Chapter 10

An Integrated Approach to Automated Testing Knowledge

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ABSTRACT

Currently, higher education institutions actively use and apply new learning. An example is the following form: remote, evening, part-time and others. In recent times, Universities are becoming more and more students who enrolled after colleges and high schools, and students who transferred between Institutions. In connection with the expansion of forms of education, there is a problem effectively determine the level of students’ knowledge. This problem depends on many factors such as curriculum, methods of teaching and the teacher. As a rule, the decision on such issues take teachers of the respective subjects. But even in this case, it is difficult to determine the true knowledge of the student, because the evaluation may depend on various factors such as the mood of the teacher, the appearance of the student or even a way to interpret thoughts.

INTRODUCTION

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Therefore, in most cases, to reduce the burden on teachers and reduce costs apply computer-based testing. The computer tests will understand automated computer testing system. Under analog tests will understand classical testing, i.e., the paper tests. With the development of computer and analog tests there are two types of presentation of test items: in an open form and closed form.

The control of knowledge by testing knowledge, namely, verification of in-depth understanding of the subject, mastering the style of thinking characteristic of a particular discipline, it is possible, but close to reason.

The lack of direct contact with students, on the one hand, makes the control more effective, but, on the other hand, increases the likelihood of impact on the result of random factors. For example, you cannot control the random errors of the student caused by inattention or misunderstanding of the task. However, the rapid development of systems, models and testing methods allow in most cases to solve these shortcomings. One of the possible solutions is the use of lexical, morphological and syntactic analysis of their answers.

It should be noted that traditional methods of monitoring and evaluation of knowledge using analog and computer-based testing, also not without drawbacks. For example, are not taken into account when testing is incomplete or not entirely accurate answers of a student taken into account by the teacher when the “real” communication. Especially sharply this problem occurs when you try to organize automated testing in Humanities disciplines such as history, philosophy, sociology, literature, etc.

For such subjects, it is impossible to formulate a single absolutely correct answer, and their control cannot boils down to how well the examinee remember a particular event or definition. The answer to the question on humanitarian subject is often given in natural language in oral or written form. Moreover, the same response can be expressed in different ways and phrases. You should take into account that when a verbal or written response possible typos or minor errors during the traditional exam can slightly affect the result, and when conducting computer-based testing can lead to a significant reduction evaluation.

Classification is based on the presence or absence of additional information, enter the subject. In case you need additional information test is to open the form, in case of its absence - to the closed form. Test closed form, as a rule limited to the presentation of test fixed set of test tasks and different answers for each of them (Mitsel & Poguda, 2010, 2011). The objective test consists of selecting one or more true, in his opinion, the answers to each test task (Sorin, 2009).

Typically, the test task closed form consists of two parts: the analyzing part containing a question or statement and response, containing 3 or 4 possible answers, among which only one is correct. Jobs also open forms require the input of additional information Supplement. As a rule, the answers of the open form of analyze experts are experienced specialists in this field.

The study of semantic analysis of the text has long interested scientists of many countries that are developing many new theories and algorithms (Kohonen, 2001; Carston, 1998; Cresswell, 1982; Broder, 1998; Neubauer, 1983; Tarski, 1956).

In recent years, the world received a number of interesting results concerning developments in the analysis of textual information. Development of algorithms for semantic analysis of text are the world’s leading research centres, as well as commercial organizations. First of all, you can note the work carried out by the USA (Harvard-MIT Division of Health Sciences and Technology, Stanford School of Engineering, University of Oxford, Carnegie Mellon University), UK (Cambridge University), Russia (Russian research Institute of artificial intelligence, UNIVERSITY ITMO, Moscow physical-technical Institute).