

PHASE 4-PROJECT

SENTIMENT ANALYSIS

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Content

01 Business Understanding

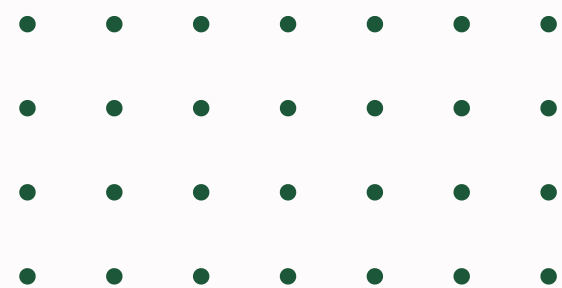
02 Main Objective

03 Data Understanding

04 Modelling


05 Conclusion

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Business Understanding

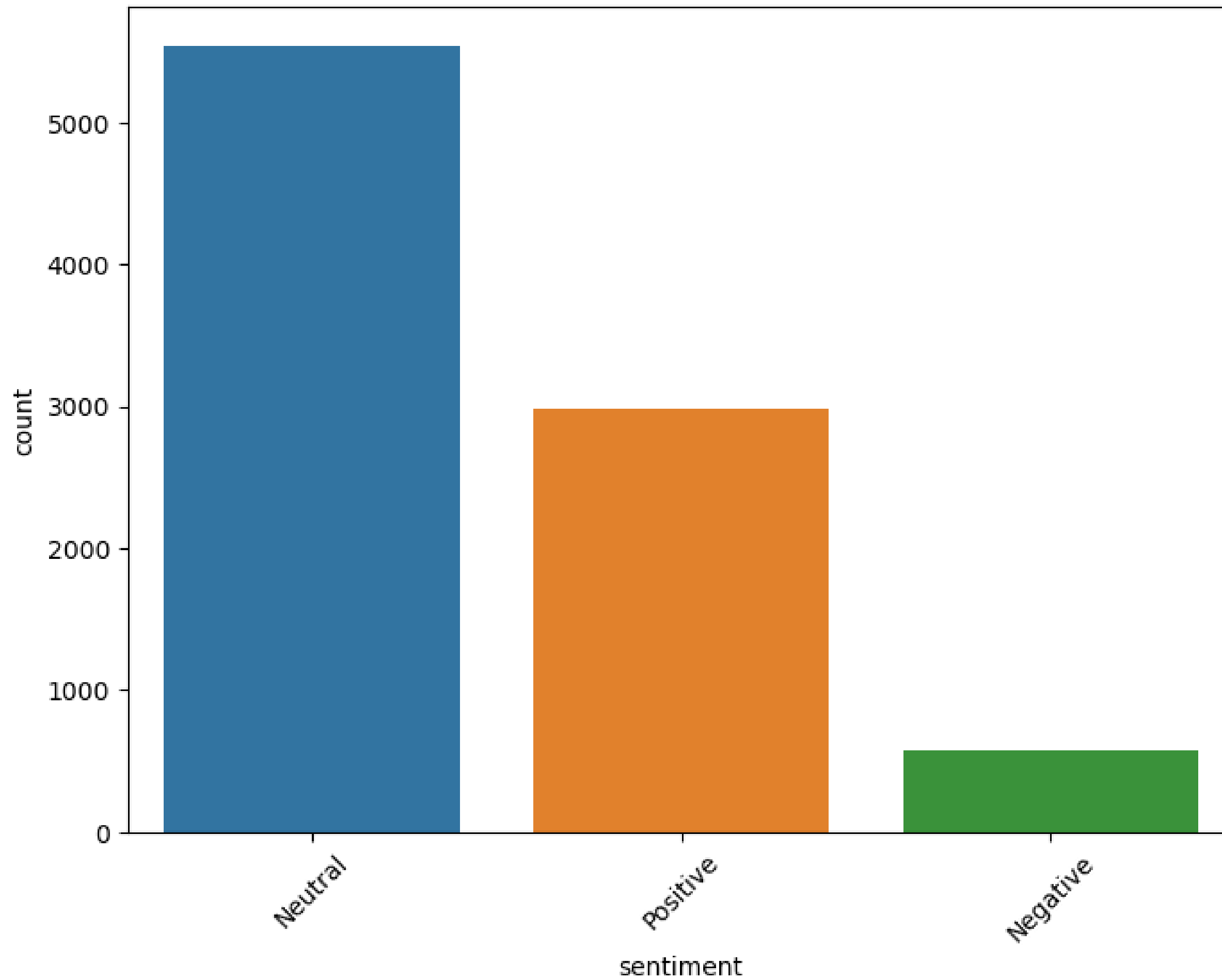
- In this project, we embark to delve deep into the Twitter customers' sentiment concealed within user-generated feedback directed at companies. Will achieve this through utilising Natural Language Processing (NLP) techniques, aimed at unravelling the sentiment spectrum and its profound implications for businesses. Will use data from data-world.
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MAIN OBJECTIVE

