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Lab #6

ECO 634

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Q1: rm(list = ls())

sse\_mean = function(x)

{ na.x = is.na(x)

x2 = x[!na.x]

sd.x2 = sd(x2)

n = length(x2)

sd.x2/(sqrt(n))}

sse\_mean(penguins$body\_mass\_g)

sse\_mean(mtcars$mpg)

Q2: two\_group\_resample=function(x, n\_1, n\_2)

{

dat\_1 = sample(x, n\_1, replace = TRUE)

dat\_2 = sample(x, n\_2, replace = TRUE)

diff\_simulated =

mean(dat\_1, na.rm = TRUE) - mean(dat\_2, na.rm = TRUE)

return(diff\_simulated)

}

Q3: This is representing Monte Carlo because we did break up the structure of the data.

Chart, histogram

Description automatically generated

Q4:

Q5: None of the values were greater than 5.8. The R code I used is hm = (mean\_differences > 5.8)

abs(hm)

Q6: I would have to run thousands of simulations. This is difficult to quantify as an exact number.

Chart, box and whisker chart

Description automatically generatedQ7:

Q8: The group means are, 1. Adelie 18.34636 and 2. Chinstrap 18.42059. The difference in the mans is [1] 0.07423062.

Q9: If I sampled bill depth for Adelie and Chinstrap penguins several times, I would expect to see a difference in bill depth of greater than 19mm about 18% of the time. This is not significant.

Q10: Six hundred and thirteen differenced in means were greater than diff\_crit.

Chart, histogram

Description automatically generated

Q11: