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Electronic Test System (ETS)

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Abstract: *The electronic test system (ETS) will* assist *in speeding up the process of conducting assessment. Examiner will be able to conduct exams by integrating a set of questions. The questions can be multiple choice questions or text solution to the questions. The methodology will have the potential to do automated processing of the results of assessment based on the question which admin has put into database. The methodology will have brainy capabilities to pick the writing based solutions when not only there is an exact match, but it will also find out same solutions by verifying/scanning the synonyms of the words used in the solution. The ETS methodology engine will also avail us with the manual override specification where the examiner can manually pick up or update the result for an exam. The methodology will present an effortless to use interface for examiner, Candidates and Super Admin. Any person can act as an examiner or candidate. Once logged in, candidate will be able to see the assessments due and can take the assessment.*
The main aim of online network based Electronic Test System is to effectively form an idea to assess the applicant exhaustively through a fully automatic methodology that not only spares you with a lot of time but also gives speeder and exact conclusions. For Candidates, they give exam according to their comfort from any location by using net and there is no essentiality of using add-ons like pen, papers, etc.
Keywords:*Examination, Examiner, Candidate, Super Admin, Manual Override, Automated System.*

I. Introduction

Electronic Test System is an online network based test methodology. Online assessment is having a test via online network to calculate the knowledge and skills of the candidates on a given topic. In the older days, everybody used to gather in a hall at a certain time to have an exam. With online examination, candidates can appear for the exam online, with their own comfortable time and using their own device, regardless where they live. You only need a browser and a stable internet connection.

An Electronic Test System is an online network software solution, which allows any college, institute or organization to set, direct and manage examvia online environs. Some of the problems faced during manual assessment systems are the slow procedure which takes place in result processing, filing poses a problem, chance of misplace of records is high, as well as searching for records is tough task. System Maintenance is also immensely difficult and time consuming. Online assessment is one of the crucial part for online academic methodology. It is effective, fast and minimizes the immense amount of resource stuff. An assessment methodology is developing its base on the net. This research paper delineate the engine principles, presents the main motivation of the system, analyses and specifies the auto-generate test paper algorithm, and discourse the system safety course of actions.

An online assessment methodology is an application that allows an establishment conduct assessment via the World Wide Web (or intranet). Various companies, establishments and organizations have opted for this course of action of conducting assessments, because it is quicker, easier and convenient. This methodology makes it easier for examiner to conduct exams and collect results. The implementation provides facility to orchestrate online assessment anywhere and at any time. Today, most establishments are conducting their exams online to eliminate the bottlenecks associated with pen and paper type of assessment. Mechanization has supported online assessments successfully for a number of years, and has progressively enhanced the process over the years to have room for more candidates and ensure a small alternative online assessment. However, one of the biggest challenges to online assessment is cheating using mechanization.

The study developed an online assessment methodology that allows for creating a test from the question bank of the methodology and conducting Academic and Non-Academic assessments. The study explored the development of Multiple Choice Examination System and Online Quizzes for General subjects. The research paper represents the main aspects and application of an online multiple choice examination system with applicant's evaluation. Safety issues were also examined by some studies. For instance, in a paper reported in the impacts, associated challenges and dependability lapses of the existing electronic examination methodology.

Electronic Test System is essential for the candidates who are willing to attend test from their home. They can attend various courses and tests can be given at the end of the course. Enormous amount of study videos can be uploaded for the candidates. Paid and free course are obtainable. Users can be made obtainable with their tests. Online assessments are advantageous and fast especially when grading a substantial class of candidates. It also reduces the use of paper work.

Electronic Test Systems could handle MCQ based tests as well as essay-type questions according to the need of examiner. ETS will achieve greater speed in grading and accuracy of exam. Although it can possess some deterrents such as increased complexity in case of big exams. ETS will also have reference to alternative web pages where related tests are orchestrated and links to the web pages where higher-level tests are orchestrated relation to the field.

