WST 311

Assignment G: 10-13 April 2018

Exercise 6.14.

Use the data in Table 6.1 to answer the following questions.

1. Give a scatter plot of the data.
2. Find $\widehat{\beta}_0$ and $\widehat{\beta}_1$ and interpret the value of $\widehat{\beta}_1$.
3. Use the residuals to test the regression assumptions of equal variance and normality.
4. Test $H_0 : \beta_1 = 0$ against the alternative $H_1 : \beta_1 \neq 0$. Use $\alpha = 0.05$.
5. Test $H_0 : \beta_0 = 0$ against the alternative $H_1 : \beta_0 \neq 0$. Use $\alpha = 0.05$.
6. Calculate and interpret a 95% confidence interval for β_1.
7. Give the total variation, explained variation and the unexplained variation.
8. Give r^2 and interpret the value. Also show how r^2 can be calculated from the results in the previous question.
9. Give MSE.
10. Calculate a point estimate and 95% c.i. for the mean time until the next eruption for all eruptions that last 3 minutes.
11. Calculate a point prediction and 95% c.i. for the time until the next eruption if the duration of a current eruption is 3 minutes.