

MNB

Hyper-parameters:

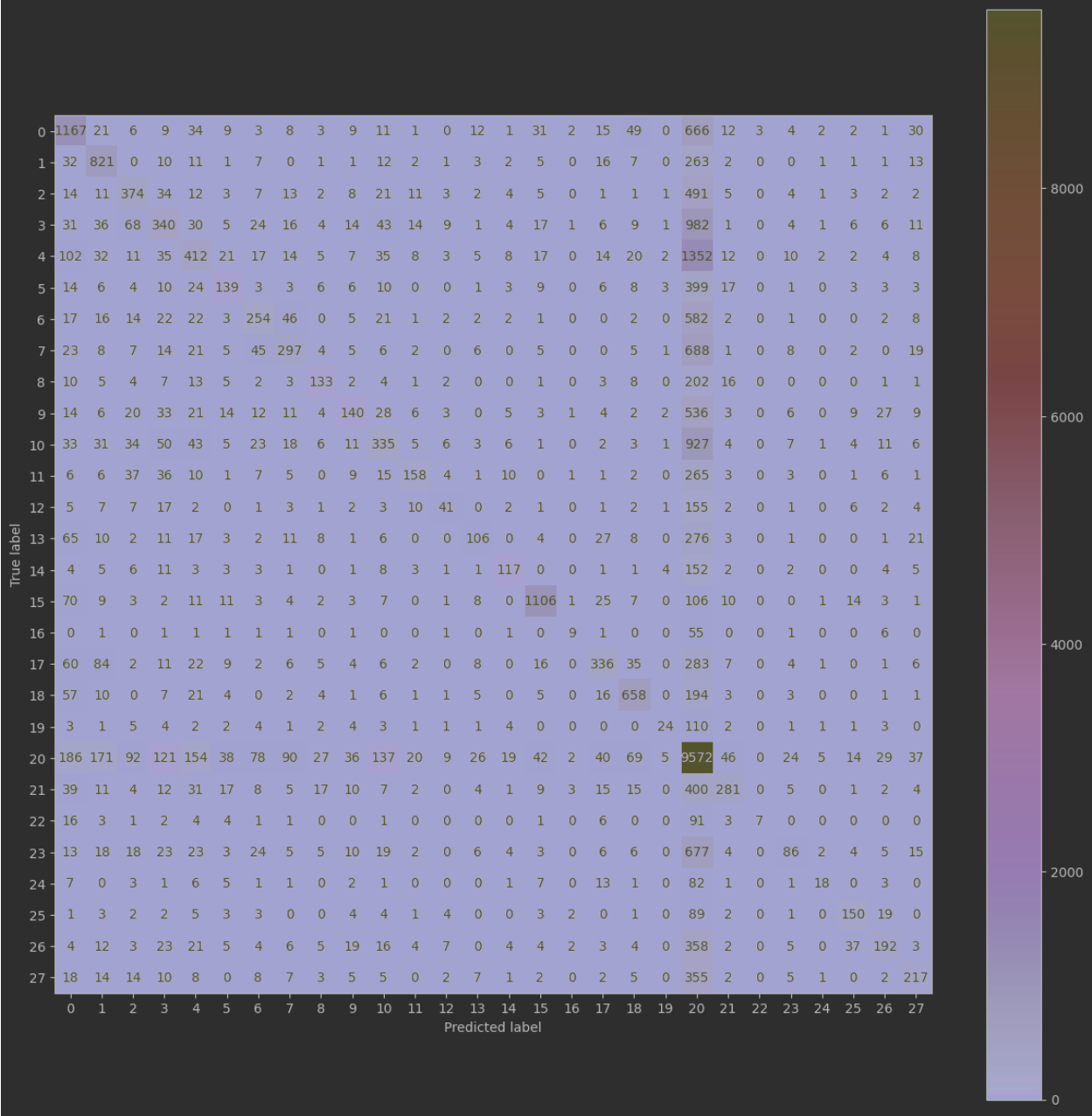
default

Emotion

Score for Emotion	0.437550925				
Accuracy for Emotion	0.437550925				
Precision (Weighted) for Emotion	0.485135331				
F1 Score (Weighted) for Emotion	0.370297213				
F1 Score (Macro) for Emotion	0.223413218				
		precision	recall	f1-score	support
	0	0.54	0.53	0.54	2102
	1	0.63	0.37	0.46	1233
	2	0.49	0.19	0.27	1011
	3	0.42	0.14	0.21	1710
	4	0.44	0.17	0.24	2290
	5	0.54	0.12	0.2	721
	6	0.52	0.09	0.16	944
	7	0.56	0.16	0.24	1174
	8	0.55	0.05	0.1	387
	9	0.52	0.08	0.14	928
	10	0.48	0.15	0.23	1550
	11	0.56	0.1	0.17	590
	12	0.5	0.02	0.04	265
	13	0.45	0.05	0.08	589
	14	0.74	0.08	0.14	344
	15	0.79	0.72	0.75	1423
	16	0	0	0	68
	17	0.53	0.18	0.26	866
	18	0.71	0.41	0.52	1001
	19	0	0	0	185
	20	0.39	0.89	0.54	11042
	21	0.58	0.18	0.28	955
	22	0	0	0	120
	23	0.54	0.07	0.12	986
	24	0	0	0	157

	25	0.53	0.08	0.13	302
	26	0.56	0.13	0.22	758
	27	0.49	0.12	0.19	663
	accuracy			0.44	34364
	macro avg	0.47	0.18	0.22	34364
	weighted avg	0.49	0.44	0.37	34364

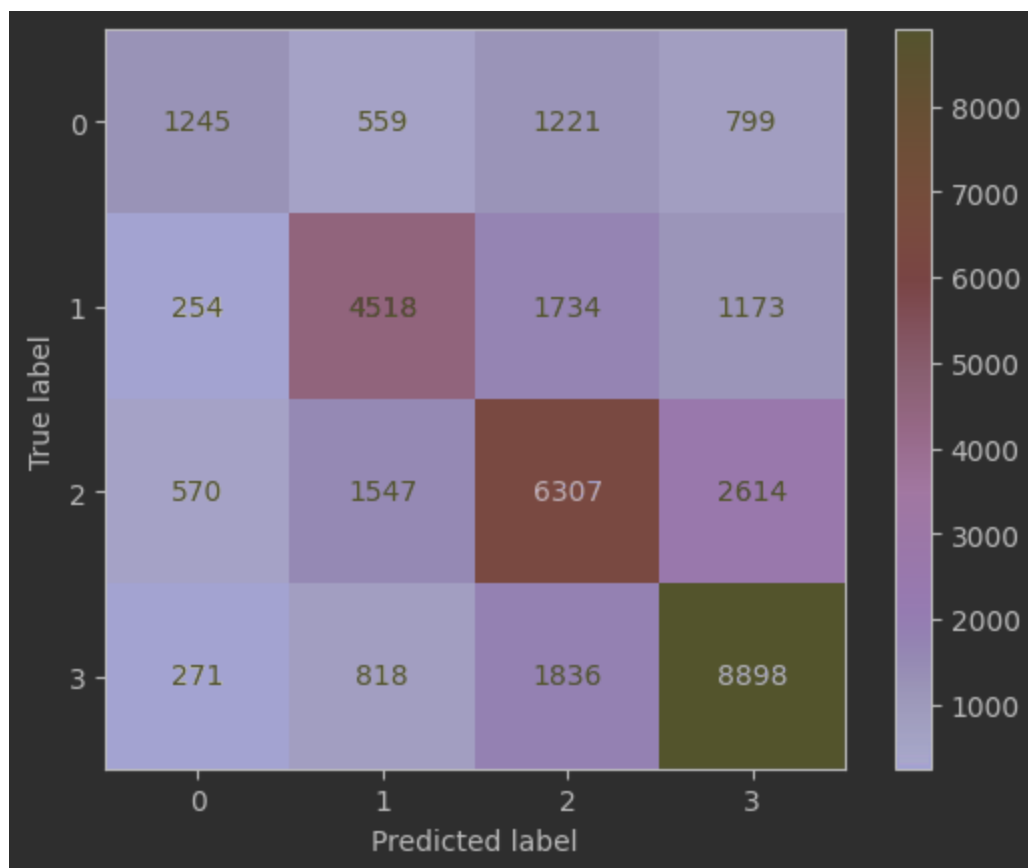
Confusion Matrix



Sentiment

Score for Sentiment	0.606070306				
Accuracy for Emotion	0.606070306				
Precision (Weighted) for Emotion	0.600581792				
F1 Score (Weighted) for Emotion	0.599332604				
F1 Score (Macro) for Emotion	0.563918432				
		precision	recall	f1-score	support
	0	0.53	0.32	0.4	3767
	1	0.6	0.59	0.59	7711
	2	0.56	0.57	0.56	11042
	3	0.66	0.75	0.7	11844
				0.61	34364
	macro avg	0.59	0.55	0.56	34364
	weighted avg	0.6	0.61	0.6	34364

Confusion Matrix



DT

Hyper-parameters:

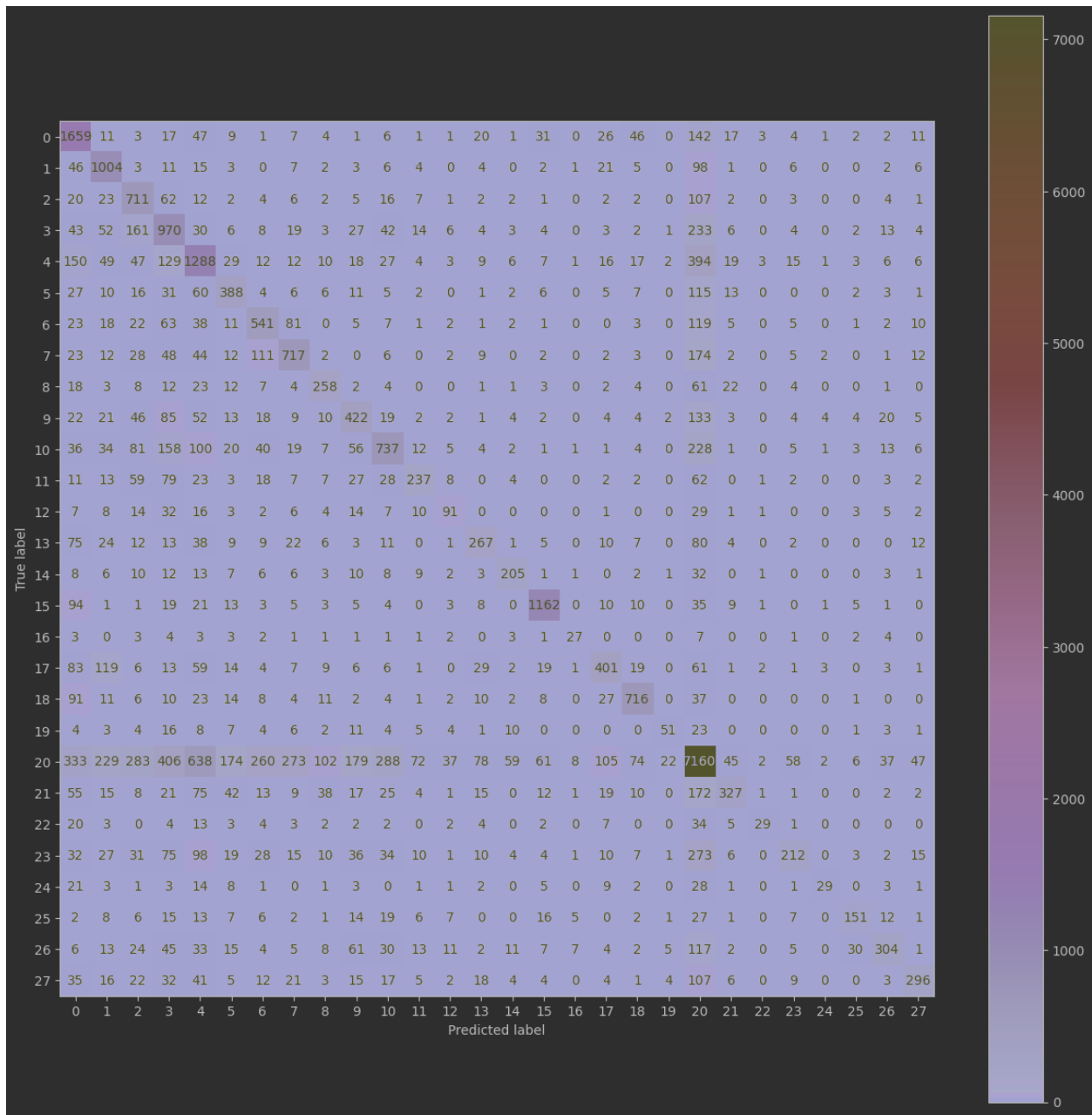
default

Emotion

Score for Emotion	0.596438133				
Accuracy for Emotion	0.596438133				
Precision (Weighted) for Emotion	0.613522205				
F1 Score (Weighted) for Emotion	0.592999113				
F1 Score (Macro) for Emotion	0.512459252				
		precision	recall	f1-score	support
	0	0.57	0.82	0.67	2102
	1	0.58	0.82	0.68	1233
	2	0.44	0.7	0.54	1011
	3	0.41	0.58	0.48	1710
	4	0.47	0.56	0.51	2290
	5	0.48	0.55	0.51	721
	6	0.48	0.58	0.52	944
	7	0.59	0.63	0.61	1174
	8	0.48	0.58	0.52	387
	9	0.46	0.48	0.47	928
	10	0.53	0.49	0.51	1550
	11	0.55	0.42	0.47	590
	12	0.46	0.38	0.42	265
	13	0.49	0.41	0.44	589
	14	0.61	0.56	0.58	344
	15	0.86	0.83	0.84	1423
	16	0.4	0.28	0.33	68
	17	0.6	0.45	0.51	866
	18	0.76	0.7	0.73	1001
	19	0.6	0.27	0.37	185
	20	0.71	0.65	0.68	11042
	21	0.71	0.4	0.51	955
	22	0.62	0.17	0.27	120
	23	0.63	0.25	0.35	986
	24	0.6	0.16	0.25	157
	25	0.65	0.48	0.56	302

