Linear Regression Basics Applications

YOUR NAME

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Exercises

1. Nutrition at Starbucks

In the `openintro` package there is a data set called `starbucks`. Use it to answer the questions below.

a. Create a scatterplot of between 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 between 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?