Solution

① **Example:** In the data file **data.xls** the results of the electromagnetic shielding effectiveness [dB] in two frequencies (1.5 GHz and 0.6 GHz) depending on the number of layers of samples was measured. Describe this dependence by a linear model obtained using the least square method, get parameter estimates and plot the model for both cases. Create m-file (script) named **se.m**.

```matlab
1   [ndata, text, alldata]=xlsread('data.xls');
2   x=ndata(:,1);
3   y=ndata(:,2:end);
4   C='rgbcmyk';
5   xx=0:0.1:6;
6   for i=1:size(y,2)
7       plot(x,y(:,i),'*','Color',C(i)),hold on
8       b=polyfit(x,y(:,i),1)
9       yhat=polyval(b,xx);
10      plot(xx,yhat,'Color',C(i))
11  end
12  title('SE vs Number of Layers')
13  xlabel(text(1))
14  ylabel('Electromagnetic Shielding Effectiveness [dB]')
15  legend([text(2),'y hat', text(3), 'y ...
            hat'],'location','NorthWest')
```

Solution

```
>> se

b =
    4.4705     8.6578

b =
    5.6792     1.6410
```

Solution