応用統計解析特論　課題 2

Applied Statistical Analysis:　Problem #2

2.1 Obtain time series that you would like to analyze and explain them briefly. It is desired that the length of the time series is 100 -200. The time series data must include that of recent one-tow year.　(if you want to use the data which is older due to special reasons (e.g., you want to use the data relate to your research) , please contact me.)

2.2 Analyze time series for problem 2.2 by using an Autoregressive (AR) process model.

(1) Plot time series for both the raw data and the logarithm of the data.

(2) Construct the AR process model. The order of the AR model is determined based on AIC, Partial Autocorrelation, Residuals plots, etc. The autoregressive parameters are estimated by the Yule Walker equations.

2.3 Give a detailed description of the (model-based) bootstrap algorithm for the AR (2), the second-order autoregressive process model.

2.4 Carry out the bootstrap analysis to estimate the standard errors for AR (1) and AR (2) model parameters for the time series in problem 2.2. In terms of bootstrap analysis, implement the model-based bootstrap analysis and the moving blocks bootstrap analysis and compare their results of the estimates of the standard errors.

Deadline:　November 27, 2022, 23:59

Place to Submit:　K-LMS (Canvas)

Notice: you are requested to type the report to be submitted. If it is hard for you to type mathematical formulas, you can write the only part of mathematical formulas in handwriting.