YΣ19 Artificial Intelligence II (Deep Learning for Natural Language Processing)
Fall Semester 2020
Homework III

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1 Sentiment Classifier

I developed the classifier described in the exercise, and experimented with all the possible hyper-parameters. All the comments and the observations are included in the python notebook. My best model is a bi-directional stacked Reccurent Neural Network, consisted of the following hyperparameters:

- **Cell type:** LSTM
- **Dropout Rate:** 20
- **Learing rate:** 0.001
- **Hidden layer neurons:** 200
- **Gradient clipping rate:** (-100, 100)

All the other objectives (ROC plot, classification report, predicting the test dataset), are included in the notebook.

2 Attention Layer

I added an attention layer, as well as the pooling one, following the link that was provided in the MNIST LSTM notebook, which was integrated to my model class.

Then, I tested my best model by applying attention, and the results were slightly better than the original one, while avoiding overfitting, however the training was significantly slower.