

Online Feedback Analysis Using Sentiment Analyzer

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Abstract

This paper is concerned about implementation of sentiment analyzer in online feedback analysis. Feedback systems are used to store the feedbacks of student and the feedbacks are automatically analyzed. All data is stored and maintained in the main server. In previous online feedback systems, the main point focus was on the analysis of objective type questions, but in our system the main point of focus is objective as well as descriptive questions in order to get more accurate feedbacks.

Keywords— Sentiment analyzer, feedback, descriptive questions

1. INTRODUCTION

In the existing system students used to give feedbacks manually on paper feedback forms. It was a time consuming and very inefficient process. Then the forms are collected and the HOD's views the feedbacks of students and analyze the performance of that teacher of that particular department. Then to overcome the limitations of that system came the online feedback systems which takes the feedback of students online and automatically analyzes the feedback to analyze the performance of teachers. But the existing online feedback systems only analyzes the objective type questions it doesn't analyzes the descriptive type questions. In this project a sentiment analyzer is implemented to analyze the descriptive type questions so to increase the accuracy of the feedback system[1].

The sentiment analyzer is build using machine learning algorithms. There's an algorithm which analyzes the descriptive type questions. The algorithm is trained using the training data set which contains positive and negative words. And then the model is created using the trained algorithm. Then the test data is given to the algorithm to see the accuracy of the system. If it lacks in accuracy, then more training data and features are added to the analyzer to increase the accuracy of the system and in such manner the machine learning is implemented to build the sentiment analyzer.

The taking of feedback plays a very significant role in the life of students as well as the teachers. The students give the feedback so to convey what is the difference between the actual teaching which is currently taking place in colleges and what type of teaching students really desire for. And these feedbacks show the teachers their overall performance in their particular subjects. They can improve their teaching accordingly then[1][2].

This system is a secured system. The identity of the students giving feedback is not disclosed to anyone not even the admin. And a single student can give only a single

feedback to a particular teacher. The accounts of students are created by the admin so no one other than the students can give the feedback.

Sentiment analysis has received much attention from research and industry communities recently. In this feedback system, a database is created which contains negative and positive words. Then it contains a java API which is used to parse and check the words present in the student's descriptive type answers if there positive or negative word by comparing it with the words present in the database. Then there's a API to set the database information. Such as which driver is used, which port number is database present in and the username and password for accessing the database. These API's are transformed into jar files and added to the libraries of the project. And the methods present in it are imported whenever needed in the project[1][2][3].

2. LITERATURE SURVEY

Sentiment classification identifies sentiment polarity (positive or negative) from text (sentence or document), has been the most extensively studied task in sentiment analysis. Until now, there have been two mainstream approaches for sentiment classification. The lexicon-based approach aims to aggregate the sentiment polarity of a sentence from the polarity of words or phrases found in the sentence, and the learning-based approach treats sentiment polarity identification as a special text classification task and focuses on building classifiers from a set of sentences (or documents) annotated with their corresponding sentiment polarity. The lexicon-based sentiment classification approach is simple and interpretable, but suffers from scalability and is inevitably limited by sentiment lexicons that are commonly created manually by experts. It has been widely recognized that sentiment expressions are colloquial and evolve over time very frequently. Taking tweets from Twitter and movie reviews on IMDb as examples, people use very casual language as well as informal and new vocabulary to comment on general topics and movies. In practice, it is not feasible to create and maintain sentiment lexicons to capture sentiment expressions with high coverage. On the other hand, the learning-based approach relies on large annotated samples to overcome the vocabulary coverage and deals with variations of words in sentences. Human ratings in reviews and emoticons in tweets are extensively used to collect a large number of training corpora to train the

sentiment classifier. However, it is usually not easy to design effective features to build the classifier. Among others, unigrams have been reported as the most effective features in sentiment classification[3][4].

The System test students program, then email immediate feedback to continue, testing, debugging and optimizing his or her program. "Quantitative iterative feedback" has proven to be extremely helpful in teaching.

The student having attendance more than 75% are allowed to give feedback or else error is generated. Only the feedback of regular students is taken to get correct and consistent data. Any false feedback can be avoided[4][5].

Teaching performance evaluation is an integral part of he teaching experience and plays a significant role in improving the teaching effectiveness. Provide faculty a framework to prepare and measure the impact of their teaching practices. Help the admin plan for the faculty training programs[5][6].

