Research on Automatic Marking Method of Computer Testing in College Computer Basic Course

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Abstract

One of the learning objectives of basic computer courses in universities is to master basic office software operation. The best way to test this kind of hands-on ability is to test it on the computer. Marking test papers after testing requires a lot of work. The efficiency of manual marking is very low. This paper presents an automatic marking technology for OFFICE operation questions based on VBA. Finally, the program realizes the automatic checking of Word, Excel and PowerPoint operation questions.

Keywords

VBA Technology; Office Application ; Automatic Marking;

I. Introduction

University Computer Basic Course is one of the compulsory courses in Universities, This is a public basic course for all freshmen. The teaching goal of this course is to let college students understand the development and application of computer technology. Grasp the knowledge of computer operation needed in all fields of society at present, establishing Computing Thought in Accordance with the Development of the Times to lay a foundation for future study of computer-related courses.

The characteristic of basic computer courses in universities is to lay equal stress on theory and practice. It not only imparts basic computer knowledge, but also pays attention to the cultivation of computer application technology ability. The traditional paper examination method, used to test the basic theoretical knowledge, is competent. It is a little hard to test the ability of computer application technology. Paper examination papers can not represent the true level of students. At the same time, it greatly increases the workload of teachers' marking papers. What's more, some operational knowledge can not be tested with paper papers.

Based on such a background, it is a general trend for university computer basic courses to adopt computer-based examination and realize computer automatic marking. The automatic marking technology for choice questions, judgment questions and fill-in-the-blanks test has been very mature and widely used. This paper focuses on the automatic marking method of office operation topics.

II. VBA Technology

VBA, the abbreviation of Visual Basic for Applications. It is a new generation of standard macro language based on Visual Basic. This macro language is embedded in Word, Excel and PowerPoint. VBA provides object-oriented programming method, event-driven mechanism and fairly complete programming language. It can use Word, Excel, PowerPoint as development platform to write applications. The most convenient thing is that VBA can use macro recorder to record user's various operations and convert them into VBA program code, which greatly simplifies the work of writing code. VBA provides an interface for accessing Office documents, including a large number of functions and objects for documents. Using VBA programming, the attributes and states of each object in the document can be recognized and read, and compared with the correct values of attributes, so as to achieve the automatic scoring of the document.

III. Automatic Evaluation of Office Operational Questions

A. Automatic Marking of Word Documents

Word operation questions mainly inspect students' ability of mixing pictures and texts, including page number setting, inserting header and footer, paragraph format, table operation, pictures setting, art word setting and printing format setting. To achieve automatic marking by VBA, the key is to obtain the corresponding object attributes in the examination documents.

1. Objects in word

In the process of automatic marking, the following Word objects are mainly used. "Application" object represents the Word application, "Document" object represents the referenced document, Range object represents a continuous region in the reference document, Selection object represents the currently selected region, Bookmark object represents a continuous region in the document with both start and end positions, Paragraph object represents a paragraph.

2. Objects and their attributes in Word

The main attributes used in Word are font format attributes, paragraph format attributes, page settings attributes, image attributes, table attributes, etc.

Font object obtains font format attributes. The common attributes of this object are Name, Size, Color, Bold, Italic, Underline.

Paragraph format attributes are obtained from the object named "Paragraph". The common attributes of this object are Left Indent, Right Indent, Space Before, Space After, First Line Indent.

Page setup properties are obtained by the Page setup object, whose common properties ftMargin,RightMargin,TopMargin,BottomMargin,PaperSize,TextColumns.

The image format object is Shape, and each Shape object corresponds to a graph. Its Type attributes are used to distinguish different graphic objects. Height and Width attributes represent the height and width of a graph.

Table attributes are obtained by Table objects, where Columns and Rows attributes represent column and row sets of tables respectively. Spacing attributes denote the distance between cells of a table, and Borders attributes denote the boundaries of the table.

3. Implementation code

Here are some common operation questions in Word documents. Through them, the realization method of automatic marking is explained.

Question 1: Set the title format of the document to "仿宋_GB2312" font and display it in the middle. One point for each step, a total of two points.

