C:\Python27\python.exe "C:/Users/Osas/Documents/UH Course Documents/7COM1071-0105-2018 - Investigative Methods for Computer Science/The Project - Assignment 2 (60 marks)/EmotionDetection-master/welcome.py"

Loading input values into WordMap...

100%|██████████| 1047/1047 [00:05<00:00, 175.76it/s]

Total number of entries in Vocabulary: 2030

Running text evaluation...

0it [00:00, ?it/s]found priors

1049it [00:48, 19.22it/s]

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\abstract.py:66: FutureWarning:

Passing list-likes to .loc or [] with any missing label will raise

KeyError in the future, you can use .reindex() as an alternative.

See the documentation here:

http://pandas.pydata.org/pandas-docs/stable/indexing.html#deprecate-loc-reindex-listlike

df = df.loc[idx, idx.copy()].fillna(0) # if some columns or rows are missing

Predicted Anger Boredom Empty Enthusiasm Fun Happiness Hate Love \

Actual

Anger 79 0 0 0 0 0 0 1

Boredom 0 75 1 0 2 0 1 1

Empty 1 2 54 1 2 1 1 3

Enthusiasm 1 1 0 71 0 3 0 0

Fun 0 1 0 0 78 1 0 0

Happiness 0 0 0 0 0 81 0 0

Hate 0 0 0 0 0 0 81 0

Love 0 2 0 0 1 0 0 77

Neutral 1 0 0 4 3 3 0 3

No Words Found 0 0 0 0 2 0 0 0

Relief 0 0 0 1 0 0 0 1

Sadness 0 0 0 0 0 0 0 0

Surprise 0 1 0 3 1 3 1 1

Worry 1 0 0 1 2 0 1 0

\_\_all\_\_ 83 82 55 81 91 92 85 87

Predicted Neutral No Words Found Relief Sadness Surprise Worry \

Actual

Anger 0 0 0 0 0 0

Boredom 0 0 1 0 0 0

Empty 3 0 2 2 3 0

Enthusiasm 1 0 1 1 0 0

Fun 0 0 0 0 0 0

Happiness 0 0 0 0 0 0

Hate 0 0 0 0 0 0

Love 0 0 0 0 0 0

Neutral 61 0 1 0 2 0

No Words Found 0 0 0 0 0 0

Relief 1 0 77 0 1 0

Sadness 0 0 0 80 0 1

Surprise 2 0 0 1 64 0

Worry 0 0 1 2 1 71

\_\_all\_\_ 68 0 83 86 71 72

Predicted \_\_all\_\_

Actual

Anger 80

Boredom 81

Empty 75

Enthusiasm 79

Fun 80

Happiness 81

Hate 81

Love 80

Neutral 78

No Words Found 2

Relief 81

Sadness 81

Surprise 77

Worry 80

\_\_all\_\_ 1036

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\bcm.py:346: RuntimeWarning: divide by zero encountered in double\_scalars

return(np.float64(self.LRP) / self.LRN)

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\bcm.py:236: RuntimeWarning: invalid value encountered in double\_scalars

return(np.float64(self.TP) / self.PositiveTest)

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\bcm.py:267: RuntimeWarning: invalid value encountered in double\_scalars

return(np.float64(self.FP) / self.PositiveTest)

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\bcm.py:304: RuntimeWarning: invalid value encountered in true\_divide

(self.TN + self.FP) \* (self.TN + self.FN)))

C:\Users\Osas\AppData\Roaming\Python\Python27\site-packages\pandas\_ml\confusion\_matrix\bcm.py:332: RuntimeWarning: invalid value encountered in double\_scalars

return(np.float64(self.TPR) / self.FPR)

Confusion Matrix:

Predicted Anger Boredom Empty Enthusiasm Fun Happiness Hate Love \

Actual

Anger 79 0 0 0 0 0 0 1

Boredom 0 75 1 0 2 0 1 1

Empty 1 2 54 1 2 1 1 3

Enthusiasm 1 1 0 71 0 3 0 0

Fun 0 1 0 0 78 1 0 0

Happiness 0 0 0 0 0 81 0 0

Hate 0 0 0 0 0 0 81 0

Love 0 2 0 0 1 0 0 77

Neutral 1 0 0 4 3 3 0 3

No Words Found 0 0 0 0 2 0 0 0

Relief 0 0 0 1 0 0 0 1

Sadness 0 0 0 0 0 0 0 0

Surprise 0 1 0 3 1 3 1 1

Worry 1 0 0 1 2 0 1 0

\_\_all\_\_ 83 82 55 81 91 92 85 87

Predicted Neutral No Words Found Relief Sadness Surprise Worry \

Actual

Anger 0 0 0 0 0 0

Boredom 0 0 1 0 0 0

Empty 3 0 2 2 3 0

Enthusiasm 1 0 1 1 0 0

Fun 0 0 0 0 0 0

Happiness 0 0 0 0 0 0

Hate 0 0 0 0 0 0

Love 0 0 0 0 0 0

Neutral 61 0 1 0 2 0

No Words Found 0 0 0 0 0 0

Relief 1 0 77 0 1 0

Sadness 0 0 0 80 0 1

Surprise 2 0 0 1 64 0

Worry 0 0 1 2 1 71

\_\_all\_\_ 68 0 83 86 71 72

Predicted \_\_all\_\_

Actual

Anger 80

Boredom 81

Empty 75

Enthusiasm 79

Fun 80

Happiness 81

Hate 81

Love 80

Neutral 78

No Words Found 2

Relief 81

Sadness 81

Surprise 77

Worry 80

\_\_all\_\_ 1036

Overall Statistics:

Accuracy: 0.916023166023166

95% CI: (0.8974451009845511, 0.9321934600163511)

No Information Rate: ToDo

P-Value [Acc > NIR]: 0.0

Kappa: 0.9090212608749633

Mcnemar's Test P-Value: ToDo

Class Statistics:

