

## Artificial Intelligence Assisted Sentiment Analysis of Hotel Reviews Using Topic Modeling

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**Abstract :** With a surge in user-generated content or feedback or reviews on the internet, it has become possible and important to know consumers' opinions about products and services. This data is important for both potential customers and businesses providing the services. Data from social media is attracting significant attention and has become the most prominent channel of expressing an unregulated opinion. Prospective customers look for reviews from experienced customers before deciding to buy a product or service. Several websites provide a platform for users to post their feedback for the provider and potential customers. However, the biggest challenge in analyzing such data is in extracting latent features and providing term-level analysis of the data. This paper proposes an approach to use topic modeling to classify the reviews into topics and conduct sentiment analysis to mine the opinions. This approach can analyse and classify latent topics mentioned by reviewers on business sites or review sites, or social media using topic modeling to identify the importance of each topic. It is followed by sentiment analysis to assess the satisfaction level of each topic. This approach provides a classification of hotel reviews using multiple machine learning techniques and comparing different classifiers to mine the opinions of user reviews through sentiment analysis. This experiment concludes that Multinomial Naïve Bayes classifier produces higher accuracy than other classifiers.

**Keywords :** latent Dirichlet allocation, topic modeling, text classification, sentiment analysis

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