Title

Sentiment Analysis of Product Review

Abstract

The study focuses on analyzing product reviews to classify customer sentiments as positive, neutral, or negative. The dataset comprises structured JSON-format data containing product IDs, review texts, customer ratings, timestamps, and reviewer information. By leveraging advanced machine learning and natural language processing (NLP) techniques, the analysis aims to uncover insights into customer satisfaction, product feedback, and emerging trends. The findings provide actionable information for improving product quality and customer experience.

Dataset

The dataset is stored in **JSON format**, making it easily accessible and suitable for processing. It includes the following attributes:

- **Product ID**: Unique identifier for each product.
- **Review Text**: Customer-written feedback on the product.
- **Customer Rating**: A numerical rating (e.g., 1-5 stars).
- **Reviewer Information**: Details about the reviewer (if applicable).

Algorithm

The sentiment analysis utilizes a combination of traditional and advanced machine learning algorithms, including:

1. **Naïve Bayes**: A probabilistic model for basic sentiment classification.
2. **Logistic Regression**: A supervised learning algorithm for binary/multi-class sentiment prediction.
3. **Support Vector Machines (SVM)**: For high-dimensional sentiment categorization.
4. **Transformer-based Models (e.g., BERT)**: Advanced deep learning models for capturing contextual sentiment nuances.

Each algorithm is evaluated based on metrics such as accuracy, precision, recall, and F1-score to determine the most effective model.

Team Members

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