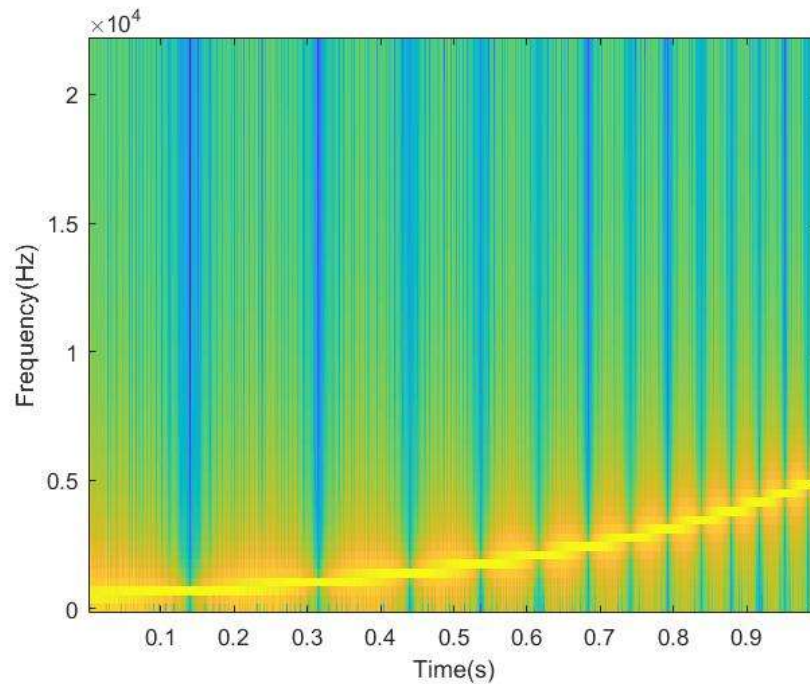


Audio Content Analysis – Assignment 1

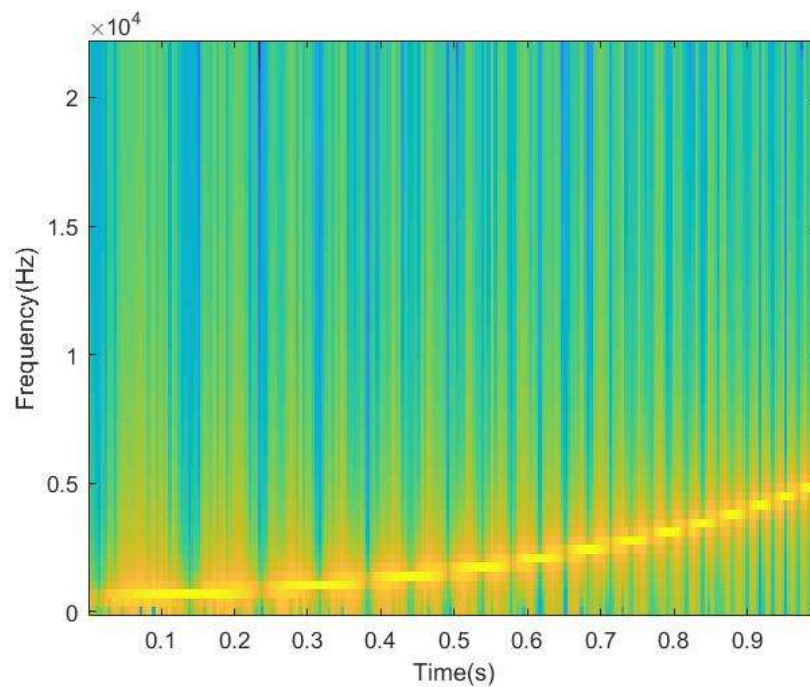
Aakaash Jois – N14182682 – aj2309

a) Default Parameters

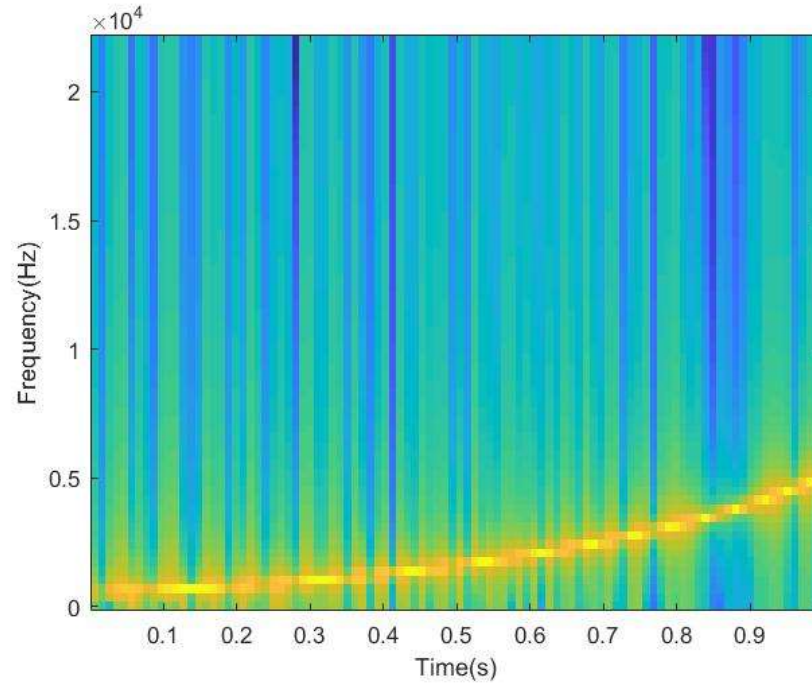


b)