Electronic Test System has become a fast growing assessment course of action because of its speed and accuracy. It also needs less manpower to execute the assessment. Almost all organizations now-a-days, are conducting their objective exams by online assessment methodology, it saves candidates time in assessments. Organizations can also easily check the performance of the candidate that they give in an assessment. As an effect of this, organizations are releasing results in fewer times. It also helps the environment by saving paper.

In (ETS) there are two type of exam are orchestrated - one is demo exam and an alternative is paid exam. The demo exam is a free test. The new candidate can first register or existing candidate can login the ETS. Then they can give the demo test i.e. free. Next is paid exam. Paid exam is divided in few plans named Bronze, Silver, Gold and Platinum.

II. Methods And Material

The rapid development of computer and network mechanization makes profound changes to human beings in the fields of study, work and way of life. With the enrich and renew equipment's in the teaching establishments and the training establishments, the establishment of Multi-media classrooms and campus network, the World Wide Web mechanization's maturity and the popular of computer-aid education (Du Ploov 1992), the course of actions of assessment which is used to check the quality of teaching and teaching effectiveness, assess the candidates learning and identify the skills have been changed greatly (Breithaupt et al 2005, Buchanan 1999).

The first experiment was performed in 1997 when candidates sat a formal supervised assessment in which the assessment paper and the candidates' solutions were transmitted between the Open University and the remote assessment sites using electronic means. The work on assessments and testing has focused on free-text entry style solutions (Du Ploov 1992).

The second experiment, orchestrated early in 1999, enabled candidates to take a 'mock exam' accessed via an online net page as part of their revision. The experiment was designed to test out the technical feasibility of offering an unsupervised home assessment. Candidates accessed the paper via an online network site and submitted their solutions in a similar way. The candidates keyed their solutions into an ordinary word processor, the results of which were encrypted and returned via a secure online network page by the invigilator at the end of the assessment period (Breithaupt et al 2005, Carswell et al 1999).

Ping Guo et al (2008) proposed that the online assessment system (OES) can be divided into two models; they are Browser-Server (B/S) model and Client-Server (C/S) model (Buchanan 1999, Liu et al 2004), the basic functions of them remained the same. An OES has a series of functions including intelligent auto-generating test sheet (Zhang and Zhan 2001), tracking and recording of the process of candidates' answering, intelligent marking and the statistical analysis of candidates' grades and so on. It can not only reduce the work of teachers, ensure the effectiveness of assessment results and the principles of fairness and justice of the assessment, but also reduce the work of organization of the assessment and save the cost of the assessment. The monitoring methodology sends the images in every assessment room to the monitoring departments of the assessment management centre (EMC), the invigilation teachers and leaders can know the situation at a remote place, which can prevent the candidate from abnormal behaviors, such as cheating, and the fairness and impartiality are ensured very well. In addition, all the images transmitted in to the monitoring department can be recorded and are the most significant evidence for intendancy after a test.

HongmeiNie Math, Physics and Information Engineering College conveyed online assessment is the essential part among online education. It is effective as well as fast plenty and decreases the substantial number of material resources. Online Examination methodology is developed base on online network. Their paper discovers the principle of the design methodology, that represents the main functions of the methodology, analyses the algorithm of generating question paper, and talk about the dependability of the methodology.

ShahidabtMohdJamail Abu Bakar Md Sultan Faculty of Computer Science and Technology, Selangor, Malaysia communicated that the assessment procedure is significant activities for establishments to evaluate performance of candidates. hence the quality of the Exam questions will determine the quality of the candidates develop by the establishments, also preparing exam questions is challenges, extended winded and take more time for the

instructors. Ongoing technologies will help mentors to add the question banks in pool of data. The issue communicated was how the ongoing technologies would even help the mentors to auto produce the various sets of question keys from time to time without thinking about repeating and matching from the pass exam while the exam bank thriving.

Sophal Chao and Reddy (2008) designed a World Wide Online network-based assessment methodology which is flexible for teachers to set and control the applicant assessments. It has a feature to share information among departments, user groups and institutes, not like the alternative online examination systems on the market: A Online network-Based Assessment and Evaluation System for Computer Education (Yuan and Zhenming 2006), Mixed-method validation of pedagogical concepts for an intercultural online learning environment (Effie Lai-Chong Law 2007), Tablet PC in a collaborative learning environment (Jean and French 2007), and Online annotation- research and practices (Lan and Glover 2007). Though, it has unique feature of sharing information, it does not talk address the scalability issue.

