Assignment 4 OPTIONAL

This assignment is optional and you don't have to do it. You have a choice between
A) ESTIMATION OF A VAR MODEL
B) ESTIMATION OF A VEC (ECM) Model

Part A is based on the data on income and consumption in file growth.dat. Part B is based on data on Australian and US gdp in file gdp.dat.

In each case the analysis will contain the following common elements:

1. Plot the data in levels and first differences and comment on the presence/absence of trend

2. Test the data in levels for unit root using the ADF test

3. Test the data in first differences for unit root using the ADF test

4. Test for cointegration:
- Regress one series on another and save the residuals.
- Regress the differenced residuals on the first lag one of their levels (and possibly first lag of their differences)
-Test for cointegration

5 If you find cointegration, you estimate an ECM (VEC), if you find no cointegration, you estimate the VAR.

Part A)

You can estimate the VAR by separate (OLS) regressions - this approach is valid ONLY if the right hand side variables are identical in all regressions.

The VARMAX procedure estimates all equations of the VAR model jointly by the Maximum Likelihood and plots the impulse responses. It will create three sets of plot files in your home directory: AccumulatedIRFPANEL.png, OrthogonalIRF-PANEL.png and SimpleIRFPANEL.png. The last file (Simple) is the impulse response function that allows for the errors in equations to be contemporanously correlated, the orthogonal (Orthogonal) impulse response function eliminates the contamporaneous correlation in the errors and the accumulated (Accumulated) impulse response function is the cumulated sum of all the past responses. You need to comment on the simple impulse response function only.

Part B)

You can estimate the ECM by separate (OLS) regressions - this approach is valid ONLY if the right hand side variables are identical in all regressions.

The VARMAX procedure estimates all equations of the VEC model jointly by the Maximum Likelihood and plots the impulse responses. It will create three sets of plot files in your home directory: AccumulatedIRFPANEL.png, OrthogonalIRF-PANEL.png and SimpleIRFPANEL.png. The last file (Simple) is the impulse response function that allows for the errors in equations to be contemporanously correlated, the orthogonal (Orthogonal) impulse response function eliminates the contamporaneous correlation in the errors and the accumulated (Accumulated) impulse response function is the cumulated sum of all the past responses. You need to comment on the simple impulse response function only.