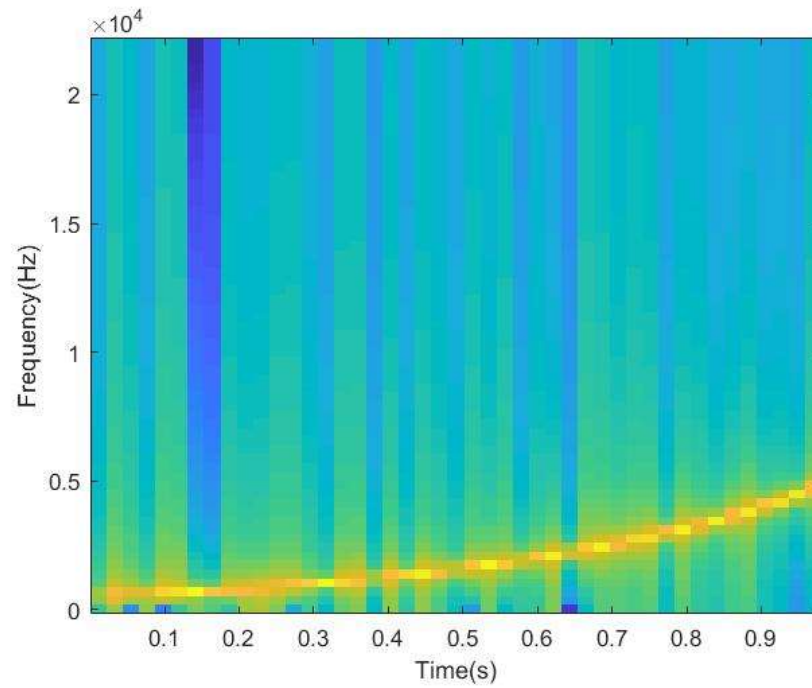
1) Window size = 256



2) Window size = 512



3) Window size = 1024

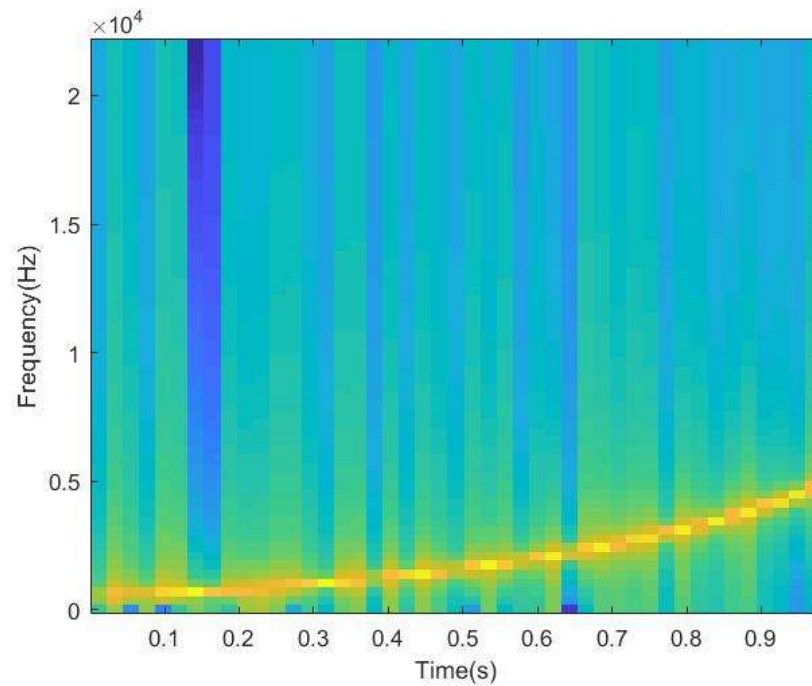


Window size is inversely proportional to the time resolution. We can clearly see the vertical bands