```
%Detektering af DTMF toner
clf
clear
fvandret = input('f_ vandret = ');
flodret = input('f_lodret = ');

%generering af DTMF signal
n = 1:1:205;
x = sin(flodret*2*pi*125*0.000001*n) + sin(fvandret*2*pi*125*0.000001*n);
stem(x)
pause

%beregning af spektret ved hjælp af Goertzels algorithme

MagX = zeros(1,45);
ReX = zeros(1,45);
ImX = zeros(1,45);

km = [18 20 22 24 31 34 38 42];
for  k = 1:8
         w2 = 0;
         w1 = 0;
         w = 0;
            for n = 1:205
                     w = x(n) + 2*cos((2*pi*km(k))/205)*w1 - w2;
                     w2 = w1;
                     w1 = w;

            end

         w = 2*cos((2*pi*km(k))/205)*w1 - w2;

         ReX(km(k)) = w - w1*cos((2*pi*km(k))/205);
         ImX(km(k)) = w1*sin((2*pi*km(k))/205);
         MagX(km(k)) = sqrt(ReX(km(k))^2 + ImX(km(k))^2);

end

plot(MagX)
```