# Time Series (ARIMA) in R and Python

This exercise uses file Tractor-Sales.csv and is based on

<http://ucanalytics.com/blogs/step-by-step-graphic-guide-to-forecasting-through-arima-modeling-in-r-manufacturing-case-study-example/>

## Tasks to be performed:

1. Read the time series data and plot it. What type is the time series?
2. Decompose the time series into trend, seasonality, and random component.
3. **Using auto ARIMA:**
   1. Use auto arima to build the time series model.
   2. Use the auto arima model to forecast and calculate model errors (MAPE, MAE).
4. **Using ACF and PACF to build a time series model**
   1. Make the time series stationary through differencing. Is it enough? What else may help?
   2. Display the ACF and PACF. What do you observe from them?
   3. Use the model to forecast and calculate model errors (MAPE, MAE).