Design and Implementation of Interactive Learning System for Art Teaching

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Abstract: With the rapid development of information technology and the Internet, the network has become the main basis vector to obtain technology and resources in the modern education, some important changes in the modern form of education, the rapid development of distance education and network education brings new challenges for China's education. Art education is one of the important measures to improve the comprehensive quality of students in modern teaching. Therefore, in the context of information technology, how to use information system to realize the interactive learning of art education, has become the modern art education is one of the most critical part. The advent of information technology makes the development of modern digital education, digital campus school management rapidly, information age has come, the network has become the main basis vector to obtain technology and resources in the modern education, modern education form has undergone important changes, the rapid development of distance education and network education puts forward new challenges for me China education. Network teaching and research system has become the main carrier to get important resources. The rapid development of information technology makes information technology to become a tool mainly depends on education in the present teaching, modern teaching must be combined with information technology, make full use of information technology in education and teaching effect. Art education is one of the important measures to improve the comprehensive quality of students in modern teaching. Therefore, in the context of information technology, how to use information system to realize the interactive learning of art education, has become the modern art education is one of the most critical part. The teaching of art education and other subjects, art education has its own characteristics, is aesthetic as the core of the education system, comprehensive art education, to an important role in promoting the all-round development of students individual play. The main content of this paper is to design and implement a convenient and feasible study of art education system the art teaching mutual learning mutual aid system is based on three layer architecture of NET system for the main structure. The main function of the presentation layer is to process the user's request data and realize the interaction between users. Data layer is mainly the realization of data logic processing, through the database call and operation to achieve interactive database access function. The business logic layer is in the middle of a relationship, play a connecting function, realize the logic processing of the database, and then realize the system's business objectives. The design and implementation of multilayer mechanism is very important to improve system reliability and system compatibility. In the art teaching and mutual design and various functions of the application system are carried out in W E B, all users can through the network to realize mutual art teaching and learning system. In this paper, the design and implementation process combines NET and SQLSERVER related technologies, the main technology used in data access is ADO.NET technology. Through access control design and user role control, fully guarantee the security of the system. Through the design and implementation of the system, online learning, BBS forum, online work and online testing are realized. At the end of the art teaching and mutual aid system was tested, the system can achieve a good art teaching landing, online learning, exchange forums, online homework and online testing function, achieve the goal of the system design.

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1. Introduction

With the rapid development of information technology and the Internet, the network has become the main basis vector to obtain technology and resources in the modern education, some important changes in the modern form of education, the rapid development of distance education and network education brings new challenges for China's education. Art education is one of the important measures to improve the comprehensive quality of students in modern teaching. Therefore, in the context of information technology, how to use information system to realize the interactive learning of art education, has become the modern art education is one of the most critical part. The advent of information technology makes the development of modern digital education, digital campus school management rapidly, information age has come, the network has become the main basis vector to obtain technology and resources in the modern education, modern education form has undergone important changes, the rapid development of distance education and network education puts forward new challenges for me China education [1]. Network teaching and research system has become the main carrier to get important resources. Information system (Information System) is a system composed of human, computer and other peripheral equipment to the information collection, transmission, storage, processing, maintenance and use of the system. Its main task is to maximize the use of modern computer and network communication technology to strengthen enterprise information management, through the investigation of the enterprise of human, material and financial resources, equipment, technology and other resources, to establish the correct data processing and to prepare a variety of information to provide timely information to managers in order to correct the decision, constantly improve the management level of enterprises and economic benefits. At present, the enterprise's computer network has become an important means for enterprises to carry out technological transformation and improve enterprise management level. University information system is one of the main tools of management in Colleges and universities in China in recent years. Today, the rapid development of information technology, computer network for the majority of people are not strange, people have more and more rely on the network, it can be said that the people and the network has been closely linked together. The network has penetrated into people's study, work and life, and has played an important role, causing significant changes in the field of education. In recent years, with the rapid development of software engineering technology, information communication technology and other related technologies, network education has gradually gained popularity in people's education activities. In these related education, network testing has become an indispensable part of network education, is an important part of network education. Firstly, this paper analyzes the demand of interactive art learning system, and fully grasps the content of the art teaching system through the needs analysis. The interaction between the B / S architecture mode and is not subject to any restrictions, as long as the use of network and interactive dialogue can be carried out smoothly, through the use of the system, students can obtain more comprehensive knowledge, but also conducive to the consolidation of students' knowledge, is a kind of new learning mode. In this system, students can according to their own time to arrange the appropriate learning and research [2], and to complete their learning tasks, teaching to change the traditional art education form, which can help students improve the learning interest in a great degree, students can also through learning, online interactive on line, timely grasp of learning according to their own circumstances, and not strong, can stimulate students' enthusiasm of learning. The design of information system is implemented in order to improve the efficiency of homework, the simple operation procedure, simplified management password, it is very important for teachers' work, this paper focuses on the design of simple management procedures, and the purpose is to facilitate the management of the operation. In C++ and SQLServe2005 environment, using B/S architecture model of the main function modules of the system are realized, involving: landing validation module, system management module, basic information management module, interactive development system. The security and test run of the system are analyzed. With the rapid development of information technology and the Internet, the network has become the main basis vector to obtain technology and resources in the modern education, some important changes in the modern form of education, the rapid development of distance education and network education

