Analysis and Research of Intelligent Test and Appraise System Based on ADO. NET

Zhu Xiangcai, Luan Yuncai, Liu Wenling

School of Information Science and Technology, Taishan University, Tai'an, 271021, China

Abstract: This paper expounds the research and development of ADO.NET object model, VB.NET development environment and other related technologies and intelligent test and appraise system, analyzes the practical significance of system research and development and use, discusses the research and development process of database setting, array application, random test, intelligent test and appraise, information interaction, score analysis and other functions, and carries out system practice test, function upgrade and application prospect analysis. The system has been continuously used in the practical training of specialized courses. The results show that the system has good practicability and is well received by teachers and students. It is worth upgrading, perfecting and popularizing.

1. Introduction

The specialty of computer science is characterized by strong practicality, especially in the teaching and testing of specialized courses. Traditional theoretical teaching and paper examination are no longer suitable for computer science majors. For both teachers and students, a better platform is needed for teaching, learning and testing. Therefore, based on years of teaching and research, our teaching and research team has developed an intelligent evaluation system for teaching, intelligent evaluation and performance analysis. Classify and sort out the knowledge points of the course in advance, students can learn, test, analyze and improve at the same time.

The "ADO.NET-based intelligent evaluation system" studied in this paper is different from other information platforms. The existing information platform is mainly used to manage goods, commodities, personnel information, etc., which is quite different from the system studied in this paper in terms of function. The system studied in this paper is to test the knowledge points of specialized courses, evaluate the development ability, and intelligently analyze the scores from the aspects of scientific management and easy use of specialized course testing. Through the practical application of this system, the teaching effect of teachers can be improved, and the improvement of students' knowledge and programming ability can be tested. Through feedback and upgrading, the system functions can be gradually improved.

2. ADO.NET model and VB.NET environment

ADO. Net is divided into five parts: Connection, Command, DataSet, DataAdapt, DataReader.

Connection mainly connects the program and the database, otherwise it is impossible to obtain data from the database; Command is mainly used to send related instructions to database; DataSet object is like a temporary storage area, which stores the data queried from the database. It is ado Net core object; DataAdapt mainly plays the role of data transmission for data sources and datasets; DataReader reads one data at a time, which saves resources and is very efficient.

VB.NET has friendly development environment, strong error correction ability, standardized programming and high degree of structure. This system uses ADO.NET、VB. Net and related database knowledge. [1][2][3]

3. Practical significance of system research and development

This system has strong practical application value, and students can improve their mastery of knowledge and practical programming ability through the evaluation of this system, which is conducive to analyzing the weak links of individuals, so as to better enhance their knowledge. Through the application of this system, teachers can manage knowledge points of courses, manage students' mastery of knowledge, and use differentiated methods to exercise projects for students at different levels.

For the development-related courses of computer major, the traditional test paper evaluation is no longer suitable for testing students' practical ability. The intelligent evaluation system studied in this paper not only evaluates students' mastery of knowledge, but also evaluates the teaching effect of professional teachers, making the course evaluation scientific, intelligent and efficient.

Professional teachers use the course intelligent evaluation method of this platform to classify and input the course knowledge points in advance, plan all kinds of courses scientifically, and analyze the detailed test questions and knowledge points. This system is used to evaluate the students in each class for many times and give timely feedback, which is gradually improved and widely used.

4. System function development

4.1 Main function introduction

The research and development of this system makes full use of the advantages of ADO.NET model and VB.NET software. Its main functions include: self-study of knowledge points, classification of questions, random selection of questions, submission of answers, intelligent evaluation, data reset, score analysis, etc. The functional interface of system evaluation is shown in Figure 1. The self-study function of knowledge points mainly displays the knowledge points of the course, and users can choose the key points for exercise, study and memory according to their needs.

The function of question type classification divides question types into various types, and uses various types of questions to exercise students' proficiency in knowledge points; The function of randomly selecting questions is to randomly select typical questions from a large number of knowledge question for evaluation and exercise students' adaptability; The answer submission function is used for students to submit personal answer information when they finish the test; Intelligent evaluation: according to the comparison of personal answer information and answers in the database, intelligent evaluation is carried out, and students' wrong test questions and knowledge point analysis are displayed; Data reset, realizing the clearing and resetting of students' answer information, etc. Score analysis, using the data of previous evaluation, carries out score interval classification and achievement degree analysis, and outputs the analysis results.

This system realizes the scientific evaluation and achievement analysis of the course, which is beneficial for students to correct the wrong questions and then improve their mastery of knowledge, and for teachers to improve their management level and teaching effect.
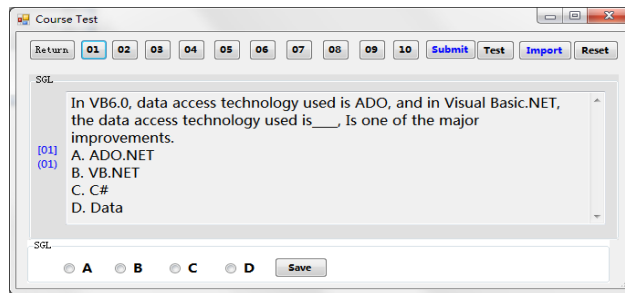
Figure 1: Evaluation Function Interface

Some initialization codes are as follows:

```
Dim mystr As String
mystr="SELECT Category, title number, title, standard answer, answer FROM StuTest"
Dim myadapter As New OleDb.OleDbDataAdapter(mystr, myconn)
Dim mydataset As New DataSet 'data set
myadapter.Fill(mydataset, "StuTest")
testCount = mydataset.Tables("StuTest").Rows.Count
ReDim Preserve testLeibie(testCount)'Redefine array and keep value
ReDim Preserve testTihao(testCount): ReDim Preserve testTimu(testCount)
ReDim Preserve testDaan(testCount)
For i = 0 To testCount - 1
testLeibie(i) = mydataset.Tables("StuTest").Rows(i).Item(0)
testTihao(i) = mydataset.Tables("StuTest").Rows(i).Item(1)
testTimu(i) = mydataset.Tables("StuTest").Rows(i).Item(2)
testDaan(i) = mydataset.Tables("StuTest").Rows(i).Item(3)
Next i
```

4.2 Question type and evaluation design

In the research and development of reading and writing judgment of question types, the classification design of question types is shown in Figure 2, realizing the reading and writing of various question types.
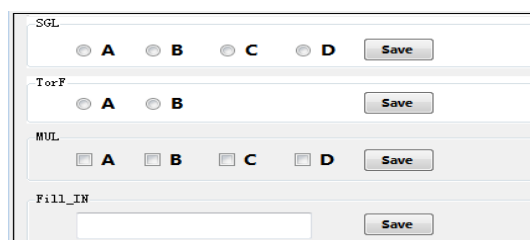

Figure 2: Classification Design of Question Types

```
currentNum = rndTihao(sender.TabIndex - 1)
Label1.Text="[" & sender.Text & "]" & "(" & testTihao(currentNum) & ")"
TextBox1.Text = testTimu(currentNum)
Select Case GroupBox1.Text
    Case "single_choice"
grb_single_choice.Location = New Point(12, 250)
If testINPUT(currentNum) = "A" Then
dx_rb_A.Checked = True
```

```
ElseIf testINPUT(currentNum) = "B" Then
dx_rb_B.Checked = True
ElseIf testINPUT(currentNum) = "C" Then
dx_rb_C.Checked = True
ElseIf testINPUT(currentNum) = "D" Then
dx_rb_D.Checked = True
End If
      Case "judgment"
grb_judgment.Location = New Point(12, 250)
If testINPUT(currentNum) = "A" Then
pd_rb_A.Checked = True
ElseIf testINPUT(currentNum) = "B" Then
pd_rb_B.Checked = True
End If
      Case "multiple_choice"
grb_multiple_choice.Location = New Point(12, 250)
If InStr(testINPUT(currentNum), "A") > 0 Then dx_ck_A.Checked = True
If InStr(testINPUT(currentNum), "B") > 0 Then dx_ck_B.Checked = True
          If InStr(testINPUT(currentNum), "C") > 0 Then dx_ck_C.Checked = True
If InStr(testINPUT(currentNum), "D") > 0 Then dx_ck_D.Checked = True
      Case "fill_in_the_blank"
grb_fill_in_the_blank.Location=New Point(12, 250)
          tk_text.Text=testINPUT(currentNum)
      End Select
```

After the results are submitted, you can evaluate the results, and there will be a prompt, as shown in Figure 3. Wrong questions, there will be questions analysis, easy to view and learn. According to the evaluation information, the system will intelligently evaluate the grade of the five-grade scoring system.
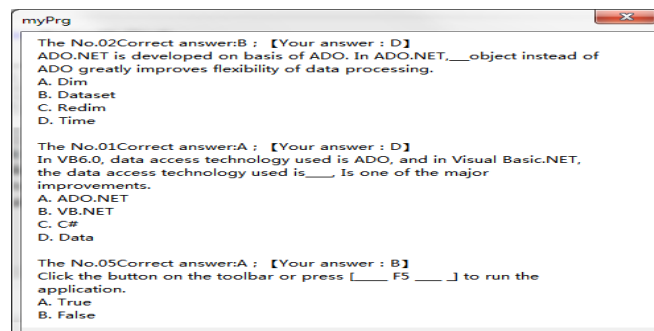

Figure 3: Information Chart of Performance Evaluation

After the score evaluation, use the system "reset" function to initialize the database to the initial state.

4.3 Functional design of analysis module

After the intelligent performance evaluation, call the "performance analysis" module of the system, analyze the segmented proportion of performance, draw the distribution map of students' performance, and form the histogram of curriculum goal achievement, as shown in Figure 4. The system will intelligently output icons and files related to weak links in students' knowledge mastery, and feed them back to students, which needs to be strengthened in the future.
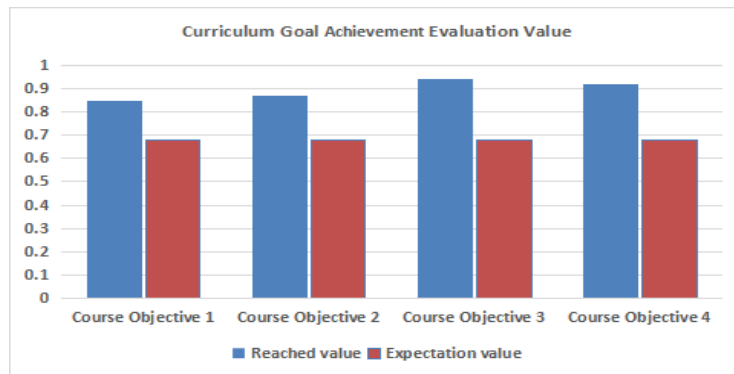
Figure 4: Histogram of Course Goal Achievement

5. Practical application value of system

The interface of this system module is beautiful, interactive, applicable and easy to use. It is beneficial to knowledge evaluation and teachers' real-time mastery and dynamic adjustment of students' classroom performance. The system classifies all kinds of knowledge points of the course into various types of questions, so that students not only master theoretical knowledge, but also exercise practical skills. The system is not only convenient for teachers to evaluate students comprehensively, but also convenient for students to self-test at any time.

6. Conclusion

In this paper, the related technologies such as ADO.NET object model and VB.NET development environment are explained, the significance of research and development of intelligent evaluation system is analyzed, the related functions such as database setting, array application, random test, intelligent evaluation, information interaction, score analysis and so on are described in detail, and the development process of the core functions is expounded. The system has been continuously used in the practical training of specialized courses. The results show that the system has good practicability and is well received by teachers and students. It is worth popularizing.

Acknowledgements

References

[1] Yang Lili, Li Xiuying. Design and development of educational administration management system based on .NET [J]. Software Guide, 2011, 10(03):128-129.
[2] He Wenguang, Zhou Ke, Xiong Gangqiang, Wang Yaomin. Research on dynamic marking technology of VB.NET programming questions [J]. Laboratory research and exploration, 2017, 36(11):122-125.
[3] Wei Lishun. Design and implementation of regional electricity consumption forecasting system based on UML modelling [D]. Hefei: Master thesis of Hefei University of Technology. 2011.