3.SYSTEM ARCHITECTURE

In this system, there are basically three different modules which are as following:

- Admin Module
- Student Module
- Teacher Module

Firstly, there's admin module which has admin login portal. Admin's username and password is not stored in database. The username and password of admin is checked with the help of a .jsp file. After login Admin creates the students as well as teachers account and fill their details. The whole data is stored in the database then. The admin also adds the subjects in the database. The admin also can delete the student's as well as the teacher's data. The admin can view all the feedbacks results present in the database. The identity of the student who gave the feedback is anonymous to the admin.

Then there's student module which has student login portal. Each and every valid student has their unique username and password which is given by admin. The username and password when entered are checked with data present in the database. After login student, can select which subject's feedback he wants to submit. Then in the feedback form the name of the teacher automatically comes who teaches that particular subject. After the submission of feedback the answers of all the questions are analyzed and the result is stored in database. If the student has already given the feedback of that particular teacher, then he can't give the feedback again[6][7][8].

Then at last there's teacher module which has teacher login portal. Each and every teacher has their unique username and password which is given by the admin. The username and password when entered are checked with data present in the database. The teachers can view their overall performance according to the student's feedback. And student's identity is not revealed to the teacher[9][10].

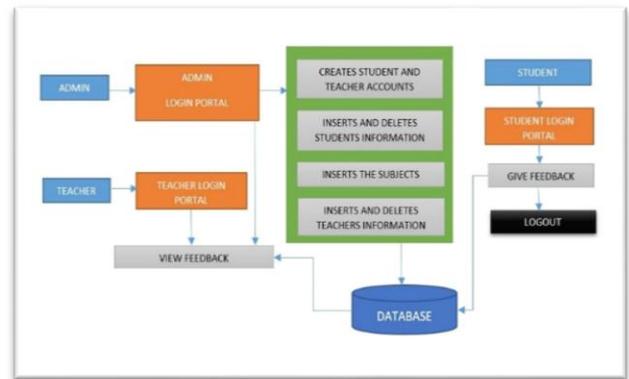


Fig.1 System architecture

4. ALGORITHMS

Algorithm1 for objective:

Input> o1, o2, o3, o4, o5, o6, o7, o8, o9, o10, o11. //o = mark for objective question.

Output> Ro = average of the mark for objective question.

$$Ro = (o1 + o2 + o3 + o4 + o5 + o6 + o7 + o8 + o9 + o10 + o11) / 11;$$

Algorithm2 for descriptive:

Input> d1, d2, d3, d4, d5. //d = mark for descriptive question

Output> Rd = average of the mark for descriptive question.

$$Rd = (d1 + d2 + d3 + d4 + d5) / 5;$$

Algorithm3 for calculating single feedback:

Input> Ro, Rd.

Output> R = result of single feedback.

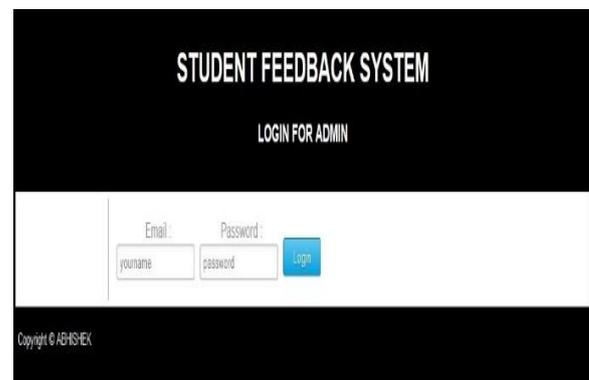
$$R = (Ro + Rd) / 2;$$

Algorithm4 for overall performance:

Input> R1, R2, ...Ri. //Ri = result of I number of feedbacks.

Output> Tr = average of I number of feedbacks.

$$Tr = (R1 + R2 + R3 + \dots + Ri) / i;$$



5. IMPLEMENTATION RESULTS

Admin Login: This page is used for admin login.

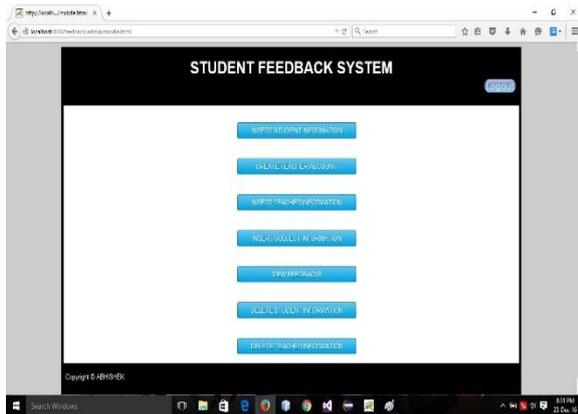


Fig.2 Admin login portal

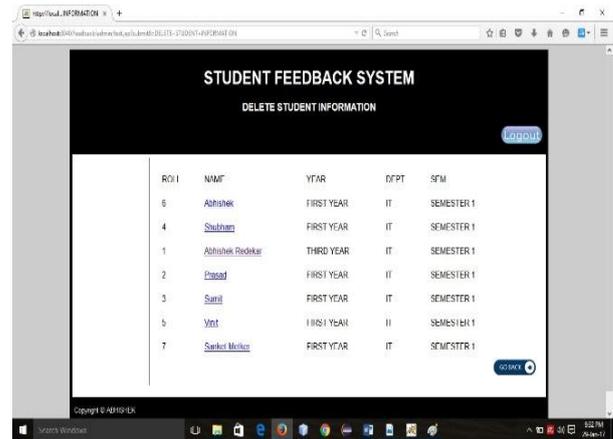


Fig.5 Teacher account creation

Admin home page: This page consist the tasks that admin can perform.

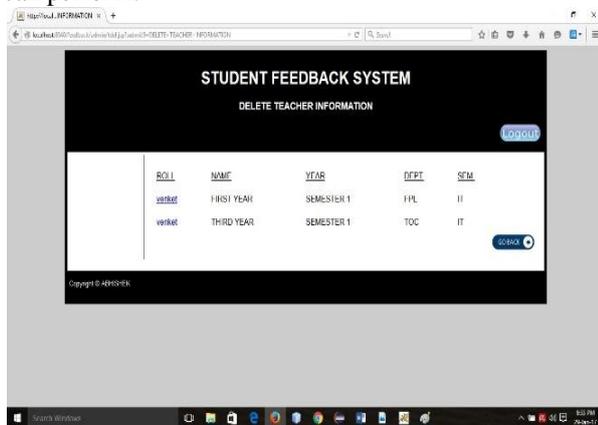


Fig.3 Admin home page

Teacher information insertion: This page is used to insert the teacher's information in database.

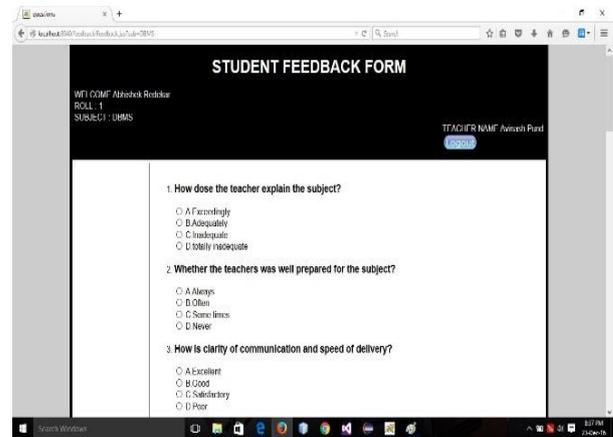


Fig.6 Teacher information insertion

Student information insertion: This page is used for student account creation and student information insertion.

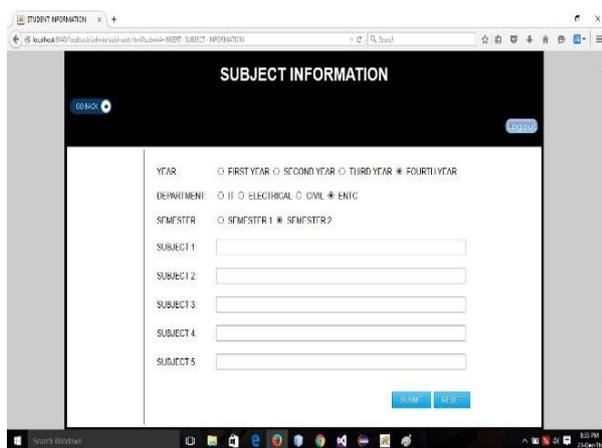


Fig.4 Student information insertion

Teacher account creation: This page is used to create the teachers account and give teachers their unique username and passwords.

Subject Information insertion: This page is used to insert the subjects in the database to their respective department, year and semester.

