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Average High Temperatures During Winter in Lancer Park

I chose to conduct two confidence intervals for the high temperatures in the winter season in Lancer Park using the data given in Table 1 and compare the results to one another. This information will be useful for students who live in Lancer Park because the only way to get to campus is by bus or a fifteen-minute walk. The students should know the possible risks with standing or walking out in these cold temperatures even when the degrees are at their highest. From the data collected, the full population parameter is the true average high and low temperatures in degrees Celsius for Winter, Spring, Summer, and Fall in Lancer Park over a two-year time period. The confidence intervals that are being compared are .92 and .99.

The sample parameter for the sample I chose is the true average high temperatures in degrees Celsius for the winter season in Lancer Park over a two-year time period. First, I put all of the data in Table 1 into a list in my calculator under STAT and Edit. Then, I chose the tInterval test on the calculator because I conducted a confidence interval with means and no known population standard deviation. For the conditions of this test, I used the STAT PLOT setting on the calculator to create a histogram and box plot. First and foremost, it is a simple random sample because that was stated in the description. From the histogram on the calculator, there is no obvious strong or slight skew and the data curve appears close to normal. Furthermore, the box plot graph on the calculator showed no outliers. All of these things combined indicate a very reliable sample and test results. The only possible issue with the sample is that there is under coverage in the sample. There is under coverage because not all of the days in the winter season are represented in this sample. The sample size is 25 based on the data collected in Table 1. As a result of the test used on the calculator, the mean of the sample is 11.1796 degrees Celsius, and the standard deviation of the sample is 7.3736.

For the first confidence interval test, I used a confidence level of .92. The result of this test is that I am 92% confident that the true average high temperatures in degrees Celsius for the winter season in Lancer Park over a two-year time period is between 8.4837 and 13.875 degrees Celsius. The error bound for this first test was 2.6954. The parameter, tests, conditions, bias, and statistics for the second confidence interval stayed the same as they were in the first. For the second confidence interval test, however, I used a confidence level of .99. Thus, I am 99% confident that the true average high temperatures in degrees Celsius for the winter season in Lancer Park over a two-year time period is between 7.0549 and 15.304 degrees Celsius. The error bound for this test was 4.1244.

When comparing the two results of the confidence intervals, there is a slight but obvious difference between the ranges of numbers, which are off by at least two degrees Celsius from each other. The lower confidence interval might be useful for people that do not mind the colder weather as much, because it resulted in a lower temperature range. The higher confidence interval is more useful for those that would like the most accurate answer as to what kind of temperature they should be aware of in the winter season in Lancer Park. This information can be used to inform the residents of Lancer Park about the weather as the winter season approaches. It is essential information for students who live in Lancer Park because of the time they must spend outside when waiting for the bus or walking to class. If a student knows the average high temperature in the winter, he or she can plan accordingly as to what days they feel they are able to walk to campus and what days are too cold for that.

Appendix

Table 1:

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| **Season** | **High Temperatures (degrees Celsius)** |
| Winter | 12. 33 |
| Winter | -1.25 |
| Winter | 4.96 |
| Winter | 16.08 |
| Winter | 22.39 |
| Winter | 13.7 |
| Winter | 19.91 |
| Winter | 2.88 |
| Winter | 14.3 |
| Winter | 3.99 |
| Winter | 14.9 |
| Winter | 12.64 |
| Winter | 7.96 |
| Winter | 15.22 |
| Winter | 22.46 |
| Winter | 16.19 |
| Winter | -3.9 |
| Winter | 10.44 |
| Winter | 19.55 |
| Winter | 2.19 |
| Winter | 4.86 |
| Winter | 11.11 |
| Winter | 21.12 |
| Winter | 10.12 |
| Winter | 5.34 |