

# QR Generation using Online Assessment for Machine Learning

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## ABSTRACT:

Mobile devices plays a major role in the computing industry. Most of the applications are converted to the mobile application. In Mobile market Android is the most popular device throughout the world. Android devices are smarter and also fully network compatible. So even it replaces the computer to do many task. So the examination system is converted to be conducted through the mobile in this journal. Here the PHP application serves as the server side application and the Android based mobile application serves as the client side. The server side PHP application is responsible for all the administrative tasks. In the server the administrator can add new subject, view and delete the subject. The administrator can create the candidate who are all going to appear for the examination. Then

in the question module administrator can create new question in the available subjects. Then the admin allots the exam in a particular date for a candidate. Once allotted the candidate is generated a QR code. The QR code contains the candidate id, name, subject code, exam hall number etc... Then the QR sheet is gets printed and send to the examination center. In the center the invigilator issues the QR code to the corresponding candidate. The candidate needs to scan the QR code with the client side android application. Once successfully scanned the request is sent to the server with the obtained data from the QR code. Once the code is verified in the server, the examination question is send to the client. In the mobile the examination runs with the allotted timer. Once submitted after finishing the exam, the answers are send to the server. There it gets validated

and the the mark percentage is stored in the database. Administrator can view the result in the result page. Once the examination is completed for a particular QR code, then the QR gets invalid for the examination, so that the candidate cannot appear for the examination

by again scanning the QR code. By this journal, there is no necessary for providing the computers for the candidates and since almost all of the people having a smart phone it is more easy to conduct the safe and secure examination online.

## 1. INTRODUCTION

M-Learning has enhanced the e-learning by making the learning process learner-centered. However, enforcing exam security in open environments where each student has his/her own mobile/tablet device connected to a Wi-Fi network through which it is further connected to the Internet can be one of the most challenging tasks. In such environments, students can easily exchange information over the network during exam time. This journal aims to identify various vulnerabilities that may violate exam security in m-learning environments and to design the appropriate security services and countermeasures that can be put in place to ensure exam security. It also aims to integrate the resulting secure exam system with an existing, open source and widely accepted Learning Management System (LMS) and its service extension to the m-learning environment, namely “the Moodbile Journal”.

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By this journal, there is no necessary for providing the computers for the candidates and since almost all of the people having a smart phone it is more easy to conduct the safe and secure examination online.

## 2. PROBLEM DESCRIPTION

The classical approach to perform e-exams involves providing specific exam centers equipped with machines configured with static security policy to be used only for exam purposes. This approach brings about the cost of creation and upkeep of the environment, and continuous underutilization thereof.

Also, such policies cannot be applied in m-learning environments where the students' mobile/tablet devices are meant to be used for general purposes, e.g. Internet browsing or e-book reading, as well as for the sake of exams. Using students' mobile devices as exam stations offers the advantages of low cost, more exam takers at the same time, and no need for a wired network. Thus, a dynamic security policy is needed in this case with an appropriate enforcing mechanism.

Mobile Journal does not address the security and privacy issues related to conducting exams in m-learning environment, and neither does the Moodle Quiz Engine which emphasizes only on the learning process not on securing the examination process.

The "Secure Exam Environment" described in existing supports exams based on Moodle to be taken by students on laptops. The system denies access to local files and Internet, but allows the use of certain programs like Excel and Java applications. Students have to connect their laptops to the wired LAN and boot from a USB drive or DVD.

Other e-exam systems developed based on mobile platforms with wireless access lack proper security considerations and exam management functions.

### **3. PLANNED DESIGN**

#### **Server Side PHP Application**

This server side PHP Web Application provides a administrator module. In this module the admin can register new candidate, create new subjects, allot exam for registered candidates. Once allotted the QR code is automatically generated and it can be validated in the exam centers by scanning through the candidates mobile.

#### **Subject**

Admin can create a new subject, with subject code and the name. Once created it gets displayed in a table format. Also the table provides a delete link from which the admin can delete the unwanted subject. Subject creation contains Subject code and the subject name. To display the created subject, a table is provided in the same page. It contains a delete link, from which the unwanted subjects can be deleted by the administrator.

#### **Candidate**

In this module the administrator can register the new candidate by giving the name, roll number, address, city, degree, gender and mobile. After creating the record is shown in the table format. There the admin can delete the unwanted candidates from the list. Once successfully created, the student record is displayed in the table format. It contains an Delete link, from which unwanted candidates can be deleted from the database permanently. In this record structure

rollnumber is set as primary key, so that it doesn't accept duplicate roll numbers. So each student can be identified by their unique roll numbers.

### Question

The new question creation module contains a subject code, question and four choice answers and the correct answer option. After giving all the options the question and answers are get stored in the database. It is shown in the display area as the table format. It has a delete link, by which the administrator can delete the unwanted question. To create a new question admin selects the available subject from the drop down list box. Then the question can be entered and four choices can be entered in the appropriate box. Also the correct answer must be entered in the fifth box, so that automatic validation can be done, when the student submits the examination.

