

ONLINE EXAM MANAGEMENT SYSTEM

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Abstract: *Build a web application connected with a database, where the Students details, question details and exam results are stored. Using Keyword Matching technique, this system will check the descriptive answer. It evaluates both objective and descriptive questions. Using this system, students can attend their exam through online for both types of questions. Students can select their subjects in which subject they are going to write the exam by online. They are going to attend both object type of exam and descriptive type of exam. In descriptive exam, our system is going to check the student's answer using answer key based on matching words are presented or not in the answer sheet. When we use this application, students can write their exams through online and without paper work. Whenever students want to write the exam, they can enter into this application by giving their endorsement details to approve. It reduces burden and cost of time for the staffs during paper valuation.*

Keywords: *Keyword Matching, Descriptiv, Objective, Endorsement, answer key*

I. INTRODUCTION

Today, Online Examination System is considered a fast developing examination method because of its accuracy and speed. It is also needed less manpower to handle the examination. Almost all organizations today, are managing their exams by online examination system, since it reduces student's time in examinations. Organizations can also easily monitor the progress of the student that they give through an examination. As a result of this, the result is calculated in less time. It also helps diminishing the need for paper. According to today's requirement, online examination system is

significantly important to the educational institution to prepare the exams, saving the time and effort that is required to check the exam papers and to prepare the results reports. Online examination system helps the educational institutions to monitor their students and keep eyes on their progress. Until today the preparing for exams and preparing the results was performed manually, this required more time to complete.

Online examination is an integral part of E-learning solutions for the genuine and fair assessment of students' performance. 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.

II. LITERATURE REVIEW

Tate, L. (2002). "Using the interactive whiteboard to increase student retention, attention, participation, interest, and success in a required general education college course." Retrieved January 30: 2007.

CBTS: Fagbola et. al. (2013) developed a Computer Based Test System (CBTS). CBTS is a web-based online examination system developed to address issues such as lack of timing flexibility for automation candidates log-off upon expiration of allowed time, result integrity, guaranty, stand-alone deployment, need for flexibility, robustness, designed to support the examination processes and overcome challenges framing the conduct of examination, auto-marking, auto-submission, and generation report of examination result.

Tallent-Runnels, M. K., et al. (2006). "Teaching courses online: A review of the research." Review of educational research 76(1): 93-135.

SIETTE: Guzman and Conejo (2005). Proposed an online examination system called System of Intelligent Evaluation using Tests for Tele-education (SIETTE). SIETTE is a web-based environment to generate and construct adaptive tests. It can be used for instructional objectives, via combining adaptive student self-assessment test questions with hints and feedback. SIETTE supports secure login and portability features. On the other hand, the other features: resumption capability, multi-instructor, random question selection, random questions distribution and random choices distribution are missing

Downing, D., et al. (2010). Dictionary of computer and Internet terms, Barron's Educational series.

EMS: Rashad Et. Al. (2010) proposed a web-based online examination system called Exam Management System (EMS). EMS manages the

examination and auto-grading for student's exams and supports conducting exams, collects the answers, auto mark the submissions, and produce the reports for the test. EMS supports secure login, multi-instructor, and portability features. However, the other features: resumption capability, random question selection, random questions distribution, and random choices distribution are missing.

N. A. Karim and Z. Shukur, "Review of user authentication methods in online examination," Asian J. Inf. Technol., vol. 14, no. 5, pp. 166175, 2015.

To confront the concerns accompanied by online exams, researchers frequently propose different solutions. Particularly, the online exams features like examinee verification, abnormal behavior detection, security of overall system, question bank generation etc. are highly important.

F. A. Alrubaish, G. A. Humaid, R. M. Alamri, and M. A. Elhussain, "Automated detection for student cheating during written exams: An updated algorithm supported by biometric of intent," in Proc. Int. Conf. Comput. Springer, 2019, pp. 303311.

To improve such online exams features, researchers utilized different development techniques like machine learning / artificial intelligence, formal methods etc. Moreover, different datasets have been developed for the evaluation of online exams techniques.

G. Frankl, P. Schartner, and G. Zebedin, "The 'secure exam environment' for online testing at the Alpen-Adria-Universität Klagenfurt/Austria," in Proc. World Conf. E-Learn. Corporate, Government, Healthcare, Higher Educ., 2011, pp. 498505

Furthermore, several tools have been developed (e.g. Secure Exam Environment etc.) for the efficient online exam execution. The proposed techniques and tools certainly improved the integrity, security and fairness of online exams.

