625.661 Statistical Models and Regression

Module 7-8 Assignment

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Please complete all the following problems.

1. Use any math/stat software (e.g., www.**numbergenerator**.org/**randomnumbergenerator**) of your choice to find a random number generator to randomly select 20 rows of Table B.5 on page 558 of Textbook. Then perform a multiple regression fit to the data you generated. The multiple regression model contains the response variable y (CO_2) and regressors x_1 (space time in min) and x_6 (solvent total) and intercept.

   a) Construct a normal probability plot of the residuals. Does there seem to be any problem with the normality assumption?
   b) Construct and interpret a plot of the residuals versus the predicted response.
   c) Compute the studentized residuals and the R-student residuals for this model. What information is conveyed by these scaled residuals?
   d) Compute all other residuals (e.g., PRESS) to examine whether there are some observations that may not fit the model or potential outliers.

2. Use any math/stat software (e.g., www.**numbergenerator**.org/**randomnumbergenerator**) of your choice to find a random number generator to randomly select 15 rows of Table B.4 (Property Valuation Data) on page 557 of Textbook.

   a) Perform a thorough regression analysis of y on x4, x7, and x9 including residual plots.
   b) Can an appropriate test for lack of fit be constructed? Why or why not?

3. Use any math/stat software (e.g., www.**numbergenerator**.org/**randomnumbergenerator**) of your choice to find a random number generator to randomly select 7 rows of the data in Problem 5.5, page 204 of Textbook. Then do (a), (b) on that page.