

Online Examination Portal

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Abstract: *E-learning in higher education is exponentially increased during the past decade due to its inevitable benefits in critical situations like natural disasters (e.g. COVID-19 pandemic etc.) and war circumstances. The reliable, fair, and seamless execution of online exams in E-learning is highly significant. Particularly, online exams are conducted on E-learning platforms without the physical presence of students and instructors at the same place. This poses several issues like integrity and security during online exams. To address such issues, researchers frequently proposed different techniques and tools. However, a study summarizing and analyzing latest developments, particularly in the area of online examination, is hard to find in the literature. In this article, a Systematic Literature Review (SLR) of online examination is performed to select and analyze 53 studies published during the last five years (i.e. Jan 2016 to July 2020). Subsequently, five leading online exams features targeted in the selected studies are identified. Moreover, underlying development approaches for the implementation of online exams solutions are explored. Furthermore, 16 important techniques / algorithms and 11 datasets are presented. In addition to this, 21 online exams tools proposed in the selected studies are identified. Additionally, 25 leading existing tools used in the selected studies are also presented. Finally, the participation of countries in online exam research is investigated. Key factors for the global adoption of online exams are identified and compared with major online exams features. This facilitates the selection of right online exam system for a particular country on the basis of existing Elearning infrastructure and overall cost. To conclude, the findings of this article provide a solid platform for the researchers and practitioners of the domain to select appropriate features along with underlying development approaches, tools, and techniques for the implementation of a particular online exams solution as per given requirements..*

Keywords: Online Examination, Online Proctoring, Systematic Literature Review, E- Learning, Exam Creation, Analyze Response.

I. INTRODUCTION

About E-learning has shown promising results during critical circumstances like natural disasters, wars, and pandemics like COVID 2019. For that reason, numerous methodologies and learning management systems have been introduced during the last three decades in order to deliver and promote E-learning successfully [1]. The usage of E-learning is continuously growing as yet, which creates opportunities as well as challenges from online lecture delivery, content management, and handling the online exams effectively. Particularly, different technological advancements with reliable and high-speed internet infrastructure allows the exploitation of advanced image processing and machine learning techniques for the realistic accomplishment of educational activities through E-learning [2]. This urges colleges and universities for the adoption of E-learning as a reliable educational platform. Online examination is an integral part of E-learning solutions for the genuine and fair assessment of students' performance [3]. The design and execution of online exams are the most challenging aspects in E-learning. Particularly, online exams are usually conducted on E-learning platforms without the physical presence of students and instructors at the same place. This creates several loopholes in terms of integrity and security, of online exams. For example, the verification of an examinee is extremely problematic in online environment particularly in the absence of continuous monitoring. Moreover, online exam settings are highly supportive for cheating as thousands of online information resources are accessible to students without any check and balance. Furthermore, it is very difficult to ensure the high speed and continuous availability of internet connection for all students during exams. The development of effective question banks, impartial setting of exam papers and marking of descriptive questions are few more challenges in online exams. All aforementioned issues eventually compromise the integrity, security, and objectivity of online exams. To

confront the concerns accompanied by online exams, researchers frequently propose different solutions. Particularly, the online exams features like examinee verification [4], abnormal behavior detection, security of overall system, question bank generation etc. are highly important. To improve such online exams features, researchers utilized different development techniques like machine learning / artificial intelligence [5], formal methods etc. Moreover, different datasets have been developed for the evaluation of online exams techniques. Furthermore, several tools have been developed (e.g. Secure Exam Environment [6] etc.) for the efficient online exam execution. The proposed techniques and tools certainly improved the integrity, security and fairness of online exams. In literature, there exist several studies [1], [7] where intensive reviews and surveys are performed for the investigation of E- learning as a whole. On the other hand, there are few attempts to analyze particular aspects of online examination like user authentication [4], relationship to student learning [8] etc. Furthermore, a latest systematic review is also available [9] where significant online exams themes like student performances, perceptions, anxiety level etc. are thoroughly investigated. However, a study systematically analyzing and summarizing across-the-board online exams developments is hard to find in the literature to the best of our knowledge. As online exam is a critical part of E-learning, it is a need of the day to investigate and summarize the latest online exams progress like important features, underlying development techniques, tools, datasets and global adoption factors is hard to find in the literature to the best of our knowledge. As online exam is a critical part of E-learning, it is a need of the day to investigate and summarize the latest online exams progress within a single study. To achieve this, a Systematic Literature Review (SLR) [10] is

