Math 214
Applied Statistics

Laboratory Project #3 ADDENDUM
Due: Monday March 5

NOTE: You can download your own copy of R for absolutely no charge by going to:
`http://cran.r-project.org/`

Additional questions for Lab #3, Crackers, to be handed in with that lab.

Revisit the experimental data on *plasma LDL* (low-density-lipoproteins) given in problem 2.76 in Kitchens' textbook. You can download the data into R from the website:

```
> ldl = read.table(file=url("http://www.math.csi.cuny.edu/~poje/R_stuff/LDL"))
```

Do the usual R stuff, attach the data frame and access its names.

```
> attach(ldl)
> names(ldl)
```

One part of question 2.76 asked you whether or not you think the drug compound reduced the levels of LDLs in the treatment group. Think about how you would answer this question.

1. Compute summary statistics for the two groups. IF you only compare the two MEANS, what can you say about the treatment? Is it effective?

2. Compute the standard deviation for the two groups. Note, to do this in R, for the Treatment group, use `sd(Treatment,na.rm=T)`. Given the information on the standard deviations, does the difference in the mean values appear 'significant'? Compared to the standard deviation, is the difference in the mean values large? Small? Explain your reasoning.

3. Instead of summarizing the results in a single number, or a pair of numbers, look at a side-by-side boxplot of the two groups. `boxplot(Placebo, Treatment)`. Does this graphical information change your conclusion about the effectiveness of the treatment? Why? Why not? Explain.

4. From the boxplot, we see that there is an outlier in the Treatment data, with a value of 152. What does this single piece of data do to the MEAN and Standard Deviation calculations? Explain.

5. Make a new data set for treatment which EXCLUDES this outlier.

   ```
   > t.low = Treatment[Treatment<140]
   ```

6. Construct new summary statistics for this data. Recalculate the standard deviation. Make a new side-by-side boxplot comparing `t.low` and `Placebo`.

7. What do you conclude about the effectiveness of the drug treatment now? Is this a fair conclusion?