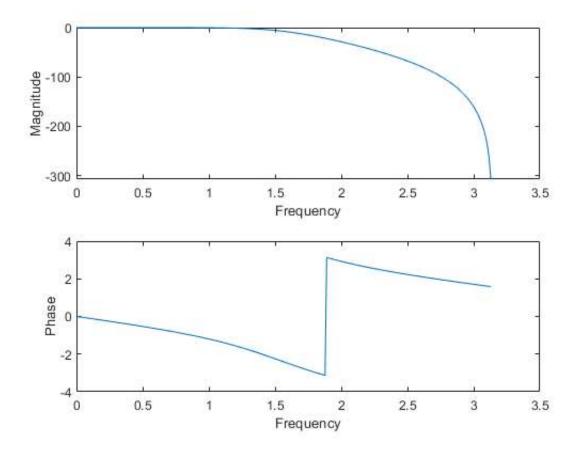
```
% Implementation on a low pass filter
clc;
clear all;
close all;
% pass band frequency
fP = 400;
fS = 800;
             % stop band frequency
FS = 2000; % sampling frequency
% now declaring wP and wS
wP = ((2*3.14*(fP/FS))/3.14); % need to balance the output for buttord
wS = ((2*3.14*(fS/FS))/3.14); % function, by dividing the entire thing by pi
[n,Wc] = buttord(wP,wS,alphaP,alphaS); % used to get the order of the
                                    % buterworth filter
disp('The order of the filter is');
disp(n);
disp('The cutoff frequency is');
disp(Wc);
[b,a] = butter(n,Wc);
[H,W] = freqz(b,a,256); % frequency response
Magnitude resp = 20*log(abs(H)); % magnitude response
phase resp = angle(H);
                                % phase response
subplot(2,1,1);
plot(W, Magnitude resp);
xlabel('Frequency');
ylabel('Magnitude');
subplot(2,1,2);
plot(W,phase resp);
xlabel('Frequency');
ylabel('Phase');
```

```
The order of the filter is 3

The cutoff frequency is 0.4914
```



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