

Linear Regression Applications

YOUR NAME

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Exercises

1. HFI

Choose another freedom variable and a variable you think would strongly correlate with it. The `openintro` package contains the data set `hfi`. Type `?openintro::hfi` in the Console window in RStudio to learn more about the variables.

- a. Produce a scatterplot of the two variables.
- b. Quantify the strength of the relationship with the correlation coefficient.
- c. Fit a linear model. At a glance, does there seem to be a linear relationship?
- d. How does this relationship compare to the relationship between `pf_expression_control` and `pf_score`? Use the R^2 values from the two model summaries to compare. Does your independent variable seem to predict your dependent one better? Why or why not?
- e. Display the model diagnostics for the regression model analyzing this relationship.
- f. Predict the response from your explanatory variable for a value between the median and third quartile. Is this an overestimate or an underestimate, and by how much? In other words, what is the residual for this prediction?