BANA 4090 Forecast & Risk Analysis
Final Project Guidelines

The final project for this course is designed as a comprehensive application of the concepts and techniques learned throughout the semester. This project will involve deep analysis of a time series dataset with the objective of uncovering compelling patterns and relationships within the data.
This is a group project. Groups of 4 students were randomly assigned. The task for each group is to identify a topic of interest and locate a corresponding time series dataset for analysis. You can choose to use a provided dataset or source your own, as long as it is relevant to the concepts we've covered in the course.
The project will count for 200 points of your final grade.

Submission Requirements:

1. Project Report (Due 11:59 pm, August 2nd, 2024)

The project report should be comprehensive and include the following:
(a) Dataset Description: Provide detailed information about the dataset you've chosen to analyze.
(b) Research Question: Clearly state the research question(s) that you are trying to answer with the dataset.
(c) Model Development: Describe in detail how you've developed your chosen model(s).
(d) Model Justification: Explain your reasons for choosing a particular model and compare it to other models you considered.
(e) Additional Details: Any other details or insights that contribute to a comprehensive understanding of your work should be included.
For more detailed points to include, please refer to the next page.

2. Corresponding Codes: Submit the codes you used to conduct your analysis alongside your project report.

Grading Criteria:

Your project will be evaluated based on:
a) Correct and effective model selection and development
b) Quality and effectiveness of data visualization
c) Accuracy of the model and your critical analysis of it
d) Quality, clarity, and comprehensiveness of the report
e) The practical relevance and applicability of the insights derived from your model
Note: Projects that deliver insightful analyses leading to actionable recommendations or solutions will be highly valued.
Good luck with your final project. If you have any questions or need further clarification, please do not hesitate to ask.

Some important points in your report

1. What is your data set? How many rows / observations and how many columns / variables are there? Is the data daily, weekly, monthly, quarterly, or annual?

2. Make some visualization of your data. Make it intuitive for your readers to have an idea of the data. Does your data have a systematic increasing or decreasing pattern? Is there any seasonal pattern? If so, you can make a seasonal plot, and then describe the seasonal pattern.

3. Split your data set into estimation sample and hold-out sample, and state the split ratio (e.g., 80%: 20%).

4. Try to fit some models on the estimation sample. You can try different kinds of model. State the parameters of your model.

5. Check the assumptions of your model.

6. Conduct model selection. Use the performance on hold-out sample or information criterion (AIC / BIC) to select the best one.

7. Summarize what you did and make some comments for your model and predictions.