Code :

```
Active Document. Paragraphs(1).Range. Select
If Selection. Font. Name=" 仿宋_GB2312" Then Score=Score+1
If Selection. Paragraph Format. Alignment=wdAlign Paragraph
Center Then Score= Score+1
```

Question 2: Set the font color of the second paragraph to blue and the font size to 20. Each item is correctly set up to get 1 point, a total of two points.

Code :

```
Active Document .Paragraphs(2).Range .Select
If Selection. Font. Size=20 Then Score=Score+1
If Selection. Font. Color=wd Color Blue Then Score= Score+1
```

Question 3: Create a table with 5 rows and 6 columns and get 2 points correctly.

Code :

```
With .Active Document. Tables(1)
If .Rows .Count=5 And .Columns. Count=6 Then Score= Score+2
```

B. Automatic Marking of Excel Documents

Excel operation questions mainly inspect students' ability of data analysis and processing of worksheets, mainly including cell format setting, formula calculation and chart operation. In Excel operation questions, formula calculation is the key content, and the method of approving formula is different from that of other types of topics. This is because there are many expressions for the same operation. For example, the sum of multiple cells can be used either "= A1 + A2 + A3" or "= Sum (A1: A3)".Although the forms of the formulas are various, the calculation results of the formulas are unique. We use this feature to solve this question. The principle of marking and scoring for other topics is basically the same as that of Word, and it also reads the corresponding attributes and makes judgments.

1. Objects and their attributes in Excel

The main objects in Excel are: Work Book, WorkSheet, Chart Object, Range. The Chart Objects property of the Work Sheet object represents the set of chart objects in the worksheet. Each Chart Object corresponds to a chart. The Chart attribute of the Chart Object obtains a Chart object, which represents the chart contained in the specified object .The ChartTitle attribute represents the title of the chart, the Legend attribute represents the legend in the chart, and the ChartType attribute obtains or sets the chart type. The Range object represents an area in the worksheet, and its Font attribute represents the font format of the text in the cell, which is the same as the Font attribute in the Word described earlier.

2. Implementation code

Following is two examples of common operation topics in Excel documents to illustrate the implementation of automatic marking.

Question 1: In the A5 cell of sheet 1, the formula is used to calculate. If the calculation result is correct, it will get 2 points.

Code :

```
If WorkSheets("Sheet1").Range("A5").Value=excel_1 Then
Score= Score+2
'Here the correct results are stored in the variable excel_1
```

Question 2: Modify the title of the chart in sheet 1 to "销售统计图" and get 1 point correctly.

Code :

```
If WorkSheets("sheet1").CharObjects(1).Chart.ChartTitle.Text="
"销售统计图"Then Score= Score+1
```

C. Automatic Marking of PowerPoint Documents

PowerPoint operation questions mainly examine the ability of students to set the content and effect of slides, including slide format setting, application design template, slide switching effect setting, animation effect setting, etc.Its marking and scoring principles are basically the same as those of Word.

1. Objects and their attributes in PowerPoint

The main objects in PowerPoint are: Presentation, Slides, Slide Show Transition, Animation Settings. Common attributes of Slide Show Transition are Entry Effect, Speed, Sound Effect. Common attributes of Animation Settings are Advance Mode, Advance Time ,Animation Order.

3.3.2Implementation code

Here are two PowerPoint common questions to illustrate the implementation of automatic marking.

Question 1: Set the format of the first title slide as "标题" and get 1 point correctly.

Code:

```
If PPT.Slides(1).Layout=ppLayoutTitle Then Score=Score+1
```

Question 2: Set the switching effect of the second slide as "阶梯状右上展开", "慢速" and "boss. wave". Each operation gets 1 point correctly, totaling 3 points.

Code :

```
If PPT.Slides(2). Slide Show Transition. Entry Effect =ppEffect
Strips UpRight Then Score= Score+1
If PPT. Slides(2). Slide Show Transition.Speed=pp Transition
SpeedSlow Then Score= Score+1
If PPT.Slides(2).SlideShowTransition.SoundEffect.Name="boss.
WAV" Then Score= Score+1
```

IV. Concluding remarks

For large-scale on-line examination of computer application basic courses, automatic marking is an inevitable choice and development trend. This paper uses VBA to realize the automatic marking function of Word, Excel and PowerPoint. On the one hand, it provides convenience for schools, meets the requirements of automatic marking of school computer examination papers, and at the same time frees teachers from the heavy marking work.

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