Assignment-7

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Question 63.2023) Suppose from the estimation of a linear regression model

$$Y_i = \beta_0 + \beta_1 X_i + e_i$$

the residual sum of squares and the total sum of squares are obtained as 44 and 80, respectively. The value of coefficient of determination is
(round off to two decimal places).

Solution:

Residual sum of squares(RSS):Measures the level of variance in the error term, or residuals, of a regression model.

$$RSS = \sum (y_i - \hat{y})^2$$

Total sum of squares(TSS):A variation of the values of a dependent variable from the sample mean of the dependent variable.

$$TSS = \sum (y_i - \bar{y})^2$$

Coeffiecient of determination

$$R^2 = 1 - \frac{RSS}{TSS} \tag{1}$$

$$= 1 - \frac{44}{80} \tag{2}$$

$$= 0.45 \tag{3}$$