brings new challenges for China's education. Network interactive teaching and online learning become one of the main carriers to get important resources in my education. The author through extensive reading of related literature, a comprehensive analysis of the current situation of domestic and international development of the interactive teaching system, found that the development of foreign interactive teaching system has been quite mature, foreign interactive teaching system on the development of the education industry is not limited to the University, in basic education also began to use interactive teaching system. The rapid development of foreign interactive teaching system for the development of interactive teaching system in our country bring enlightenment to the development of information technology has become the main tool of modern education, but also the students' learning resources or lack of main way, interactive teaching system can make students and teachers a new teaching form in the process of European education. To improve the efficiency of learning and education to a large extent. The foreign school education system has made a great contribution to foreign education, and with the progress of education concepts and information technology, foreign scholars and the education system is constantly improving the design of online education system, so that it can contribute to a greater degree in education. The system art teaching system enables the user through the browser on the Web site operation, so as to achieve a new teaching platform and system, the system provides many functions, such as user management, teaching management, information retrieval, online testing, automatic evaluation results and other functions[3]. In addition, the system can also be popularized in other subjects. The schematic diagram of the interactive teaching and learning system is shown in Figure 1 and 2.

Figure 1. Sketch of teaching interaction system.

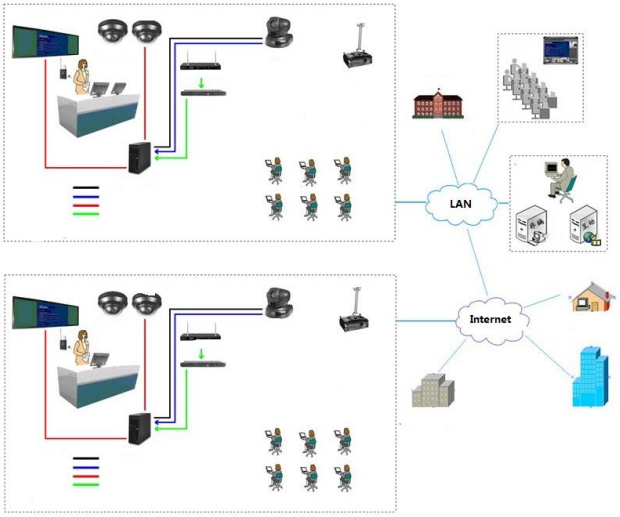

Figure 2. Schematic diagram of interactive teaching system.

First of all, in the construction site, the existence of the page production disorder, style is not uniform and other issues. This building site does not form a unified style, giving people a sense of

chaos, and it is difficult to form an independent module, seriously affecting the expansion of the system, reducing the flexibility of the system. Secondly, the site's content organization cumbersome. Content is the soul of the course site, the content determines whether the site is successful. But a lot of course website simply content of conventional stack, monotonous and boring, lack of diversity and flexibility, and the actual needs of learners is seldom considered, cannot really attract the students and teachers and participate in. Improve the teaching level should be the main purpose of building curriculum website, the main construction theme, all the construction is around this theme to carry out. There is a great blindness in the construction of curriculum website. First of all, the blindness of technology. Many of the course website relying on the school teaching platform, the platform has to technology problems, often platform module design is very good, very much, but not between the teachers and the communication function, design some unrealistic results, only the realization of technology, but not to use, which caused between the web and the actual teaching of derailment, thereby increasing the difficulty of website promotion, seriously affect the use effect. Secondly, the blind pursuit of surface results. The construction of course website is a standard of many school evaluation teaching and achievement, which makes many courses website, is unreal. In order to complete the task, or for some needs and out of thin air. This made out of the site is clearly not in line with the actual requirements; often do not play the role of resource sharing and demonstration. Third, blind worship of high-tech means, resulting in a waste of resources. With the development of computer technology and network technology continues to mature, many schools is the application of new technology as an evaluation index, resulting in the construction of websites blindly loaded high technology and new technology, but the technology is not sufficient, resulting in a waste of resources, but did not meet the construction requirements, and in use misunderstanding of technology. First, the curriculum website should be built such as answering mailbox, teacher-student interaction space, in order to achieve interaction between teachers and students. Interactivity is a basic requirement of website construction, so establishing interactive website is a goal of course website. In order to make the course website has the interactive function of network teaching, the most common ways of website design include online communication, e-mail, electronic bulletin and other ways, which can realize the interaction between teachers and students. But the author found that many of the interactive application of curriculum website is not good [4]. Secondly, the course website should be interesting, entertaining. In order to improve the initiative and enthusiasm of students, in the course of the construction site, should play the role of modern information technology, make full use of mode, means of animation image, to deepen the students' understanding and cognition, make students more interested in the course website to learn the knowledge, so as to achieve better results of teaching. But in reality, many courses website does not have this function; the realization of the website form is single and boring. This will not attract students to participate in the role, leading to the site's utilization and access rate is not high, did not play the role of the curriculum website should play. The basic technical route for developing the art website first, in the development of a web site before the visit a large number of sites and web art courses related to art and art, collecting a large number of related information, do a lot of preparatory work for the second web development system, the overall planning of the Yangtze River experimental primary school art curriculum website will be developed, and the detailed requirement analysis system design third, fourth on the website, the implementation of the system function module, complete the function of fifth of the overall system, the system testing and maintenance[5].

