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Automated Descriptive Answer Checker

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Abstract: In this current era, it is moving towards computerization. Everything is made so, there is a necessity for automatic answer sheet checkers. It takes plenty of time and energy to check an answer sheet manually. In this project the application is based on checking or evaluating answer sheets using NLP. The main objective of this project will be to save the time and manpower and to allocate marks based on keywords not the length of answers. Many time when the answer is evaluated manually the marks can be different for same answer but our application will equally distribute marks by using keywords which are provided inform of input by the admin. Ist the answer is captured in form of photos. Then the answers are scanned and the keywords are picked from the photos. The marks are equally allocated based on the keywords. The total marks are calculated and result are shown at last.

Keywords: Descriptive type answer, Keyword Extraction Algorithm, Latent Semantic Analysis, Self Organizing Map.

I. INTRODUCTION

In today's world, currently there are many exam conduction methods, be it online exams or OMR sheet exams or MCQ type exams. Various examinations are conducted every day around the world. The most important aspect of any examination is the checking of the answer sheet of the student. Usually it is done by the teacher manually, thus making it a very tedious job if the number of students is very large. In such a case automating the answer checking process would definitely prove to be of great use .

Automating the answer checking process would not only relieve the exam checker but the checking process would also get way more transparent and fair as there would not be any chances of biasedness from the teacher's side. Nowadays various online tools are available for checking multiple choice questions but there are very few tools to check subjective answer type examinations.

This project aims to carry out the checking of subjective answer type examinations by implementing machine learning. This application can be used in various educational institutes for checking subjective answer type examinations.

Further, on improving the application, it can even be extended for conducting online subjective answer type

examinations applications, it can even be extended for conducting online subjective answer type examinations. On running the application, the main window of the application will give two options to the user, whether to login as an admin or as a student.

After selecting one of the options, the user will get to see a login window where he will be asked to login using his/her credentials. The admin will have the options like uploading the question paper and seeing the responses of the students. The student will have the option to upload the answer sheet and see the marks allotted to them there

1.1 Objective

- To develop an online exam system for descriptive-type questions.
- To implement techniques and algorithms that use semantic similarity for evaluation of detailed type answers.

II. LITERATURE REVIEWS

In any study, the review of previous studies is considered as important for getting understanding the problem, the methodology followed to identify the unexplored part of the field of study under consideration. In this regard, some of

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the relevant studies have been reviewed in the present study. So following is the list of research paper which research in the field of the answer evaluation system.

Birpal Singh J. Kapoor and Shubham M. Nagpure in June 2020 researched "An Analysis of Automated Answer Evaluation www.ijcrt.org © 2021 IJCRT | Volume 9, Issue 7 July 2021 | ISSN: 2320-2882 IJCRT2107413 International Journal of Creative Research Thoughts (IJCRT) www.ijcrt.org d658 System Based on Machine Learning", have analysed the automated answer using keywords and automated grading also Declared in this paper using content-based similarity, natural language processing.

Ankita Patil and Prof. Achamma Thomas in 2017 researched "A Survey of Effective Technique for Subjective Test Assessment". In this paper, the answer is unstructured data which has to be evaluated. The evaluation is based on the semantic similarity between the model answer and the user answer. Keyword extraction methods such as TF-IDF, CRF model & Query focused method are used. Ontology method and Context-based method are used author conclude that CRF model & LSA is an effective method for extraction of keywords & assessment of the subjective test.

Meena K. and Lawrance R in 2016 researched "Semantic Similarity Based Assessment of Descriptive Type Answer". In this paper assessment algorithm uses for semantic similarity for the evaluation of detailed type answer. Stemmed words are converted to vectors using a semantic method, latent semantic analysis (LSA). Vector obtained from the sematic method are clustered using the self-Organizing Map. Cosine Similarity is used to measure the similarity between two vectors based on that value returned by the similarity measures and marks will be awarded.

P.Willett in 2006 researched "The Porter stemming algorithm: then and now", Program, .In this paper author presented a simple algorithm for Stemming English Language Word.

Vimala Balakrishnan and Ethel Lloyd-Yemoh in Aug 2014 researched "Stemming and Lemmatization: A Comparison of Retrieval Performances", In this paper They compare document retrieval precision performances based on language modeling techniques, particularly stemming and lemmatization. Stemming is a procedure to reduce all words with the same branch to a common form whereas lemmatization removes inflectional endings and returns the base or dictionary form of a word. Comparisons were also made between these two techniques with a baseline ranking algorithm (i.e. with no language processing). A search engine was developed and the algorithms were tested based on a test collection. Both mean average precisions and histograms indicate stemming and lemmatization to outperform the baseline algorithm. Stemming techniques including the Paice/Husk stemmer, Porter's stemmer, and Lovin's stemmer. As for the language modeling techniques, lemmatization produced better precision compared to stemming, however the differences are insignificant. Overall the findings suggest that language modeling techniques improves document retrieval, with the lemmatization technique producing the best result.

Shweta M. Patil and Prof. Ms. Sonal Patil in 2014 researched "Evaluating the student descriptive answer using Natural Language Processing". In this, the system can perform grading as well as provide feedback for students to improve in their performance. The techniques for automatic marking of free-text responses are categories into three main kinds, Statistical, Information Extraction and Full Natural Language Processing.