B. Kitchenham, "Procedures for performing systematic reviews," Keele Univ., Keele, U.K., Tech. Rep. TR/SE-0401, 2004.

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).

III. METHODOLOGY

Keyword Matching Technique

Online Examination may be a total end-to-end arrangement to cover all aspects of the online examination system. The fundamental objective of creating this project is: Provides total site arrangement, counting part enrollment, giving tests, storing of results. Complete web-based administration. The online examination system can naturally add the marks allocated in each address to decide the overall stamp for the test. The system will be able to calculate the examination marks and display the result quickly after completing the exam. Keywords extraction, Weighting keyword, Feature matching and score generation done for objective question and answers.

Java Server Pages

Java Server^(TM) Pages is a simple, yet powerful technology for creating and maintaining dynamic-content web pages. Based on the Java programming language, Java Server Pages offers proven portability, open standards, and a mature re-usable component model.

The Java Server Pages architecture enables the separation of content generation from content presentation. This separation not only eases

maintenance headaches, it also allows web team members to focus on their areas of expertise.

Access Models

A Java Server Pages file may be accessed in at least two different ways:

1. A client request comes directly into a Java Server Page.

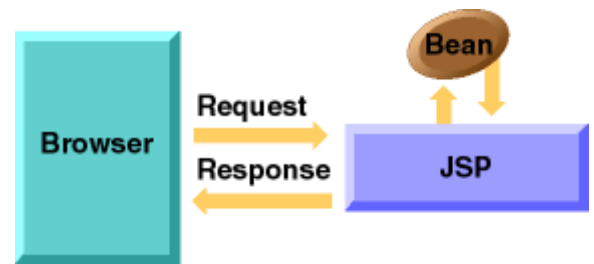


Fig1: JSP Architecture

2. A request come through servlet

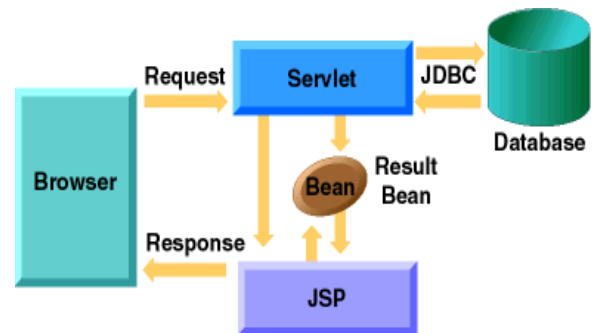


Fig2: Servlet Architecture

IV. EXPERIMENTAL RESULTS AND DISCUSSION

Administrator

Administrator is a main controller of this application. Here, Administrator is a responsible person for registering the details about the student who wants to join with this application to attend their examination by online. After students are registered by administrator, students log into this application to attend the exam; otherwise they cannot log into this application. He also registers

particulars about the questions from the particular subject. Finally, admin can view information about registered students, registered question details and result details.

which he will give question, answer and key points to identify the answer which is supplied by students during examination. Administrator also assigned and declared total number of questions for the exam to both category.

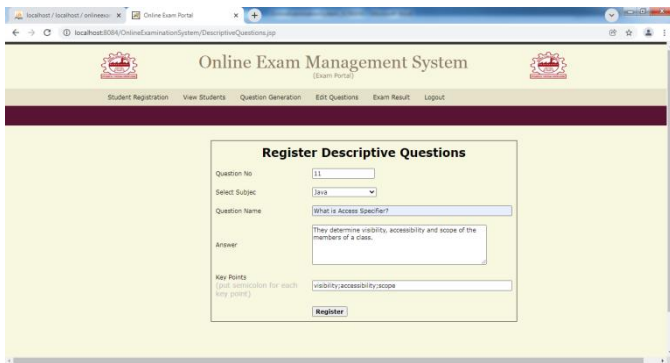


Fig. 3. Register Descriptive Questions

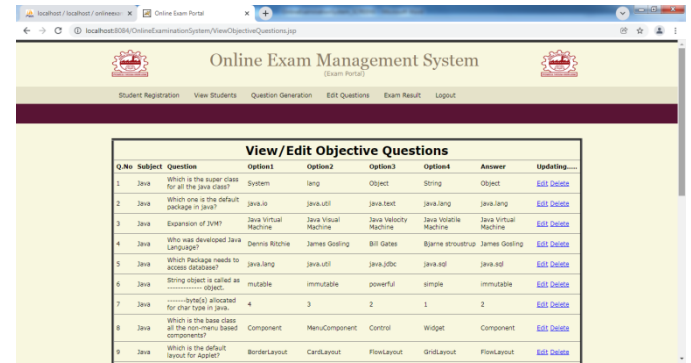


Fig. 5. View Objective Question

Student Registration

This module is implemented and evaluated by administrator of this application. Administrator has only rights to register details about the student who are studying in the college as well as the students who are going to attend the online examination through this application. In which, administrator will give the information about the students such as register no, name, degree, year of studying, address details and contact details. He also provides the password to all the students; this password can be updated by students in future if they wish to modify.

