Indian Institute of Management Tiruchirappalli
PGP Term IV
BSF (2019) - Assignment 3 (Time Series)

Submission Date: 24th July 2019 11:59 PM
Maximum Marks: 10

This is a group assignment. You need to use R programming for all data cleaning, manipulation, and analysis. Submit the soft copy of your assignment, R codes, and other supporting documents in the Google Classroom (No hard copy/email). Show adequate reasoning, including calculations, if any, in support of your answers. State any assumption you make (your assumptions need to be reasonable).

Mention your Group No (1 or 2) and team No (1 to 10) in your submission file-name (`Assignment1_GR1_TEAM5.R`). Also, mention your team details in one of your uploading files.

1. Simulate an AR(1) process with $\varphi = 0.8$ and c (or φ_0) $= 100$. Simulate 108 values (use the mean value of the process as starting value; refer the slides) but set aside the last 8 values to compare forecasts to actual values.

   (a) write the logic for the simulation (rcode). (You will not get marks if you are using **arima.sim**).
   (b) Using the first 100 values of the series, estimate an AR(1) model.
   (c) Compare the eight forecasts using the AR1 model with the actual values that you set aside.
   (d) Paste your R code.

   [4 Marks]

2. Consider **WWWusage** timeseries in R. Develop the ARIMA model by 'Modelling procedure' discussed in the class. Paste your R code. Write your description in comment (#) after each steps (stationary, white noise, ... etc).
   [6 Marks]