Ari Aulia Hakim, Alva Erwin, Kho I Eng, Maulahikmah Galinium, and Wahyu Mulia in 2014 researched "Automated Document Classification for News Article in Bahasa Indonesia based on Term Frequency Inverse Document Frequency (TFIDF) Approach" In this paper they works on the TF-IDF algorithm which create a classifier that can classify the online Articles.

P.Y. Hui and H.Y.Meng in 2014 researched "Latent Semantic Analysis for Multimodal User Input with Speech and Gestures. Audio, Speech, And Language Processing IEEE/ACM Transactions", used LSA for semantic explanation of a multimodal language with speech and gestures.

Meena K and Lawrance R in 2014 researched "Evaluation of the Descriptive answers using the hyperspace Analog to language algorithm and self-organizing Map". These works focused on the online evaluation of the descriptive answer which will eliminate the discrepancy in that manual evaluation. The HAL algorithm is used to separate categories of the word.

Sonal N. Deshmukh and Ratandeep R. Deshmukh in Jan 2014 researched "Cosine Similarity for Substituted Text Detection". In this paper deals with Detection of Substituted text in a sentence using statistical techniques and cosine similarity.

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Menaka S and Radha N in 2013 researched "Text Classification using Keyword Extraction Technique". They have classified the text using a keyword extraction algorithm. The keywords are extracted using TF-IDF and WordNet. TF-IDF algorithm is used to select the words and WordNet is the lexical database of English used to find the similarity among the words. In this research work, the words which have the maximum similarity are selected as keywords.

Yuan-Chao Liu, Chong Wu, Ming Liu in 2011 researched "Research on fast SOM Clustering for text information". In this www.ijcrt.org © 2021 IJCRT | Volume 9, Issue 7 July 2021 | ISSN: 2320-2882 IJCRT2107413 International Journal of Creative Research Thoughts (IJCRT) www.ijcrt.org d659 Paper fast SOM clustering technology for Text Information In the feature extraction phase, several methods were discussed to find the semantic similarity. For this proposed fast SOM clustering technology for text information.

Sungjick Lee and Han-joon Kim in 2008 researched "News Keyword Extraction for Topic Tracking", proposed a conventional TFIDF model for keyword extraction. It involves cross-domain filtering and table term frequency (TTF) for extraction.

Stephen Robertson in 2004 researched "Understanding inverse document frequency: on theoretical arguments for IDF" explains the understanding concepts of IDF.

Teuvo Kohonen in May 2000 researched "Self Organization of a Massive Document Collection". In this paper describes the implementation of a system that can organize vast document collections according to textual similarities. It is based on the self-organizing map (SOM) algorithm.

Helena Ahonen, Oskari heinonen in 1998 researched "Applying Data Mining Technique for Descriptive Phrase Extraction in Digital Document Collection". In this paper data mining method apply to text analysis task such as descriptive phrase extraction, they present a general framework for text mining, the framework follow General Knowledge Discovery (KDD) to preprocess texts based on the intended use of the discovered result & introduce a weighting scheme that helps in puring redundant or non – descriptive phrases.

III. PROPOSED SYSTEM ANALYSIS / DESIGN

The Dissertation work is an educational-based system. In this system, the online exam will be descriptive, unlike other objective online exams. The system will be managed by the exam system admin. The teaching staff will conduct exams and students will be involved in answering the tests.

3.1 Describe Main Objective

- To develop a descriptive type of answer checker filter.
- To develop auto checking system for descriptive types of answer
- To reduce the time consumption in results generation for university exams Provide an efficient and fast way for descriptive types of examination







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IV. FLOWCHART



V. SYSTEM OUTPUT SCREENSHOT

Teacher and Student Authentication:

Username:	Email:
Email:	
	Password:
Pasaword:	
Role:	
Teacher ~	
Register	Register
Lotin Continue with Consta	G Continue with Google





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Teacher Portal:

	VIEW QUESTIONS	VIEW RESPONSES	ADD QUESTION	LOGOUT-
Question:				
Answer:				
Minimum Score:		4		
Maximum Score:				
Add Question				

View Response:

Major Project	VIEW QUESTIONS	VIEW RESPONSES	ADD QUESTION	LOGOUT+
	Students Responses			
Student Name	View Student's Answer Submissions			
ankita	View Answer Submission			
kalyani	View Answer Submission			
sanket	View Answer Submission			
sonal	View Answer Submission			
student1	View Answer Submission			
	Publish Results			

Upload Answer Sheet:

Name:			
What is Operating System?			
Upload scanned answer sheet:			
Choose File No file chosen			
What is computer Graphics?			
Upload scanned answer sheet:			
Choose File No file chosen			
What is array?			
Upload scanned answer sheet:			
Choose File No file chosen			

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Student Portal:

Take Test	Scorecard		
Question: What is Operating System?		Name: ankita	
		Question	Score
Auestion: What is computer Graphics?		What is Operating System?	1
		What is computer Graphics?	1
		What is array?	5
	6		
Question: What is array?			

VI. CONCLUSION

The existing online exam systems are mostly objective exams because online evaluation for multiple-choice questions is a very simple task. The system aims on evaluating descriptive answers. From the system, it is clear that descriptive answers too can be evaluated automatically. Which will reduce the work of manual evaluation of the number of answer sheets. Algorithms like TF-IDF, tokenization, stop words removal, stemming, LSA, SOM methods are used in the system using machine learning. The Cosine similarity technique has been effectively used in evaluating student answers as the different students have different answers to the same question. This system will be surely helpful in getting the accuracy for marks allocation as the marks are mailed to the student individually

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