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Sentiment Analysis of Parents Feedback for Educational Institutes

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ABSTRACT:
Big amount of data available in the forms of reviews, opinions, feedbacks, remarks, comments, observations, clarifications, and explanations that has to be manage with some efficient manner. In this paper, we have collected feedback of parents and analyzed to find locus of the parents towards the institute. This research paper combines the data mining with natural language processing to extract the nuggets of knowledge from massive volume of student feedback dataset on faculty performance.

Keywords: Natural Language Processing, Opinion Mining, Feedback Analysis, Sentiment Analysis, Educational Institutes.

I. INTRODUCTION

In today's competitive world everyone wants to give best education to their children and every Institute is trying to prove that they are best among all. Students are talking about their institute face to face or behind the back [2]. Institute valuation is depending upon what student's feel about the institute. Students are comparing their institute with other institute. Students write feedback about the course every semester, discuss with their friends through chat room, mail, social media etc. The aim of the proposed model is to extract the facts from different sources like blogs, comments, feedback, social media etc. In academic institution student feedback about the course can be considered as a significant informative resource to improve the course [1].

The employees of the institution are also important factor. Employee can produce greater ideas. Employees are also discussing about the institute with their friends or family members. Similarly parents, Industries and other institute who are related to the institute are also passing comments formally or informally. They are passing serious and meaningful comments on the institution either positive or negative [2].

Students are giving feedback every year or every semester about the course, institute, faculties and facilities provided to them. Based on the students feedback Institutes are taking steps to eliminate the drawbacks specified by the students. Industries are also playing major role in progress of institution. Because at last Institute knows by no. of students are recruited in well-known companies and their packages. So, aim of the institute is to provide best knowledge to students which will be helpful in any fields and this can be solved if Institute is aware of current trends and technology used by industries. Institutes can eliminate their lacking area by using Industries feedback. Institute can reduce the gap between Industry and academia.

Parents and people associated with the Institute are also discussing with their colleagues, family members and friends about the institute. Opinions can create immense impact on institute.

II. LITERATURE REVIEW

A Significant amount of work is found in this area. Here we have reviewed and used following references for this article. Rajkumar Kannan and Maria Bielikova have published their article for Mining Feedbacks and opinions in educational environments. They have used Knowledge Discovery Process [1].

Jaiprakash Verma, Bankim Patel and Atul Patel have published their article for Web Mining: Opinion and Feedback Analysis for Educational Institutions. They have used sequential Pattern Mining Framework and Elki Tool for cluster analysis [2].

Balakrishnan Ramadoss and Rajkumar Kannan have published their article for Extracting Features and Sentiment words from feedbacks of Learners in Academic Environments. They have used Natural Language Processing methodology [3].

Ayesha Rashid, Sana Asif, Naveed Anwer Butt and Imran Ashraf have published their article for Feature Level Opinion mining of education student Feedback data using sequential pattern mining and association rule mining. They have used association rule mining and sequential pattern mining algorithms [4].

Horacio Saggion and Adam Funk have published their article for Interpreting sentiwordnet for opinion classification. They have used supervised learning machine over syntactic and sentiment based features [5].

Nidhi Mishra and C.K Jha have published their article for classification of opinion mining techniques. Their main focus is on classification of opinion mining techniques [6].

Diana Maynard and Adam Funk have published their article for automatic detection of political opinions in tweet. They have used GATE tool for sentiment analysis [7].

III. PROPOSED WORK

Feedback is the most critical part of any educational institute. Feedbacks are collected and analyzed for various purposes like evaluation of teacher, course, institute etc for the betterment and improvement of the institute. University systems are claiming these types of feedbacks on syllabus, facilities, teaching learning etc.. They collect these feedbacks from different stakeholders like students, parents, industry experts, research experts, visitors and management team also. Collection of feedback is important but the interpretation of the feedback is much more challenging task to perform precisely. This task becomes more difficult if the institute claims these feedback in unstructured form in which the stakeholders can give feedback in their own language. In this case, we have to manually analyze each report of feedback and then only we can conclude something precisely. This is the most tedious task to perform.

Aim of this research article is to automate the analysis process of such unstructured feedback and to find out a perfect and relevant conclusion of the feedback gathered. As a part of the implementation, we have to extract positive and negative comments about the institute, course, facilities, faculties and other resources.

Here we have collected feedback from the parents regarding overall functioning of the institute during various parents meetings held at institute. The reported feedback is extracted and transformed into .docx file and supplied in tool for analysis. The tool narrating total positive and negative statements as a result of analysis. This narration is interpreted to conclude over all locus of the feedback.