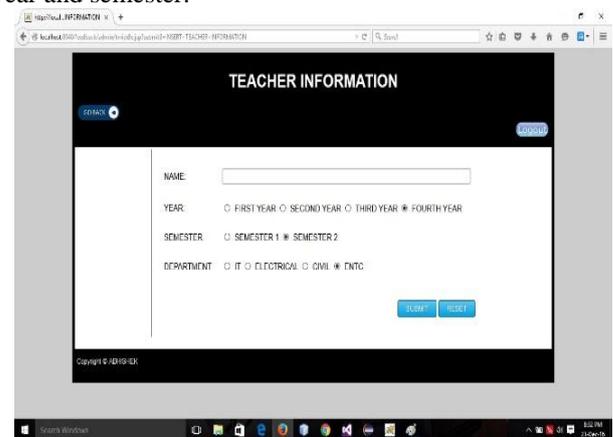


Fig.7 Subject information insertion

Student information deletion: This page is used to delete the student's information from the database.

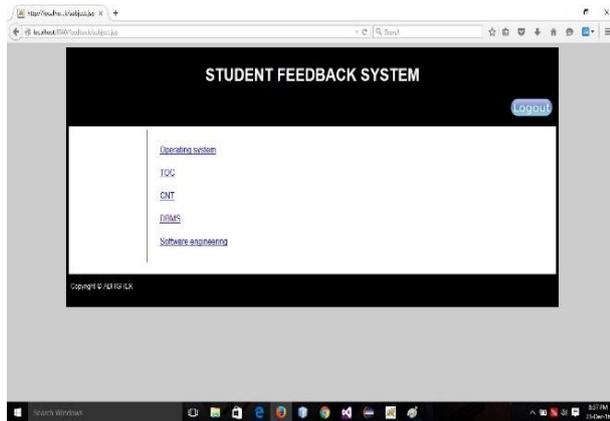


Fig.8 Student information deletion

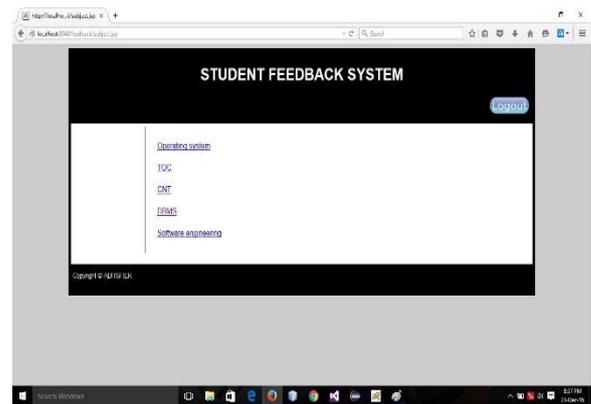


Fig.11 Student home page

Teacher information deletion: This page is used to delete the teacher's information from the database.

Feedback form: This page consists of the feedback form which has questions regarding the teacher's teaching.

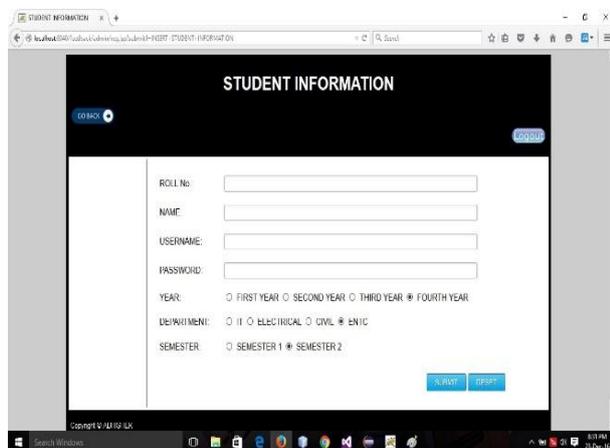


Fig.9 Teacher information deletion

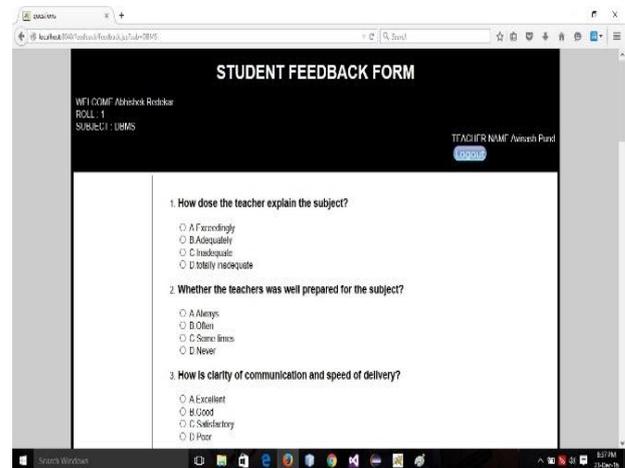


Fig.12 Feedback form

Student login: This page is used for student login.