2. Key technologies involved in system design process

2.1 NET framework introduction

The framework of.NET (.NET Framework) is developed by Microsoft, a commitment to agile software development (Agile softwaredevelopment), rapid application development (Rapidapplication Development) software development platform, platform independent and network transparency. .NET is Microsoft for the next ten years on server and desktop software engineering the first step. .NET contains many technologies that contribute to the rapid development of the

Internet and Intranet applications. The.NET framework is a multilingual component development and execution environment that provides a cross language unified programming environment. The purpose of the.NET framework is to make it easier for developers to build Web applications and Web services that allow Web applications to communicate across applications on Internet. From the hierarchy view, the.NET framework includes three main components: the common language runtime (CLR:Common Language Runtime), service framework (Services Framework) and the upper two class application templates - Windows application template (Win Forms) and the traditional network application oriented Web based on ASP.NET template (Web Forms Web and Services). Common language runtime (CLR) is a runtime environment that manages the execution of code and makes the development process simpler. CLR is a controlled execution environment, its functions through the compiler and other tools to show. Above CLR is the service framework that provides a set of base libraries that developers want to have in standard language libraries, including collections, input / output, strings, and data classes. So, after Windows DNA (distributed integrated network application architecture), Microsoft is the main reason for the new.NET framework (New hosted code programming model)? Problems arise in the integration of multiple technologies that have been developed on a single application subsystem. For example, manufacturing enterprises have different systems, such as inventory management system, BOM system, financial general ledger system; all can be used to achieve a variety of application development of technology. These systems need to be integrated together to form a higher level organization of enterprise information systems. To do this, the application developer must use such as Microsoft distributed component object model (DCOM), Common Object Request Broker Architecture (CORBA), Java remote method invocation (RMI) technology. However, these distributed techniques are tightly coupled together through the developed application programming language. Cross language interoperability is also limited. For example, if the Visual C++ class has been created [6], it is impossible to develop new classes in Visual Basic and extend it to Visual C++. Therefore, developers will have to rewrite the same logic class with the language used in each project. Functional reusability has been supported, but in early technologies, the reusability of real code is not available. Therefore, developers have to learn all the languages used by the development organization used by the application. Registered COM components. COM components registered before they can be used on the target machine applications. The application must find the COM component found and loaded in the Windows registry. The schematic diagram of the.NET framework is shown in Figure 3.

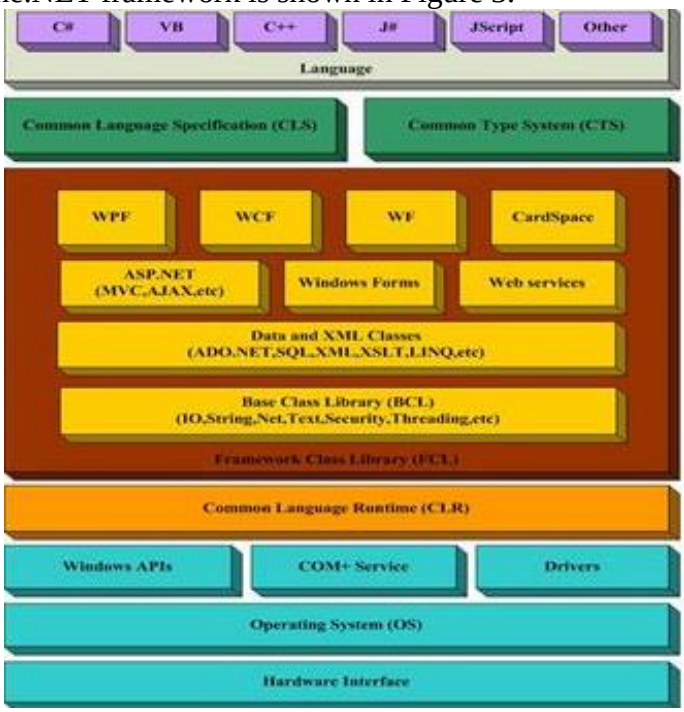

Figure 3. Schematic diagram of.NET frame.

