

The Design and Application of an Online English Examination System for Computer Aided Tuition

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Abstract — In view of recent rapid expansion in size and quantity of many educational institutions in China, extensive and concentrated English examination has become a big problem faced by these institutions. The organization and management of English education examination have become difficult due to: i) the increasing learning level of English education, ii) the diversification of learning mode, and iii) the complexity of the student population. In addition, the English test short periods of time imposes extra demands and focus from organizations. Also the English examination is a heavy burden on the organization and personnel. Thus, the traditional mode of examination management has become increasingly unable to meet the needs of the current management, thus a review of the information and networking needs have become increasingly urgent. At first, this paper analyzes the feasibility of online examination system, and the requirements of the English online examination system in detail. The use of a number of software development technologies are analyzed in detail to construct an online examination system as a multi-layer architecture of English. This is based on: i) the design goals of English system, ii) online examination system function module, iii) system modeling, iv) system architecture, input and output, and system security, and v) system database. We consider: i) the basis of the system design, ii) the application of the object-oriented software engineering design mode, iii) the system program development, and finally iv) to develop and implement a more perfect function of the English online examination system.

Keywords - B/S model; database; online test; time control

I. INTRODUCTION

A large area of the rapid development of the Internet and the popularity of the whole society, computer assisted instruction has become more and more mature, to the development of online examination with wireless life. Network teaching requires a step by step, both conform to the development trend of the Internet, but also conform to the students' acceptance degree of adaptation. And in the process of network teaching needs to make the evaluation stage, the exam is, of course, most of the mainstream of the evaluation methods, the online examination will naturally become the an important part of the network teaching, become one of the very important points. Now, school or social various examinations basically is the traditional examination method, namely teacher questions. Student's exams. Again by the teacher marking the examination papers, the assessment results.

II. THE INTRODUCTION OF ENGLISH ONLINE EXAMINATION SYSTEM

A. Design ideas

English online examination system that need students can log onto the Internet, access to the system select the test subjects to submit test results are given, including the need to take into account authentication, time control, database randomly generated questions and automatic judgment and

other problems. And before the student information need by the administrator or the teacher to add, in order to gain their test ID and password, which go to the administrator teacher module. The two modules responsible for management information of teachers and students, also responsible for add required examination subjects and subjects of the topic. This constitutes a whole English Online examination system. The system is based on B/S mode, which is completed by ASP.NET language combined with SQL database.

B. working principle

The administrator through the login system to enter the corresponding account password, get authentication, enters the admin interface management. Browser through the Server Web data with the database to interact with the completion of a series of adds teachers, students, new examination subjects and questions of the operation.

Teachers enter the corresponding account password through the login system, after the authentication, enter the teacher's background management interface, and complete a series of test questions, test results and personal information management.

Students through the pathway system input corresponding account password, authentication into the examination interface, reading must be the examination rules and then choose their own examination subjects, examination after the completion and submission of papers the results obtained, the final safety exit.

C. Related technology

1) SQL server database

Server SQL is a comprehensive, integrated, end to end data solution, which provides a safe, reliable and efficient platform for enterprise data management and business intelligence applications. SQL Server 2005 it experts and information workers brought strong, familiar tools, while reducing the in from the mobile device to enterprise data system of multi platform to create, deploy, manage, and use the complexity of enterprise data and analytical applications. Through a comprehensive set of features, and the integration of existing systems, as well as the daily tasks of the automated management capabilities, Server SQL 2005 for the different size of the enterprise provides a complete data solutions. Figure 1 shows the architecture of the Server SQL 2005 data platform.



Figure 1. SQL Server 2005 data platform.

2) ASP technology

Because the operating interface of the system is the form of Web page, and need to deal with the specific request of all kinds of users dynamically and return the result, so the dynamic web page technology. At present, there is a lot of dynamic web technology, this design uses ASP technology.

Active Server Pages Microsoft that we call the ASP, is actually a set of server-side scripting environment Microsoft development. Server Page Active is a very good tool to create dynamic web pages, it plays a role in programming language, and you can use it to write HTML program code to generate dynamic web pages. Therefore, as long as the user browse the Web site and request a ASP page, the Web server can handle the corresponding ASP code, generate HTML code, and then pass it to the user browser and display the web page. ASP embedded in IIS3.0 and 4, through the ASP we can combine HTML pages, ASP instructions and ActiveX components to create dynamic, interactive and efficient WEB server applications. With ASP, you don't have to worry about whether the client's browser can run the code you write, because all the programs are executed on the server side, including all the scripts that are embedded in a common HTML. When the program is executed, the server will only return the results to the client browser, thus reducing the burden of the client browser, greatly improving the speed of the interaction, the schematic diagram shown in figure 2.

