

#Objective 2:
#Considering current trend of COVID-19 tests in Malaysia, I want to determine the number of COVID-19 test kits that would be required each week in Malaysia, over next 3 months.

extract columns 'date' and 'new_tests' in dataframe "df_objective2"

df_objective2.plot(Trend,Seasonality, and Noise graph to analyse the data)
divide df_objective2 in ratio of 70:30 in train_df_objective2 and test_df_objective2 dataframe

from library pylab import package rcParams

using train_df_objective2 create a decomposition graph
plot the graph.
and show the graph

if(for train_df_objective2 Autocorrelation function Function(ACF) is not Stationary):

 use differencing method

 Verify Augmented Dickey-Fuller (ADF) for trend

 if(P value less than or = 0.05):

 Plot graph Partial Autocorrelation function (PACF)

 Plot graph Autocorrelation function Function(ACF)

 Extract value of Probable Autoregression (AR) and Probable Moving Average(MA)

 Create a ARIMA Model 'arima_model' using method

sm.tsa.arima.ARIMA().

 FIT the model

 Evaluate model using Mean Squared Error(MSE) and Root Mean Squared Error (RMSE)

 if(RMSE between 0.2 and 0.5):

 Accept Model

 Predict result for new_tests for each day for next 90 days.

 Calcualte number of tests lits required: Assuming 1 new_test requires 1 test kit.

 Calcualte number fo test kits required per week for next 13 weeks

 else:

 restart modelling