2.2 Database technology

Database technology is a core technology of information system. Is a computer-aided management of data, it studies how to organize and store data, how to efficiently obtain and process data. Database technology is the basic theory of database structure, storage, design, management, application and realization method, and use these theories to realize the processing, analysis and understanding of the data in the database technology. Database technology is a software science for researching, managing and applying database. Object oriented database technology research and management of the data, so the specific content of the database technology involved mainly includes: through the unified organization and management of data, in accordance with the establishment of the corresponding database and data warehouse designated structure; mining system design can realize the data in the database for a variety of functions add modify and delete processing, analysis, understanding, report and print the data management and data mining application system using the database management system and data; and the application management system realizes processing, analysis and understanding of the data. Database technology is a core technology of information system. Is a computer-aided management of data [7], it studies how to organize and store data, how to efficiently obtain and process data. Through the research on the basic theory of database structure, storage, design, management, application and realization method, and use these theories to realize the processing, analysis and understanding of the data in the database technology. Database technology is a software science for researching, managing and applying database. Database technology is an important part of modern information science and technology is the core of computer data processing and information management system. Research on database technology and solves the storage and computer information processing in the process of large amounts of data to effectively organize problems in database systems to reduce data redundancy, data sharing, data security data security and efficient data retrieval and processing. In the mid-1960s, database technology was used to solve file processing problems. At that time the database processing technology is very fragile, often the application cannot submit the situation. The birth of relational model in 1970s provided the database experts with the standard methods of constructing and processing database, and promoted the development and application of relational database. In 1979, Ashton-Tate company introduced the microcomputer product dBase II, and called it the relational database management system, from the database technology transplant to the personal computer. Mid to late 1980s, end users will start independent computer network using a LAN technology, database sharing between the terminal and the formation of a new type of multi user data processing, called the structure of client / server database. Today, database technology is being used to combine Internet technology in order to publish database data in institutional networking, local area network or even WWW. Information technology (Information Technology IT) is one of the most frequently used terms, which along with the computer technology in the industry, agriculture and daily life widely used, has been one of the growing number of individuals and businesses as their catch up with the trend of the world. Database technology is an important support in information technology. No database technology, people feel at a loss in the vast world of information. Database technology is an important branch of computer science and technology. From the middle of the 1950s, the computer application expands from the scientific research department to the enterprise management and the government administration department, people's request to the data processing is also higher and higher. 1968, the world was born the first commercialized information management system IMS (Information Management System), since then, database technology has been rapid development. In the Internet is increasingly accepted today [8], Internet also makes the database technology, knowledge; skills importance has been fully enlarged. Today, database has become one of the main software tools of information management, office automation, and computer aided design and so on. Database technology schematic shown in Figure 4.

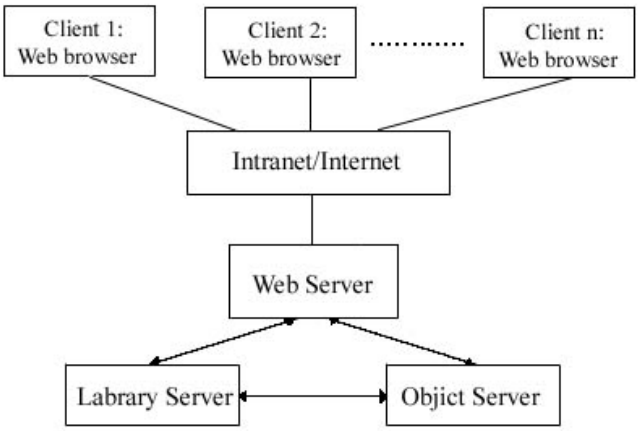

Figure 4. Schematic diagram of database framework.

2.3 Schematic diagram of MVC frame

MVC full name is Model View Controller (model) is the model view controller (view) - (controller) abbreviation, a software design model, a business logic and data display interface, tissue isolation method code, business logic will be gathered in a component inside, and improvement in interface and customization user interaction at the same time, do not need to write business logic. MVC is uniquely developed for mapping traditional input, processing, and output functions in a logical graphical user interface structure. MVC is present in desktop applications, M refers to the business model, V refers to the user interface, C controller is used, and the purpose of MVC is to achieve code separation of M and V, so that a program can use different forms of expression. For example, a number of statistical data can be used to represent histogram, pie chart. The purpose of C is to ensure that M and V synchronization, once the M changes, V should be synchronized update. Model view controller (MVC) is a software design pattern invented by Xerox PARC in 1980s for programming language Smalltalk - 80. Later recommended as Oracle's Sun Java EE platform design patterns, and more and more use of ColdFusion and PHP developers welcome. Model view controller mode is a useful toolbox, it has many benefits, but there are some disadvantages. A view is an interface that a user sees and interacts with. For the old Web application, the view is composed of a HTML element in the new interface, Web application, HTML is still in the view plays an important role, but some new technology including Adobe Flash and they emerge in an endless stream, like XHTML, XML/XSL, WML and Web services.MVC and some other markup language is good it can deal with many different views for the application. There is no real processing in the view, whether the data is stored online or an employee list, as a view, it is only as a way to output data and allow users to manipulate. Enterprise data and business rules. In the three parts of MVC, the model has the most processing tasks. For example, it may be used to handle the database such as EJBs and ColdFusion Components component object, model the data returned is neutral, that is the model and data format independent, such a model can provide data for multiple views, as applied to the model code only write once can be reused multiple views so, to reduce duplication of code. The controller accepts the user's input and invokes model and view to accomplish the user's requirement, so when you click the Web page hyperlink and send the HTML form, the controller itself does not output anything and do anything. It simply receives the request and decides which model member to invoke to handle the request, and then determines which view to display the returned data. Framework, design patterns of these two concepts are always confused, in fact, there is still a difference between them. Framework is usually code reuse, and design pattern is design reuse, architecture is between the two, part of the code reuse, part of the design reuse, and sometimes analysis can also be reused. There are three levels of reuse in software production: internal reuse, i.e. in the same application can use the public Abstract block; code reuse, is universal modules into a

