Feedback Analysis System Using ML

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A B S T R A C T

In this new era, where tremendous user feedback is available on the internet, it is most important to provide an improved mechanism to extract the user feedback quickly and most efficiently. It is very difficult for human beings to manually extract the summary of a user feedback on the Internet. There is plenty of feedback available on the internet. So, there is a problem with searching for quick review from the number of feedback available and absorbing relevant information from it. In order to solve the above two problems, automatic feedback analysis is very much necessary. Feedback analysis is the process of identifying the positive and negative information in feedbacks are compressing them into a shorter version preserving its overall meanings.

Keywords: Feedback analysis, Machine learning (ML), Natural Language Processing (NLP), Sentiment analysis, Text mining, Feature extraction, Text classification.

Introduction

Feedback analysis system using ML is to transform raw customer feedback into actionable information that can drive strategic decision-making. By automatically categorizing feedback, sentiment analysis, and summarize the feedback. A summary is a condensed version of one or more texts that captures the essential information while being shorter in length. The primary objective of automatic feedback analysis is to provide a concise representation of the source text while preserving its meaning. One key advantage of using summaries is that they save reading time. Feedback analysis methods can be categorized into extractive and abstractive summarization. Extractive summarization involves selecting crucial sentences or paragraphs from the original feedback and combining them to form shorter versions. On the other hand, abstractive summarization aims to comprehend the key concepts in the feedback and express them using natural language. Feedback analysis can be grouped into two categories: indicative and informative. Indicative summarization focuses on conveying the main idea of the text to the user and typically constitutes around 5 to 10 percent of the original text. In contrast, informative summarization provides concise information about the main text, with the length of the informative summary ranging from 20 to 30 percent of the original text.

Literature Survey

In research paper [1] the author analysed customer feedback data in the hotel industry and identify customer experience.
Research paper [2] presents a method for sentiment analysis of product reviews using natural language processing and machine learning techniques.
Research paper [3] presents a method for product review analysis using decision tree, Naive Bayes, and Support Vector Machine.

Methodology

The current system used by online e-commerce platforms like Flipkart and Amazon involves condensing lengthy reviews into a single line and presenting them alongside the product review. While this approach has its merits, it also has certain drawbacks and limitations.
One notable drawback is that consumers still need to read through all the reviews to gain a thorough understanding of the product. Depending solely on a brief summary deprives them of detailed insights into different aspects that are crucial for making an informed purchasing decision. This can be time-consuming and frustrating for customers seeking comprehensive information.
To address these limitations, alternative approaches can be explored. One potential solution involves leveraging advanced techniques such as Machine Learning and Natural Language Processing (NLP) to analyze customer reviews in a more comprehensive manner. These technologies enable a deeper analysis of the reviews, going beyond mere summarization.
By utilizing Machine Learning and NLP, it becomes possible to extract valuable insights from the reviews, including sentiments, opinions, and specific product features or qualities discussed by customers. This more in-depth analysis can highlight significant considerations for potential buyers, facilitating a better understanding of the strengths and weaknesses of the product.

Furthermore, employing advanced analysis techniques enables businesses to identify key areas for improvement based on customer feedback. By systematically analyzing the reviews, companies can gain valuable insights into aspects of their products that require enhancement or modification. This information can guide their efforts to refine their offerings and enhance overall customer satisfaction.

The culmination of these advanced techniques can be presented in a comprehensive report that provides consumers with valuable and easily understandable insights about the product. This report may include a summary of customer sentiments, common themes found in the feedback, and specific areas of praise or criticism. By presenting this information in a concise and organized manner, consumers can make more informed decisions when purchasing products
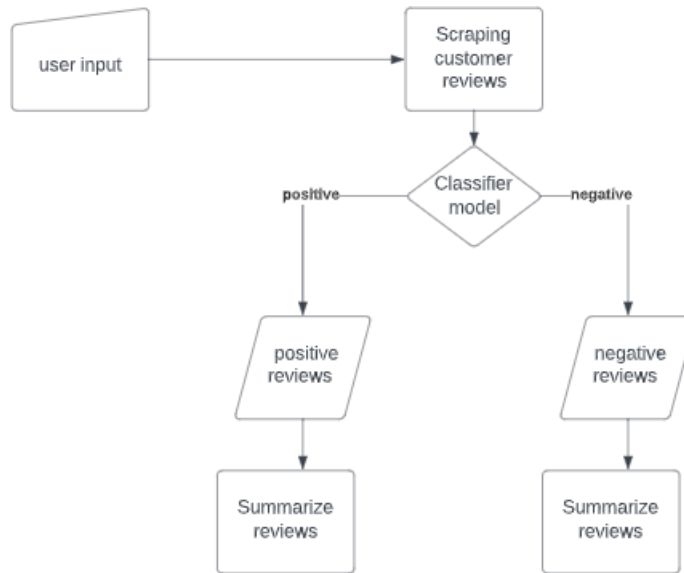

Figure 1: Architecture diagram

Results

Positive reviews

Unmatched Comfort and Performance with TVS Jupiter
Excellent Features - Jupiter 125
Experience Unmatched TVS Jupiter 125
Value for money scooter
TVS Jupiter 125 is the best in scooter segment
TVS Jupiter 125 has better kind of comfort
Reliable Scooter - TVS Jupiter 125
TVS Jupiter 125 best in the segment
Jupiter 125 Is Easy To Ride
Jupiter 125 has useful features

Negative reviews

No standard for excellence Not that Good worst experience I ever had
Don't Buy bad TVS Jupiter 125 Mileage And Other Issues Worst
vehicle of 2022. Very worst riding experience. Infinite acceleration
cable issue for zyada se bhi zyada . Worst experience Bad decision of
buying jupiter125 Tvs slogan -   customer is bakra and not god. Very bad
Worst scooter Jupiter 125cc Bad Worst customer service Vibration
issue after 20 speed Waste of money i recoment but activa Horrible
Worst bike ever Buyer beware tvs jupiter 125cc - a complete nightmare
of a vehicl Poor battery life

Summary

Positive reviews

 TVS Jupiter 125 is the best scooter in scooter segment . Jupiter 125 - 6
months - 25062 kms. Jupiter 125 has good mileage around 50-55 km/l eco
mode good suspension good for small city . Jupiter's Outstanding
experience The best Best 125cc scooter Just WOW .

Negative reviews

 Buyer beware tvs jupiter 125cc - a complete nightmare of a vehicl Worst bike
ever Horrible experience . Vibration issue after 20 speed . Poor battery life .
No standard for excellence Not that Good worst experience I ever had Don't
Buy bad .

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