Assignment 3,
Due September 15(A)/16(B), 2021 at 5:30pm

Go to the COVID-19 page on "Our World in Data" website https://ourworldindata.org/coronavirus

Explore the data using Data Explorer and learn how to download the latest time series for Canada. Create time series models to forecast the number of daily new cases in Canada from September 14 to September 28, 2021.

1. **[5 pts]:** Use auto.arima on the original time series (i.e., without preprocessing) to make forecasting. Comment on your results.

2. **[45 pts]:** Redo the forecasting by first preprocessing the time series before applying auto.arima. Compare your results with Step 1.

3.   **[40pts]:** Improve your model by exploring alternative orders and describe how you select the final model. Comment on the quality of your forecasting.

4. **[10pts]:** Find another time series that can possibly serves as a predictor (X) and incorporate it into your time series model through dynamic regression. Consider at least two different future paths of X between September 14 and 28, and explore how they could affect the future evolution of the number of new cases (Y) in the same forecasting window.

    Submit the PDF of your report, and your model file(s) (R/Python code, etc.)