	26	0.71	0.4	0.51	758
	27	0.63	0.39	0.48	663
	accuracy			0.6	34364
	macro avg	0.57	0.5	0.51	34364
	weighted avg	0.61	0.6	0.59	34364

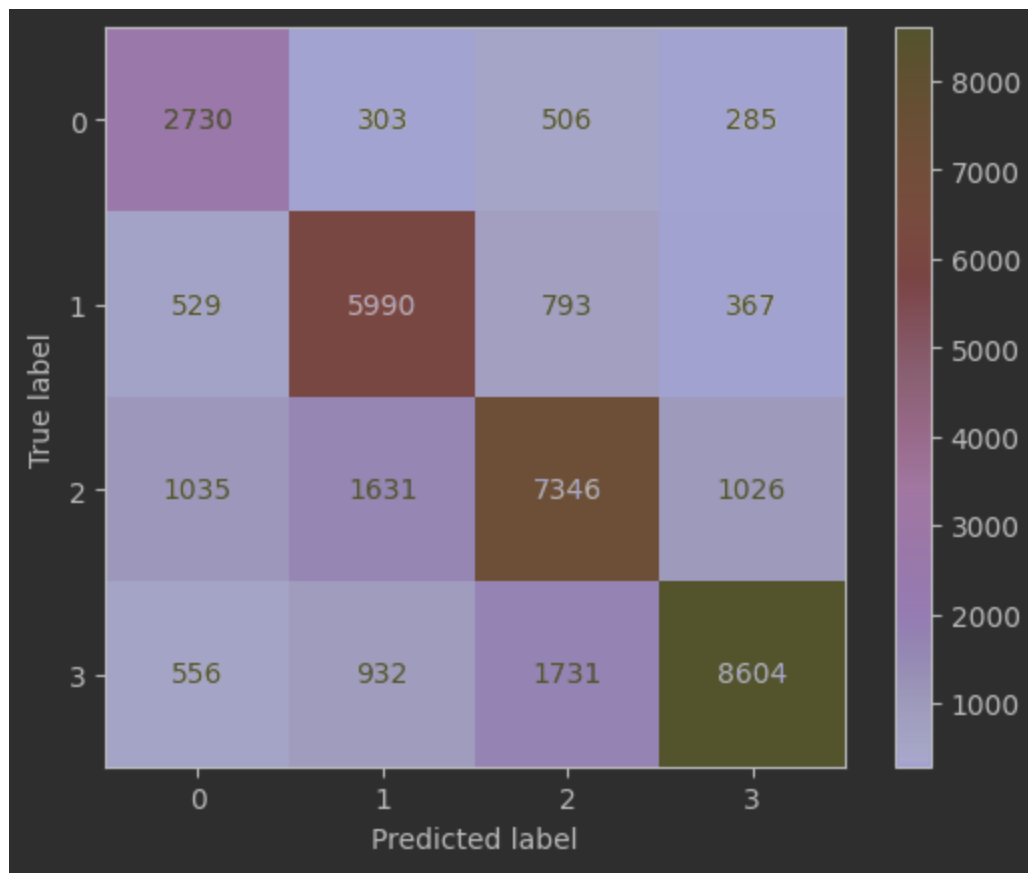
Confusion Matrix



Sentiment

Score for Sentiment	0.720230474				
Accuracy for Emotion	0.720230474				
Precision (Weighted) for Emotion	0.730819334				
F1 Score (Weighted) for Emotion	0.722443408				
F1 Score (Macro) for Emotion	0.706697716				
		precision	recall	f1-score	support
	0	0.57	0.72	0.63	3767
	1	0.68	0.78	0.72	7711
	2	0.71	0.67	0.69	11042
	3	0.84	0.73	0.78	11844
	accuracy			0.72	34364
	macro avg	0.7	0.72	0.71	34364
	weighted avg	0.73	0.72	0.72	34364

Confusion Matrix



MLP

Hyper-parameters:

default

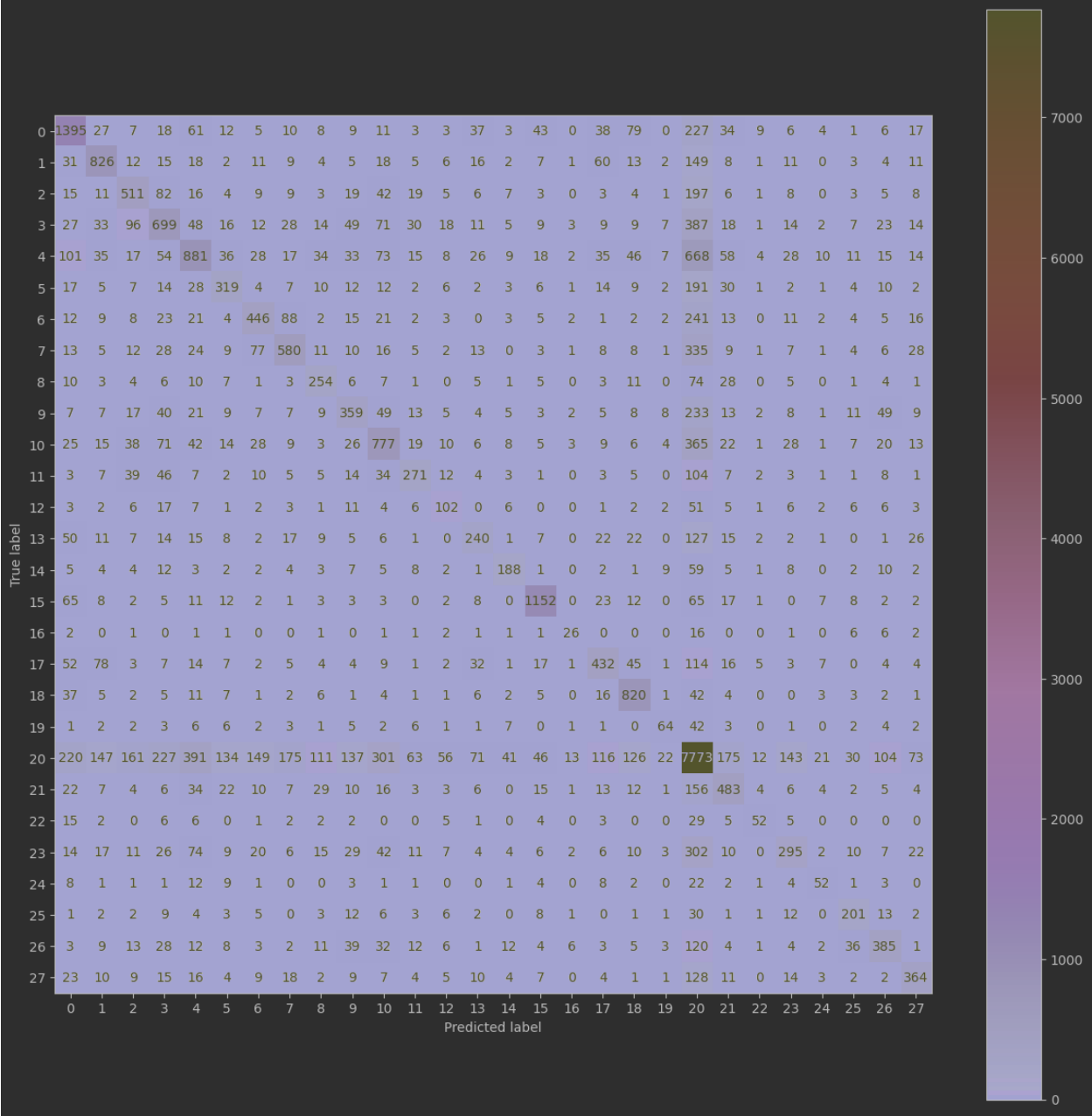
Emotion

Score for Emotion	0.577581				
Accuracy for Emotion	0.577581				
Precision (Weighted) for Emotion	0.570543				
F1 Score (Weighted) for Emotion	0.571757				

F1 Score (Macro) for Emotion	0.507 736				
		precision	recall	f1-score	support
	0	0.62	0.67	0.65	2101
	1	0.66	0.67	0.67	1255
	2	0.52	0.51	0.52	1022
	3	0.45	0.37	0.41	1682
	4	0.5	0.41	0.45	2208
	5	0.49	0.46	0.47	691
	6	0.49	0.45	0.47	986
	7	0.57	0.48	0.52	1172
	8	0.48	0.61	0.54	420
	9	0.44	0.36	0.4	990
	10	0.47	0.47	0.47	1512
	11	0.5	0.42	0.46	597
	12	0.38	0.39	0.39	289
	13	0.46	0.42	0.44	594
	14	0.59	0.58	0.58	332
	15	0.85	0.82	0.84	1386
	16	0.44	0.41	0.42	76
	17	0.52	0.47	0.49	857
	18	0.66	0.82	0.73	1047
	19	0.48	0.4	0.44	170
	20	0.63	0.7	0.67	11029
	21	0.49	0.53	0.51	921
	22	0.39	0.29	0.33	129
	23	0.45	0.32	0.38	958
	24	0.42	0.38	0.39	165
	25	0.54	0.59	0.56	312
	26	0.51	0.5	0.51	763
	27	0.56	0.5	0.53	700
	accuracy			0.58	34364
	macro avg	0.52	0.5	0.51	34364

	weigh ted a vg	0.57	0.58	0.57	34364
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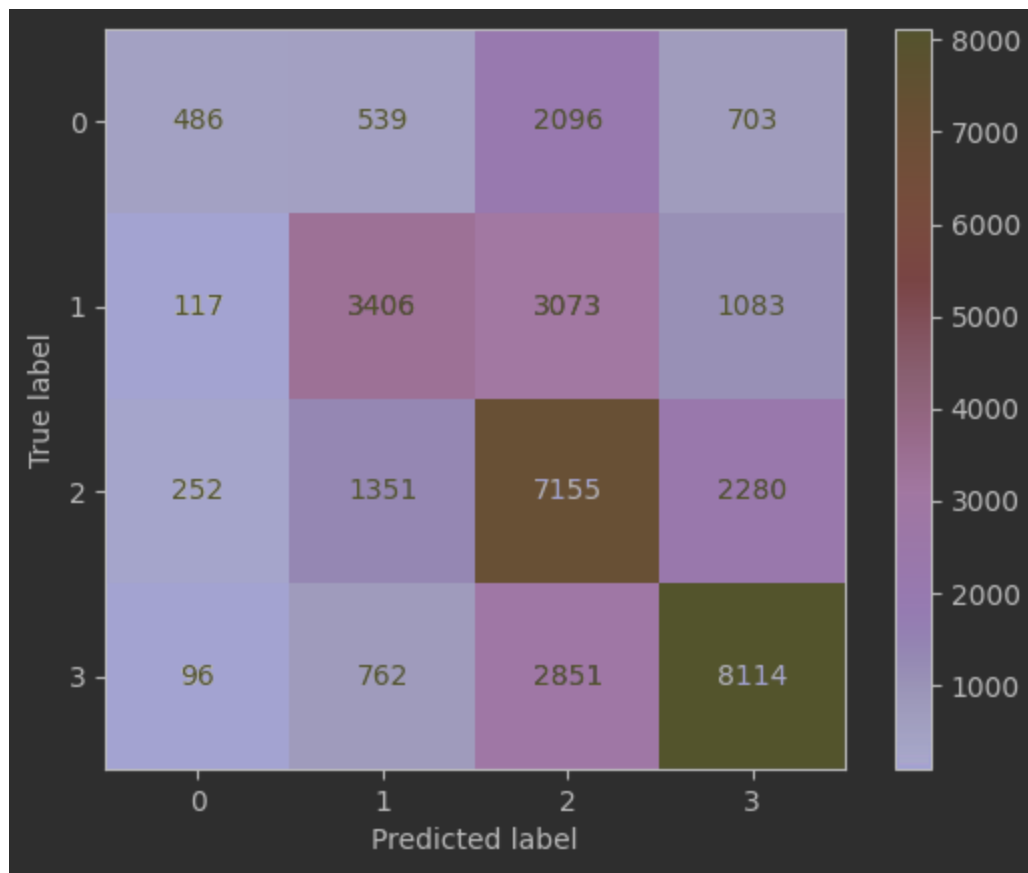
Confusion Matrix



Sentiment

Score for Sentiment	0.565155				
Accuracy for Emotion	0.565155				
Precision (Weighted) for Emotion	0.571357				
F1 Score (Weighted) for Emotion	0.549716				
F1 Score (Macro) for Emotion	0.490242				
		precision	recall	f1-score	support
	0	0.53	0.14	0.22	3816
	1	0.57	0.46	0.51	7745
	2	0.48	0.65	0.55	11029
	3	0.67	0.69	0.68	11774
	accuracy			0.57	34364
	macro avg	0.56	0.49	0.49	34364
	weighted avg	0.57	0.57	0.55	34364

