Design of Physical Education Management System

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Abstract. With the shortcomings of traditional sports education have become increasingly prominent and the rapid development of computer technology, based on network physical education is gradually developing, for big information, strong information processing ability and other characteristics, design a reliable and efficient physical education management system has a certain practical significance. Firstly, researched the architecture design of physical education management system, mainly design technical architecture for system; then, to complete the functional design of the system based on architecture design, mainly including four function modules; finally, the logical structure design of the system's database. This physical education management system designed in paper to make up for the shortcomings of traditional physical education management, which greatly improves the efficiency of student learning and interest in learning, to enhance the quality of physical education have an important supporting role.

Introduction

College is a place culturing personnel, education is a fundamental and most important part in the process of culturing personnel, therefore, education is not only a basic work, but also a body of work [1]. In the colleges education work, physical education is an important part of quality education in colleges, can improve students' physical fitness and culture students' willpower, responsibility, competition, teamwork and other fine quality, so that the final round development of students into a comprehensive quality talent, for the public physical teachers, culturing physical awareness, interests, habits and ability for student and improving students' enthusiasm and fitness science are the most important work for public physical teachers [2].

With the advancement of technology and the rapid development of computer technology, using computer technology to achieve modernize management has been applied to many other industries, the education sector is one of them, along with the further development of the education system, the level and quality of education management are increasing, for physical education management system studied this paper, because educational data is increasing, using traditional physical education management methods have not meet the needs of physical education management, so this paper utilize computer technology to design a physical education management system, to ensure educational data integrity and timeliness meanwhile to achieve teaching office of standardization, automation and networking, and then to improve the quality and efficiency of physical education management.

System Architecture Design

System architecture design is the basis for system design, it is to design the technical architecture of the target system, at the macro level of the entire system overall design, architecture design can built up framework for target system, and then decide how to design function module and other contents according to architecture, physical education management system using B/S three-tier design, avoided the complex maintenance network communications difficulties and other shortcomings of C/S structure, to ensure the safety and reliability of the system, the advantage of B/S architecture is zero maintenance, easy operation and scalability, in the continuous improvement

and upgrading of the software also reflects the convenience, the most important of B/S architecture is lower hardware requirements to the use, can save some costs [3].

B/S architecture (Browser/Server), also known as the browser/server mode, is a network architecture model following Web, this model make the core of function the system focus on the server, simplifying the development, maintenance and using of the system, as long as installing a browser in the client, such as Internet Explorer, the server will need to install Oracle or SQL Server and other databases, the browser exchange data via Web Server with database, which greatly simplifies the client computer load, reduce costs using system maintenance and upgrade [4]. B/S architecture includes three layers, namely the client layer, application layer, and data storage layer, in the B/S three-tier structure, each layer represents a separate class of service, the establishment of relevant business services and data services, the service as a standard, user-friendly maintenance and expansion of the system, using loose and disaster fit design principles in business module. According to the above design principles, the architecture diagram of physical education management system designed in this paper is shown in Fig. 1.
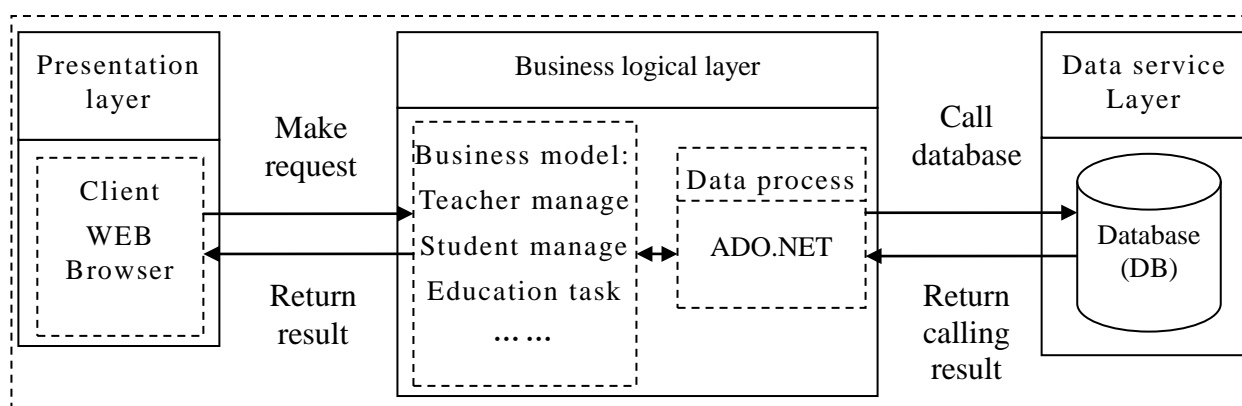

