Data Science Lab 6

Team nr: 2	Student 1: Åmund Grimstad	IST nr: 1116675
	Student 2: Arthur de Arruda Chau	IST nr: 1116090
	Student 3: Benjamin Raymond Kuhn	IST nr: 1115778
	Student 4: João Rafael Freitas Lourenço	IST nr: 425699

FORECASTING MODELS

Traffic Time Series
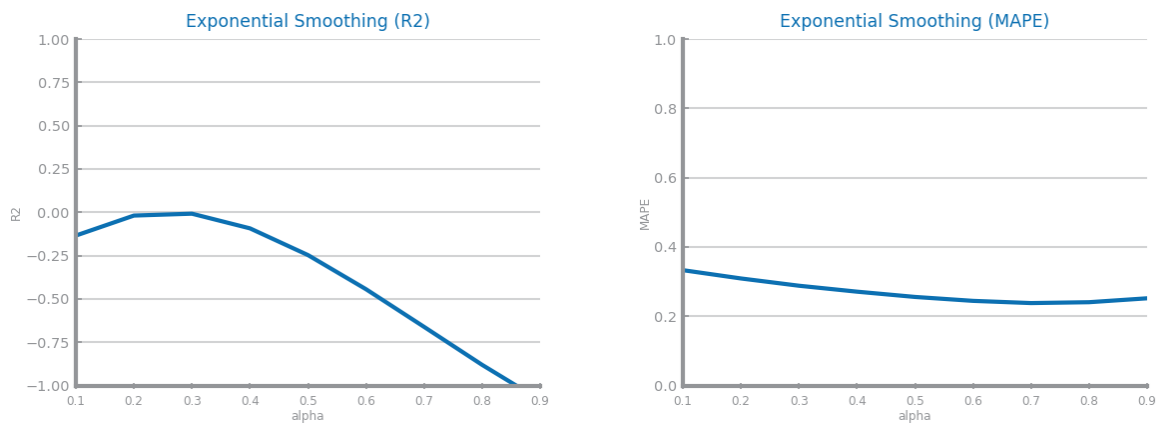
Exponential Smoothing

Univariate

Figure 1: Exponential Smoothing (Univariate) R2 and MAPE study for Traffic Time Series

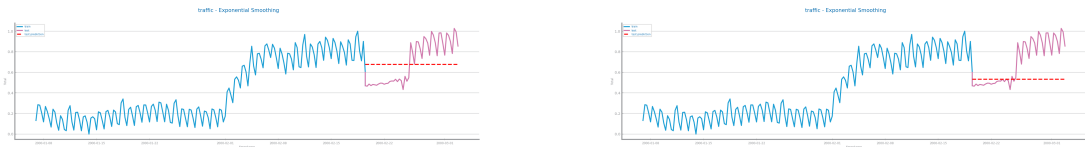Figure 2: Exponential Smoothing (Univariate) R2 and MAPE evaluation results for Traffic Time Series

Figure 3: Exponential Smoothing (Univariate) R2 and MAPE forecasting for Traffic Time Series
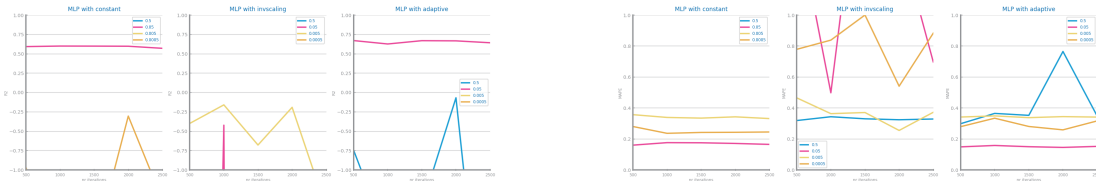
Multi-layer Perceptron

