Assignment-3

Q1. Sentiment Analysis

Feature Vector:-

core(NRC	Score(NRC Count	t_of_ Count_			Count_has Cour	t_all_	Count of P Co	unt of P Cou	int of P Cou	unt of P Cou	int of P Co	unt of P Cou	unt of P Cou	unt of P Cou	ınt of P Cou	int of P Cou	int of P Cou	unt of P Cou	unt of P
1.67	1.855	0	0	4 2.07E+09	0	0	1	2	1	1	0	0	0	0	0	0	0	0	0
0.379	-0.836	0	1	4 2.06E+09	0	1	0	0	0	0	3	3	1	0	0	0	0	0	0
-0.422	-1.794	1	4	4 2.05E+09	0	1	0	2	0	1	3	0	3	1	4	1	2	1	1
-6.203	-5.362	5	2	0 1.98E+09	0	0	0	0	1	0	2	0	5	0	1	0	1	3	0
-0.061	0.601	0	1	4 1.83E+09	9 0	0	0	0	0	1	2	3	0	0	0	0	0	0	0
-1.46	-2.579	0	1	0 2.07E+09	0	0	0	1	0	1	0	0	1	0	2	0	2	1	1
-1.921	-3.765	0	2	0 1.88E+09	0	0	4	10	2	0	3	1	1	0	0	2	2	2	1
-0.648	-3.405	1	0	0 2.27E+09	0	1	0	2	0	0	3	3	3	0	0	0	0	2	0
0.515	-0.792	0	0	4 1.97E+09	0	19	0	0	0	8	2	16	1	0	1	0	1	0	0
2.937	2.053	0	1	4 1.96E+09	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
-1.687	-0.866	1	1	4 2.06E+09	0	1	1	5	1	0	2	1	0	0	0	0	2	1	0
-3.917	-0.699	0	0	0 1.68E+09	9 0	1	0	2	0	1	2	0	0	0	1	0	1	1	0
1.348	0.986	0	2	4 2.05E+09	0	5	1	1	0	5	2	3	0	0	0	0	0	1	0
0.649	-0.59	0	1	0 2E+09	0	1	0	1	0	1	1	0	0	0	1	0	1	0	0
1.991	0.097	1	2	4 1.69E+09	0	1	0	2	0	2	0	2	0	0	2	0	1	1	0
1.36	3.888	0	1	4 1.77E+09	0	0	1	1	0	0	1	0	1	0	0	1	0	0	1
2.295	2.08	0	1	4 1.96E+09	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
0.148	-0.536	0	1	4 2.18E+09	0	0	0	2	0	0	1	0	0	0	0	0	0	1	0
-0.009	0.073	0	0	4 1.82E+09	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
-10.284	-3.399	1	3	0 2.22E+09	0	0	2	8	1	0	0	0	4	0	0	0	0	1	1
-3.176	0.782	1	1	0 2.07E+09	0	0	0	8	1	1	1	1	0	0	0	0	0	1	0
-9.781	-2.807	1	1	0 1.68E+09	0	1	1	7	0	1	2	2	2	0	4	0	2	0	2
0.942	3.181	2	5	4 1.98E+09	0	2	2	5	0	2	2	0	2	0	2	0	2	0	2
-0.471	0.579	1	0	4 1.97E+09	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0
-2.633	1.551	0	0	0 2.26E+09	0	0	0	3	0	1	2	2	0	0	0	0	0	0	0
-4.063	-1.876	2	0	0 1.68E+09	0	2	1	4	0	1	0	0	1	0	3	0	2	2	1
-3.186	-0.784	0	2	0 1.69E+09	0	2	0	1	0	0	1	0	1	0	2	0	1	0	0
2.273	3.42	0	2	4 1.96E+09	0	1	0	0	0	0	2	1	0	0	2	0	1	1	0
-2.775	-1.27	1	3	0 2.06E+09	0	0	1	1	1	1	2	3	1	0	2	2	0	1	1