Fig. 1. Architecture diagram designed physical education management system

In the B/S three-tier structure of physical education management system, the client is responsible for realization of information display and interactive viewing; application server is used to connect the corresponding application with the database, through a certain database statement send the data processing structure in the database server to the Web server, and then sent to the client, the application server is a client-server-based server that has application extension capabilities; data services layer is responsible for receiving the data operation request sent from the Web server for querying, modifying, updating databases and other functions, and then submit the results to the Web server.

System Functional Design

In recent years, colleges and universities continue enrollment, the increasing number of teachers and students, teaching management in the emergence of a waste of time and resources, physical education as part of college teaching, is also facing the same problem, in order to improve the status of physical education management, give full play to the advantages of university information technology and powerful software and hardware resources, promote the optimization of the curricula, modern teaching resources to achieve as much as possible, sharing, development, physical education management system is an inevitable trend. Physical education management system as part of the school management information systems, as a whole subnet school information management system, in the design process should be based on the campus network construction, network data communication, resource sharing and stepwise process, so the design of physical education the management system should follow some principles, (1) overall co-ordination, resource sharing principles; (2) system availability, robustness and strong; (3) maintainability and scalability principle, mainly refers to the system as a modular design , component to enable flexible configuration; and (4) physical education management process standardization principles; (5) The

system is simple and user-friendly guidelines, as far as possible for all members to use the school; (6) maintainability principles; (7) operational security, stability principles; (8) system standardized principles, the implementation of the relevant standards to ensure the quality of the system; (9) the principles of data security systems, mainly for database design, to prevent unauthorized users invasion [5]. Based on the above principles of physical education management system, functional design, provide a platform for a high-quality information services for staff and students.

The main function of physical education management system designed in this paper consists of four modules, teaching resource management module, teaching program management module, and evaluation of teaching quality management module and the operation management module, which sports management system and teaching resources, including human resources management, education funding management, teaching hardware facilities management, teaching basic construction and other functions; and evaluation of teaching quality management module includes teaching quality evaluation, teaching quality and teaching quality monitoring analysis and other functions; physical education teaching operation module includes document management, teaching workload management, daily sports teaching management and teams work management. Teaching resources management module main function is to provide courseware and related files to upload, download, maintenance, human resource management module which provides basic information on teachers, teacher performance assessment, teacher training and teacher training work remuneration management functions; physical education funds management physical education module provides budget and usage summary inquiry function; the physical education facilities management module provides facilities management and use function; physical education infrastructure management module provides discipline and professional construction management, construction management curriculum and teaching basic file functions construction [6]. In physical education program management, department of physical education to develop in accordance with national, school training program of physical education programs and curricula, to develop plans for each department of physical education under the plan, and then to develop lesson plans according to the teaching program and curriculum and organize the implementation, in physical education program management module can be queried in physical education program midterm and final semester, you can use the teaching program to check the implementation of teaching, can also be aggregated for each semester teaching program [7]. In physical education quality and evaluation management module, sports teaching quality monitoring and management to provide classroom teaching quality monitoring and control functions substandard performance; teaching quality analysis module is to conduct examination analysis, including practical classes and theoretical performance analysis results analysis; teaching quality assessment module provides guiding ideology, teachers, teaching conditions and use, professional development and reform, teaching management, special project to assess the summary and other functions. Running in physical education management module, management module provides daily physical education, student enrollment, examination period, sports scores processing; sports team management module provides sports team training and competition management series; sports teaching workload management module provides teaching workload function management, teaching staff hiring and teaching preparation and the like; teaching file management module provides teaching planning, teaching rules management, teaching and research, teaching assessment materials management.

