

Automatic Answer Sheet Checker

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ABSTRACT

Nowadays online tests and examinations are becoming popular to reduce the burden of the examination evaluation process. The online exams include either objective or multiple-choice questions. However, subjective-based questions and answers are not involved due to the evaluation process complexity and efficiency of the evaluation process. An automatic answer checker application that checks the written answers and marks the grades similar to a human being will be more helpful for universities and academic institution. The current online exams are conducted and evaluated on machines which can contain only objective questions and there is no provision to extend these into subjective questions. In order to overcome the problems, Artificial Intelligence (AI) based software application is built to check subjective answers by allocating marks to the user automatically, by checking the template answers in the database and the answers written by the user.

The proposed system is based on keyword search algorithm that searches keyword provided by admin in the database and stemming algorithm that is used for linguistic normalization to evaluate. As a result of this artificial intelligence-based online answer evaluator, the evaluator's time and energy can be conserved with improved work efficiency.

Keywords : Artificial Intelligence, AI, Software, Database, Keyword Search Algorithm, Stemming Algorithm

I. INTRODUCTION

The answer sheet is widely used for student performance in exam in school and college. The main approach to evaluation is efficient and reliable. An automatic answer sheet checker checks the answer sheet and written mark as similar to human being. This software is built to check the subjective answer. The system consists of in build artificial sensor that verify

answer and allocate marks according as good as human being accessing large number of handwritten answer sheet is relatively time-consuming task there is an intense need of speed up and enhance a process of rating handwritten words while maintaining cost effectiveness. It is relatively inexpensive answer written by hand. The primary means of testing the student on state assessment of reading comprehension motivation of these system is mainly always we have

seen the online OMR sheet checker or objective answer sheet checker but the main goal is to develop subjective answer checker. Artificial Intelligence is an ability to design smart machines or to develop self-learning software applications that imitate the traits of the human mind like reasoning, problem-solving, planning, optimal decision making, sensory perceptions etc.

II. METHODS AND MATERIAL

A. Methods

1. Keyword Search Algorithm

Keyword searches have been defined as a method of searching for documents which possess keywords specified by a user, a search using a full text search filter whereby a search term list is applied to a full text index to find responsive files, and a search for documents containing one or more words that are specified by a user.

If there is a keyword such as e-discovery, the search would be for that term and only that term. If it is a straight keyword search, it would only pick up e-discovery and not electronic discovery, eDiscovery, or E Discovery. There are limitations with basic keyword searches, as they can fail to uncover variants of a word. Furthermore, if there is a typo or a misspelled word such as edisocvery, or an abbreviation such as eDisco, basic keyword search technology will miss these search terms.

2. Stemming Algorithm:

A stemming algorithm is a process of linguistic normalization, in which the variant forms of a word are reduced to a common form, for example, connection connections

connective ----> connect connected
connecting

It is important to appreciate that we use stemming with the intention of improving the performance of IR

systems. It is not an exercise in etymology or grammar. In fact from an etymological or grammatical viewpoint, a stemming algorithm is liable to make many mistakes. In addition, stemming algorithms - at least the ones presented here - are applicable to the written, not the spoken, form of the language.

3. PageRank Algorithm:

PageRank (PR) is an algorithm used by Google Search to rank web pages in their search engine results. PageRank is a way of measuring the importance of website pages. According to Google, PageRank works by counting the number and quality of links to a page to determine a rough estimate of how important the website is. The underlying assumption is that more important websites are likely to receive more links from other websites. It is also used to rank keywords based on how important it is.

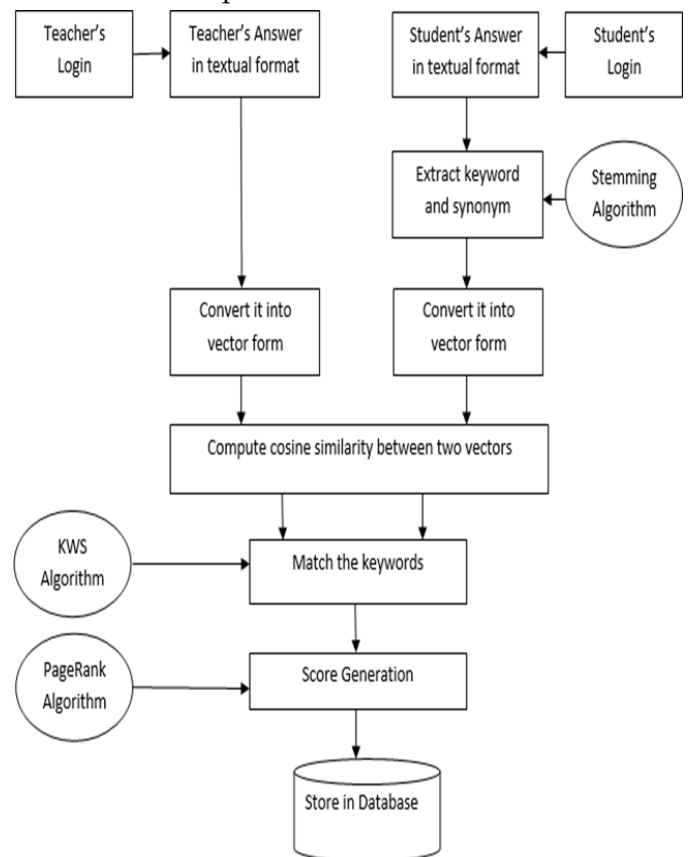


Figure 1. System Architecture

B. Materials

Software Requirements:

1. Processor – i3
2. Hard Disk – 5 GB
3. Memory – 1GB RAM

Hardware Requirements:

1. Windows Xp , Windows 7(ultimate , enterprise)
2. Visual studio 2010
3. SQL 2008

III. RESULTS AND DISCUSSION

Based on the databases, Artificial Intelligence needs to be installed. Incorporating AI into complex systems poses numerous challenges to traditional test and evaluation methods. As AI handles varying decision levels, it needs conference to ensure testable, repeatable and auditable decisions. Additionally, we need to understand failure modes and failure mitigation techniques. The key challenges embedded-AI exacerbates, the themes based for how traditional and evaluation will evolve to provide AI system assurance.

