It is now time to begin working on your class project. This is a comprehensive document on my expectations from you for your class project. Your project contributes to 20% of your final grade. Your submitted project should include a **well written** and **detailed** description of your analysis of your chosen data set. You are to consider and report on the following:

1. Problem definition

2. Data description

3. Data Analysis

4. Model specification and fitting

5. Model validation and diagnostics

6. Forecasting

Read section 1.3 of the class text for what each of the above entails.

Some guidelines for the project

- You can get time series data from the *tsdl R package*. A simple Google search on "time series data sets" can help you find other datasets.

- Choose data in which the responses y_t are continuous (not discrete, not binary) like the ones we have considered in class. No two students should use the same data.

- Your data should have more than 75 observations. Keep in mind that the asymptotic distribution theory is used in many of the statistical approaches we will be discussing.

- I advise that you refrain from data that is seasonal as we will be discussing seasonal time series models getting to the end of the semester. If you choose to use seasonal data, you may employ some of the remedies for removing seasonality if they help with the data. You can also read ahead tin Chapter 5 on your own.

- Do not use your entire data to fit the model. Leave some out (for example, leave out 5 out of 100 observations and compare your first 5 forecasts to the actual observations you left out. Your hope is for your forecasted values to be close to the actual values you left out.

- As you see fit, incorporate the R output and graphics into your report. Every graphic produced should be relevant to some part of your discussion, hence do not incorporate too many graphics, especially if they are unnecessary.

- Your document should be double spaced. Also, divide your project onto sections with titles.

- Your report should be error-free. Make sure to edit it as many times as necessary, at least 5 times before you submit your final report.

Written project outline

1. Title page.

2. **Introduction**: This is where you define your problem and explain why it is important to get a model for that purpose. Give the reader important background information on why it is important for you to investigate the problem and come up with a solution.

3. Perform steps 2 to 6 from the previous page. Give a detailed exposition on any method you are using, any observations and results from your analysis.

4. Discuss your results and conclusions.

5. **Bibliography**: If you make use of any references, make sure to cite them.

Be sure to have fun doing this. You are combining all that you have learned in time series modeling and forecasting and demonstrating your understanding.

DUE: April 30th 2023 at 11:59PM. Any other information will be duly communicated to you.

Reference: Joshua Tebbs STAT 520 project guidelines