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ECO – 602 Environmental Data Analysis
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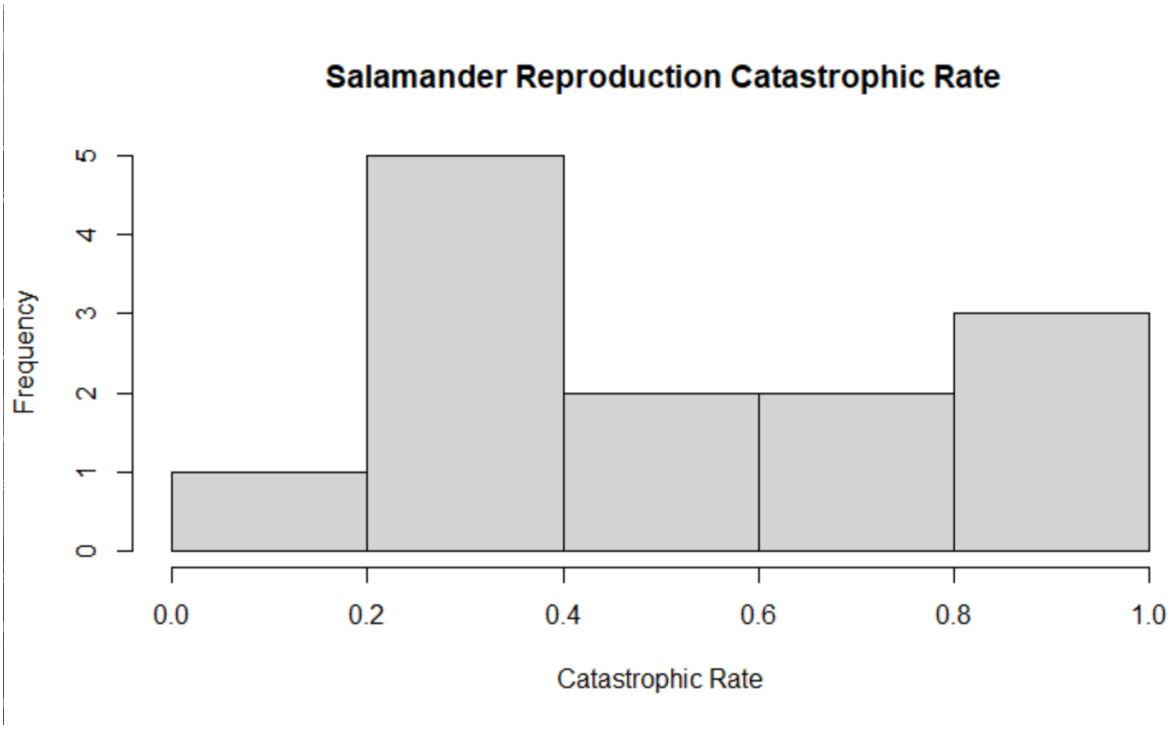
Partners: NA

Modeling 1

Q1:



Q2: Shapiro-Wilk normality test

data: catrate$cat.rate

W = 0.86202, p-value = 0.04097

shapiro.test(catrate$cat.rate)

Q3: The Null hypothesis for the Shapiro-Wilk test is that the data was sampled from a normally distributed population.

Q4: There is strong evidence that the sample came from a normally distributed population because of the low p-value.

Q5: t.test(catrate$cat.rate, catrate$pond)

Q6: The null hypothesis is that there is no difference between the catastrophic rate and the pond late filling rate.

Q7: This is a two-tailed t-test because we are looking at the difference between two things.

Q8: The p-value is 1. This means that is there is most likely a difference between the catastrophic rate and the pond fill rate.

Q9: alternative = -9.389766 Inf

Null = -Inf -5.53148

They do not include zero.

Q10: There is not strong evidence to reject the null hypothesis from the t.test because the 95% confidence interval for the null hypothesis is -Inf.