IV. METHODOLOGY USED

Step 1: Data Collection: In Data Collection step we clean the data provided by parents and alumni members of the college. Some of them set a blank review or review with very small text [4]. We had covered two points in that first is their view after joining the college and second is complaints related to colleges. So we had covered both the points positive and negative. So we can evaluate the feedback based on positive and negative sentiment. For this we clean the data which are collected from different sources [4].

Step 2: Corpus Data: In this step using GATE tool we are creating one corpus which consists of feedback data. First step is to create document and then we had created corpus which consist of all the documents.

Step 3: Sentiment Analysis: In this step using GATE tool we had applied ANNIE application to extract positive, negative and neutral sentiments. Whole process is divided into different stages. Each stage has its own working. We had used JAPE transducer applications. This application consists of positive and negative words.

Step 4: Evaluation: After executing application we are getting list of sentences which have positive or negative words. As you can see in the figure. In features field first parameter is "neg" which represent that the sentence is negative.

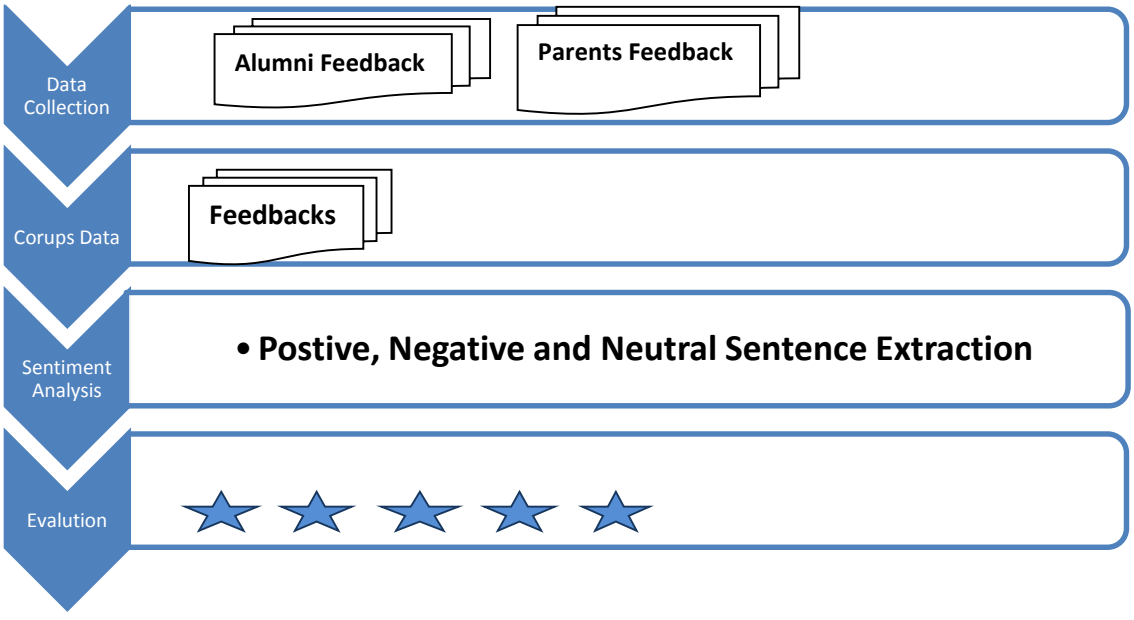

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Figure.1 represents the flow of extracting opinion from unstructured data.

