IST292 STATISTICS

HOMEWORK 4

REGRESSION ANALYSIS

A survey is conducted in a University about analyzing the mental health of engineering students. Fit a simple regression model between **mental health score** and **spending time for homework**. The following data sets in Excel files show **x: spending time for homework *(hours)*** and **y: mental health score variables** for 30 engineering students.

a) Find correlation coefficient between **mental health score** and **spending time for homework**. Also plot a scatter graph. Comment the scatter graph and correlation coefficient together. What does the correlation coefficient tell you the relationship between **mental health score** and **spending time for homework**?

b) Find the estimated linear regression model between **mental health score** and **spending time for homework**.

c) Write the value of R^2 and comment the coefficient of determination R^2?

d) Write the values of model parameters $\hat{\beta}_1$ and $\hat{\beta}_0$ and make comments about these values. For this model how can you explain them?

e) Test the significance of a linear regression model at α=0.05. Do not forget to construct hypotheses. (Use both ANOVA Table and t test results for testing the significance of model).

f) Find the predicted mental health score when spending time for homework is 3 hours.

Note: Do not have to check normality assumption.

Take the data with respect to your class numbers from excel files for x and y.

Get SPSS outputs of the data for scatter graph and regression results, answer all the questions.

Explain all findings

Due to 29 June 2020