Lab exercise:15 - Extract features, Train the model and use classifiers for any input data

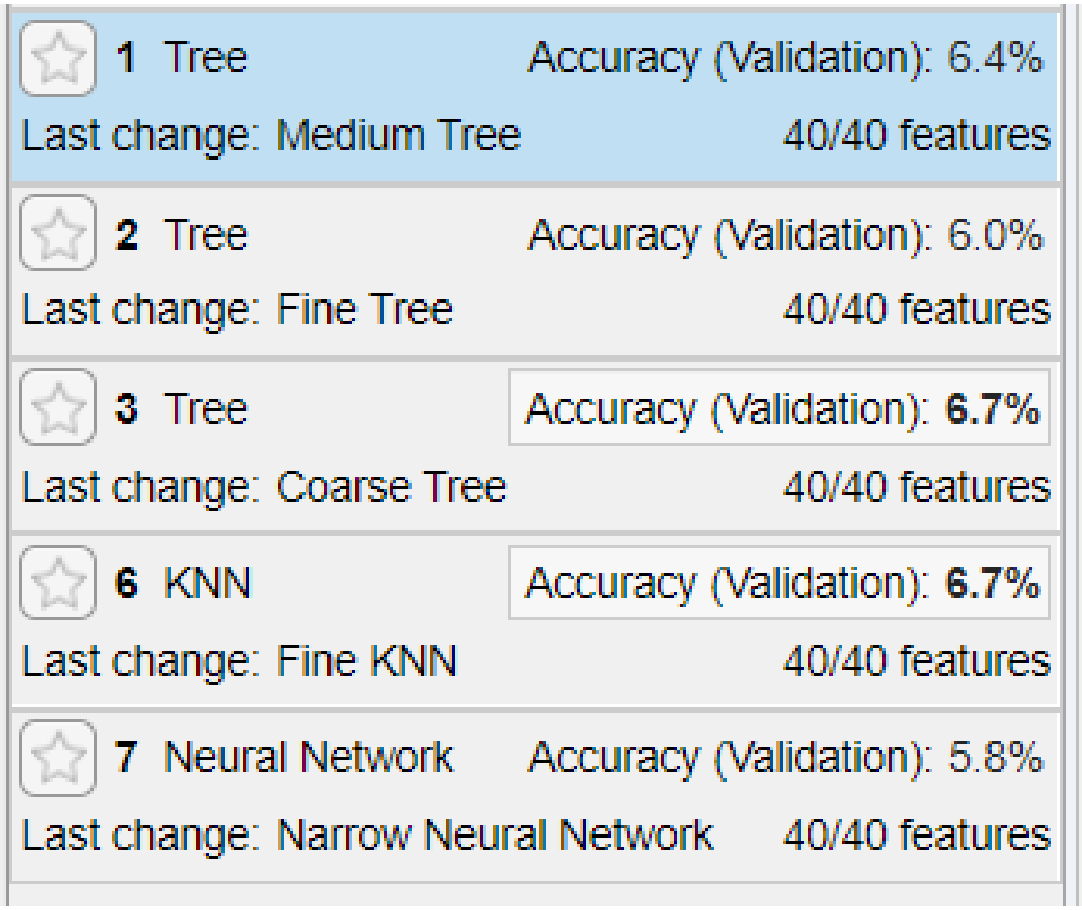
~CHARVI JAIN (RA2111047010113)