- Build a robust sentiment analysis model to rate the sentiment of tweets based on their content.
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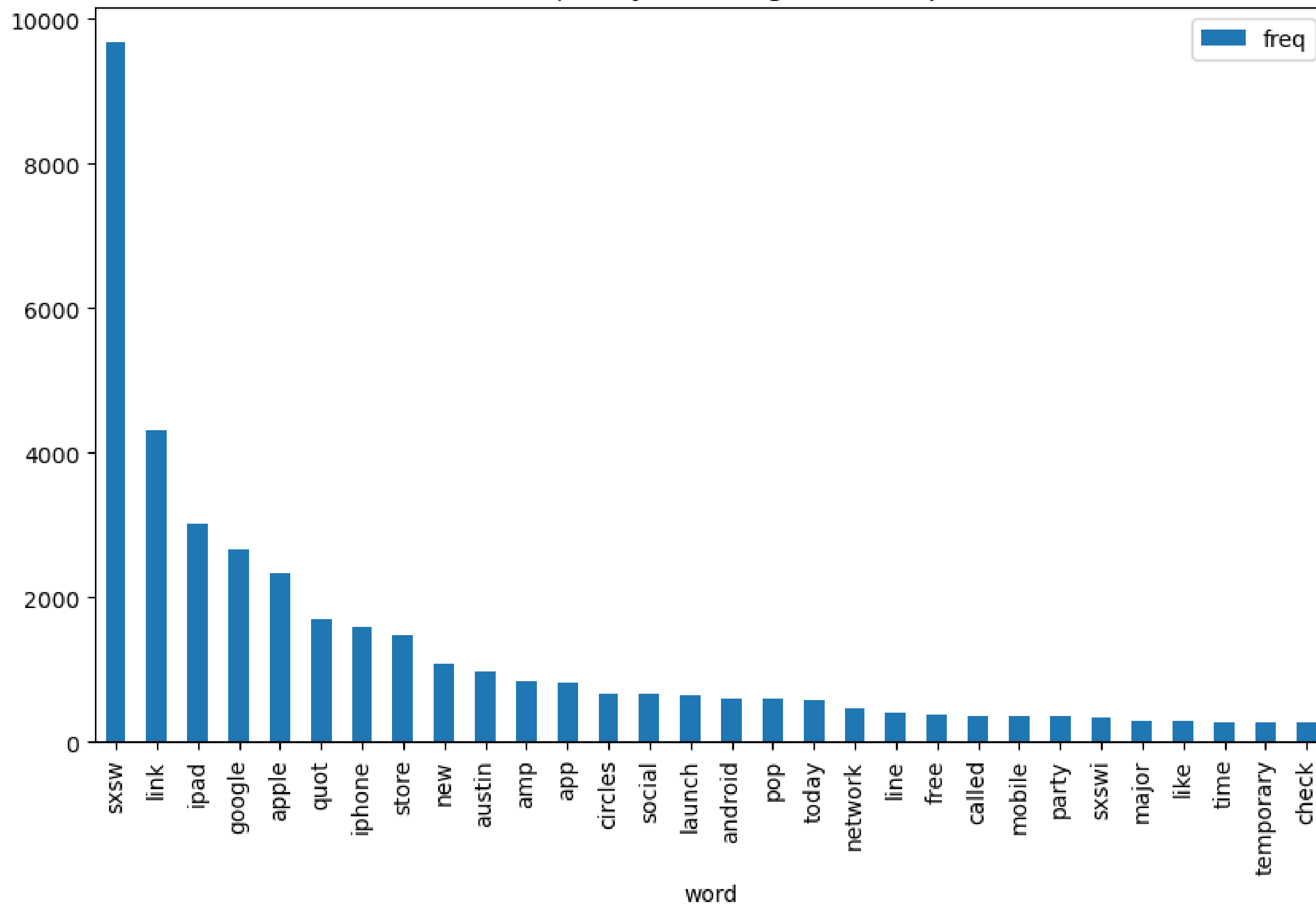
Data Understanding



