

# Online Evaluation System for Descriptive Answers

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**Abstract** - Online subjective tests are very rarely proposed. All the online subjective exams set for the students are pen and paper based evaluated by the teachers manually. This paper presents a survey on effective way of online subjective tests. In this system, the answers are unstructured data which have to be evaluated. The evaluation is based on the semantic similarity between the faculty's answers and students' answers. Different techniques are compared and a new approach is proposed to evaluate subjective test assessment of text.

**Keywords:** Computer, Assessment, Descriptive, Evaluation, Database

## 1. INTRODUCTION

In today's education system the entire entrance exam in different fields are objective tests. Objective tests are not sufficient in order to test the knowledge of students. Students are judged by the answers that they have marked. In this case, there can be two situations either the answer marked is surely known by the student or it can be an assumed answer. So in this situation we cannot completely judge whether the student is really intelligent or whether it is his/her luck. The student may have knowledge about the topic but not complete, in such cases in order to actually test the knowledge of student, descriptive answers play an important role. But the evaluations of descriptive answers are mostly manual and that becomes hectic for faculty. To solve the problem of manual checking of subjective answers we have proposed an online evaluation system of descriptive type answers. Descriptive answers vary from student to student, so in our proposed paper to extract the meaning from the various answers the concept of semantic similarity is used. Faculty needs to give the answer along with some compulsory keywords in it. The answer will be pruned, stemmed which will reduce the size of the answer and then converted into vectors and matrix form. Depending upon the keywords used in the answer marking will be done. For this the required text will be extracted from the database by using various methods such as Term Frequency/ Inverse Document Frequency (TF/IDF). To extract the meaning from the text, techniques like LSA, SOM are used. The TF/IDF method with LSA semantic work is suitable for information retrieval, text classification, etc. The marks will be assigned using the Cosine Similarity depending upon the value of theta. In this proposed system the length of the answers will

also be taken into consideration while allotting the marks. The result analysis will then be mailed to the students.

## 2. Literature Review

There are various works proposed for short answers evaluation and objective answers. Even though, there are various work proposed for short-answer evaluation, the works related to the descriptive type answer evaluations are very limited. Some work related to descriptive answers evaluation is mentioned below. Menaka Sand Radha N, have classified the text using keyword extraction. The keywords are extracted using TF-IDF and WordNet[1]. 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 proposed work, the words which have the highest similarity are selected as keywords. Sungjick Lee and Han-joonKim proposed conventional TF IDF model for keyword extraction. It involves cross domain filtering and table term frequency (TTF) for extraction[2]. Ari Aulia Hakim, Alva Erwin, Kho I Eng, Maulahikmah Galinium, and WahyuMuliady works on the TF-IDF algorithm which create a classifier that can classify the online articles[3]. Stephen Robertson, explains the understanding concepts of IDF[4]. Professor Teuvo Kohonen, along with a group of researchers at the Neural Networks Research Center in Helsinki University of Technology, developed a few optimization techniques for SOM training[5]

## 3. Objectives

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

## 4. Motivation

- There are many online exam systems, but existing system can evaluate only objective type questions.
- There is no online system to evaluate descriptive type questions. Manual evaluation is time consuming and very lengthy process.

- Result will be declared in very short span of time because calculation and evaluations are done by the machine itself.

## 5. Proposed Work

The proposed system is an educational based system. In this system the online exam will be descriptive unlike other objective online exams. The system will be administered by the exam system admin. The teaching staff will conduct exams and students will be involved in solving the tests.

## 6. Conclusion

The existing online exam systems are mostly objective exams because online evaluation for multiple choice questions is a very simple task. The proposed system aims on evaluation of descriptive answers. From the proposed system it is clear that descriptive answers too can be evaluated automatically. This will reduce the work of manual evaluation of number of answer sheets. Various algorithms and techniques like tf-idf, tokenization, stop words removal, stemming, LSA, SOM, cosine similarity has effectively contributed in evaluating the students' answers though each students' answer is different. These algorithms will assign appropriate marks to the answer. The proposed system will surely help the educational system in getting the accuracy for marks allocation. The result will be mailed to the students in very short time.

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