SIT789 - Applications of Computer Vision and Speech Processing

Pass Task 8.1: Speech emotion recognition using MFCC features

SVM vs AdaBoost:

```
SVM for num_mfcc :  12
report: 0.53125
confusion matrix:
 [[17  5  8  2]
 [ 0 31  0  1]
 [ 9  3  7 13]
 [ 1 17  1 13]]
AdaBoost for num_mfcc :  12
report: 0.4453125
confusion matrix:
 [[22  1  5  4]
 [ 0 26  0  6]
 [16  8  4  4]
 [ 3 20  4  5]]
SVM for num_mfcc :  14
report: 0.53125
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  3  7 13]
 [ 1 18  1 12]]
AdaBoost for num_mfcc :  14
report: 0.40625
confusion matrix:
 [[16  4  4  8]
 [ 0 31  0  1]
 [ 7 14  1 10]
 [ 3 23  2  4]]
SVM for num_mfcc :  16
report: 0.53125
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  3  7 13]
 [ 1 18  1 12]]
AdaBoost for num_mfcc :  16
report: 0.3984375
confusion matrix:
 [[20  1  5  6]
 [ 0 25  4  3]
 [11  5  1 15]
 [ 6 20  1  5]]
SVM for num_mfcc :  18
report: 0.5234375
```

```
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  3  7 13]
 [ 1 19  1 11]]
AdaBoost for num_mfcc :  18
report: 0.4609375
confusion matrix:
 [[22  0  1  9]
 [ 0 26  0  6]
 [15  3  2 12]
 [ 3 19  1  9]]
SVM for num_mfcc :  20
report: 0.5234375
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  3  7 13]
 [ 1 19  1 11]]
AdaBoost for num_mfcc :  20
report: 0.3828125
confusion matrix:
 [[ 8  0  4 20]
 [ 0 29  0  3]
 [ 6 12  1 13]
 [ 1 19  1 11]]
SVM for num_mfcc :  22
report: 0.5234375
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  3  7 13]
 [ 2 19  0 11]]
AdaBoost for num_mfcc :  22
report: 0.5078125
confusion matrix:
 [[24  0  4  4]
 [ 0 31  0  1]
 [10  4  1 17]
 [ 3 20  0  9]]
SVM for num_mfcc :  24
report: 0.5234375
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  4  7 12]
 [ 2 19  0 11]]
AdaBoost for num_mfcc :  24
report: 0.46875
confusion matrix:
 [[23  0  4  5]
 [ 0 27  0  5]
 [12 10  1  9]
 [ 2 20  1  9]]
SVM for num_mfcc :  26
report: 0.5234375
confusion matrix:
 [[17  5  8  2]
```

```
 [ 0 32  0  0]
 [ 9  4  7 12]
 [ 1 19  1 11]]
AdaBoost for num_mfcc :  26
report: 0.4765625
confusion matrix:
 [[24  0  2  6]
 [ 0 25  1  6]
 [14  7  5  6]
 [ 3 18  4  7]]
SVM for num_mfcc :  28
report: 0.53125
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 8  4  8 12]
 [ 1 19  1 11]]
AdaBoost for num_mfcc :  28
report: 0.453125
confusion matrix:
 [[24  0  3  5]
 [ 0 26  0  6]
 [14 12  2  4]
 [ 2 20  4  6]]
SVM for num_mfcc :  30
report: 0.5234375
confusion matrix:
 [[17  5  8  2]
 [ 0 32  0  0]
 [ 9  4  7 12]
 [ 1 19  1 11]]
AdaBoost for num_mfcc :  30
report: 0.4453125
confusion matrix:
 [[27  0  2  3]
 [ 0 27  0  5]
 [17 11  0  4]
 [ 4 21  4  3]]
```

From the above results obtained SVM classifier worked better on the provided data than the AdaBoostClassifier.