- The distribution of the data sentiment

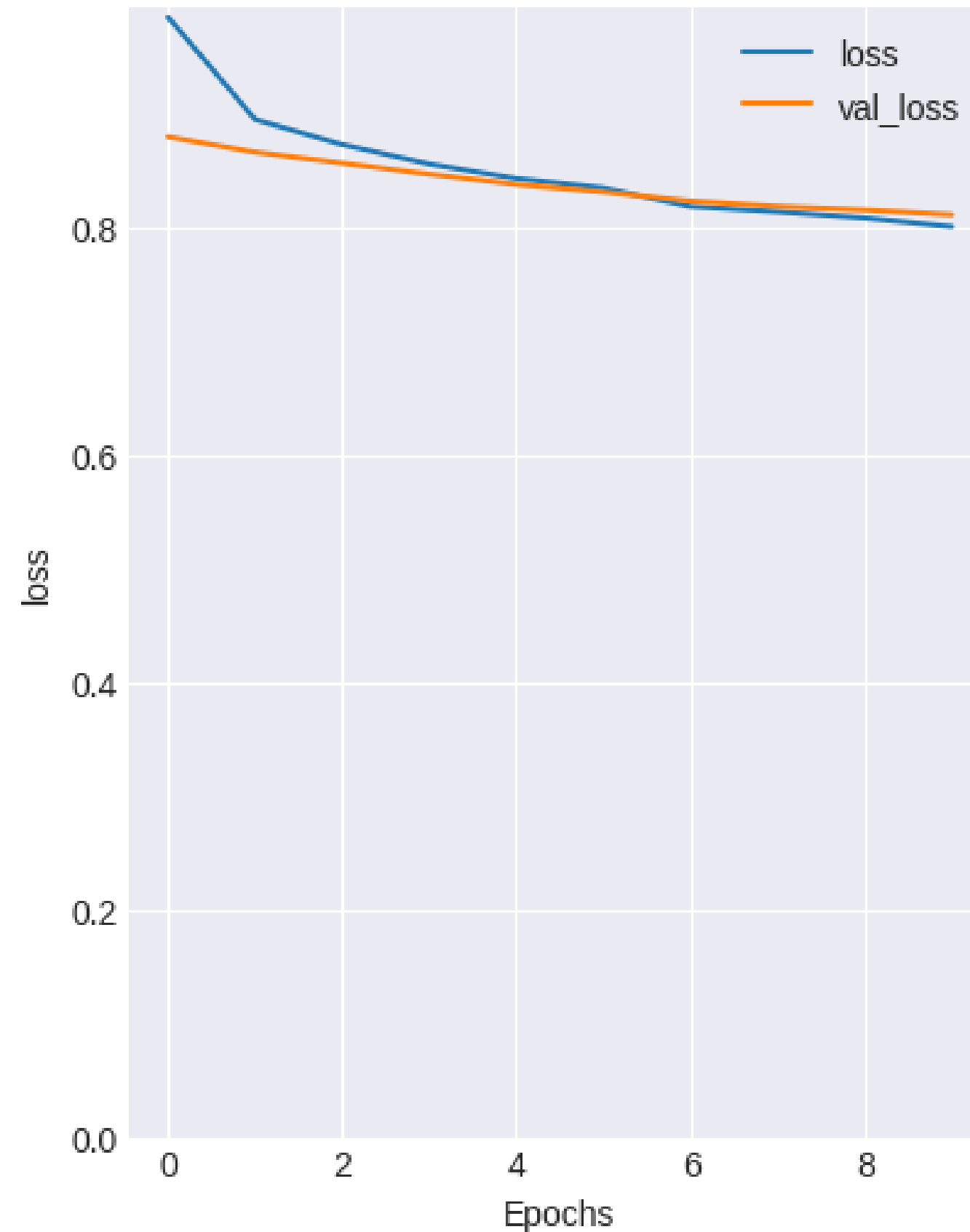