Classes Anger Boredom Empty \

Population 1036 1036 1036

P: Condition positive 80 81 75

N: Condition negative 956 955 961

Test outcome positive 83 82 55

Test outcome negative 953 954 981

TP: True Positive 79 75 54

TN: True Negative 952 948 960

FP: False Positive 4 7 1

FN: False Negative 1 6 21

TPR: (Sensitivity, hit rate, recall) 0.9875 0.925926 0.72

TNR=SPC: (Specificity) 0.995816 0.99267 0.998959

PPV: Pos Pred Value (Precision) 0.951807 0.914634 0.981818

NPV: Neg Pred Value 0.998951 0.993711 0.978593

FPR: False-out 0.0041841 0.00732984 0.00104058

FDR: False Discovery Rate 0.0481928 0.0853659 0.0181818

FNR: Miss Rate 0.0125 0.0740741 0.28

ACC: Accuracy 0.995174 0.987452 0.978764

F1 score 0.969325 0.920245 0.830769

MCC: Matthews correlation coefficient 0.9669 0.913456 0.830961

Informedness 0.983316 0.918596 0.718959

Markedness 0.950758 0.908345 0.960411

Prevalence 0.0772201 0.0781853 0.0723938

LR+: Positive likelihood ratio 236.013 126.323 691.92

LR-: Negative likelihood ratio 0.0125525 0.074621 0.280292

DOR: Diagnostic odds ratio 18802 1692.86 2468.57

FOR: False omission rate 0.00104932 0.00628931 0.0214067

Classes Enthusiasm Fun Happiness \

Population 1036 1036 1036

P: Condition positive 79 80 81

N: Condition negative 957 956 955

Test outcome positive 81 91 92

Test outcome negative 955 945 944

TP: True Positive 71 78 81

TN: True Negative 947 943 944

FP: False Positive 10 13 11

FN: False Negative 8 2 0

TPR: (Sensitivity, hit rate, recall) 0.898734 0.975 1

TNR=SPC: (Specificity) 0.989551 0.986402 0.988482

PPV: Pos Pred Value (Precision) 0.876543 0.857143 0.880435

NPV: Neg Pred Value 0.991623 0.997884 1

FPR: False-out 0.0104493 0.0135983 0.0115183

FDR: False Discovery Rate 0.123457 0.142857 0.119565

FNR: Miss Rate 0.101266 0.025 0

ACC: Accuracy 0.982625 0.985521 0.989382

F1 score 0.8875 0.912281 0.936416

MCC: Matthews correlation coefficient 0.878168 0.906655 0.932895

Informedness 0.888285 0.961402 0.988482

Markedness 0.868166 0.855026 0.880435

Prevalence 0.0762548 0.0772201 0.0781853

LR+: Positive likelihood ratio 86.0089 71.7 86.8182

LR-: Negative likelihood ratio 0.102335 0.0253446 0

DOR: Diagnostic odds ratio 840.463 2829 inf

FOR: False omission rate 0.00837696 0.0021164 0

Classes Hate Love Neutral \

Population 1036 1036 1036

P: Condition positive 81 80 78

N: Condition negative 955 956 958

Test outcome positive 85 87 68

Test outcome negative 951 949 968

TP: True Positive 81 77 61

TN: True Negative 951 946 951

FP: False Positive 4 10 7

FN: False Negative 0 3 17

TPR: (Sensitivity, hit rate, recall) 1 0.9625 0.782051

TNR=SPC: (Specificity) 0.995812 0.98954 0.992693

PPV: Pos Pred Value (Precision) 0.952941 0.885057 0.897059

NPV: Neg Pred Value 1 0.996839 0.982438

FPR: False-out 0.00418848 0.0104603 0.00730689

FDR: False Discovery Rate 0.0470588 0.114943 0.102941

FNR: Miss Rate 0 0.0375 0.217949

ACC: Accuracy 0.996139 0.987452 0.976834

F1 score 0.975904 0.922156 0.835616

MCC: Matthews correlation coefficient 0.974141 0.916297 0.825461

Informedness 0.995812 0.95204 0.774744

Markedness 0.952941 0.881896 0.879497

Prevalence 0.0781853 0.0772201 0.0752896

LR+: Positive likelihood ratio 238.75 92.015 107.029

LR-: Negative likelihood ratio 0 0.0378964 0.219553

DOR: Diagnostic odds ratio inf 2428.07 487.487

FOR: False omission rate 0 0.00316122 0.017562

Classes No Words Found Relief Sadness \

Population 1036 1036 1036

P: Condition positive 2 81 81

N: Condition negative 1034 955 955

Test outcome positive 0 83 86

Test outcome negative 1036 953 950

TP: True Positive 0 77 80

TN: True Negative 1034 949 949

FP: False Positive 0 6 6

FN: False Negative 2 4 1

TPR: (Sensitivity, hit rate, recall) 0 0.950617 0.987654

TNR=SPC: (Specificity) 1 0.993717 0.993717

PPV: Pos Pred Value (Precision) NaN 0.927711 0.930233

NPV: Neg Pred Value 0.998069 0.995803 0.998947

FPR: False-out 0 0.00628272 0.00628272

FDR: False Discovery Rate NaN 0.0722892 0.0697674

FNR: Miss Rate 1 0.0493827 0.0123457

ACC: Accuracy 0.998069 0.990347 0.993243

F1 score 0 0.939024 0.958084

MCC: Matthews correlation coefficient NaN 0.933866 0.954919

Informedness 0 0.944335 0.981372

Markedness NaN 0.923514 0.92918

Prevalence 0.0019305 0.0781853 0.0781853

LR+: Positive likelihood ratio NaN 151.307 157.202

LR-: Negative likelihood ratio 1 0.0496949 0.0124237

DOR: Diagnostic odds ratio NaN 3044.71 12653.3

FOR: False omission rate 0.0019305 0.00419727 0.00105263

Classes Surprise Worry

Population 1036 1036

P: Condition positive 77 80

N: Condition negative 959 956

Test outcome positive 71 72

Test outcome negative 965 964

TP: True Positive 64 71

TN: True Negative 952 955

FP: False Positive 7 1

FN: False Negative 13 9

TPR: (Sensitivity, hit rate, recall) 0.831169 0.8875

TNR=SPC: (Specificity) 0.992701 0.998954

PPV: Pos Pred Value (Precision) 0.901408 0.986111

NPV: Neg Pred Value 0.986528 0.990664

FPR: False-out 0.00729927 0.00104603

FDR: False Discovery Rate 0.0985915 0.0138889

FNR: Miss Rate 0.168831 0.1125

ACC: Accuracy 0.980695 0.990347

F1 score 0.864865 0.934211

MCC: Matthews correlation coefficient 0.855304 0.930519

Informedness 0.82387 0.886454

Markedness 0.887937 0.976775

Prevalence 0.0743243 0.0772201

LR+: Positive likelihood ratio 113.87 848.45

LR-: Negative likelihood ratio 0.170073 0.112618

DOR: Diagnostic odds ratio 669.538 7533.89

FOR: False omission rate 0.0134715 0.0093361

Evaluation Complete.