Exploratory Data Analysis: Lab Exercise for PSYC 2101

Complete Exercise 3.5 at the end of Chapter 3 in your textbook. You will be preparing a double stem-and-leaf plot, with the data from Exercise 3.1 on the left and those from Exercise 3.5 on the right. From the resulting visual display, answer this question: Who scores better on SAT questions, those who read the passage about which the questions were asked or those who did not?

Complete Exercise 5.12 at the end of Chapter 5 in your textbook. The data here are same as those from Exercise 3.5.

If you feel you need additional practice creating these plots, try some of the odd-numbered exercises, for which there are the solutions in the back of your textbook.

From the Instructor's Manual, with additions by Professor Karl.

3.5 Compared to those who read the passages:

a) Almost everyone who read the passages did better than the best person who did not read them. Certainly knowing what you are talking about is a good thing (though not always practiced).

b)

```
                4  | 3* |
            68966  | 3. |
            44343  | 4* |
          6669697  | 4. |
            42102  | 5* |
            57557  | 5. |5669
                   | 6* |
                   | 6. |66
                   | 7* |21232231
                   | 7. |5
                   | HI |9193
```

Notice that I have entered the data in the order in which I encountered them, rather than in increasing order. It makes it easier.

c) It is obvious that the two groups are very different in their performance. We would be worried if they weren't.

d) This is an Internet exercise with no fixed answer. That source is far more advanced than the students would be at this time, but I think that they should be

able to read it if they just skip over what they don't understand.
http://www.uvm.edu/~dhowell/StatPages/Katzfolder/katz.html

The data can be downloaded from Howell web page for the text. Here is the SPSS plot of the scores for those who read the passage:

```
Score Stem-and-Leaf Plot

 Frequency    Stem &  Leaf

     1.00 Extremes    (=<55)
     3.00        5 .  669
      .00        6 .
     2.00        6 .  66
     8.00        7 .  11222233
     1.00        7 .  5
     2.00 Extremes    (>=91)

 Stem width:  10
 Each leaf:       1 case(s)
```

5.12 Boxplot for Exercise 5.2:

Median location = (N + 1)/2 = 18/2 = 9

Median = 72

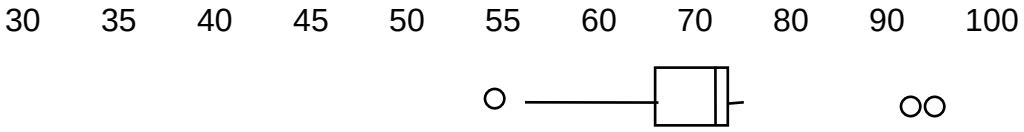
Hinge location = (median location +1)/2 = 10/2 = 5

Hinge = 66 and 73

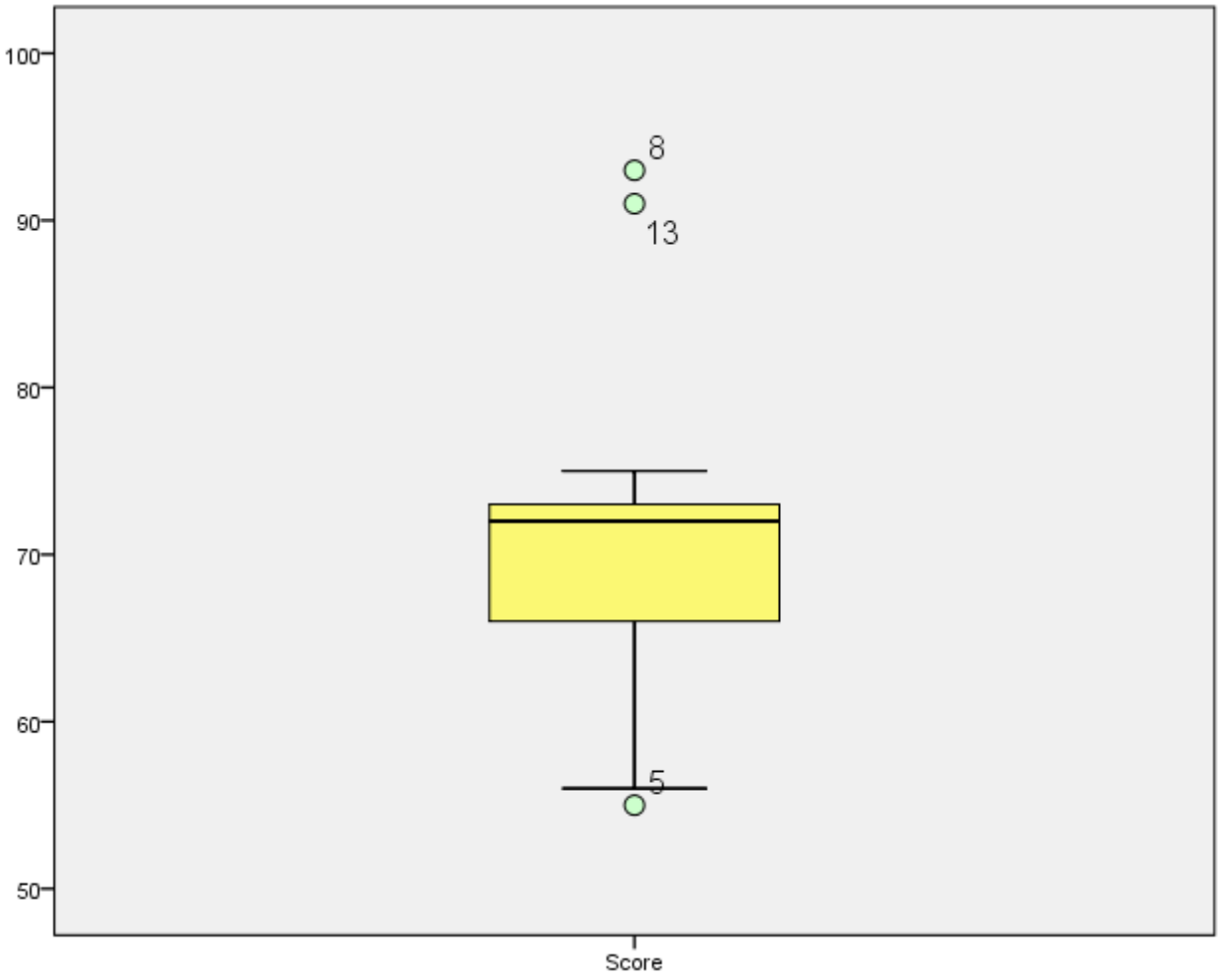
H-spread = 73 – 66 = 7

Inner fences = hinges $\pm$ 1.5*H-spread = hinges $\pm$ 1.5*7 = hinges $\pm$ 10.5 = 55.5 and 83.5

Adjacent values = 56 and 75



Plot from SPSS:


100
90
80
70
60
50
8
13
5
Score