Report of Task-1

Paper Title: Sentiment Analysis with NLP on Twitter Data

Paper Link: https://ieeexplore.ieee.org/abstract/document/9036670/authors#authors

1 Summery:

1.1 Motivation:

The escalating volume of data generated on social networking sites, particularly Twitter, has prompted the need to extract valuable insights. The study aims to harness this data for sentiment analysis, providing businesses with a tool to understand public perception of their products.

1.2 Contribution:

The authors introduce a novel approach by combining BoW and TF-IDF models, leveraging the strengths of both techniques to enhance sentiment classification accuracy. Their method offers a substantial improvement in sentiment analysis effectiveness.

1.3 Methodology:

The research employs a comprehensive NLP-based data preprocessing framework. This includes essential steps such as tokenization, stemming, lemmatization, stopwords removal, parts of speech tagging, named entity recognition, and text modeling. The integration of BoW and TF-IDF models further refines sentiment analysis.

1.4 Conclusion:

The study demonstrates the efficacy of the proposed system, achieving an impressive 85.25% accuracy in sentiment analysis. This approach not only aids in gauging customer satisfaction but also provides valuable feedback for product enhancement.

2 Limitations:

2.1 First Limitation: Data Dependence

The study's effectiveness is contingent on the quality and relevance of the Twitter data collected. Variability in data sources may impact the accuracy of sentiment analysis.

2.2 Second Limitation: Semantic Ambiguity

While BoW and TF-IDF models significantly enhance classification, they may not capture nuanced semantic information, potentially leading to misinterpretation of certain tweets.