increase in size. We also know that time resolution and frequency resolution are inversely proportional.

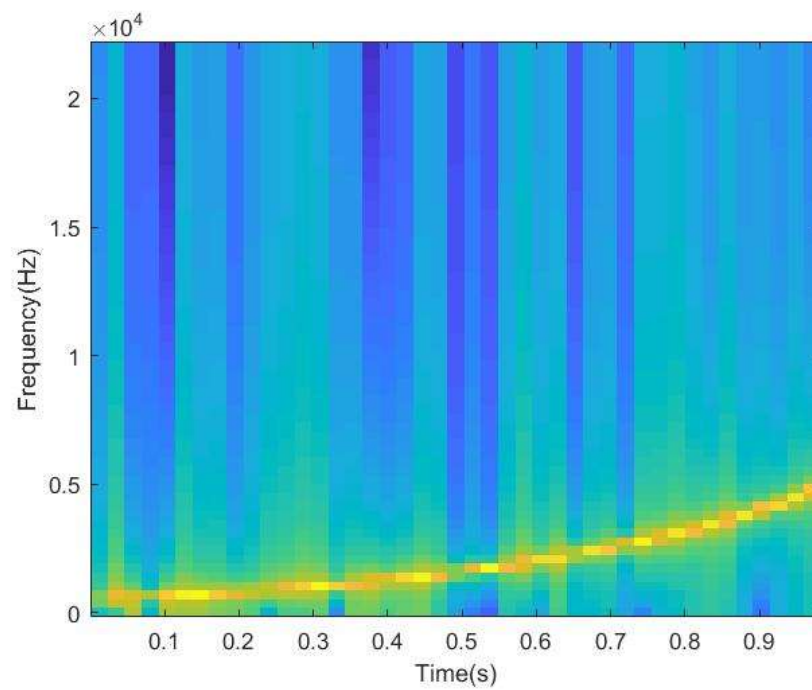
In the above images, we can see the thickness for each row of frequency is smaller as window size increases.

c)

