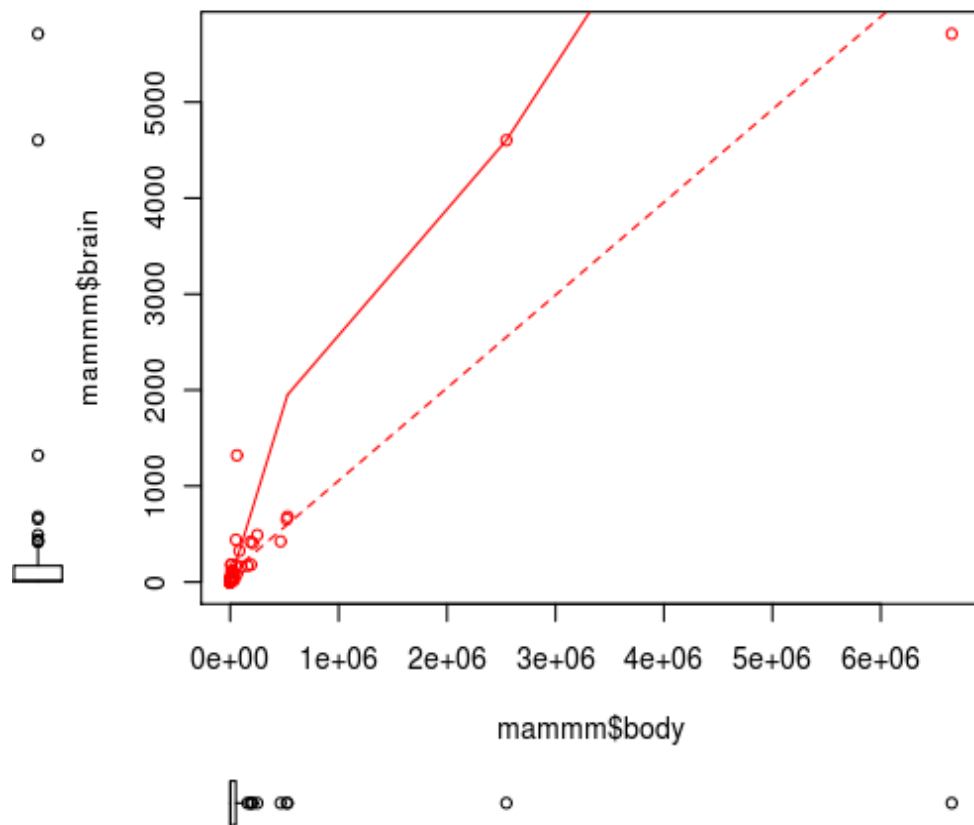


Q1:

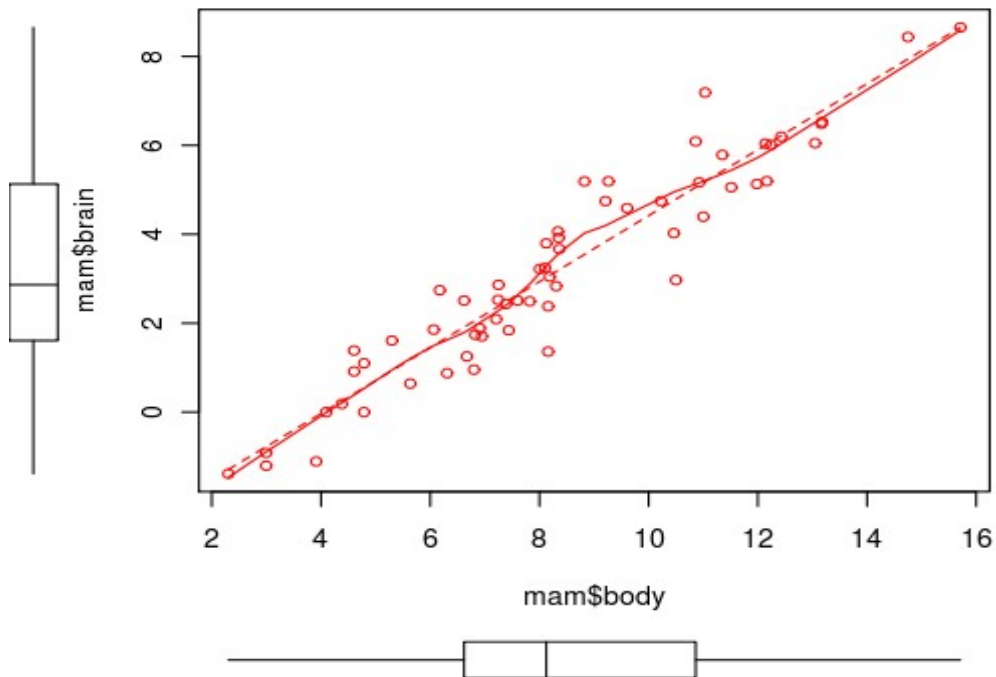
Convert body's units from kg to g .I think bigger animals should have bigger brain to control their bodies. Body weights influence and decide the sizes of brains. So using brain weight as response and body weight as predictor is better.

From scatter plot, people read it difficultly. After converting original data to natural logarithm data,that is more readable.

Before converting:



After converting:



Q2:

Fitted regression line:

total number:60

slope:0.74

y-intercept:-3

regression equation:  $\text{brain} = -2.998 + 0.7415 \cdot \text{body}$

the standard error of coefficients:

brain: 0.2793

body: 0.05173

s:0.73968

$R^2$ : 90.40%

Q3:

By graphic, we can see it shows linearity;

The distribution is normal, the points on plot fall close to diagonal line on normal probability plot of residuals;

By plots of residuals versus predicted value, residuals are getting bigger as a function of predicted value;

By an autocorrelation plot of residuals, most of residual autocorrelations fall within 95% confidence intervals around zero.

Q4:

variable	95%CI
brain	(13.30313,44.70118)
body	(1944.96643,9209.58436)

Q5:

Let  $\mu_D$  = mean of the difference values for two sets of brain weights data,

Hypotheses      conclusion

$H_0: \mu_D = 0$       no difference for two sets of data

$H_a: \mu_D \neq 0$       differences exist in brain weights between two sets of data.

Test of  $\mu = 0$  vs not = 0

Variable	N	Mean	StDev	SEMean	95% CI	T	P
diff	50	1.821	1.054	0.149	(1.522, 2.120)	12.22	0.000

Because of P-value=0.000 which is less than 0.05 even less than 0.01,  $H_0$  is not true and  $H_a$  is correct. So that specialist is not true.

Q6:

fitted regression line of primates:

total numbers: 10

slope:0.87

y-intercept:-3.24

regression equation:  $\text{brain} = -3.24 + 0.8722 * \text{body}$

fitted regression line of non-primates:

total numbers: 49

slope: 0.72

y-intercept: -3.04

regression equation:  $\text{brain} = -3.035 + 0.7245 * \text{body}$

The slope of fitted regression line of primates is higher than fitted regression line of non-primates', it means primates animals have bigger brain weights than non-primates with same body weights and heavier body weights both animals have, more obversely to see primate animals have bigger brain weights than non-primates'.

Q7:

The estimate is 1.079147118

95% prediction interval: