

Analysis of customer reviews using opinion mining

¹K.S. Jeen Marseline

¹Head, Department of Information Technology
¹Sri Krishna Arts and Science College, Coimbatore, TamilNadu, India

Abstract: Sentiment analysis or opinion mining is the process to determine the attitude of the person who writes. It can be classified as positive, negative and neutral and the contextual mining of texts which identify and extract primary data also it aid companies to understand their product and services among customers. Sentimental analysis is broadly used in marketing, customer services, social media, and health science. Data used in this study are online product reviews collected from the data world. Online reviews have improved a new form of marketing that develops the void between customers and business. This paper is about product review of customers that classified according to the polarity scores.

Index Terms--Sentiment analysis, polarity scores

I. INTRODUCTION

Sentiment analysis is the process to explore out the piece of text is positive, negative or neutral. The applications of sentiment analysis are broad and powerful. It studies people's sentiments towards certain entities. Sentiment analysis has applications across a range of industries - it's great for anything where one can get unstructured opinion data about a service or product. To evoke the clear understand from social data is a practice that is being widely adopted by organizations across the world. Sentiment analysis is ultimately useful in social media; it allows us to gain an overview of the public opinion on certain topics. Sentiment is an attitude, thought, or judgment prompted by feeling [1]. According to the business, the reviews related a brand new product from the customers. This analysis can give them a quick way to find and priorities these unhappy customers. Online reviews have improved a new form of marketing that develops the void between customers and business. A single review which can breed reviews, that goes viral and make the product popular. Customer reviews towards products benefits the producer in the sense on improves the quality, understands the customer and serves better, increases productivity and sales. The companies have a thought like let the customers do their marketing through reviews.

II. PROPOSED SYSTEM

Sentiment analysis has grasped much attention in few years. This paper is about analyzing problem of sentiment polarity categorization, which is one of the primary problems of sentiment analysis. The company releases its product in market they want to know about the reach of their products among customers. The people's feel and words differs from each of individual towards the product, their unique feel is important and also it's very challenging for the analysis process. Initially, the work is about the technique tool used for the sentiment classification. VADER (Valence Aware Dictionary for sEntiment Reasoning) is a model used for text sentiment analysis that is sensitive to both polarity (positive, negative) and intensity (strength) of emotion. In this approach, each of the words in the lexicon is rated as to whether it is positive or negative, and in many cases, how positive or negative. Primarily, VADER sentiment analysis relies on a dictionary which maps lexical features to emotion intensities called sentiment scores. The sentiment score of a text can be obtained by summing up the intensity of each word in the text. For example, the review is like "The product is nice and it's working good..!" have two words in the lexicon (nice and good) with rating of 1.5 and 2.5 respectively. That first three metrics are positive, negative and neutral represent the proportion of the text that falls into those categories. The final metric, the compound score, is the sum of all of the lexicon ratings which have been standardized to range between -1 to 1. The VADER sentiment analysis takes this into account by amplifying the sentiment score of the sentence proportional to the number of exclamation points and question marks ending the sentence. It first computes the sentiment score of the sentence. If the score is positive, it adds a certain empirically-obtained quantity for every exclamation point (0.252) and question mark (0.19). If the score is negative, it subtracts. It takes these into account by considering five simple rules. There are other contextual elements, like punctuation, capitalization, and modifiers which also impart emotion.

III. IMPLEMENTATION

As said already that sentiment analysis is such a broad field and it grows day by day, this work have implemented in Python language which runs on emerging platform named Anaconda. Python is an interpreted high-level language for general-purpose programming. Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural and has a large comprehensive standard library. Here performed a piece of work by analyzing the customers' reviews of a product. VADER outputs sentiment scores for a piece of text, have to load the SentimentIntensityAnalyser object in from the VADER package, assign it to another name *Sid*, to make it a bit easier to use. The implement of VADER package coded as:

```
from nltk.sentiment.vader import SentimentIntensityAnalyzer
```

`sid = SentimentIntensityAnalyzer()`

Finally, use the `polarity_scores()` method to get the sentiment metrics for a piece of text.

`sid.polarity_scores(sentence)`

VADER doesn't just do simple matching between the words in the text and in its lexicon. It also considers certain things about the way the words are written as well as their context. Let's see few sentences and scores from the work.

Examples:

(i) Great product! Exactly what it says works very well

neg: 0.0, neu: 0.508, pos: 0.492, compound: 0.7773,

(ii) I WON'T recommend this product to anyone

neg: 0.0, neu: 0.667, pos: 0.333, compound: 0.3612,

(iii) It makes my face feel nice and fresh. After about 3 days i did get slight acne but it cleared right back up! Will deff use this every day from now on!

neg: 0.0, neu: 0.825, pos: 0.175, compound: 0.5767,

(iv) Smells like a lemon cookie. Absolutely love!!! My kids love it.

neg: 0.0, neu: 0.362, pos: 0.638, compound: 0.924,

(v) You will LOVE this lotion. I smile every time I put it on.

neg: 0.0, neu: 0.548, pos: 0.452, compound: 0.8143

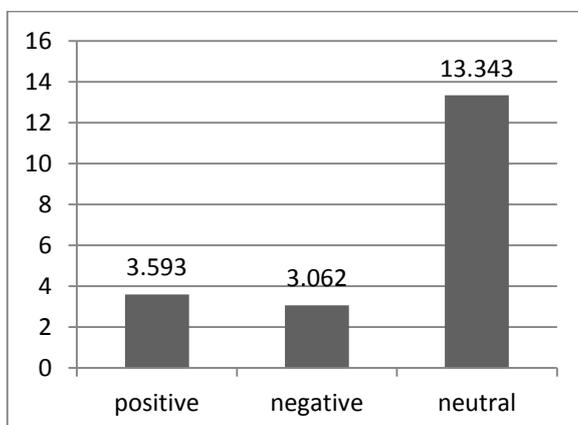
(vi) Don't waste your money.

neg: 0.0, neu: 0.563, pos: 0.437, compound: 0.3252,

The product reviews which have been scored individually and the scores have plotted as graph and segregated into positive, negative and neutral. This is implemented to know overall sentiment of the customers towards the brand new product on the market.

As for the sample, have analyzed few comments and the plot (fig.1) will be like:

Fig.1



IV.CONCLUSION

The voluminous reviews of the customer for the brand new product on the market which launched by the company, have been analyzed according to the sentiment classifier. The product review dataset attained from the data world site and does the NLTK VADER sentiment intensity analyzer. That classifies the sentiment from the comments as positive, negative and neutral by the method of sentiment polarity scores. After achieving the scores and then perform plot to know overall opinion of the product from the customers.

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