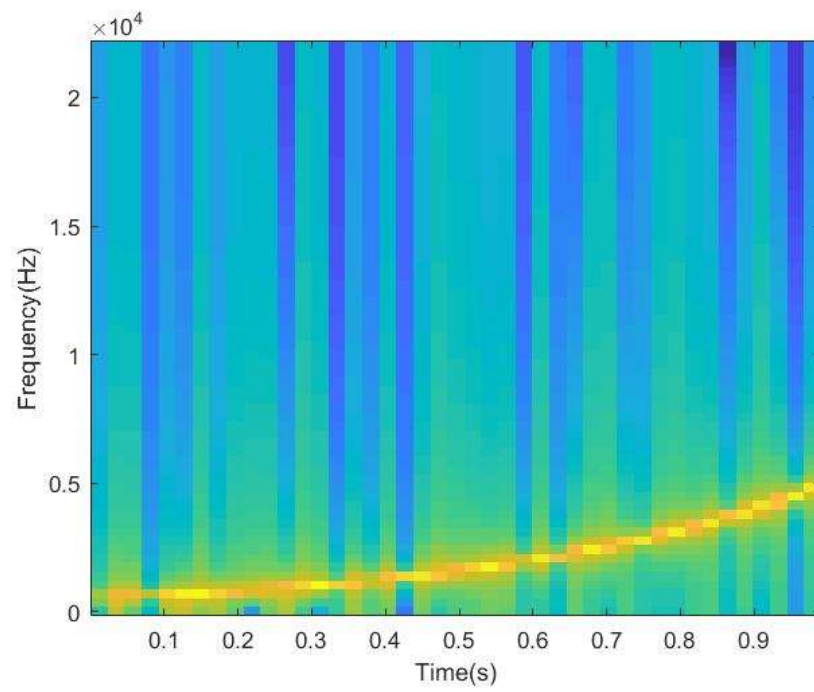
1) Hop Size = $N / 4$



2) Hop Size = $N / 16$

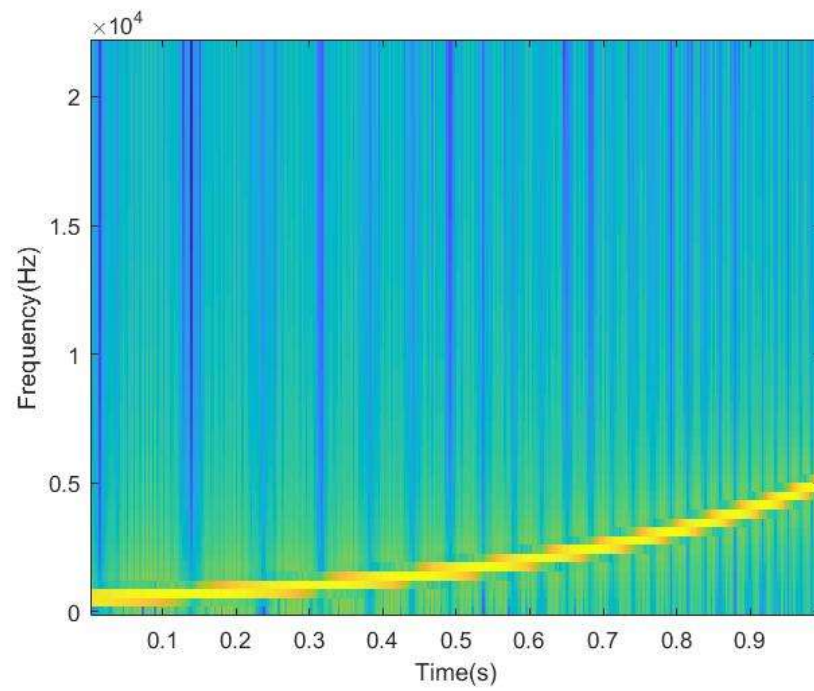


3) Hop Size = $N / 32$

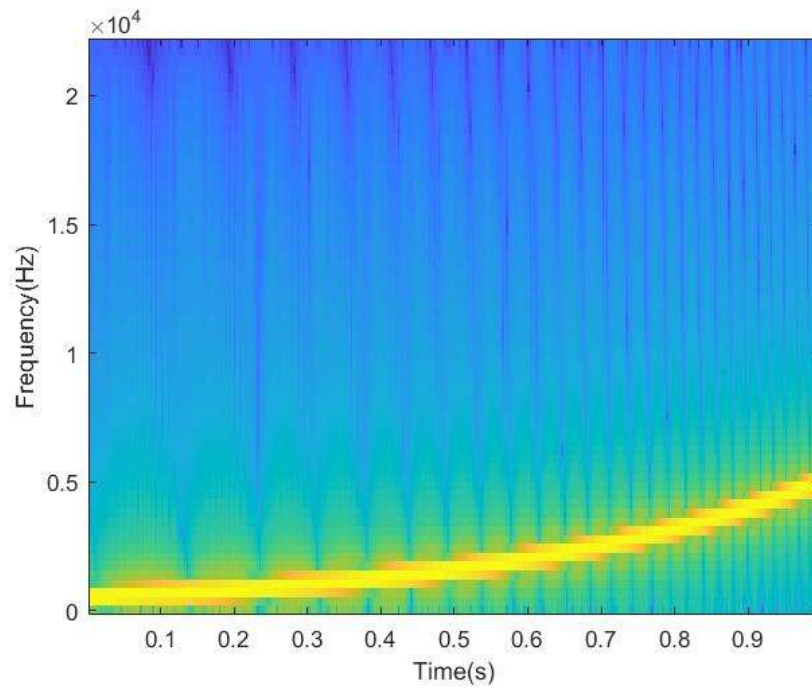


D)

