

Week 2 Practice Quiz

Practice Quiz, 3 questions



Congratulations! You passed!

Next Item

Week 2 Practice Quiz ^{1/1} points

Practice Quiz, 3 questions

1.

Does meditation cure insomnia? Researchers randomly divided 400 people into two equal-sized groups. One group meditated daily for 30 minutes, the other group attended a 2-hour information session on insomnia.

At the beginning of the study, the average difference between the number of minutes slept between the two groups was about 0. After the study, the average difference was about 32 minutes, and the meditation group had a higher average number of minutes slept.

To test whether an average difference of 32 minutes could be attributed to chance, a statistics student decided to conduct a randomization test. She wrote the number of minutes slept by each subject in the study on an index card. She shuffled the cards together very well, and then dealt them into two equal-sized groups, representing those who meditated and those who attended the information session.

Which of the following **best** describes the outcome of the randomization test.

- ☐ The average difference between the two values on the two stacks of cards is expected to be about 32 minutes.
- ☐ If meditation is effective, the average difference between the values on the two stacks of cards is expected to be more than 32 minutes.
- ☒ The average difference between the two values on the two stacks of cards is expected to be about 0 minutes.

Correct

We are simulating the experiment under the assumption of the null hypothesis being true, and the null hypothesis in this case is

$$H_0 : \mu_{meditation} - \mu_{info session} = 0.$$

Therefore the expected average difference between the two values on the two stacks of cards will be about 0 minutes.

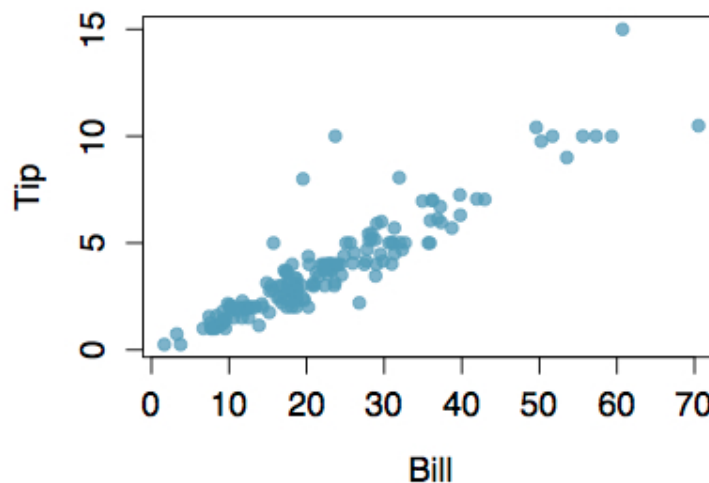
Week 2 Practice Quiz ^{141 points}

Practice Quiz, 3 questions

2.

Tipping at a restaurant. The owner of a restaurant interested in studying the tipping patterns of his customers collected restaurant bills over a two week period that he believes provides a representative sample of his customers. The data recorded from 157 bills include the amount of the bill (in \$) and the size of the tip (in \$). The correlation coefficient of the relationship between these two variables is 0.915. The regression model and a scatterplot of these data are shown below. Which of the following is **false**?

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-0.29	0.17	-1.76	0.08
Bill	0.18	0.01	28.25	0.00



- ☐ For each additional dollar spent the tip is expected to be higher on average by \$ 0.18 (18 cents).
- ☒ A 95% confidence interval for the slope can be calculated as $0.18 \pm (28.25 \times 0.01)$.

Correct

False, we need to use a critical T score (T^*) in calculation of the confidence interval.

- ☐ The intercept serves only to adjust the height of the regression line.

Week 2 Practice Quiz ^{1/1} points

Practice Quiz, 3 questions

3.

True / False. Not all leverage points are influential.



True



Correct

If a leverage point is on the trajectory of the regression line, it won't affect the slope, and hence won't be considered influential.

This question refers to the following learning objective(s):

Define a leverage point as a point that lies away from the center of the data in the horizontal direction.

Define an influential point as a point that influences (changes) the slope of the regression line.

- This is usually a leverage point that is away from the trajectory of the rest of the data.



False

