Assignment 1

STAT317/ECON323/FINC323

Due 09:00 Monday 16 August, 2021

- Ensure your name is on the assignment, both names if working as a pair.
- If working in a pair each of you must submit the assignment. That is, duplicates.
- Submit the R code as a file so I can run it. Do not worry about file locations as I can change that.

Question 1 – 5 marks

We are all forecasting, all the time. In the following questions the number in brackets apply to (single/pair) submission.

1. Sketch in detail (two/four) forecasts that you make routinely, and probably informally, in your daily life?
2. What decisions are aided by your (two/four) forecasts?

3. How might you measure the "success" or "goodness" of you (two/four) forecasts?

Question 2 – 11 marks

1. From the Statistics New Zealand website download any one of the following series – the choice is yours – and add a date variable.
   - Total Monthly merchandise trade exports
   - Total Monthly number of visitor arrivals
   - Total Monthly number of residential building consents
2. Write a paragraph explaining what the series measures and why people may want to analyse it.
3. Plot the series and describe the main features of the time series you have plotted.

4. In no more than a page indicate some possible explanations for the features you have described above. You will be assessed on plausibility of the explanations, not their correctness.

5. If were going to do a time series analysis would you use the whole series? Carefully show you reasoning for your decision

Question 3 – 9 marks

For this question use the series you have downloaded in question 2.

1. Take the log of the values and plot this series. In what way does it differ from your plot in the previous question. In what ways is it be more useful, and in what ways might it be less useful than the original numbers.

2. Make a 12×12 scatterplot of the values, and their lag 1, lag 2, lag 3, .. lag 12 values. What does this show in terms of the correlations between a value and its lagged values?

3. Create the acf for the series. Describe and explain what it shows.

4. Create a time series of the first differences of the series and plot it. Describe and explain it in relation to the original undifferenced series.