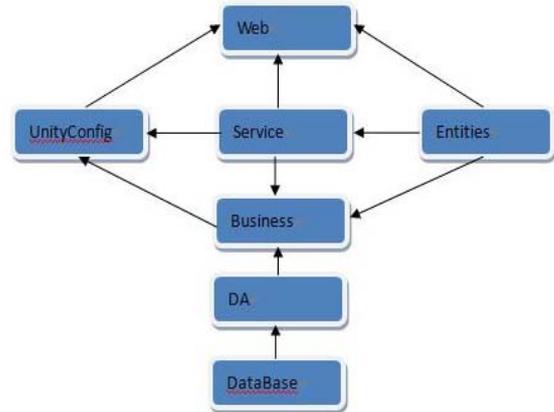


Figure 2. ASP architecture diagram.

D. Scheme selection

The development of online examination system, and puts forward the following solutions: SQL Server 2005 database as a background, choose ASP, JavaScript, HTML, div + CSS as the application development tools, using IIS server technology, the system completely based on B / S (Browser / server) mode design.

III. DATABASE DESIGN

A. Data table design

(1) the administrator Admin table, used to store the only administrator information.

	ID	int	<input type="checkbox"/>
	AdminNum	varchar(50)	<input type="checkbox"/>
	AdminName	varchar(50)	<input type="checkbox"/>
	AdminPwd	varchar(50)	<input type="checkbox"/>

Figure 3. Admin table.

(2)theTeachertableisusedtostoretheteachers,teachersofinformation.

	ID	int	<input type="checkbox"/>
	TeacherNum	varchar(50)	<input type="checkbox"/>
	TeacherName	varchar(50)	<input type="checkbox"/>
	TeacherPwd	varchar(50)	<input type="checkbox"/>
	TeacherCourse	varchar(50)	<input type="checkbox"/>

Figure 4. Teacher table.

(3)studentStudenttableforstoringstudentinformation.

	ID	int	<input type="checkbox"/>
	StudentNum	varchar(50)	<input type="checkbox"/>
	StudentName	varchar(50)	<input type="checkbox"/>
	StudentPwd	varchar(50)	<input type="checkbox"/>
	StudentSex	varchar(50)	<input type="checkbox"/>

Figure 5. Student table.

(4) subjects Lesson table, used to store information on test subjects.

ID	int	<input type="checkbox"/>
LessonName	varchar(50)	<input type="checkbox"/>
LessonDateTime	datetime	<input type="checkbox"/>

Figure 6. Lesson table.

(5) score table, used to store the student's test scores and exam answers and other information

ID	int	<input type="checkbox"/>
StudentID	varchar(50)	<input checked="" type="checkbox"/>
LessonName	varchar(50)	<input checked="" type="checkbox"/>
score	int	<input checked="" type="checkbox"/>
StudentName	varchar(50)	<input checked="" type="checkbox"/>
StudentAns	varchar(50)	<input checked="" type="checkbox"/>
RigthAns	varchar(50)	<input checked="" type="checkbox"/>

Figure 7. Score table.

(6) test table, used to store the information of the test questions.

ID	int	<input type="checkbox"/>
testContent	varchar(200)	<input checked="" type="checkbox"/>
testAns1	varchar(50)	<input checked="" type="checkbox"/>
testAns2	varchar(50)	<input checked="" type="checkbox"/>
testAns3	varchar(50)	<input checked="" type="checkbox"/>
testAns4	varchar(50)	<input checked="" type="checkbox"/>
rightAns	varchar(50)	<input checked="" type="checkbox"/>
pub	int	<input checked="" type="checkbox"/>
testCourse	varchar(50)	<input checked="" type="checkbox"/>

Figure 8. Test table.

B. E-R diagram design

(1) examinationofthephysicalERdiagram.

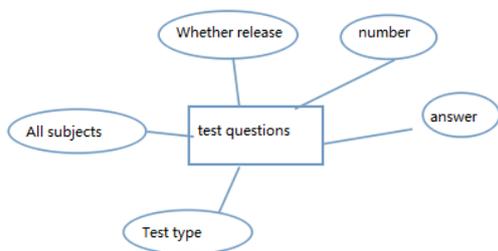


Figure 9. Examination questions entity E-R diagram .

(2) the administrator entity E-R diagram.

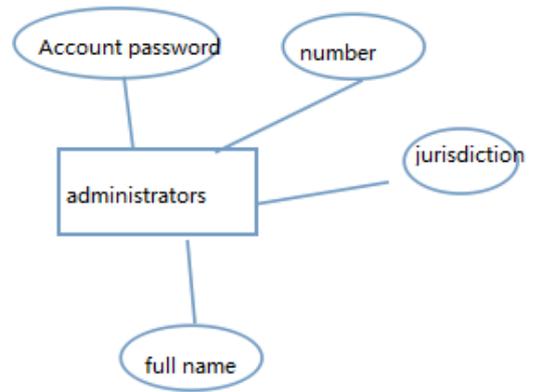


Figure 10. Administrator entity E-R diagram.