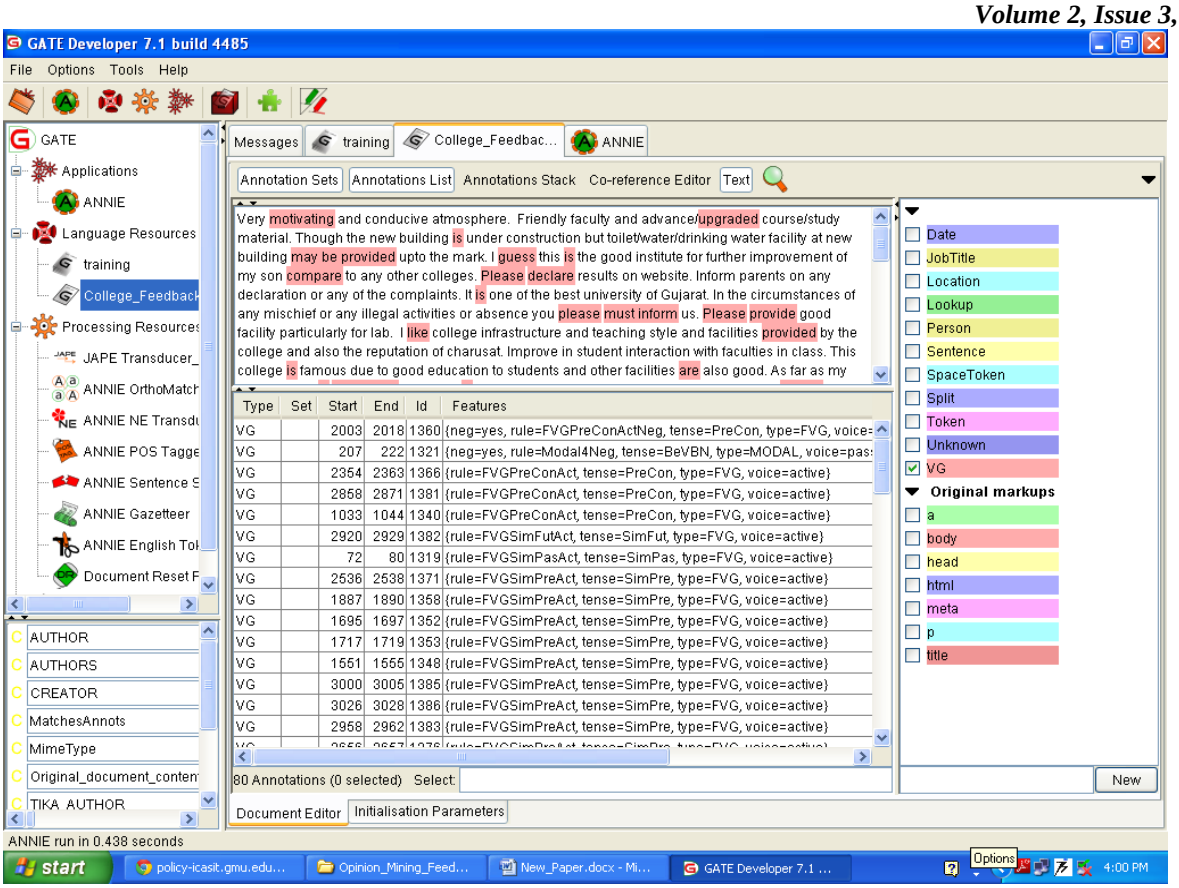

Figure 2. Sentiment Word Extraction Result

V. TOOLS USED

GATE is an infrastructure for developing and deploying software components that process human language. GATE excels at text analysis of all shapes and sizes. GATE includes components for diverse language processing tasks, e.g. parsers, morphology, tagging, Information Retrieval tools, Information Extraction components for various languages, and many others. GATE Developer and Embedded are supplied with an Information Extraction system (ANNIE) which has been adapted and evaluated very widely (numerous industrial systems, research systems evaluated in MUC, TREC, ACE, DUC, Pascal, NTCIR, etc.). ANNIE is often used to create RDF or OWL (metadata) for unstructured content (semantic annotation).

GATE can be thought of as a Software Architecture for Language Engineering. GATE includes resources for common LE data structures and algorithms, including documents, corpora and various annotation types, a set of language analysis components for Information Extraction and a range of data visualisation and editing components. GATE supports documents in a variety of formats including XML, RTF, email, HTML, SGML and plain text. In all cases the format is analysed and converted into a single Unified model of annotation. The annotation format is a modified form of the TIPSTER Format [Grishman 97] which has been made largely compatible with the Atlas format [Bird & Liberman 99], and uses the now standard mechanism of 'stand-off markup'. GATE documents, corpora and annotations are stored in databases of various sorts, visualised via the development environment, and accessed at code level via the framework.

The procedure is as below:

- The documents to be annotated.
- Corpora comprising sets of documents, grouping documents for the purpose of running uniform processes across them.
- Annotations that are created on documents.
- Annotation types such as 'Name' or 'Date'.
- Annotation sets comprising groups of annotations.
- Processing resources that manipulate and create annotations on documents and applications, comprising sequences of processing resources that can be applied to a document or corpus.

VI. CONCLUSION

In our paper we had used ANNIE technique to exploit valuable information from the given feedback. Opinion mining is useful to abstract sentiments from large amount of text documents. Extracting positive and negative sentiment is an important for any colleges or universities. In this short survey of opinion mining, we had used GATE tool to extract opinions of parents from their given feedback.

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