Multiple Regression

A researcher is interested in examining the influence of children’ social economic status (SES) and gender (0=female, 1=male) on their reading achievement in kindergarten. Use the given data set (Daycare.csv) to fit regression models and answer the following questions.

1. The correlation matrix of the three variables.

2. What is the null hypothesis for the Omnibus test (F test) for model level inference. (use the appropriate symbol and explain the null in one sentence)

3. What is the null hypothesis for each regression slope (use the appropriate symbol and explain the null in one sentence).

4. Fit the multiple regression model and write out the regression equation based on the results from R

5. Interpret the intercept within the context of data

6. Interpret the slope for SES and gender within the context of data.

7. Using output from the ANOVA table, compute and report the R2 for the model. Write out omnibus test (F test) results and interpret.

8. Write out the t test results for each slope and interpret.

9. Plot the regression line to demonstrate the effect of SES on reading achievement for male and female children.