Reflect on the Question ✓ Analyze the Data ✓ Draw Conclusions

## Primary Research Question

What percentage of the time are college students happy? How does our estimate of the true mean change as sample size increases?

(9/9 points)

# Write Your Conclusion

Answer the question and support your answer with statistics:

In this lab, we knew the average percentage of the time college students are happy for our population of college students. The population mean was 78.03 78.03 % and the standard deviation was 16.31 16.31 %. The happiness scores were negatively skewed negatively skewed .

We drew samples of different sizes from our population to simulate the Central Limit Theorem. In short, the CLT says three things:

1. As sample size increases increases , sampling distributions become more Normal.
2. The mean of the sampling distribution sampling distribution will be the population mean.
3. The variability of the sample means, or the standard error standard error , can be predicted by dividing the population standard deviation by the square root of the sample size.

Our simulation results were were consistent with this theory. As we increased the size of our sample from 5 to 25, the sample means become less variable and tended to cluster more tightly around the true mean. In other words, our sample means became better estimators of better estimators of the true population mean. In addition, the shape of the distribution became more Normal Normal as sample size increased.

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