

Virtual Subjective Examination on Tablets

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Abstract - Since the time of evolution of education system there always has been a clash in various examining techniques. This clash led to development of various examination systems. In the present era, online examinations are at their boom, still there exist some cons which need to be brushed. The online examinations (MCQs system) can only examine the overview knowledge of a particular topic. To determine the in depth knowledge of a subject there needs to a subjective examination system. The traditional subjective examination system consists of excessive consumption of papers which cause ecosystem damages. Every year lots of trees are being cut down which leads to bad climatic conditions which are harmful for the environment. It also causes lot of manual headache to the students as well as faculty. Thus there was a need to have a system which would overcome the cons of both the above systems, so we decided to develop a mobile based examination system. Our system aims to make the examination system lot more convenient and reduce the use of papers that would ultimately reduce deforestation.

Index Terms – Encryption, Paper Consumption, Subjective Exam, Virtual Examination

I. INTRODUCTION

In the Traditional examination system, the students need to write the exam using pen and paper. While writing the exam the students need to fill the details asked on the first page. Later the Invigilator uses Barcode and holocraft for security which again consumes paper. After the end of Examination the answer are sealed in a packet that again requires paper. In this entire process much of the paper is consumed and there is a risk of the mal-functioning of papers. According to the survey, the students in the field of engineering have 8 semesters to attend. Every semester consist of 5 theory subjects and 3 practical/oral/term work subjects. So on an average every student requires 15 exam papers per year. The answer sheet contains 10 sheets of papers and the supplement contains 2 sheets of paper, so around 200-300 sheets are required per student. On the other hand for 6 subjects of practical exam appox 500-600 sheets per student are required. So on an average each student uses 1000-1200 sheets of paper per year. Over 30,000-40,000 students appear for engineering exams every year. Hence to overcome this drawback, the Online examination system came into existence. But the online examination could only determine the Overview knowledge of a topic. Hence there was a need to determine the in-depth knowledge of a subject. Hence to overcome the drawback of the online Examination system, we decided to develop the proposed model.

II. LITERATURE SURVEY

Aslihan Tufekci, et al, 2013[5] have developed an online exam system, in which students can give exam from computers and other mobile environments. This system provides the user with an electronic environment that can be used easily, quickly and effectively. Via this system students can give exam by using their mobile devices whenever and wherever they wish. Samir A. El-Seoud, et al, 2010[6] aimed to include Semantic Web technologies in the E-learning process, as new components. They used Semantic Web (SW) to: 1) support the evaluation of open questions in e-learning courses, 2) support the creation of questions and exams automatically, 3) support the evaluation of exams created by the system. Their goal was to use Semantic Web and Wireless technologies to design and implement the assessment system that allows the students, to take: web-based tutorials, quizzes, free exercises, and exams, to download: course reviews, previous exams and their model answers, to access the system through the Mobile and take quick quizzes and exercise.

Dr. Kurt C. Gramoll, et al, 2015[7] Student have to access the online text in the first app 'examApp' and it records the students choices. It had numerous security features that limit access to the exam only on the tablets provided to them during the exam. All graphics are vector-based so they are crisp on high resolution screens. Included in the examApp was an admin page that provides the instructor information about the exam while in progress. This includes scores, for a given problem, students activity, graphs, and direct communications to all students. The second app, "eBookApp", allows the student access to the online eBook used for the class. However, it blocks the student from other online web site or material.

Divya R, et al, 2014[8] A system was developed which processed manual evaluation and was digitized. This system allowed random generation of question paper, enhanced evaluation and reevaluation and online compilation for laboratory exams. They aimed to automate the entire process of examination assessment by enabling correction on PC using both online or offline mode, by human. Security was enhanced by applying cryptographic techniques thereby avoiding the leakage of questions prior to the examination and prevents the manipulation of critical data involved in the process. Repository of all the data involved in the process was available for future use. A high level of accuracy was obtained in grading the students. Thus the system optimized the human effort involved and also reduced the overall time consumed in the process of conducting and evaluating examinations.

Sattar J. Aboud, et al,2012 [9] They proposed that educational university should involve different security techniques that should be used to protect the exam characteristics in e-exam. Their approach targets to secure e-exam scheme with all of its information in digital form. Their main aim was to focus towards high standard security Sungkur, et al, 2013[10] proposed a method to reduce the cost of exam by avoiding the physical based examination. This system took less time to view the results of the exam they appeared for. Security was also seen into consideration. Methods of authentication and its strength/weakness were described

III. OBJECTIVE

- Reduce the use of papers which would preserve the environmental conditions.
- Providing security by encrypting the question paper.
- Protecting from a fraud case during the examination.
- Reduce the economic cost for examination.