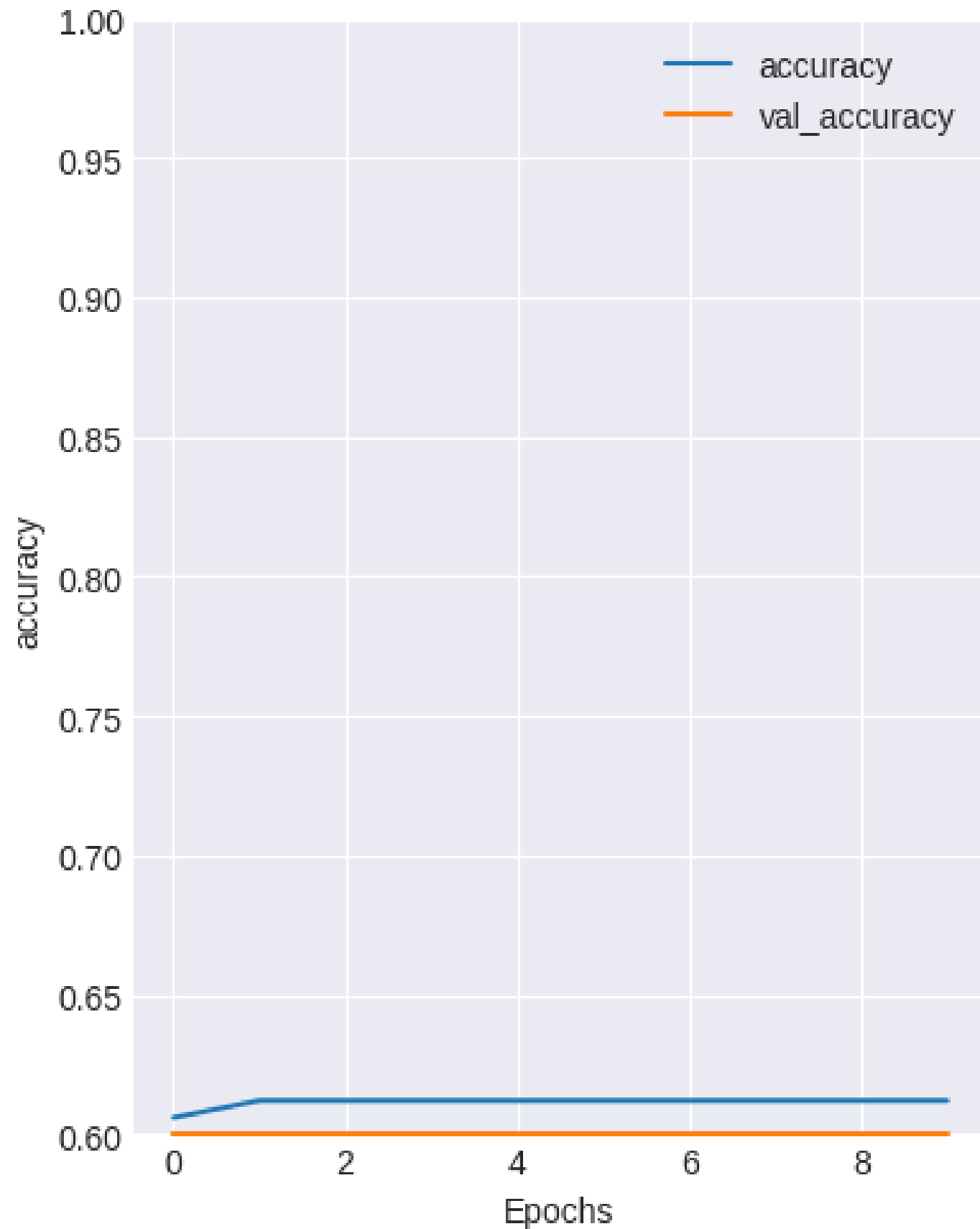
Data Understanding