II. LITERATURE SURVEY

Name: Students Views On Online Examination Practices In Universities

Author: Opong Samuel Rosemond Yeboah

Description: Much attention has been given to online examination practices in this twenty first century as the growing population and education needs require associated technologies to bring about the achievement of the desired educational 23 goals of nations. According to Kotwal, Bhadke, Gunjal, & Biswas online examination system is a software solution, which allows any industry or institute to arrange, conduct and manage examinations via an online environment.

Name: British Journal Of Education

Author: Andrea Nardi, Maria Ranieri

Description: Classes along with the growing number of students to be tested for final examination raise unprecedented challenges relating to the management, monitoring and evaluation of learning. Technology may provide some solutions that deserve to be investigated. This paper explores the potentialities and limitations of Computer- Based Testing (CBT), specifically BYOD e- test, compared to traditional Paper-Based Testing (PBT) to verify whether, and to what extent, an electronic mode of assessment can become a suitable alternative to PBT.

Name: International Conference on Recent Trends in Artificial Intelligence, IOT, Smart Cities & Applications.

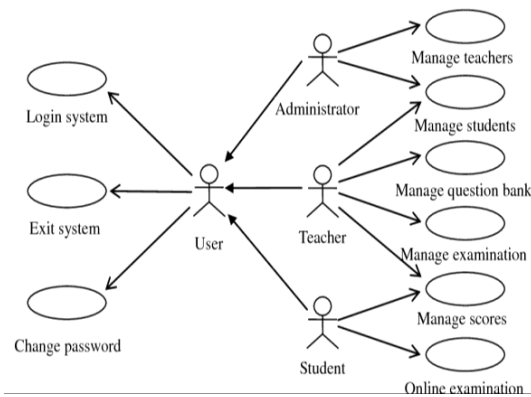
Author: Anjali Choubey, Avinash Kumar

Description: Online examination system is a web-based examination system where examinations are given online. Either through the internet or intranet using computer system. The main goal of this online examination system is to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but also obtain fast and accurate results.

III. EXISTING SYSTEM

It is a free online tool that allows you to collect information easily and efficiently. With Google forms you can create surveys in few minutes to ask your clients or collaborators information about your products or service. Google forms also provide us the services of quizzes and examinations. In existing system it requires more bandwidth to give a test.

IV. PROPOSED SYSTEM



With Online Examination Portal we propose a system wherein we provide the examinee with quizzes and exams that have time duration and are secure for the malpractices that are going on in the existing system. Here the examinee won't be able to switch the tabs during ongoing exam and won't be able to copy the text written over there. The Examiner gets flexibility in taking the exams at the time favorable to them. This would require a minimum internet speed to upload the question from the examiner side and the examinee on the other hand too requires the same to answer the questions.

4.1 Advantages of Proposed System

1. Provides more facilities to reduce malpractices.
2. Examination can be conducted on a slow internet connection also.
3. Proposed system is useful for all the faculty members to create exams in a very easy way.
4. In proposed system tab switching is monitored.

V. CONCLUSION

Using an open source language gives us more flexibility, but at the same time it required more time to be programmed. The proposed Online Examination System (OES) can be easily adopted by universities and institutions in order to make the exam more secure and more flexible. The system is subdivided into two main subsystems (student and administrator) that are designed to give the system maximum benefit by demonstrating carefully each subsystem service. The administrator's functions are clearly identified to be able to manipulate user's information such as add (register), delete users and managing the exam materials and content such as add, delete questions, Thus the proposed system is easy and flexible because for future maintenance and development because each subsystem can be handled separately without influence on other system.

VI. FUTURE WORK

- Online Examination System is widely used as compared to other exams.
- Online examination system can be used in private institutes as well as educational institution.
- As it is user friendly web base application it can be used anywhere and anytime.

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