Problem 8.26 Presentation DATA 606

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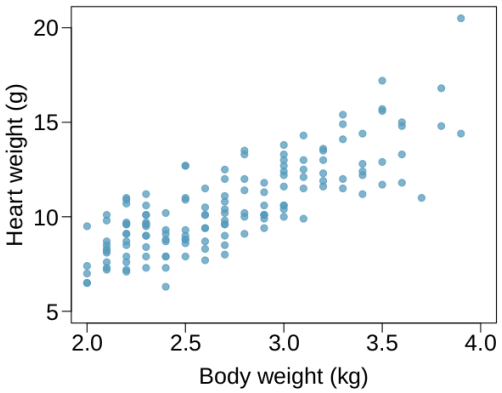
4/21/2021

8.26 Cats, Part I. The following regression output is for predicting the heart weight (in g) of cats from their body weight (in kg). The coefficients are estimated using a dataset of 144 domestic cats.

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.357	0.692	-0.515	0.607
body wt	4.034	0.250	16.119	0.000

$s = 1.452$ $R^2 = 64.66\%$ $R^2_{adj} = 64.41\%$

(a) Write out the linear model.
(b) Interpret the intercept.
(c) Interpret the slope.
(d) Interpret R^2.
(e) Calculate the correlation coefficient.



Linear model:

$$HeartWeight = -0.357 + 4.034 * BodyWeight$$

Intercept:

If body weight is 0kg then the heart weight is -0.357. Neither of those values are meaningful value, they just serve to adjust the height of the regression line

Slope:

For every unit increase in body weight there is 4g increase in the heart weight

R^2:

64.41% of the heart weight is explained by the body weight

Correlation coefficient:

$$R = sqrt(R^2) = sqrt(0.6441) = 0.802$$