

Dataset:

Paper Link: <https://aclanthology.org/2021.findings-emnlp.278.pdf>

Method	Precision	Recall	F1
Majority	41.24	41.24	41.24
Random	33.67	35.44	34.53
Weighted Random	31.89	33.35	32.60
Bi-LSTM + Attn. (FastText)	52.24	63.09	57.15
Bi-LSTM + Attn. (Random)	56.16	64.97	60.25
mBERT	49.58	56.43	52.79
Unigram (U)	56.89	71.06	63.19
Bigram (B)	54.32	66.20	59.68
Trigram (T)	51.57	60.21	55.56
U + B	57.71	72.95	64.44
U + B + T	57.03	71.88	63.60
Char 2-gram (C2)	53.29	66.39	59.12
Char 3-gram (C3)	56.06	70.87	62.60
Char 4-gram (C4)	56.62	71.44	63.17
Char 5-gram (C5)	56.94	71.94	63.57
C2 + C3	56.00	70.93	62.59
C3 + C4	56.49	71.31	63.04
C4 + C5	57.30	72.76	64.11
C2 + C3 + C4	56.45	71.44	63.07
C3 + C4 + C5	57.60	73.39	64.54
C2 + C3 + C4 + C5	57.06	72.89	64.01
U + B + C3 + C4 + C5	56.96	72.51	63.80
U + B + C2 + C3 + C4 + C5	57.05	72.70	63.93
U + B + T + C2 + C3 + C4 + C5	57.71	73.39	64.61
Embeddings (E)	50.68	63.75	56.46
U + B + C2 + C3 + C4 + C5 + E	57.48	73.14	64.37
U + B + T + C2 + C3 + C4 + C5 + E	57.36	72.45	64.03

Table 3: Precision, Recall, and F1 for different methods.

Combination:

1. Stop words removal (**short list**)
2. Tf-idf and NLU lemmatization
3. Tf-idf, NLU lemmatization, and stop words removal
4. Tf-idf and stemming
5. Tf-idf, stemming and stop words removal

Experiment on (kaggle GPU P100):

Batch size: 16

Epoch: 5

Learning rate: 1e-4

Art of state accuracy: 75%(collected from kaggle)

1. Stop words removal (short list):

Accuracy: **76%**

	precision	recall	f1-score	support
0	0.61	0.54	0.57	354
1	0.78	0.83	0.81	623
2	0.83	0.83	0.83	590
accuracy			0.76	1567
macro avg	0.74	0.73	0.73	1567
weighted avg	0.76	0.76	0.76	1567

2. Tf-idf and NLU lemmatization:

Accuracy: **76%**

	precision	recall	f1-score	support
0	0.58	0.59	0.58	354
1	0.78	0.83	0.80	623
2	0.85	0.79	0.82	590
accuracy			0.76	1567
macro avg	0.74	0.74	0.74	1567
weighted avg	0.76	0.76	0.76	1567

3. Tf-idf, NLU lemmatization, and stop words removal:

Accuracy: **75%**

	precision	recall	f1-score	support
0	0.60	0.55	0.57	354
1	0.76	0.83	0.79	623
2	0.84	0.79	0.82	590
accuracy			0.75	1567
macro avg	0.73	0.73	0.73	1567
weighted avg	0.75	0.75	0.75	1567

4. Tf-idf and stemming:

Accuracy: **75%**

	precision	recall	f1-score	support
0	0.60	0.53	0.56	354
1	0.77	0.83	0.80	623
2	0.82	0.81	0.82	590
accuracy			0.75	1567
macro avg	0.73	0.72	0.73	1567
weighted avg	0.75	0.75	0.75	1567

5. Tf-idf, stemming and stop words removal:

Accuracy: **75%**

	precision	recall	f1-score	support
0	0.57	0.54	0.55	354
1	0.78	0.83	0.80	623
2	0.83	0.80	0.82	590
accuracy			0.75	1567
macro avg	0.73	0.72	0.72	1567
weighted avg	0.75	0.75	0.75	1567