Natural Language Processing - IMDB Movie Review

	Description	Hyperparameters	Number of Epochs	Training Loss	Training Accuracy	Test Accuracy	Comments
Part 3a	Given Model - Word Embedding layer + LSTM1 + LSTM2 + LSTM3 + Fully connected layer + Output Layer	ADAM optimizer with LR=0.001, BatchSize=200, VocabularySize=8000, HiddenUnits=500, Sequence length for training = 50	75	3.915	25.68%	27.10%	
Part 3b	Generated Review	Temperature=1.0					The reviews are readable in short phrases.
			i love this movie . this movie has always been a big joy to be entertained and a lot like the all-time annie ... christmas party ? like ; even viewing mystery - pretty much pornography . oh when i saw the movie at a theater , i was thinking , `` jason ... well , worth a further ticket . " `` did you look at your head and start bed ? " `` the fourth man was his goal , yeah , me ! " . i also found the bird disjointed) that even played brilliantly . the chills poor and given the way grendel was portrayed is shown from most different faces , i ran out and not knowing about them . overall , john cusack has actually had a idea that he should have been `` embarrassed " during filming , but tax by his role , he did on					
			i hate this movie . i feel that it made its scope even more as they should n't do it . the change of advertising can lead you to think of a film like this . although the location is a pop culture , it 's an awful word that makes it completely unrealistic . no plot , no thrills . i watched that kind of movie strange and never got across the theatre thinking it was the kid ! secondly the cinematography has been done before and maybe just did n't work) . it looks like it was shot on video after the 70 's . stephen chow freaks up with despair , however , her money is at the top of the picture . bill van green has a promising personality creating a genuine character that wo n't get her more clean fun than she is . i would be ashamed this					
	Generated Review	Temperature=0.5	i love this movie . it is a classic that i will never watch . if you like action movies , you will love this movie . if you like adventure movies , this is a must see . the only reason i gave this movie a 9 because it is a bad movie . it is one of the worst movies i have ever seen . i have no idea how many people have commented on this movie . it 's a shame that it is not that bad . it is a movie that should not be watched by anyone . i 'm not sure whether it was a comedy or a drama . but it was n't . the only thing that was good about this movie was the acting . the plot was pretty good , but the actors were really good . i really liked the ending . especially when				The sentiment is not maintained throughout the review.
			i hate this movie . it is a mixture of the best of the genre . the acting is perfect , the photography is sharp and the acting is great . the only thing that is worth watching is the fact that the film is based on a true story . it 's a story about a young girl who is threatened by her husband and client . the film is about a young girl who is sent to a house where she meets a girl who 's been kidnapped by a young woman who wants to get married . the father has a lover who is born , and the two girls meet in a small town and are murdered by the young boy . as far as the film goes on , the movie is a little too long for me to think about it . i 'm not sure if it was				The sentiments throughout the review are similar. The long phrases make sense.
	Generated Review	Temperature=1.5	i love this movie . even for a low budget blockbuster b-movie flick either trying to matter each man appealing hardly really filmmaker or christine really me) man thrills is good but it gets normal muddled down . carol reed as mel brooks : it 's so shallow , it also irritated me of its sick movie showing marty billy wakes up in space is dull and gee nero played hilarious first time in game comics get more sword how gets justice she looks like an insult to their belief . yet neither outlaw produces 3 times now . although he is just hot i can only remember 8 lines for almost 80 minutes pirates though several stars tourist actors played us meaning of enter torture movie 'i liked them they too kids -- so much horses that took quotes to soldiers managed to bring on standard alan constantly changes ! overall , great				The long phrases do not make sense at all.
			i hate this movie . beer ... wait several times for all . 3 out of 10 , iv delivery for joke needs ? truly it 's not hype me entertainment on forced ! holy set like average charm car accident jerry stands club outside local gets over marlene amazed and nobody really mind suspense have sold someone caught below slapped on stuff in order to achieve sparks , medicine ? miserably . i was sorry `` spare me " news whenever feeding 11 : ie when the king told whom stopping dee berry instead of selling flynn 's nice fury in letters to protect people in a made-for-tv village defense wanting badly underwear and telephone safety language behind flying (? ? bell 's cheap camera tricks they , hilarious writing etc ? shame , variety than men secretly break notice 1930 ****) if someone bored jazz all around copies were abused like				
Part 3c	Given Model - Word Embedding layer + LSTM1 + LSTM2 + LSTM3 + Max pooling + Fully connected layer + Output Layer	ADAM optimizer with LR=0.001, BatchSize=200, VocabularySize=8000, HiddenUnits=500, Sequence length for training = 100, Only train the last LSTM3 layer and the fully connected layer	20	0.218	91.16%	91.27%	This is the given model with the hyperparameters set by requirements. The testing accuracy reaches 91.27%.
	Custom 1 - Word Embedding layer + LSTM1 + LSTM2 + LSTM3 + Max pooling + Fully connected layer + Output Layer	ADAM optimizer with LR=0.001, BatchSize=200, VocabularySize=8000, HiddenUnits=500, Sequence length for training = 150, Only train the last LSTM3 layer and the fully connected layer	20	0.14	94.47%	90.93%	In this model, the sequence length is increased to 150. This model needs more training time. The training accuracy of this model is higher while the testing accuracy is lower, which indicates overfitting.
	Custom 2 - Word Embedding layer + LSTM1 + LSTM2 + LSTM3 + Max pooling + Fully connected layer + Output Layer	ADAM optimizer with LR=0.001, BatchSize=200, VocabularySize=8000, HiddenUnits=500, Sequence length for training = 100, Train LSTM2, LSTM3, and the fully connected layer	20	0.136	94.70%	91.08%	In this model, the LSTM2 layer is added to the training with other parameters unchanged as the given model. The training accuracy is higher while the testing accuracy is a little bit lower, which indicates overfitting.
	Custom 3 - Word Embedding layer + LSTM1 + LSTM2 + LSTM3 + Max pooling + Fully connected layer + Output Layer	ADAM optimizer with LR=0.001, BatchSize=200, VocabularySize=8000, HiddenUnits=500, Sequence length for training = 100, Train all layers	20	0.076	97.31%	90.23%	In this model, all layers are used in training with other parameters unchanged as the given model. The training accuracy is much higher while the testing accuracy is lower, which indicates overfitting.