USER FEEDBACK ANALYSIS SYSTEM USING NATURAL LANGUAGE PROCESSING AND ARTIFICIAL INTELLIGENCE

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ABSTRACT

The Web has dramatically changed the way that people express their views and opinions. Now if one wants to purchase a product, he/she is no longer limited to asking his/her friends and families because there are many product reviews on the Web which give opinions of existing users of the product. Here we present the system which provides us information about such products and services in summarization form. Finding opinion sources and monitoring them on the Web can still be a difficult task because there are a large number of different sources, and each source may also have a huge volume of opinionated text (text with opinions or sentiments). In most cases, opinions are hidden in long forum posts and blogs. It is complicated for a human reader to find relevant sources, extract related sentences with opinions, read them, summarize them, and manage them into usable forms. Thus, automated summarization systems are needed. Using this summarization we can recognize the importance, quality, popularity of product and services. In this system we make summarization for product. But, we can use this system anywhere, where text analysis is required. Sentiment analysis, also known as opinion mining, grows out of this need. It is a challenging natural language processing or text mining problem. Due to its tremendous value for practical applications, there has been an excessive growth of both research in academia and applications in the industry.

Keywords - Natural Language processing, Machine learning, Opinion mining, Sentiment analysis.

I. INTRODUCTION

IN recent years, with the growing volume of online reviews available on the Internet, sentiment analysis and opinion mining, as a special text mining task for determining the subjective attitude (i.e., sentiment) expressed by the text, is becoming a hotspot in the field of data mining and natural language processing. Sentiment classification is a basic task in sentiment analysis, with its aim to classify the sentiment (e.g., positive or negative) of a given text. The general practice in sentiment classification follows the techniques in traditional topic-based text classification, where the bag-of-words (BOW) model is typically used for text representation. In the BOW model, a review text is represented by a vector of independent words. The statistical machine learning

algorithms (such as na€ıve Bayes, maximum entropy classifier, and support vector machines) are then employed to train a sentiment classifier. Although the BOW model is very simple and quite efficient in topic-based text classification, it is actually not very suitable for sentiment classification because it disrupts the word order, breaks the syntactic structures, and discards some 1semantic information. Consequently, a large number of researches in sentiment analysis aimed to enhance BOW by incorporating linguistic knowledge. However, due to the fundamental deficiencies in BOW, most of these efforts showed very slight effects in improving the classification accuracy. One of the most well-known difficulties is the polarity shift problem. Polarity shift is a kind of linguistic phenomenon which can reverse the sentiment polarity of the text. Negation is the most important type of polarity shift. For example, by adding a negation word "don't" to a positive text "I like this book" in front of the word "like", the sentiment of the text will be reversed from positive to negative. However, the two sentiment-opposite texts are considered to be very similar by the BOW representation. This is the main reason why standard machine learning algorithms often fail under the circumstance of polarity shift. "

II. OBJECTIVE

The purpose of this document is to present a detailed description of the product rating & Review Summarization. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

III. PROBLEM STATEMENT

A large multinational food corporation is assessing consumer preferences for its fast food product line comprising of instant noodles & other rice and wheat based products. The questionnaire is focused on how to increase consumption frequency based on pack size, positioning it as snack between meals, ready-to-eat capability, variety of available flavors & promotional tie-ins with other products. The Product Manager has commissioned a market research agency to do a consumer study to rank people's preferences for increased consumption with respect to all these variables. The agency has come back with data from 1000 participants.

3.1. Identifying Subjectivity

The basic question asked in Sentiment Analysis is whether a given piece of text contains any subjective content (opinions, emotions, etc.) or not. This task aims to tackle this problem of differentiating between subjective and objective content.

3.2. Identifying discrete polarities

Once the subjective part is determined, the next task is to determine if the content is positive or negative. This problem can be looked upon as a classification problem.

3.3. Identifying an ordinal value

Some applications require not just the type of polarity but the intensity as well. For example, movies are typically rated on a 5 point scale. Thus, this task aims at identifying such an ordinal value.

