# Exam Monitoring System

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**Abstract:** The requirement of modern day test results is a virtual examination. This system offers multiple advantages over offline Examination mode. There are many upsides to using an online exam method. Here are some features of e exams over paper-based exams that should enable you to start using an online system of tests. This platform is focused on constructs for multi-threading. The review of results is often carried out online and the generation of results is at the end of the outcome or may be released at the time of the preference of the host. An internet — based act allows you the versatility to schedule, evaluate and rate assessment papers, and students may also have the same or different problems. It is crucial for the further selection or evaluation process phase.

## 1. Introduction

Exam monitoring systems are demand of time in the era of digital world where everything is swift and nimble. We needed a system which will reduce the workload on the management time reduction, ease in conducting examination swift monitoring and fast result generation with least error [1]. Java is very useful for system architecture. The system of assessment monitoring helps to reduce the difficulties of organizing a broad test, constant monitoring of students to eliminate any foul play, immediate correction and simultaneous presentation of the results. In the Scholastic Institute and Training Center, this framework is effectively used because it helps to administer the exams and get the results in a positive and constructive manner[2].

## 2. Literature Survey

A lot of researches has been conducted on the E assessment and online examination system a few are stated below:

1.Xing-dong Yang in 2009 conducted a research on Online Examination System of PE Theory Courses by applying

methods like Multimedia understanding cross sectional survey.

2. Jim Ridgway, Sean Mccusker, Daniel Pead in 2007 developed an E-assessment System which helps in conducting online examination. The technique used was Mass survey and User understanding. After validation from Future lab series it was widely used.

## 3. Problem statement

There are quite a lot of irregularities and drawbacks in the traditional method of examination, such as conducting exactly equivalent examination without any leaks, a lot of paper work manual arrangement tiny proportion of students at a time for examination, generation of reports of observer evaluation error and presentation of the results. The exam monitoring system is designed to conquer all these reprisals and for reasonable assessment.

## 4. Proposed System

The Exam Monitoring System manages admin and student data as it is structured on a client-server model where any student information can be modified by admin. Admin can add questions feedback correct option to withdraw any student at any time set time frame for exam. The software calculates the score automatically and publishes the final score card with an incorrect answer number that would be correct and not marked at the end of the test.

### A. System Architecture

The system design is made on the basis of client/server architecture where by using the concept of multithreading and MySQL the exam is conducted at various systems at same time.

### B. Log in methods

**1) Login by student**

    a)   New user registration: For a new user there is a new registration portal where new user can register by giving certain information like name, roll number, course session, year of academics, father's name, mother's name etc.

