Lab Assignment 2
Correlation, Regression and Displays of Relationships
Due February 23

The purpose of this lab is to familiarize you with the investigation of relationships in data. At this point, we are still just looking at graphs and descriptive statistics. No interpretations of \(p\)-values are necessary.

1. Choose 5 variables from the NELS dataset. You do not have to use the variables you selected in Lab Assignment 1. You must choose 5 variables—at least two should be nominal (preferably dichotomous), and at least two should be quantitative (either interval or ratio).

2. For each pair of quantitative variables (there may be only one pair; that’s OK), make a scatterplot, and calculate the correlation coefficient that corresponds to each scatterplot.

3. Add a regression line to the scatterplot and obtain the least squares slope and intercept.

4. For each pair of categorical variables, (again, there may be only one pair) create a contingency table. Make a bar graph to correspond to each contingency table.

5. Examine the relationship between one categorical variable and one quantitative variable. Make a set of parallel box plots, with one “box” for each group, to investigate the relationship between these two variables. Calculate the mean, standard deviation, and sample size for each group.

6. Write a brief (2 pages maximum) summary of your results for this lab assignment. Structure it in the way that makes most sense to you. Be sure to include:
   - A quick explanation of each variable and its values (you can copy and paste from the previous lab assignment if you wish, but I’d like to be able to read this lab summary without looking back at your previous one).
   - A summary of what you learned about the relationships between your variables from the analyses and graphs.

7. Choose the output and graphs that show most clearly what you describe in Step 6. Append this to your summary above (table and figure labeling and insertion into text are nice but not necessary).