3.4. Associating sentiment with specific keywords

Many sentences indicate an extremely strong opinion, but it is difficult to pinpoint the source of these sentiments. Hence an association to a keyword or phrase is extremely difficult. For example:

Every time I read `Pride and Prejudice' I want to dig her up and beat her over the skull with her own shin-bone.

In this example, "her" refers to the character in the book "Pride and Prejudice", which is not explicitly mentioned. In such cases the negative sentiment must be associated with the character in the book.

IV. LITERATURE SURVEY

We have been gathering information about the sentiment analysis and opinion mining techniques available and how does they work. The phenomenon that they have come across consists in special challenges associated with mining on e-learning reviews and studying e-learning blogs which make it very challenging task and adds to its complexity, and it is this factor that was at origin of our loss of accuracy. In this future work is: combining some of these feature selections, processing refinement and taking into account emotions and misspelled words and employing different linguistic techniques.

V. EXISTING SYSTEM

Finding opinion sources and monitoring them on the Web can still be a difficult task because there are a large number of diverse sources, and each source may also have a huge volume of opinionated text (text with opinions or sentiments). Selecting an attributes for sentiment classification using feature relation networks[1]. In many cases, opinions are hidden in long forum posts and blogs. It is difficult for a human reader to find relevant sources, extract related sentences with opinions, read them, summarize them, and organize them into usable forms. Thus, automated summarization systems are needed. Using this summarization we can recognize the importance, quality, popularity of product and services. In this system we make summarization for movie. But, we can use this system anywhere, where text analysis is required[2]. Sentiment analysis, also known as opinion mining, grows out of this need. It is a challenging natural language processing or text mining problem[3]. Due to its tremendous value for practical applications, there has been an explosive growth of both research in academia and applications in the industry[4].

VI. ALGORITHM

1. Fetch comments provided by the user for processing.
2. Using dictionary approaches to determine the product, user is speaking about.
3. Create dictionaries for weak and strong sentiment related patterns.
4. Apply strong negative sentiment patterns to the input in relative to the product.
5. If not found try searching for weak negative patterns.
6. Search for positive sentiment patterns in the comments with relative to the product.
7. If positive sentiment pattern is found make sure that it does not have negative pattern preceding it. If found just flip the polarity of the sentiment to negative.