library or tool set can be used for multiple applications and in the field; application framework reuse [9], which provides general or ready-made basis structure for the special field, in order to obtain the highest level of reuse. Although the framework and design patterns are similar, they are fundamentally different. Design pattern is to appear repeatedly in some environment problems and describe the solution to solve this problem, it is more Abstract framework; framework can be expressed in code, can be directly executed or on mode multiplexing, only instance to use code representation; design pattern is smaller than the frame elements, one or more design patterns often contain a frame, the frame is always for a particular application, but the same pattern can be suiTable for various applications. It can be said that the framework is software, and design patterns are software knowledge. The schematic diagram of the MVC framework is shown in Figure 5.

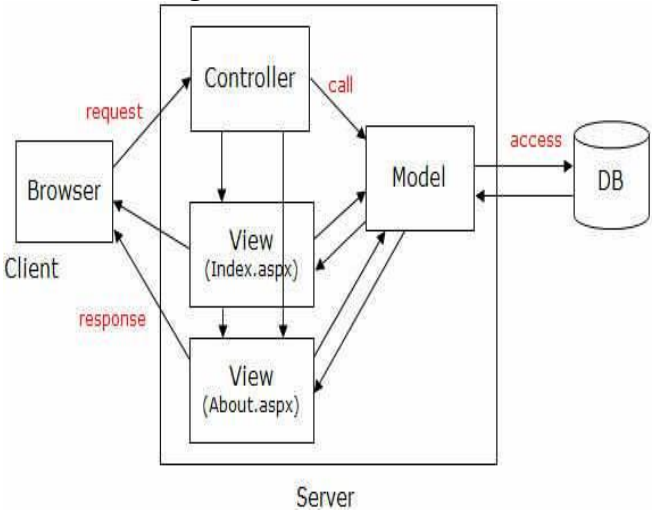

Figure 5. Schematic diagram of MVC frame.

2.4 Introduction of B/S model

B/S structure (Browser/Server, browser / server mode), is a WEB after the rise of a network structure model, WEB browser is the most important client application software. This model unifies the client, concentrates the core part of system function realization to the server, and simplifies the system development, the maintenance and the use. The client just install a browser (Browser ['bra Z. ['bra Z]] the), such as Netscape Navigator or Internet Explorer, SQL Server, Oracle server installation and MYSQL database. Browser through Web Server data interaction with the database. Because of the various problems of Client/Server structure, people put forward a kind of application system structure browser / server (Browser/Server) structure with three layer mode (3-Tier) on the basis of it. Browser/Server structure is an improvement of Client/Server structure with the rise of Internet. In essence, the Browser/Server structure is a Client/Server structure; it can be regarded as a special case of application of a model consists of two layers of Client/Server structure and the development of the traditional mode of three layers Client/Server structure on Web. Browser/Server structure is mainly used to mature Web browser technology: combining multiple browser scripting language and ActiveX technology, using a standard web browser to achieve the original need powerful special software to realize the complexity, while saving development costs. B/S biggest advantage is that you can operate anywhere without installing any specialized software, as long as there is a computer can access the Internet, the client zero installation, zero maintenance. System expansion is very easy. More and more use of B/S structure, especially by the demand to promote the development of AJAX technology, the program can also carry on partial processing on the client computer, thus greatly reduce the burden on the server; and to increase the interactivity, can carry on the partial refresh. Currently, the improvement and upgrading of software systems become more frequent; B/S architecture products clearly reflect the more convenient features. On a slightly larger unit, system managers if needed in the hundreds or even thousands of computer running back and forth between efficiency and workload is, as can be imagined, but only need B/S software management server on the line, all the client browser only, this need not do any maintenance.