Confusion Matrix



MNB (Grid Search CV)

Hyper-parameters:

alpha

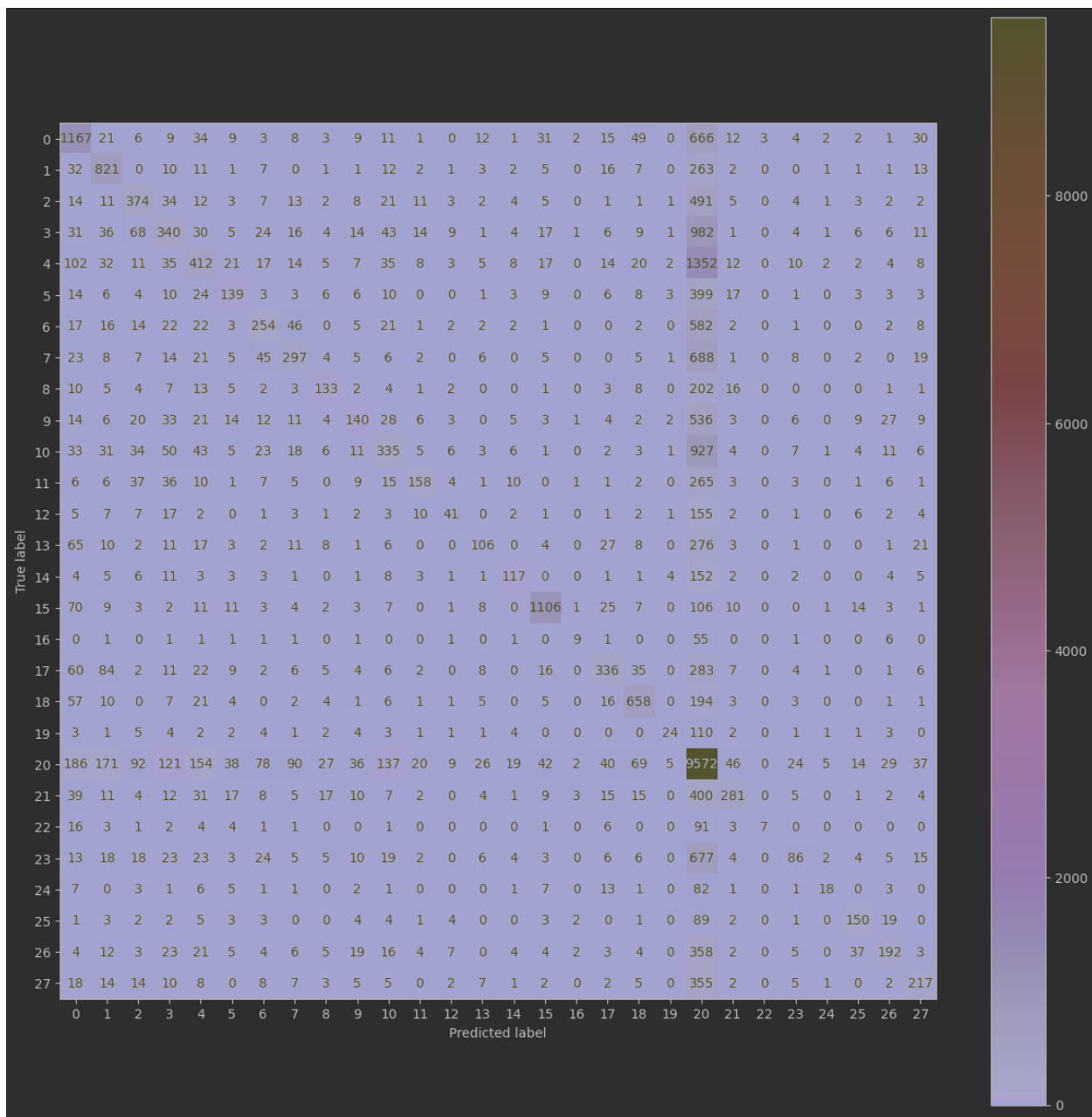
Emotion

alpha_emotion = 0.36

Best estimator (Emotion): MultinomialNB(alpha=0.36),

F1 Score (Macro) for Emotion	0.36344663				
	precision	recall	f1- score	support	
	0	0.54	0.62	0.58	2111
	1	0.59	0.62	0.61	1213
	2	0.48	0.37	0.42	1035
	3	0.41	0.27	0.32	1684
	4	0.39	0.24	0.3	2158
	5	0.37	0.3	0.33	681
	6	0.46	0.28	0.35	1025
	7	0.46	0.31	0.37	1172
	8	0.52	0.26	0.35	423
	9	0.48	0.22	0.3	919
	10	0.43	0.3	0.35	1576
	11	0.54	0.29	0.38	588
	12	0.46	0.16	0.23	276
	13	0.43	0.19	0.26	583
	14	0.57	0.3	0.39	338
	15	0.73	0.8	0.76	1408
	16	0.2	0.01	0.02	81
	17	0.5	0.36	0.42	910
	18	0.65	0.62	0.63	1000
	19	0.46	0.06	0.11	180
	20	0.47	0.73	0.57	11089
	21	0.51	0.4	0.45	903
	22	0.56	0.06	0.11	141
	23	0.38	0.18	0.25	981
	24	0.41	0.07	0.12	154
	25	0.59	0.32	0.41	299
	26	0.44	0.31	0.36	743
	27	0.48	0.34	0.4	693
	accuracy			0.49	34364
	macro	0.48	0.32	0.36	34364
	weighted_avg	0.48	0.49	0.46	34364

Confusion Matrix



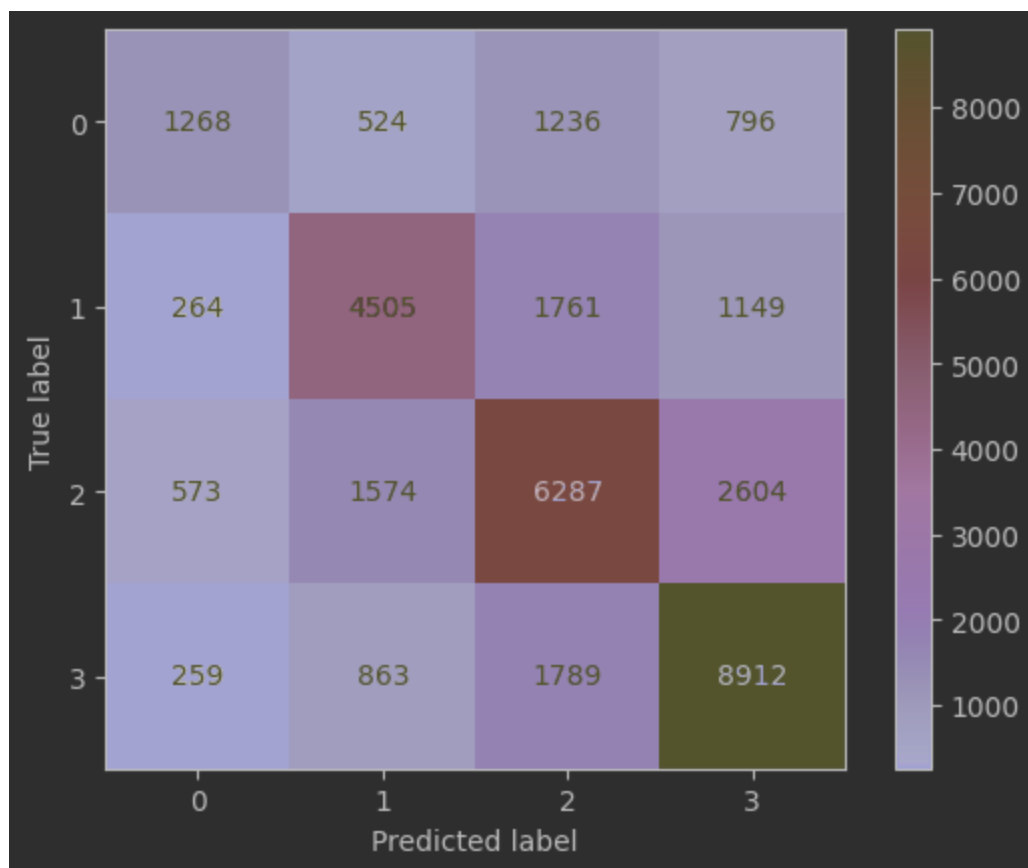
Sentiment

alpha_sentiment=1

Best estimator (Sentiment): MultinomialNB(alpha=1),

Best Score	0.53839044				
Accuracy for Emotion	0.61247235				
Precision (Weighted) for Emotion	0.60704895				
F1 Score (Weighted) for Emotion	0.60548715				
F1 Score (Macro) for Emotion	0.57227864				
		precision	recall	f1-score	support
	0	0.55	0.33	0.41	3871
	1	0.61	0.6	0.6	7719
	2	0.57	0.56	0.57	11089
	3	0.66	0.76	0.71	11685
	accuracy			0.61	34364
	macro avg	0.6	0.56	0.57	34364
	weighted avg	0.61	0.61	0.61	34364

Confusion Matrix



DT (Grid Search CV)

Hyper-parameters:

```
"criterion":("gini","entropy"),"max_depth":(100,3),"min_samples_split":(12,5,30)
```

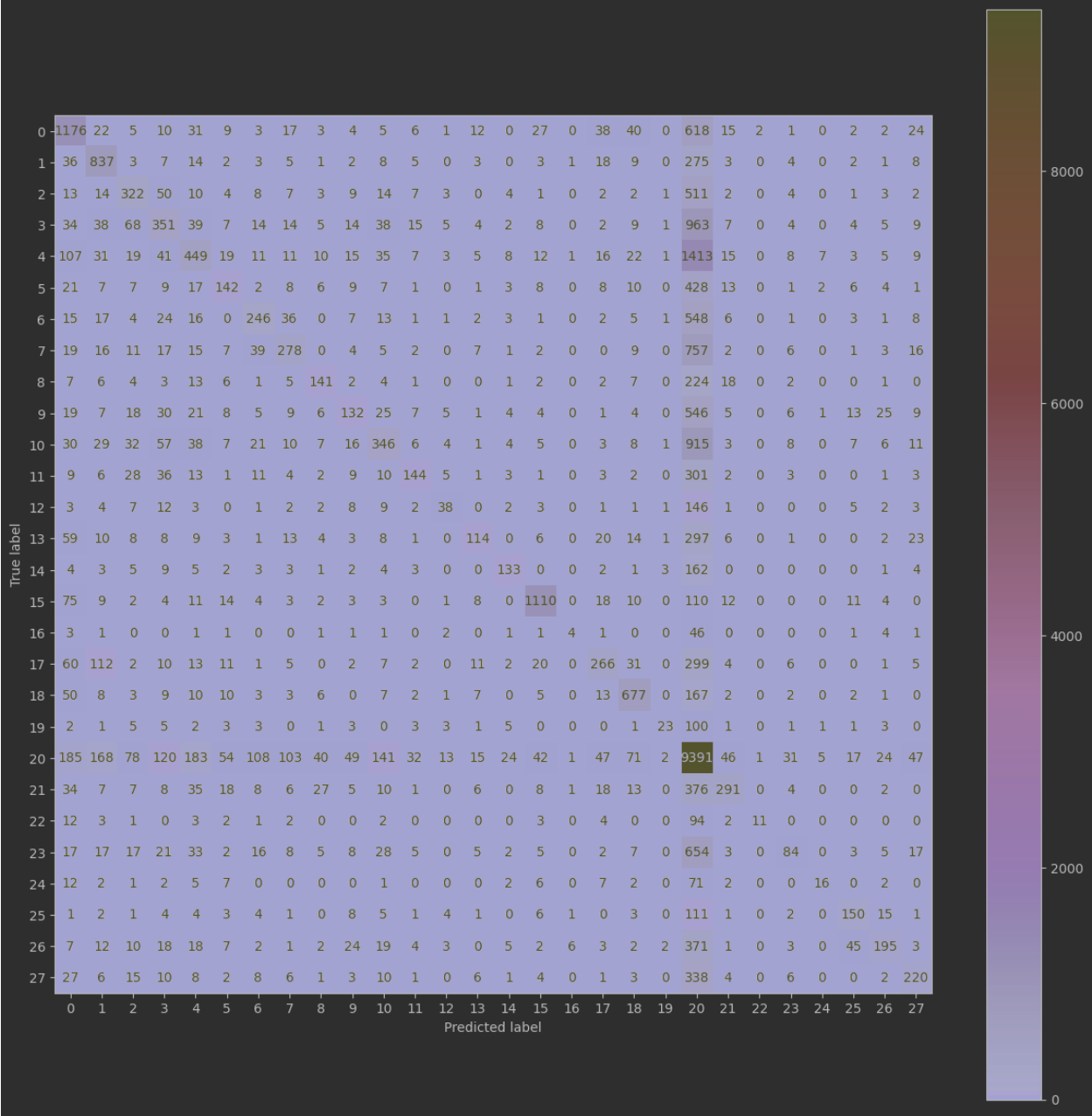
Emotion

Best estimator (Emotion): DecisionTreeClassifier(max_depth=100, min_samples_split=30)