Multivariate

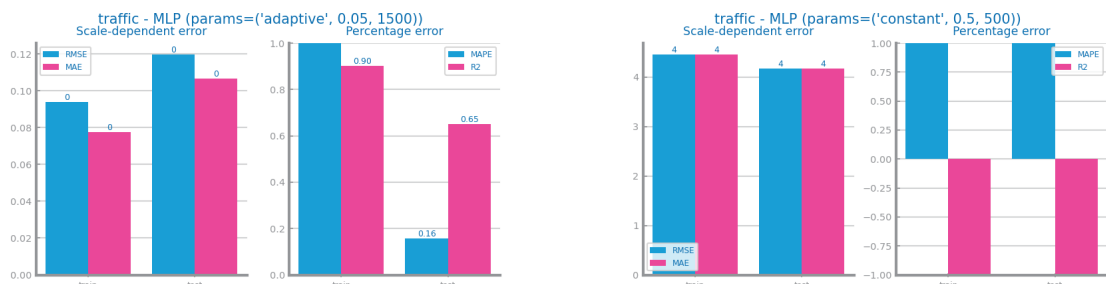Figure 4: MLP (Multivariate) R2 and MAPE study for Traffic Time Series

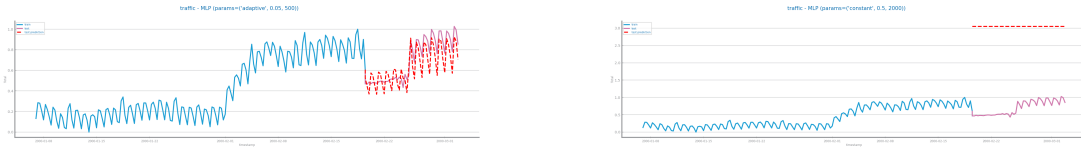Figure 5: MLP (Multivariate) R2 and MAPE evaluation results for Traffic Time Series

Figure 6: MLP (Multivariate) R2 and MAPE forecasting for Traffic Time Series
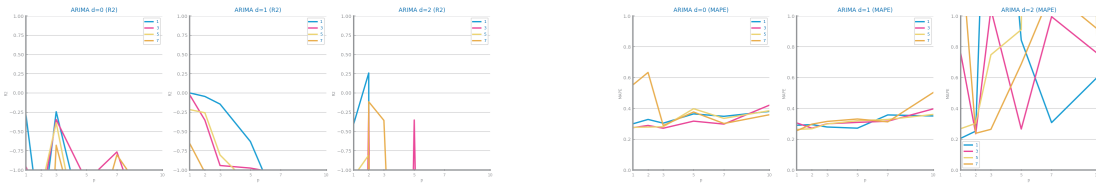
ARIMA

Univariate

Figure 7: ARIMA (Univariate) R2 and MAPE study for Traffic Time Series

Figure 8: ARIMA (Univariate) R2 and MAPE evaluation results for Traffic Time Series
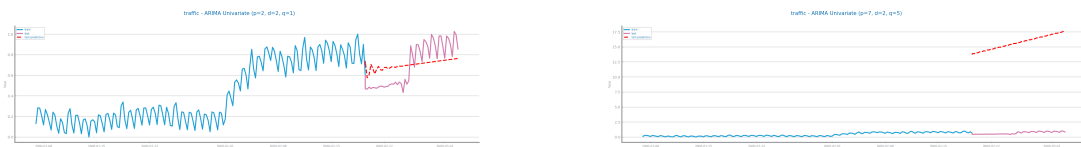

Figure 9: ARIMA (Univariate) R2 and MAPE forecasting for Traffic Time Series
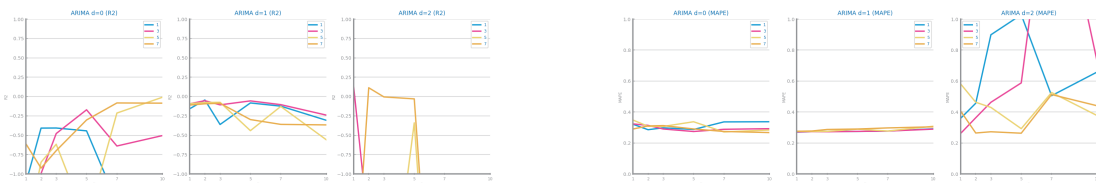
Multivariate

