**Exercise for Unit 7**

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*Note: Upload your sources in a public GitHub repository and put the link in the document.*

1. (70 points) Choose two NLP tasks:
   1. PoS Tagging
   2. NER Recognition
   3. Text Prediction
   4. Sentiment Classification

Create 2 models, 1) the traditional (machine learning technique appropriate for the task) used, and 2) train a neural network (Feedforward, RNN, LSTM, also appropriate for the task).

For the corpus, you can use any appropriate dataset for the NLP Task.

You can use Python libraries suited for neural networks.

1. (30 points) Evaluate each model and compare its performance. Which of the models has performed the best?

* PoS Tagging:
* Sentiment Analysis: I utilized a dataset from Kaggle consisting of sentences that can be categorized into three distinct categories: Positive, Neutral and Negative. I trained Multinomial Naïve Bayes and LSTM models. The Multinomial Naïve Bayes utilized tfidf in order to count the number of occurrences of the words. It managed to score an accuracy of .72 with an F1 score of .7228 when evaluating. The LSTM model on the other hand, was trained using the parameters: *loss*='categorical\_crossentropy', *optimizer*='adam', *metrics*=['accuracy']. It managed to only get an accuracy of .36 and F1 score f .53. With the dataset provided, Naïve Bayes was better than LSTM.

1. Put the GitHub repo link here:

* https://github.com/Cristopher-Artacho-WVSU/NLP\_Assignment7