Result:

The current manual evaluation takes about 60 seconds to evaluate an answer whereas the proposed system takes about 15 seconds to evaluate an answer. The proposed system is 3 times more time efficient as compared to manual answer evaluation system. The proposed system is about 75 - 87.5% accurate with comparison to manual system. The proposed system is about 75 - 87.5% accurate with comparison to manual system. The proposed system completely eliminates the human effort and time to evaluate an answer.

Proposed system can evaluate 5760 answers in a day where as a human working for 8 hours can evaluate 480 answers a day. Hence, proposed system can evaluate 11 times more answers compared to that of manual evaluation system.

IV. CONCLUSION

The answer sheet is widely used for student performance in exam in school and college. The main approach is to evaluation is efficient and reliable. An automatic answer sheet checker checks the answer sheet and written mark as similar to human being. This software is built to check the subjective answer.

Examinations play a very important role in colleges, universities and various other educational institutes. Many educational institutes have their examinations conducted online, but these exams only contain multiple choice questions which are providing to be very efficient in testing the student's aptitude, on the other hand fail to measure the conceptual knowledge a student or learner must possess. Therefore, subjective answer must be included in online examinations.

The proposed system evaluates the answer based on the keywords. By comparing the standard answer and the student's answer marks is obtained if the student utilizes all the keywords mentioned in the standard answer. Hence the said system could be of great utility to the educators whenever they need to take a quick test for revision purpose, as it saves them the trouble of evaluating the bundle of papers.

V. REFERENCES

- [1]. A. Ghanbarpour and H. Naderi, "An Attribute-Specific Ranking Method Based on Language Models for Keyword Search over Graphs," in *IEEE Transactions on Knowledge and Data Engineering*, vol. 32, no. 1, pp. 12-25, 1 Jan. 2020, doi: 10.1109/TKDE.2018.2879863.
- [2]. A. Ghanbarpour and H. Naderi, "A Model- based Keyword Search Approach for Detecting Top-k Effective Answers," in *The Computer Journal*, vol. 62, no. 3, pp. 377-393, March 2019, doi: 10.1093/comjnl/bxy056.
- [3]. C. Roy and C. Chaudhuri, "Case Based Modeling of Answer Points to Expedite Semi-Automated Evaluation of Subjective Papers," 2018 IEEE 8th International Advance Computing Conference

- (IACC), Greater Noida, India, 2018, pp. 85-90, doi: 10.1109/IADCC.2018.8692133.
- [4]. S P. Pakray, S. Pal, S. Bandyopadhyay and A. Gelbukh, "Automatic Answer Validation System on English language," 2010 3rd International Conference on Advanced Computer Theory and Engineering(ICACTE), Chengdu, China, 2010, pp. V6-329-V6-333, doi:10.1109/ICACTE.2010.5579166.
- [5]. V. Hristidis, Y. Papakonstantinou, "Discover: keyword search in relational databases," Proc. of the 28th international Conference on Very Large Data Bases, VLDB Endowment, Hong Kong, China, pp. 670-681, 2002.
- [6]. S. Agrawal, S. Chaudhuri, G. Das, "DBXplorer: A System for Keyword- Based Search over Relational Databases," Proc. of the 18th International Conference on Data Engineering, IEEE Computer Society, pp. 5-16, 2002.
- [7]. C.-S. Park, S. Lim, "Efficient processing of keyword queries over graph databases for finding effective answers," Information Processing & Management, vol. 51, no. 1, pp. 42-57, 2015.
- [8]. J. Coffman, A.C. Weaver, "An Empirical Performance Evaluation of Relational Keyword Search Techniques," IEEE Tran. on Knowledge and Data Engineering, vol. 26, no. 1, pp. 30-42, 2014.
- [9]. T. Roelleke, "Information Retrieval Models: Foundations and Relationships," Synthesis Lectures on Information Concepts, Retrieval, and Services, Morgan & Claypool Publishers, pp. 1-163, 2013.
- [10].A. Dhokrat, G. Hanumant R, C. Namrata Mahender, "Automated Answering for Subjective Examination", International Journal of Computer Applications, Volume 56, No.14, pp: 14-17, October 2012.
- [11].Sheeba Praveen "An Approach to Evaluate subjective Questions for Online Examination System" published in International Journal Of Innovative research in Computers and communication Engineering Volume-2, Issue 11, November 2014.
- [12].Ani Thomas, MKKowar & Sanjay Sharma "Intelligent Fuzzy Decision Making For Subjective Answer Evaluation using Utility" published by Emerging Trends in Engineering and Technology 2008 ICETET '08 First International conference on Date 16-18 July 2008.
- [13].A Gunjal,Mrunal M, Sayli M Pawar and PrakashJ.Kulkarni, "Evaluation of Subjective answers using GLSA enhanced with contextual synonyms", Published in International Journal on Natural Language processing Computing(INLC) Vol 4.No1,February 2015.