

Statistics 1060 - Fall 2009 - Tutorial 1

Introduction to Minitab/win Release 15

The following computer labs have machines which support Minitab/win Release 15:

LSC 200, LSC 2084, LSC 2087, FASS 2018, FASS 2019, FASS 2020, Killam Learning Commons, Chase 007.

Accessing Minitab 15

To access Minitab 15 on the Dalhousie machines, using the left mouse button

1. Click on Start
2. Click on All Programs
3. Click on Statistics
4. Click on Minitab15

This procedure is often summarized like this:

Start > All Programs > Statistics > Minitab15

(> means click with the left mouse button)

You are now in MINITAB and you see two windows, the Session Window in the top half of the screen and the Worksheet below. Only one window is active at a time. The inactive window has a gray banner across the top while the active window has a blue banner across the top. To activate a window, click anywhere in the window with the left mouse button.

Entering data

There are two ways to enter data

1. Using the Session window
2. Using the Worksheet

To enter data using the Session Window, first activate the session window. You will see the Minitab prompt (MTB >). After the MTB prompt, type SET C1 (This may be in either upper case or in lower case letters). When you press enter, the data prompt (DATA >) will come up. After the data prompt type in the following 11 numbers of the data set separating the numbers by at least one space or by commas:

5 3 3 8 9 6 9 9 10 5 10

When you have finished entering the data, press enter and another data prompt will come up. Type END at the prompt and press enter. The MTB> prompt will appear.

In summary

MTB > SET C1 (Press return and the data prompt comes up.)

DATA > 5 3 3 8 9 6 9 9 10 5 10 (Press return and the data prompt comes up.)

DATA > END (When you press enter, the MTB prompt will appear.)

You will notice that the data is automatically in the worksheet in C1 (column 1).

To enter data directly into the Worksheet, first activate the worksheet .

Set another column C2 with the same numbers as in C1. To start click in the appropriate cell (in this case row 1 of column 2). Type in the first data point and press enter, the cursor now moves to a new cell and you can enter another number.

Look at the top left hand corner of the worksheet and you will see an arrow. If the arrow is pointing down, the cursor will move down to the next cell when you press enter. If the arrow is pointing sideways, the cursor will move across the row when you press enter.

You want to enter a column of data so the arrow should be pointing down. If it is not, click on the arrow to change its direction.

Now enter the second data point in row 2 of column 2 and press enter. Continue in the same way until the whole data set is entered. Be sure to press enter after the last data point has been entered.

The cursor will move to the next empty cell.

Both C1 and C2 contain the 11 number data set. You are ready to do part a) of tutorial 1. Be sure to first activate the Session Window

For assignment 2, you will have to read stored data into Minitab. For question 1 on assignment 2, the command is

```
MTB > read c11-c13;  
SUBC> file 't:\dal_stats\credit.dat'.
```

Notice that data is read into columns 11 to 13.

Tutorial 1. Resistance

Some measures of center and variability are said to be “resistant” to the effects of a few outlying points. That is, they will not be very different even if there are a few unusually large or abnormally small values in the data set.

The following numbers are contained in C1: 5,3,3,8,9,6,9,9,10,5,10.

1. Make a stemplot of these data. At the MTB prompt, type STEM C1.

(Note that Minitab is case insensitive; this means that the commands can be typed in either lower case or upper case letters)

2. Use the DESCRIBE command to find the following statistics for these data. At the MTB prompt, type DESCRIBE C1.

- (a) mean
- (b) standard deviation
- (c) median
- (d) IQR
- (e) range

Now use the command LET C2(11) = 25. This changes the 10 in row 11 of C2 to a 25.

3. Make a stemplot for these data. Then use the DESCRIBE command to find the summary statistics for C2. What are the values of the following statistics?

- (a) mean
- (b) standard deviation
- (c) median
- (d) IQR
- (e) range

Which summary statistics have changed? How have they changed?

4. Now copy the data in C1 into a third column C3. To do this, at the MTB prompt, type `COPY C1 C3`. Look at the worksheet. The 11 numbers in C1 have been copied into C3. Use the command `LET C3(11) = 100` to change the eleventh observation to 100.
5. Make a stemplot for these data.
6. Use the DESCRIBE command to find the summary statistics for C3.
 - (a) mean
 - (b) standard deviation
 - (c) median
 - (d) IQR
 - (e) range
7. Which of the summary statistics appear to be resistant? (To make comparison easier you could make a table of the summary statistics for all three data sets by typing DESCRIBE C1-C3 at the Minitab prompt.)
 - (a) Is the mean resistant?
 - (b) Is the standard deviation resistant?
 - (c) Is the median resistant?
 - (d) Is the IQR resistant?
 - (e) Is the range resistant?

In order to do some assignment questions, you may find it useful to generate random numbers. Assume we want to generate 30 numbers at random from the integers 1 to 450. To do this in Minitab, proceed as follows:

MTB > SET C1 (Press return and the data prompt comes up.)

DATA > 1:450 (Press return and the data prompt comes up. C1 now contains integers from 1 to 450, replacing what was in C1)

DATA > END (When you press enter, the MTB prompt will appear.)

MTB > SAMPLE 30 C1 C2 (Chooses 30 integers at random from C1 and puts them in C2)

MTB > PRINT C2

What are the largest and smallest integers in your list of 30?

To print your session

If you wish to print what you have done, with Session Window activated click on the printer icon at the top of the screen. Another way to print the session is to click on FILE at the top of your screen. Now click on Print Session Window and finish the print procedure by clicking on the appropriate boxes.

In Mmass 2019, printing from the Dal computers is paid for with print credits which can be purchased from the Lab attendant using your Dal card. You must already have money on your Dal card. Printing in the Killam Learning Commons is charged directly to your Dal card at a rate of 12 cents per page.

To edit your session

You may wish to edit your session so only important parts of the session are included in your printout. To delete lines from your session, in the Session Window go to the beginning of the first line you wish to delete. Press the left mouse button and move it down to highlight the part of the session you wish to remove. Then release the left mouse button. The part you want to remove should remain highlighted. Now press the right mouse button and a menu comes up. With the left mouse button, click on delete and all the highlighted material will be deleted. Alternatively, you can just hit the 'delete' button after highlighting the lines you wish to remove.

To save your project

If you wish to save what you have done, you can save it to your personal domain on the G: drive using the file, save menu.

Saving file as: G:\filename.MPJ (MPJ means Minitab project).

You have now saved your worksheet and your session and may retrieve them at another time.

To leave Minitab

When you have finished your work and have saved or printed it, you can leave Minitab by typing STOP at the MTB prompt. This will take you back to Start. (Another way to leave Minitab is to click on the File at the top of the screen and then click on Exit at the bottom of the File menu.)

To retrieve your project

If you wish to retrieve your project, when you come back to the computer for another session, login to your work area and click on the Minitab project file you want to open. The Session Window and Worksheet will appear as they were when you saved the project. You are ready to continue work.

WHEN YOU LEAVE, DON'T FORGET TO LOG OFF OF THE COMPUTER!