Homework 8

STAT 601

Instructions

Answer all questions stated in each problem. Discuss how your results address each question.

Submit your answers as a pdf, typeset (knitted) from an Rmd file. Include the Rmd file in your submission. You can typeset directly to PDF or typeset to Word then save to PDF In either case, both Rmd and PDF are required. If you are having trouble with .rmd, let us know and we will help you. If you knit to Word, check for any LaTeX commands that will not be compatible with Word.

This file can be used as a template for your submission. Please follow the instructions found under "Content/Begin Here" titled **Homework Formatting**. No code should be included in your PDF submission unless explicitly requested. Use the `echo = F` flag to exclude code from the typeset document.

For any question requiring a plot or graph, answer the question first using standard R graphics (See ?graphics). Then provide a equivalent answer using `library(ggplot2)` functions and syntax. You are not required to produce duplicate plots in answers to questions that do not explicitly require graphs, but it is encouraged.

You can remove the `Instructions` section from your submission.

Exercises

1. Apply a median regression analysis on the **clouds** data. Compare this to the linear regression model from Chapter 6. Write up a formal summary of the two analyses and provide a justified recommendation on which analysis the researcher should be using.

2. Reanalyze the **bodyfat** data from the **TH.data** package.

a) Compare the regression tree approach from chapter 9 of the textbook to median regression and summarize the different findings.

b) Choose one dependent variable. For the relationship between this variable and DEXfat, create linear regression models for the 5%, 10%, 90%, and 95% quantiles. Plot DEXfat vs that dependent variable and plot the lines from the models on the graph.

c) Provide a formal write up of the methodologies and of your results