Lab 2 Activity

In this lab activity we are going to use the `attitude` dataset, which is already loaded into R.

1. Run `help("attitude")` to get some info on the data and the meaning of each variable. You can also run `View(attitude)` to open the data in the data viewer window.

2. plot `rating` on the y-axis and `complaints` on the x-axis. If you were to run a regression, do you think the slope (b_1) will be positive or negative? Why?

3. Run a linear regression with `complaints` predicting `rating`.

- What do you conclude about the relation between rating and complaints?
- How much would we expect `rating` increase to be on average if `complaints` increased by 3 units?

4. Run a *standardized* regression with `complaints` predicting `rating`. What changes do you see in the `summary()` output?

5. What is the predicted value of `rating` in standardized units when `complaints` is 1 standard deviation below average?

Tricky questions

Predictions based on regression represent the *mean* expected value of Y given some value of X. Then if the formula to standardize any variable (Var) is:

$$\text{Var}_{\text{std}} = \frac{\text{Var} - \text{Var}_{\text{mean}}}{\text{Var}_{\text{SD}}}$$

Try answering the following questions:

- can you convert the value of `rating` from question **5** back into unstandardized units? (HINT: you will need to use the mean and standard deviation of the original `rating` variable)
- How do you get the same value using the unstandardized regression equation? (HINT: you need to use the mean and standard deviation of the `complaints` variable)

Some R Practice