Written Assignment

1. Fifty randomly selected adults who follow professional sports were asked to name their favorite professional sports league. The results are as follows where MLB = Major League Baseball, MLS = Major League Soccer, NBA= National Basketball Association, NFL = National Football League, and NHL = National Hockey League. (Data: ProfSports.xls)

NFL	NBA	NFL	MLB	MLB	NHL	NFL	NFL	MLS	MLB
MLB	NFL	MLB	NBA	NBA	NFL	NFL	NFL	NHL	NBA
NBA	NFL	NHL	NFL	MLS	NFL	MLB	NFL	MLB	NFL
NHL	MLB	NHL	NFL	NFL	NFL	MLB	NFL	NBA	NFL
MLS	NFL	MLB	NBA	NFL	NFL	MLB	NBA	NFL	NFL

(a) Use **software** to construct a frequency bar chart for these data.
(b) Use **software** to construct a pie chart for these data.
(c) Which professional sports league is most popular with these 50 adults? Which is least popular?

THE MARKETING RESEARCH CASE

60 randomly selected shoppers have rated a new bottle design for a popular soft drink. The data are given below. (Design)

34	33	33	29	26	33	28	25	32	33
32	25	27	33	22	27	32	33	32	29
24	30	20	34	31	32	30	35	33	31
32	28	30	31	31	33	29	27	34	31
31	28	33	31	32	28	26	29	32	34
32	30	34	32	30	30	32	31	29	33

Use these data to work with Exercises 2 to 4.

2. a. Find the number of classes that should be used to construct a frequency distribution and histogram for the bottle design ratings.
   b. If we round up to the nearest whole rating point, show that we should employ a class length equal to 3.
   c. Organize the data into a frequency distribution.
   d. Draw the frequency histogram for the ratings data, and describe the distribution shape.

3. Use a **software** to draw a frequency histogram for the bottle design ratings.
4. Use **software** to calculate the mean, median, mode, range variance and the standard deviation for the bottle design ratings.

5. The following data consist of sales figures (in millions of dollars) for a group of 20 firms. Construct a stem-and-leaf display for these data. Use a leaf unit equal to 100.

6835	3517	1973	1449	2820	2384	5358	1376	1233	1725
3291	6047	2707	7903	3291	4616	2675	1541	3707	4189

6. Thirteen internists in the Midwest are randomly selected, and each internist is asked to report last year's income. The incomes obtained (in thousands of dollars) are 152, 144, 162,154, 146, 241, 127, 141, 171, 177, 138, 132, 192. Find: (DrSalary)

a. Provide a five- number summary

b. Computer the lower and upper limits

c. Do the data contain any outliers?

d. Draw a box plot and identify the outlier(s).