Score for Emotion	0.59469212				
Accuracy for Emotion	0.59469212				
Precision (Weighted) for Emotion	0.61184786				
F1 Score (Weighted) for Emotion	0.59152071				
F1 Score (Macro) for Emotion	0.51684704				
	precision	recall	f1-score	support	
	0	0.56	0.82	0.66	2101
	1	0.6	0.84	0.7	1255
	2	0.44	0.72	0.55	1022
	3	0.4	0.57	0.47	1682
	4	0.45	0.57	0.5	2208
	5	0.46	0.55	0.5	691
	6	0.48	0.56	0.52	986
	7	0.55	0.58	0.57	1172
	8	0.5	0.56	0.53	420
	9	0.46	0.45	0.46	990
	10	0.53	0.47	0.5	1512
	11	0.55	0.38	0.45	597
	12	0.53	0.41	0.46	289
	13	0.52	0.42	0.47	594
	14	0.66	0.61	0.63	332
	15	0.86	0.83	0.84	1386
	16	0.48	0.36	0.41	76
	17	0.61	0.47	0.53	857
	18	0.77	0.7	0.73	1047
	19	0.49	0.26	0.34	170
	20	0.71	0.65	0.68	11029
	21	0.67	0.39	0.49	921
	22	0.53	0.18	0.27	129
	23	0.58	0.23	0.33	958
	24	0.72	0.21	0.32	165

	25	0.67	0.46	0.55	312
	26	0.68	0.41	0.51	763
	27	0.67	0.4	0.5	700
	accuracy			0.59	34364
	macro	0.58	0.5	0.52	34364
	weighted_avg	0.61	0.59	0.59	34364

Confusion Matrix

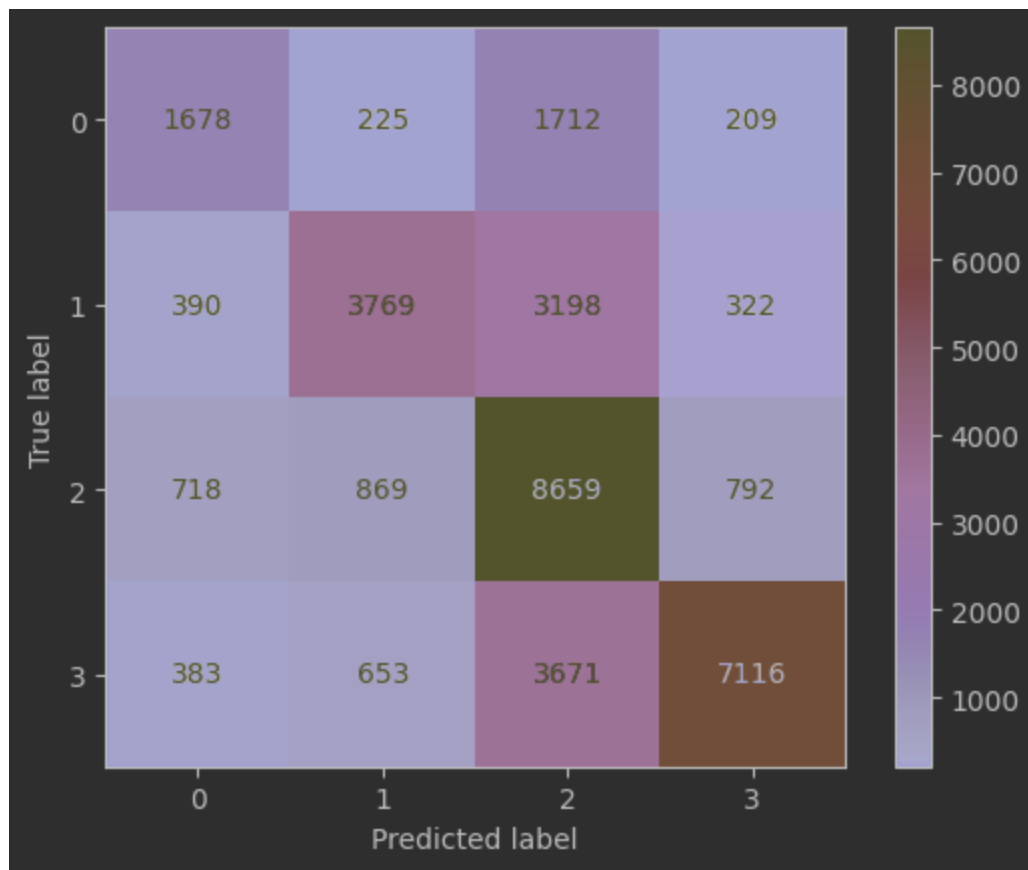


Sentiment

Best estimator (Sentiment): DecisionTreeClassifier(max_depth=100, min_samples_split=5)

Best Score	0.72081248				
Accuracy for Emotion	0.72081248				
Precision (Weighted) for Emotion	0.73241701				
F1 Score (Weighted) for Emotion	0.72335867				
F1 Score (Macro) for Emotion	0.70629159				
		precision	recall	f1-score	support
	0	0.56	0.72	0.63	3816
	1	0.67	0.77	0.72	7745
	2	0.71	0.66	0.69	11029
	3	0.84	0.74	0.79	11774
	accuracy			0.72	34364
	macro avg	0.7	0.72	0.71	34364
	weighted avg	0.73	0.72	0.72	34364

Confusion Matrix



MLP (Grid Search CV)

Hyper-parameters:

"activation":("identity", "logistic", "tanh", "relu"), "hidden_layer_sizes":((5,5),(5,10)),
"solver":("adam","sgd")

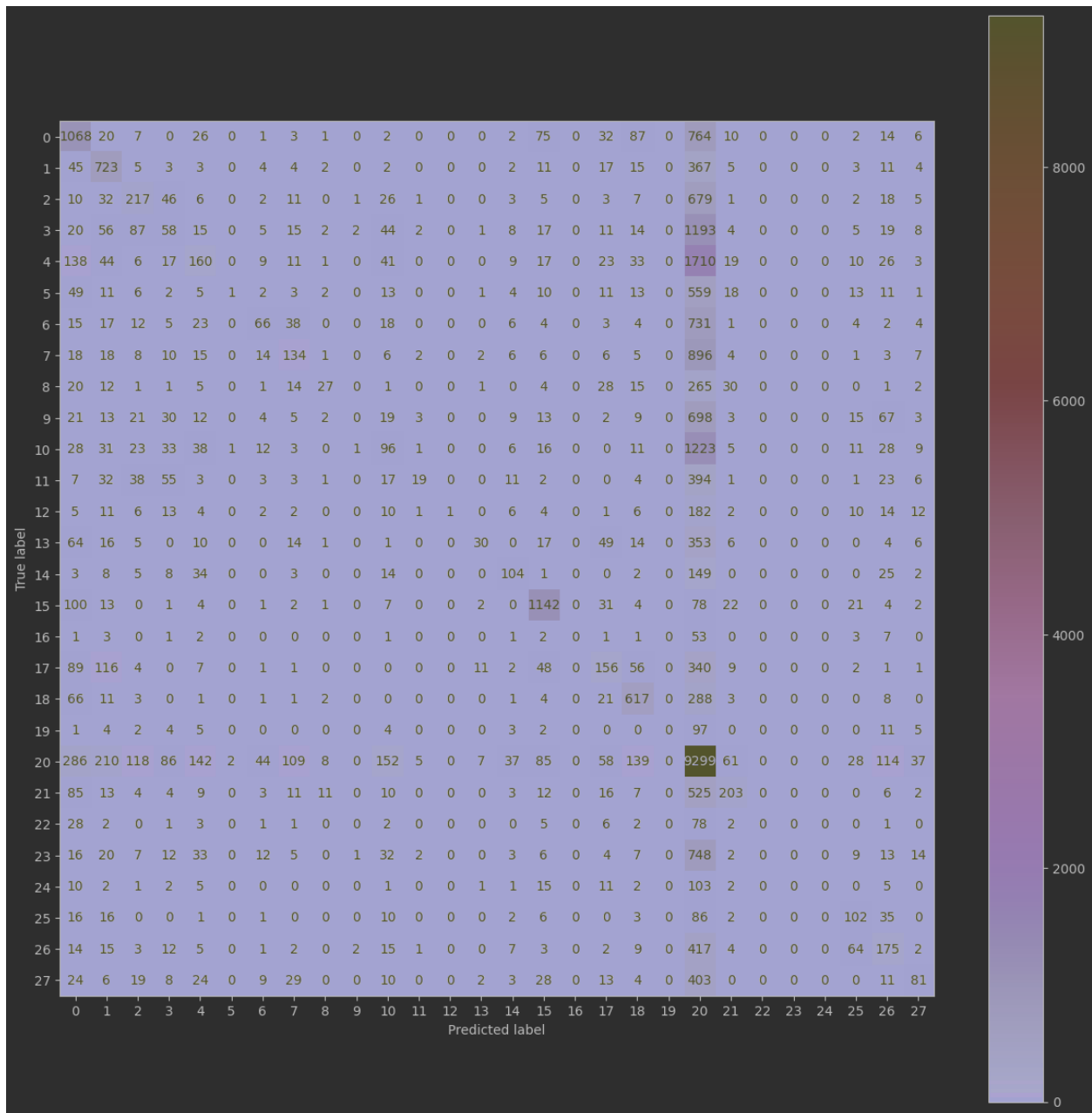
Emotion

Best estimator (Emotion): MLPClassifier(activation='identity', early_stopping=True, hidden_layer_sizes=(5, 10), max_iter=5, verbose=True)

Best Score	0.421342				
Accuracy for Emotion	0.421342				
Precision (Weighted) for Emotion	0.367309				
F1 Score (Weighted) for Emotion	0.340128				

F1 Score (Macro) for Emotion	0.201855				
		precision	recall	f1-score	support
	0	0.48	0.5	0.49	2120
	1	0.49	0.59	0.54	1226
	2	0.36	0.2	0.26	1075
	3	0.14	0.04	0.06	1586
	4	0.27	0.07	0.11	2277
	5	0.25	0	0	735
	6	0.33	0.07	0.11	953
	7	0.32	0.12	0.17	1162
	8	0.44	0.06	0.11	428
	9	0	0	0	949
	10	0.17	0.06	0.09	1576
	11	0.51	0.03	0.06	620
	12	1	0	0.01	292
	13	0.52	0.05	0.09	590
	14	0.44	0.29	0.35	358
	15	0.73	0.8	0.76	1435
	16	0	0	0	76
	17	0.31	0.18	0.23	844
	18	0.57	0.6	0.58	1027
	19	0	0	0	138
	20	0.41	0.84	0.55	11027
	21	0.48	0.22	0.3	924
	22	0	0	0	132
	23	0	0	0	946
	24	0	0	0	161
	25	0.33	0.36	0.35	280
	26	0.27	0.23	0.25	753
	27	0.36	0.12	0.18	674
	accuracy			0.42	34364
	Macro avg	0.33	0.19	0.2	34364
	weighted_avg	0.37	0.42	0.34	34364

Confusion Matrix



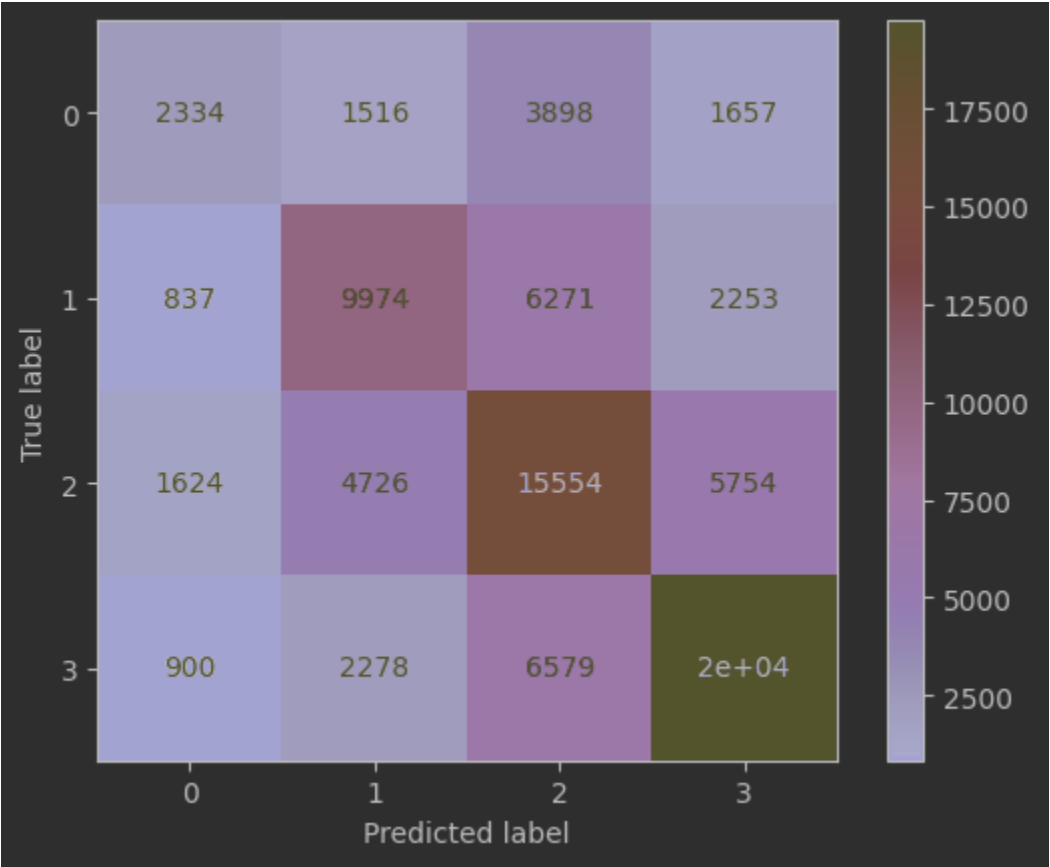
Sentiment

Best estimator (Sentiment): MLPClassifier(activation='tanh', early_stopping=True, hidden_layer_sizes=(5, 5), max_iter=5, verbose=True)

