Reflect on the Question | Analyze the Data | Draw Conclusions

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.

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.

Help

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
```

```
# 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)
```

Help

(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?

- three
- two ✔
- one

Help

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
```

- 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?

Help

- 0
- -15 ✔
- +15

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*

EdX offers interactive online classes and MOOCs from the world's best universities. Online courses from MITx, HarvardX, BerkeleyX, UTx and many other universities. Topics include biology, business, chemistry, computer science, economics, finance, electronics, engineering, food and nutrition, history, humanities, law, literature, math, medicine, music, philosophy, physics, science, statistics and more. EdX is a non-profit online initiative created by founding partners Harvard and MIT.

Terms of Service and Honor Code

Privacy Policy (Revised 10/22/2014)

About

News

Contact

FAQ

edX Blog

Donate to edX

Jobs at edX

Twitter

Facebook

Meetup

LinkedIn

Google+

Help