MATHEMATICS 150

2001/2002

PROBLEM SET 2

Solutions are due on **Monday, November 5**. Solutions may be submitted in class or may be delivered **by 4:00 pm** to the instructor's office.

1. A statistical summary of several financial transactions produced the following values:

mean = \$2352.78 median = \$1847.36 standard deviation = \$416.14

Each transaction produced a commission of \$25.00 plus 0.5%

a) What was the mean of the commissions?
b) What was the median of the commissions?
c) What was the standard deviation of the commissions?
d) What is the standard score corresponding to a commission of \$41.26?

2. For the frequency distribution in problem 5 of Problem Set 1,

a) code the class marks to produce new class marks -3,-2,-1,0,1,2,3,4,5 and, ***for the coded data***, determine the
   i) mean
   ii) variance
   iii) standard deviation
b) ***adjust the results of part a)*** to produce those for the original frequency distribution.

3. Use Minitab or other software (noting what software you used) to repeat Problem Set 1, problem 1 b), and problem 7 a), e) and d).

4. Use Minitab or other software (noting what software you used) to repeat Problem Set 1, problem 8 a), d), c) and e). Note that the data are available in a file **glass.dat** which is available at

http://www.trentu.ca/academic/math/courses/stat/files/glass.dat

The data are in eight columns and the file may be read into columns C1 through C8 in MINITAB with the choice **Files > Other Files > Import Special Text** and then **Stack**ed into one column for analysis.

As well, the data may be read into C1 only with a command such as one of the following

```
MTB> SET 'glass' C1
```

OR

```
MTB> SET ' path \glass' C1
```

depending on the location of the downloaded file.

As in Problem Set 1, delete the cases with no glass (value = 0), but, *unlike Problem Set 1*, leave the data in grams.

5. The marks data for MATH 150 for 2000/01 are in a data file **marks01.dat** which is available at

http://www.trentu.ca/academic/math/courses/stat/files/marks01.dat

This file has 17 columns of data in 134 rows (one row for each student in the course at the end of the year, listed in a random order.) For each student, the problem set marks are in the first eight columns with the problem set percent in the 9th; the quiz marks are in the next four columns with the quiz percent in the 14th, the term percent is in the 15th column; the examination percent is in the 16th column and the final mark as a percent is in the last column. Some columns include 0 for students who missed work or obtained no marks. Some columns include the entry * for students who were excused from work because of illness etc.

Obtain these data and enter them into Minitab or other software of your choice and use the software for the following:

OVER

5. (Continued)

a) Determine the mean, median, first and third quartiles and standard deviation for each of the term, exam and final percents. (Note: Treat these data as **population** data.)
b) Repeat part a) excluding students who did not write the exam (obtained 0 or *.)
c) Produce boxplots for the problems and quiz percents with both boxplots in one display.
d) Plot a scatter of exam percent vs term percent.

NOTE: The file may be read into columns C1 through C17 in MINITAB with **Files > Other Files > Import Special Text** or with a command such as one of the following

```
MTB> READ 'marks01' C1 - C17
```

OR

```
MTB> READ ' path \marks01.dat' C1 - C17
```

If it is appropriate for any analysis, the cases for students who did not write the exam can be eliminated by copying the relevant columns to other columns and omitting the rows not wanted. This can be accomplished with a MINITAB command and subcommand as indicated in the following ***example*** in which the term, exam and final marks for such students are moved to columns C25, C26 and C27 (NOTE: ***this is just an example and may not be what you want!***)

```
MTB > COPY C15 C16 C17 C25 C26 C27;
SUBC> OMIT C16 = 0 '*'.
```