Most Frequently Occurring Words - Top 30



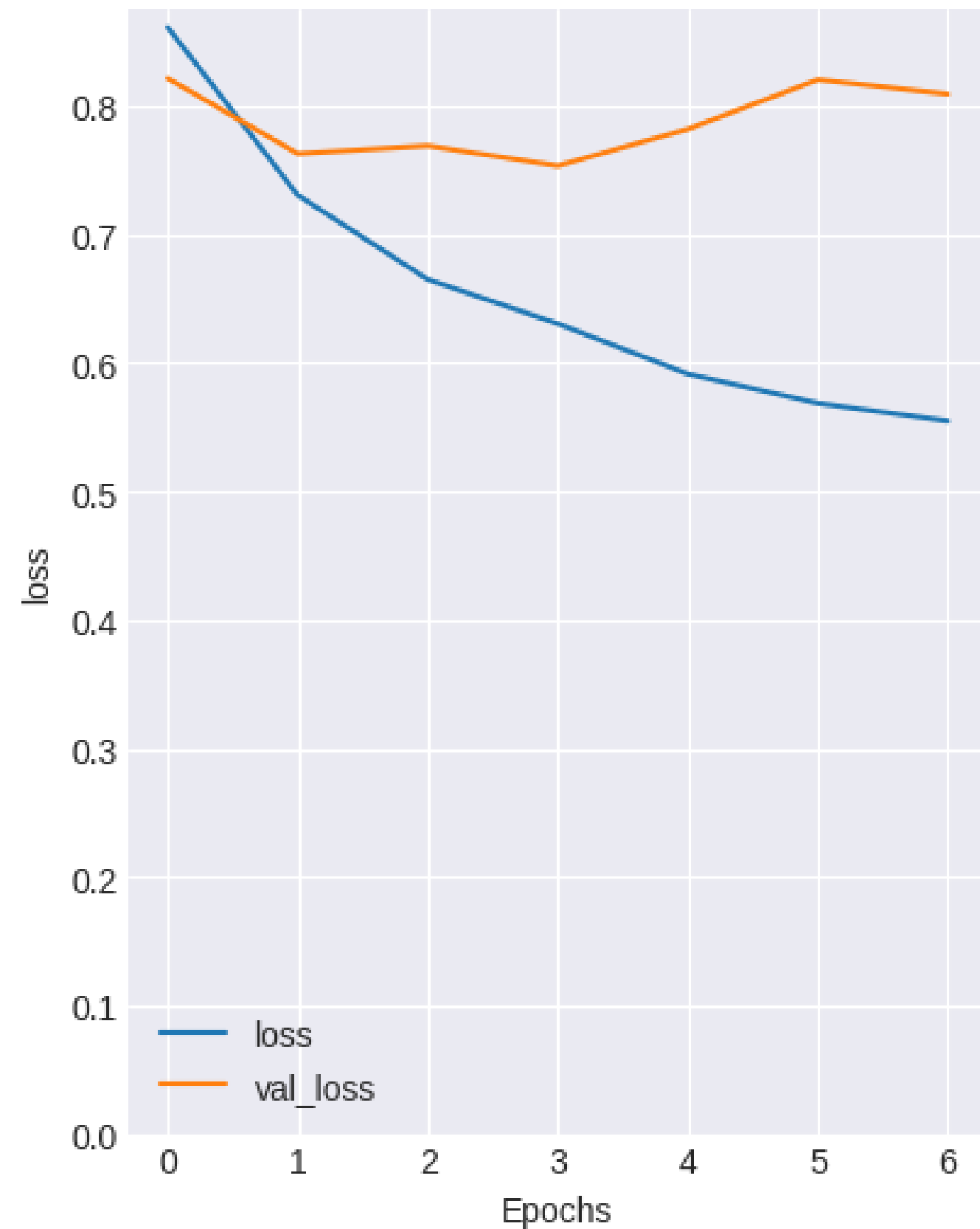
