Web Based Test System for Online Examination

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Abstract

The software solution online test system allows a specific company or institution to organize, administer and conduct exams through an online setting. This can be achieved via the Internet, a local area network and Intranet. Some of the difficulties that labor-intensive checking schemes face are postponements in processing results, storage problems, filtering records is a difficult task. The probability of losing archives is high, and it is not easy to find records. System maintenance is also very tough and time consuming, labor intensive as well. We use the System Development Lifecycle (SDLC), which is a conceptual model used in project supervision which describes the stages of an information system development project. PHP, JavaScript and other web development frameworks are used to implement a project due to its flexibility and simple syntax. MySQL is used as a database management system.

Keywords: SDLC, conceptual, labor-intensive, online test system.

1. Introduction

The online exam platform is a technological way to streamline exam activities such as constructing exam templates using question banks, setting exam timers, objective question sections, conducting exams using a PC or mobile devices without using paper. The Online Exam System is a lucrative and scalable way to alter

outdated manual paper exams to online and eco-friendly. Candidates can give the exam from PC, a laptop or mobile device with a browser. Exam results can be

obtained immediately by multiple choice questions. The platform is used for assessments, psychometric tests and personality tests, entrance exams, aptitude tests, job assessment tests. The platform gives the flexibility to define a grade with various qualities such as negative grade, random questions, inconstant grade. The user will be able to conduct the assessment using a PC, a mobile phone or any other device. Distance learning will play a significant role in the field of education in the future, which will also contribute to the further development of the technology of the online exam system with broad prospects [1].

2. Literature Survey

Before embarking on the plan and application of this project, we studied various online exam platforms. This research assisted us learn a lot about the functionality of several online exam systems. AMCAT, eLitmus, CoCubes online examination, are some of the online exam management systems used around the world. We studied each system and noticed some of the features of them, which are below:

2.1 The AMCAT System Features

The test can consist of questions from diverse themes / collections.

"Serial number" is provided for every question according to the topic. "Serial number" can be used to find and choose questions. Specific questions can be marked for inclusion / exclusion from the test. The online exam scheme is appropriate for conducting surveys. The online exam structure can automatically add grades for every question to calculate the overall grade. The order of questions can be shuffled. Distraction / response choices for each question can be shuffled. Students may or may not navigate through the exam (i.e., forward or backward), depending upon the type of test. User is able install. For a test, tools / navigation keys can be nominated and these keys can be enabled / disabled for each question / test, such as back / forward keys. Users can be forced to answer all questions at least once before exiting the test. Users may be allowed to terminate the exam before they have answered all the questions. Users may set a fixed activation period for the exam.

2.1.1 Comments

- The system limits the number of times a candidate can attempt a test / exam.

- In case of any connection issue, students can continue the test / exam from the last question they answered.

2.2 eLitmus online examination

eLitmus uses performance response to constantly improve test self-confidence. A subset of eLitmus customers share with eLitmus a non-software skill valuation of selected candidates. In terms of dependability, typical enterprise tests shuffle questions at random to create sets of questions. The most basic research shows that exam scores can vary from set to set if questions are randomly mixed. Theoretical methods such as checking the dependability of retesting, etc., have also been found to be insufficient in completely arbitrarily generated tests. In addition to using such theoretical methods, eLitmus also uses its own statistic, which also takes into account the consequences of work. All essential formulas are offered in the questionnaire. In addition, our team continuously monitors the tricks taught in educational organizations. Usually, the test format or questions for the company are very predictable. The candidate gets sufficient time to prepare for such tests and

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passes them with ease. Even IIT recently determined that the long methodical

preparation of candidates for "exams" is the reason for the decline in the value of their admission. The idea is to minimalize the advantage of test-takers who have been over-trained without actually improving their core abilities.[6]

2.2.1 Comments

- The test format or questions are very predictable.

- Exams are taken through a browser; a plugin is not required.

