Practice Quiz 11

Statistics 200
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1. (10 pts.) Salary (in millions) was regressed on batting average for a sample of 6 baseball players in 2004.

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The regression equation is
Salary = - 28.9 + 122 BattingAverage
Predictor          Coef      SE Coef            T          P
Constant        -28.947        8.700        -3.33      0.029
BattingA         121.55        30.32          4.01      0.016
S = 1.574       R-Sq = 80.1%      R-Sq(adj) = 75.1%
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(a) Explain why it makes sense for the relationship to be positive.

(b) The P-value and the value of R-Sq together tell us that there is

    i. weak evidence of a weak relationship between batting average and salary

    ii. weak evidence of a strong relationship between batting average and salary

    iii. strong evidence of a weak relationship between batting average and salary

    iv. strong evidence of a strong relationship between batting average and salary

(c) We seek evidence regarding the slope of the regression line for the
(i) sample of 6 players (ii) population of all players

(d) Inference for regression leads us to conclude that the slope
(i) may equal zero (ii) equals zero (iii) does not equal zero

(e) Would a confidence interval for the slope contain zero? (Answer yes or no.)

(f) Output is shown when interval estimates are requested for a batting average of 0.3. Which interval estimates the mean salary of all players whose batting average is 0.3?

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New Obs      Fit      SE Fit          95.0% CI                95.0% PI
1          7.518      0.767    (   5.387,   9.648) (   2.656,  12.379)
Values of Predictors for New Observations
New Obs  BattingA
1           0.300
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(g) One particular player with a batting average of 0.3 earned a salary of 4.917 million. Based on the appropriate interval, is this surprisingly low, or is it "in the right ballpark"?