Figure 10: ARIMA (Multivariate) R2 and MAPE study for Traffic Time Series
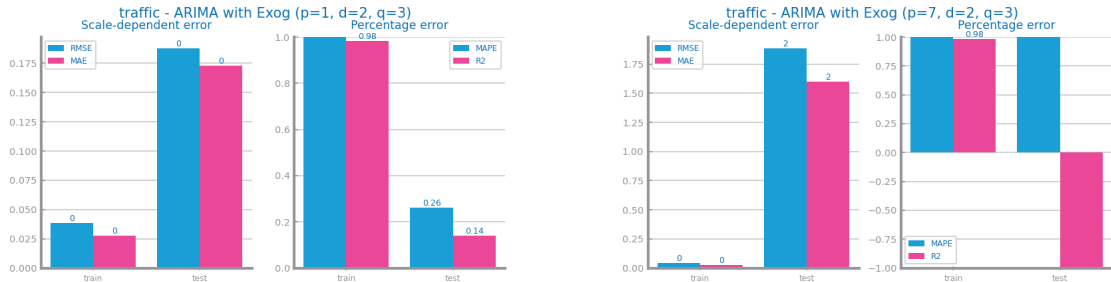
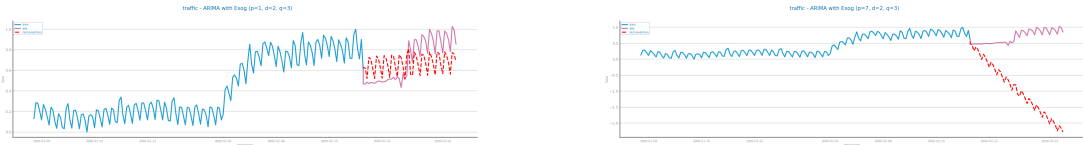Figure 11: ARIMA (Multivariate) R2 and MAPE evaluation results for Traffic Time Series

Figure 12: ARIMA (Multivariate) R2 and MAPE forecasting for Traffic Time Series
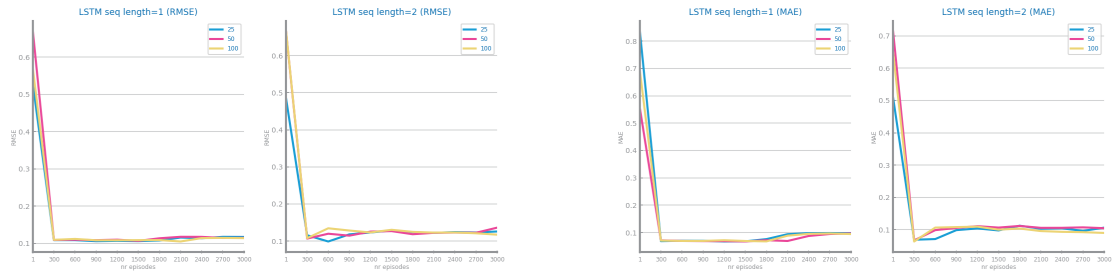
LSTM

Univariate

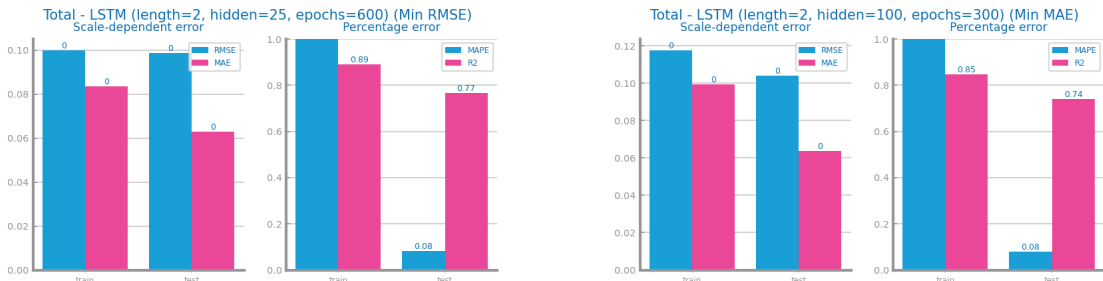Figure 13: LSTM (Univariate) RMSE and MAE study for Traffic Time Series