Bing Lio Feature:-

	Positive-WordCount	Negative-WordCount	Pos-Neg-Diff-WordCount
0	0	0	0
1	0	0	0
2	1	1	0
3	0	2	2
4	0	0	0

MPQA:-

	Count_of_negative(mpqa)	Count_of_positive(mpqa)
0	0	0
1	0	1
2	1	4
3	5	2
4	0	1

Sentiment140:-

	Score(NRC-sentiment140)
0	2.801
1	0.342
2	-3.334
3	3.262
4	-4.011

NRC-Hashtag:-

	Score(NRC-hashtag)
0	4.100
1	-1.337
2	-2.701
3	2.573
4	-5,368

N-gram:-

```
[[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 0]

[0 0 0 ... 0 0 1]

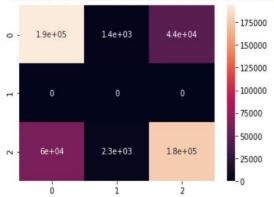
...

[0 0 0 ... 0 0 0]

[0 1 0 ... 0 0 0]
```

Naive-Bayes:-

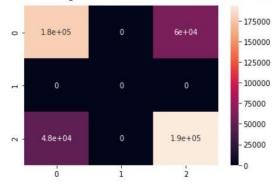
Macro average F1 score is:- 0.7781870612270346
Accuracy is :- 0.7744583333333334
Precision is :- 0.5212218348464259
Recall is :- 0.5163834747598104
/usr/local/lib/python3.6/dist-packages/sklearn/mer_warn_prf(average, modifier, msg_start, len(res



SVM:-

Classes Precision Recall 0 0.789586 0.748658 4 0.762547 0.801811

Macro average F1 score is:- 0.7756502677784326

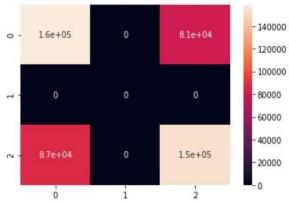


Decision Tree:-

Classes Precision Recall 0 0.646456 0.662761 4 0.656381 0.639936

Accuracy is :- 0.6513104166666667 Precision is :- 0.6514187007096428 Recall is :- 0.6513482677549309

Macro average F1 score is:- 0.6513834823283389



MLP:-

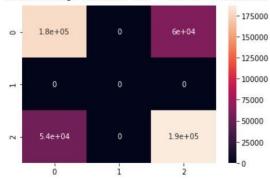
```
Confusion_matrix is :-
[[179237. 0. 59967.]
[ 0. 0. 0.]
[ 54003. 0. 186793.]]
```

Classes Precision Recall 0 0.768466 0.749306 4 0.756982 0.775731

Accuracy is :- 0.7625625

Precision is :- 0.7627242254612054 Recall is :- 0.7625186780561583

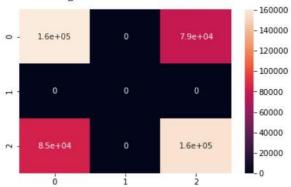
Macro average F1 score is:- 0.7626214379085156



TF-IDF -decision tree

Classes Precision Recall
0 0.655076 0.671072
4 0.665123 0.648989

Accuracy is :- 0.65999375 Macro average F1 score is:- 0.6600648599211598



Q2. Emotion Analysis

ANGER PEARSON COEFFICIENT: SVM: (0.3822372423369907, Decision tree: 0.4144469609823051 MLP: 0.1073758509834736 SPEARMANS COEFFICIENT SVM: =0.4098899760865696,

Decision tree:

0.40733088582220556

MLP:

0.22308006471787512

JOY

PEARSON COEFFICIENT SVM

0.19485844976798644

DCT

0.08699489709962026

MLP

0.1534077819441137

SPEARMANS COEFFICIENT SVM

0.23741492342689663

DCT

0.0939532512457811

MLP

0.34760872703943824