(3) teacher entity E-R diagram.

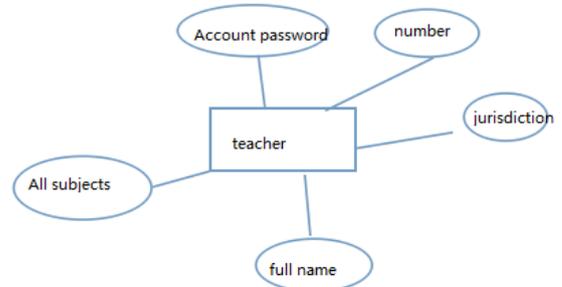


Figure 11. Teacher entity E-R diagram .

(4) student entity E-R chart.

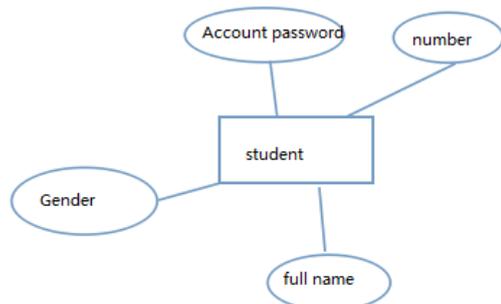


Figure 12. Student entity E-R chart .

(5) the results of the entity E-R chart.

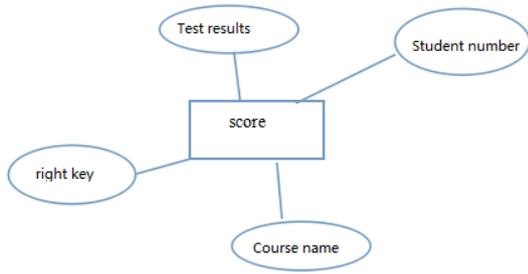


Figure 13. Achievement entity E-R chart .

C. Database coding implementation

Database is a test module is a very important part, each paper contains multiple choices and fills in the blanks and judgment problems. In the database being a lot of questions, through to the back-end code, limited choice, fill in the title, judging questions such as the number of, through random access ID with machine present questions and lined, and control of test time, fixed time submit the examination paper automatically. The choice, fill in the questions and questions the back-end code to traverse the database control, display and text control through the additional in the panel, and then a text box control added in the panel which is the key and difficult points of the system, part of the realization of the code are as follows:

```

<SCRIPT language="JavaScript">
    <!
        var sec = 0;
        var min = 0;
        var hou = 0;
        flag = 0;
        idt = window.setTimeout("ls()", 1000);
        function ls() {
            sec++;
            if (sec == 60) { sec = 0; min += 1; }
            if (min == 60) { min = 0; hou += 1; }

            document.getElementById("lbltime").innerHTML = min
                + "分?" + sec + "秒?";
            idt = window.setTimeout("ls()", 1000);
            if (min == 10) {

                document.getElementById("btnsubmit").click();
            }
        }
    </SCRIPT>
  
```

IV. SYSTEM IMPLEMENTATION

A. Interface implementation

In this system, the user can through the drop-down menu selection needs its own type of logon as shown in Figure 5-1, enter the account number and password, you

also need to fill in the verification code, after all the information has been confirmed to enter into the system.

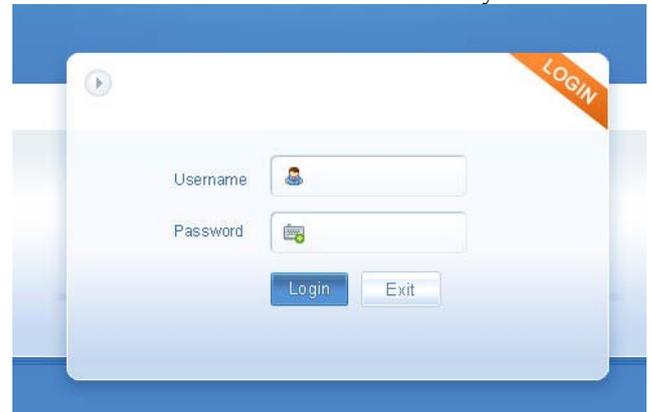


Figure 14. Login interface .

