# Homework 8

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

1. Faraway Chapter 7. Exercise 5.

- For the prostate data, fit a model with lpsa as the response and the other variables as predictors.

1.A. Compute and comment on Kappa and the condition numbers.

1.B. Compute and comment on the correlations between the predictors. Round to 3 decimal places.

1.C. Compute the variance inflation factors. Comment on whether any appear problematic and why.

2. Faraway Chapter 8. Exercise 4.

- For the cars dataset, fit a linear model with distance as the response and speed as the predictor.

2.A. Test the homoscedasticity assumption using both a scatter plot between the residuals and fitted values and an F-test of equal variance below and above the fitted value of 30. What do you conclude about whether the assumption is met?

2.B. Report the estimate of the heteroscedastic consistent variance for the regression slope.

2.C. Construct 95% confidence interval of the regression slope assuming homoscedasticity and using the results in 2.B. How do they compare?

2.D. Check for the lack of fit of the model.