MA 542 REGRESSION ANALYSIS
SPRING 2018

HW-1 $\hspace{8cm}$ Due: M 1/22

Your answers will be graded both on your demonstrated understanding of the concepts from the book and from the class, as well as the clarity of your explanations and communication. Please be sure to make your homework standalone! Every question should be clearly and completely answered in your homework submission, without requiring the grader to look at your code. This must include all plots, output of runs, etc.

1. Prove the following properties of the estimated regression line (1.12).

   a) $\sum_{i=1}^{n} Y_i = \sum_{i=1}^{n} \hat{Y}_i$.

   b) $\sum_{i=1}^{n} X_i e_i = 0$.

   c) $\sum_{i=1}^{n} \hat{Y}_i e_i = 0$.

2. Chapter 1, page 35, question 1.21

3. Chapter 1, page 36, question 1.22

4. Chapter 1, page 36, question 1.26

5. Chapter 1, page 37, question 1.30

6. Chapter 1, page 37, question 1.32

7. Chapter 1, page 37, question 1.33

8. Chapter 1, page 37, question 1.34