Hands on exercise on R

Day 2

1. Few simple statistical measures:
   a) Enter data as 1,2, … ,10.
   b) Find sum of the numbers.
   c) Find mean, median.
   d) Find sum of squares of these values.
   e) Find the value of $\frac{1}{n}\sum_{i=1}^{n}|x_i - \bar{x}|$, This is known as mean deviation about mean ($MD_{\bar{x}}$).
   f) Check whether $MD_{\bar{x}}$ is less than or equal to standard deviation.
   g) Find standard deviation using formula.

2. Reading a data file and working with it:
   a) Read the file first and store it in a.
   b) How many rows are there in this table? How many columns are there?
   c) How to find the number of rows and number of columns by a single command?
   d) What are the variables in the data file?
   e) If the file is very large, naturally we cannot simply type `a', because it will cover the entire screen and we won't be able to understand anything. So how to see the top or bottom few lines in this file?
   f) If the number of columns is too large, again we may face the same problem. So how to see the first 5 rows and first 3 columns?
   g) How to get 1st, 3rd, 6th, and 10th row and 2nd, 4th, and 5th column?
   h) How to get values in a specific row or a column?

3. Calculate simple statistical measures using the values in the data file.
   a) Find means, medians, standard deviations of Price, Floor Area, Rooms, and Age.
   b) How many houses have central heating and how many don't have?
   c) Plot Price vs. Floor, Price vs. Age, and Price vs. rooms, in separate graphs.
   d) Draw histograms of Prices, FloorArea, and Age.
   e) Draw box plots of Price, FloorArea, and Age.
   f) Draw all the graphs in (c), (d), and (e) in the same graph paper.