

Practice Quiz 11

Statistics 200
Dr. Nancy Pfenning

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

The regression equation is

$$\text{Salary} = -28.9 + 122 \text{ BattingAverage}$$

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%

- (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?

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

- (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”?