

Sentiment Analysis of Textual Data across Online Platforms

KEY RESULTS

Word visualizations

Twitter Word Cloud



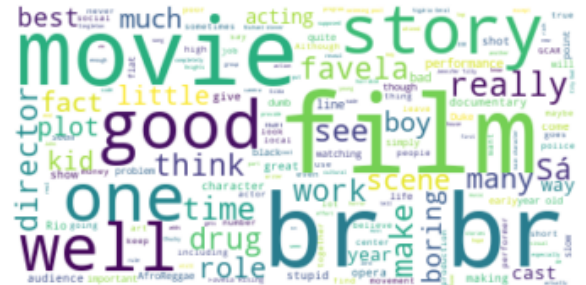
TripAdvisor Word Cloud



Amazon Word Cloud



IMDB Word Cloud



Womens Clothing Reviews Word Cloud



model.summary()

Layer (type)	Output Shape	Param #
embedding_5 (Embedding)	(None, 500, 50)	100000
lstm_5 (LSTM)	(None, 64)	29440
dense_10 (Dense)	(None, 256)	16640
activation_10 (Activation)	(None, 256)	0
dropout_5 (Dropout)	(None, 256)	0
dense_11 (Dense)	(None, 1)	257
activation_11 (Activation)	(None, 1)	0
Total params: 146,337		
Trainable params: 146,337		
Non-trainable params: 0		

Training:

```
Epoch 1/10
1013/1013 [=====] - 30s 28ms/step - loss: 0.5163 - accuracy: 0.7449 - val_loss: 0.4850 - val_accuracy: 0.7654
Epoch 2/10
1013/1013 [=====] - 28s 27ms/step - loss: 0.4838 - accuracy: 0.7670 - val_loss: 0.4813 - val_accuracy: 0.7679
Epoch 3/10
1013/1013 [=====] - 28s 28ms/step - loss: 0.4767 - accuracy: 0.7707 - val_loss: 0.4783 - val_accuracy: 0.7711
Epoch 4/10
1013/1013 [=====] - 28s 27ms/step - loss: 0.4688 - accuracy: 0.7749 - val_loss: 0.4874 - val_accuracy: 0.7647
Epoch 5/10
1013/1013 [=====] - 28s 27ms/step - loss: 0.4614 - accuracy: 0.7795 - val_loss: 0.4771 - val_accuracy: 0.7711
Epoch 6/10
1013/1013 [=====] - 28s 28ms/step - loss: 0.4565 - accuracy: 0.7815 - val_loss: 0.4788 - val_accuracy: 0.7683
Epoch 7/10
1013/1013 [=====] - 27s 27ms/step - loss: 0.4575 - accuracy: 0.7818 - val_loss: 0.4812 - val_accuracy: 0.7719
Epoch 8/10
1013/1013 [=====] - 28s 27ms/step - loss: 0.4476 - accuracy: 0.7882 - val_loss: 0.4799 - val_accuracy: 0.7712
Epoch 9/10
1013/1013 [=====] - 28s 28ms/step - loss: 0.4418 - accuracy: 0.7917 - val_loss: 0.4881 - val_accuracy: 0.7615
Epoch 10/10
1013/1013 [=====] - 28s 28ms/step - loss: 0.4374 - accuracy: 0.7934 - val_loss: 0.4869 - val_accuracy: 0.7636
```

Twitter

```
Epoch 1/10
116/116 [=====] - 5s 32ms/step - loss: 0.2918 - accuracy: 0.8874 - val_loss: 0.1610 - val_accuracy: 0.9460
Epoch 2/10
116/116 [=====] - 3s 27ms/step - loss: 0.1418 - accuracy: 0.9473 - val_loss: 0.1513 - val_accuracy: 0.9460
Epoch 3/10
116/116 [=====] - 3s 27ms/step - loss: 0.1166 - accuracy: 0.9619 - val_loss: 0.1561 - val_accuracy: 0.9490
Epoch 4/10
116/116 [=====] - 3s 28ms/step - loss: 0.1023 - accuracy: 0.9640 - val_loss: 0.1608 - val_accuracy: 0.9454
Epoch 5/10
116/116 [=====] - 3s 28ms/step - loss: 0.0920 - accuracy: 0.9696 - val_loss: 0.1604 - val_accuracy: 0.9442
Epoch 6/10
116/116 [=====] - 3s 27ms/step - loss: 0.0837 - accuracy: 0.9715 - val_loss: 0.1636 - val_accuracy: 0.9424
Epoch 7/10
116/116 [=====] - 3s 28ms/step - loss: 0.0767 - accuracy: 0.9741 - val_loss: 0.1802 - val_accuracy: 0.9436
Epoch 8/10
116/116 [=====] - 3s 28ms/step - loss: 0.0642 - accuracy: 0.9784 - val_loss: 0.2427 - val_accuracy: 0.9393
Epoch 9/10
116/116 [=====] - 3s 28ms/step - loss: 0.0624 - accuracy: 0.9794 - val_loss: 0.2893 - val_accuracy: 0.9405
Epoch 10/10
116/116 [=====] - 3s 28ms/step - loss: 0.0533 - accuracy: 0.9817 - val_loss: 0.2462 - val_accuracy: 0.9411
```

