MSc Project Report

Sentiment Analysis for Call Data in the Information Technology Industry

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Abstract

IT BPO organizations rely heavily on customer satisfaction for customer retention. When a customer is being serviced through these organizations, a key communication method is through voice calls. Understanding the customer sentiment through these voice calls, could provide a good indication of the customer satisfaction level, thus allowing the organization to have superior customer retention and gain a competitive advantage. This solution aims to provide an efficient process to analyze these voice calls using machine learning and NLP techniques. The automated solution involves transcribing the voice call to text, then performing classification using machine learning to gauge the sentiment. This data can be taken as a KPI to improve overall customer satisfaction.

A suitable dataset was selected for the training, seven traditional classification models and 2 deep learning models were selected for training. The models were evaluated using key evaluation metrics. Out of these, the logistic regression model outperformed the rest of the models. From the deep learning models, LSTM scored the highest accuracy. For the user interface, the logistic regression and LSTM models were used to gauge the sentiment of the uploaded audio file.

Keywords: Classification Models, Deep Learning, Neural Networks, Sentiment Analysis, Natural Language Processing