AMATH 582/482 Rahman

Coding Project 2

Due Friday February 10th at 11:59pm

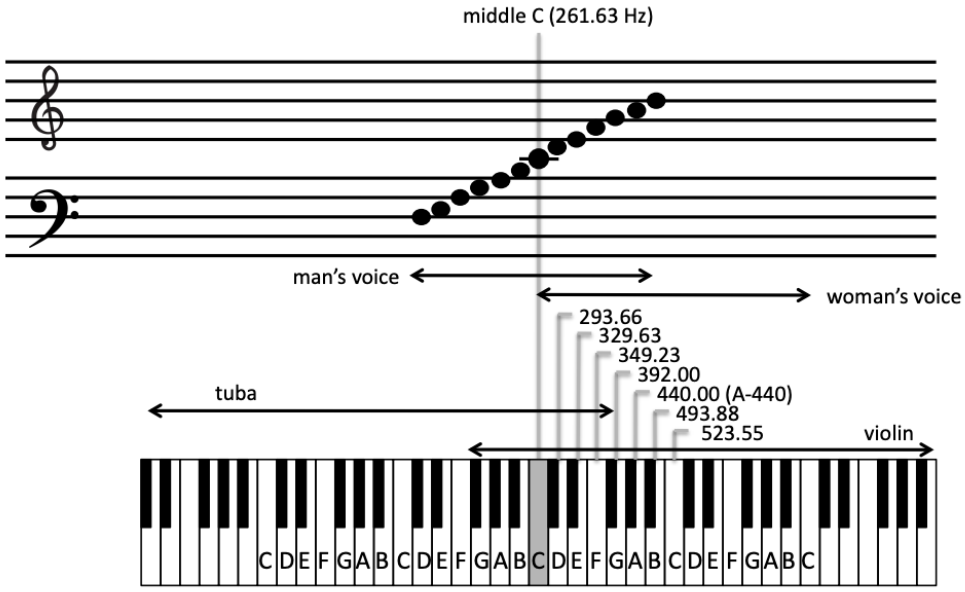
Decomposing Music

Please use the sample code `CP2_sample.m` to read in the sound clip `CP2_SoundClip.mat`. If you're using Python, we'll have a translation of it in the template, although presumably it's not too different from MATLAB. Since MATLAB is available to all students, it might be best to run the MATLAB sample code just to hear it and see the signal.

In the project we will try to isolate and reconstruct instrument types from the clip. The nice thing about this particular song is that the instruments are introduced one at a time, so that should help isolate the frequency signatures.

(1) Through the use of the Gabor transform we used in class create a spectrogram and study the frequencies from the sound clip.
(2) Isolate the baseline/drumbeats (in one sound clip and its associated signal plot).
(3) Isolate the guitar and other similar string instruments similar to how you isolated the baseline.

The following plot should also help you isolate the two main frequency ranges.



Please also write a short report in the style of a scientific article. You will be given templates for the code (to match it with the rubric in the autograder) and the report to help you write it.