    b)   Profile photo: User can set a new profile photo at the time of registration.
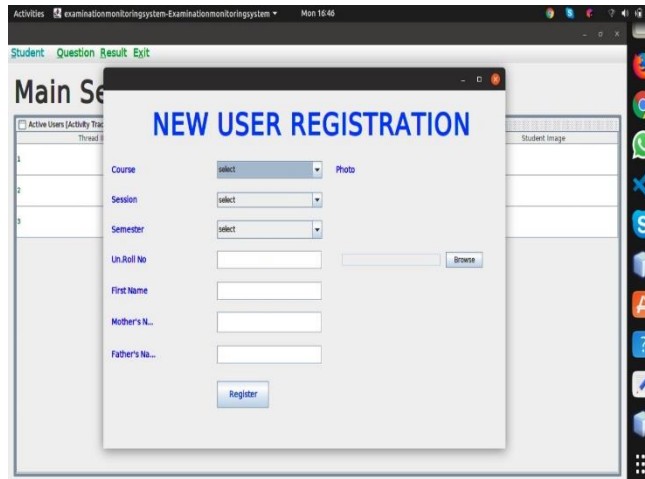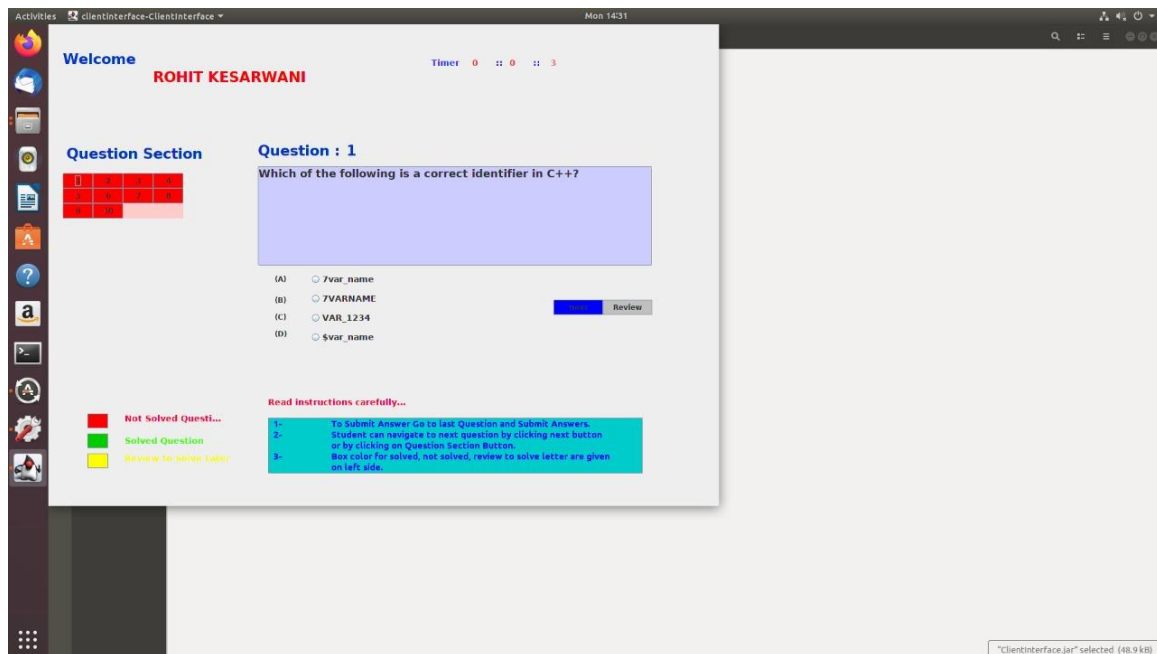


    1)   Login via ID and Password: Once the registration is completed as a new user, students are facilitated with unique id and password by which each user can login each time.
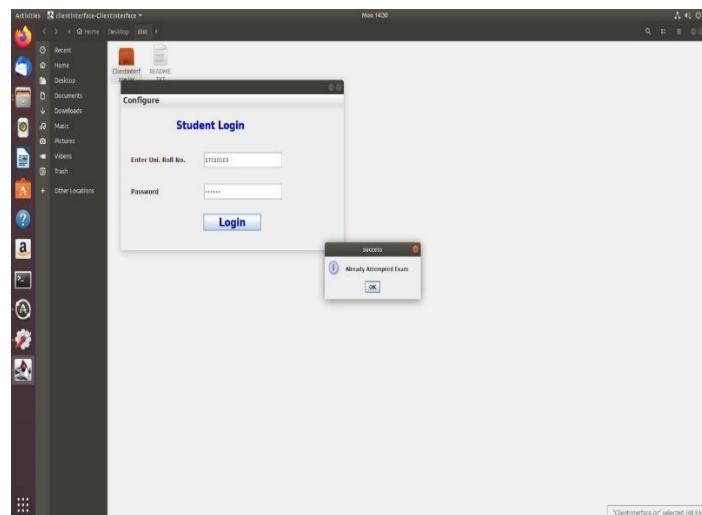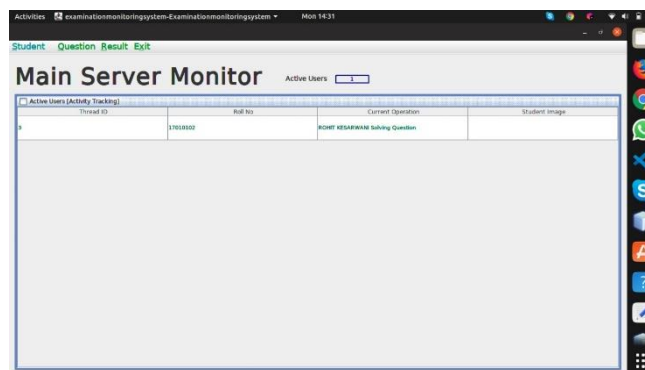


**C. Examination window**

    The examination window contains question section table which has number of questions section, timer solved unsolved and an instruction section.

D.    Main Server Monitoring: Admin has full control over the system it gives notification to the admin whenever a new student joins the system to give examination.



