

Sentiment Analysis on Amazon Food Review

What is Sentiment Analysis: It is a technique that can be used to determine the emotional tone of text and classify it as positive, negative, or neutral. When applied to Amazon food reviews, sentiment analysis can help us understand how customers feel about the products and their overall experience.

Why we need Sentiment Analysis:

- ✓ Sentiment analysis for the brand is very important for both parties i.e. organization and client, to increase the sale of products.
- ✓ To achieve profit, by understanding the real behavior of the customer about the sale products.
- ✓ Improvement of the product, quality, and sale of the product can predict the customer reviews that can be positive, negative, or neutral. By using sentiment analysis “to provide the high quality of services and also the improvement of the product’s quality” enhances the customer traffic on the selling platform. Amazon product reviews can help the customer about the same product choice and it can also help the customer for better decision making.

Where we need Sentiment Analysis:

Sentiment analysis is used in social media monitoring, allowing businesses to gain insights about how customers feel about certain topics, and detect urgent issues in real time before they spiral out of control.

Industry Use Cases of Sentiment Analysis

1. Track Customer Sentiment vs. Time

If your current data gathering indicates people are happy with your products and services, that’s terrific. However, it can lead to complacency — sentiment analysis can prevent complacency by showing how customer sentiment tracks over time. For example, you could see an uptick in consumer sentiment and trace that data back to its most likely cause.

2. Determine Which Customer Segments Have the Strongest Opinions

Sentiment analysis can tell you which customers feel negatively about your brand for whatever reason.

For example, you could find out that negative sentiment is coming from people who don’t like your

returns process. Likewise, sentiment analysis can help you identify which customers are your strongest brand ambassadors.

3. Plan Product Improvements

How have customers reacted to your product's new control layout? What specific product improvements put a smile on customers' faces?

Sentiment analysis can use unstructured data to help you learn how people felt about your latest product release. This data could tell you that people love the product's appearance, but find that it is difficult to use. Sentiment analysis can tell you over time what complaints about "ease of use" are related to.

4. Determine the Most Effective Communication Channels

While consistency is important across communication channels, you may find that people respond more positively on some channels than others. Maybe the percentage of positive tweets about your brand is higher than the percentage of positive Facebook comments. Consider why that result might be. Such information can help you analyze how you interact with customers on various platforms, and make changes as necessary.

5. Prioritize Customer Service Issues

Customer support tickets tend to be answered in order of submission, but is that the best approach? Companies can use sentiment analysis to put top-priority customer service tickets at the head of the queue. Done strategically, this can help companies quickly address negative feedback.

Sample Code:

Here's an example code for sentiment analysis on Amazon Food Reviews using machine learning and Python. This code uses the scikit-learn library for machine learning and pandas library for data manipulation.

```
import pandas as pd

from sklearn.feature_extraction.text import TfidfVectorizer

from sklearn.naive_bayes import MultinomialNB

from sklearn.metrics import accuracy_score

from sklearn.model_selection import train_test_split


# Load the Amazon food review dataset from a CSV file
reviews = pd.read_csv('amazon_food_reviews.csv')


# Convert the review scores to binary sentiment labels (1 for positive, 0 for negative)
reviews['Sentiment'] = reviews['Score'].apply(lambda score: 1 if score > 3 else 0)


# Split the data into training and testing sets
train_data, test_data, train_labels, test_labels = train_test_split(reviews['Text'], reviews['Sentiment'],
test_size=0.2, random_state=42)


# Convert the text data into numerical features using TfidfVectorizer
vectorizer = TfidfVectorizer(stop_words='english')

train_features = vectorizer.fit_transform(train_data)

test_features = vectorizer.transform(test_data)


# Train a Naive Bayes classifier on the training data
classifier = MultinomialNB()

classifier.fit(train_features, train_labels)


# Test the classifier on the testing data and calculate accuracy
```

```
predictions = classifier.predict(test_features)

accuracy = accuracy_score(test_labels, predictions)


# Print the accuracy score

print("Accuracy:", accuracy)
```

This code loads the Amazon food review dataset from a CSV file and converts the review scores to binary sentiment labels (1 for positive, 0 for negative). The data is then split into training and testing sets using the `train_test_split` function from scikit-learn. The text data is converted into numerical features using the `TfidfVectorizer` from scikit-learn, which converts the text into a sparse matrix of TF-IDF features. A Naive Bayes classifier is then trained on the training data using the `MultinomialNB` class from scikit-learn, and the accuracy of the classifier is calculated using the `accuracy_score` function from scikit-learn.

Note that this is just one example of how to do sentiment analysis on Amazon food reviews using machine learning and Python, and there are many other approaches and algorithms that can be used depending on the specific problem and data.