**Sample size:**

1. Took SD for temperature as it is needed for sample size calculation, then calculated the sample size after determining the Margin of Error and Confidence Level in sheet named Sample Size.
2. Deleted the columns not needed for the statistical analysis.
3. Took a random sample from of 35046 rows using RAND() then sorting by those random numbers. Copy pasted sample in the sample size columns.

**Statistical Distribution:**

*Question 1*

1. For the first question took the sample temperature mean and sample temperature standard deviation.
2. Calculated the sample mean using AVERAGE().
3. Since it’s a two tail test, and the rejection region lies on both side used NORM.DIST() – NORM.DIST to calculate the probability.
4. Wrote the conclusion.

*Question 2*

1. Used NORM.INV() the calculate the value it takes through probability density function since Normal Distribution is a Continuous Distribution.
2. Wrote the Conclusion

*Question 3*

1. Used the BINOM.DIST calculate the number of success probability.

*Question 4*

1. Used POISSON.DIST() to calculate the number of events in a fixed time interval.

*Confidence Interval*

1. Since we’re calculating the confidence interval for population sample using sample data, used t distribution instead of z distribution.
2. Used NORM.INV() to calculate our alpha. After calculating the Margin of Error, subtracted it by sample mean to get our intervals.
3. Wrote the conclusion and formatted the sheet.

**Hypothesis Testing**:

*Population Mean Hypothesis*

1. Made the assumption to create the hypothesis , calculated the sample mean, calculated the Sample Standard Deviation using STDEV.S() since we’re using a sample.\
2. Calculated the t statistic with the formula and calculated our rejection regions using T.INV
3. Concluded weather to reject our null hypothesis or not.

*Difference in Mean Hypothesis*

1. Assumed that the mean is equal and used equal variance in Excels Data Analysis tools.
2. Concluded, since excel created everything for us.

**Regression Analysis:**

1. Took a sample for our dependent and independent variables.
2. Created a scatter plot with regression line to check for linearity between our Variables. To check whether or not we transform our Variables to Natural Log to improve the linearity.
3. Created the regression model in accordance with the business app.
4. Used Excel’s Data Analysis tool to create Regression Statistics.
5. Made the interpretations estimations for the relationship between our Y and X variables in Inference section.
6. Verified the goodness of fit measure using Adjusted-R. The closer to 1 the better.
7. Did hypothesis testing for our variables in linear regression using the stats provided by our regression statistics.
8. Checked for multi collinearity between our variables to check if our variables are highly correlated. We used Excel’s Data analysis tools.
9. Made prediction according to scenario provided by the company. Used our regression equation to make the prediction.
10. Used the Residual df and Standard Error provided by our regression model to calculate Margin of Error for our prediction intervals. Subtracted both upper and lower limit with our predicted value to get our confidence interval
11. Made the conclusion.
12. Formatted the sheet for clarity.