A Review on Subjective Test Assessment

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Abstract- Online examinations are nowadays commonly used to take test such as competitive exams, GATE, IIT-JEE, and bank exams. These exams are generally objective type, where the answers are given in options and the candidate have to select the correct one out of the options. This paper presents a new approach of online subjective test assessment of text. In this, the answers are unstructured data which have to be evaluated. This evaluation is based on the similarity between the two answers. In this paper, we study different semantic similarity techniques and its comparisons.

1. INTRODUCTION
At any level, assessment is a tough job. The online computerized system carried out in helpful way. These are mainly objective type such as multiple choice questions (MCQs) and subjective type such as descriptive answers pattern. Nowadays examinations held are multiple type questions as IIT-JEE, GATE, bank exams as SBI, RBI, GRE, AIEEE etc. The examinations are usually MCQs, where the answers are selected out of the given options. The multiple choice is a form of assessment in which respondents are asked to select the best possible answer (or answers) out of the choices from a list. If guessing an answer, there's usually a 25 percent chance of getting it correct on a 4 answer choice question. Finding the right answer from multiple choices can be automated using multiple choice question answering systems. The multiple choice format is most frequently used in educational testing, in market research, and in elections, when a person chooses between multiple candidates, parties, or policies. But this multiple choice have many disadvantages such as it has the limited types of knowledge that can be assessed by multiple choice tests. Multiple choice tests are best adapted for testing well-defined or lower-order skills. Problem-solving and higher-order reasoning skills are better assessed through short-answer and essay tests.

Another disadvantage of multiple choice examinations is that a student who is incapable of answering a particular question can simply select a random answer and still have a chance of receiving a mark for it. It is common practice for students with no time left to give all remaining questions random answers in the hope that they will get at least some of them right. In this method, the score is reduced by the number of wrong answers divided by the average number of possible answers for all questions.

For many mentors, evaluating the questions and scoring of questions is a difficult task. Ranking of marks is based on the observations, understanding and explanation of specified answer, essential terminologies set by the teacher. During the major assessment, the teachers are overloaded with large number of answer sheets. Due to which assessment becomes difficult for teachers and causes stress, strain and mental steadiness.

By the new initiations in the technology, there are many innovations in natural language processing and information extractions, which constitute specific categories of free-text questions in automated tests that makes scoring is now achievable. Advantages of computerized tests scoring comprises of time and price savings, reduces deficiency of steadiness. As compared to objective type, descriptive pattern is more reliable. Students can write own answers, it can also
permits students to put across their thoughts in answers, put their responses to the questions and produces their own assumptions. This can increase the capabilities and talents of the student. Computerized evaluation of these subjective text may have difficulties but there are many algorithms that can be used to evaluate those answers.

2. LITERATURE SURVEY
Badar Sami, Huda Yasin and Mohsin Mohammad Yasin worked on the Evaluation of Unstructured Text using ontology. They appraised three techniques to classify the evaluation of descriptive answers. The accuracy of marks depends on the stored ontologies of any specific domain and as well as on the model answers. The association exists between the maximum marks and rest of all the marks i.e., relationship exist between the highest marks and the marks of all the students. If the mentor feels that the maximum marks of a student should be more or less then he can easily change the score[1]. Sugato Basu, Raymond J. Mooney, Krupakar V. Pasupuleti, and Joydeep Ghosh Computes correlation coefficients between pairs of human ratings and automatic ratings. This is based on novelty measure about human judgments and correlate with one another using Semantic distance measure and Rule scoring Algorithm. But the limitation is that, the correlation between the human subjects and the algorithm is on the average comparable to that between the human subjects[2].

J. Jiang and D. Conrath proposed the work on semantic similarity based on the corpus statistics and lexical taxonomy which measures the distance between the words and concepts using Node based and Edge based approach. It combines the lexical taxonomy structure with corpus statistical information so that the semantic distance between nodes in the semantic space constructed by the taxonomy can be better quantified with the computational evidence derived from distributional analysis of corpus data[3]. D. Bollegala, Y. Matsuou, and M. Ishizuka also worked on the semantic similarity of web based approach using empirical method which includes page count, text snippets from web search which includes Novel Pattern extraction Algorithm and Pattern Clustering Algorithm[4]. D. Lin shows how the definition can be used to measure the similarity in number of different domain using ordinal values, feature vector and word similarity. In this different types of similarity methods are described and shows comparison between them[5].

Shailja Sharma, J.S. Lather, and Mayank Dave calculates the semantic similarity between web services. For the calculation of semantic similarity, a normalized similarity calculation approach has been used. It uses a lexical semantic network constructed from web snippets and involves mapping of services profile[6]. Kuan-Hao Huang and Alan Liu and Jhih-Jhao Wang shows the mapping using ontology. In this, a method is used to improve the system and shows the high possibility of mapping. Using this ontology, they enhances the performance of ontological search and accuracy. But yet the accuracy does not reach to certain criterion and needs better preprocessing in ontology[7]. Douglas L. T. Rohde, Laura M. Gonnerman and David C. Plaut proposed a method for deriving word meanings from large corpora. This method is specially for lower dimensional variant, using SVD. The size of the matrix is fixed in this approach[8]. Eduardo Blanco and Dan Moldovan presents a logic based approach to determine textual similarity. In this, the sentences are transformed into logic form and modified. Several features are extracted from proofs and combined using machine learning with similarity scores[9].

3. PROPOSED WORK
On the working of subjective assessment of text many methods are used. Moreover, for descriptive assessment of text LSA approach is more suited to assess essays than short-answer questions. Latent Semantic Analysis (LSA) represents the words used in it, and any set of these words such as a sentence, paragraph, or essay taken from the original corpus or new, in a very high dimensional “semantic space”. LSA is based on singular value decomposition, a mathematical matrix decomposition technique closely related to factor analysis that is applicable to text corpora. LSA produces word-word, word-passage, and passage-passage relations. It identifies the hidden meaning of textual information by occurrence and co-occurrence of text[10]. It has information retrieval technique called latent semantic indexing. Comparing with various other methods latent semantic indexing is proves good by performance[11].

4. CONCLUSION
Assessment is used evaluate the understanding concept of student through descriptive pattern of answering. The assessment can be done automated. There are several methods available to assess the this online subjective text. By this, the student perspective can be thoroughly assess. In this paper, we proposed a technique to assess the descriptive answer automatically using latent semantic analysis. We have
discussed various similarity techniques which are available to assess the subjective answers and the various aspects of these techniques. Thus we conclude that LSA is an effective method for the assessment of subjective text.

REFERENCES