Best Score	0.554266				
Accuracy for Emotion	0.554266				
Precision (Weighted) for Emotion	0.551942				
F1 Score (Weighted) for Emotion	0.549862				
F1 Score (Macro) for Emotion	0.506429				
		precision	recall	f1-score	support

	0	0.41	0.25	0.31	9405
	1	0.54	0.52	0.53	19335
	2	0.48	0.56	0.52	27658
	3	0.67	0.67	0.67	29512
	accuracy			0.55	85910
	macro avg	0.53	0.5	0.51	85910
	weighted avg	0.55	0.55	0.55	85910

Confusion Matrix



New Training/Test Split

80/20 split becomes 50/50 training test split

MNB

Hyper-parameters:

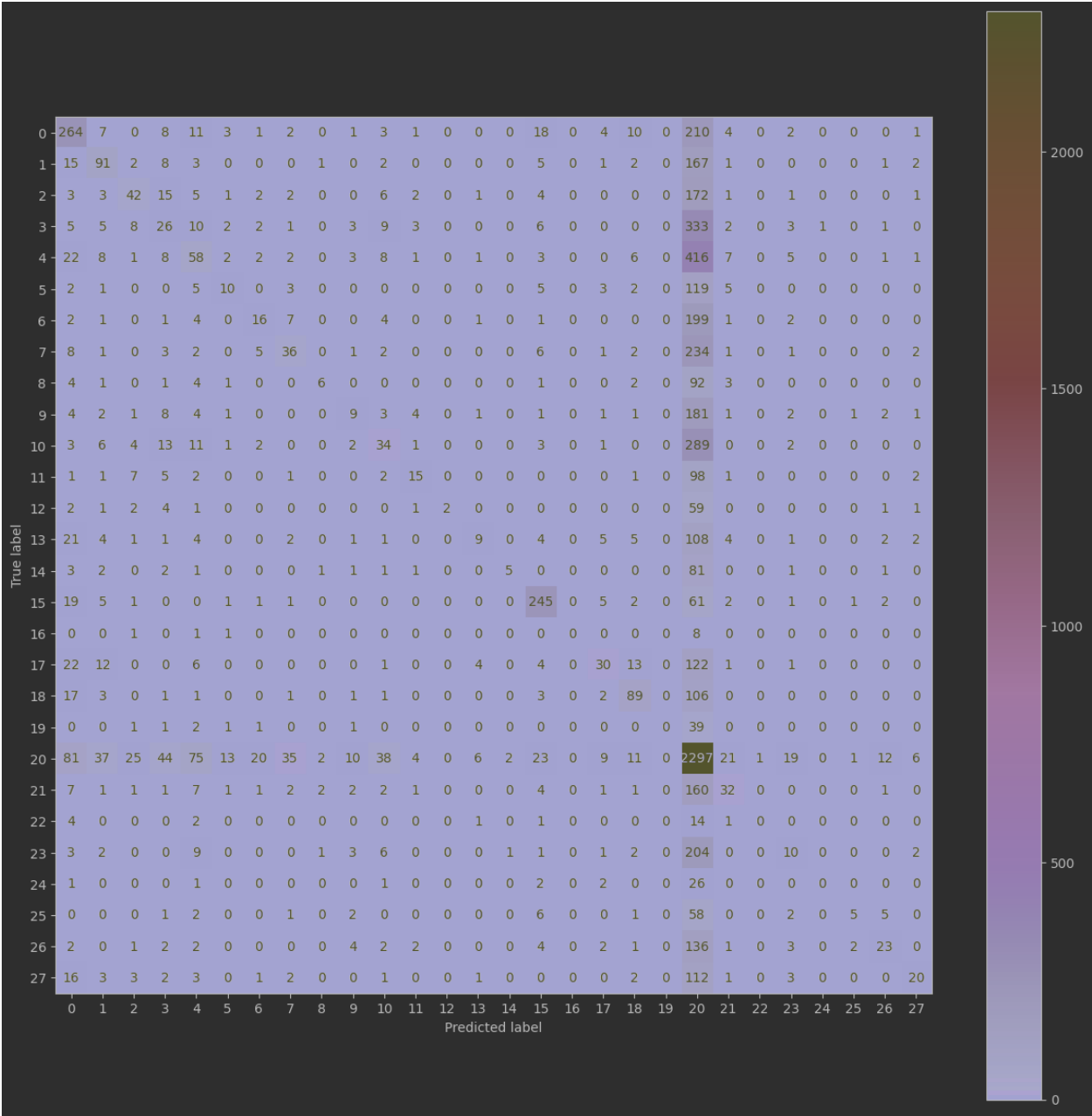
default

Emotion

Score for Emotion	0.449225934				
Accuracy for Emotion	0.449225934				
Precision (Weighted) for Emotion	0.490750903				
F1 Score (Weighted) for Emotion	0.3901304				
F1 Score (Macro) for Emotion	0.249161233				
		precision	recall	f1-score	support
	0	0.53	0.53	0.53	5242
	1	0.61	0.42	0.49	3057
	2	0.55	0.23	0.32	2661
	3	0.43	0.17	0.25	4173
	4	0.45	0.18	0.26	5731
	5	0.45	0.13	0.21	1762
	6	0.56	0.13	0.22	2493
	7	0.55	0.18	0.27	2985
	8	0.55	0.07	0.13	1065
	9	0.51	0.1	0.16	2366
	10	0.46	0.18	0.25	3717
	11	0.55	0.14	0.22	1437
	12	0.61	0.03	0.05	699
	13	0.52	0.08	0.14	1512
	14	0.71	0.09	0.17	896
	15	0.77	0.74	0.76	3551
	16	0	0	0	183
	17	0.5	0.19	0.28	2152
	18	0.69	0.47	0.56	2501
	19	0.5	0	0.01	392
	20	0.4	0.87	0.55	27584
	21	0.58	0.22	0.32	2294
	22	0	0	0	323

	23	0.46	0.09	0.15	2320
	24	0.17	0	0.01	383
	25	0.63	0.1	0.18	773
	26	0.55	0.16	0.25	1911
	27	0.55	0.16	0.25	1747
	accuracy			0.45	85910
	macro avg	0.49	0.2	0.25	85910
	weighted avg	0.49	0.45	0.39	85910

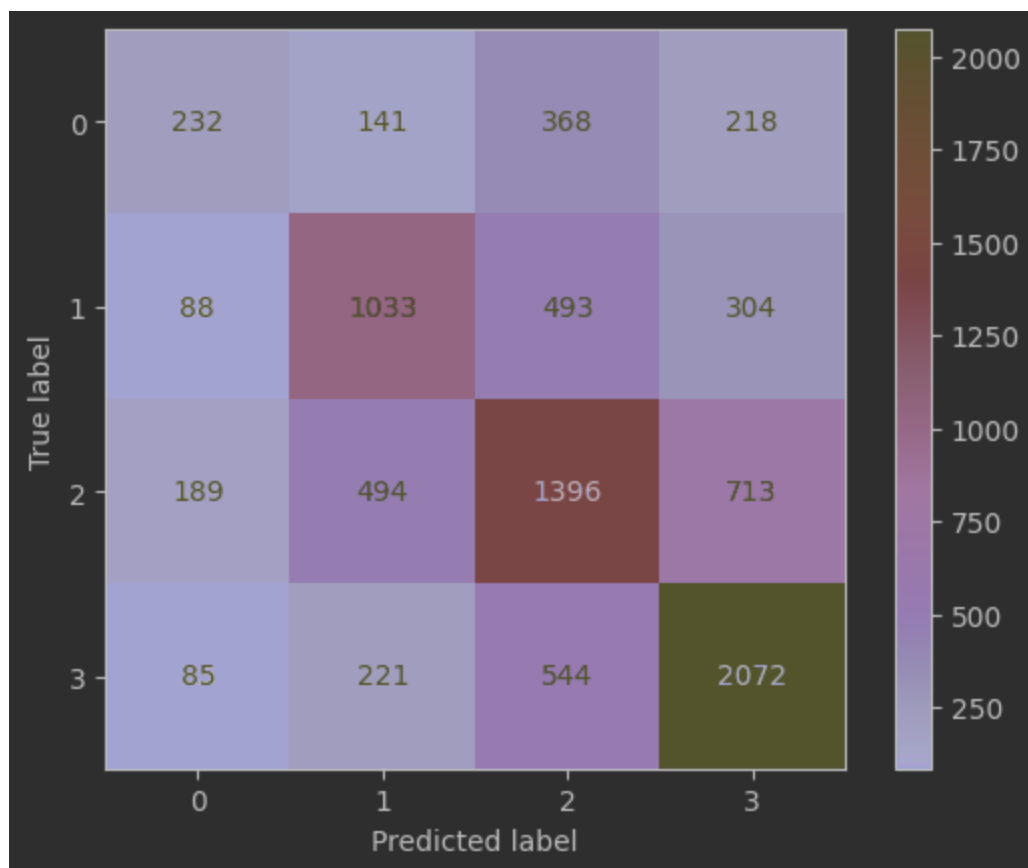
Confusion Matrix



Sentiment

Score for Sentiment	0.614759632				
Accuracy for Emotion	0.614759632				
Precision (Weighted) for Emotion	0.609513349				
F1 Score (Weighted) for Emotion	0.608632921				
F1 Score (Macro) for Emotion	0.575957613				
		precision	recall	f1-score	support
	0	0.54	0.34	0.42	9545
	1	0.61	0.61	0.61	19208
	2	0.57	0.57	0.57	27584
	3	0.66	0.75	0.7	29573
	accuracy			0.61	85910
	macro avg	0.6	0.57	0.58	85910
	weighted avg	0.61	0.61	0.61	85910

Confusion Matrix



DT

Hyper-parameters:

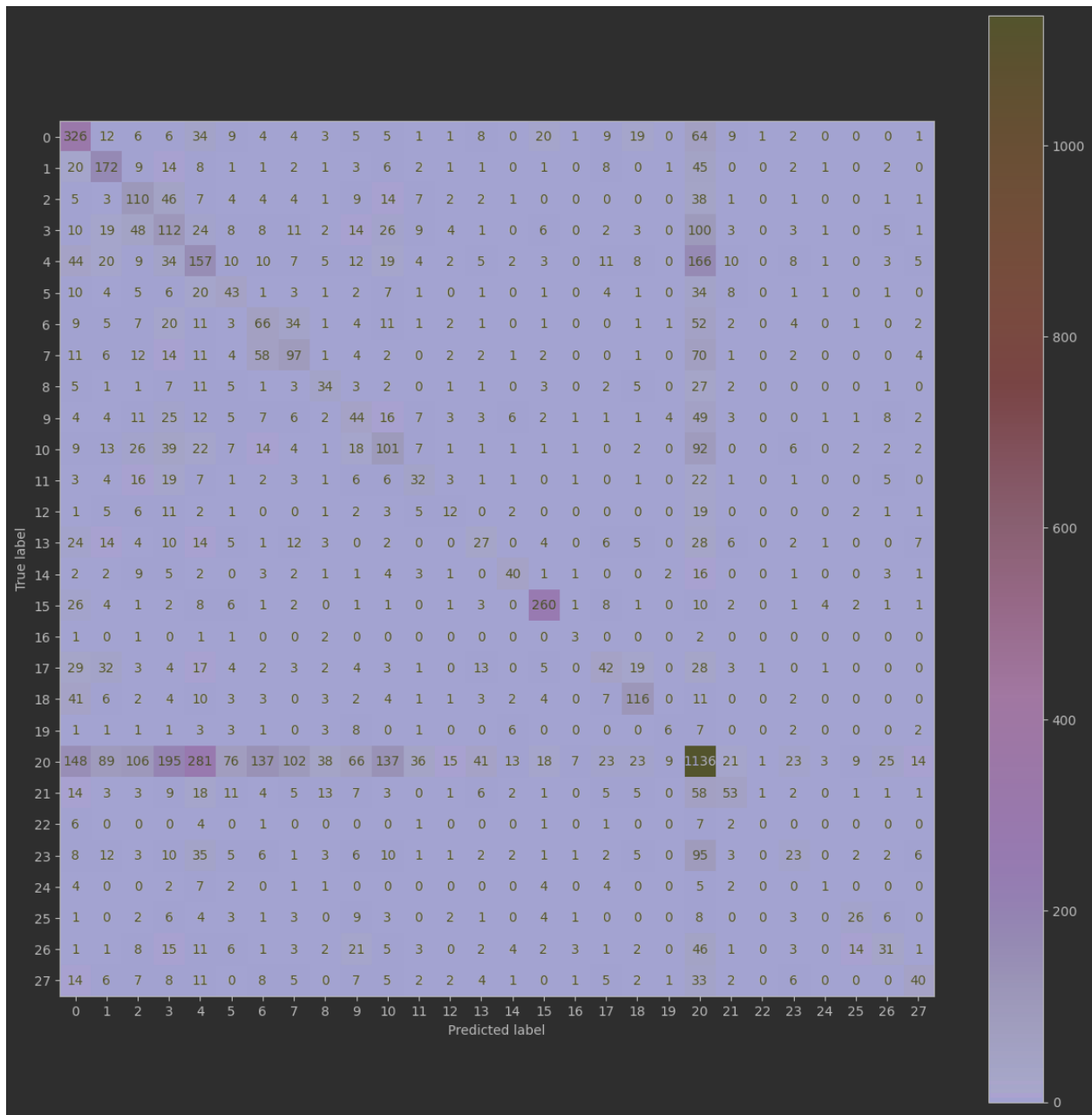
default

Emotion

Score for Emotion	0.621534164				
Accuracy for Emotion	0.621534164				
Precision (Weighted) for Emotion	0.632473884				
F1 Score (Weighted) for Emotion	0.616308677				
F1 Score (Macro) for Emotion	0.539113605				
		precision	recall	f1-score	support
	0	0.58	0.82	0.68	5242
	1	0.59	0.83	0.69	3057
	2	0.48	0.71	0.57	2661
	3	0.43	0.58	0.5	4173
	4	0.49	0.54	0.52	5731
	5	0.49	0.58	0.53	1762
	6	0.52	0.56	0.54	2493
	7	0.61	0.61	0.61	2985
	8	0.54	0.55	0.54	1065
	9	0.49	0.45	0.47	2366
	10	0.56	0.49	0.53	3717
	11	0.6	0.43	0.5	1437
	12	0.58	0.4	0.47	699
	13	0.57	0.41	0.48	1512
	14	0.67	0.58	0.62	896
	15	0.88	0.83	0.85	3551
	16	0.48	0.36	0.41	183
	17	0.65	0.45	0.53	2152
	18	0.76	0.74	0.75	2501
	19	0.64	0.3	0.41	392
	20	0.71	0.72	0.71	27584
	21	0.72	0.42	0.53	2294
	22	0.63	0.18	0.28	323
	23	0.64	0.25	0.36	2320
	24	0.66	0.25	0.36	383
	25	0.7	0.55	0.62	773

	26	0.7	0.4	0.51	1911
	27	0.69	0.44	0.54	1747
	accuracy			0.62	85910
	macro avg	0.61	0.52	0.54	85910
	weighted avg	0.63	0.62	0.62	85910

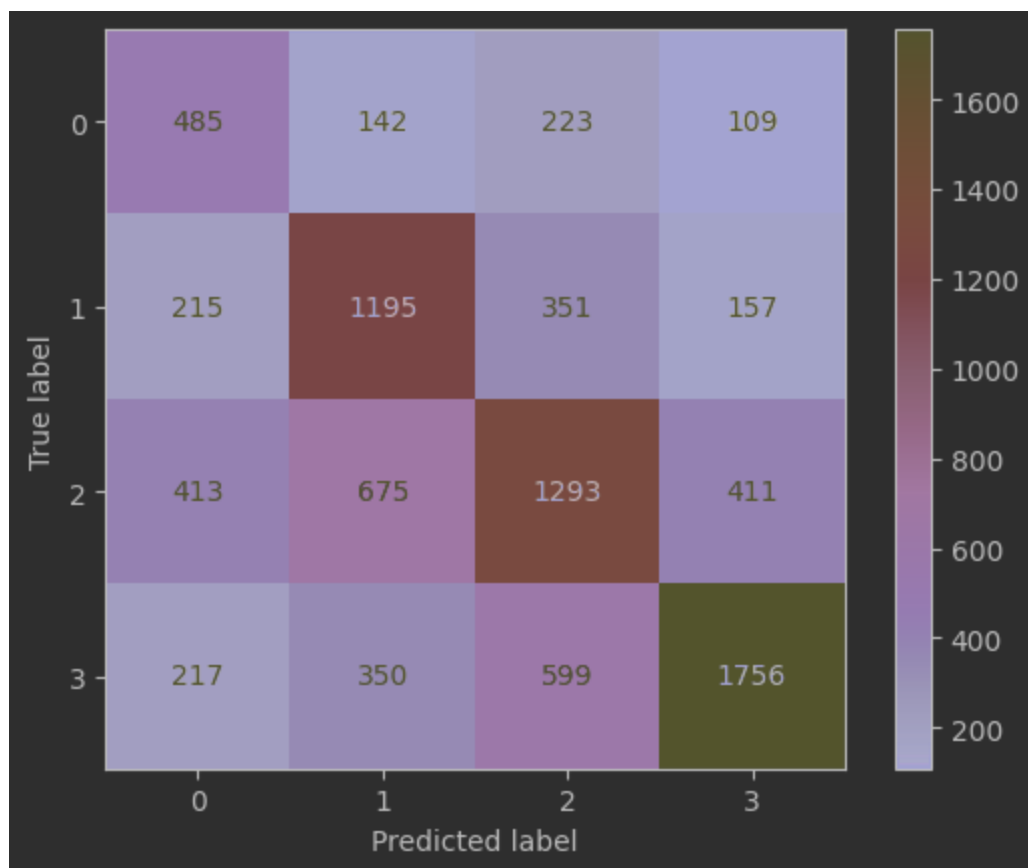
Confusion Matrix



Sentiment

Score for Sentiment	0.73947154				
Accuracy for Emotion	0.73947154				
Precision (Weighted) for Emotion	0.746933632				
F1 Score (Weighted) for Emotion	0.741232869				
F1 Score (Macro) for Emotion	0.725295616				
		precision	recall	f1-score	support
	0	0.6	0.71	0.65	9545
	1	0.7	0.79	0.74	19208
	2	0.73	0.7	0.71	27584
	3	0.84	0.76	0.8	29573
	accuracy			0.74	85910
	macro avg	0.72	0.74	0.73	85910
	weighted avg	0.75	0.74	0.74	85910

Confusion Matrix



MLP

Hyper-parameters:

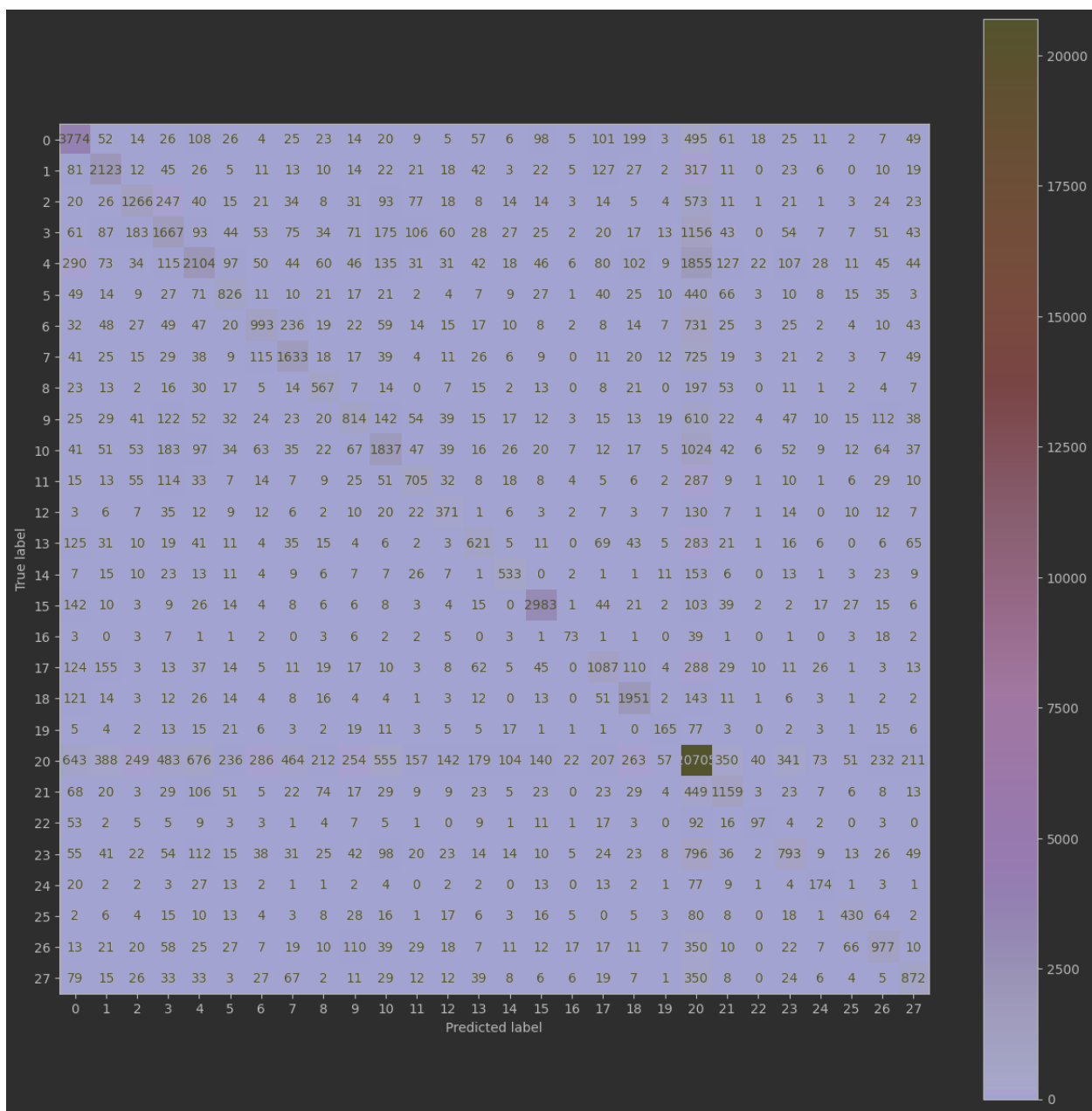
default

Emotion

Score for Emotion	0.469293			
Accuracy for Emotion	0.469293			
Precision (Weighted) for Emotion	0.459024			
F1 Score (Weighted) for Emotion	0.423664			
F1 Score (Macro) for Emotion	0.318377			
	precision	recall	f1-score	support
0	0.55	0.52	0.53	5228
1	0.57	0.58	0.57	3080
2	0.44	0.26	0.33	2565
3	0.28	0.15	0.2	4157
4	0.34	0.15	0.21	5589
5	0.34	0.15	0.21	1702
6	0.41	0.2	0.27	2483
7	0.44	0.22	0.3	2893
8	0.47	0.26	0.34	1077
9	0.36	0.14	0.2	2358
10	0.33	0.15	0.21	3771
11	0.43	0.21	0.28	1485
12	0.49	0.12	0.2	729
13	0.37	0.19	0.25	1499
14	0.52	0.28	0.36	899
15	0.83	0.76	0.79	3559
16	0.31	0.05	0.08	174
17	0.48	0.3	0.37	2172
18	0.66	0.62	0.64	2442

	19	0.54	0.07	0.13	420
	20	0.45	0.83	0.58	27769
	21	0.56	0.3	0.39	2297
	22	0.42	0.06	0.11	358
	23	0.39	0.07	0.12	2366
	24	0.4	0.09	0.15	419
	25	0.52	0.4	0.45	752
	26	0.51	0.21	0.3	1921
	27	0.52	0.26	0.35	1746
	accuracy			0.47	85910
	macro_avg	0.46	0.27	0.32	85910
	weighted_avg	0.46	0.47	0.42	85910

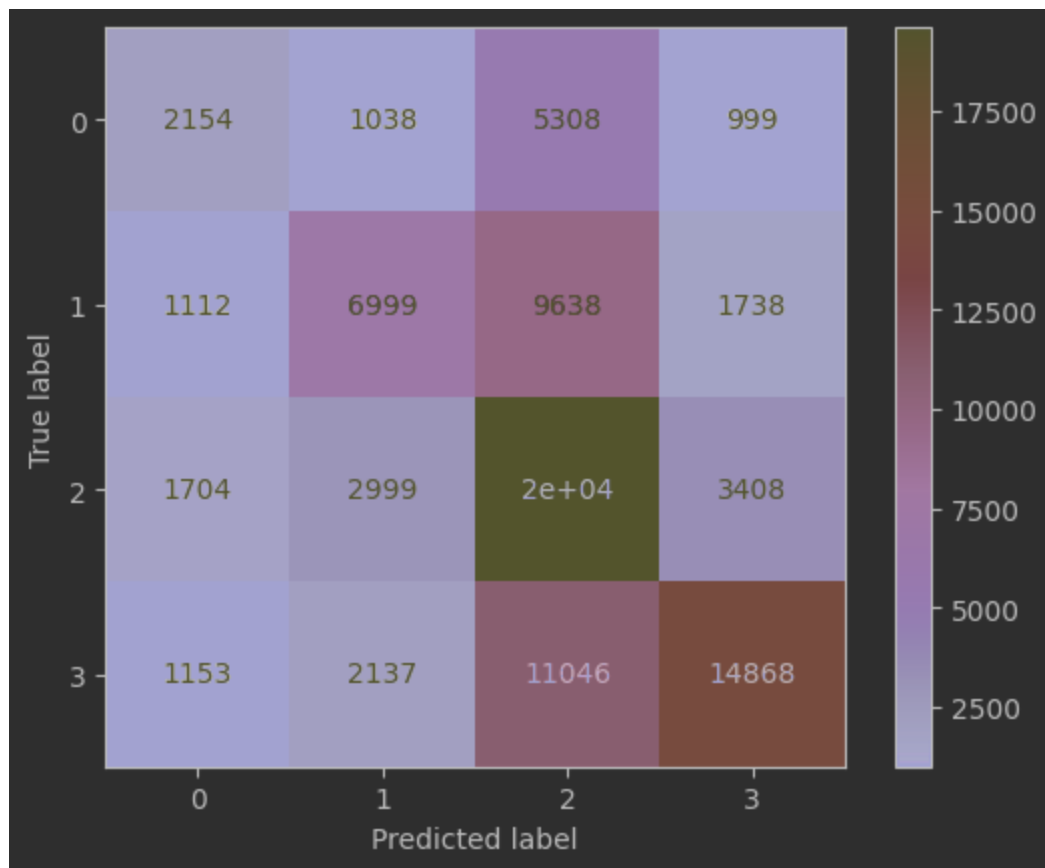
Confusion Matrix



Sentiment

Score for Sentiment	0.725410313				
Accuracy for Emotion	0.725410313				
Precision (Weighted) for Emotion	0.724313449				
F1 Score (Weighted) for Emotion	0.724585208				
F1 Score (Macro) for Emotion	0.704508824				
		precision	recall	f1-score	support
	0	0.65	0.58	0.61	9488
	1	0.71	0.73	0.72	19231
	2	0.7	0.7	0.7	27769
	3	0.79	0.8	0.79	29422
	accuracy			0.73	85910
	macro avg	0.71	0.7	0.7	85910
	weighted avg	0.72	0.73	0.72	85910