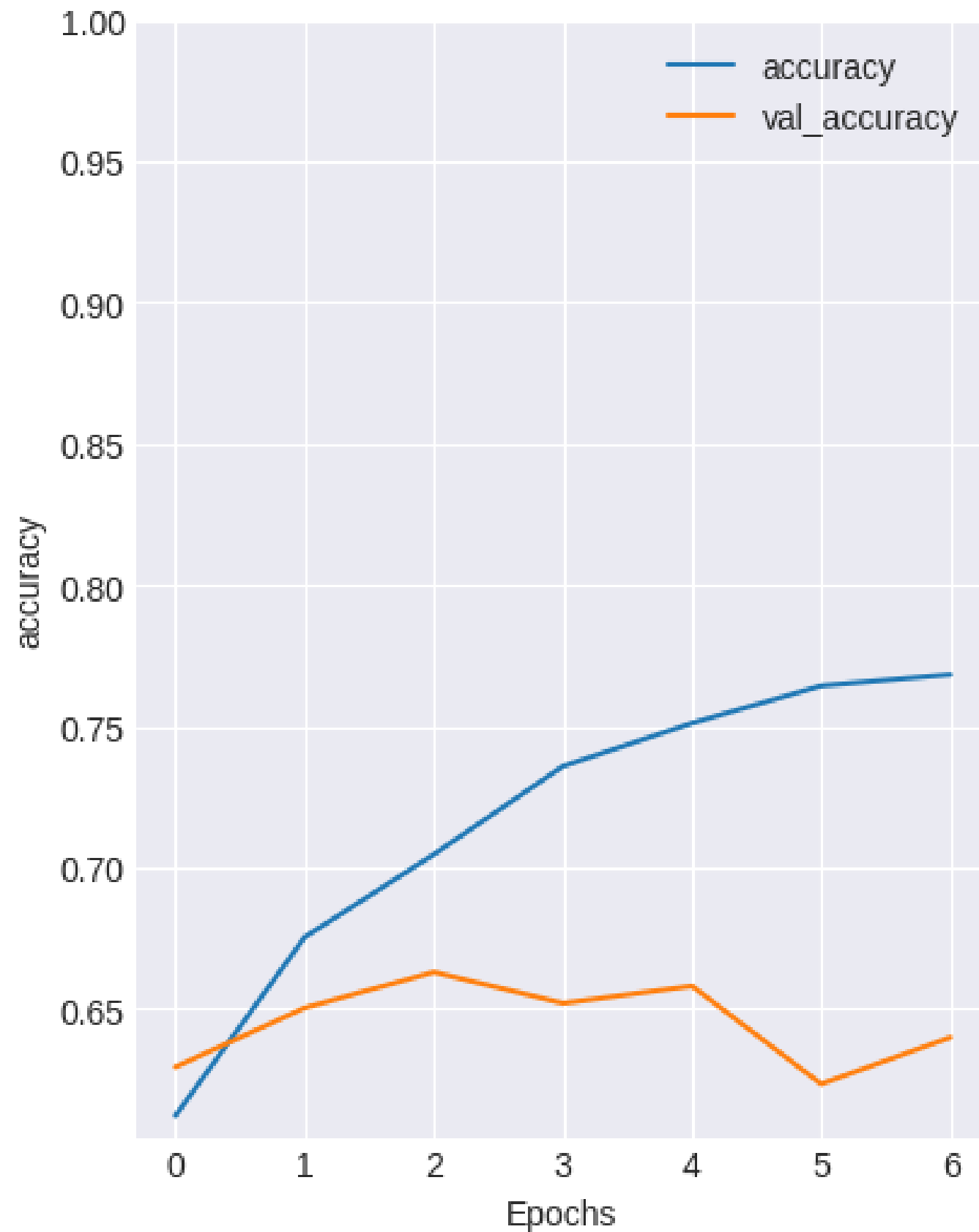
- Top 30 most frequent words used.