2.3 Online examinations by CoCubes Features

The CoCubes test is an online written test exam managed by CoCubes. This test helps new arrival get career breaks and helps companies find candidates easily without having to go through a hectic employment process. These employing companies count the scores on the CoCubes test, and therefore, chances are you might even get a letter from the company over the phone for an interview. CoCubes is India's largest appraisal and recruiting platform. It conducts assessments to determine job opportunities in all areas from programming to plumbing. CoCubes stands for Connecting Colleges Companies. The company was founded by the Bombay Institute of Technology alumni Harprith and Vibhor in 2007. CoCubes has access to over a million candidates through its platform. They conduct over 3 million valuations annually in over 250 cities. The CoCubes PRE-ASSESS test assesses students on a variety of skills, helping them understand their strengths and weaknesses. This makes colleges partner in the campus recruitment process. Helps colleges design programs that meet industry standards and provide one-to-one student learning. Overall, it improves student employment opportunities for better campus placement. CoCubes' PRE-ASSESS score is used by companies to recruit students during campus placement.[7]

2.3.1 Comments

- It's not free; any user of this scheme will have to pay a certain sum to purchase it.

- This is not school definite, so there will be no race between different users of the same scheme that will not lead to enhancement.

Some features of the online exam:

1) Questions can be multiple, true-false, short, multiple answers.

2) The online exam system can robotically add grades for each question to determine the overall test score.

3) You can set a time limit for the test.

4) The sequence of questions may be random.

5) Students may be allowed to exit the test before they have answered all the questions.

6) The result is displayed instantly.

2.4 Analysis of the Existing System

Some institutes still use the manual system of writing tests / exams. In the physical method, exams are taken in classrooms with appropriate supervision of candidates. The association of the exam is a special type of work in which many aspects of a different

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nature play a vibrant role. Its difficulty increases with the number of exams during a

session. Growing number of examinees and test takers, the number of hubs involved, the existing staff to carry out the preparatory work, the diverse types of materials required, coordination with various exterior agencies, economic and time constraints, etc. are some of the factors that are considered in finalizing the plan for organizing exams. From the very preliminary stage of recruiting scholars to the last stage of announcing the results, the various works must be performed with due care and superiority.

2.5 Disadvantages in the current Examination System

The exam and the problems related with it are today in the center of attention in the field of teaching in our nation. The announcement of the results also takes a longtime, so students do not work for months. Some of the disadvantages of the current examination scheme are as follows:

Students from diverse fields must attend the university as every request regarding questionnaire completion, exam date, results, a program, etc. is accepted by the student personally, resulting in the loss of his / her valuable time and money. Students have to wait in lines to turn in their exam forms, post a deposit after passing the exam, and check the status of their grades. Even sometimes they are unable to graduate out of state. Manual validation system primes to errors, increased time delay, inefficiency and loss of treasured possessions. In the existing system, the work is repeated, the same information is written over and over again by various divisions. In the current system, management of student records is very monotonous. Finding student records in physical journals, keeping archives, reconciling. Takes a lot of time.

The manual exam system does not check student privacy and data. Sometimes fake diplomas are prepared, which worsens the name of the institution. In the current system, all information about users is stored in papers, catalogues, since the number of records increases every year, registers accumulate, and sometimes we can see employees sitting in these registers.

3. The Proposed System

To solve the problems that arise when writing exams by hand, there is need of a computerized system that will do all the work. We will offer a software that will provide flexible working conditions, ease of use, and reduce time spent on reporting and other paperwork. These exams are conducted on an open book principle. The candidate is given a restricted time to attempt the questions, and after this period, the portal is automatically turned off and the answers are directed to the assessor. The assessor will assess the answers automatically or manually, and the results will be emailed to the user or posted on the website. Today, many establishments around the world successfully conduct online exams and publish the grades online. The main benefit is that it can be done for distant candidates and answer scoring can be fully automatic for all questions, and other essay questions can be graded physically or using a computerized system, reliant on the nature of the question. During the test phase, the test taker takes the exam under continuous supervision from our side to sense fraud in real time [3].

