

1.

Few simple statistical measures:

- Enter data as 1, 2, ..., 10.
- Find sum of the numbers.
- Find mean, median.
- Find sum of squares of these values.
- Find the value of $\frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|$, This is known as mean deviation about mean ($MD_{\bar{x}}$).
- Check whether $MD_{\bar{x}}$ is less than or equal to standard deviation.

2. Create a file as follows and store as a :-

	price	FloorArea	Rooms	Age	CentralHeating
1	52.00	1225	3	6.2	YES
2	54.75	1230	3	7.5	NO
3	57.50	1200	3	4.2	NO
4	57.50	1000	2	4.8	NO
5	59.75	1420	4	1.9	YES
6	62.50	1450	3	5.2	YES
7	64.75	1380	4	6.5	NO
8	67.25	1510	4	9.2	NO
9	67.50	1400	5	0.0	NO
10	69.75	1550	6	5.7	NO
11	70.00	1720	6	7.3	YES
12	75.50	1700	5	4.5	NO
13	77.50	1660	6	6.8	YES
14	78.00	1800	7	0.7	YES
15	81.25	1830	6	5.6	YES
16	82.50	1790	6	2.3	NO
17	86.25	2010	6	6.7	YES
18	87.50	2000	6	3.4	NO
19	88.00	2100	8	5.6	YES
20	92.00	2240	7	3.4	YES

- How many rows are there in this table? How many columns are there?
 - How to find the number of rows and number of columns by a single command?
 - What are the variables in the data file?
 - 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?
 - 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?
 - How to get 1st, 3rd, 6th, and 10th row and 2nd, 4th, and 5th column?
 - How to get values in a specific row or a column?
3. Calculate simple statistical measures using the values in the data file.

- Find means, medians, standard deviations of Price, Floor Area, Rooms, and Age.
- How many houses have central heating and how many don't have?
- Plot Price vs. Floor, Price vs. Age, and Price vs. rooms, in separate graphs.
- Draw histograms of Prices, FloorArea, and Age.
- Draw box plots of Price, FloorArea, and Age.
- Draw all the graphs in (c), (d), and (e) in the same graph paper.

4.

- 1) IQ is a normal distribution of mean of 100 and standard deviation of 15
 - a) What percentage of people have an $IQ < 125$?
 - b) What percentage of people have $IQ > 110$?
 - c) What percentage of people have $110 < IQ < 125$?
 - d) Find 25% for standard normal distribution.
 - e) Find 25% normal distribution with mean and standard deviation 2 & 3.
 - f) What IQ separates the lower 25% from the others.
 - g) What IQ separates the top 25% from the others.
 - h) Find 25 percentile for mean 100 and SD 15.
- 2) Generate the 20 random number for a normal distribution with mean 572 and SD is 51. Calculate mean and SD of data set.
- 3) Make appropriate histogram of data in above question and visually assume if normal density curve & histogram density estimates are similar.