Task of Examination

By this module, students can enter into this application by giving their credentials such as register number and password. Once they are declared as authenticated and authorized to this system, they log into this portal. After that, they can select the subject in which they are going to write online exam. There are two types of questions will be presented to attend by students. Each objective questions having one mark while in favor of descriptive questions, two marks obtained for each questions.



Fig. 4. Student Registration

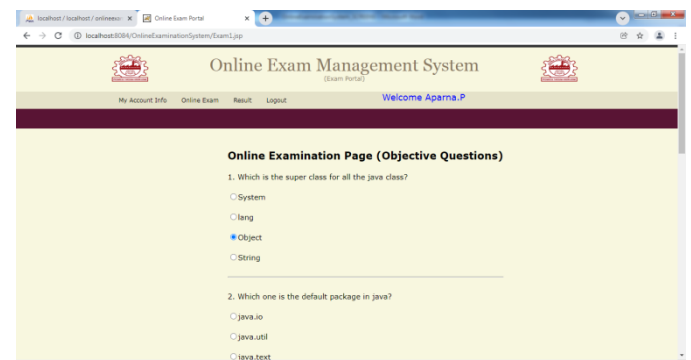


Fig. 6. Objective Question Exam

Question Generation

In this module, administrator will select the type of questions which is either objective or descriptive. After selection, he will prepare the questions with multiple choices for objective questions; he also generate descriptive questions in

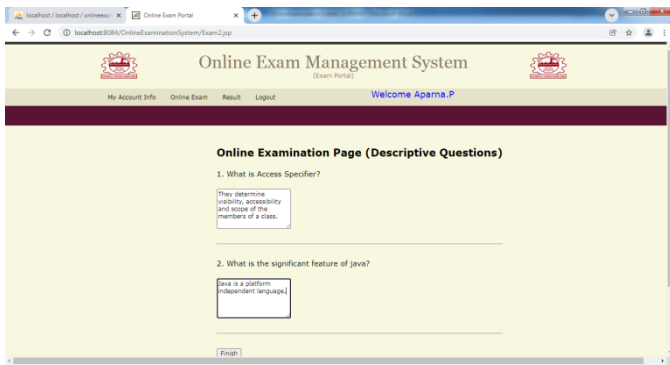


Fig. 7. Descriptive Question Exam

View Exam Result

During examination, behind scene it will calculate the marks based on answer. For descriptive questions, based on key points it will evaluate the marks. After the completion of exam, students can view their results instantaneously. They can also view results of all the exams which are attended by them. Administrator can view results of all the students who are attended the exam.

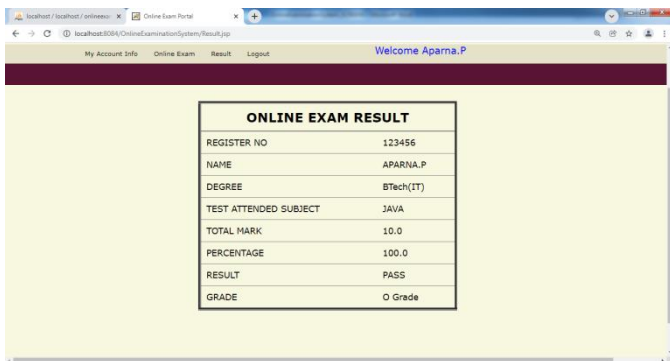


Fig. 7. OnlineExam Result

V. CONCLUSION

It can be seen by conducting tests using such an algorithm at regular intervals that one can determine the trend in the marks obtained by different students and we can give them an analyzed report on the different subjects they need to focus on for which they are weak. With the existing data, we can also implement a predictive machine learning model on the data so that it can predict marks that the students will score in the

future. It is observed that students mainly study those subjects that are placement oriented or which are required for placement purpose only. While students neglect the subjects of their core domain. Deep knowledge in the domain is required as it is of no use to study if you do not have core domain knowledge. So it can help students get quality knowledge as everything will be digital and there will be no cumbersome process of conducting a pen-paper test. Also, answers are evaluated at that moment itself and the student can see the solutions and can correct the mistakes or errors committed while appearing for the exam

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