Ahsanullah University of Science and Technology (AUST)

Department of Computer Science and Engineering

Assignment-3

Course No: CSE4238
Course Title: Soft Computing Lab

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Given Assignment:

Last 3 digits of my id is 069.

- (069 % 3) = 0 which indicates that the experiment should be on Dataset 1.
- (069 + 1) %5 = 0 which indicates that model should be CNN with more than 2 convolutional layers.

Overview of Given Dataset:

	message	label
0	just had a real good moment. i missssssssss hi...	0
1	is reading manga http://plurk.com/p/mzp1e	0
2	@comeagainjen http://twitpic.com/2y2lx - http:...	0
3	@lapcat Need to send 'em to my accountant tomo...	0
4	ADD ME ON MYSPACE!!! myspace.com/LookThunder	0
...	...	...
10309	No Depression by G Herbo is my mood from now o...	1
10310	What do you do when depression succumbs the br...	1
10311	Ketamine Nasal Spray Shows Promise Against Dep...	1
10312	dont mistake a bad day with depression! everyo...	1
10313	0	1

10314 rows × 2 columns

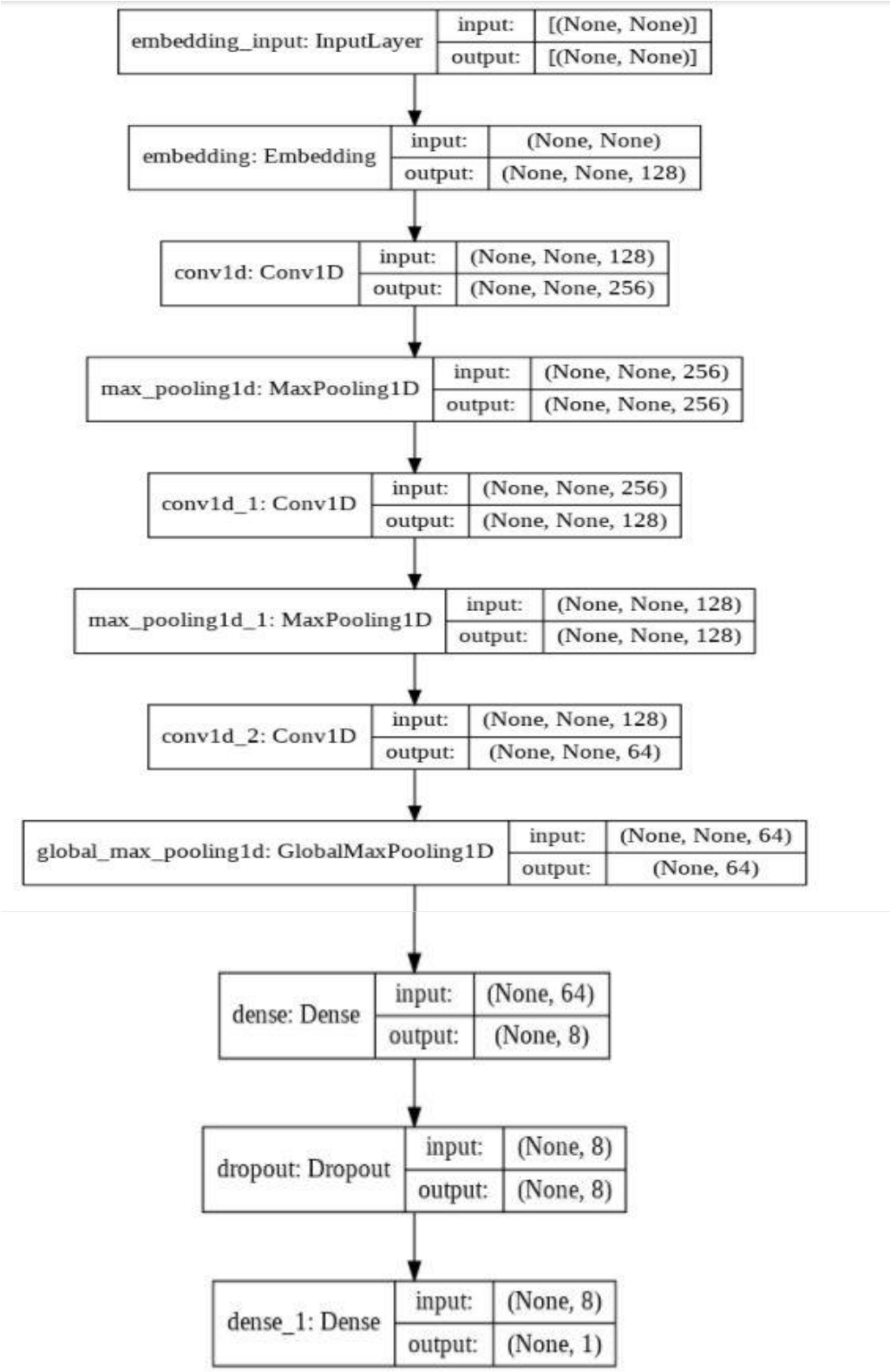
which has tweets and sentiment according to the tweets

Then the dataset was split into 3 parts -

1. Train
2. Validation
3. Test

The texts were filtered for special characters and then tokenized.

