Please use the R Markdown template – Homework 1 – on Posit Cloud.

In textbook,

Question 1. Page 102, Problem 3.6 (Data set: EX3_6)

Please calculate $\hat{\beta}_0$ and $\hat{\beta}_1$ using the Excel file Question 3.6.xlsx and the formula below (from page 99 in the textbook).

Slope:

$$\hat{\beta}_1 = \frac{SS_{xy}}{SS_{xx}}$$

y-intercept:

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x}$$

where

$$SS_{xy} = \sum_{i=1}^{n} (x_i - \bar{x})(y_i - \bar{y})$$

$$SS_{xx} = \sum_{i=1}^{n} (x_i - \bar{x})^2$$

Question 2. Page 103, Problem 3.8 (Data set: TAMPALMS)

Question 3. Page 104, Problem 3.10 (Data set: POLO)

Question 4. Page 106, Problem 3.16 (Data set: LIQUIDSPILL)

Question 5. Page 112, Problem 3.23 (Data set: OJUICE)

(a) Find the values of SSE, s^2, and s for this regression.

(b) Estimate σ^2, the variance of the random error term in the model.

(c) Estimate σ, the standard deviation of the random error term in the model.

(d) Explain why it is difficult to give a practical interpretation to s^2, the estimate of σ^2.

(e) Give a practical interpretation of the value of s.

Due date: Sep. 12th at 11:59 PM

In Posit Cloud, please use R Markdown to complete the assignments. Then knit it into a pdf file.

Please upload the pdf created and the completed Question 3.6.xlsx to Blackboard → Work Submission → Homework 1.