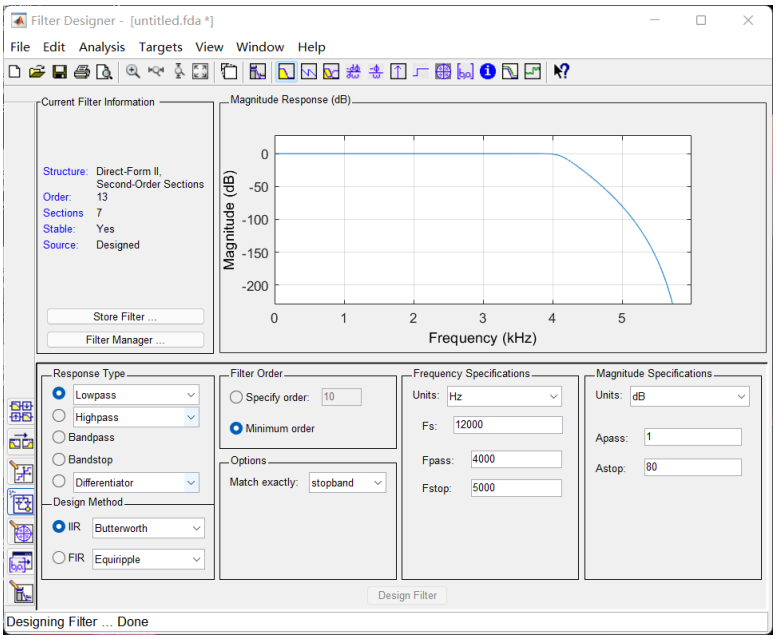
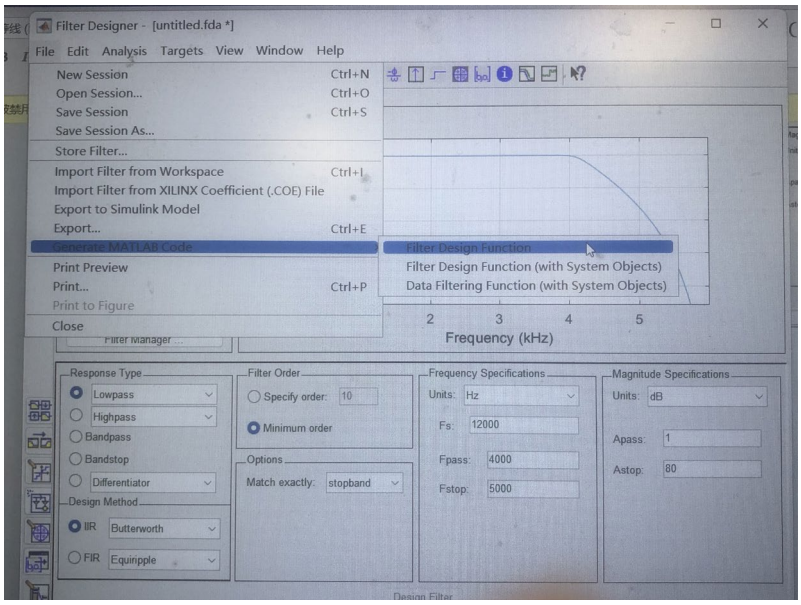
1. Run the matlab program, type "fdatool" in the command line window

```
>> fdatool
```

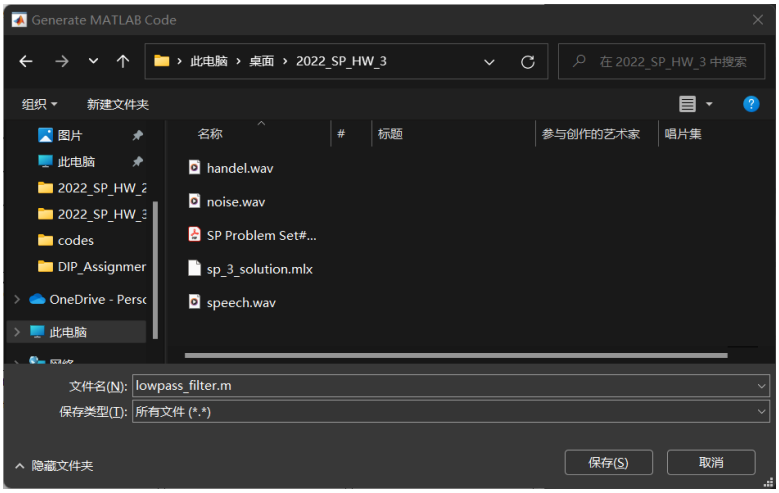
2. Fill in the corresponding parameters according to the type of filter you need; Click "Design Filter" (This is example of low pass filter)



3 . Click “File->Generate Matlab Code->Filter Design Function” to export the filter.



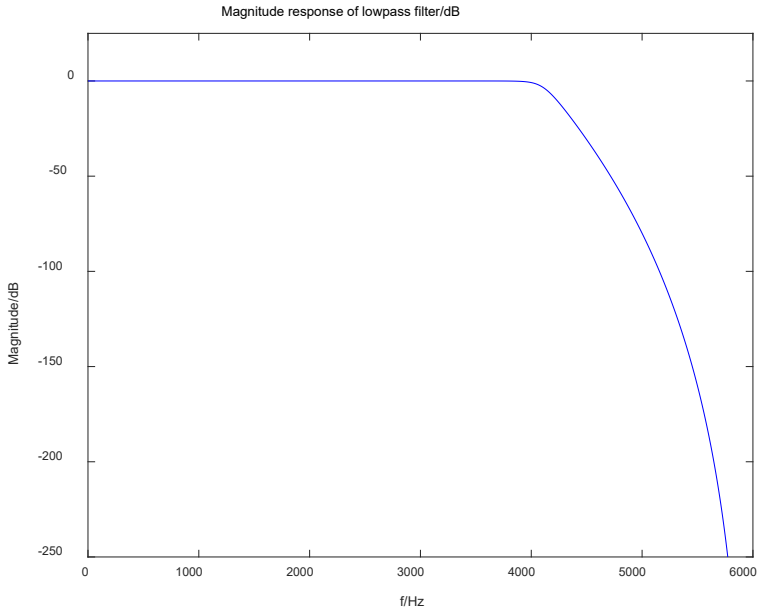
3. Save as “lowpass_filter.m” (You can change the filename as you prefer)



4. Plot the magnitude response of the filter in frequency domain.

   Codes:

```
Fs=12000; % correspond to the Fs set in fdatool.
Hd = lowpass_filter; % load the filter (correspond to the filename)
[H,w]=freqz(Hd); % use funciton freqz to plot the magnitude response of lowpass filter
dbH=20*log10(abs(H)/max(abs(H))); % set y-axis in dB
figure
plot(w*Fs/(2*pi), dbH,'b');
axis([0 Fs/2 -250 25]);%Set the display range of the axis
title('Magnitude response of lowpass filter/dB');
xlabel('f/Hz');ylabel('Magnitude/dB');
```



5. Filter a signal with filter designed by fdatool

   Codes:

```
Hd = lowpass_filter; % load the filter (correspond to the filename)
y=filter(Hd,x); % use function filter to filter the signal
```