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Analyze the Data

Primary Research Questions

- 1. Who is happier at the beginning of the semester: under-classmen or upper-classmen?
- 2. Does student happiness change from the beginning of the semester to the end?

Breakdown Your Analysis

Let's break this analysis into its required steps:

Question 1: Independent t-test

- 1. Make a vector of happiness scores for each sample (under- and upper-classmen).
- 2. Generate histograms to check the Normality assumption.
- 3. Run an independent t-test.
- 4. Interpret the results.

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Question 2: Dependent t-test

- 1. Make a vector of difference scores for student happiness from the beginning to end of semester.
- 2. Generate a histogram of the difference scores to check the Normality assumption.
- 3. Run a dependent t-test.
- 4. Interpret the results.

Here is the code you will use:

Lab Question 1

```
# Make a vector of happiness scores for each sample underclass_happy <- post$happy[post$classification=='Freshman'|post$classification=='Sophomore'] upperclass_happy <- post$happy[post$classification=='Junior'|post$classification=='Senior']
```

Check the normality assumption hist(underclass_happy, xlab='Underclassman Happiness', main='Percent of Time Happy') hist(upperclass_happy, xlab='Upperclassman Happiness', main='Percent of Time Happy')

Run independent t-test
t.test(underclass_happy, upperclass_happy)

Lab Question 2

Make a vector of difference scores
post\$diff_happy <- post\$happy - post\$post_happy</pre>

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Check the normality assumption

hist(post\$diff_happy, xlab= 'Difference in Happiness over the Semester', main = 'Happy-Post Happy')

Run dependent t-test

t.test(post\$happy, post\$post_happy, paired=T)

(1 point possible)

1. Which classifications of students are considered **upper**classmen, according to the code above?

seniors only

juniors and seniors 💙

sophomores, juniors and seniors

CORRECT. THE SECOND LINE OF EXECUTABLE CODE BELOW INDICES BOTH JUNIORS AND SENIORS AS "UPPERCLASS."

Hide Answer

You have used 0 of 2 submissions

(1 point possible)

2. How many sample means are being compared in the t-test for Lab Question 1?

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-		
three		
two	~	
one		

CORRECT. WE ARE COMPARING THE SAMPLE MEANS FOR UNDERCLASSMEN AND UPPERCLASSMEN THROUGH THE CREATION OF 2 VECTORS.

Hide Answer

You have used 0 of 2 submissions

(1 point possible)

3. What does this line of code do?

post\$diff_happy <- post\$happy - post\$post_happy</pre>

- Calculates how happy each student was at the end of the semester
- Creates a new variable for each student in the dataset 💙
- Finds the average difference in happiness for all students in the dataset

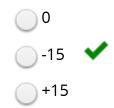
THE CODE CREATES A VECTOR FOR THE DIFFERENCE BETWEEN HAPPINESS AT THE BEGINNING AND END OF THE SEMESTER. THIS VECTOR IS A NEW VARIABLE OF CHANGE IN HAPPINESS OF EACH STUDENT.

Hide Answer

You have used 0 of 2 submissions

(1 point possible)

4. A student was happy 75% of the time at the beginning of the semester and 90% at the end of the semester. What will be the value of **post\$diff_happy** for this student?



CORRECT. SUBTRACT HAPPINESS AT THE END OF THE SEMESTER FROM HAPPINESS AT THE BEGINNING TO FIND THE DIFFERENCE. 75-90=-15.

Hide Answer

You have used 0 of 2 submissions



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