**Week8 – Application Assignment - 16 points**

**PART 1) Increased use of Telemedicine (10 points)**

During the COVID-19 pandemic of 2020, the number of health services offered through telemedicine has significantly increased. This provided patients and doctors with much needed convenience during these challenging times. It also helped the health systems save a lot of money. An insurance company wants to estimate how much money telemedicine saved the health administrations in its network in 2020. They took a random sample of 41 online doctor visits within their network and recorded the savings ($) from each visit. This data is provided as an Excel file on the assignment. **Use Excel or TI-83/84 calculator to answer the following questions. Include your Excel outputs or your calculator functions.**

1. (1 pt) Using Excel, find the descriptive statistics of this data set. Copy and paste your output here.
2. (1 pt) Create a boxplot or a histogram of the data using Excel and paste your graph here. Describe the shape of the distribution using words such as skewed, approximately normal, outliers, etc.
3. (2 pts) Provide a 90% confidence interval for the *average* savings ($) from all telemedicine visits within the network of this health insurance company. Include your calculator commands or Excel outputs. Round your answers to 2 decimals.
4. (1 pt) Interpret this confidence interval in the context of the problem. Use full sentences.
5. (2 pts) What are the critical values and margin of error for this confidence interval? Include your calculator commands or Excel outputs.
6. (1 pt) Explain how the **margin of error** would change if the following confidence levels were used with the same sample data instead of a 90% confidence level.
7. 95% confidence level:
8. 80% confidence level:
9. (2 pts) A claims manager from this insurance company says that the average savings from telemedicine did not exceed $65 in 2020. Use the confidence interval you found in question 4 to provide a response to this claim. Explain whether you are supporting or opposing this claim and why.

**PART 2) Digital Monitoring (6 points)**

In 2018, Pew Research Center conducted a study with a random sample of 1060 parents of teens aged 13 to 17. The study found that 65% of the parents in this sample checked the websites their teens had visited. **Use your TI83/84 calculators to answer the following questions.** **Provide the calculator function used as well as the output.**

1. (2 pts) Provide a 95% confidence interval for the *proportion* of parents with teens aged 13 to 17 who have checked which websites their teens had visited. Include your calculator functions.

Round your answer to 4 digits.

1. (1 pt) Interpret this confidence interval in the context of the problem. Use full sentences.
2. (1 pt) Report the critical values and the margin of error for this confidence interval.
3. (2 pts) What would be the sample size if a margin of error of 4% was desired in this study with a 95% confidence level? Show the formula you use and all your work to receive full credit.