Natural Language Processing - IMDB Movie Review

	Description	Hyperparameters	Number of Epochs	Training Loss	Training Accuracy	Test Accuracy	Comments
Part 3a	Given Model	ADAM optimizer (LR=0.001) HiddenUnits=500 BatchSize=200 VocabularySize=8000 Sequence_Length_Train=50 Sequence_Length_Test=100	75	4.2383	24.16%	26.23%	
Part 3b	Generated Review	Temperature=1.0 token = ['i','love','this','movie','.']	i love this movie . am not not sure what 's going on , i have a really fair figure , see this movie and look forward to the main character . this is an outstanding movie that holds me out of the dance unless it is not . the characters are painfully entertaining , the final time i really found out it is a screenplay that gave me no longer of anything about its actual lost ways . i know her demise and opinions started shocked and the young ends out something have since returned by one good actress . satan should have been being able to find into southern harbor would be . that was too completely towards the story (from the scott : wayne) . hopefully there was a terrifying lighting whose students really forgot his baby , which is still shown pulled into the back that he turned the				With higher temperature, usually all the words will approach having the same probability. For temparature =1, We observe here that short phrases have some meaning even though the overall context doesn't make much sense. With a positive starter token as input, we observe that initially short phrases have positive vibe, towards the later half tone is towards being neutral if not negative. The model seems not confident enough to maintain the positive tonality throughout and was little less positive in the later part.
	Generated Review	Temperature=1.0 token = ['i','hate','this','movie','.']	i hate this movie . was looking for it . they the real change would adults night up with this . i did n't like the short films of all states but made this one ! right leg for what i figure out very slow and i think that it has truly a nice top of universal . i ca n't believe that it was with anyone else in yet believing that bruce pacino has to have some true nature . he does n't know how he died . and included it is a catch . does things use belly independence this ... to this person , who is you guessing the difference is at these types of characters . what he previously appeared , as is her influence and an argument i was the only thing that makes this movie so scare . if this film had a cut in the film , i				For the same temparature (=1) and negative starter token as input, the short phrases gives a negative vibe. I observe there is little negative tonality in the review.
	Generated Review	Temperature=0.5 token = ['i','love','this','movie','.']	i love this movie . loved that i 've seen it in a long time . the acting is weak , the acting is bad , the acting is terrible , but the story is very well done . the characters are terrible , the acting is bad , the acting is very good , and the story is very good . the plot is good , but the way the movie is about , it is not a good movie . the acting is probably the worst movie i have ever seen . i was bored with the first episode . it was a bit too boring and i have to say that the movie is not a bad film . i have to say that i have to say that i 've seen a lot of good movies . it 's not a good movie , but i do n't know that it				With lower temparature most likely words will approach probability of 1.0. However it is interesting to note that the review was generated with a positive token input. It gives mix review, having strong positive vibe in the first half of the review but then it started with negative vibe. It seems the model was not confident enough with initial tonality hence it changed direction mid way.
	Generated Review	Temperature=0.5 token = ['i','hate','this','movie','.']	i hate this movie . know that the movie is a bit too long and i do n't know what the hell could have been . i was not expecting something that i could have been able to see it , but i just do n't get the feeling that i spent watching this movie . i ca n't wait to see this movie , and i 'm not a fan of the movie . it 's not a great movie . i have never liked the entire movie . i have been a sucker to watch this movie because it was shot on tv . i was in the theater and was n't expecting anything else to do with the end . it was just plain bad . the actors were just plain awful . i was laughing at the end of the film , and i was very disappointed . i did n't				The review generated with negative input token. It has consistently maintained a negative vibe. It seems in this case the model was confident enough the tonality and did stick to the tone in the entire review.
Part 3c	Given Model	ADAM optimizer (LR=0.001) BatchSize=200 VocabularySize=8000 HiddenUnits=500 Sequence_Length_train = 100, Sequence_Length_test = 400	30	0.2118	91.27%	89.56%	The model performed well, without any overfitting. Train and test accuracy are close by.
	Custom 1	SGD optimizer (LR=0.001, momentum=0.9) VocabularySize=8000 BatchSize=200 HiddenUnits=500 Sequence_Length_train=100 Sequence_Length_test=400	30	0.4934	76.12%	80.68%	Used SGD optimizer. It didn't performed well compared to Adam optimizer. In saddle region, SGD is not as good as Adam, Adam converges faster towards sharper minima.
	Custom 2	ADAM optimizer (LR=0.001) BatchSize=200 VocabularySize=8000 Hidden Units=500 Sequence_Length_train = 25 Sequence_Length_test = 25	30	0.5338	72.35	71.19%	The model is underfitting with smaller sequence length.