Regardless of size, number of branch will not increase any maintenance workload, all the operation only for the server; if it is remote, only need to connect server network can realize the maintenance, upgrading and remote sharing. So more and more thin client, and servers increasingly fat is the mainstream direction of future information development. In the future, software upgrades and maintenance will become easier and easier to use, which will save users' manpower, material resources, time and expenses. Therefore, the way to maintain and upgrade the revolution is "thin" client, "fat" server. We all know that windows on the desktop computer almost dominate the world, the web browser has become the standard configuration, but the server operating system on the windows is not in the absolute dominance. The current trend is where the use of B/S architecture application management software, just install on the Linux server can be, and high security. So the server operating system is the choice of many, no matter which kind of operating system can make most people use windows as a desktop computer operating system is not affected, which makes the most popular free Linux operating system developed rapidly, in addition to the Linux operating system is free, even the database is free of charge, the choice is very popular. Because the B/S architecture management software installed in the server (Server), network management personnel only need to manage server on the line, the user interface in the main business logic server (Server) terminal through WWW browser, little business logic in front (Browser), all the client only browser[10], network management personnel only need to do hardware maintenance. However, the application server operation data of heavy load, once the server "collapse" and other issues, the consequences is unbearable to contemplate. Therefore, many units have a database storage server, just in case. Schematic diagram of B/S mode shown in Figure 6.

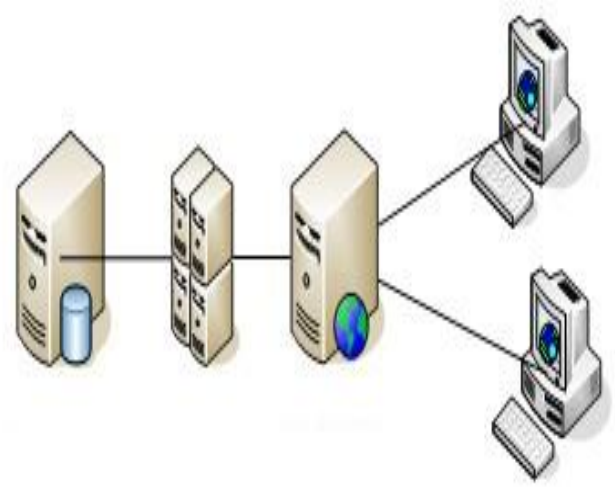

Figure 6. Schematic diagram of B/S mode.

3. System analysis and design

3.1 System performance analysis

The advent of information technology makes the development of modern digital education, digital campus school management rapidly, information age has come, the network has become the main basis vector to obtain technology and resources in the modern education, modern education form has undergone important changes, the rapid development of distance education and network education puts forward new challenges for me China education. And after defining the design principle and function of the system, the system finally adopted Web technology, the three layer of the B/S based on the design pattern, in the development process, strictly follow the development principle of practicability, universality, integrity and openness, the development platform is the VS.NET, the background database is used by SQL Server 2005, and the connection techniques using ASP.NET Form technology and Web ADO.NET database, the successful development and implementation of a new art teaching system[11]. The system has the following functions: Students' basic information

management, automatic test library management, student online testing, automatic marking test and management of teachers and students and other users. The establishment of such a curriculum website, you can achieve low-cost operation, while the site has a better function. Teaching and research mutual aid system is to require students to achieve self-education, learning purposes. Through the platform of art teaching and research system, the interaction of art teaching and learning can be realized, and the potential of students' self-learning can be stimulated. This system mainly includes the students' autonomous learning, online homework, online forum and self-testing function. The system can through the analysis of the students' learning and testing is to equip students with their learning effect, and can timely learn the knowledge of the degree is not enough. B/S (Browser / server) system design and development of art teaching mode of learning can be real-time, interactive learning in any time and geographical constraints: teachers upload learning materials can be used to other students and users; test information resources can be self-selected to test. These resources together and can put these resources assigned to students. Students test machine to install IE browser, and then enter the user name and password to log in art teaching and research mutual aid system. Teachers, students, administrators are system users. The teacher is mainly responsible for learning materials upload, homework layout, BBS know and online test questions to determine. Students mainly through the system platform for learning. Administrators are responsible for the management of teachers and students. Art teaching system considering the teachers, students and administrators in three kinds of users, through the use of the system can be very convenient for the education and teaching activities: candidates login to participate in the study through the test system of identity verification, at the same time, students can check all relevant information; the teacher through the authentication test management, and relevant information on student information, learning situation management, the relevant information in the information system of teachers can facilitate the release of education; and administrators can more suiTable for students with management, throughout the whole test management.

