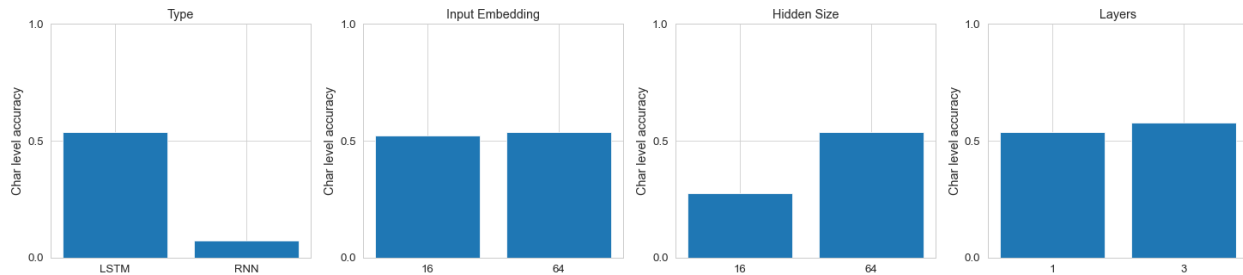


DL0ps Assignment 2

Question 1

- a) The Seq2Seq model has been made which takes the provided parameters which have been asked and code is attached.
- b) The plot between the accuracy and the hyperparameters is shown below :-



- c) The answers are as follows :-

A) Determining whether RNNs or LSTMs converge faster can be challenging as it depends on several factors. However, LSTMs may converge faster compared to RNNs due to their gating mechanism, which helps to solve the vanishing gradient problem. This mechanism preserves the gradients during backpropagation, leading to a faster learning process and faster convergence. Nevertheless, the performance of each model can vary depending on the specific architecture and task being used.

B) No significant change was observed, but we can say that dropout resulted in a slight better accuracy than the original.

LSTM without dropout : 52.21 %

LSTM with dropout : 52.78 %

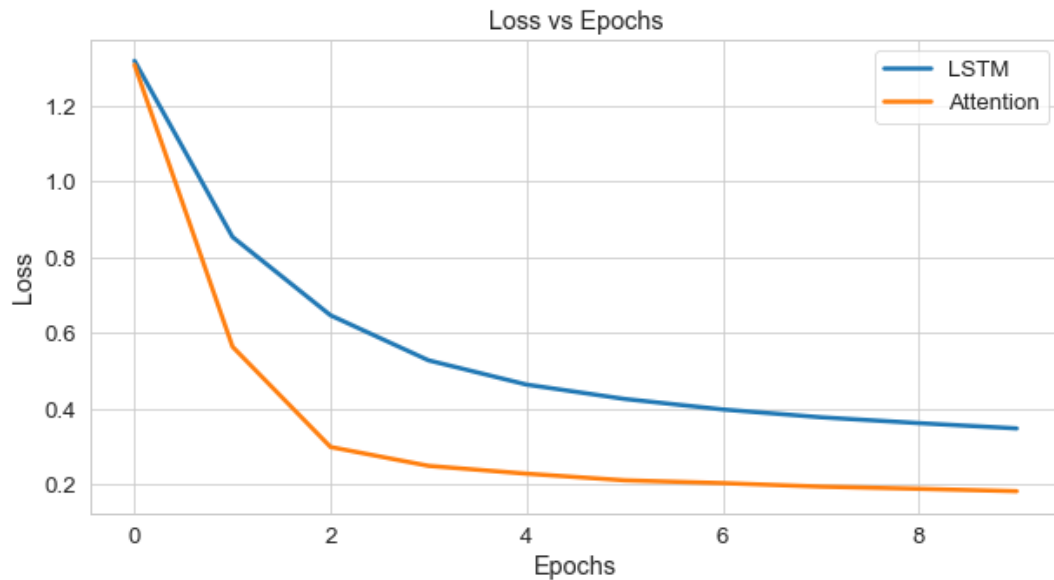
The accuracy shown here is the Character Accuracy.

