

Linear Regression Basics Applications

YOUR NAME

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Exercises

1. Nutrition at Starbucks

In the `data` folder is a file named `starbucks.csv`. Use it to answer the questions below.

- a. Create a scatterplot of number of calories and amount of carbohydrates.
- b. Describe the relationship in the graph.
- c. In this scenario, what are the explanatory and response variables?
- d. Why might we want to fit a regression line to these data?
- e. Create a scatterplot of number of calories and amount of carbohydrates with the regression line included.
- f. Using `'lm()'` fit a least squares line to the data.
- g. Report and interpret the slope coefficient.

- h. For a menu item with 51 g of carbs, what is the estimated calorie count?
 - i. Could we use the model for a menu item with 100 g of carbs?
 - j. Does the assumption of constant variance seem reasonable for this problem?
- k. Verify that the line passes through the mean carb and mean calories, do this mathematically.
- l. What is the estimate of the standard deviation of the residuals? How could you use this information?