1) Window Type = Hamming



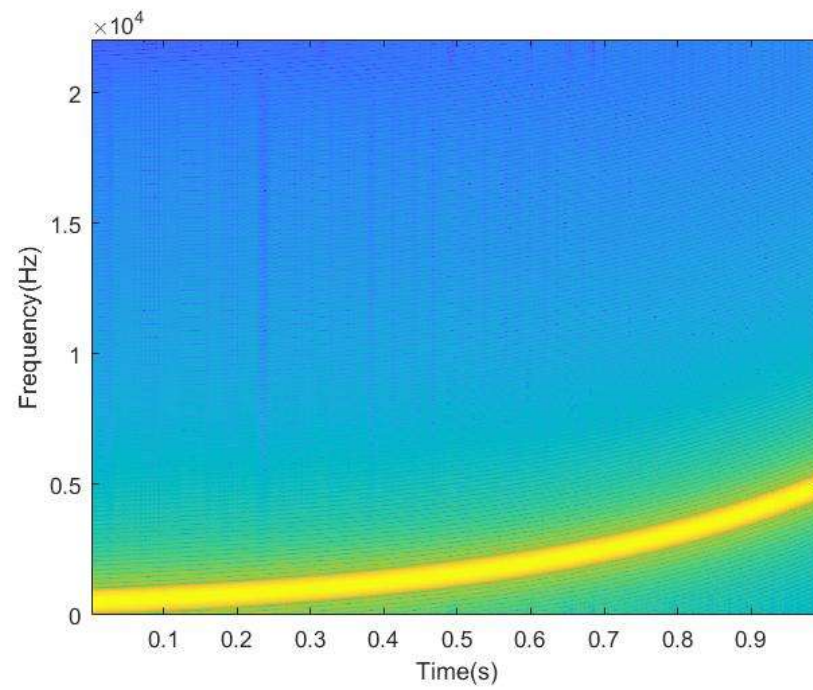
2) Window Type = Blackman



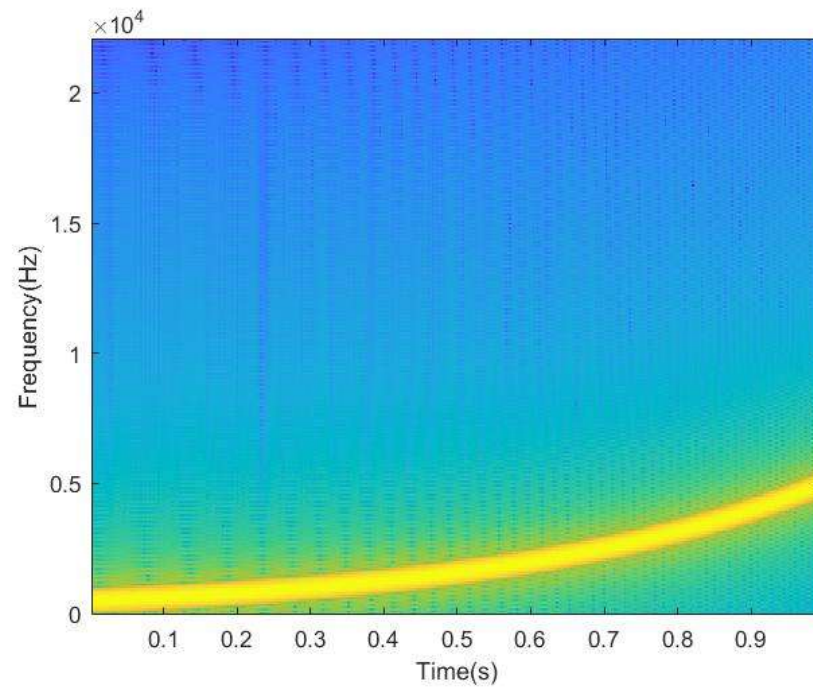
The higher frequencies are suppressed when using Blackman window when compared to Hamming Window. We can also observe less banding.

