```matlab
% Implementation on a chebyshev high pass filter

clc;
clear all;
close all;

alphaP = 4;       % attenutaion in pass band
alphaS = 30;      % attenuation in stop band
fP = 400;         % pass band frequency
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] = cheb2ord(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] = cheby2(15,alphaS,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
     2

The cutoff frequency is
    0.8000
```