Forecasting

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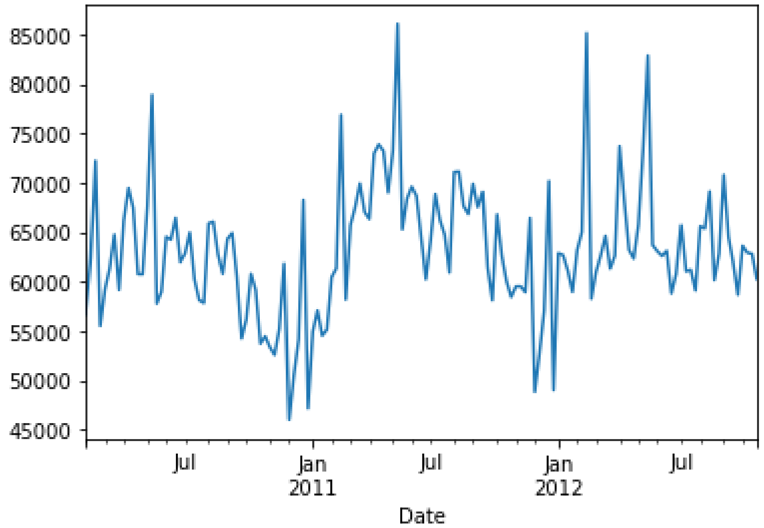
Our Challenge This Week?



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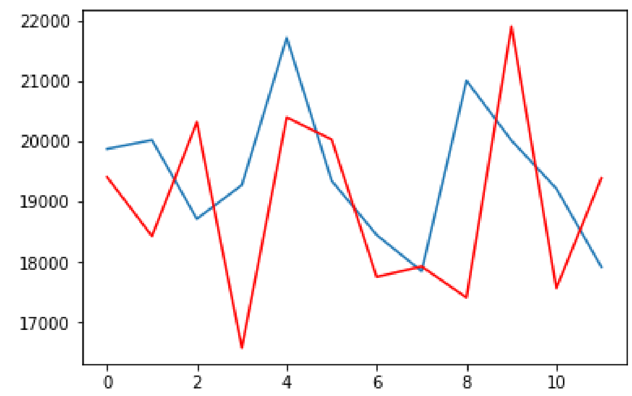
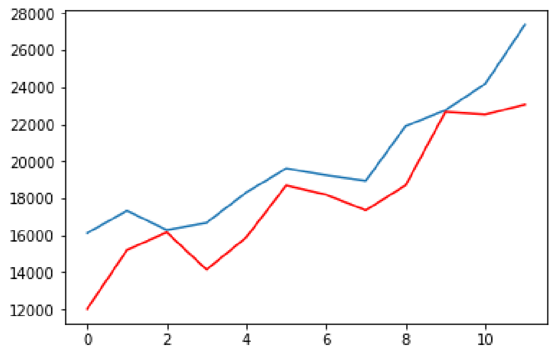
Forecasting

- Moving average smoothing
- Exponential smoothing
- Box Jenkins models





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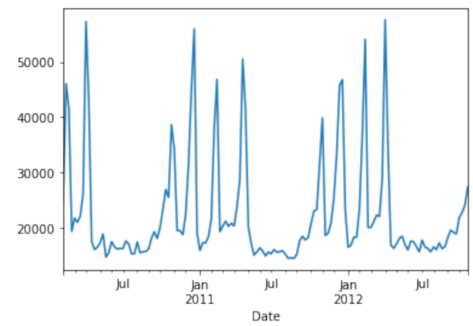
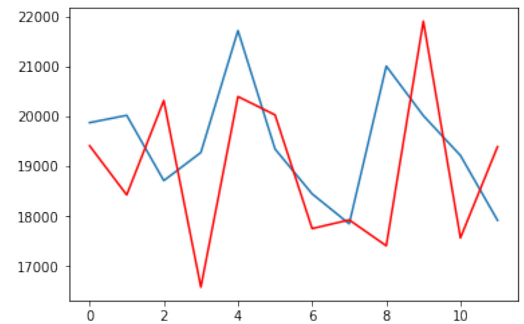
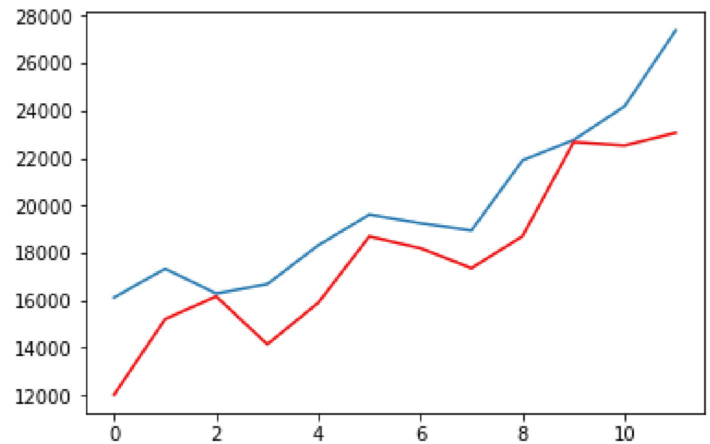
Box Jenkins or ARIMA Models

$$Y_t = c + \varphi Y_{t-1} + \varepsilon_t + \theta \varepsilon_{t-1}$$





- Assumes stationary
- Transformation can help
- Model identification
- Model estimation
- Model validation



Model Validation

- Residual plot
- ACF – should decay to zero
- Root mean square error
  - mse = mean_squared_error(y, predictions)
  - rmse = sqrt(mse)