TripAdvisor

```
Epoch 1/10
832/832 [=====] - 25s 28ms/step - loss: 0.2400 - accuracy: 0.9058 - val_loss: 0.2139 - val_accuracy: 0.9175
Epoch 2/10
832/832 [=====] - 24s 29ms/step - loss: 0.1961 - accuracy: 0.9227 - val_loss: 0.2148 - val_accuracy: 0.9188
Epoch 3/10
832/832 [=====] - 23s 27ms/step - loss: 0.1837 - accuracy: 0.9277 - val_loss: 0.2085 - val_accuracy: 0.9214
Epoch 4/10
832/832 [=====] - 23s 27ms/step - loss: 0.1741 - accuracy: 0.9321 - val_loss: 0.1948 - val_accuracy: 0.9222
Epoch 5/10
832/832 [=====] - 23s 27ms/step - loss: 0.1639 - accuracy: 0.9366 - val_loss: 0.1938 - val_accuracy: 0.9243
Epoch 6/10
832/832 [=====] - 23s 27ms/step - loss: 0.1544 - accuracy: 0.9418 - val_loss: 0.1952 - val_accuracy: 0.9234
Epoch 7/10
832/832 [=====] - 23s 28ms/step - loss: 0.1453 - accuracy: 0.9456 - val_loss: 0.1982 - val_accuracy: 0.9271
Epoch 8/10
832/832 [=====] - 23s 28ms/step - loss: 0.1376 - accuracy: 0.9487 - val_loss: 0.2018 - val_accuracy: 0.9243
Epoch 9/10
832/832 [=====] - 23s 27ms/step - loss: 0.1308 - accuracy: 0.9519 - val_loss: 0.1951 - val_accuracy: 0.9278
Epoch 10/10
832/832 [=====] - 23s 28ms/step - loss: 0.1240 - accuracy: 0.9542 - val_loss: 0.1981 - val_accuracy: 0.9255
```

Amazon

```
Epoch 1/10
317/317 [=====] - 11s 29ms/step - loss: 0.3824 - accuracy: 0.8343 - val_loss: 0.3390 - val_accuracy: 0.8576
Epoch 2/10
317/317 [=====] - 9s 27ms/step - loss: 0.3018 - accuracy: 0.8768 - val_loss: 0.3150 - val_accuracy: 0.8758
Epoch 3/10
317/317 [=====] - 9s 27ms/step - loss: 0.2858 - accuracy: 0.8826 - val_loss: 0.2992 - val_accuracy: 0.8727
Epoch 4/10
317/317 [=====] - 9s 27ms/step - loss: 0.2736 - accuracy: 0.8895 - val_loss: 0.3312 - val_accuracy: 0.8758
Epoch 5/10
317/317 [=====] - 9s 28ms/step - loss: 0.2591 - accuracy: 0.8966 - val_loss: 0.3044 - val_accuracy: 0.8711
Epoch 6/10
317/317 [=====] - 10s 32ms/step - loss: 0.2484 - accuracy: 0.9005 - val_loss: 0.3508 - val_accuracy: 0.8489
Epoch 7/10
317/317 [=====] - 9s 28ms/step - loss: 0.2412 - accuracy: 0.9045 - val_loss: 0.3077 - val_accuracy: 0.8773
Epoch 8/10
317/317 [=====] - 9s 27ms/step - loss: 0.2290 - accuracy: 0.9090 - val_loss: 0.3352 - val_accuracy: 0.8638
Epoch 9/10
317/317 [=====] - 9s 27ms/step - loss: 0.2188 - accuracy: 0.9149 - val_loss: 0.3176 - val_accuracy: 0.8736
Epoch 10/10
317/317 [=====] - 9s 27ms/step - loss: 0.2077 - accuracy: 0.9195 - val_loss: 0.3367 - val_accuracy: 0.8669
```

IMDB

Performance Evaluation

