In class assignment

To visualize the overall processing flow for digital communications, execute the following, using two subroutines

Read the commands, view the figures and answer the questions below:

1. What do you observe in the plot of the transmit waveform?
    a. In time
    b. In frequency
2. Describe what you hear in the transmit waveform
3. What is the symbol interval in milliseconds
4. What is the pulse length in milliseconds

```
%set parameters
   fs = 8000; %8000 samples per second for DAC and ADC
   fc = 1000;%carrier frequency at 2000 Hz
   N = 51; %oversampling factor (samples per symbol interval)
   pulse = srrc(3, 0.5, N);%pulse waveform; see srrc.m from course webpage

%define symbols
   symbols = [1, -1, -1, 1, 1, 1]; %simple example with six symbols

%list of symbols
        x = symbols;
%symbol period of N samples
        x_up = reshape([x;zeros(N-1,length(x))],1,N*length(x));
%convolve symbols with pulse shape
        trans = conv(x_up,pulse);
% sample index (time)
        n=[0:length(trans)-1];
% upcovert to carrier frequency
        trans_mod = real(exp(j*2*pi*fc*n/fs).*trans);

%look at the pulse and baseband and transmit waveform
   figure;plottf(pulse,1/fs);%see plottf.m from course webpage
   grid on;
   figure;plottf(trans,1/fs);%baseband
   figure;plottf(trans_mod,1/fs);%bandpass

%listen to the bandpass waveform
   sound(trans_mod,fs);
```