E)

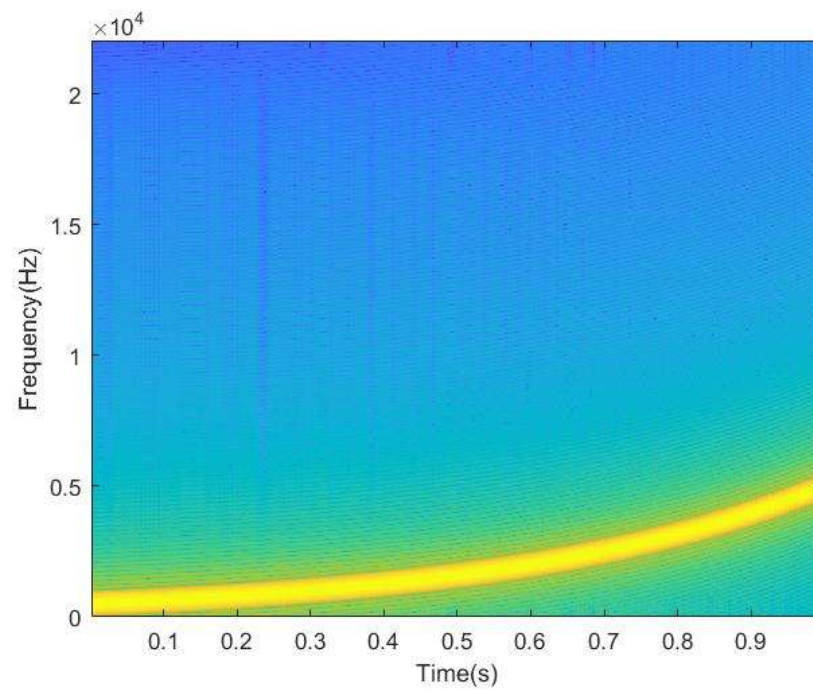
1) FFT Length = $2N$



2) FFT Length = $4N$



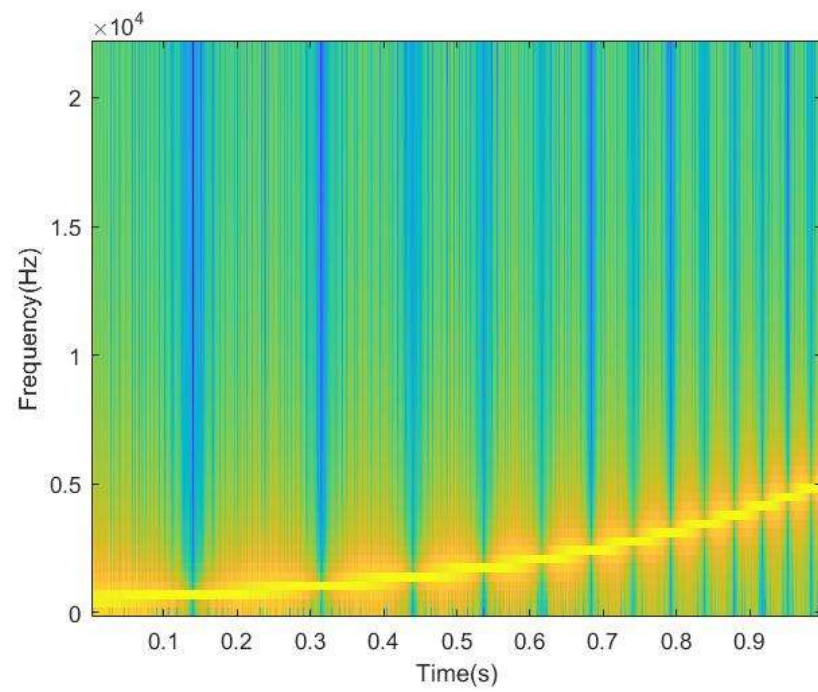
3) FFT Length = $8N$



As the FFT Length increase, we can see the frequency distribution is much higher.

F)

1) Implementation = spectrogram



2) Implementation = my_spectrogram

