%%%%%%%%%%%%%%%%%%%%%%%%%%

clear

close all

[bel,bes] = audioread('BaldEagle.wav');

[bcl,bcs] = audioread('BlackCrows.wav');

soundsc(bel,bes)

soundsc(bel,2\*bes)

soundsc(bel,bes/2)

soundsc(100\*bel,bes)

soundsc(0.1\*bel,bes)

plot(bel)

time=(1/44100)\*length(bel);

t=linspace(0,time,length(bel));

plot(t,bel)

xlabel('time (sec)');

ylabel('relative signal strength')

%%%%%%%%

% Remove Peacock.wav and BaldEagle.wav due to one dimension wav file

% Adding 8 Birds have two dimension wav file

% Adding lengsec for 8 Birds

clear

close all

hawk = audioread('Hawk.wav');

blackCrows = audioread('BlackCrows.wav');

blackGull = audioread('BlackGull.wav');

blueJay = audioread('Bluejay.wav');

merlin = audioread('Merlin.wav');

owl = audioread('Owl.wav');

parots = audioread('Parots.wav');

rooster = audioread('Rooster.wav');

lengsecforHawk = length(hawk)/44100;

lengsecforBlackCrows = length(blackCrows)/44100;

lengsecforBlackGull = length(blackGull)/44100;

lengsecforBlueJay = length(blueJay)/44100;

lengsecforMerlin = length(merlin)/44100;

lengsecforOwl = length(owl)/44100;

lengsecforParots = length(parots)/44100;

lengsecforRooster = length(rooster)/44100;

figure, plot(hawk)

figure, plot(blackCrows)

figure, plot(blackGull)

figure, plot(blueJay)

figure, plot(merlin)

figure, plot(owl)

figure, plot(parots)

figure, plot(rooster)

%

hw = hawk(10000:30000);

sound(hw)

c1 = fft(hw);

figure, plot(c1, '.');

figure, plot(abs(c1), '.');

figure, plot(angle(c1), '.');

figure, hist(abs(c1),60);

xlabel('Time (sec)');

ylabel('Relative Signal Strength');

bg = blackGull(20000:40000);

sound(bg)

c2 = fft(bg);

figure, plot(c2, '.');

figure, plot(abs(c2), '.');

figure, plot(angle(c2), '.');

figure, hist(abs(c2),60);

xlabel('Time (sec)');

ylabel('Relative Signal Strength');

bc = blackCrows(20000:40000);

sound(bc)

c3 = fft(bc);

figure, plot(c3, '.');

figure, plot(abs(c3), '.');

figure, plot(angle(c3), '.');

figure, hist(abs(c3),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

bj = blueJay(20000:40000);

sound(bj)

c4 = fft(bj);

figure, plot(c4, '.');

figure, plot(abs(c4), '.');

figure, plot(angle(c4), '.');

figure, hist(abs(c4),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

mr = merlin(20000:40000);

sound(mr)

c5 = fft(mr);

m = abs(c5);

figure, plot(c5, '.');

figure, plot(abs(c5), '.');

figure, plot(angle(c5), '.');

figure, hist(abs(c5),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

ol = owl(10000:20000);

sound(ol)

c6 = fft(ol);

figure, plot(c6, '.');

figure, plot(abs(c6), '.');

figure, plot(angle(c6), '.');

figure, hist(abs(c6),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

pr = parots(30000:50000);

sound(pr)

c7 = fft(pr);

figure, plot(c7, '.');

figure, plot(abs(c7), '.');

figure, plot(angle(c7), '.');

figure, hist(abs(c7),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

rt = rooster(5000:25000);

sound(rt)

c8 = fft(rt);

figure, plot(c8, '.');

figure, plot(abs(c8), '.');

figure, plot(angle(c8), '.');

figure, hist(abs(c8),60);

xlabel('time (sec)');

ylabel('Relative Signal Strength');

%%% magnitude

M = abs(c3);

figure, plot(M, '.');

figure, hist(M,60);

%%% Phase

A = angle(c3);

figure, plot(A, '.');

figure, hist(A,60);

AH = hist(A,60);

DH = zeros(120,2);

for i = 1:size(AH,2)

DH(2\*i-1,:) = 0;

DH(2\*i,1) = AH(i)\*cos(i\*pi/30);

DH(2\*i,2) = AH(i)\*sin(i\*pi/30);

end

plot(DH(:,1), DH(:,2), 'b-');

axis([-60 60 -60 60])