PSTAT 126

Regression Analysis

Spring 2017

Homework #3 – Due in Section Wednesday, May 3, 2017

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This homework is based on material in Lecture 5.

1. Fill in the blanks:  
   Compared to a 95% confidence interval, a 99% confidence interval yields a (narrower/wider) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ interval and gives us (more/less) \_\_\_\_\_\_\_\_\_\_ confidence that it contains the actual value of the population parameter, but is also (more/less) \_\_\_\_\_\_\_\_\_\_ precise.
2. Name and describe the four kinds of confidence/prediction intervals we have learned in class.
3. A corporate executive wants to know if increasing the hours of employee training is related to an increase in work productivity (number of units produced).
   1. Does the executive expect a positive or negative slope for predicting units produced from training hours?
   2. The executive will only implement the increased training if productivity goes up. Should the executive perform a one-tailed or two-tailed hypothesis test for the regression slope? Justify your answer.
   3. A university researcher who is assisting the executive believes that increasing training hours could increase productivity as the executive expects, or could reduce productivity due to the reduction in actual hours worked. Should the researcher perform a one-tailed or two-tailed hypothesis test for the regression slope? Justify your answer.
4. Write out the equation for the Normal Errors Regression Model
5. Name each of the five major assumptions of the Normal Error Regression Model, and identify the portion of the equation that expresses each assumption