VirkramJamwal and Sridhar Iyer (2001a,b, 2003), VirkramJamwal (2001) have implemented mobile agent based methodology for distance evaluation (MADE) of candidates distributed over substantial areas by using Voyager ORB framework. They found that this approach yields many advantages over alternative traditional approaches in terms of scalability, flexible structuring, dynamic extensibility, and independence from network disconnections. Alternative advantages gained were in the form of implementation layer multicasting, support for dynamic content and provision for both push and pull mode of information dissemination. However, their methodology still needs suitable techniques for 20 proper control and management of these striking mobile agents. Better course of actions of handling autonomy and improving the overall methodology reliability need to be formulated and implemented. Besides, they lack the critical requirement, protection of agents (e.g. Solution Agent) from malicious tampering, when they move from closed to open environments. Though multi agent based teacher assistant (MATA) for universities, colleges and schools around the world assisting teachers in applicant evaluation, grading and enhance applicant teacher interactions in an intelligent automated way thus reduces burden on faculty members and provides services to the candidates around the clock. MATA can not only be view as an alternative of the customary intermediary, an individual teacher backing, which bridges amid teacher and candidates but also an triumph of a methodology that could assist teachers in the process of evaluation. The methodology (MATA) has the problems in inaccessible administration in case of the failure of main nodes which provide the serious setback in MATA and lacks of the proper control and supervision of the striking mobile agents, overall methodology reliability and protection of agent.

Yong Ou-Yang and Hong-Fang Luo (2009) explained an improved genetic algorithm and proposed a latest method of test paper generating based on applicant's learning situation. It generate personalized test paper dynamically that satisfying every applicant according to applicant's online self-condition in detachment education network and factors reflected during learning such as emotional status, knowledge and implementation level.

A. SYSTEM DESIGN

After login, examiner will get dashboard, which will display all the exams details that were orchestrated by him. It also displays number of exams generated by examiner, Schedule exam (exams that are scheduled but yet to complete), orchestrated exam (exams that are Scheduled & got over), pending exam (Exams that are generated but not scheduled yet), user registrations, and upcoming exams. Also, his ongoing plan will be in display.

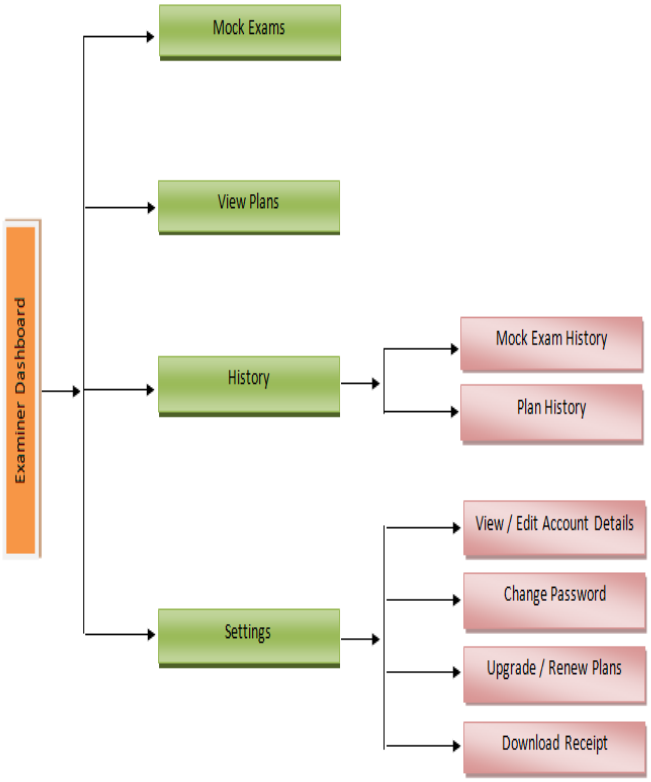

Figure 1*- Block Diagram of Examiner Dashboard.*

Also examiner can add candidate and instruct the exam. Examiner needs to select category, subject, exam name, section, question picker method (manually – needs to enter questions one by one/ excel sheet needs to download CSV, Edit it & upload it), Question type to add questions. According to question type, text editor will appear. Examiner will add question & its choices. He needs to check the corrected solution & save it. Here, examiner can view / edit the generated exam. He can edit exam before scheduling it, once he scheduled the exam, he will be no longer able to edit it.