Confusion Matrix



MNB (Grid Search CV)

Hyper-parameters:

“alpha”: (0.5, 0, 0.36, 1)

Emotion

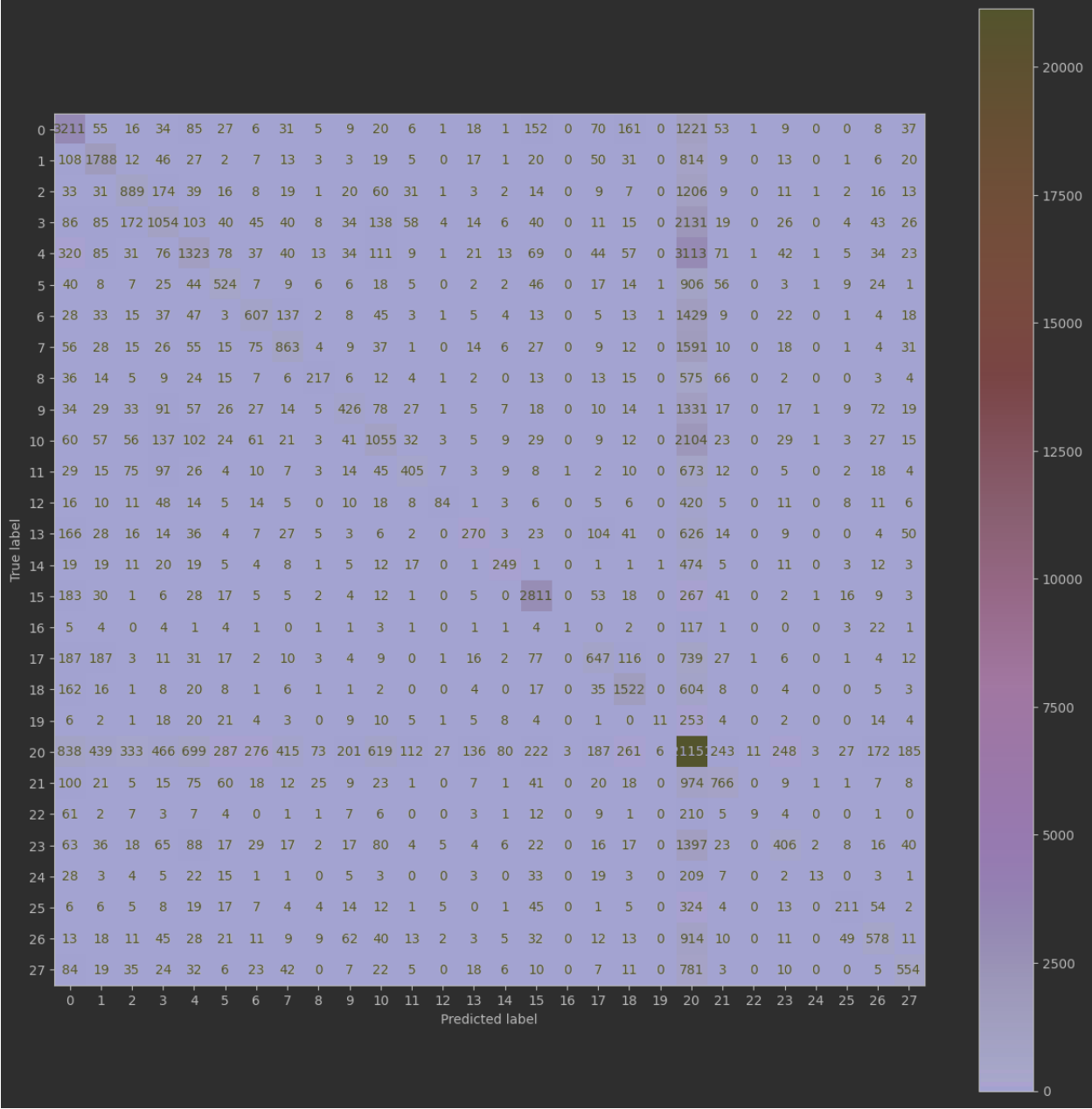
alpha_emotion = 0.5

Best estimator (Emotion): MultinomialNB(alpha=0.5),

Best Score	0.390598				
Accuracy for Emotion	0.484751				
Precision (Weighted) for Emotion	0.48579				
F1 Score (Weighted) for Emotion	0.453676				
F1 Score (Macro) for Emotion	0.34276				
		precision	recall	f1-score	support
	0	0.54	0.61	0.57	5237
	1	0.58	0.59	0.59	3015
	2	0.5	0.34	0.4	2615
	3	0.41	0.25	0.31	4202
	4	0.43	0.23	0.3	5652
	5	0.41	0.29	0.34	1781
	6	0.47	0.24	0.32	2490
	7	0.49	0.3	0.37	2907
	8	0.55	0.21	0.3	1049
	9	0.44	0.18	0.26	2369
	10	0.42	0.27	0.33	3918
	11	0.54	0.27	0.36	1484
	12	0.58	0.12	0.19	725
	13	0.46	0.19	0.26	1458
	14	0.58	0.28	0.38	902
	15	0.74	0.8	0.77	3520
	16	0.2	0.01	0.01	178
	17	0.47	0.31	0.37	2113
	18	0.64	0.63	0.63	2428
	19	0.52	0.03	0.05	406
	20	0.45	0.76	0.57	27720
	21	0.5	0.35	0.41	2217
	22	0.39	0.03	0.05	354
	23	0.43	0.17	0.24	2398
	24	0.52	0.03	0.06	380

	25	0.58	0.27	0.37	768
	26	0.49	0.3	0.37	1920
	27	0.51	0.33	0.4	1704
	accuracy			0.48	85910
	macro_avg	0.49	0.3	0.34	85910
	weighted_avg	0.49	0.48	0.45	85910

Confusion Matrix



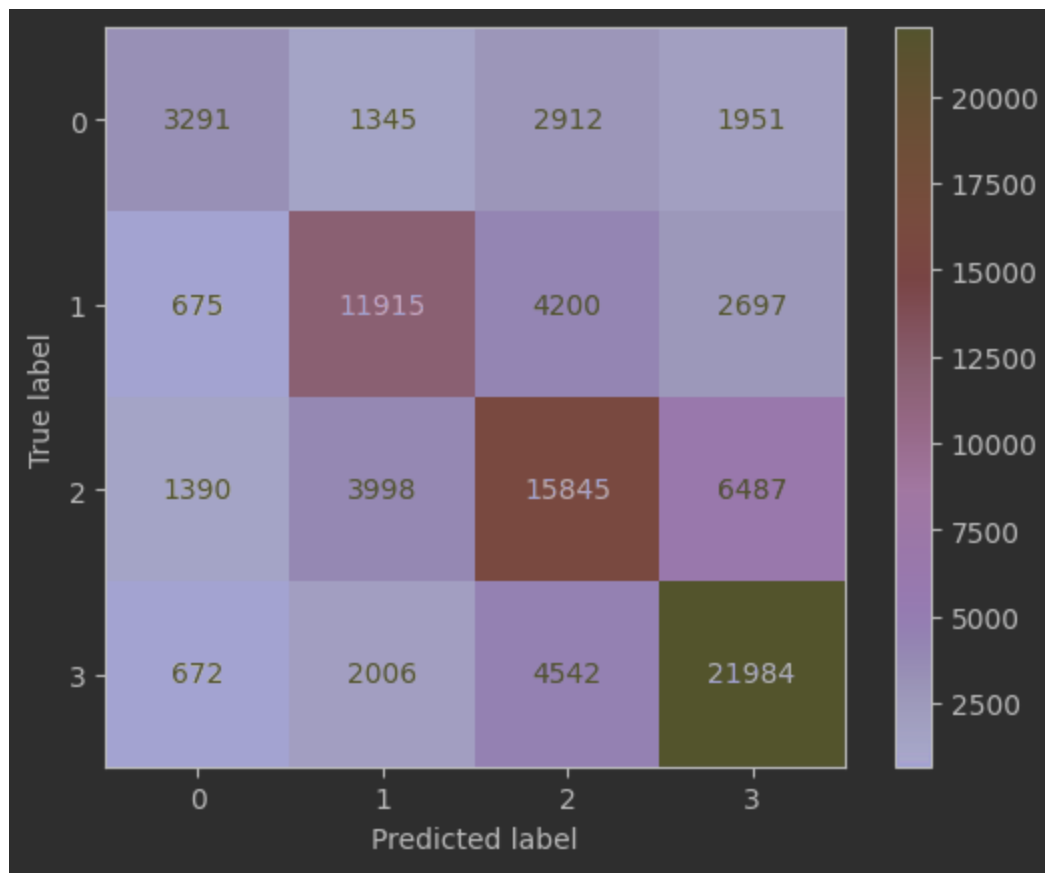
Sentiment

alpha_sentiment=1

Best_estimator (Sentiment): MultinomialNB(alpha=1),

Best estimator (Sentiment)	0.543696				
Accuracy for Emotion	0.617332				
Precision (Weighted) for Emotion	0.612228				
F1 Score (Weighted) for Emotion	0.611357				
F1 Score (Macro) for Emotion	0.57956				
		precision	recall	f1-score	support
	0	0.55	0.35	0.42	9499
	1	0.62	0.61	0.61	19487
	2	0.58	0.57	0.57	27720
	3	0.66	0.75	0.71	29204
	accuracy			0.62	85910
	macro_avg	0.6	0.57	0.58	85910
	weighted_avg	0.61	0.62	0.61	85910

Confusion Matrix



DT (Grid Search CV)

Hyper-parameters:

"criterion":("gini","entropy"),"max_depth":(100,3),"min_samples_split":(12,5,30)

Emotion

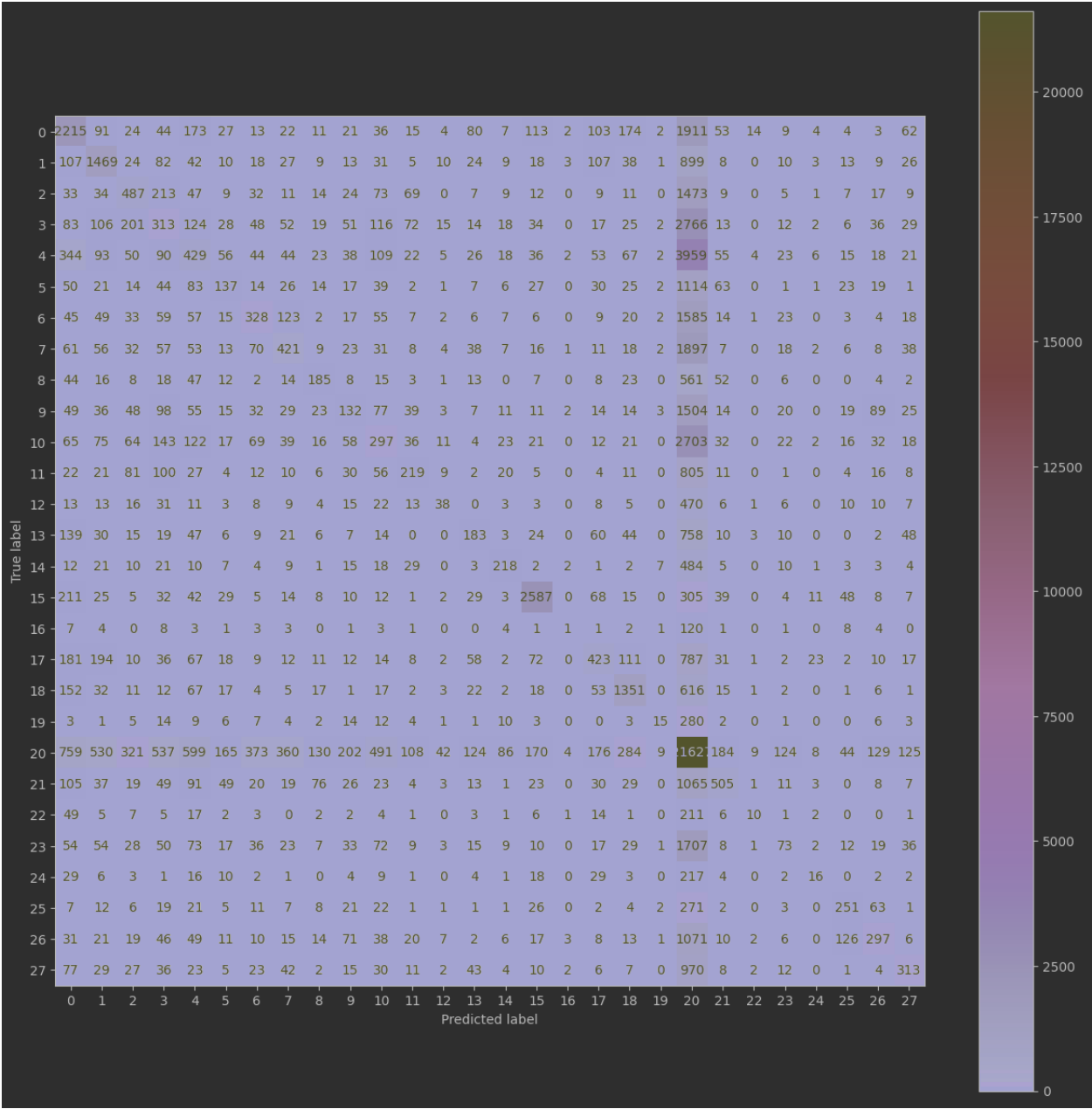
Best estimator (Emotion):

