```matlab
%Senior Design ECE457 Project Group 9
%Fall 2019

SoundData = 'Book1.xlsx'; %Read excel file in folder
DataMat = zeros(30,4); %Predefine Data Matrix
DataMat(:,1) = xlsread(SoundData, 'A2:A31'); %Ambient 1st col
DataMat(:,2) = xlsread(SoundData, 'B2:B31'); %Quiet is 2nd col
DataMat(:,3) = xlsread(SoundData, 'C2:C31'); %Medium is 3rd col
DataMat(:,4) = xlsread(SoundData, 'D2:D31'); %Loud is 4th col
[k,DataLoc] = xlsread(SoundData, 'E1:E1');
DataLoc
DataMat %Print Data Matrix to command window


AveAmb = mean(DataMat(:,1)); %Calculate Averages
AveQui = mean(DataMat(:,2));
AveMed = mean(DataMat(:,3));
AveLou = mean(DataMat(:,4));
StdAmb = std(DataMat(:,1));
StdQui = std(DataMat(:,2)); %Calculate Standard Deviations
StdMed = std(DataMat(:,3));
StdLou = std(DataMat(:,4));
Labels = {'Ambient';'Quiet';'Medium';'Loud'};
Averages = {AveAmb; AveQui; AveMed; AveLou};
Stdevs = {StdAmb; StdQui; StdMed; StdLou};
T = table(Labels, Averages, Stdevs) %Print Data Table to Command
 Window

x = [20:0.1:130]; %Setting x axis for 'normpdf' plot
GauAmb = normpdf(x,AveAmb,StdAmb);
GauQui = normpdf(x,AveQui,StdQui);
GauMed = normpdf(x,AveMed,StdMed);
GauLou = normpdf(x,AveLou,StdLou);

sz = 36; %Size of scatterplot points
figure(1), subplot(2,1,1)
hold on
scatter(1:30, DataMat(:,1), sz, 'r') %Ambient
scatter(1:30, DataMat(:,2), sz, 'g') %Quiet
scatter(1:30, DataMat(:,3), sz, 'b') %Medium
scatter(1:30, DataMat(:,4), sz, 'k') %Loud
ylim([30 130])
title(DataLoc)
xlabel('Trials')
ylabel('Volume Level in dB')
legend({'Ambient','Quiet','Medium','Loud'},'Location','northwest','NumColumns',4)
hold off

x = [20:0.1:130]; %Setting x axis for 'normpdf' plot
subplot(2,1,2)
hold on
plot(x,GauAmb, 'r')
```
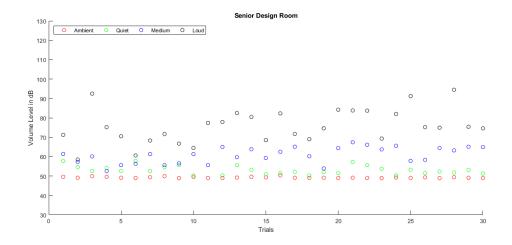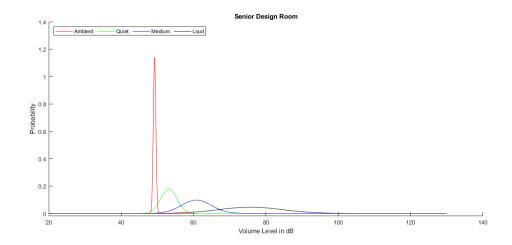
```
plot(x,GauQui, 'g')
plot(x,GauMed, 'b')
plot(x,GauLou, 'k')
ylabel('Probability')
xlabel('Volume Level in dB')
legend({'Ambient','Quiet','Medium','Loud'},'Location','northwest','NumColumns',4)
title(DataLoc)
ylim([-0.02 1.4])
hold off
```

DataLoc =

  1×1 cell array

    {'Senior Design Room'}

DataMat =

49.6000	57.7000	61.4000	71.2000
49.1000	54.6000	57.3000	58.5000
49.9000	52.6000	60.1000	92.5000
49.6000	54.1000	52.5000	75.2000
49.1000	52.6000	55.6000	70.5000
49.0000	57.7000	56.3000	60.6000
49.4000	52.6000	61.3000	68.3000
49.9000	54.6000	55.6000	71.6000
48.9000	55.6000	56.5000	66.7000
49.6000	50.3000	61.3000	64.5000
49.0000	55.6000	55.6000	77.4000
49.0000	50.3000	65.0000	77.9000
49.2000	55.6000	59.7000	82.5000
49.6000	53.2000	63.8000	80.5000
49.3000	50.9000	59.3000	68.5000
50.3000	51.5000	62.5000	82.3000
49.1000	52.2000	65.1000	71.7000
49.0000	50.3000	60.2000	69.0000
49.1000	52.0000	53.9000	74.6000
49.0000	51.5000	64.4000	84.2000
49.1000	57.2000	67.4000	83.8000
49.0000	55.6000	66.1000	83.7000
48.9000	53.7000	63.7000	69.3000
49.2000	50.3000	65.6000	82.0000
49.0000	53.2000	57.8000	91.2000
49.3000	51.5000	58.3000	75.2000
48.9000	52.3000	64.4000	74.9000
49.4000	51.8000	63.2000	94.5000
49.1000	53.1000	65.1000	75.4000
49.0000	51.3000	64.9000	74.6000

T =

4×3 table

Labels	*Averages*	*Stdevs*
'Ambient'	*[49.2533]*	*[0.3471]*
'Quiet'	*[53.1833]*	*[2.2130]*
'Medium'	*[60.7967]*	*[4.0985]*
'Loud'	*[75.7600]*	*[8.7974]*

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