NLU project exercise lab: 11

Giovanni Scialla (239181)

University of Trento

giovanni.scialla@studenti.unitn.it

1. Results (Part 1)

In the first part of the laboratory, i have fine-tuned the BERT language model to solve two different binary classification tasks:

- subjectivity/objectivity classification using the 'subjectivity' dataset provided by the NLTK library
- polarity classification (negative or positive) using the 'movie_review dataset provided by the NLTK library

Lastly, the joint model has been tested to see if the subjectivity model can be of any help at improving the sentiment of the second model.
For the first model, the maximum length of sentences was 122 so there was no need to truncate the tokenized sequence, while for the second model, unfortunately the majority of the reviews were above the maximum tokenization length of 512, so i had to truncate the rest. To lose less informations as possible i've removed the english stopwords.
Each model has been trained using a 10-fold StratifiedKFold and the model that had the higher accuracy has been saved.
(For the polarity part i had to reduce a lot the learning rate of the AdamW optimizer and also the number of epoches)

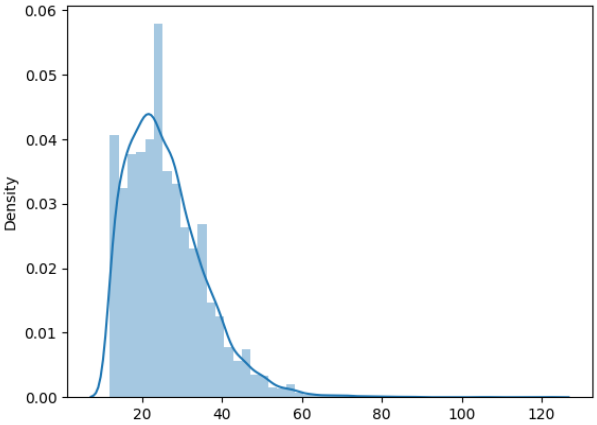

Figure 1: *Density of the Bert's tokenizer sequence length*

	Mean Accuracy
BERT (Subjectivity)	0.991
BERT (Polarity)	0.838
BERT (Subjectivity + Polarity)	0.850

2. References