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**Assignment 1**

After studying each different iteration of the IMDB deep learning example, I was able to construct a table to showcase the different results. For the most part, the results were not very different, except for using the dropout method on the validation data. I was able to achieve our highest test accuracy from combining all iterations together, specifically using 1 dense, hidden layer, 32 hidden units, the mse loss function, the tanh activation, and the dropout method. Every iteration hovered around 88%-87% except for when I changed the amount of dense hidden layers from 2 to 3 (86.5%). The validation accuracy was very high on most iterations except when using the dropout method, which yielded a higher test accuracy than validation accuracy. Based on my findings, I believe using a combination of all the iterations for this model would be the best network layout for this use case. Studying these different iterations gave me good insight on how different factors affect the accuracy of a model. In the future, I want to try using different methods to increase the accuracy of the model on test data upwards into the 90’s.

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| Iteration | Validation Accuracy | Test Accuracy |
| Original | 94.79% | 87.82% |
| 1-1 (1 Layer) | 94.41% | 87.92% |
| 1-1 (3 Layers) | 94.22% | 86.50% |
| 1-2 (32 Units) | 95.61% | 87.89% |
| 1-2 (8 Units) | 93.65% | 87.38% |
| 1-3 (mse) | 94.24% | 87.98% |
| 1-4 (tanh) | 95.10% | 87.19% |
| 1-5 (dropout) | 84.74% | 87.56% |
| **1-6 (combination)** | 93.58% | **88.22%** |