B. Interface implementation

(1)countdowncode

```

1 <script language="javascript">
2 <!--
3   var maxtime = 60 * 60;
4   var timer;
5   function Countdown() {
6     if (maxtime >= 0) {
7       var minutes = Math.floor(maxtime / 60);
8       var seconds = Math.floor(maxtime % 60);
9       var msg = "剩余时间: " + minutes + "分" + seconds + "秒";
10      document.getElementById("span_time").innerHTML = msg; //页面上的时间控件
11      if (maxtime == 15 * 60) alert("注意, 还有15分钟考试即将结束!");
12      --maxtime;
13    }
14    else {
15      clearInterval(timer);
16      window.alert("考试时间已到, 试卷即将提交!");
17      window.location.href = "submit.asp";
18      document.form1.submit();
19    }
20  }
21  timer = setInterval("CountDown()", 1000);
22 </script>
  
```

Figure 15. Countdown code .

(2) random test paper code.

```

1
2 <script language="javascript" type="text/javascript">
3   function tt()
4   {
5     var tt = document.getElementById("biao").value;
6     //var x = new Array();
7     var x = tt.split(',');
8     //alert(x[20])
9     document.getElementById("biao2").value = x[(parseInt((x.length-1)*Math.random()))];
10  }
11 </script>
12
  
```

Figure 16. Random test paper code .

(3) import the Excel document to the database.

```

2  <
3  dim conn, strAddr, rs, sql
4  set conn=server.createObject("adodb.connection")
5  strAddr = Server.MapPath("Markd.xls")
6  conn.open "Provider=Microsoft.Jet.OLEDB.4.0;Extended Properties=Excel 8.0;Data Source=" & strAddr
7  set rs=server.createObject("adodb.recordset")
8  sql="select * from [abc$]"
9  rs.open sql,conn,1,3
10 do until rs.eof
11 a=F("a"&rs(0))
12 b=F("b"&rs(0))
13 c=F("c"&rs(0))
14 d=F("d"&rs(0))
15 e=F("e"&rs(0))
16 conn.execute ("insert into acti(a,b,c,d,e) values ('"&a"&","&b"&","&c"&","&d"&","&e"&")")
17 w "添加完成<br/>"
18 rs.movenext
19 loop
20 else
21 End If
22 >
    
```

Figure 17. Random test paper code.

(4) control related.

```

2  <script language="javascript" type="text/javascript">
3  function document.onconttextmenu() {event.returnValue=false;} //屏蔽鼠标右键
4  function document.onkeydown()
5  {
6  if ((window.event.altKey) && ((window.event.keyCode==37) || (window.event.keyCode==39))) //屏蔽Alt+方向键
7  {
8  mevent.returnValue=false;
9  }
10
11 if ( //event.keyCode==8) //屏蔽退格删除键
12 (event.keyCode==116) //屏蔽F5 刷新键
13 (event.ctrlKey && event.keyCode==92))
14 {
15 event.keyCode=0;
16 event.returnValue=false;
17 }
18 }
19 </script>
    
```

Figure 18. Control related code.

V. CONCLUSION

Through needs analysis, design, development, testing, the system has been formed, the three layer architecture and related technologies mainly use.NET, SQL, CSS, Server 2005 factory pattern. The realization of these technologies, meet the needs of the system and optimize the performance of the system. The use of a modular design, system maintenance and help programmers develop again.

The online examination system both in the development process, and after the completion of the maintenance process, to perform the correct operation, to ensure the normal operation of the system. The system is used to enable students to test, marking the teacher becomes more easy and convenient, and users feel use convenient operation, friendly interface, perfect function, the system has a certain practicality.

Online examination system, under the guidance of the teacher has been completed, to achieve functional requirements, but for online examination system still exists

the following shortcomings. First, the code is concise, cause redundancy; then considers the problem of insufficient, no comprehensive stand in the user's point of view to think up. The last is the detection of incomplete procedures has yet to be improved. For the problems encountered in the programming, is to treat the problem, often Yangaoshoudi, without considering the overall. For example, dropdown list attribute of Como Box set, in order to ensure certain attributes of the user can choose to not input is often we ignore; there is some number only marking out and no practical significance, in presenting to the user should let it hide; we can also to control datagridView the width of a column, the interface looks beautiful. I in this system is to achieve the main function of students, in fact, not many students to realize the function, the most important is student test interface, in the student interface we are randomly selected papers, so I don't know the questions and questions, I can only own began to write control system for the automatic generation control to storage problems. In which I met a lot of problems, such as, such as storage control, the height and position of each control, and trigger control events, such as save the student answers, such as download students has the answer in the answer, and so on. At the beginning, I was at a loss, because there was nothing except three Button buttons and a Panel on the test interface. Later, I passed ask classmates and ask the teacher for help. Gradually, I feel, actually write control is not difficult, difficult is such as who write control place, in the wrong place, then controls may no show or not fully displayed. In the code to write the location of the control, is to test the students' thinking ability and logical ability. To save the answer and the download code. Most important of their own ideas must be clear, cycle to each control to record the students answer, or the first cycle each question to find the students answer and recording the student answers, this is very important.

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