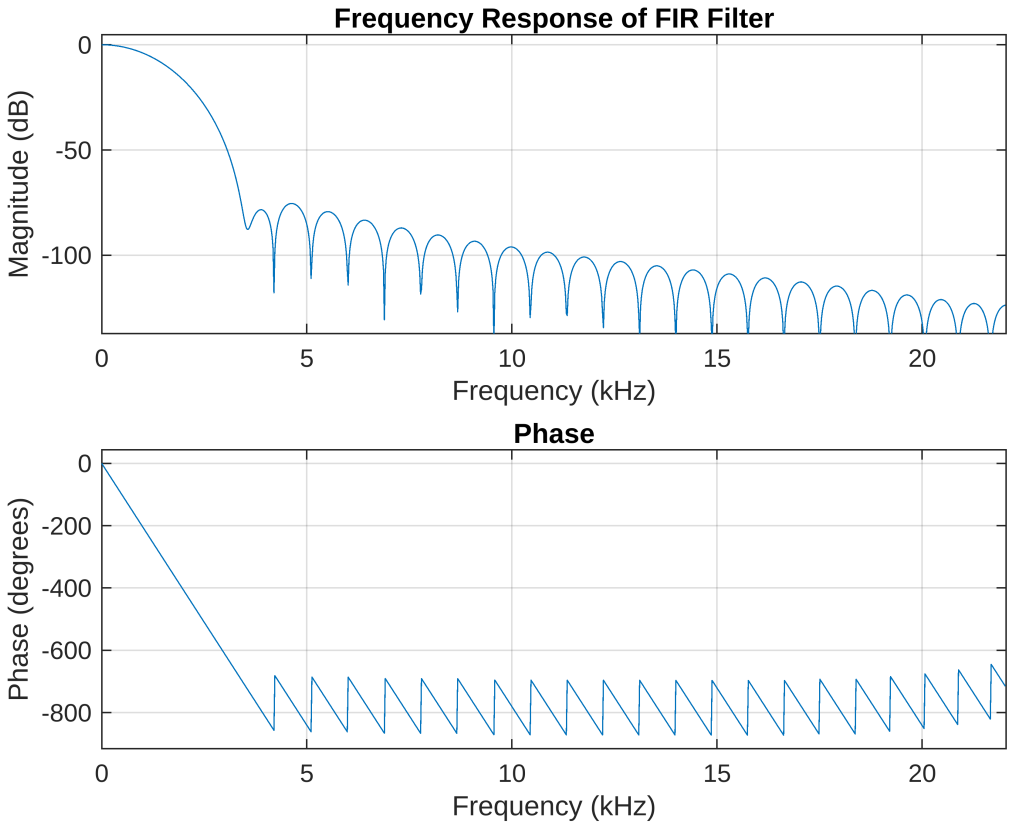
```
% Clear workspace, figures and command window
clear;
close all;
clc;

% Read the audio file - returns audio data and sampling frequency
[inputSignal, fs] = audioread('noisysignal.wav');

% Set filter parameters
filterOrder = 50;                           % Order of the FIR filter
cutoffFreq = 1000;                          % Cutoff frequency in Hz
normalizedCutoff = cutoffFreq / (fs/2);     % Normalize cutoff frequency by
Nyquist rate

% Design FIR filter using Blackman window
window = blackman(filterOrder + 1);          % Create Blackman window
b_fir = fir1(filterOrder, normalizedCutoff, window);  % Design lowpass FIR
filter

% Plot frequency response of the filter
figure;
freqz(b_fir, 1, 1024, fs);
title('Frequency Response of FIR Filter');
```



```
% Apply the filter to the input signal
filteredSignal = filter(b_fir, 1, inputSignal);

% Play the original audio
disp('Playing Original Noisy Audio...');
```

```
Playing Original Noisy Audio...
```

```
sound(inputSignal, fs);
pause(length(inputSignal)/fs + 1);

% Play the filtered audio
disp('Playing Filtered Audio (FIR)...');
```

```
Playing Filtered Audio (FIR)...
```

```
sound(filteredSignal, fs);
pause(length(filteredSignal)/fs + 1);

% Save the filtered audio
audiowrite('filteredSignalFIR.wav', filteredSignal, fs);
```