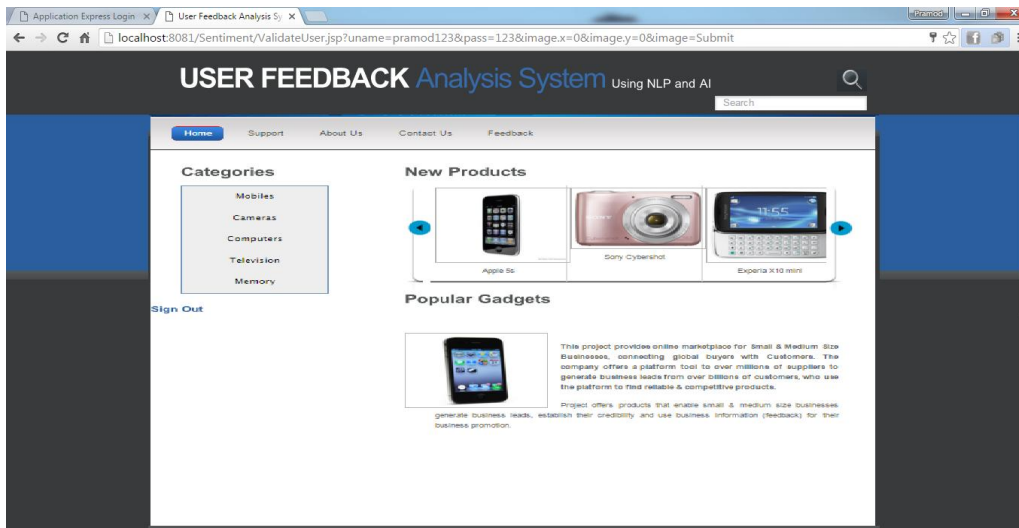## VII.IMPLEMENTED MODULE

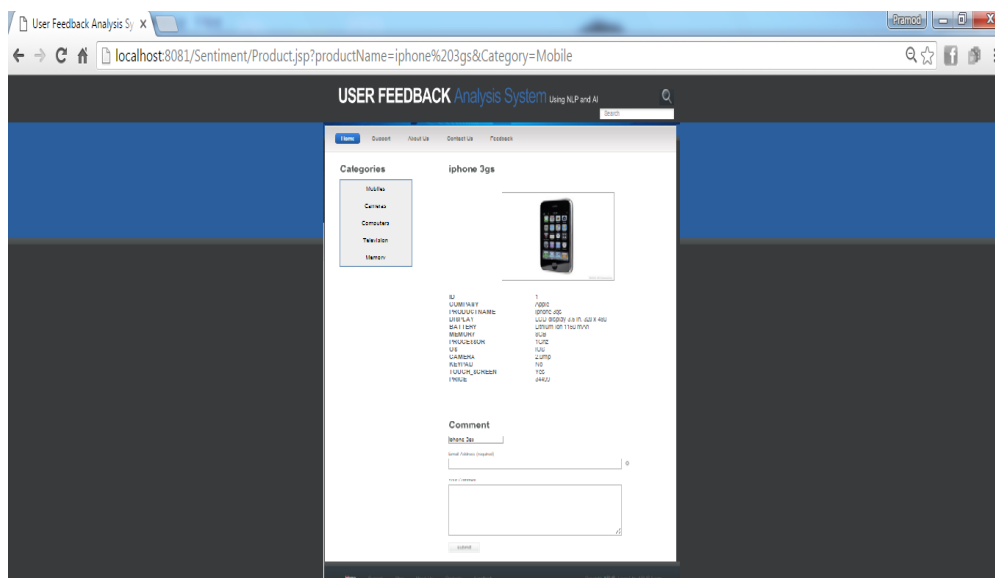### 7.1.User Module

Fig.7.1.1 User Module

Fig.7.1.2 User Module

When user logins from home page, he will get switched to the page where product categories and its details are shown. From this place user need to select product. User will have the full details of the product in these pages. While user need to select product according to categories and need to assign comment on a product. After that system will analyze the comment and generates the result in the form of graphical form. This graphical form will show the positive and negative approach of the comment given on a product.

7.1.1. Different user panels:

1. Categories: Where different product categories are provided (such as mobiles, cameras, computers, televisions etc.)

2. Support: Where support for different kinds of problems are provided.

3. About us: Details about project and its detailed explanations.

4. Contact us: User can contact to admin from this page if he has some issues or suggestions.

5. Feedback: User can submit his feedback about our project or system from this page or panel.
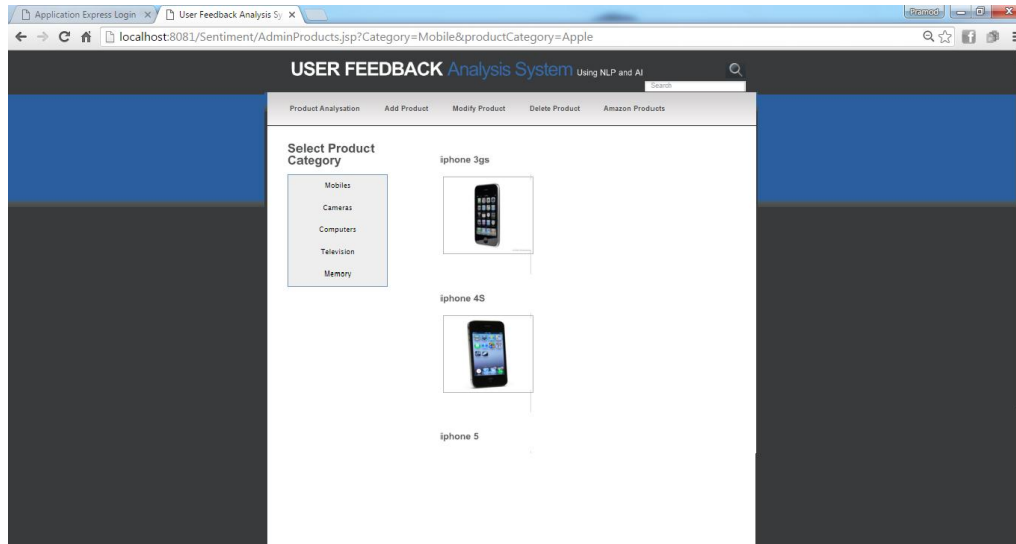
7.2. System Module