E.    Removal of candidate: Admin has full authority over the system if any irregularity is found at the user's end.

F.    Result Generation: Result of the exam is automatically generated after the examination with total marks obtained by the student total wrong answers and unmarked answers.
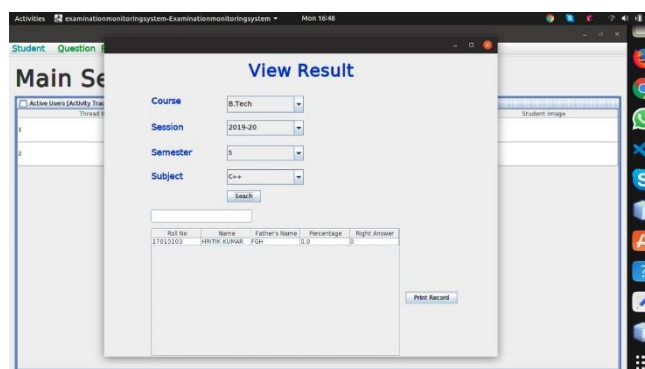


G.    Database design

It is important to make sure the database is well-designed in order to fully use Mysql server technology. The name of the files selected to mark all the tables generated within the database attempts to represent the purpose of the table and thus contributes to a well-designed system. The initial step in the design was to determine which

tables should be built, and what type of information each should store, according to the requirements and specifications of the project.

| Table | Row | sizek b | Type | Overhead |
|---|---|---|---|---|
| Adminselector | 1 | 16 | innodb | -- |
| adminlogin | 2 | 16 | innodb | -- |
| imageadd | 2,632 | 244 | innodb | -- |
| mcq | 14 | 2.5m b | innodb | -- |
| result | 16 | 16 | innodb | -- |
| trfa | 0 | 16 | innodb | -- |
| 8 tables | 2,684 | 2.8m b | innodb | 0B |

**H. Algorithm:**

In this review, student success was operationalized by final course grades. The exam results of the course were extracted from the outcomes of the exam, homework, class engagement, and research project. The mentioned evaluations were accurate and relevant; they were helpful in gauging student ability and producing objective performance measurements. The end grades were summarized from numerical scores to conventional GPA numbers.

**5. Research Methodology**

The individual grades of data set 550 were collected from an Institutional Study and college assessments. The information was collected, analyzed and processed by the instructors.

Using statistics software program to measure particular values. They consequently used these transformed values to reach conclusions and validate the hypothesis.

Efficiency - The data collection and processed to obtain the gap between online learning and traditional learning assessment result's.

No major difference in student output between online and face-to-face exams was found in the chi-square review (F2F). [$\chi^2$ (6, $N = 550$) = 7.325, $p > 0.05$].

The independent sample t-test study showed no significant difference between online and F2F learners in academic performance. [$t_{(145)} = 1.82$, $p = 0.15$].

With respect to class level, the 2-way ANOVA showed no substantial difference in student output between online and F2F participants. The study question was to decide whether there was a significant disparity between the online and F2F students' academic performance.

The research question investigated if there was a difference in student performance between F2F and online learners.

To analyze the results, we used a conventional chi-square technique. For this type of comparison, the chi-square analysis is particularly useful because it allows us to determine if the association between instructional modality and results can be generalized to the broader population in the sample set. The chi-square methodology provides us a hash value that can be used to determine if the two groups have a statistically significant difference.

With F2F learners scoring 69.35 and online learners scoring 68.64, the mean GPA for both modalities is identical. Both groups had SDs that were fairly close.

| | F2F (n=415) | | ONLINE(157) | | STUDENTS(248) | |
|---|---|---|---|---|---|---|
| Variables | M | SD | M | SD | M | SD |

| Grade received | 72 | 12.67 | 71.07 | 13.91 | 3.45 | 1.45 |
|---|---|---|---|---|---|---|

**Table for academic performance(N=550)**

| Comparison | P | Q | R | S | T | Total |
|---|---|---|---|---|---|---|
| F2F | 22 | 125 | 131 | 51 | 76 | 405 |
| F2F % | 54.32% | 81.01% | 84.54% | 61.31% | 69.45% | 78.34% |
| Online | 19 | 38 | 56 | 17 | 34 | 164 |
| Online % | 37.23% | 21.34% | 31.12% | 24.54% | 27.71% | 29.91% |

$X^2 = 7.341$, critical value = 8.5, d.f.= 4.