3.2 System analysis method

The main process of establishing the information system model from the demand analysis, this process includes the main contents: first elaboration is carried out after the system analyst detailed analysis on system requirements established by the function of the system, and in the process to implement the system structure, data flow and a series of design decisions. The feasibility of the system is the key content in the process of system requirement analysis, and the feasibility analysis is also the basic content and basic part of the whole system analysis. With the demand of the system and feasibility analysis of the system, can be the basis to further clarify the system performance and function of the system, and can interface elements need clear system interface, and the establishment of software must satisfy the constraints [12]. The establishment of priority system established before the software requirement analysis, which is basic part of software design, requirement analysis for software system data model and other function model, are analyzed in detail. Before the requirement analysis, we must first go to the top category of the demand in the process of system analysis, the processing to be arranged according to different categories. The main categories are as follows: (1) functional requirements, functional requirements refers to the establishment of a system to be able to complete the corresponding function, that is the design and Realization of the system must meet the basic needs of users, only after the basic needs as much as possible to meet the users, the system design and implementation is appropriate the meaning of. (2) the performance demand, system can demand also is to have the performance of the system analysis, that is to say the performance needs to meet the timing and capacity constraints in the performance analysis, the analysis is generally applied to the main system response speed, information transfer rate, stock information and information security etc. many aspects. (3) reliability and availability requirements, system reliability and availability refer to the realization of the system to meet the requirements of the degree of user and system of right and wrong degree. (4) error handling needs, this kind of demand that how to speed the response of a system to the system in the environment of the error should be, such as the system for some instruction system should make what kind of violation and responding to the

problems. (5) interface requirements, the interface describe the relationship between the software information system and its operating environment. (6) constraints, the operation of the information system needs to comply with the relevant conditions, that is, often referred to as the agreement. This kind of demand analysis is only for information system design and implementation services, it cannot be replaced, the demand is only reflects the conventions and constraints in the system should comply with the operating environment in the information system of the common constraints are: precision tools and language constraints, constraints, design constraints, should use the standard, should use the hardware platform etc.. (7) reverse demand, reverse demand is mainly from the software should not have the function of the angle of the analysis. For an information system, theory has many adverse demand analysis, in the process of the system, we must first have to do is to define the system should have the function, and as far as possible to eliminate the corresponding reverse demand. (8) may request in the future, in the system analysis, although the current demand, some functions and requirements may not be used, but in the future there will be some new requirements, which must take into account the system scalability, that is to say the system must take into account the system class modification and expansion in the design process [13].

3.3 System requirements analysis

Now it is more and more developed information society, network classroom is rising, so many schools in traditional education on the basis of building their own curriculum website. In order to fully achieve the goal of building the course website, need to go through a long and arduous effort, in the teaching process should continue with the actual teaching, focus on improving the teaching quality of this center, continue to take new measures to promote the construction of the course website and improve the quality of teaching. The curriculum website has the irreplaceable function to the curriculum network; its appearance is the education method innovation result. In such a big environment and the school to improve the quality of teaching, the construction of curriculum website shows its necessity. Needs analysis is the process of discovery, refinement, modeling and specification. This process includes detailed refinement initially by a system analyst established and identified in the software project planning software in the scope; create the required data flow, control flow and operation behavior model, solution selection on the basis of. After the feasibility study, we need to develop software needs analysis. At the same time requirement analysis is a kind of software engineering activity, which enables the system analyst to carve out the function and performance of the software, specify the interface between the software and other system elements, and establish the constraint that the software must satisfy. Requirement analysis is the basis for software designers to decompose the software. The requirement analysis constructs the data model, function model and behavior model of software processing. Demand analysis provides can be translated into data, system structure, interface and design process model for software designers finally, requirement specification provides quality evaluation software built after the basis for software designers and clients. The use of this website, teachers can log in to release the latest information on the science of art on the website, upload, video courseware, assignments, student information management students can understand the art of more professional knowledge through the website, the latest information. Students can log on job management system upload homework to teachers after completing homework. The site managers have both teachers and students permissions, and can manage information, while having a new link, information and other permissions. In business process design, the following matters need to be noted. The investigation of network environment and user configuration, the architect can make a reasonable and feasible system architecture survey user preferences and skills, which will directly affect the design of forecasting project development depth and user interface and performance indexes of the system are formulated to provide the basis for testing personnel to write test plans. Many project design more attention to the realization of the function, the test phase seems to meet the needs of customers, but once put into use, will find the performance is facing a bottleneck. Customer due to the understanding of professional knowledge level is limited, often ignored the requirements, so in order to avoid the day after a dispute, and make the forecast performance is very important. The role of data dictionary is

used to describe the meaning of each component in the system [14], in order to accurately and specifically express the contents of the data flow diagram. It is the smallest unit of data as data elements: basic data, through the data elements and data structure of the two to describe the flow of data, attribute data storage, data dictionary is the powerful supplement on the data flow diagram shows. The data dictionary is composed of data elements, data structures, data streams, data storage and processing logic, and external entities. System overall design schematic shown in Figure 7.

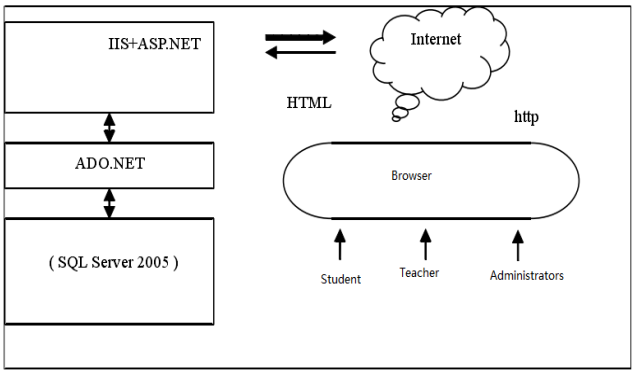

Figure 7. General block diagram of the system.