B. SYSTEM ARCHITECTURE

After entering Electronic Test System, user will enter the home page of Test System. ETS's home page is the main page a visitor will navigate. The home page is used to facilitate navigation to alternative pages on the site by providing links to prioritized and recent articles and pages, and possibly a search box.
If user is not registered, user can make a new account as a candidate or examiner.
Candidate can appear for exams and examiner can therefore Flow conduct peculiar exam.
If registered, user can act as an examiner or candidate and perform their privileges.

If user acting a role of a candidate and if has registered or did his login in ETS, he can appear for exams by applying to it. Candidate will be informed about the plans and courses he can apply for which in turn will serve him/her various benefits. Plans will be paid plans and courses will be paid as well as free according to the type of coarse candidate is willing to option. Exam will be given by candidate in a specific time allotted by examiner. Exam will be of a precise time duration allotted by examiner. Exam can include MCQ's as well as essay type questions. Certificate will be generated after exam.

C. FLOW DIAGRAM OF ETS

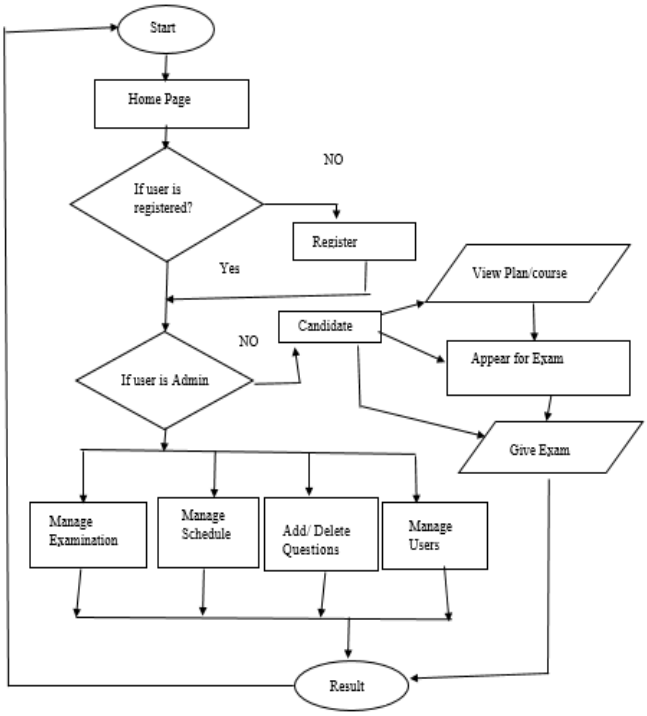

***Figure2**- Overall Flow Diagram of ETS*

Manage assessment: Examiner can enjoy various privileges such as allotting exam to mass number of candidates as well as specific number of candidates/examinee according to the plan he opted. Examiner who is generating the exam will have to apply a schedule as well as time period for it. Scheduling of exam will be conveyed to the examinees through SMS services or through e-mail. While the process of generation of exam admin/examiner has to mandatorily add questions (either MCQs/Essay types) and submit the exam. Examiner can also delete discrete questions from the exam if he wishes to. Examiner / Admin has authority to manage accounts of candidates. He can add/delete candidates who has opted for exam. Examiner can modify and manipulate accounts of users/examinees. After completion of exam user will get the certificate of the exam, he attempted. He / She will be redirected to the homepage or ongoing account after the end of exam process. ETS will also have the flexibility of conducting various courses and after the completion of coarse user will get redirected to home page and completion certificate will be allotted to him/her. Examiner can allot multiple exams at a single time as well. After completion of any task allotted by examiner/admin, he/she will be redirected to his account or homepage depending upon type of ongoing task.

