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11/4/21

Using Models 1

Mike Nelson

Chart, histogram

Description automatically generatedQ1:

Q2: The p-value 0.04097

shapiro.test(catrate$cat.rate)

Q3: The null hypothesis is that the data is normally distributed.

Q4: Based on the results there is strong evidence that the sample came from a non-normally distributed population.

Q5: t.test(catrate$cat.rate, mu = 2/7)

Q6: The null hypothesis is that there is no difference in filling rate.

Q7: This a two-tailed test because we are not able to specify if the rate is less or greater.

Q8: The p-value is 0.01. If the value is changed to a precent you over the decimal places two spaces, meaning everything less than 1% is a false-positive.

Q9: The confidence intervals between 0.3-0.7 and does not include zero.

Q10: There is some evidence to reject the null hypothesis.

data: catrate$cat.rate

t = 2.9595, df = 12, p-value = 0.01193

alternative hypothesis: true mean is not equal to 0.2857143

95 percent confidence interval:

0.3526250 0.7261295

sample estimates:

mean of x

0.5393773

Q11: wilcox.test(catrate$cat.rate, mu = 2/7)

Q12: The p-values that I got from each test are very similar, the mean differences are insignificant.

Q13: Considering the results there is strong evidence to reject the null hypothesis.

Wilcoxon signed rank test with continuity correction

data: catrate$cat.rate

V = 85, p-value = 0.006275

alternative hypothesis: true location is not equal to 0.2857143

Q14: The overall conclusions I could draw from this test are that there is strong evidence in most cases to reject the null hypothesis based on the p-values I have gotten from both types of tests.

Q15: I believe the better test in the Wilcoxon Rank Sum because you can use it for smaller samples that are not normally distributed, therefore you may get more accurate results.

Q16: summary(penguin\_dat)

boxplot(

flipper\_length\_mm ~ species,

data = penguin\_dat,

ylab = "Flipper Length (mm)")

# Extract the Adelie penguin data

dat\_adelie = subset(penguin\_dat, species == "Adelie")

shapiro.test(flipper\_length\_mm$Adelie)

Q17: I believe the results are normally distributed. This is clear from the boxplot as the graph is not skewed.

Chart, histogram

Description automatically generatedQ18:

Q19: There is a difference in the flipper length between Adelie and Chinstrap penguins. I used a one-tailed test.

Q20: t.test(dat\_adelie$flipper\_length\_mm, dat\_chin$flipper\_length\_mm)