

Lab 3

Problem 1:

1. What is the estimated regression equation ($\text{Happiness} = \beta_0 + \beta_1 \times \text{Income}$)?

I believe it should look something like $\text{Happiness} = 0.20427 + 0.71383 \times \text{Income}$ where the first number is going to be your β_0 and your second number is going to be your β_1 .

2. What is the value of R^2 , and what does it indicate about the strength of the relationship between income and happiness?

According to the summary function, it should look something like 0.7493. I think it indicates that there is a positive relationship even when the value is near zero.

3. interpret the coefficient β_1 (the slope of the regression line). What does it tell you about the relationship between income and happiness?

It will help indicate to you whether the relationship that you're observing is a positive or a negative one I believe.

Problem 2:

1. What do the residuals tell you about the model fit? Are there any patterns that indicate the model might not be a good fit?

It looks like they're all very concentrated for the most part. I think that might be precisely why it isn't a good fit, it's hard to get a clear read on anything being displayed here.

2. What is the value of the residual sum of squares (RSS), and what does it indicate about the fit of the model?

The value for the RSS is

RSS1	3.59087759527199e-16
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. From what I understand the lowers the RSS of a model the better, so I think this would indicate that it is a pretty good fit contrary to what I said in the last answer!

3. What is the Mean Squared Error (MSE), and how can it be used to evaluate the model's prediction accuracy?

The MSE is

MSE1	6.90743462400278e-19
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. The MSE is a metric that is used as a common way to help evaluate a regression model's accuracy. It can be used for the purpose of comparing between models, generally the lower the value the better the

accuracy that it can indicate while the higher the value the less accurate that it can be with its predictions to name a couple of ways it can be used.