L12 Group Quiz

- Due Feb 23 at 11:59pm
- Points 9
- Questions 9
- Time Limit None
- Allowed Attempts 2

Instructions

You will do this assignment with your group in class. Your teacher will give you a password.

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	2 minutes	9 out of 9
LATEST	Attempt 2	2 minutes	9 out of 9
	Attempt 1	11 minutes	6 out of 9

Score for this attempt: 9 out of 9
Submitted Feb 23 at 12:29pm
This attempt took 2 minutes.

A federal traffic safety engineer wants to ascertain the effect of wearing safety devices (shoulder harnesses, seat belts) on reaction times to peripheral stimuli. A study was designed as follows: A simple random sample of 15 student drivers was selected from students enrolled in a driver-education program. Each driver performed a simulated driving task that allowed reaction time to be recorded under two conditions, wearing a safety device (restrained condition) and wearing no safety device (unrestrained condition). Thus, each student received two reaction-time scores, one for the restrained and one for the unrestrained condition. We want to test if the reaction time in the unrestrained condition is lower. Define the difference as restrained - unrestrained. Use this information for all the parts.

The data can be found here: **Drivers.xlsx**
(https://byui.instructure.com/courses/398828/files/159316242/download?wrap=1) **(https://byui.instructure.com/courses/398828/files/159316242/download?download_frd=1)**

Correct answer

Question 1
1 / 1 pts
Part 1: Why is this data considered paired?

- Because everyone in the data is a student.
- Because both reaction times come from the same student.
- Because there are less than 30 observations.
- Because both columns contain reaction times.

Correct answer

Question 2

1 / 1 pts

Part 2: If we define the difference as restrained - unrestrained, what is the null and alternative hypothesis?

- $H_0 : \mu = 0$ against $H_1 : \mu < 0$
- $H_0 : \mu = 0$ against $H_1 : \mu > 0$
- $H_0 : \mu_d = 0$ against $H_1 : \mu_d < 0$
- $H_0 : \mu_d = 0$ against $H_1 : \mu_d > 0$

Correct answer

Question 3

1 / 1 pts

Part 3: What is the test statistic?

3.839

3.839 (with margin: 0.0005)

Correct answer

Question 4

1 / 1 pts

Part 4: What is the p-value?

0.001

0.001 (with margin: 0.0005)

Correct answer

Question 5

1 / 1 pts

Part 5: What is your conclusion at the 0.05 significance level?

- We have sufficient evidence to show that the restrained and the unrestrained reaction times are the same.
- We have insufficient evidence to show that the restrained and the unrestrained reaction times are the same.
- We have sufficient evidence to show that the unrestrained reaction time is lower.

- We have insufficient evidence to show that the unrestrained reaction time is lower.

Correct answer

Question 6

1 / 1 pts

Part 6: After reading the question and based on the information given there, what else would we need to check to see if the requirements are satisfied?

- We don't need to check anything because the combined sample size is 30.
- We would need to do a histogram for both the restrained and the unrestrained columns.
- We need to only do a histogram for the difference column.
- We need to only make sure that the data is paired.

Correct answer

Question 7

1 / 1 pts

Part 7: Find a 95% confidence interval for the mean reaction time of the difference between restrained and unrestrained.

Input the lower bound:

0.521

0.521 (with margin: 0.0005)

Correct answer

Question 8

1 / 1 pts

Input the upper bound:

1.839

1.839 (with margin: 0.0005)

Correct answer

Question 9

1 / 1 pts

Part 8: Regardless of your answer in part 7, suppose your confidence interval was (0.5, 1) What does that confidence interval mean?

- We are 95% confident that the mean reaction time of the restrained drivers is between 0.5 and 1 seconds.
- We are 95% confident that the mean reaction time of the unrestrained drivers is between 0.5 and 1 seconds.

We are 95% confident that the mean reaction time of the restrained drivers is 0.5 and the mean of the unrestrained drivers is 1 second.

We are 95% confident that the mean reaction time of the difference between the restrained and the unrestrained drivers is between 0.5 and 1 second.

95% of our data is found in the interval.

Quiz Score: 9 out of 9