1 RNN for Language Modeling (40pt)

1. Import the torchtext IMDB dataset and do the following:
   - Build a Markov (n-gram) language model.
   - Change the output appropriately in 'Simple Sentiment Analysis.ipynb' to build an LSTM based language model. Plot the training performance as a function of epochs/iterations.
2. For each model, describe the key design choices made. Briefly mention how each choice influences training time and generative quality.
3. For each model, starting with the phrase "My favorite movie ", sample the next few words and create a 20 word generated review. Repeat this 5 times (you should ideally get different outputs each time) and report the outputs.

Note: make any assumptions as necessary.

2 Sequence to Sequence Model for Translation (40pt)

1. Train the sequence to sequence model (Model 1) (*Seq2Seq_Translation_Example.ipynb*, see corresponding lecture) for a language pair[1] where the output is English and the input is a language of your choice.
2. Now train another model (Model 2) for the reverse (i.e., from English to the language you chose). In this model, use the GloVe 100 dimensional embeddings (see notebook 4, cell 2 for an example) while training.
3. Input 5 well formed sentences from the English vocab to Model 2, and input the resultant translated sentences to Model 1. Display all model outputs in each case.