Q. Use at least any 4 models and 2 classifiers and compare their performance and justify your answer.

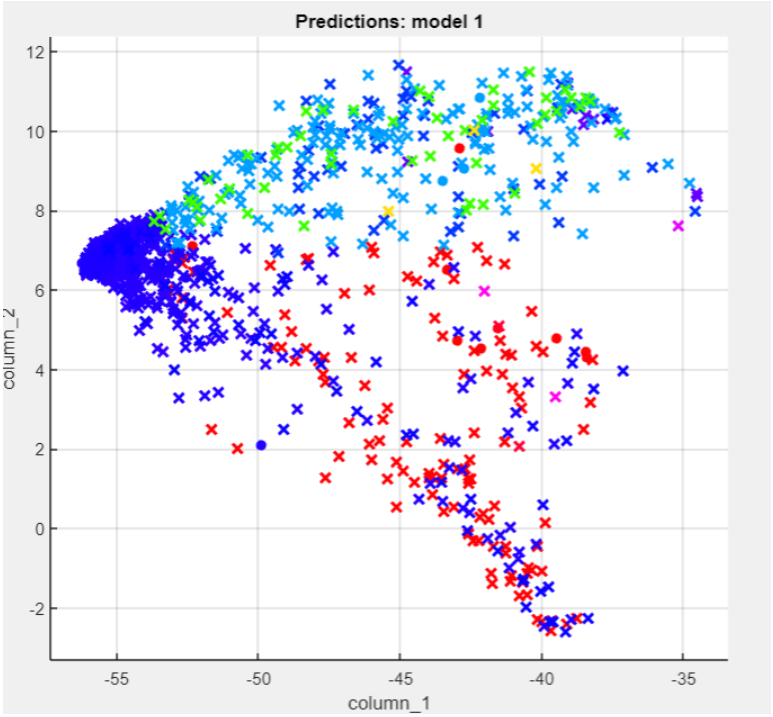
INPUT DATA

```
[audioIn,fs] = audioread("Counting-16-44p1-mono-15secs.wav");
aFE = audioFeatureExtractor( ...
    "SampleRate",fs, ...
    "Window",hamming(round(0.03*fs),"periodic"), ...
    "OverlapLength",round(0.02*fs), ...
    "mfcc",true, ...
    "mfccDelta",true, ...
    "mfccDeltaDelta",true, ...
    "pitch",true, ...
    "spectralCentroid",true);
features = extract(aFE,audioIn);
```