Teacher login: This page is used for teacher login.

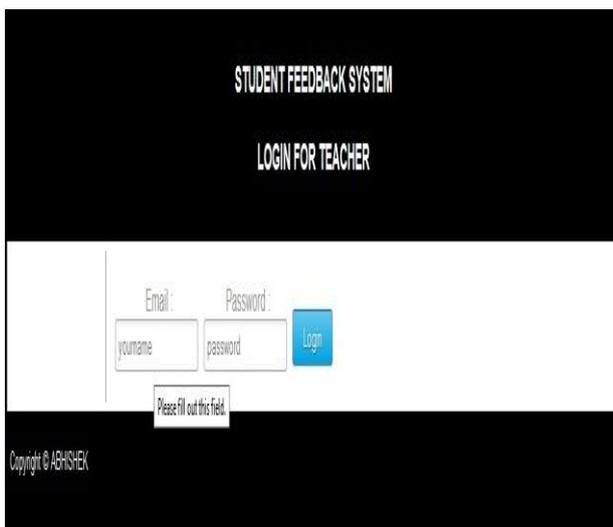
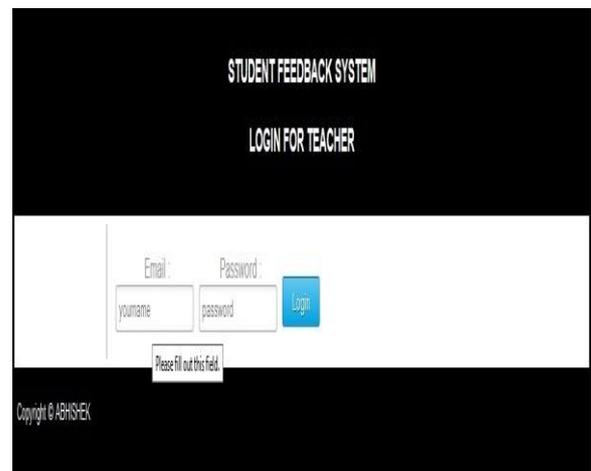


Fig.10 Student login



Student home page: This page shows the list of subjects whose feedback the student can give.

Feedback: This page displays after successful login of teacher, it shows the feedback of that particular teacher.

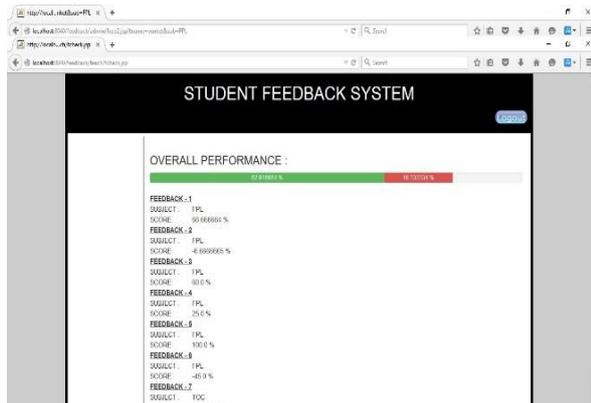


Fig.13 Feedback

6. ADVANTAGES AND FUTURE SCOPE

This project is beneficial for college. Teacher's performance can be increased using the analyzed feedback. Reduces time – Giving feedback online saves time in comparison to manual process. Security – The identity of the student is kept anonymous. False feedback can be prevented from submission. Descriptive type questions can be analyzed by using the sentiment analyzer which was not possible in previous online feedback analysis system. Due to lack of time design part is not so attractive to look. Further enhancement can be made in the designing part. Some more forms can also be added so as to better retrieve the feedback details. Various other options can also be added for the better usability of the project. More positive and negative words can be added in the database for increasing the accuracy of the sentiment analyzer. This feedback system and sentiment analyzer can also be used in other organizations, offices for taking feedbacks.

7. CONCLUSION

This project is designed in order to reduce burden of maintaining bulk of records of all student's feedback details. The online feedback analysis system which already exists only analyzes the objective type questions, but this system analyzes both objective as well as the descriptive type questions. This system is implemented using the sentiment analyzer.

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