

Homework 7

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- Note: For each question include R code and output *pertinent* to your answers.

1. Faraway Chapter 6. Exercise 2. Using the `teengamb` dataset from the `faraway` package, fit a linear regression model with `gamble` as the outcome and the other variables as the predictors.

- Perform regression diagnostics on the model to answer the questions 1.A to 1.G. Display any plots that are relevant. Do not provide plots about which you have nothing to say. Suggest possible improvements or corrections to the model where appropriate.

1.A. Check the zero mean error assumption using residual plots. What do you conclude about whether the assumption is met?

1.B. Check the constant error variance assumption using both residual plots and a formal statistical test. What do you conclude?

1.C. Check the error normality assumption both graphically and statistically. What do you conclude? Which method do you think is preferable?

1.D. Check for observations with large leverage. Which observations have large leverage?

1.E. Check for outliers. List any potential outliers.

1.F. Check for influential points. List any potential influential points.

1.G. Check the structure of relationship between the predictors and the response. What do you observe?