



SECURE M-LEARNING SYSTEM USING QR-CODE

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Abstract: M-Learning is a performance that uses mobile and wireless machineries for erudition and edification. M-Learning assists novices to merge their learning experiences in a shared combined environment. Internet is not just a way to convey and deal out the facts and learning contents. In this paper a Secure Exam Management System (SEMS) has been schemed out in mobile environment because it is highly security service contains in exam services. In the way of tutors to define a bank of exam questions and to link them to his/her subject through an fitting boundary (Subject's Question Bank Interface). Steadily validating and join up students, using any of the well-known secure confirmation appliances, using in this exams system at the pre-defined date and time through the Exam Membership Border. Multifactor substantiation can be adopted for stronger security. May Student's have mobile/tablet devices are associated to the school's Wi-Fi grid through which they may criminally interchange signal during an exam. Applying simple strategies, such as revolving the network down during exams to cut off any possible communication between students, is not a practical solution as students in different classes may not take their exams at the same time.

Keywords— Access control, e-learning, exam engine, Learning Management System (LMS), m-learning

I. INTRODUCTION

E-LEARNING has veteran such an astonishing growth over the last years that its global industry market is estimated to be worth USD 91 billion.so this paper going to introduce method of learning and online exam system through mobile in secured manner.

II. SEMS EXAM ENGINE CORE SERVICES AND FUNCTIONALITIES

In this estimated system enabling the teacher to define a bank of exam questions and to link them to his/her subject through an appropriate interface (Subject's Question Question Bank Interface). In case of objective kind of questions, each question may have a set of options.The teacher has to provide those options through the same interface and specify the correct choices among them to enable the exam engine to autoevaluate students' answers.

Enabling the teacher to specify a subject’s exam properties such as: Date and Time, Duration, Percentage of level A, level B, and level C questions in the exam paper, etc. through an appropriate interface(Subject’s Exam Setup Interface).

Securely authenticating and enrolling students,using any of the well-known secure authentication mechanisms, into exams at the pre-defined date and time through the Exam Enrollment Interface. Creating exam instances by random distribution of exam questions to the enrolled students’ mobile/tablet devices according to the predefined exam properties such as percentage of each question level. This means that questions are not going to reach students in the same order. Moreover, the multi-choices of each question, in case of objective questions, will be flipped randomly and delivered differently to each student.

At the same time Students’ mobile/tablet devices are connected to the school’s Wi-Fi network through which they may illegally exchange information during an exam.

Applying simple policies, such as turning the network down during exams to cut off any possible communication between students, is not a practical solution as students in different classes may not take their exams at the same time.

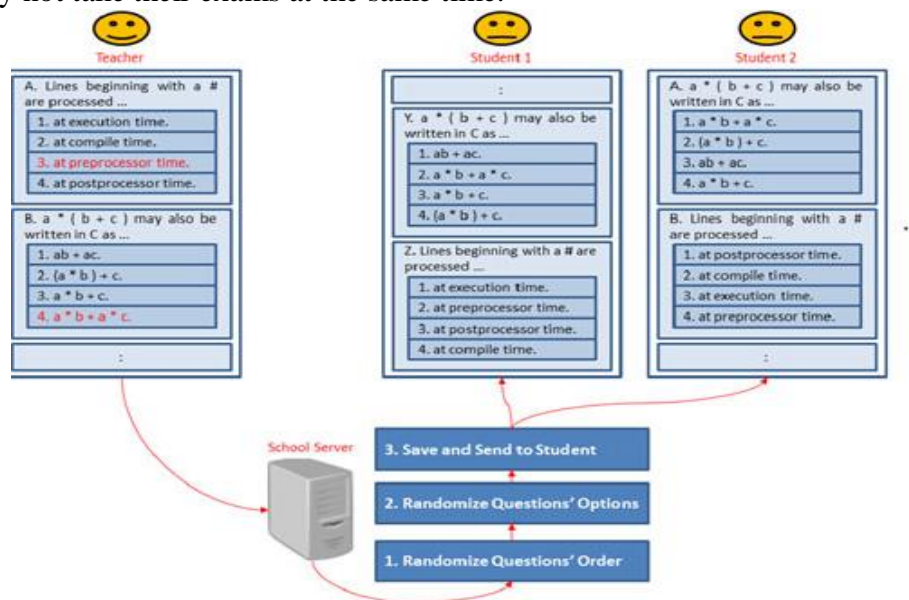


Fig. 1. Secure distribution of exam questions.

III. PROPOSED SYSTEM BY VARIOUS MODULES

In a Wi-Fi based network, we cannot warranty that each learner is going to listen an exam from a fanatical classroom. A student can plainly sit in a close to extent and log in to the exam system through the Wi-Fi arrangement. He/she can afterward release his/her itinerary notes and use it to answer the questions illicitly. To stumble upon this issue, we propose the following strategy.