In addition, online exams can be taken at any time and do not require higher costs than the traditional exam scenario, since no paperwork is required (for example, printing exam papers, preparing documents for admission, etc.). The cost of the online exam will be nearly zero once the online test system is set up and if care

costs are not taken into account. As eLearning systems for students become more

and more attractive in the field of education, this article proposes an approach to effective grading of word problems with a given grading scheme [4]. Different jobs such as inspection of exam forms, assigning roll numbers, preparing lists, scoring tables and scoring pages are preferably computer-assisted Given the increasingly intricate nature of the exam and how to deal with the condition, it is considered appropriate to apply contemporary management methods and implement a systems method. Whether there is any department that does not implement this knowledge. To ensure effectiveness, transparency and dependability, academies must also adopt this new technology to manage the test system. Some of the profits of an integrated automated exam system are well-defined as follows:

3.1 Advantages of the Projected System

Full automation of the system will simplify the unification of all units / divisions / sectors of the examination corps underneath one umbrella. This will increase the productivity of staff, who, by chance, perform many procedures physically. This system will simplify the process of matching examination prices, issuing earnings to large numbers of scholars, and tracking cash flows. Learning is an important intangible object that is difficult to measure. Further learning is subjective and difficult [5]. With the introduction of the new scheme, a centralized, safe and reliable database of applicants participating in the exam will be created without duplicate records. In a system with a networked environment, the various divisions of the examination department are connected in such a way that they can all exchange relevant information without duplicating the database at different stages. This will lead to an enhancement in the quality of facilities provided to students / interested departments by introducing an automated windowing scheme and providing information online for the relevant sections of the Campus. There will be less human interference in processing the results by systematizing all relevant actions. Full automation of the examination structure will lead to operative monitoring of the examination procedure by the authorities concerned. The goal of this project is to develop a comprehensive inference system that can help an instructor monitor student attending an online exam [2].

Using a relational database managing system to store student data will help minimize redundancy in the database and maintain data consistency, integrity, and security. Once student information is presented in a database, many academic profits can be obtained in relations to statistical examination of results pertaining to different faculties, courses, social groups, colleges and different areas of government and nation.

3.2 Justification of the proposed Study

During the feasibility study, we went through several stages which are defined below: How reasonable is the proposed system? This was examined by comparing the following aspects with the present system and the planned system.

Cost - The cost required in the planned system is relatively low compared to the current system.

Effort - Compared to the current system, the projected system will provide an improved working atmosphere in which there are easy operations and the effort required is relatively less than the current system.

Time - Also, the period required to generate results or perform any other work will be relatively less than the present system. Searching and modifying the records will

