ADVANCE ARTIFICIAL INTELLIGENCE
SEMESTER-VII
LAB SHEET - 4
TOPIC - AUDIO/MUSIC STUDY AND CLASSIFICATION

Aim: TO STUDY AND PERFORM CLASSIFICATION ON AUDIO/MUSIC STUDY.

Steps To Perform :
Study the following features for any of the sounds:

A. Amplitude envelop and loudness -

1)Import libraries.
2)Load audio file with librosa library.
3)Using IPython.display.Audio, to play the audio.
4)Plot the audio array using librosa.display.waveplot.
4)Visualize audio signal in the time domain.
5)Calculate amplitude envelope for each frame.
6)Number of frames in amplitude envelope.
7)Calculate amplitude envelope for audio(all frames)
8)Visualize amplitude envelope.

B. Spectral centroid

1)Import libraries
2)Load audio file with librosa library.
3)Using IPython.display.Audio, to play the audio.
4)Plot the audio array using librosa.display.waveplot.
5)Compute the time variable for visualization.
6)Normalize the spectral centroid for visualization
7)Plot the Spectral Centroid along the waveform.

C. MFCC(Mel-Frequency Cepstral Coefficients)

1)Import libraries
2)Load audio file with librosa library
3)Extract MFCCs
4)Visualize MFCCs

D. Pitch salience

1)Import libraries
2)Load audio file with librosa library
3)Perform Pitch Scaling using librosa library
4)Display Output graph

E. Chroma Features

1)Import libraries
2)Load audio file with librosa library
3)Perform Chroma feature extraction using librosa library
4)Display Output graph

Please use this Dataset for steps A to E

F. Detection and Classification of Acoustic Scenes and Events

The objective is to predict the audio classification label for the audio files found in the audio_test folder.

1) Exploratory Data Analysis
2) Building a Model
3) Predictions
4) Results and Conclusion

Dataset