**Case Study“AI-Project“: Sentimental Analysis using Natural Language Processing**

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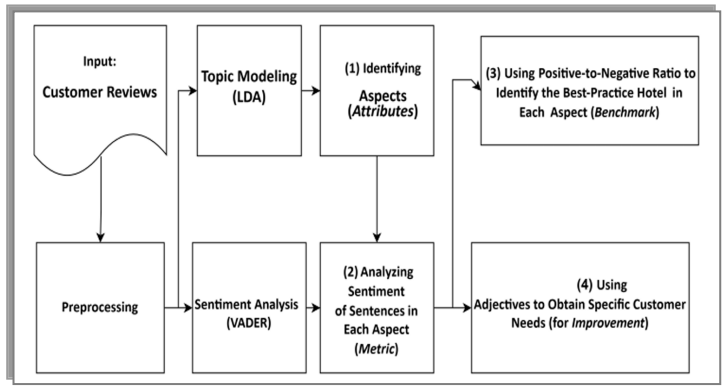
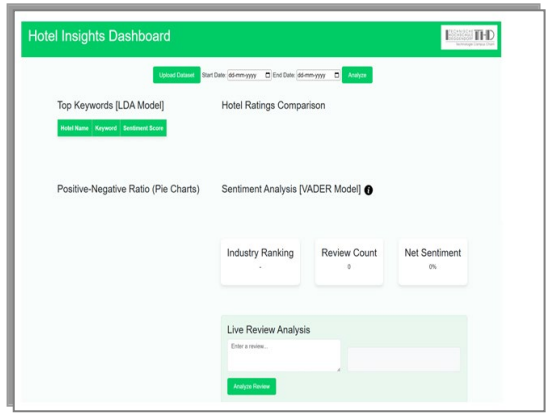
In this case study we have used natural language processing (NLP) probabilistic method latent dirichlet allocation ( LDA) and valance aware dictionary for sentiment reasoning (VADER) for sentiment analysis. The hotel performances were evaluated based on customer reviews. We have benchmarked and analyse the sentiment trends.

To enhance accessibility, we developed a user friendly web-based interface that allows users to input reviews, perform real-time sentiment analysis, and compare results using metrics such as sentiment scores, positive-to-negative ratios, The trends were visualizations using line graphs and pie charts. It demonstrates the practical application of user-centric tools for data-driven decision making in the hospitality industry.

**Keywords** – Valance aware dictionary for sentiment reasoning (VADER), latent dirichlet allocation (LDA), natural language processing (NLP), and sentimental analysis.




Model Frame work




Interactive GUI for analyzing and visualizing


Hotel Rating Comparison