Modelling - Baseline Model



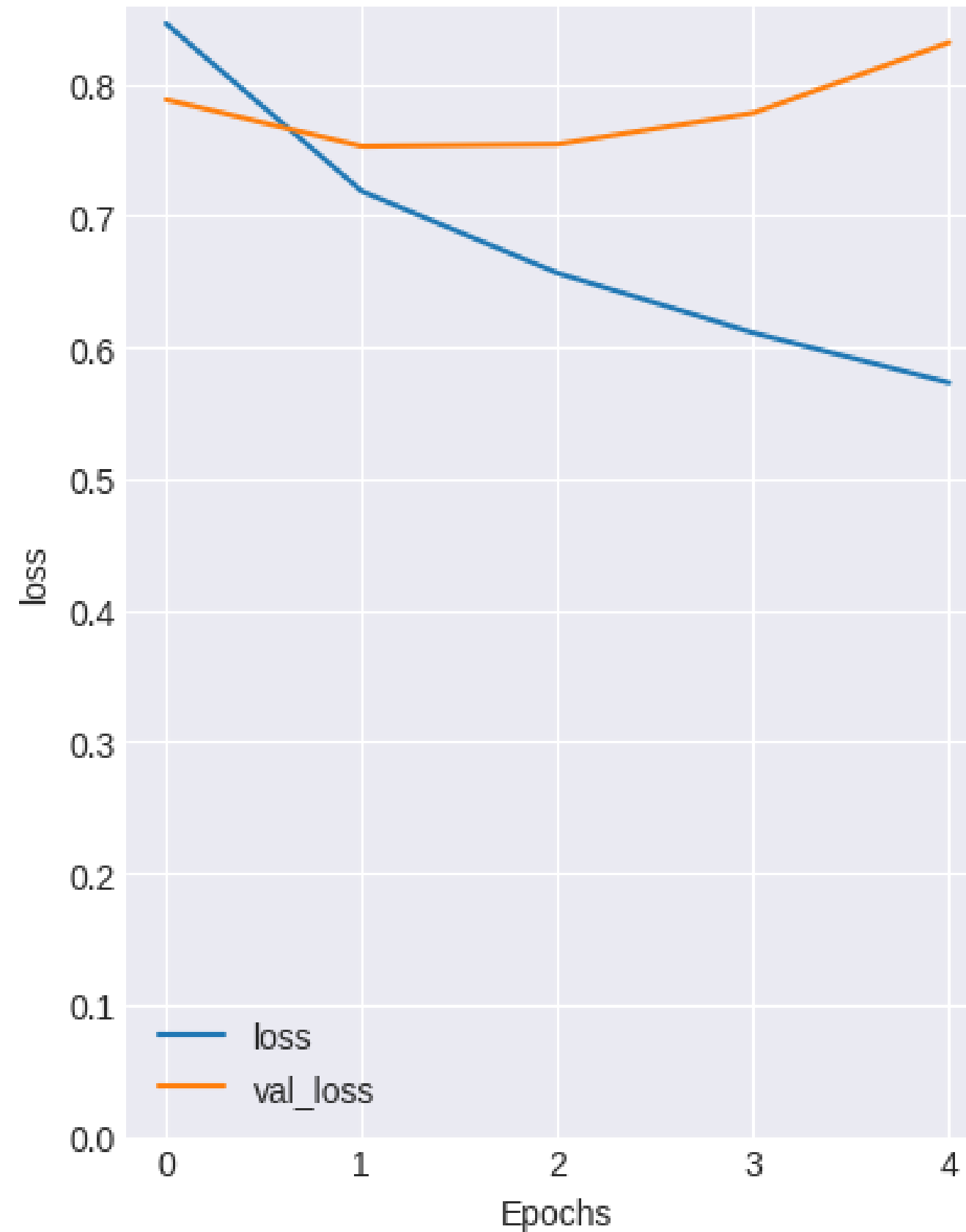
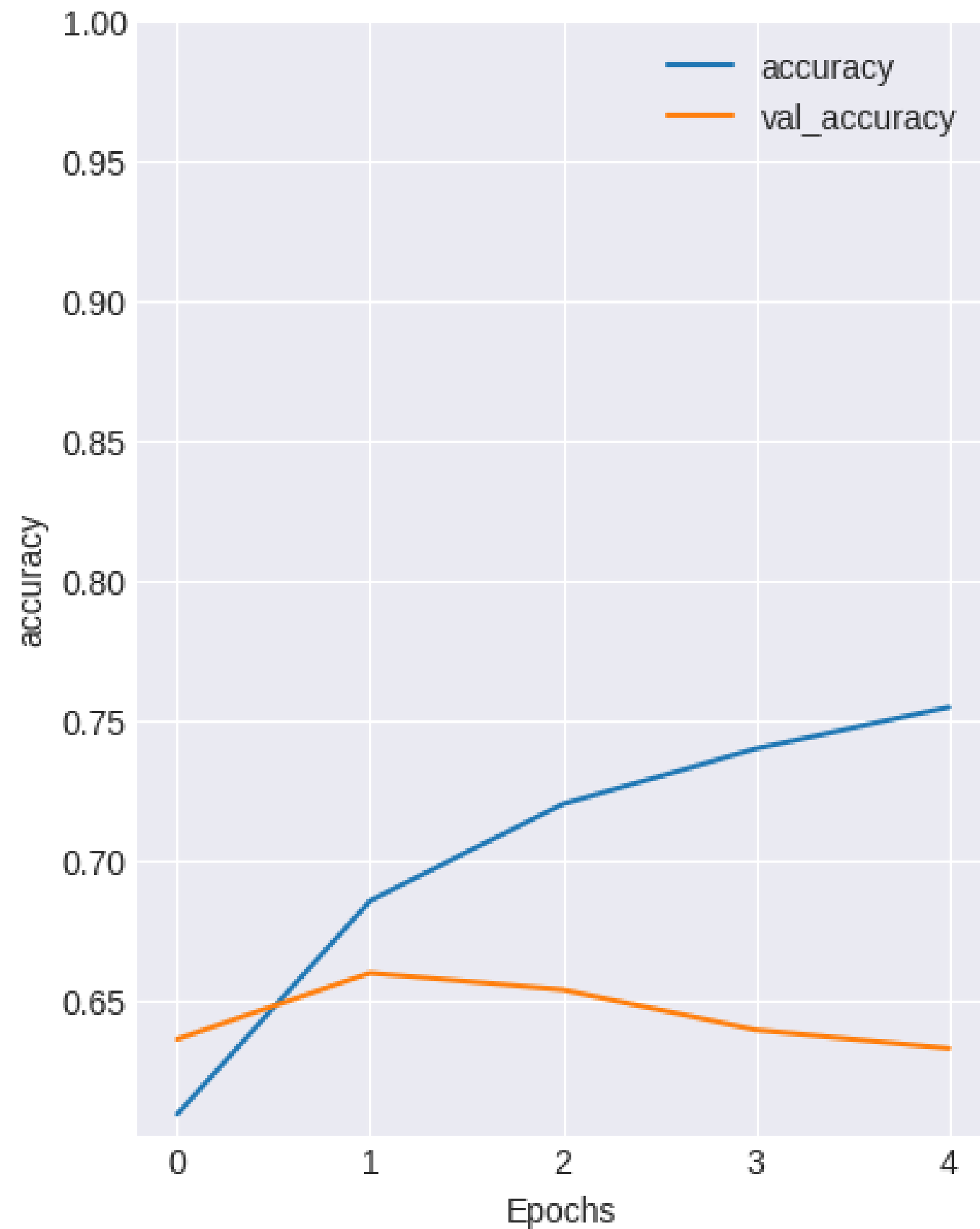
- Neural network baseline model.
- Had an accuracy of 60%

Modelling - LSTM



- LSTM model.
- Had an accuracy of 63%


Modelling - Tuned LSTM



- Tuned LSTM model.
- Had an accuracy of 76%



Conclusion

- - In this project, we explored various models for sentiment analysis on text data. We started with a baseline model using a neural network (NN) to preserve sequence information in text data.
 - - We then experimented with more advanced models, including LSTM and Tuned Bidirectional LSTM, in an effort to improve accuracy. While the latter showed promise with better accuracy, it exhibited overfitting issues.
 - - Based on our findings, tuned LSTM appears to be a suitable model for this dataset, achieving an accuracy of approximately 82% after around 4 epochs of training.
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Recommendation

- To further enhance model performance, consider exploring state-of-the-art models like BERT (Bidirectional Encoder Representations from Transformers) for sentiment analysis. BERT-based models have exceptional capabilities in natural language understanding tasks and may lead to even more accurate sentiment analysis results.
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