STAT 353 Assignment 4

Note: For each problem, write up your solution carefully and with sufficient details. For data analysis problems, you also need to submit your R codes and R outputs.

Due in class on Wednesday, December 5

1. Question 7.2

2. Question 7.11 [4th] or 7.13 [5th]: Do the following parts.
   a. Fit the model $E(y) = \beta_{00} + \beta_{01}x + \beta_{11}(x - 200)^1_+$.
   b. Test $H_0 : \beta_{11} = 0$ to see if the slope changes at $x = 200$.
   c. Plot y versus x and add the fitted line to the plot.
   d. Conduct the residual analysis. Is the model adequate?

3. Question 9.6 [4th] or 10.6 [5th] Do the following parts for this question:

   a. Use Stepwise regression to select a subset regression model. What is the final model?

   b. Use backward elimination method to select a subset regression model. What is the final model?

   c. Fit $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_5 x_5 + \beta_7 x_7 + \epsilon$ and test $H_0 : \beta_5 = \beta_7 = 0$.

   d. Fit $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \epsilon$ and check for model adequacy. Are there any outliers in the data when you fit this model?

The End.