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|  | Program |
| **AIM:** | To obtain Bode plot response of the given L point sequence x[n] by means od Discrete Fourier Transform (DFT) using MATLAB |
| **Objective:** | * To learn the concept and process of find Discrete Fourier Transform for the given L point sequence. * To learn process of obtaining bode plot for given signal by DFT. |
| **Software used:** | Matlab - Mathworks  Version R2022b |
| **Code:** | %Frequency Response using DFT  clc  close all  clear all  disp('Frequency Response using DFT')  x = [1 2 3 4];  N = length(x);  X = zeros(4,1);  for k = 0:N-1  for n = 0:N-1  X(k+1) = X(k+1) + x(n+1)\*exp(-j\*pi/2\*n\*k);  end  end  t = 0:N-1;  subplot(311)  stem(t,x);  xlabel('Time (s)');  ylabel('Amplitude');  title('Time domain - Input sequence')  subplot(312)  stem(t,X)  xlabel('Frequency');  ylabel('|X(k)|');  title('Frequency domain - Magnitude response')  subplot(313)  stem(t,radtodeg(angle(X)))  xlabel('Frequency');  ylabel('Phase');  title('Frequency domain - Phase response')  disp('Original Sequence: ')  x % to check x  disp('DFT Sequence: ')  X % to check X(k)  disp('Magnitude: ')  abs(X)  disp('Phase: ')  radtodeg(angle(X)) % to check phase |
| **Output** | DFT Sequence x[n]={ 1 , 2 , 3, 4 } |
| **Conclusion**  Successfully learned the concept of Discrete Fourier Transform and process to obtain the desire sequence for given L points sequence and then plotting those into bode plot. Successfully design matlab code for given operations and got the desired output. | |