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SENTIMENT ANALYSIS ON EMPLOYEE LAYOFFS BASED ON HYBRID FEATURE EXTRACTION AND LONG SHORT TERM MEMORY NETWORK

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Abstract

In recent decades, sentiment analysis has become crucial for understanding the opinions and emotions expressed in different forms of communication, namely speech, text, etc. Particularly, in the scenario of employee layoffs, sentiment analysis assists organizations in understanding the overall emotional impact of the layoffs on the workforce. In the initial phase of this research, twitter data is acquired using rapidminer software. Subsequently, data pre-processing is performed by employing regular expressions. The removal of punctuation, stopwords, and conversion of text data to lowercase reduces noise in the collected dataset that enables the classification model to focus more on relevant information. After pre-processing the twitter data, feature vector extraction is accomplished by applying Term Frequency-Inverse Document Frequency (TF-IDF) and spacy.word2vec techniques. In this context, hybrid feature extraction improves the classification model's ability in capturing rich textual information that results in more accurate sentiment classification. In the final phase, a Long Short Term Memory (LSTM) network is applied to classify the categories of user sentiments, namely positive, neutral, and negative. Compared to other traditional classification models, the LSTM network is computationally effective, and achieved a higher accuracy of 96.30%, recall of 97.12%, and precision of 96.88% on the collected dataset.

Author Keywords

Long Short-Term Memory Network, Rapid-Miner, Sentiment Analysis, Term Frequency-Inverse Document Frequency, Word2vec.

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