

Technology Project 2

Exploring Relationships Between Variables

Group Members:

1. _____
2. _____
3. _____

We are going to look at the opening weekend box office gross receipts for major (if it didn't open in at least 2000 theaters or be in the top 10 grossing movies on opening weekend, then we won't consider it to be major) movies this summer. Follow the [Minitab instructions](#) under the technology exercises link on the website to collect the information and for help finishing the report.

For all of these problems, the opening weekend gross sales will be the response (y) variable and the number of theaters will be the predictor (x) variable.

1. Before you ever look at the data, use common sense and describe how you feel the opening weekend gross sales should be related to the number of theaters.
2. Now make a scatterplot. Look at the scatterplot and describe the association. Does it appear to be linear? Do you think either variable would benefit by taking the log function?
3. If you think that one of the variables would benefit by taking the log of it, then do that. You can play around under the fitted line plot to see if it helps. Once you find the best line (either the original data or after taking the log), then continue and use that model for the rest of the questions.
4. Find the descriptive statistics for the two variables
5. Find the regression results for the two variables.
6. Create a scatterplot. Put a horizontal line and vertical line through the centroid and label the means on the graph.
7. Plot the residuals for the model. Comment on whether or not the residuals look like we would like them to look.
8. Standardize both variables (use the log of the variable if appropriate). Now run a fitted line plot and show that the centroid is at the origin and the slope of the line is the correlation coefficient.