MCA Assignment 2 Report
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The implementations of the first two questions of the Assignment have been neatly done in two seperate files namely ***question1.py*** (Spectrogram) and ***question2.py*** (MFCC) with classes for each of the methods defined separately.
The scripts save features for all the training folder audio files in two folders namely, '***specs***' and '***mfcc***' for each of the respective class folders respectively.

After saving the features, there are two scripts namely ***question3.py*** (for training and saving the model) and ***question3b.py*** (for evaluation) which when given correct parameters deal with the training of both spectrogram as well as the mfcc features models. However, due to my hardware limitations, I was not able to completely train the Spectrogram code as it threw a memory error each and every time I ran it as its features itself were of 2.6 GB, although I generated the features successfully and the training and evaluation code for the same as well in the respective files.

There is another script as well named ***augment_bgnoise.py*** which creates background noise augmented files from the training set and a randomly chosen background noise.
I trained the MFCC model with 2 variations:

- Complete Training set for training with evaluation on Validation set

```
Results of SVM (MFCC feats)
(2294, 858)
(2294,)
Accuracy:  0.8042720139494333
Precision:  0.8042720139494333
Recall:  0.8042720139494333
F1-Score:  0.8042720139494334
```

- (50% Training set + 50% noise augmented training set) with evaluation on Validation set

```
Results of SVM (MFCC feats)
(2294, 858)
(2294,)
Accuracy:  0.7946817785527462
Precision:  0.7946817785527462
Recall:  0.7946817785527462
F1-Score:  0.7946817785527461
```

According to theory, augmentation should have resulted in robustness of the model i.e. Recall to increase whereas it does not happen, however I tried varying the noise levels as well but these results are the best that I got.