System Database Design

Database technology is one of the key management information systems, and its study object is data, the purpose is to effectively manage and store large amounts of data resources, as a method of computer-aided management of the data, research how to access, manage and use data. From the application way of database technology, the current mainstream application development features include data analysis and display capabilities and application systems, data analysis and display using the query function of the database management system to achieve a comprehensive analysis of the different types of data, in association By a combination of query or stepwise analysis summary form, the results can be analyzed graphically for effective data display; systems

development function refers to the database through a combination of technology and information technology, network technology and software development technology, should be given development and design of information systems. This design of physical education management system is the main application system development capabilities, is mainly used in relational database systems commonly used include Microsoft SQL Server, MySQL, Oracle and other database systems, based on the system developed functionality, convenience and low cost , this paper design of a system using SQL Server, SQL Server database with a fully functional, easy and development environment combines the advantages of high compatibility, and the database itself is a graphical interface, easy to operate [8].

The purpose of the database design is to provide timely and accurate information query, the destination database physical education management system designed to provide powerful data retrieval of information, staff and students, the process and query functions, improve the overall efficiency and enhance student achievement management capabilities , so the database design process should follow the principle of sharing, integrity principle, the principle of security, scalability principle, maintainability principles and the principles of standardization, sharing principle refers to coordinate the various data sources, to achieve unified algorithm, consistent; correctness and completeness principle refers to the compatibility of data, input data for review and restraint mechanisms; security principle refers to the protection of data; the principle of scalability major database upgrade extension work; standardization of principles for data storage should follow a standardized theory [9]. Database Design This design of physical education management system is mainly logical database design, expressed in the form of a table, the logical structure of the database management system design results in Physical Education as shown in Table 1.

Table 1. Logical structure of tables in database

"Administrator" Table				"Teaching Resources" Table			
1	AdminID	Varchar	20	1	ResouseID	Varchar	20
2	AdminName	Varchar	20	2	ResouseName	Varchar	20
3	AdminSex	Varchar	2	3	ResouseType	Varchar	20
4	AdminPwd	Varchar	20	4	ResouseAdd	Varchar	20
5	AdminDept	Varchar	50	5	Remark	Text	
6	AdminPhone	Varchar	20	"Teaching Task" Table			
7	AdminMail	Varchar	20	1	TaskID	Varchar	20
8	PowerFlag	Varchar	4	2	TaskName	Varchar	20
"Student Information" Table				3	TeachID	Varchar	20
1	StuID	Varchar	20	4	CourseID	Varchar	20
2	StuName	Varchar	10	5	Description	Text	
3	StuSex	Varchar	2	"Course Information" Table			
4	StuPwd	Varchar	20	1	CourseID	Varchar	10
5	StuClassNum	Varchar	10	2	CourseName	Varchar	20
6	StuDormNum	Varchar	10	3	CourseType	Varchar	20
"Teacher Information" Table				4	TeachID	Varchar	20
1	TeachID	Varchar	20	…	……	……	…
2	TeachName	Varchar	20	"Teaching Score" Table			
3	TeachSex	Varchar	2	1	CourseID	Varchar	20
4	TeachPhone	Varchar	20	2	StuID	Varchar	20
5	TeachMail	Varchar	20	3	Score	Varchar	50
6	TechRoomNum	Varchar	20	…	……	……	…

Conclusion

Physical education is an important component of the college physical education, the physical education in colleges and universities under the new curriculum requires the full implementation of quality education, which means college physical education focus on knowledge, technology and skills, at the same time, pay more attention to high-quality talent culture, create university physical education management system corresponding with quality education [10]. The rapid development of computer technology promote a new university physical education management mode gradually replacing the traditional manual teaching management mode, building physical education management system can provide high quality and efficiency of the physical education information, improve the efficiency and quality of physical education management staff, in this context the design of a physical education management system to enhance the quality of training personnel is important [11]. Physical education management system designed in this study provide the function that query and manage student achievement, education resources and others, reduce data redundancy, reduce the workload of teachers, meanwhile improve teaching quality and learning interest, with the development of the education sector, there will arise teaching management requirements physical education, so physical education management system can also be further improvement according to the needs of colleges.

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