Fig.7.2.1 System Module

While admin having full authority to add, modify, delete product details from an system. In admin panel admin too can analyze the product according to stored comment on such products. Where in admin panel we provided the additional functionality that is Amazon product analysation. Where we are using Amazon data-set to analyze the different Amazon products.

7.2.1 Different admin panels:

1. Product analysation: Here admin have facility to analyze the product. He need to select product categories for analysation (categories such as mobiles, cameras, computer, television etc).

2. Add Product: Products can be added from this page by the admin only.

3. Modify Product: Here admin can update the product information.

4. Delete Product: Here admin can remove product from the database.

5. Amazon product analysation: We provided an additional facility for Amazon product analysation. In which Amazon data-set is used.

7.2.3.Result analysis:

User Opinion
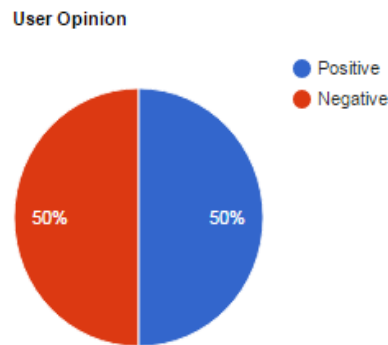
- Positive
- Negative

50%   50%

Fig.7.3 Result Analysis

Result will be generated in graphical chart; here this chart is generated from using Google chart. This chart shows the positive and negative polarity. This is generated by using GATE processor's score of comment associated with particular product.

By using this chart user can analyze product efficiently. GATE processor performs major task in generating scores of an comment. These scores such as negative and positive is generated from comment.
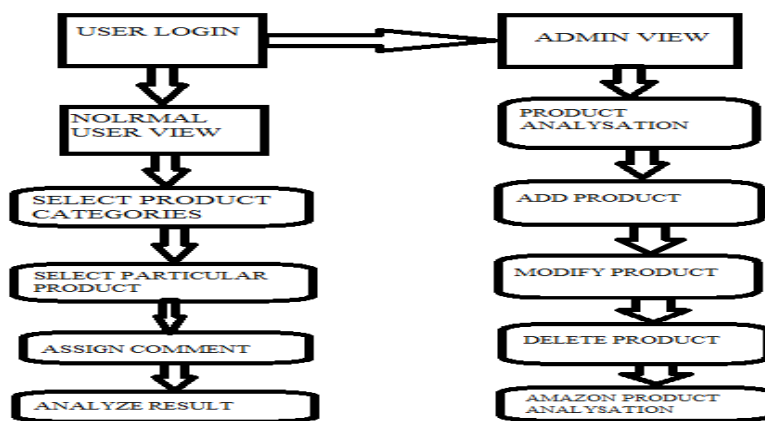
VIII. OVERALL SYSTEM WORK FLOW

USER LOGIN	→	ADMIN VIEW

NOLRMAL USER VIEW — PRODUCT ANALYSATION

SELECT PRODUCT CATEGORIES — ADD PRODUCT

SELECT PARTICULAR PRODUCT — MODIFY PRODUCT

ASSIGN COMMENT — DELETE PRODUCT

ANALYZE RESULT — AMAZON PRODUCT ANALYSATION

Fig.8.1 System work flow

IX. CONCLUSION

Here we are concluded that the system is successfully generating analysis result from the user sentiments. Where the user sentiments are in the form of word or sentences.

On real-life applications, to provide a completely automated solution is nowhere in sight. However, it is possible to devise effective semi automated solutions. The key is to fully understand the whole range of issues and pitfalls, cleverly manage them, and determine what portions can be done automatically and what portions need

human assistance. In the continuum between the fully manual solution and fully automated solution, we can push more and more toward automation.

ACKNOWLEDGMENT

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