

SENTIMENT ANALYSIS OF MARKETING

Data Preprocessing:

I am using the Amazon Baby Products dataset from Kaggle for this project. Please feel free to download the dataset from this link if you want to follow along.

The original dataset has three features: name(name of the products), review(Customer reviews of the products), and rating(rating of the customer of a product ranging from 1 to 5). The review column will be the input column and the rating column will be used to understand the sentiments of the review. Here are some important data preprocessing steps:

The dataset has about 183,500 rows of data. There are 1147 null values. I simply will get rid of those null values.

As the dataset is pretty big, it takes a lot of time to run some machine learning algorithm. So, I used 30% of the data for this project which is still 54,000 data. The sample was representative.

If the rating is 1 and 2 that will be considered a bad review or negative review. And if the review is 3, 4, and 5, the review will be considered as a good review or positive review. So, I added a new column named 'sentiments' to the dataset that will use 1 for the positive reviews and 0 for the negative reviews

What is Sentiment Analysis?

Sentiment analysis is a kind of data mining where you measure the inclination of people's opinions by using NLP (natural language processing), text analysis, and computational linguistics. We perform sentiment analysis mostly on public reviews, social media platforms, and similar sites.

Types of sentiment analysis:

Fine-grained

Fine-grained sentiment analysis gives precise results to what the public opinion is about the subject. It classified its results in different categories such as: Very Negative, Negative, Neutral, Positive, Very Positive.

Detecting Emotion

This kind of sentiment analysis identifies emotions such as anger, happiness, sadness, and others. Many times, you'll use lexicons to recognize emotions. However, lexicons have drawbacks too, and

in those cases

Based on Aspect

In aspect-based sentiment analysis, you look at the aspect of the thing people are talking about. Suppose you have reviews of a smartphone, you might want to see what the people are talking about its battery life or its screen size.

Multilingual

Sometimes organizations need to analyze the text of different languages. This form of sentiment analysis is considerably challenging and requires a lot of effort because you'd need many resources.

Sentiment analysis has many applications in various industries. As it helps in understanding public opinion, companies use sentiment analysis in doing market research and figuring out if their customers like a particular product (or service) or not. Then, according to the findings of the sentiment analysis, the organization can modify the respective product or service and achieve better results.

Why is Sentiment Analysis Required?

Before we delve into the various sentiment analysis project ideas, such as Twitter sentiment analysis project idea, or sentiment analysis of IMDb reviews, let's take a look at some of the reasons why Sentiment analysis is important.

In this technology-driven world, a majority portion of the data that we come across is unstructured. Whether it is in the form of emails, texts, or documents, the said data need to be properly structured and then analyzed further. This is where sentiment analysis comes into play. It not only helps to store data in an efficient and cost-friendly manner, but you can also solve certain real-time issues with the help of the same.

Various Approaches Used In Sentiment Analysis

- Rule-based approach- Unlike the other approaches, the rule-based approach is quite easy to comprehend. It basically counts the total number of negative and positive words present in the data set. Following this, if the result indicates that the number of positive words is more than the number of negative words, then the sentiment is positive, and vice versa.
- Automatic Approach- In this approach, the data set is initially trained, following which predictive analysis is done. After completion of this stage, words are extracted from the text. This can be done with the help of various techniques, some of which might include Linear Regression, Support Vector, and Naive Bayes, among others.
- Hybrid Approach- As the name suggests, this

approach is basically an amalgamation of both the rule-based approach and the automatic approach. It delivers more accurate results when compared to the other approaches.

Applications of Sentiment Analysis

There is a wide range of applications for sentiment analysis. Some of them have been discussed in the following list.

- **Social Media-** The comments on popular social media sites such as Instagram, Facebook, and Twitter are analyzed and then furthermore categorized into different segments, such as positive, negative, and neutral.
- **Customer Service-** One of the perfect examples might include the comment section in the Google Playstore application, wherein comments from 1 to 5, are usually selected with the help of the various sentiment analysis approaches.
- **Marketing Sector-** The marketing industry has benefited a lot from sentiment analysis. It has helped brand owners to understand the review of a product or service, and whether it has been categorized as good or bad by the consumers.

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