Workforce - The current scheme has a number of employees required to complete the job greater, while the proposed system will need significantly fewer employees.
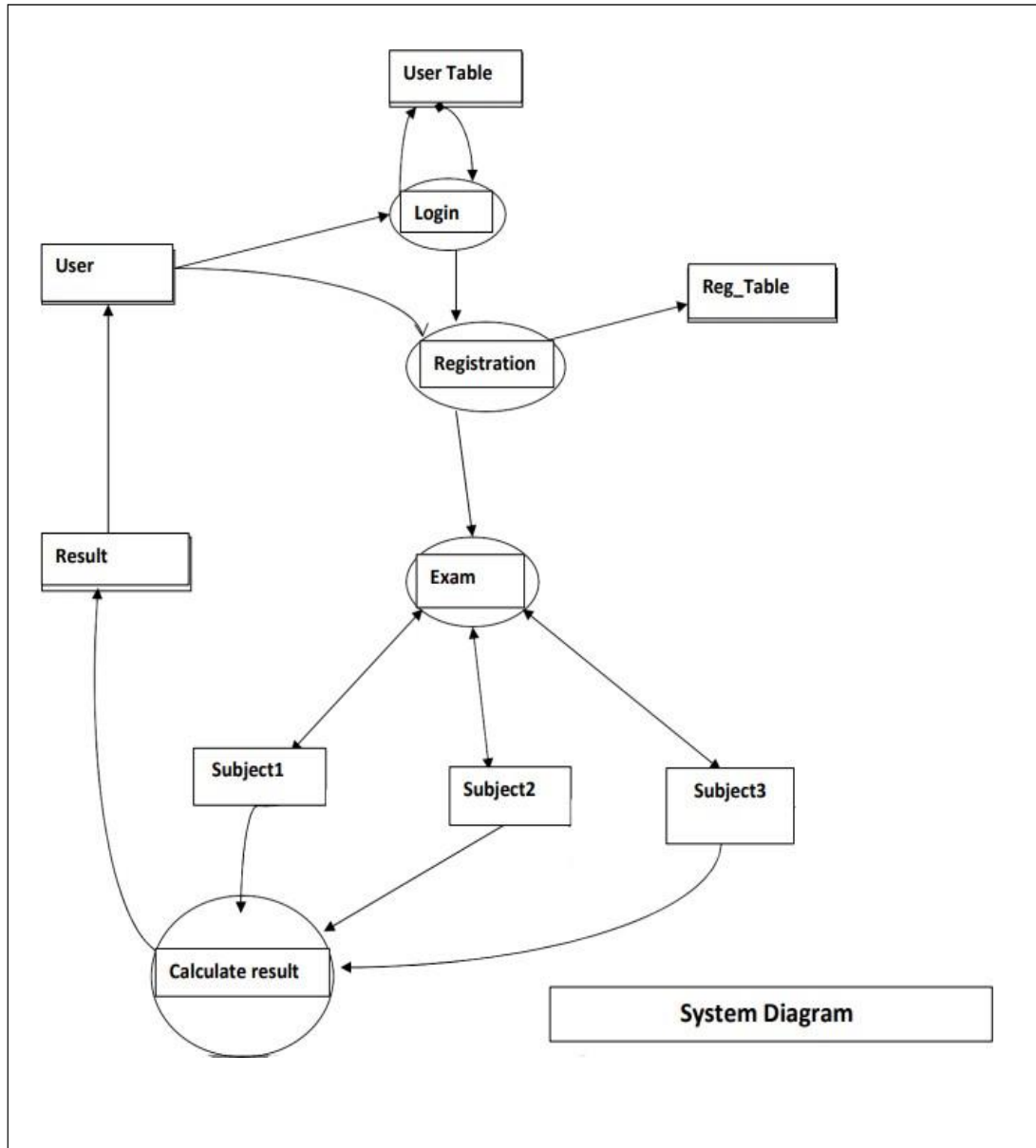
4. System Design

Figure. System Design

5. Acknowledgments

6. References

6.1 Conference Proceeding

[1] Zhang Yong-sheng, Feng Xiu-mei, Bao Ai-qin, "The research and design of online examination system," in 7th International Conference on Information Technology in Medicine and Education, Huangshan, China, 2015, 978-1-4673-8302-8.

[2] Swathi Prathish, Athi Narayanan S, Kamal Bijlani, "An intelligent system for online exam monitoring," in International Conference on Information Science (ICIS), Kochi, India, 2016, 978-1-5090-1987-8.

6.2   Journal Article

[3] Yousef Atoum, Liping Chen, Alex X. Liu, Stephen D. H. Hsu, and Xiaoming Liu, "Automated online exam proctoring." ACCEPTED WITH MINOR REVISION BY IEEE TRANSACTION ON MULTIMEDIA, DEC 30, 2015, 1520-9210.

[4] P.A.A Dumal, W.K.D Shanika, S.A.D Pathinayake, T.C. Sandanayake, "Adaptive and automated online assessment evaluation system," in 11th International Conference on Software, Knowledge, Information Management and Applications (SKIMA), Malabe, Sri Lanka, 2017, 978-1-5386-4602-1.

[5] Naveed Azim, Imran Naqvi, Dr. Kashif ur Rehman, "Online examination system and assessment of subjective expression," in International Conference on Education Technology and Computer, Singapore, Singapore, 2009, 978-0-7695-3609-5.

6.3   Online Article

[6] "pH   Test: Leading   the   way,"   [Online].   Available: https://www.elitmus.com/ph_test/more_about_pH_test. [Accessed: Nov. 3,2020.]

[7] "CoCubes   Employability   Test   All   You   Need   to   Know", [Online].Available:https://www.jagranjosh.com/articles/cocubes-employability-test-all-you-need-to-know-1530263456-1#:~:text=Aptitude%20Module%3A%20The%20Aptitude%20module,Analytical%20Reasoning%20and %20Numeric%20Reasoning. [Accessed: Nov. 3,2020.