Data Analysis Exercises for Chapter 18: *Applied Regression Analysis, Generalized Linear Models, and Related Methods, Third Edition* (Sage, 2016)

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Exercise D18.1 Reexamine the simple linear regression that you fit in Exercise D5.3 using one or more methods of nonparametric regression, comparing the fit(s) to the least-squares regression line.

Exercise D18.2 Reexamine the mulitple linear regression that you fit in Exercise D 5.5 using the nonparametric-regression methods of this chapter. If feasible, fit a general nonparametric regression model *and* an additive-regression model, comparing the results to each other and to the linear least-squares fit to the data. If the regression apears to be substantially nonlinear,can you handle the nonlinearity by a transformation or by another parametric regression model, such as a polynomial regression?

Exercise D18.3 Consider the generalized linear models that you fit to data in Exercises 14.1, 15.1, and 15.2. Reanalyze the data employing generalized nonparametric regression (including generalized additive) models. In each case, what, if anything, do you learn about the data from the nonparametric regression? If the results appear to be substantially nonlinear, can you deal with the nonlinearity in a suitably respecified generalized linear model (e.g., by transforming one or more explanatory variables)?