C) After training the models with the given hyperparameters, it was seen that the

LSTM with 16 hidden size had an accuracy of around 25 % while the LSTM model with an hidden size of 64 where having an accuracy of around 50 %. (accuracy referred here is the exact accuracy).

d)

A)

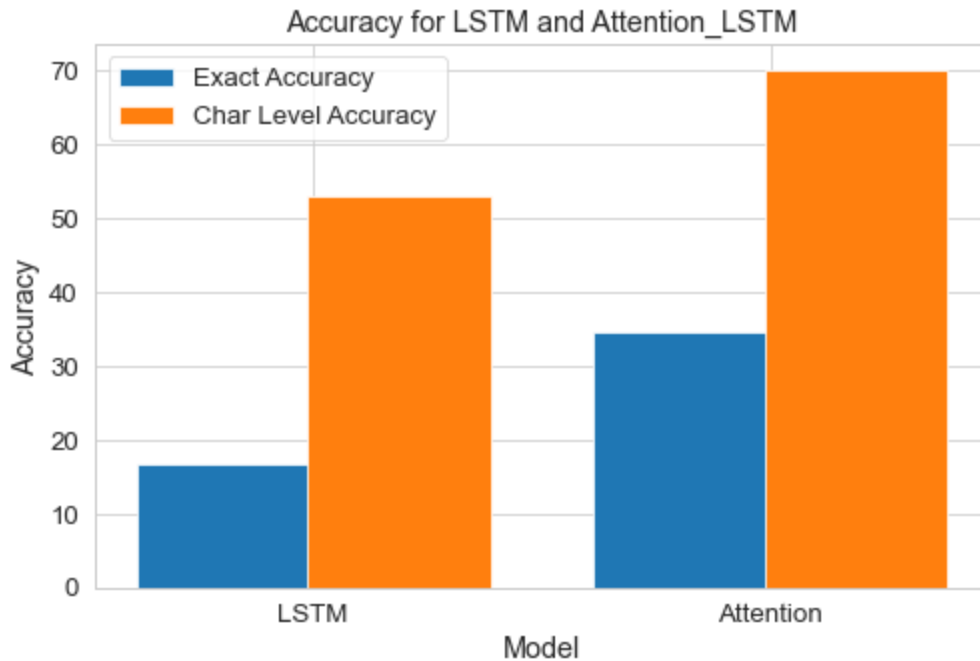


B) The test accuracy obtained by a normal LSTM and an LSTM with attention is :-

LSTM without Attention : 52.89 %

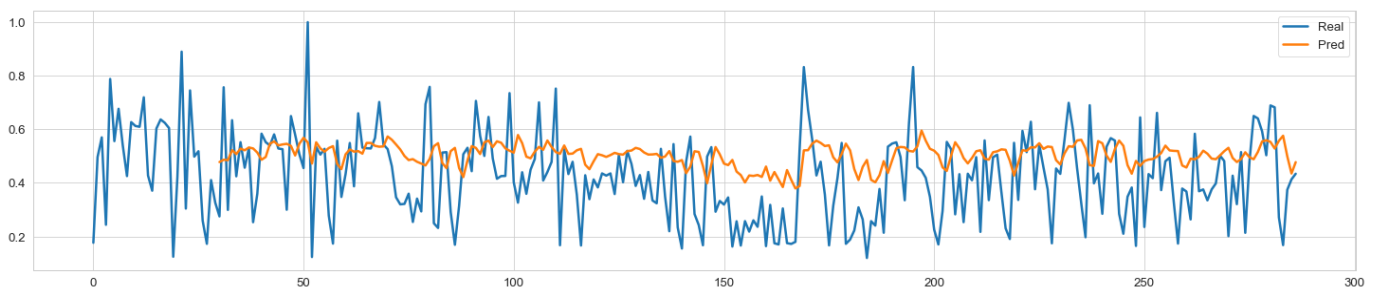
LSTM with Attention : 70.01 %

C) We can clearly observe that LSTM with attention has performed a lot better than LSTM without attention, The below graph shows the accuracy of both the models :



Question 2

- 1) The dataset has been split into the 80:20 ratio, also the mean of data has been taken for each specific day, and the data points have been normalized.
- 2) The results produced by the model is as follows :-



MSE loss for the test : 0.0308

- 3) With a 70:30 split, the below results were obtained :

MSE loss for the test : 0.0304

The Graph obtained is as follows :