### Allot Exam

For the allotment of examination for the registered candidate, administrator needs to select the roll number from the list. Then the subject code needs to be selected. Then a room number with a seat number is given. After providing all the information it is stored in the database. Once stored it is shown with a pending flag. After the completion of the examination by the candidate, it is changed to 'completed'. In this form, roll number of the student and the subject code can be chosen from the drop down list. The room number and the seat number needs to be entered

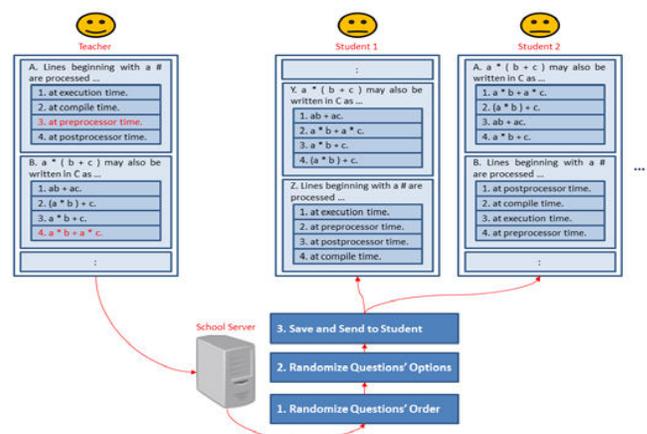
by the administrator. Once created the examination is ready and is waited for the student to complete the examination. After completion of the exam, the list is set to 'complete'. Also a Delete link is provided. So that if any allotment is not needed it can be deleted by the administrator.

### QR Code Generation

After the allotment of the examination, all the allotted candidates are generate a QR code by embedding the roll number, name, subject code, exam hall and seat number in it. It gets printed and send to the examination center. In this module the QR code generator in PHP generates the QR code for the exam allotted candidate. The QR code contains the Student roll number, name, subject code, room number and seat number information. On scanning this code from client mobile, the information is sent to the server and the corresponding examination questions are then send to the client mobile. After completion of the exam, the client can submit the answers back to the server for validation.

### Result

Once the candidate completes the



examination, the date, roll number, name, subject code and percentage obtained by the student is shown in the administrator result module. The result is automatically calculated. Once the student submits the examination, the questions and the answers set by the student is sent to the server. There the submitted answers are validated against the correct answers which are stored in the server. The marks are calculated automatically in the server and the percentage is calculated and stored in the result table. Administrator can view the result of the candidates in the result page.

### **Client Side Android Application**

The Android application acts as the client side module. It contains an interface to scan the QR Code. Once successfully scanned the information is sent to the server for verification. In the server the data is verified and if the candidate has not already appeared for the examination the questions are send to the client mobile. There the examination starts with the timer ticking. After completion of the examination the candidate can finish the examination and the answers are sent to the server back. There it gets valuated with the database for the correct answers and the mark percentage is calculated and stored in the database. Once the examination is completed the particular QR Code is invalidated. If any other request comes from the client with the same QR Code, then the request

is rejected and a message with the examination finished for the QR Code is send to the client.

## **SYSTEM ARCHITECTURE**

This journal aims to design a Secure Exam Management System (SEMS) that meets the distinct security requirements of m-learning environments and to integrate it with the current Moodle/Moodbile platform. This will result in a complete LMS that is both equipped with secure exam services and suitable for m-learning. Our intention of integrating SEMS with a well-known LMS such as to get the benefits of readymade services in other learning aspects such as course material administration, documentation, etc.

However, the proposed SEMS can also work as a standalone secure exam management system for mlearning environments without integration.

There is a need to develop a new Quiz Engine that can be deployed as a service oriented application, so that its services can be consumed by a mobile application designed to cater to m-learning specific security requirements. As well, it should be integratable with Mobile in order to have a complete LMS which suites the m-learning environment and addresses all of its security issues.

## **OPERATIONAL EXPENDITURE**

We implement exam management system for security requirements of m-learning environments.

## 4. CONCLUSION

This journal proposes the design of a Secure Exam Management System (SEMS) to mitigate the unique exam security threats that exist in m-learning environments. SEMS offers many exam services such as: secure and random distribution of exam questions, turbo-mode assessment, prevention of the “unattended exam” issue, biometric-based authentication service for ant impersonation, preventing students from exchanging their devices during an exam, conducting exam securely through online or offline strategies, and auditing.

The journal also provides countermeasures against various network related issues such as network overload, occasional network failures, students attempting to use alternative mobile devices to exchange information during an exam, and an intruder using a Wi-Fi jammer to bring the Wi-Fi network down. SEMS is integrated with an open source and widely accepted LMS, namely Moodle and its Moodbile service extension. The resulting design is a complete LMS with secure exam services that can be consumed by legacy systems through web browsers as well as by mlearning systems. Finally, a survey conducted reveals that overall attitude of students and teachers towards SEMS is very favorable

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