**Hands-on Assignment 6**

**Due Date: See web**

(HA5 on RNN and HA6 on BERT are mutually exclusive)

In Tutorial 5, you have seen the use of a BERT model for a spam classification task through fine-tuning. In this hands-on assignment, you are asked to fine-tune the BERT model for another classification task --- sentiment analysis with the IMDB Dataset (which can be found in the same folder). Note that labels in IMDB Dataset.csv are “positive” and “negative”, while the labels in the spam dataset in Tutorial 5 are “0” and “1”.

You need to randomly shuffle the dataset and split the dataset into a training set and a testing set. The whole dataset consists of 50k samples.

In your experiments, you can consider

* Using different amounts of data for training and testing,
* Freezing BERT and only training the classification head (this is called probing),
* Freezing earlier layers of BERT and fine-tuning the last few layers,
* Fine-tuning the entire BERT model,
* Varying the learning rate, the batch size, the dropout rate, and the maximum number of epochs, and
* Using the output embeddings of other tokens instead of that of the class token.

In total, you will need to run at least 10 experiments. Write a simple report to summarize the results, including the test result of each run. A simple report should not only discuss the changes made in the model hyper-parameters and the corresponding result, but also analyze the results. The grading will be based on the amount of work as reflected in your report, coherence of the results, insightfulness of discussions, and clarity of your presentation.

You must be in docx or pdf format. Please submit the report on Canvas. There is no need to submit your code. Similarity scores will be computed for this assignment.

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