Exercise Double Exponential Smoothing
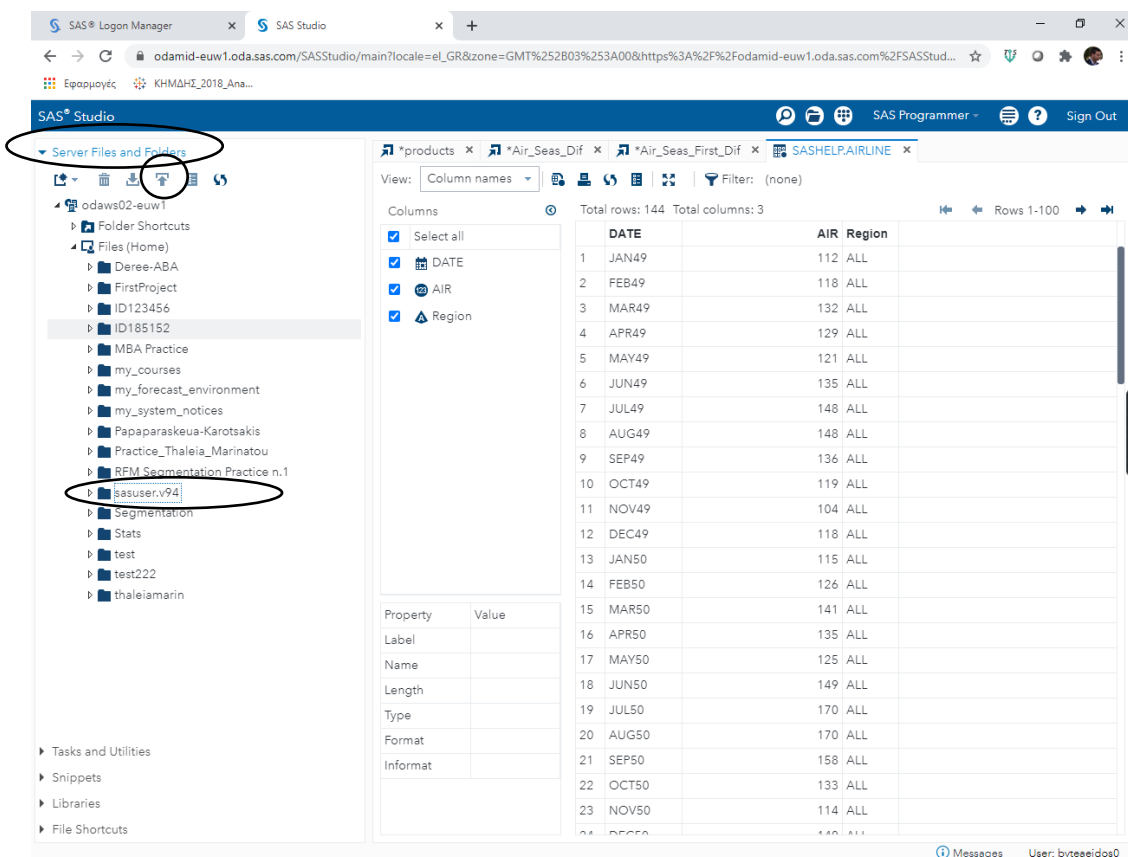
1) Open google chrome

2) Go to welcome.oda.sas.com

3) Select Europe in the drop down menu and press sign in

4) Insert your credentials

5) In the dashboard select SAS Studio

6) On the left hand side select Server Files and Folders and then sasuser.v94

7) Press the upload button (the one with the arrow heading upwards).

8) Select the file "AU_Airline_Passenger_DES_For_SAS.sas7bdat"

9) Press Upload

10) Open SAS Forecast Studio

11) In the projects window press New.

12) In step 1 name the project "Double_Exponential_Smoothing" and press next.

13) In step 2 open the sasuser library, Select the "AU_Airline_Passenge_DES_For_SAS" data set and press next.

14) In step 3 press next

15) In step 4 select Year as the time id variable.

16) In step 5 select Yt as the dependent variable.

17) In step 6 press next

18) In step 7 set 6 in the Change the number of periods to forecast (horizon). Press Change Other Forecasting Settings and select the Model Generation tab. Uncheck the System Generated ARIMA models. Select the Model Selection tab. Check the Use Holdout Sample for Model Selection option and input 7 and 25. Press OK. Press Next.

19) In step 8 press finish

20) In the Forecast Summary window double click on the Model Type box. What do you observe? Press close.

21) In the Forecasting view window, comment on the characteristics of the time series. Is your observation in line with the results of the previous step (model type)?

22) Select the Series View window. Select Plots -- > Unit Root Test. Which one of the three windows should you look (Zero Mean, Single Mean, Trend)? What do you conclude? Is this in line with the results in the two previous steps?

23) Select plot Seasonal Unit Root. What do you conclude about the inactive option? Note that we have yearly data.

24) Select the Modelling View window. Select Add Model.
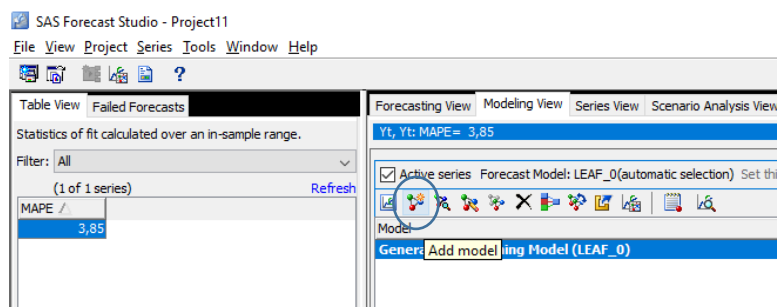
25) Select Exponential Smoothing and press OK

26) Select all the options in the Method window one by one (except Automatically Select Best Non – Seasonal model) to create four (4) different models. Name each model (e.g. in stead of ESM1,2,3,4 write Holt, Brown, SES, Damped_Trend.

27) Select Compare Models. Press Close.

28) Which model has the lowest MAPE?