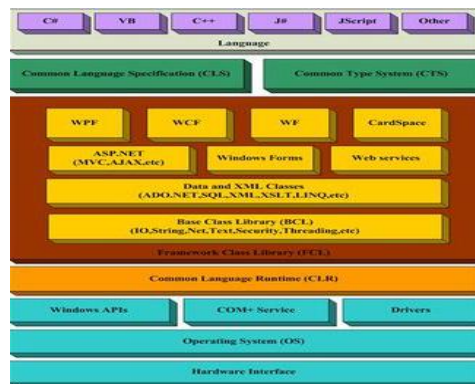
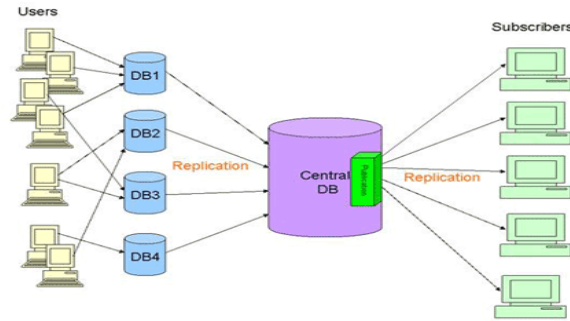


Fig. 1. Schematic diagram of system frame

## 2.1 SQL Serve

SQL is a kind of structured query language, Server SQL is a database management system. Database management system is used to store all kinds of data used in the system, at the same time by calling the SQL statement to achieve a variety of data operations, including query, modify, delete, etc.. The database management system more is used in the distributed system development work, the operation is more convenient, and its function more powerful can achieve data on a variety of access and operation functions, also for the user provides a simple user interface, convenient for users to learn and master. SQL is mainly through the SQL statements for all types of database of access and call. It has also been identified as the standard language for relational database, the use of the language can achieve a variety of data manipulation functions, including common data update and data extraction. The language has been widely used, including the current common database systems, such as Oracle, Access, etc.. SQL server is a SQL based query language of the database system and a relational database operating system, because it is based on SQL as the standard language. Therefore, it can use the SQL statement easily realize all kinds of operation on database, complete all kinds of data interaction. The database system was originally developed by Microsoft Corp, including three companies developed, because these companies after their development also began to develop the database software alone, and SQL Server on the windows platform is the main operation eventually by the Microsoft Corp, and subsequently developed SQL Server 2000, the database system use very convenient, and high scalability, can cross platform use, has great application and development in a period of time; after Microsoft released SQL Server 2005, this is the 2000 version of the further development and extension, more suitable for the development of database software some enterprise [3], provides a business intelligence functions to the user, it can use very quickly and safely. The design and development of a variety of database. Compared to the 2000 version, the version of the function is stronger, the performance is more reliable; with the development of database technology, the current Server SQL database has been updated to the 2008 version.



**Fig. 2.** Schematic diagram of database

## 2.2 Data Mining

Similar to the concept of data mining and data analysis, the different point is a form of data mining and data analysis, is a specific concept, and through the analysis of large amounts of data to the existing rules, in order to find the hidden data rules, is usually referred to, the focus is on future data to make a law of prediction. Three characteristics of data mining are summarized, namely, the previously unknown, effective and practical. Data mining is the core part of analysis and forecast, it is only through the data mining, it may will find the future of these data to and dynamic for system development, data mining has a very important role and value. Data mining is refers to the existing data for the statistics and analysis, the rules of these data using the algorithm predicts that focus on the hypothesis generation, is a prediction of the future, having previously unknown. The purpose of using data mining is to find the potential useful information in this way. It is valuable to predict the law and trend of the future data. Data mining usually includes the following functions: (1) Data mining of existing data for automatic analysis, and to predict the direction and trend of future, the traditional data analysis need by hand to complete the analysis, phase comparison, data mining is more intelligent. (2) Using data mining can realize the association analysis between multiple sets of data, the association analysis is to analyze the relationship between the several groups of data and links, and data mining have this function. (3) Clustering of scattered data can be realized through data mining. Usually case [4], the data is to unit is stored in the database, but a single data can not express a meaning, to complete formulation of a mean need to cluster the data, through a variety of methods including data combined, induction, and the realization of functional clustering.

## 3 System Design

Target system is developed using .NET three layer structure, the whole application is divided into three levels, namely, the presentation layer, business logic layer and data access layer. Presentation layer is a direct user oriented application layer, is responsible for the completion of the user's interaction, the layer is usually used to complete the interface, through the design of some controls to complete the interface. The layer is only responsible for receiving a user access request and the final result to user feedback, for specific use what method to achieve the user's request not to care; business logic layer in said intermediate layer

and data access layer, it is the system business logic processing of the core areas, responsible logic computing and processing of user requests and receives data access to data; data access layer is responsible for data access and program execution is completed, and the results feedback to the user. Target system will the application layer is divided into three layers, graphics in the top to control page, pointing it at the user object for physical education teachers, students and administrators; is located in the middle of the application layer to business logic layer, main work is responsible for logical judgment and execution, and data layer interact; data access layer is complete the database related interactive operation, executive all data request. The reason to use three-tier architecture model, because by divided into three layers, the application layer separated from each other, only pay attention to in dealing with her own authority task, not only reduces the coupling between modules, but also improve the cohesiveness. And the use of the development framework, can effectively reduce the workload of programming personnel, when the business needs change, only need through the adjustment of business logic will be very easy to achieve these requirements, do not need to write code or a wholesale revision work. Therefore, the program development efficiency has been greatly improved, and development costs can be better controlled, for costs less and has a very important role [5].

#### **4 Conclusion**

With the improvement of education system reform and social demand for talent, all-round development has become the focus of the current mission of teaching, physical education has also become a school teaching a very important part, has become an important course in the exam. With the advent of the information age, the schools are scrambling to carry out teaching informatization construction work, and physical education as an important part, informatization construction is the development of the times of the inevitable trend. The author entered where Jiangxi Vocational and Technical College of manufacturing professional sports related departments to understand, and the teachers and staff of exchanges and communication, found at the school for sports performance management still exist many problems, resulting in incompatible with the development of information technology, in view of this situation, the design and development of the target system, to through the application of the target system, standardize the sports performance management related work processes, to realize the scientific management and information management, liberate teachers from the traditional complicated work, improve work efficiency.

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