Online Descriptive Examination System

Professor Colonel (Retd.) S.C. Sood[*]

Introduction

Evaluation has been an essential part of the education and is done through system of examinations. The students are to be evaluated against the subjects and topics covered over a period of time. Generally, the written examination is conducted for two to three hours and the work is to be evaluated as soon as possible. At college or institute level, a teacher is required to evaluate answer books of about 60 students per class. For proper evaluation, the examiner needs at least 15-20 minutes for each answer book. It means about 15-20 hours for each subject. Since we have only limited time available per day, the evaluation is spread over many days.

When there are a large number of students to be examined, the evaluation requires considerable manual effort. In some cases, there are difficulties on account of poor handwriting. The task of evaluation is repetitive and boring. The quality of evaluation also varies in accordance with the mood of the examiner. In today's environment if this could be automated, it would solve many of the above said problems. Hence, the solution lies in automating the work using computers.

Need For Developing Online Descriptive Examination System

In order to achieve computer based automation, online objective type tests based on multiple choice questions are being used to the extent possible. However, this technique lacks the capability of evaluating descriptive answers. In university examinations, both varieties of questions are included for evaluation of the students. Therefore, the automated system must be capable of evaluating the descriptive answers.

Requirement of evaluating written work by computer software has been a daunting task. In some cases, it is semi-automatic whereby the students answer by typing online. The answers are saved on the server and evaluation is done manually. The project undertaken by the author aims at evaluating descriptive answers by using algorithms specially developed for the purpose. Concepts of artificial intelligence are also being incorporated. New algorithms have been developed for achievement of the said aim.

First prototype of the above software has been developed, deployed and tested on 180 students. The software has been found to meet the requirements to a large extent.

Platform

Web based solution has been developed using WordPress - the blogging tool and publishing platform, Ubuntu 11.10 - Linux operating system (solution is compatible with Long Term Release 12.04.4 of Ubuntu), Apache web server, MySQL database server, and PHP as server side scripting language. Javascript has been used as client side scripting language. Squirrelmail is being used as web based email application to meet email requirements for LAN/intranet based network within the Institute.

---

[*] Gian Jyoti Institute of Management and Technology, Mohali-160062
   Resi: 2252-A, Sector 47-C, Chandigarh-160047
   Contact: 9216508708, Email: satishsood1@yahoo.co.in

Advantages

      All the software used in the project are free and open source. Therefore, the deployment cost would be limited to the extent of training manpower on the above software. Obviously the project is highly economical. Since the solution is web based, the client computers may use windows or linux operating system.

Mode of Conducting Examination

      Question paper is prepared by the subject teacher in consultation with the technical staff conversant with the project who assist in uploading the same in the desired format. The current version of the system caters for five questions per test. You may design as many tests as you need. Students appear for the test online within the lab. User authentication has been incorporated. On successful login, each student gets the question paper and his/her blank answer book. They are required to answer the questions by typing in the space provided. The software facilitates saving of the typed work as per user convenience. In case of a system failure, the saved work is available to the student for continuation. After the specified time the students are required to save their work and logout.

Computing Results

      Results are computed on the click of a button. The software also facilitates manual viewing of the answers for each question for all the students as well as full answer book of a single student. For keeping hard copy of the written work, printing of all answer books has also been provided. In case the results are found at variance from the expected ones, the software can also be trained to adapt to the new changes.

Conclusion

      This project has tremendous potential for implementation at large scale. With subsequent research, the system may be adopted by all organisations as well as at university level. It would save enormous amount of man hours for evaluation of examinations. It would also save time, effort and paper and help to overcome other limitations of manual evaluation. Work for further improvement is going on. Website has been hosted at http://www.ecompetence.org/ole. All those who wish to join the project may send their request at the author's email satishsood1@gmail.com. Criticism and constructive suggestions are welcome.