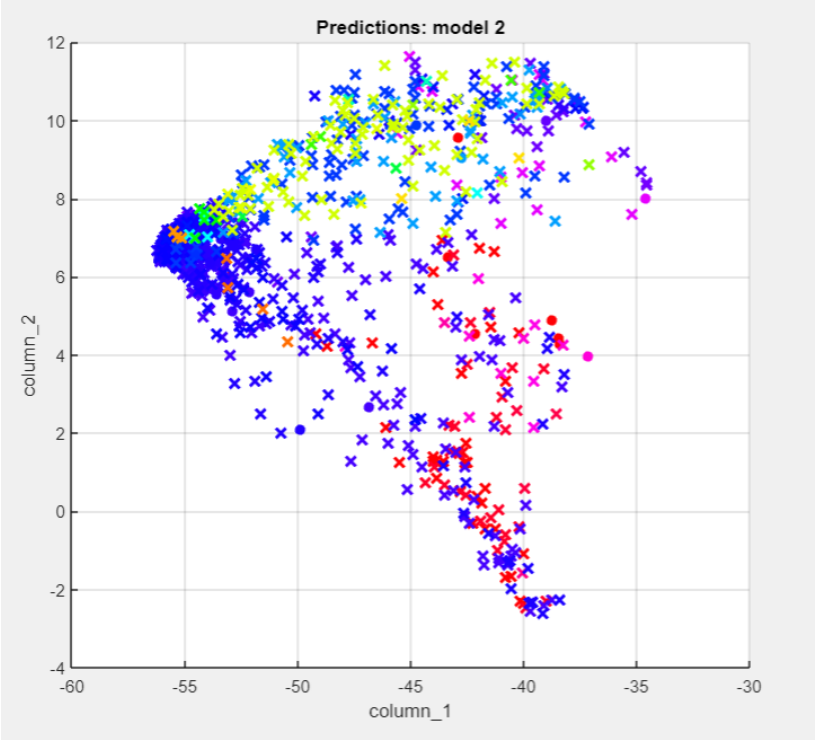
MODELS



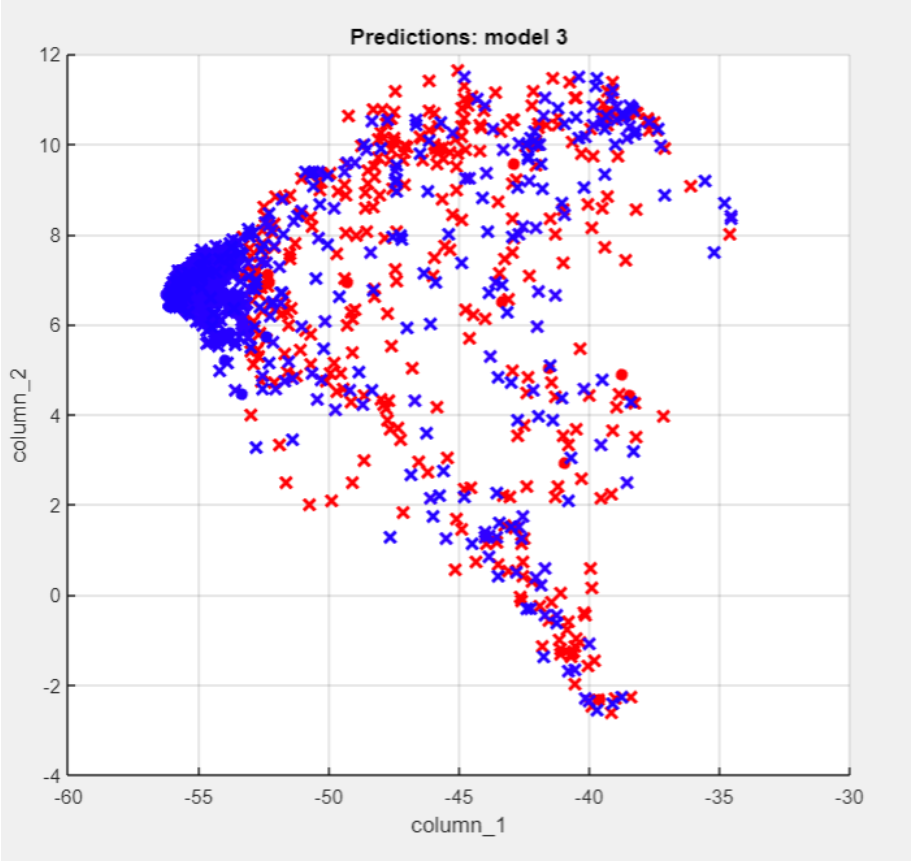
MODEL 1: MEDIUM TREE: SCATTER PLOT



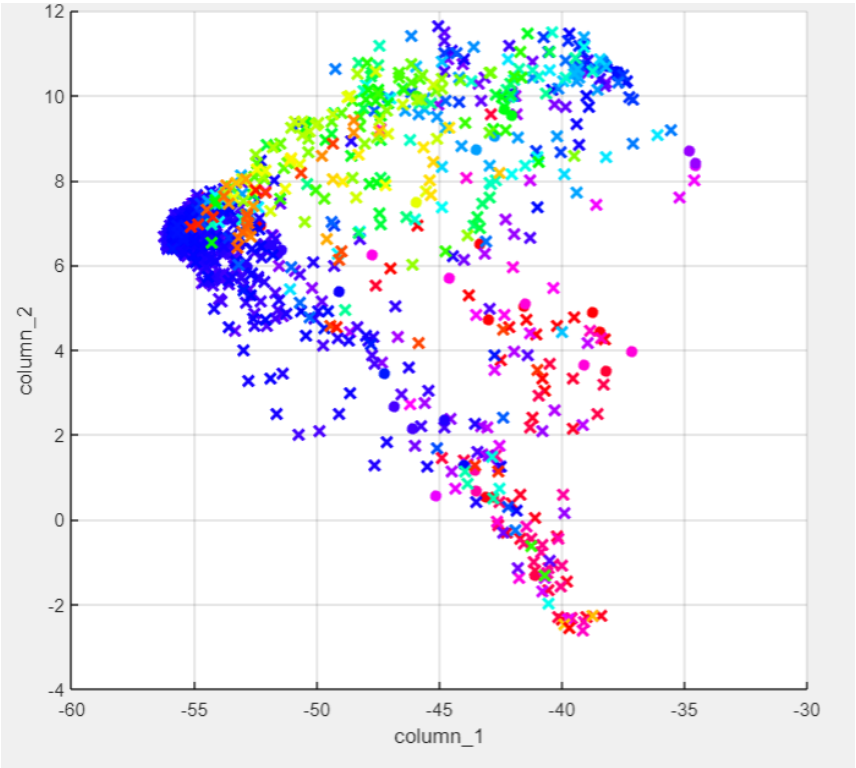
MODEL 2: FINE TREE: SCATTER PLOT



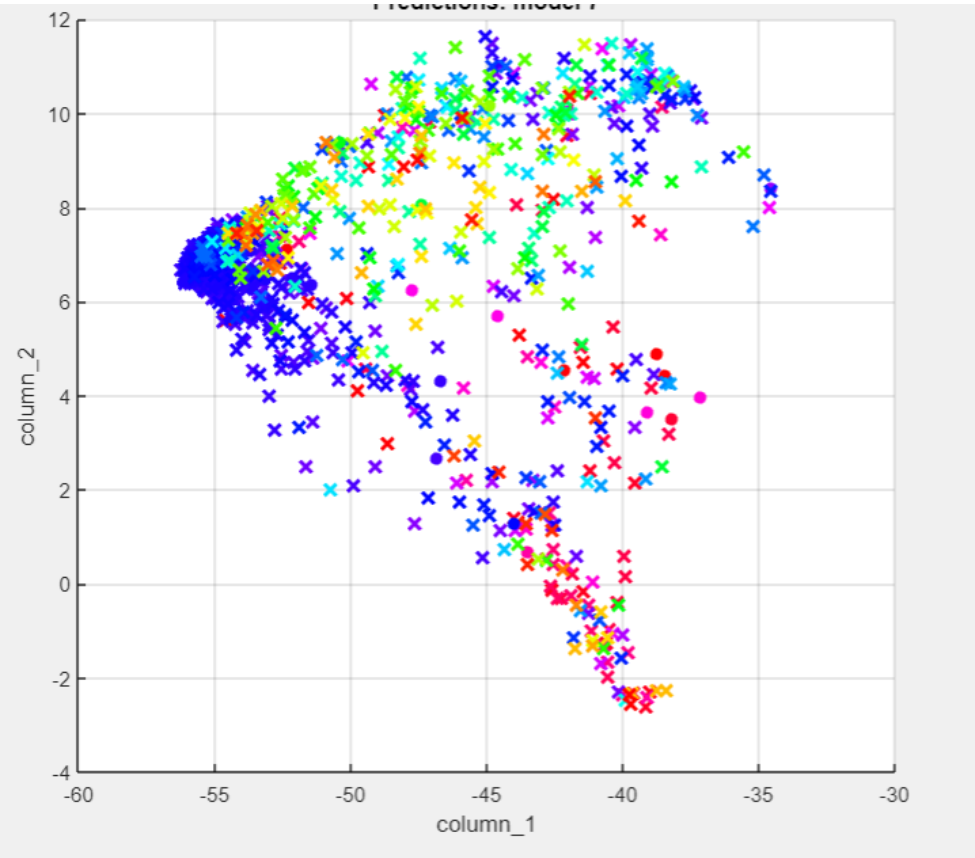
MODEL 3: COARSE TREE: SCATTER PLOT



MODEL 4: FINE KNN: SCATTER PLOT



MODEL 5: NEURAL NETWORK: SCATTER PLOT



ANS: The best performance is shown by COARSE TREE classifier and FINE KNN classifier with an accuracy rate of 6.7%