IV. SYSTEM ARCHITECTURE

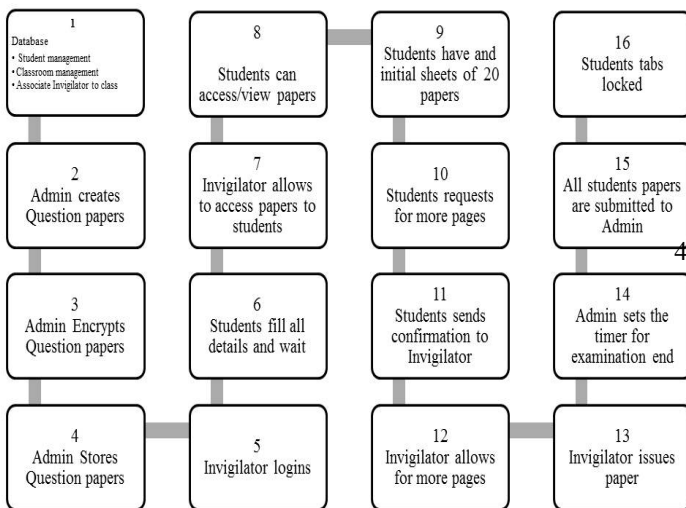


Fig.1. Block diagram representing the flow of the model

4.1. System Architecture Details

The proposed model consist of a tablet and a stylus. Similar to the traditional examination system, the student has to write the subjective exam, with the only difference that the examination will be conducted on a tablet and student will write the answers on virtual answer sheet using stylus. The tablet is equipped with the necessary android app which provide an interface for writing the answers.

The main modules of our system are :

- Admin (Server)
- Database
- Invigilator
- Student

1. Admin (Server)
The university creates the question paper and stores the encrypted paper in a database. The technique used for encryption of question paper is AES algorithm.

1.1. AES Algorithm

Advanced Encryption Standard (AES), also known as Rijindael is used for securing information. AES is a symmetric block cipher that has been analyzed extensively and is used widely now-a-days. AES symmetric key encryption algorithm is used with key length of 128-bits for this purpose. AES is used widely now-a-days for security of cloud.

The admin will also set the timer for examination.

2. Database

The database will consist of some useful information that is required on the examination day. It will have a list of all the students appearing for the examination and the number of classrooms available on the examination day. The information like which student should be associated to which classroom and the Invigilator assigned to that class is also stored in the database so that on the examination day there would be no confusion regarding the allotment of classrooms and seats.

3. Invigilator

The university selects Invigilator for each college. During the examination, the Invigilator will login on his tablet. Once the Invigilator is logged in, he gets the basic information related to the examination. Later the Invigilator will request the university to send the question paper on his account. Once he receives the question paper, he distributes the papers among the students in digital format.

4. Student

To begin with the examination, the student will have to fill in the login details and wait for the question paper to appear on the screen. After the Invigilator grants the permission to access the paper, the student can then view the paper. When the student starts the examination, the timer is automatically turned on and the student can check the time left for the completion of exam. Initially the student will have an answer sheet of 20 pages on tab, later on if the student requires more sheets then he has to request the sheets to the Invigilator. When the Invigilator allows the access to more sheets, the student can continue with their examination. After the examination is finished, the student can submit their papers which will be stored to the server. After the paper is submitted the tabs get locked automatically.

V. ADVANTAGES OF OUR SYSTEM

The traditional examination system required a lot of paper consumption that ultimately resulted in cutting down of trees. Our examination system eliminates this major drawback and helps in preserving the environment. This would indirectly reduce the cost of examination. The traditional paper pen method of exam conduction is inefficient, tiresome and less reliable. Our Examination system completely eliminates the drawbacks of traditional

examination system and has an edge over the online examination system implemented on Desktops and PCs because of the fact that there is a wide range of availability of mobiles as compared to computers. The human interaction required in case of traditional examination method is very high, since faculty is required to set the examination and evaluate the paper due to which the traditional examination method is highly erroneous, unreliable and leaves ground for mal practices in education industry. The system is reliable since only the authenticated users can take the examination and strong safety checks have been incorporated in our registration and login modules to serve the purpose. Using the impeccable UI functionalities that have been provided using the Android Development Kit we have designed and implemented our system.

VI. CONCLUSION

Referring to the existing system of offline examination we came across many flaws which needs to be overcome. So by proposing the virtual subjective examination system, the examination becomes very efficient and easy.

ACKNOWLEDGEMENT

We are thankful to our Teachers, Friends and Department of Computer Science for their constant guidelines and support. We also thank the researchers as well as publishers for making their resources available. We are also thankful to college authorities for providing the required infrastructure and support.

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