Homework 4

STA321

Due March 24

1. The bonus question in the test (if you have not done it yet).

2. (this is problem 10.7 of our book). Many computer buyers have discovered that they can save a lot of money by purchasing the PC from a mail order company - an average of $900 by their estimates.

   In a test of this claim, a random sample of 135 customers who recently ordered a PC through mail-order were contacted and asked to estimate the amount they had saved.

   The mean and standard deviation of the 135 estimates were $885 and $50, respectively. Is there sufficient evidence to indicate that the average savings DIFFER FROM the $900 claimed by mail-order company?

   (a) State the null and alternative Hypotheses.

   (b) What is the rejection region for $\alpha = 0.01$ level test? (i.e. When you calculate the test statistic, what values will lead you to reject H_0? This is test statistic specific, but let us say we use a test statistic similar to those used in example 10.5)

   (c) Calculate the value of the appropriate test statistic. (Based on $n = 135, \bar{X} = 885$ and $\sigma = 50$.)

   (d) What is your conclusion? (To reject or not to reject, that is the question.)

   If you do not want to use the test statistic as in example 10.5, and want to use the log lik based approximate test statistic, you may do so. But be consistent throughout.