Stat 151.003 Fall 2006 (Kozdron)
Assignment #2

This assignment is due by 3:30 pm on Wednesday, October 4, 2006, in Dr. Kozdron's office (College West 307.31). You may also hand it in before class that day. You must submit all problems that are marked with an asterix (*). You are encouraged to form study groups and collaborate with others on this assignment. However, the final work you submit must be your own. A piece of advice: *the assignments are worth very little in the computation of your final grade. It is better to suffer through not understanding something now, rather than copying from a friend just for the sake of completion. You will not have that luxury on the exams.* YOUR ASSIGNMENT MUST BE STAPLED AND PROBLEM NUMBERS CLEARLY LABELLED. UNSTAPLED ASSIGNMENTS WILL NOT BE ACCEPTED! DO NOT CROWD YOUR WORK. DO NOT WRITE IN MULTIPLE COLUMNS..

0.   The following problems are not to be handed in. However, you should read and answer them to help solidify your understanding of some of the third chapter's key ideas.

- Section 3.2 #5, 13, 21, 33

- Section 3.3 #7, 13, 19, 33

- Section 3.4 #13, 19

- Section 3.5 #1, 15

1.   * The annual rates of return (in %) of three common stocks traded on the Toronto Stock Exchange (TSE) for ten consecutive years are given in the table below.

Year	1	2	3	4	5	6	7	8	9	10
Stock I	4	5	3	5	6	8	9	9	11	10
Stock II	4	10	13	8	6	2	1	5	8	13
Stock III	5	8	14	16	13	11	6	2	−2	−3

(a) Compare the three stocks on the basis of measures of central tendency.

(b) Compute the standard deviation for each of the three stocks. What information do the standard deviations provide concerning rate-of-return fluctuations in these three stocks?

2.   * The following is a set of sorted test scores obtained from a class of 47 students in Stat 257:

$$12, 14, 18, 19, 25, 29, 32, 35, 36, 48, 67, 68, 69, 70, 71, 72, 72, 73, 75, 75, 76, 78, 78, 79, 79$$

$$80, 80, 81, 81, 83, 84, 84, 84, 85, 85, 86, 86, 90, 90, 92, 92, 93, 93, 95, 95, 97, 98.$$

(a) Find the median, the first quartile, the third quartile, and the interquartile range.

(b) Construct a table of frequencies for these scores.

(c) Compute the mean, the variance, and the standard deviation.

(d) Construct a stem-and-leaf plot display of the test scores. (Use 0, 10, 20, etc., as your stems.)

(e) Calculate the five-number summary of the test scores. (The five-number summary was developed in 1977 by the famous statistician John Tukey.)

(f) Construct a box plot.

(g) Based on the frequency table and the exploratory data analysis (EDA), how would you describe the distribution of the test scores?

3. * Samples of package weights produced by a certain American company are considered to be sufficiently uniform if the standard deviation does not exceed 2.5 ounces (oz). If the package weights are to be expressed in metric units in order to be sold in Canada, and the same limit on standard deviation is to apply, what value in grams (g) must the standard deviation not exceed?

4. * If the median salary of an employee group is currently $48,500 and each member of the group is to receive an increment of $500 plus 3% of current salary, what will be the new median salary?

5. * Answer the following two problems.

- Section 3.3 #41 on page 133 (i.e., page 3-35) of the textbook. (Since the answer, 16, is given in the back of the book, all credit for this problem will be based on your explanation of the solution.)

- Section 3.3 #43 on page 133 (i.e., page 3-35) of the textbook.