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%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Test Signal Generator
% Author: LCCI Team
% Version One
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% Description: Creates 10 .wav audio files ranging from 350 20,000 Hz
% Purpose: Quickly generate sine waves for testing

sine_wave = ["350Hz","500Hz","800Hz","1000Hz","1500Hz","3000Hz","7000Hz","11000Hz","↙
15000Hz","20000Hz"];
f = [350 500 800 1000 1500 3000 7000 11000 15000 20000]; % Frequencies of the 10 test↙
signals

Fs = 441000; % Sampling frequency (
dt = 1/Fs; % Seconds per sample
d = 5; % Desired duration of .wav files in seconds
figure; hold on
set(gcf, 'Units', 'Normalized', 'OuterPosition', [0, 0.04, 1, 0.96]); % Enlarge figure to↙
full screen

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% NOTE: Everything commented below is not needed and was used to
% demonstrate signal generator for Senior Design Assignment
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
for i = 1:10 % Repeat process to generate test signal, graph one period, and create .wav↙
file
        %     T = 1/f(i) ;
        %     p = 0:dt:T+dt ; % Time step for one time period
        %     a = sin(2*pi*f(i)*p); % Sine wave for only one time period
        %     subplot(2,5,i);
        %     plot(p,a); hold on
        %     title(sine_wave(i));
        %     xlabel('Seconds');
        %     ylabel('Amplitude');
        %     xlim([0 1.1*T]);
        %     ylim([-1 1]);
    t = 0:1/44100:d; % 44.1 KHz is standard sampling frequency for .wav file
    s = sin(2*pi*f(i)*t); % sine wave at specified frequency
        %     sound(s,44100);
        %     pause(6);

    audiowrite(sprintf('%s%s',sine_wave(i),'SineWave.wav'),s,44100) % Create .wav file
end
        % annotation('textbox', [0, 1, 1, 0], 'string',sprintf('%s%s','Timestamp: ',↙
datestr(now))); % Time Stamp
```