STAT 5302
Spring 2015

HOMEWORK 4

- Read Chapter 10.
- Do the following exercises from the textbook:
  Chapter 10: 9, 10, 32, 33
- For 10.9 and 10.10, you don't need to fit models using R to answer the questions.
  - For 10.9(c), use `qt(p, df)` function to find an appropriate t percentile for a confidence interval.
  - For the last part of 10.10 about the p-value of an F-test statistic, recall that `pf(x, df1, df2)` function gives the cumulative probability of `x` for the F-distribution with `df1` and `df2` degrees of freedom.
- For 10.32, you need the data set `ex0726.csv`.
- For 10.33, consider a log transformation of the response variable again, $\log_{10}$(Income). Describe each model you attempt and then explain which test scores seem to be the most important predictors by making model comparisons.
- For problems involving an F-test for model comparison, make sure to identify a pair of the full and reduced models, residual sums of squares and degrees of freedom associated with them, etc. and make your conclusion clear based on the test.
- Please turn the analyses for the data problems into "real analyses" rather than mere runs of R from which you harvest a few summary numbers. Exploratory data analysis with scatter plots before coming up with a formal model would be the first step. Analyses based on formal models should be followed by model checking.