**Course Project Checkpoint 10**

For the purpose of this checkpoint, I assumed that the weights of the penguins in my dataset were a sample. I used the sample mean and standard deviation of the weights to construct a t confidence interval and to conduct a t hypothesis test. I also used bootstrap estimation for the population mean, since a Google search for this information yielded no useful insights.

I confirmed my results with the R function t.test.

t Confidence Interval for the Population Mean

My sample yielded the following 95% confidence interval for population mean: (4116.7, 4286.8). Therefore, we may conclude with 95% confidence that the population mean penguin weight is between 4116.7 and 4286.8 grams.

t Hypothesis Test for the Population Mean

I used a t hypothesis test with a level of significance of = 0.05 and corresponding critical value of = 1.96 to test the claim that the population mean penguin weight is equal to 4202 grams. My sample yielded a test statistic of t = -0.005 and a p value of p = 0.995471. Therefore, the null hypothesis was not rejected due to insufficient evidence to reject the claim.

Confirmation of Results

The R function t.test yielded the following results:

*One Sample t-test*

*data: df$weight*

*t = -0.0056639, df = 341, p-value = 0.9955*

*alternative hypothesis: true mean is not equal to 4202*

*95 percent confidence interval:*

*4116.458 4287.050*

*sample estimates:*

*mean of x*

*4201.754*