

Assignment Task 3

(with R)

Deadline: 2018-04-03, 23:59

Do not forget to explain your answers!

Note: when generating data use `set.seed(student.code)` where `student.code` is your unique student code.

Part 1

Generate the following process with linear trend and correlated errors: $Y_t = -7 + 0.3 \cdot t + 5e_t$ where $e_t = 0.88e_{t-1} - 0.53e_{t-2} + w_t$, $t = 1, \dots, 150$. Use the sequential procedure (Procedure A) to establish the type of process. Apply the Augmented Dickey-Fuller test (Procedure B). Find the 20-step-ahead forecast.

Part 2

Generate the random walk Y_t with 0.1 drift ($T = 150$). Use sequential procedure to classify the process. Forecast the process for 20 time moments ahead.

Part 3

Until 1982, when these data and their analysis were published, most economists believed that all data time series were TS (i.e. after removing the trend, they became stationary). Nelson and Plosser proved that most of economics series were DS (i.e. their differences were stationary). Take `gnp.r` and `cpi` (or, probably, their logs) from `nporg` dataset from `urca` library and examine whether they are TS or DS.