How sentiment analysis works and why you should care about it being used on your data

When branding, simply having a high-quality product or service is not enough. Organizations must leverage data from survey results, customer reviews, social media mentions, and chat conversations to understand their product sentiment and customer needs to decide a brand's true impact. In this context, sentiment analysis is beneficial as it looks at the emotions expressed in customer data. This article will explain sentiment analysis, how it works, why it is essential, and decide whether you should use it or not on your data.

What is Sentiment Analysis?

Sentiment refers to the emotion (positivity, negativity, or neutral) expressed. Sentiment analysis, also called opinion mining or emotional artificial intelligence, is an effective way to evaluate whether the written or spoken language is positive, negative, or neutral. In simple terms, it looks at the emotion of the language. Large enterprises often use it to detect sentiment in social data, gauge brand reputation, and understand customer experiences and needs.

Types of Sentiment Analysis

People experience a broad spectrum of emotions, including interest, disinterest, sadness, and happiness, as well as other positive and negative emotions. Various sentiment analysis models are available to capture this wide range of emotions.

Let us see some of the most common types of sentiment analysis.

1. ## Fine-Grained
   This sentiment analysis model aids in the calculation of polarity precision. Sentiment analysis can be performed using extremely positive, positive, neutral, negative, or very negative polarity categories. For the study of reviews and ratings, fine-grained sentiment analysis is helpful.
   On a scale of one to five, one stands for a very unfavorable situation, and five describes a highly positive situation. On a scale of 1 to 10, 1-2 is very negative, and 9-10 is very positive.

2. ## Aspect-Based
   The aspect-based analysis goes deeper than fine-grained analysis in deciding the overall polarity of the customer assessments. Aspect-based sentiment analysis is particularly useful for real-time monitoring. Businesses can immediately find issues that customers report on social media or in reviews. Aspect-Based research can help accelerate responsiveness and improve customer experience.

   Assume you are a phone maker and receive a customer review saying, "The camera struggles under artificial lighting circumstances."

You can use aspect-based analysis to decide if the reviewer mentioned something "bad" about the "camera."

3. Emotion Detection

Emotion detection, as the name implies, aids in the identification of emotions. Anger, sadness, happiness, frustration, fear, concern, panic, and other emotions are examples. Emotion detection systems often employ lexicons, which are collections of words that express specific emotions. Advanced classifiers also use robust machine learning (ML) algorithms.

Because people communicate emotions in numerous ways, it is better to use ML instead of lexicons. For example, this line: "This product is about to kill me." This statement could describe anxiety and panic from your customers.

A related phrase, "This product is killing it for me," has an entirely different and positive connotation. In the lexicon, however, "kill" may connect with terror or panic. This could lead to false emotion detection.

4. Intent Analysis

Companies may save time, money, and effort by accurately deciding consumer intent. Businesses often find themselves chasing customers who have no intention of purchasing shortly. Accurate intent analysis can solve this problem.

The intent analysis can aid you in figuring out whether a customer is looking to buy anything or is just looking around.

If a buyer is willing to make a purchase, you can check and market them. You can save time and money by not advertising to customers who are not ready to buy.

Why is sentiment analysis crucial?

Perhaps you want to track brand sentiment to detect dissatisfied and angry customers. You want to compare qualitative sentiment information quarterly to see why sentiment is falling or rising and take business decisions accordingly.

Automatically analyzing survey results, customer reviews, social media mentions, and email and chat conversations allows brands to learn what makes customers happy or frustrated to tailor products and services to meet their customers' needs.

Sales improvement and customer retention are the key business goals. Sentiment analysis helps you understand how people think about your brand or product on a large scale. This is often impossible to do manually simply because there is too much data. Specialized SaaS tools eased companies to gain deeper insight into their text data.

General benefits of sentiment analysis include:

- More powerful - Sorting Data at Scale
- Act Faster - Real-Time Analysis
- More trustworthy - Consistent criteria
- Save time - Automation

How does Sentiment Analysis work?

The sentiment analysis algorithm or tool receives written data and processes it using natural language processing (NLP) to uncover the sentiment of the expression, decide people's emotions, and decide how customers feel and think about the product.

1. Supervised Machine Learning

It is a subgroup of machine learning and artificial intelligence. It is identified by how it trains algorithms that accurately classify data or predict outcomes using labeled datasets.

A notable example of supervised learning can be found in text classification problems designed to predict the desired category of a given piece of text. One dominant topic in text classification is to predict the sentiment of a part of the text, like a post or tweet, or a product review.

2. Rule-based methods

A rule-based system is a practical approach to text analysis without training or using machine learning models. This approach results in a set of rules based on which the text is labeled as positive/negative/neutral. These rules are also known as lexicons. Hence, the Rule-based approach is called the Lexicon-based approach.

A classic rule-based system is the domain-specific expert system that uses rules to make deductions or choices. For example, the expert system could help the doctor select a correct diagnosis based on a cluster of symptoms

3. Hybrid methods

Software developers occasionally blend supervised machine learning and lexicon-based techniques to increase sentiment accuracy without compromising efficiency.

The methods can be combined in numerous ways, but often, a rule-based system—which is often quicker than ML algorithms—will try to categorize the sentiment of a statement. A machine learning classifier will be employed to decide the sentiment of the statement if a specific level of confidence cannot be reached (for example, when few or no words from the sentence are present in the lexicon).

How accurate is sentiment analysis?

The degree to which a sentiment analysis system coincides with human assessments decides its accuracy. Variable measures based on precision and recall over the two target categories of negative and positive texts are typically used to measure this. Human raters, however, only agree approximately 80% of the time on average, according to a study. Consequently, such accuracy may not sound significant, but a program that classifies sentiment at 70% performs as well as people. People disagree with any answer by the same amount; therefore, even if the software were "correct" 100% of the time, humans would still disagree with it 20% of the time. The results, however, are not comparable since computer systems will make quite different errors from those made by human assessors.

For example, a computer system will not be able to manage negations, exaggerations, jokes, or sarcasm, which are usually simple for a human reader to understand. A computer system's mistakes will appear excessively naive to a human.

Conclusion

The key to understanding the customer experience is always to watch for customer feedback. Sentiment analysis is not a one-time effort, but it requires constant monitoring. Continuous reviewing and monitoring customer feedback on your business can proactively get ahead of the latest trends and solve problems before it is too late. Getting input and analyzing sentiment can give companies a deep understanding of how customers truly "feel" about their brand. You can offer a more reliable customer experience when you understand their sentiments.