III. Results And Discussion

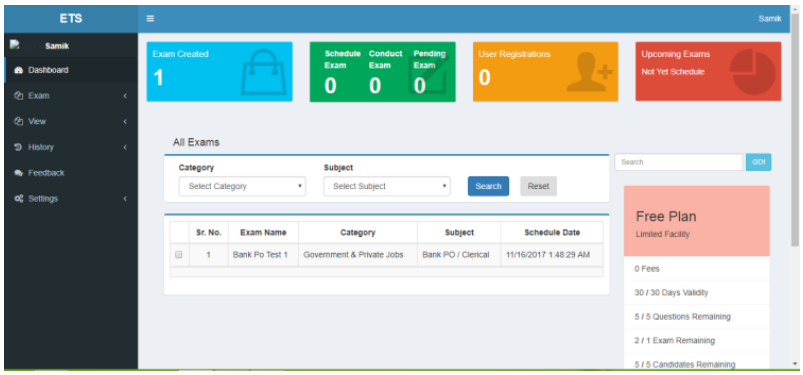

***Figure 3**- Examiner dashboard.*

The above figure shows examiner dashboard, where he can create, manage and schedule exams. Except that, he can even add questions, candidates and notifications to an exam. The dashboard is a type of account where he can change his plans, password, edit account details, remove his/her account and many more.

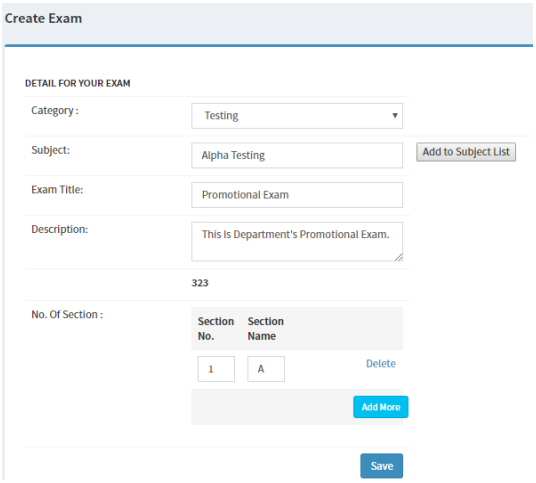

Figure 4- Examiner dashboard.

As discussed above, examiner can add an exam of his choice. Where he can option for categories, subjects, titles, description of the exam and so on.

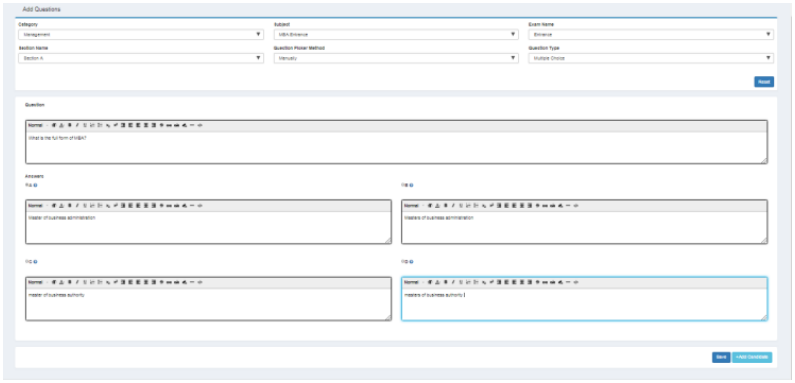

Figure 5*- Addition of questions to an exam.*

Electronic Test Systems can handle MCQ based tests as well as essay-type questions according to the need of assessment. Above figure shows, an examiner adding a question where he is sets the correct option to 'a'.

