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% James Phillips
% ECE 301
% Homework 1

clear
clc

C = 278.4375;
C = C*2;

%Each fraction in Mario_Tune is multiplied by C to obtain the correct
% frequency
Mario_Tune = [5/4 5/4 5/4 3/2 1 5/4 3/2 1 3/45/8 5/6 15/16 0.8371 5/6];

% I used one quarter note as equal to one half second
Time = [0.125 0.25 0.125 0.125 0.25 0.5 0.375 0.125 0.25 0.25 0.125 0.125
0.25];
Sum_Time = sum(Time);

del = 0.0001;
t = 0:del:1;

Count = 0;

for I = 1:1:13
    t = Count:del:Count + Time(I);
    y = sin(2*pi*Mario_Tune(I)*C*t);
    sound(y, 1/del);
    Count = Count + Time(I);
end

% Part B

% y = sin(2*pi*1.5*C*u(t)) - sin(2*pi*1.5*C*u(t-1)) + sin(2*pi*C*u(t-1)) -
%     sin(2*pi*C*u(t-2)) + sin(2*pi*0.75*C*u(t-2)) -
%     sin(e*pi*0.75*C*u(t-3))

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