SE395 Programming Assignment 3 Report

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Five Settings: (a) RNN + SGD + 50d, (b) LSTM + SGD + 50d, (c) LSTM + ADAM + 50d, (d) LSTM + SGD + 100d, (e) LSTM + SGD + 50d + dropout

A. RNN + SGD + 50d

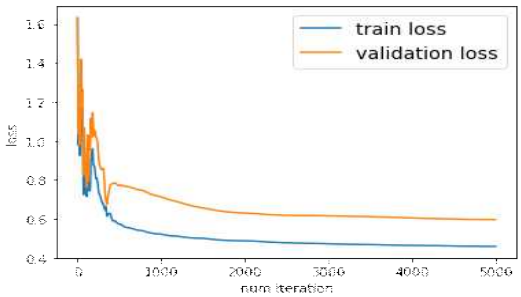
(1) accuracy comparison for test set

```
In [51]: pred, acc = rnn.predict(embedded_test_X, test_Y)
         print("RNN model accuracy for test set is "+ str(acc)+"%")

         RNN model accuracy for test set is 87.5%
```

(2) all emojis for test set

(3) Training Loss graph



B. LSTM + SGD + 50d

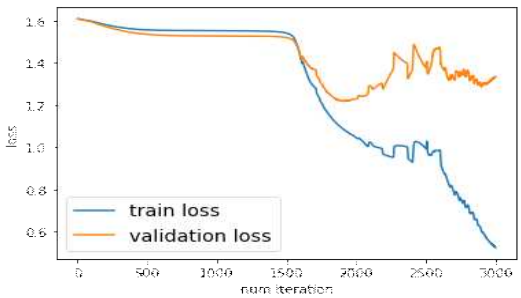
(1) accuracy comparison for test set

```
In [23]: pred, acc = RNN.model.make_result(np.array(embedded_test_X), test_Y)
         print("RNN model accuracy for test set is "+ str(round(acc,2))+"%")

         RNN model accuracy for test set is 71.43%
```

(2) all emojis for test set

(3) Training Loss graph



C. LSTM + ADAM + 50d

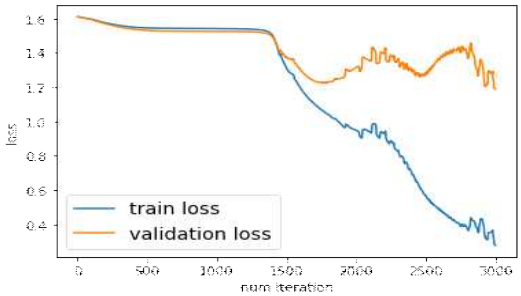
(1) accuracy comparison for test set

```
pred, acc = RNN.model.make_result(np.array(embedded_test_X), test_Y)
print("RNN model accuracy for test set is "+ str(round(acc,2))+"%")

RNN model accuracy for test set is 78.57%
```

(2) all emojis for test set

(3) Training Loss graph



D. LSTM + SGD + 100d

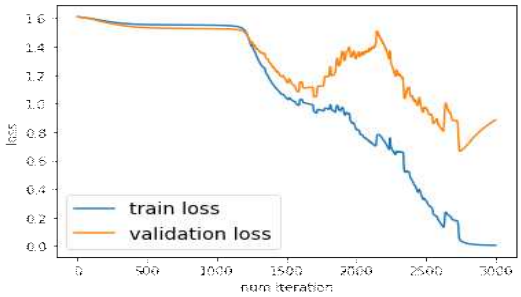
(1) accuracy comparison for test set

```
pred, acc = RNN.model.make_result(np.array(embedded_test_X), test_Y)
print("RNN model accuracy for test set is "+ str(round(acc,2))+"%")
```

```
RNN model accuracy for test set is 80.36%
```

(2) all emojis for test set

(3) Training Loss graph



E. LSTM + SGD + 50d + dropout

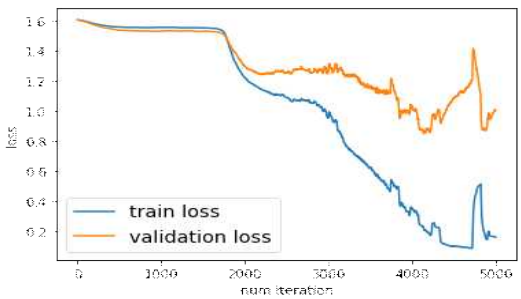
(1) accuracy comparison for test set

```
pred, acc = RNN.model.make_result(np.array(embedded_test_X), test_Y)
print("RNN model accuracy for test set is "+ str(round(acc, 2))+"%")
```

```
RNN model accuracy for test set is 82.14%
```

(2) all emojis for test set

(3) Training Loss graph



(4) Describe what Glove is & why we use Glove (~5 lines)

GloVe란 단어를 벡터화 하는 임베딩 방법론 중의 하나로, 2014년 스탠포드 연구팀에 의해 개발되었다. 주요 아이디어는 임베딩 된 두 단어벡터의 내적이 두 단어가 동시에 등장할 확률 간의 비율이 되도록 하였다는 점이다. 이때, 단어가 특정 값 이상으로 지나치게 빈도가 높은 경우를 방지하기 위해 아래의 Figure와 같은 특정한 목적함수를 제안하였다. 이를 적용한 GloVe는 기존의 단어 임베딩 방법 중 하나인 word2vec보다 높은 성능을 보였다.

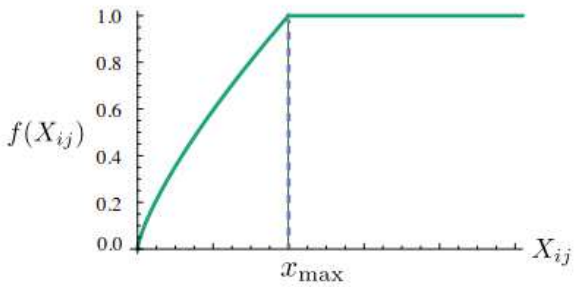


Figure 1: Weighting function f

출처: Pennington, Jeffrey, Richard Socher, and Christopher D. Manning. "Glove: Global vectors for word representation." EMNLP 2014.

Reference

1. Pennington, Jeffrey, Richard Socher, and Christopher D. Manning. "Glove: Global vectors for word representation." EMNLP 2014.