TASK 1

Q. What are the precision, recall and F1 score on the dev data?

Ans: Precision- 82.43%

Recall- 74.64%

F1-score- 78.34%

Hyperparameters: batch size = 2, number of epochs = 25, learning rate = 0.5 and learning rate scheduler- CosineAnnealingLR(optimizer, T_max=25, eta_min=0.0005), with other parameters same as mentioned in the Homework description.

Reason: As the batch size is small, I did not need more epochs to train the model because the backpropagation of loss would be more with a lower batch size. Also, during training, to avoid overfitting I was saving the best model based on the score on the validation set.

Method: In order to carry out job 1, I first constructed a vocabulary of terms and tags using train data. I then did index mapping to give each distinct word in the vocabulary a distinct index. Finally, using the structure described in the HW4 file as a guide, I developed a bi-directional LSTM model.

TASK 2

Q. What are the precision, recall and F1 score on the dev data?

Ans: Precision- 86.40%

Recall- 84.01%

F1-score- 85.19%

Hyperparameters: batch size = 2, number of epochs = 25, learning rate = 0.25 and learning rate scheduler- CosineAnnealingLR(optimizer, T_max=25, eta_min=0.0005), with other parameters same as mentioned in the Homework description.

Reason: As the batch size is small, I did not need more epochs to train the model because the backpropagation of loss would be more with a lower batch size. Also, during training, to avoid overfitting I was saving the best model based on the score on the validation set.

Method: In order to carry out job 2, I first retrieved the provided glove embeddings and used those embeddings to generate an embeddings matrix. I am ignoring the Uppercase characters and using the case-insensitive glove embeddings. Then I passed this matrix as embeddings in the LSTM. Finally, using the structure described in the HW4 file as a guide, I developed a bi-directional LSTM model.