DecisionTreeClassifier(max_depth=100, min_samples_split=30),

Best Score	0.404464				
Accuracy for Emotion	0.505529				
Precision (Weighted) for Emotion	0.510401				
F1 Score (Weighted) for Emotion	0.464475				

F1 Score (Macro) for Emotion	0.371004				
		precision	recall	f1-score	support
	0	0.58	0.55	0.57	2101
	1	0.63	0.66	0.65	1255
	2	0.48	0.33	0.39	1022
	3	0.35	0.19	0.24	1682
	4	0.42	0.2	0.27	2208
	5	0.4	0.2	0.26	691
	6	0.45	0.23	0.31	986
	7	0.5	0.24	0.32	1172
	8	0.49	0.28	0.36	420
	9	0.44	0.16	0.23	990
	10	0.43	0.22	0.29	1512
	11	0.54	0.23	0.33	597
	12	0.56	0.21	0.3	289
	13	0.55	0.2	0.3	594
	14	0.64	0.38	0.48	332
	15	0.85	0.8	0.82	1386
	16	0.38	0.11	0.16	76
	17	0.55	0.34	0.42	857
	18	0.73	0.67	0.7	1047
	19	0.65	0.15	0.25	170
	20	0.47	0.86	0.61	11029
	21	0.61	0.3	0.4	921
	22	0.67	0.06	0.11	129
	23	0.47	0.1	0.16	958
	24	0.48	0.1	0.16	165
	25	0.59	0.48	0.53	312
	26	0.6	0.26	0.37	763
	27	0.52	0.32	0.4	700
	accuracy			0.51	34364
	macro_avg	0.54	0.32	0.37	34364
	weighted_avg	0.51	0.51	0.46	34364

Confusion Matrix



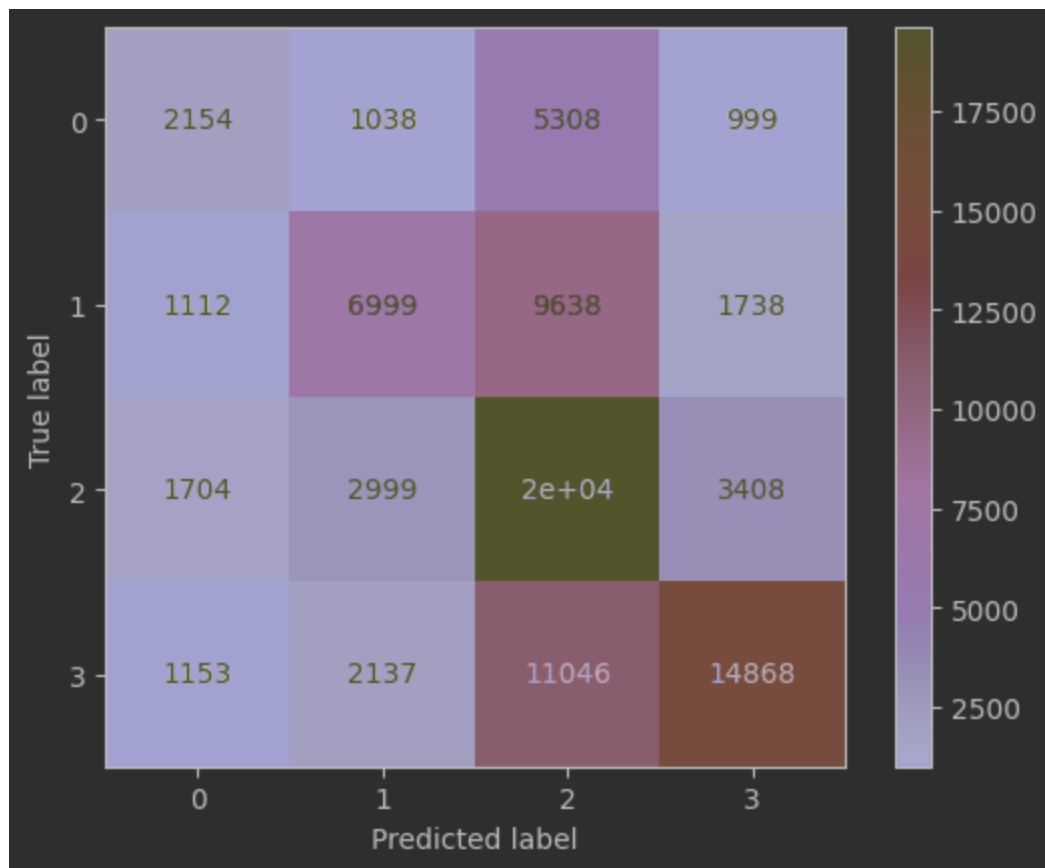
Sentiment

Best estimator (Sentiment):

DecisionTreeClassifier(max_depth=100, min_samples_split=5),

Best estimator (Sentiment)	0.515219				
Accuracy for Emotion	0.627197				
Precision (Weighted) for Emotion	0.673676				
F1 Score (Weighted) for Emotion	0.629506				
F1 Score (Macro) for Emotion	0.603656				
		precision	recall	f1-score	support
	0	0.55	0.46	0.5	3816
	1	0.69	0.5	0.58	7745
	2	0.51	0.79	0.62	11029
	3	0.86	0.61	0.71	11774
	accuracy			0.63	34364
	Macro avg	0.65	0.59	0.6	34364
	weighted_avg	0.67	0.63	0.63	34364

Confusion Matrix



MLP (Grid Search CV)

Hyper-parameters:

"activation":("identity", "logistic", "tanh", "relu"),"hidden_layer_sizes":((5,5),(5,10)),

"solver":("adam","sgd")

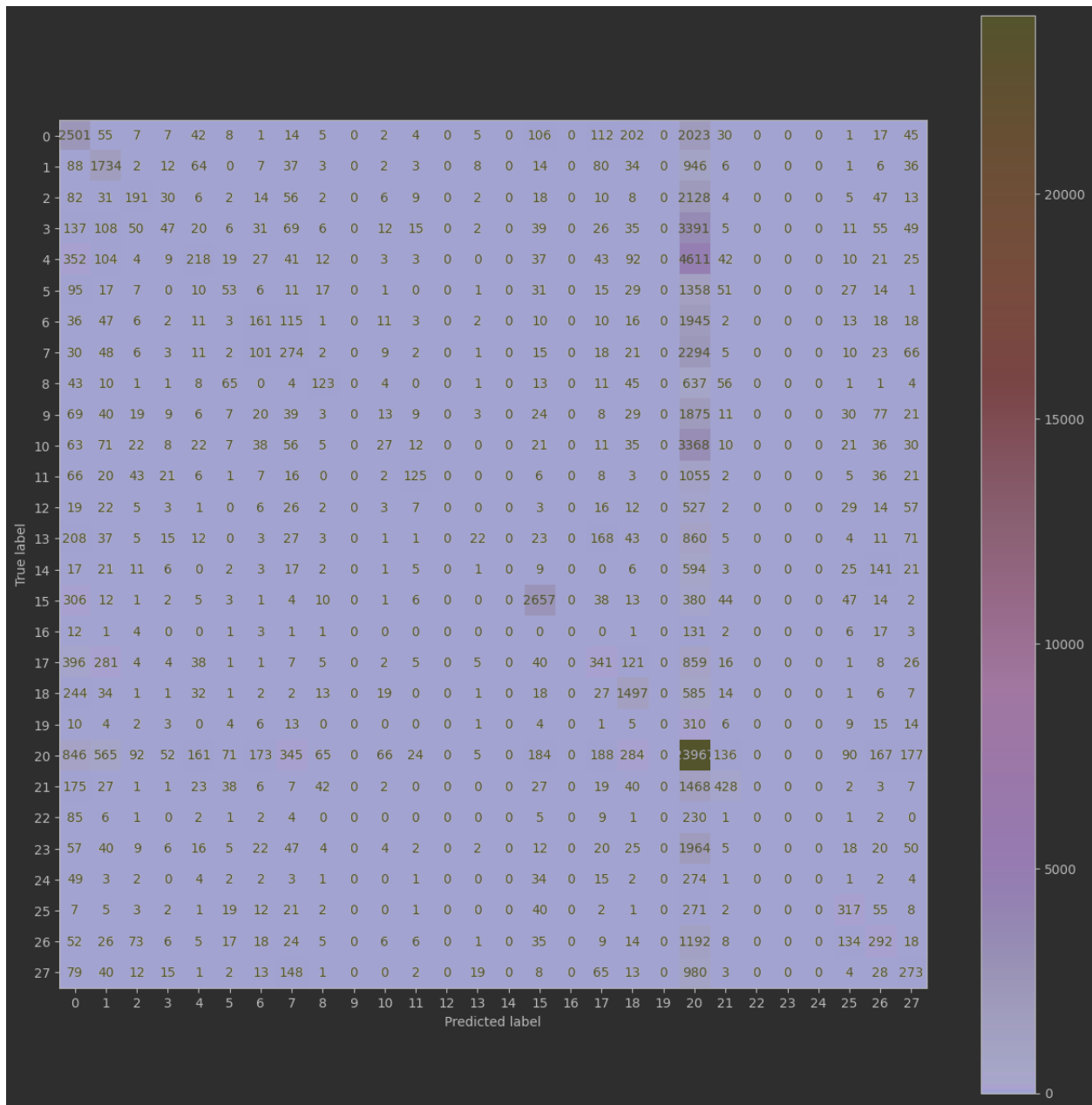
Emotion

Best estimator (Emotion): MLPClassifier(activation='identity', early_stopping=True, hidden_layer_sizes=(5, 10), max_iter=5, verbose=True)

Best Score	0.41029				
Accuracy for Emotion	0.41029				
Precision (Weighted) for Emotion	0.332184				
F1 Score (Weighted) for Emotion	0.316989				

F1 Score (Macro) for Emotion	0.177569				
		precision	recall	f1-score	support
	0	0.41	0.48	0.44	5187
	1	0.51	0.56	0.53	3083
	2	0.33	0.07	0.12	2664
	3	0.18	0.01	0.02	4114
	4	0.3	0.04	0.07	5673
	5	0.16	0.03	0.05	1744
	6	0.23	0.07	0.1	2430
	7	0.19	0.09	0.13	2941
	8	0.37	0.12	0.18	1028
	9	0	0	0	2312
	10	0.14	0.01	0.01	3863
	11	0.51	0.09	0.15	1443
	12	0	0	0	754
	13	0.27	0.01	0.03	1519
	14	0	0	0	885
	15	0.77	0.75	0.76	3546
	16	0	0	0	183
	17	0.27	0.16	0.2	2161
	18	0.57	0.6	0.58	2505
	19	0	0	0	407
	20	0.4	0.87	0.55	27658
	21	0.48	0.18	0.27	2316
	22	0	0	0	350
	23	0	0	0	2328
	24	0	0	0	400
	25	0.38	0.41	0.4	769
	26	0.25	0.15	0.19	1941
	27	0.26	0.16	0.2	1706
	accuracy			0.41	85910
	Macro_avg	0.25	0.17	0.18	85910
	weighted_avg	0.33	0.41	0.32	85910

Confusion Matrix



Sentiment

Best estimator (Sentiment): MLPClassifier(activation='tanh', early_stopping=True, hidden_layer_sizes=(5, 5), max_iter=5, verbose=True)

Best estimator (Sentiment)	0.554266			
Accuracy for Emotion	0.554266			
Precision (Weighted) for Emotion	0.551942			
F1 Score (Weighted) for Emotion	0.549862			

F1 Score (Macro) for Emotion	0.506429			
	precision	recall	f1-score	support
0	0.41	0.25	0.31	9405
1	0.54	0.52	0.53	19335
2	0.48	0.56	0.52	27658
3	0.67	0.67	0.67	29512
accuracy			0.55	85910
macro avg	0.53	0.5	0.51	85910
weighted avg	0.55	0.55	0.55	85910

Confusion Matrix