The study questions attempted to decide whether there was a discrepancy with respect to class rank between online and F2F. Will this performance of online and F2F students differ with respect to class rank?

**Qualitative analysis student success review by process performance**

| Class Rankings | Students data | | |
|---|---|---|---|
| | Mean | N | SD |
| Newman | 1.24568 | 87 | 0.32145 |
| Troy | 1.42315 | 91 | 0.31956 |
| Junior | 1.6 | 37 | 0.48129 |
| Senior | 1.59 | 45 | 0.50123 |

In terms of class level, the findings of ANOVA show that there is no substantial difference in outcomes between online and F2F participants.

| Type | Scale | SS | Df | MS | f | p |
|---|---|---|---|---|---|---|
| F2F | error | 10.50 | 5 | 3.456 | 2.216 | 0.098 |
| | rank | 223.198 | 149 | 1.667 | | _ |
| Online | error | 44.54 | 5 | 14.364 | 10.873 | 0.001 |
| | rank | 539.65 | 399 | 1.456 | | _ |

Recognizing that there is no substantial gap between the two media in academic achievement, institutions of higher education should gradually move away from conventional teaching; they can incorporate internet teaching to acquire a younger demographic globally. If appropriately managed, this transition to Internet learning could lead to a greater population of buyers, more competitive advantages, and more profitability from educational institutions.

It is important to further contextualize the essence of the college of education. Throughout this research, online students may have had more time than their peers to understand the material and generate better outcomes.

**Comparison to other system:**

Unit assessment: The periodical assessment of educational institutions if conducted by regular exam organizing software like mettl, classmaker, amcat are not cost effective and more prone to breach in test ethics. Internal assessments of any institutions are very periodic, if conducted offline will time consuming and also not very cost effective. The online assessment will reduce the time and also provide enough time for students to participate in other extracurricular activities.

Tab Tossing: Academic integrity must be upheld by all students. Academic misconduct is subject to a professor's academic punishment and/or a university administrative sanction. The Student Conduct Code must be familiar to all students. The ethics of exam conduction should be maintained, but are not limited to, institutional gross negligence. Tab tossing is a very common issue during every online examination, to prevent from such unethical violations various software's use safe exam browser which adds another mode and complexity but EMS helps in reducing the complexity and encouraging more clean and ethical process of examination. Tab switching is not allowed during the assessment and for that no additional browser is required.

Modes of proctoring: Online tests are supervised by proctoring technology, which can be categorized into three categories:

1)    Proctoring Live Online- On an online site, a live proctor invigilates test-taking applicants for the duration of the test. If an applicant cheats on the exam, a proctor will automatically disable the examination.

2)    Proctoring Reported - Microphone and computer monitor feeds from representatives are captured during the exam. Supervisors analyze, using metadata, the reported examination, replay, fast-forward, and warning sign suspicious activities.

3)    Audio Proctoring- The audio visuals and desktop sharing feeds of the examinees are also captured during most of the examination. To detect suspicious behavior, a device tracks the broadcasts using enhanced digital data analysis.

The EMS contains inbuilt functions which helps it to pass it through all the mode of parameters of proctoring the examination.

Host in charge: Host is in absolute authority of removal of candidate's immediate removal in case of any malicious activity found during the examination or in pre-recorded session during the assessment.

## 5. Conclusion

The open source programming gives a lot of flexibility to design to design and implement for conducting the exam. The proposed system can be easily implemented by the universities and schools. the system can be subdivided into two divisions user and administrator that is designed to give maximum benefit to the admin and student. The admin has full control over the system   admin can manipulate the data like as add candidate remove candidate add new information on any user account etc. the proposed system is flexible easy to implement and can be used without help of any other system.

## 6. Latent

Most institutes have started to include online education along with well-integrated online test taking systems that can publish the results as soon as you submit your feedback, keeping all these revolutionary changes in mind. It was long predicted that modern modes of education will eat up the traditional methods of teaching or learning such as coursera, khan academy etc. as similarly the telecom operator jobs and reservation or booking agents jobs. This era can be considered as the transition phase of e-learning.

The 21st century worldwide pandemic has encouraged the alternative of the traditional methods and change the direction toward e-learning and virtual examination. There will not be a four-year residential burden for students in the future. In theory, lectures can be captured as multi-media demonstrations that demand human interaction, to be followed at their own pace and space by students.

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