

Task 0 – Resources

This task contains learning the following:

1. Musical notes and harmonics
2. Relationship between musical notes and frequencies
3. Sonic Visualiser tools and features
4. How to use installed Vamp plugins
5. How to use Freesound

Whether you are a music enthusiast or not, you might be aware that music is made up of 7 basic notes or sounds: **Sa Re Ga Ma Pa Dha** and **Ni** in **Indian Music**, and **Do Re Mi Fa So La** and **Ti** in **Western Music**. Together these seven notes form a **scale**. It is important to note that, given these 7 notes on a musical instrument, it is possible to play most of the songs that have been composed.

In Western Music (especially on instruments like the Piano, Xylophone, Flute and Guitar), notes are given corresponding alphabets, **A, B, C, D, E, F** and **G**.

1. Musical notes and harmonics

The link given below covers tutorials on basics of sound and frequencies, harmonic content of sounds and harmonic distortion.

URL: <https://www.youtube.com/playlist?list=PL86D5A3CA4C8BF2E8>

2. Relationship between musical notes and frequencies

The table given in the link below shows the relationship between the musical notes and their corresponding frequencies.

URL: <http://pages.mtu.edu/~suits/notefreqs.html>

3. Sonic Visualiser tools and its features

Sonic Visualiser is an application for viewing and analysing the contents of music audio files. The link given below describes the various tools and features of Sonic Visualiser.

URL: <https://www.coursera.org/lecture/audio-signal-processing/introduction-to-sonic-visualizer-6fRkw>

4. How to use installed Vamp plugins

The **Vamp Aubio** plugins provide methods from Paul Brossier's aubio annotation library, including beat and tempo tracking, onset detection, pitch detection, note tracking, silence detector, and Mel-frequency cepstral coefficients.

The link below describes about harmonic model, detection of fundamental frequency in frequency domain, etc.

URL: <https://www.coursera.org/lecture/audio-signal-processing/pitch-detection-Vr9du>

The link below shows how to extract audio features using spectral analysis methods, how to use various plugins from Sonic Visualiser to describe sound signals, etc.

URL: <https://www.coursera.org/lecture/audio-signal-processing/sound-descriptors-7NZJI>

5. How to use Freesound

Freesound is a collaborative database of audio snippets, samples, recordings, bleeps, etc. released under Creative Commons licenses that allow their reuse. The two links given below describe the features of Freesound and how to use it for any audio processing project.

URL: <https://www.youtube.com/watch?v=P6DHrrYRGnY>

URL: <https://www.coursera.org/learn/audio-signal-processing/lecture/TboZE/introduction-to-freesound>