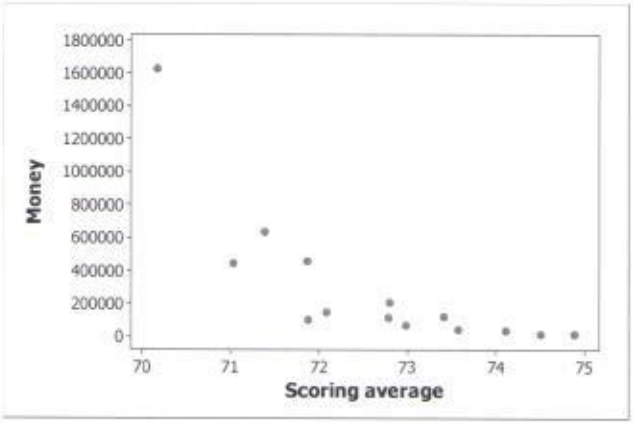
Chapter 12 FRAPPY! Sample 1

Directions: Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

A random sample of 14 golfers was selected from the 147 players on the Ladies Professional Golf Association (LPGA) tour in a recent year. The total amount of money won during the year (in dollars) and the scoring average for each player in the sample was recorded. Lower scoring averages are better in golf.

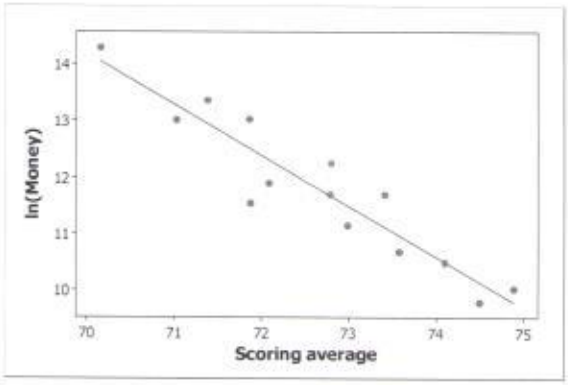
The scatterplot below displays the relationship between money and scoring average for these 14 players.



(a) Explain why it would *not* be appropriate to construct a confidence interval for the slope of the least-squares regression line relating money to scoring average.

It wouldn't be appropriate to use a least-squares regression line because the scatterplot is curved.

A scatterplot of the natural logarithm of money versus scoring average is shown below along with some computer output for a least-squares regression using the transformed data.



Predictor	Coef	SE Coef	T	P
Constant	77.537	7.035	11.02	0.000
Scoring average	-0.90470	0.09679	-9.35	0.000

S = 0.475059 R-Sq = 87.9% R-Sq(adj) = 86.9%

(b) Predict the amount of money won for an LPGA golfer with a scoring average of 70.

$\hat{y} = 77.537 - 0.90470(70)$

$\hat{y} = 14.208$

(c) Calculate and interpret a 95% confidence interval for the slope of the least-squares regression line relating ln(money) to scoring average. Assume that the conditions for inference have been met.

$-.90470 \pm 2.179(.09679)$ $df = 12$

$= -.90470 \pm .21091 = (-1.11561, -.69379)$

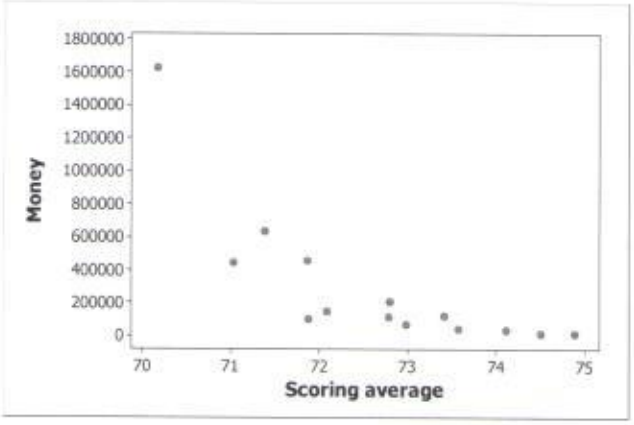
We are 95% confident that the internal from -1.11561 to -.69379 captures the slope of the least-squares regression line.

Chapter 12 FRAPPY! Sample 2

Directions: Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

A random sample of 14 golfers was selected from the 147 players on the Ladies Professional Golf Association (LPGA) tour in a recent year. The total amount of money won during the year (in dollars) and the scoring average for each player in the sample was recorded. Lower scoring averages are better in golf.

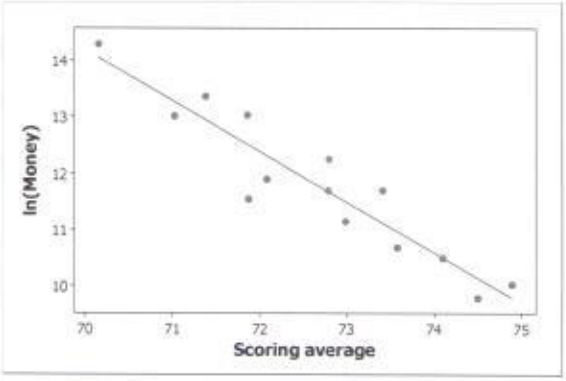
The scatterplot below displays the relationship between money and scoring average for these 14 players.



(a) Explain why it would *not* be appropriate to construct a confidence interval for the slope of the least-squares regression line relating money to scoring average.

Because it isn't linear and the sample size is pretty small.

A scatterplot of the natural logarithm of money versus scoring average is shown below along with some computer output for a least-squares regression using the transformed data.



Predictor	Coef	SE Coef	T	P
Constant	77.537	7.035	11.02	0.000
Scoring average	-0.90470	0.09679	-9.35	0.000

S = 0.475059 R-Sq = 87.9% R-Sq(adj) = 86.9%

(b) Predict the amount of money won for an LPGA golfer with a scoring average of 70.

Money = $1,480,662

(c) Calculate and interpret a 95% confidence interval for the slope of the least-squares regression line relating ln(money) to scoring average. Assume that the conditions for inference have been met.

$-.90470 \pm 9.35(.09679)$

$-.90470 \pm .90499 = -1.80969, -0.00029$

There is a 95% probability that the slope of the least squares regression line relating ln(Money) to Scoring average for LPGA golfers is between -1.80969 and -0.00029.