```matlab
%Assignment 1
% Done by Mahmoud Yassin Mahmoud
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% Submitted To Dr. Wail A. Mousa
% Bism Allah and I will continue with
%(Q2)The exponential sequences:
% 1- h1(n) = 0.9^n
% 2- h2(n) = 2^n
% 3- h3(n) = (-0.5)^n
% 4- h4(n) = (-3)^n
% for n = 0,..,50.
% Obtain the maximum value of each sequence and its index value.
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
clc;
clear;
%....................   .............................
%defining time and base for exponential
 n= 0:50;
 a1 = 0.9;
 a2 = 2;
 a3 = -0.5;
 a4 = -3;
%.......................................
% exponential calculations and maximum value with its index

h1 = a1.^n;
 [max_val_1,index_max_1] = max(h1);
 fprintf('The maximum value of h1(n) is : %d and its index is %d\n',max_val_1,index_max_1);

h2 = a2.^n;
[max_val_2,index_max_2] = max(h2);
fprintf('The maximum value of h2(n) is : %d and its index is %d\n',max_val_2,index_max_2);

h3 = a3.^n;
[max_val_3,index_max_3] = max(h3);
 fprintf('The maximum value of h3(n) is : %d and its index is %d\n',max_val_3,index_max_3);

h4 = a4.^n;
[max_val_4,index_max_4] = max(h4);
 fprintf('The maximum value of h4(n) is : %d and its index is %d\n',max_val_4,index_max_4);
%...............................................................................
%ploting

subplot(221)
    stem(n,h1)
    grid minor
    title('h1(n) = 0.9^n')
    xlabel('0< n < 50')
    ylabel('h1(n)')

subplot(222)
    stem(n,h2)
    title('h2(n) = 2^n ');
    grid minor
    xlabel('0< n < 50')
    ylabel('h2(n)')

subplot(223)
    stem(n,h3)
```
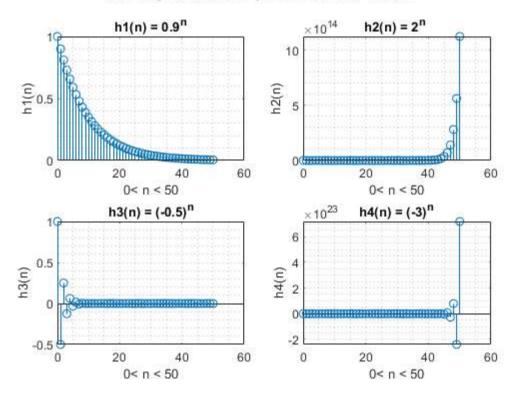
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    grid minor
    title('h3(n) = (-0.5)^n');
    xlabel('0< n < 50')
    ylabel('h3(n)')

subplot(224)
    stem(n,h4)
    grid minor
    title('h4(n) = (-3)^n');
    xlabel('0< n < 50')
    ylabel('h4(n)')

sgtitle('The exponential sequences for n= 0,..,50 ') % title for the hole figure
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The maximum value of h1(n) is : 1 and its index is 1
The maximum value of h2(n) is : 1125899906842624 and its index is 51
The maximum value of h3(n) is : 1 and its index is 1
The maximum value of h4(n) is : 7.178980e+23 and its index is 51
```

The exponential sequences for n= 0,..,50