4. Design and implementation of the system

The design and Realization of the art teaching system must be able to meet the needs of teachers and students between the aspects of education and teaching, and school educational management personnel must be able to manage the system. The main purpose of the system website is to realize the combination of art teaching and research and information system, can provide strong support for teachers and students. The use of this website, online answering questions, teachers can upload courseware, assignments; students can understand more information and knowledge by logging into the site; the school educational administration management personnel to both teachers and students and authority, as manager of the identity of teachers and students information management. The various functions of the system are introduced as follows: the art teaching system can provide students, teachers two identity registration, students and teachers must be registered according to the number of teachers to learn the student ID or school setting, if you do not comply with the registration fails, students need to fill out the basic information of students during registration. After the student management module system landing pages to students of the provinces, the system will automatically pop up the students background pages, students can view the teacher, and the teacher assignments, and according to the contents of the work completes the related work and work, can also modify the registration information. And can communicate with teachers and students through the forum. The teacher to teacher identity login system "will pop up teachers background page, teachers can send the courseware, homework, homework or view student works. According to the student's teachers list, check operations at any time, but also can publish information on the website, in the assignments, to communicate through the forum. The administrator as administrator after a successful login, the system will automatically pop up backstage page; the administrator as administrator permissions is the site information and data information management and Wei hua. First, the administrator can view information about the site, and have permission to delete information; second, the administrator can publish the relevant information; third, the administrator can publish related links, links to related web pages or system. Administrators can also publish related courseware and learning video [15]. This system includes the function of online test. The test occupies an important position in the education teaching, the traditional test paper test is a low efficiency, the traditional test to go through the steps more, and students are not able to achieve any test, only through the usual work to examine their own learning status. The realization of online testing of information system helps students through the timely test to understand their learning situation, targeted, but also comprehensive. The forum management module is the main platform for

the exchange of students and teachers; its main function is to provide real-time communication platform for teachers and students, students and teachers through the post - reply way to achieve communication. According to the three subsystems of the system client, the total subsystem can be divided into administrators, teachers and students by the user of the three subsystems. The administrator's main function is to sign on and teaching management; the teacher subsystem is mainly teacher login and forum information and management; and student subsystem main function is: the function of login, online learning, and view the job exchange forum. Based on the previous analysis, the three roles of the system for students, teachers and administrators, the United States have their own teaching different functional requirements. Teachers in the teaching of art to the mutual teaching and learning function in learning systems, learning materials through online publishing, assignment, online test and the configuration of the forum to achieve the smooth operation of the whole system. The student is the art of teaching learning system mutual lead, use of mutual learning systems through the art of teaching, implementation of art learning, students realize the website through the registration of certification, in the study, mainly through the release of teachers learning materials, online testing and the forum to achieve art learning. System login interface shown in Figure 8.

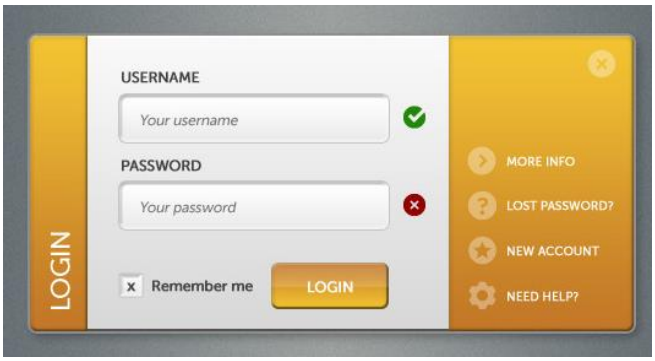

Figure 8. System login interface.

5. Summary

At present, we have entered an era of the development of computer technology, computer technology is change rapidly, and the speed of its development is a thousand li a day, very quickly. In our daily life and work, should be the latest computer software and hardware technology used in our daily life, so you can keep pace with the times, constantly progress and improve, and this is precisely our proposition in scientific research work. At present, in the undergraduate course in art teaching, how to use the information technology to become the focus of modern education, but also an important part of education, and this topic is derived from such a practical teaching work requirements. From the current perspective of the development of computer network technology has already penetrated into all areas of our social life, the network teaching system and mutual compared to traditional test mode, has a huge advantage, so its development prospects are very broad and rapid. In the process of system development, the role and the role of teachers in education and teaching has been greatly improved, through this system, teachers can upload information about the test and learning information. Management of students; while for students, can participate in the study, can participate in the test, but also can query results; and the system administrator is responsible for the function of teachers and management system. Because of many advantages of the system, the system can be popularized and applied in other subjects. Through the design and implementation of this article, in a low cost environment to achieve the mutual art teaching system design and implementation, for the fine arts teaching has the advantages of simple operation and other advantages.

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