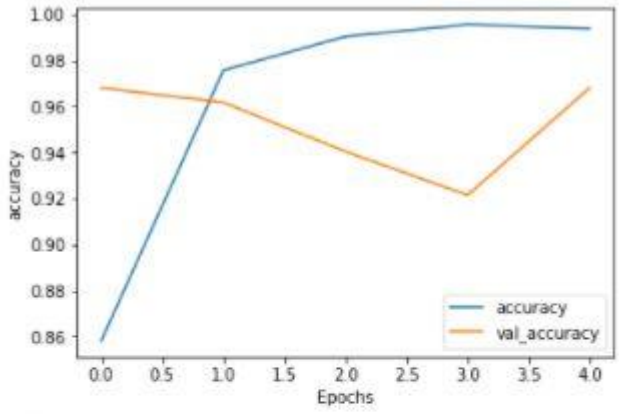
A sequential model is initiated which is given below:

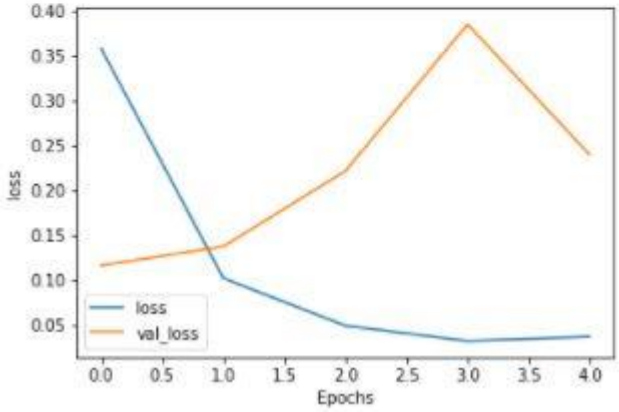


Parameters:

Number of Epoch was 5**.**

Epochs:



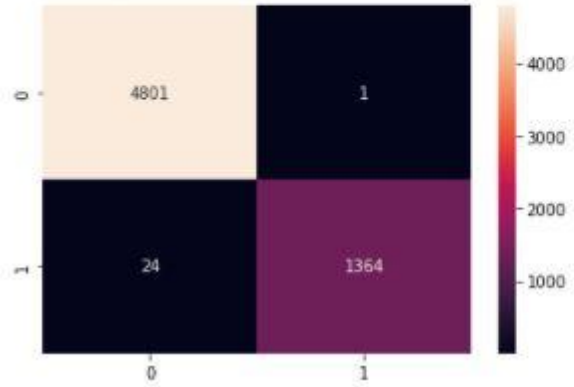


Epoch No.	Train Accuracy	Train Loss	Val Accuracy	Val Loss
1	0.858320	0.357590	0.967992	0.116045
2	0.975606	0.101723	0.961688	0.137189
3	0.990307	0.048784	0.940349	0.221478
4	0.995477	0.031807	0.921435	0.384950
5	0.993699	0.036618	0.967992	0.239531

Confusion Matrices:

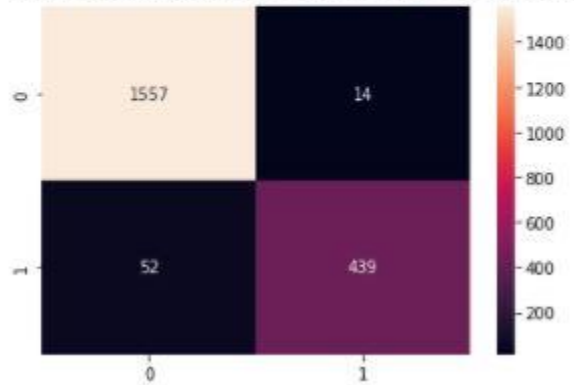
Train sequence

```
194/194 [==============================] - 3s 15ms/step - loss: 0.0135 - accuracy: 0.9960
Train Loss: 0.013541028834879398
Train Accuracy: 0.9959612488746643 (Model Metric)
Train Accuracy: 0.9959612277867528 (sklearn Metric)
Train Precision: 0.9992673992673993
Train Recall: 0.9827089337175793
Train F1-score: 0.9909189974573193
<matplotlib.axes._subplots.AxesSubplot at 0x7f1a5aa01110>
```



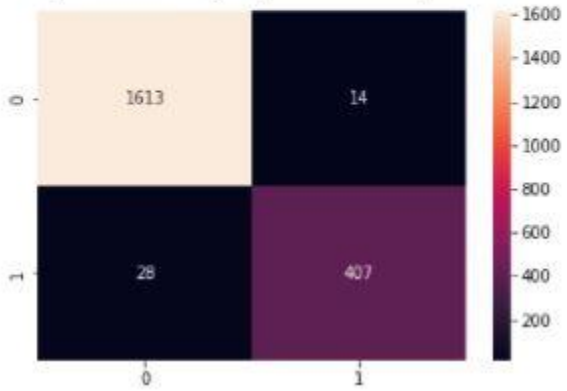
Validation Sequence

```
65/65 [==============================] - 1s 12ms/step - loss: 0.2395 - accuracy: 0.9680
Validation Loss: 0.2395308017730713
Validation Accuracy: 0.9679922461509705 (Model Metric)
Validation Accuracy: 0.967992240543162 (sklearn Metric)
Validation Precision: 0.9690949227373068
Validation Recall: 0.8940936863543788
Validation F1-score: 0.9300847457627118
<matplotlib.axes._subplots.AxesSubplot at 0x7f1a5da68b90>
```



Test Sequence

```
65/65 [==============================] - 1s 16ms/step - loss: 0.1282 - accuracy: 0.9796
Test Loss: 0.12819597125053406
Test Accuracy: 0.9796314239501953 (Model Metric)
Test Accuracy: 0.979631425800194 (sklearn Metric)
Test Precision: 0.9667458432304038
Test Recall: 0.9356321839080459
Test F1-score: 0.9509345794392523
<matplotlib.axes._subplots.AxesSubplot at 0x7f1a5e1f9650>
```



Github Link of this course

https://github.com/ShazidMorshed14/CNN-Model