- **Subject Allocation and Teacher login**
- **Course and Question preparation**
- **QR-code Generation**
- **Student Exam process**

A) Subject Allocation and Teacher login

In this segment, admin enter into QR U-learning website. Admin have to upload whole prospectus. The PDF innards of whole prospectus are construed to text contents by copy paste maneuver. A new prospectus is created for that exacting subject. Each and every subject prospectus is bent in analogous ways. Admin can access the entire syllabus. Teacher should inventory the minutiae like name, address, and subject specialty. Admin can view all the teacher details and apportion the prospectus to exact teacher. While login in QR u learning website the syllabus owed by the admin will be shown and can be downloaded in the teacher main page. Teacher view the syllabus understands the details.

B) Course and Question preparation

In this component the teacher will upload the staple question papers for given subject, and then empowering the teacher to define a bank of exam questions and to link them to his/her subject through an fitting interface (Subject's Question Bank Interface). Each question may have a set of options. (let's say: A, B, C, D, and E).

C) QR-code Generation

In this part Exam server will spawn the QR Code and include exam questions. In this exam question paper embrace exam date, time, duration and percentage of each level. Questions are not going to grasp students in the same order. Moreover, the multi-choices of each question, for objective type questions, will be spun accidentally and delivered differently to each student. Exam server generate QR-code for each and every students.



This can hide more details about students when compare to bar code like,

Student # :134567890
Student name :xxxxxx
Subject :ce 101
Room : A23
Seat number :19

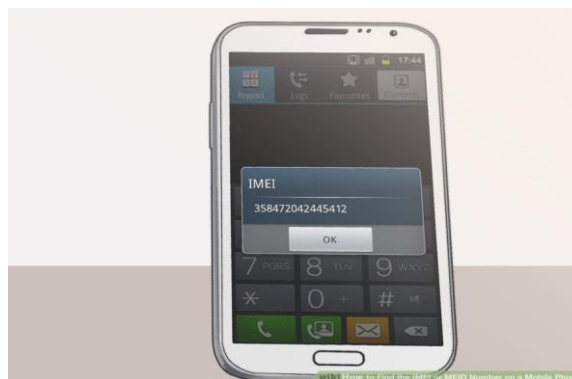


D) Student Exam process

In this section, student mount the Exam Interface Application login into application, The pupil scans the QR code in electronic device ((mobile) and then can see an exam question for same interface .Student will start the exam step by step display the question back to back after completed the exam you click on finish to parade the exam mark instantly in your application itself same time your mark will be send to log management.

IV. IMEI NUMBER BASED STRATEGIES

IMEI (International Mobile Equipment Identity) is a incomparable **15**-digit serialized number given to all mobile phone which can then be used to ensure in turn such as the phone's Country of Origin, the Manufacturer and it's Model Number. Once the student login to his/her profile program will trace his/her mobile IMEI number then disable all the social networks to that mobile so candidate cannot refer answer through search engine. if he/she tries to come out for more than 2 times test will be stopped automatically This method is found to be cheaper than jammer. IMEI number can be found by Dialing ***#06#** it seems like below numbers.



V. PREVENTING STUDENTS FROM EXCHANGINGMOBILE/TABLET DEVICES DURING AN EXAM

Ahead of all the obligatory precautions mechanisms discussed prior and those which are going to be discussed anon on in this paper, students might still endeavor to swindle by plainly exchange their mobile/tablet devices after they get legitimate by the Exam Server. To prevent this issue, IMEI tries to authenticate the students login by asking them to scan QR-code. With this mechanism, students cannot exchange their devices during an exam after

getting authenticated as the system at any point of time can ask them to represent their identity. Moreover, the proctor software will have the functionality to force a particular student attending an exam to get re-authenticated by the system in case any suspicious case occurs.

VI. SEMS INTEGRATION WITH MOODLE/MOODBILE SERVICE FRAMEWORK

SEMS amalgamation with Moodle framework and its tune annex Moodbile. Moodle is an open source and widely time-honored LMS. Integrating SEMS with Moodle helps to make use of its ready-made and well-tested services in other aspects of e-learning that are not related to exam security such as administration, documentation, tracking, reporting and delivery of electronic educational technology. Moodle is designed following the classic three-tier architecture. staging Tier is meant for the contact between a user and Moodle through a web browser. The majority of dealing logic is situated at Domain Tier. Data administration Tier provide database interconnected functionality such as store or retrieving data. As discussed in advance, Moodle is implement as a bulk of PHP code that can be enthusiastic through web browsers only. This makes it unrealistic for mobile client apps to admittance Moodle services. Presentation and Domain Tiers have not been untouched in the offered Moodle Architecture. Instead of refactoring both tiers, the External Tier was fashioned where the actual services for mobile incorporation are defined. To afford full support to the most pervasive web services protocols, the connectors tier was designed. This tier contains specific apparatus that adapt service rider of the External Tier to the provided protocols. At the same time, this tier handle substantiation and session management. Protocols are found to be supported by REST, SOAP, XML-RPC, and AMF among others.

VII.CONCLUSION

The main scope of this paper is to mitigate the unique exam security threats by Secure Exam Management System in M-learning environments by preventing students from exchanging their expedients during an exam and conducting exam securely through online or offline strategies, and auditing.

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