Assignment V– Individual Take Home Assignment

ST 3011: Statistical Programming

Due date: February 29, 2020

Execute the following simulation based fitting procedure **using Python** and prepare a brief report based on the findings. Please note that the number of pages **should not exceed 15.** The zipped folder consisting with the final report in pdf format together with all the codes used need to be sent to nadeeka@stat.cmb.ac.lk **on or before midnight February 29, 2020.**

i. Simulate a time series **(TS1)** consisting with 500 observations. (You are required to clearly state the scenario you have used for the simulation. You may/may not use the ARIMA specification to simulate the times series)

ii. Introduce 25 extreme observations to the above data series and save the new series as **TS2.** Note that the number of observations in both the series need to be the same and the extreme values need to be replaced in a random manner.

iii. Carry out an appropriate classical time series model fitting procedure for TS1 and TS2. (You may consider an ARIMA specification).

iv. Carry out an appropriate ANN model fitting procedure for TS1 and TS2. (You may consider a recurrent neural network)

v. Compare and contrast the results found in **iii.** and **iv.**

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