INTRODUCTION: The main goal is to fully comprehend the ways in which various parameters affect the model's performance and to determine which versions of the model work best under different conditions. The few changes are limiting the size of training samples, considering the top 10,000 words, and comparing the performance of a model with an embedding layer to a model with a pre-trained word embedding.

Results for the Scratch Model: On a sample size of 100, the accuracy of the scratch model was 0.84 and the training loss was 0.32. Classification yield, or CY, was 0.71.

Results of Pre-Trained Model:

The results of the pre-trained model varied according to the size of the sample. The accuracy was 0.51, and the training loss was 3.26 for a sample size of 100. The accuracy increased slightly to 0.52 and 0.55 for larger sample sizes of 15000 and 30000, respectively, while the training loss decreased to 4.92 and 0.90.

Results for the Embedding Layer and Conv1D Models: The models with both an embedding layer and Conv1D layers performed much better. The accuracy increased to 0.59 and the training loss dropped to 0.66 with a training sample size of 1000. The accuracy showed steady improvement, reaching 0.85 and 0.82 respectively, while the training loss further decreased to 0.39 and 0.45 as the sample size increased to 15000 and 30000, respectively.

These phrases give a concise synopsis of each model's performance, emphasizing important metrics like sample size, accuracy, and training loss.

Discussion:

Scratch models are compared, and the results show how model architecture affects performance; models with Conv1D enhancements perform better than the others.

Model accuracy significantly decreased when training data was limited to 100 samples, highlighting the significance of sample size.

For the top 10,000 words, the embedding layer and pre-trained word embeddings produced similar results.

Compared to pre-trained embeddings, the embedding layer performed better, especially with smaller training sets.

Compared to pre-trained embeddings, the accuracy of the model was greatly improved by combining Conv1D layers with embedding layers.

RESULTS: • After comparing the two scratch models, we found that Model 1 had an accuracy of 84% while Model 2 had an accuracy of only 52%. Both models remained unchanged.

• It shows that it could correctly categorise the reviews as either positive or negative based on their text. However, when the train's evaluations were restricted to 100 samples, the model's performance significantly decreased, leading to a test accuracy of just 52%.

• When only considering the top 10,000 words, the models with an embedding layer and a pre-trained word embedding produced identical test accuracy results.

• To test if the embedding layer outperformed the previously learned word embedding, the training sample size was changed.

The pre-trained word embedding at training sample 100 only managed a test accuracy of 0.51; in contrast, the embedding layer performed better with 1,000 training samples, acquiring a test accuracy of 0.59.

• Since an increased training sample size had very little effect on accuracy, we used conv1D in conjunction with the embedding layers and increased the training sample size to 15000 and 30000. It significantly increased test accuracy, which increased to 85% and 82%.

• When using 15000 and 30000 training sample sizes, the models with embedding layers and Conv1d outperformed the pre-trained word embedding test accuracies.

In conclusion, the model 2 that employed Conv1d and the embedding layer had the highest accuracy, at 85%. In conclusion, these results suggest that the specific parameters used, including the amount of training data, the word embedding, the maximum review period, and more, may have a substantial impact on the model's performance. In general, using an embedding layer might be more effective when working with smaller datasets.