Understanding the Influencing Factors and Sentiment Analysis of Amazon Product Reviews

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Overview

Online reviews wield significant influence over consumer choices and business reputations. Amazon, a top e-commerce platform, hosts a wealth of product reviews. This project examines factors shaping Amazon reviews, revealing their impact on feedback and broader implications.

Goals

1. Identify Key Influencing Factors: Discover common factors affecting both positive and negative Amazon reviews, including product quality, customer service, and delivery experiences.

2. Conduct Sentiment Analysis: Utilize advanced sentiment analysis techniques to categorize reviews into positive, negative, or neutral sentiments.

3. Detect Review Anomalies: Develop sophisticated methods to identify anomalies in reviews, going beyond the basic detection of fraudulent reviews. Distinguish between genuine user-generated feedback, potentially influenced or biased reviews, and those that may contain spam or irrelevant content

4. Assess Reputation and Social Impact: Investigate how varying percentages of positive or negative reviews influence a product's reputation and social engagement, illuminating the connection between review sentiment and social outcomes.

Specifications

- Leveraging social data mining, advanced data analysis, and natural language processing.
- Extensive textual analysis to extract social insights.
- Investigation of the connection between review sentiment and social outcomes.

Importance

Online reviews have a significant impact on consumer choices and business reputations. Ensuring authentic and transparent reviews is crucial for consumer trust, brand reputation, and informed decisions. This research project seeks to improve review authenticity and transparency, benefiting both businesses and consumers.

How does it relate to the class scope?

Reviews are the main reason for any social science surrounding Amazon. The motivation behind why people participate in leaving reviews on Amazon is a key aspect to explore.

- **Gamification**: gamification has been applied to reviews, particularly in the book market, where users receive free books for reviewing based on their reputation.
- **Efficacy and reciprocity**: These are primary motivators, with reputation and fun as secondary influences.
    - ◆ Reputation and fun are mentioned as additional motivators for leaving reviews.
    - ◆ Reciprocity is as a core element, where users are aware that their reviews can help others.
- Influencing others' purchasing decisions and feeling a sense of duty are noted as rewarding aspects of leaving reviews on Amazon.

Methods and Techniques

The main content is unstructured textual data that can vary vastly in format and context. The methods to consider in this project include:

- **Vector Space models**: use this to identify the weights of terms and then correlate what weights are highest in low rated reviews and vice versa
- **Clustering**: a great way to explore data that you know little about, we don't know how to categorise all the many reasons for good and bad reviews.This is particularly useful for identifying patterns among reviews that may not be immediately apparent.
- **Concordance**: Concordance analysis is employed to understand the context in which words and phrases are used in reviews. This is essential for disambiguating terms with multiple meanings, ensuring that the interpretation of words aligns with the specific context of the review. For instance, it helps differentiate between a product review and a review mentioning an unrelated context.
- **Topic analysis:** Topic analysis can be used on unstructured text to automatically categorise it. In our case it would be the many reasons for posting reviews, for example if someone had "shipping took 30 days extra" it would be categorised as shipping issues.