

Sentiment Analysis of Amazon Echo Reviews

Overview:

This project analyzes customer feedback on Amazon Echo products using Natural Language Processing and machine learning to extract actionable insights. By examining verified user reviews, we identified key sentiment patterns that reveal customer satisfaction levels and areas for potential improvement.

Methodology:

1. **Data Preparation:** Cleaned and preprocessed Amazon Echo reviews, then categorized sentiments into seven levels (strongly negative to strongly positive) based on polarity.
2. **Modeling:** Applied machine learning models (Naive Bayes and Support Vector Machine) to classify sentiments, with SVM achieving a superior accuracy of 93.23% on test data.

Key Findings:

- **Positive Feedback:** The majority of reviews (over 2,500) were positive, indicating high satisfaction with Amazon Echo's performance and quality.
- **Critical Feedback:** Fewer reviews (approximately 600) were neutral or negative, providing insights into areas for targeted improvements, such as customer support or feature updates.

Conclusion:

The analysis highlights Amazon Echo's strong market reception, with most customers expressing positive sentiments. High SVM model accuracy supports reliable sentiment classification, enabling Amazon to use these insights to strengthen product appeal and address specific customer needs. This project demonstrates the value of sentiment analysis in guiding product strategy and customer experience initiatives.