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

Q12: wilcox: p-value = 1.601e-05 t.test: p-value = 1.579e-05

The p-values from the wilcox test and the t.test are extremely close.

Q13: There is strong evidence to reject the null hypothesis because the p-value is so small.

Q14: The t.test gives you more information than the wilcox. From the t.test I can see that the p-value is extremely small the CI are in the negative and do not contain zero between them, and I can see that the mean flipper length between the two species is ~2.5 mm in length all showing evidence that there is a significant difference. For the wilcox test I can only see the p-value.

Q15: The t.test is better because it gives you more information to build evidence off of.

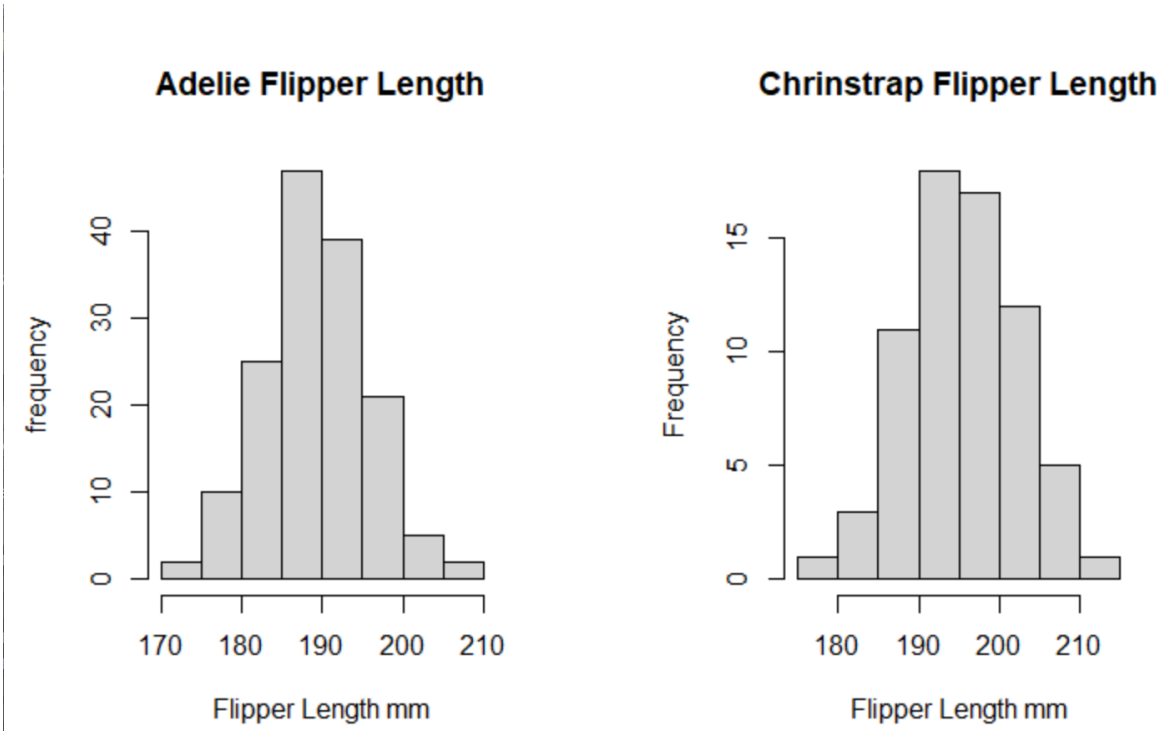
Q16: shapiro.test(dat_adelie$flipper_length_mm)

shapiro.test(dat_chinstrap$flipper_length_mm)

Q17: Because the p-values are so high for each penguin species I would say that they did not come from a normally distributed population.

Chinstrap: p-value = 0.8106 Adelie: p-value = 0.72

Q18:



Q19: The alternative hypothesis is that there is a difference between average flipper length of the adelie penguins and the average flipper length of the chinstrap penguins.

Q20: t.test(dat_adelie$flipper_length_mm, dat_chinstrap$flipper_length_mm)