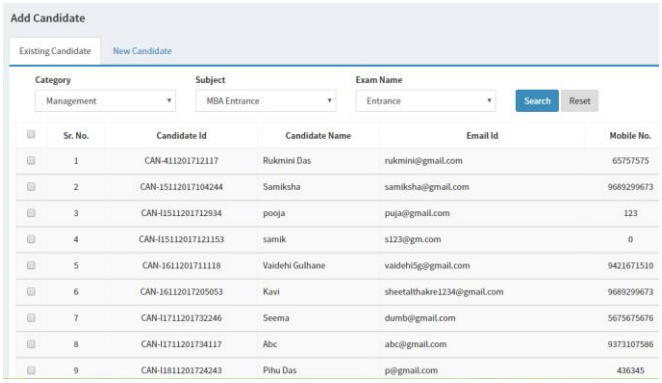

Figure 6*- Addition of candidates to an exam.*

ETS will achieve greater speed in grading and accuracy of exam. Examiner can add candidates in an exam. Above figure number 6describes the addition of candidates. In the figure the list of candidates are just the testing accounts created by development team.

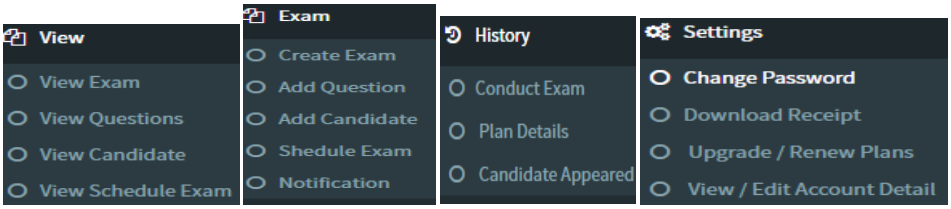

Figure 7*- Menu available to examiner.*

Inside examiner dashboard, admin will be made available to flexibilities described in above figure.

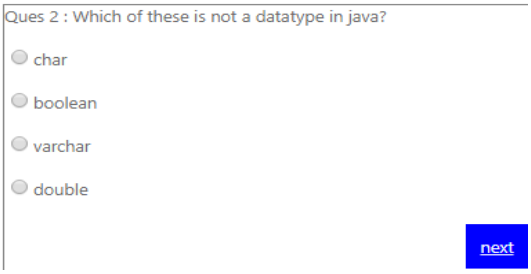

Figure 8*- Testing model of examination in ETS.*

After setting up the examination by the examiner, candidates can give exam in the format given above. Above is an MCQ based examination. After Examination candidate will be redirected to a feedback form, followed by a certificate of the exam.

Figure 9*- Auto generated result and certificate after exam.*

After the examination process, candidate will be made available to the score card, where he/she can view his total marks, percentage and his passing or fail notification. He can view and download his/her certificate for appearing for the exam where his/her grade, score and name will appear.

IV. Conclusion And Future Scope

User will enter ETS web page which will direct it to its homepage. And will have to generate an account by registering in ETS web page. If user is not registered then he/she has to register as an examiner or examinee and if already registered then he/she can access ETS and do further processes such as - if user is examiner, he/she can conduct exam, manage schedule, add/delete question , manage candidates/examinees, generate result. If user is a candidate/ examinee, he/she can - view plan and courses, option for a plan or course, give exam, achieve certificate.

ETS has a wide range of future scopes after its implementation which includes features such as chat options between examiner and examinee. Various courses can be added according to streams. The Methodology can be made more trustworthy and secured. Guest module can be added in which any person not a part of ETS can access the services through guest mode. It can be used anyplace, any time as it is online network base application. No deterrent that examiner has to be obtainable when the applicant takes the test. ETS can be made obtainable for educational institutes and private institutes to direct test of their candidates or employees respectively. There have been amount of cases of computer glitches, bugs in content. And security threats which can be solved in near future. In case of power, failure restore and backups can be added.

Although the research has reached its aim, there were some unavoidable limitations. First, we evaluated the tool using one specific scenario which is based on core techniques of process mining tools as implemented by case studies. Therefore, it was not possible to generalize the results. Second, the fact that we analyzed the tools using the documentation that is insufficient in availability so that the interpretation of the findings might be affected. Finally, the conclusions of the comparison might be different if the evaluation has been performed by expert users of the respective tools or by the tool vendors themselves.

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