Figure 14: LSTM (Univariate) RMSE and MAE evaluation results for Traffic Time Series
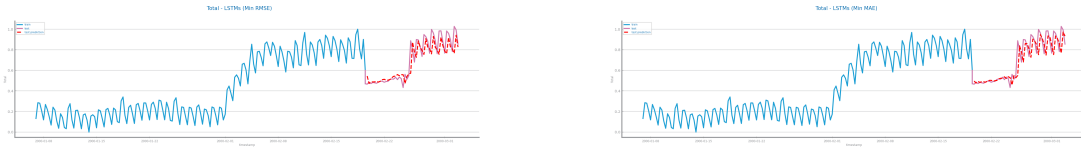
Figure 15: LSTM (Univariate) RMSE and MAE forecasting for Traffic Time Series
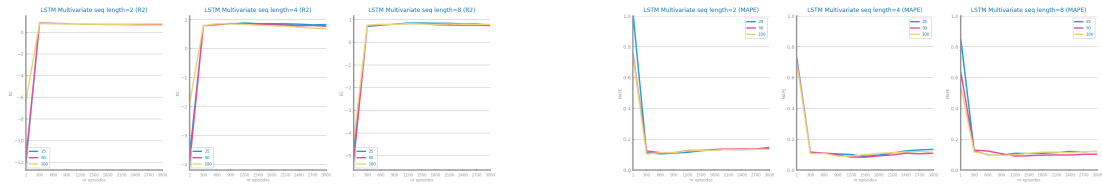
Multivariate

Figure 16: LSTM (Multivariate) R2 and MAPE study for Traffic Time Series
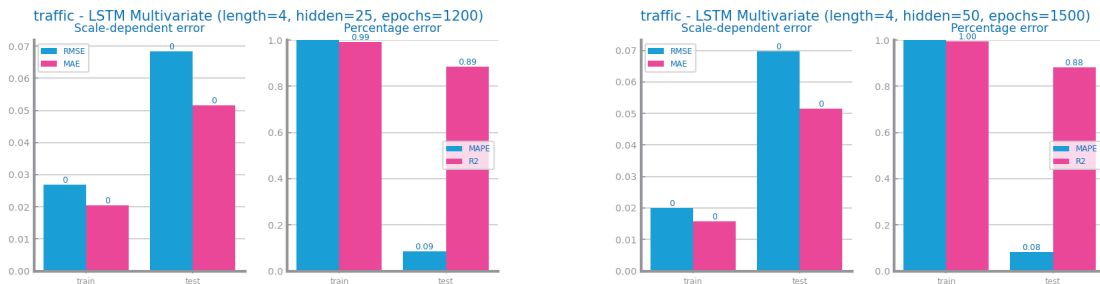

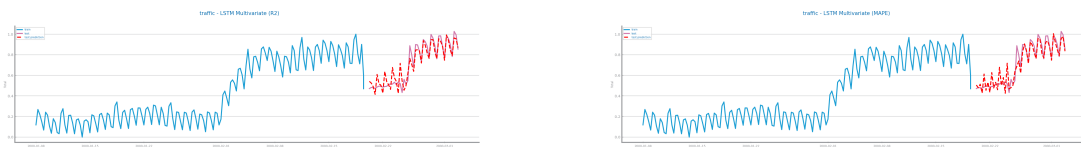Figure 17: LSTM (Multivariate) R2 and MAPE evaluation results for Traffic Time Series

Figure 18: LSTM (Multivariate) R2 and MAPE forecasting for Traffic Time Series

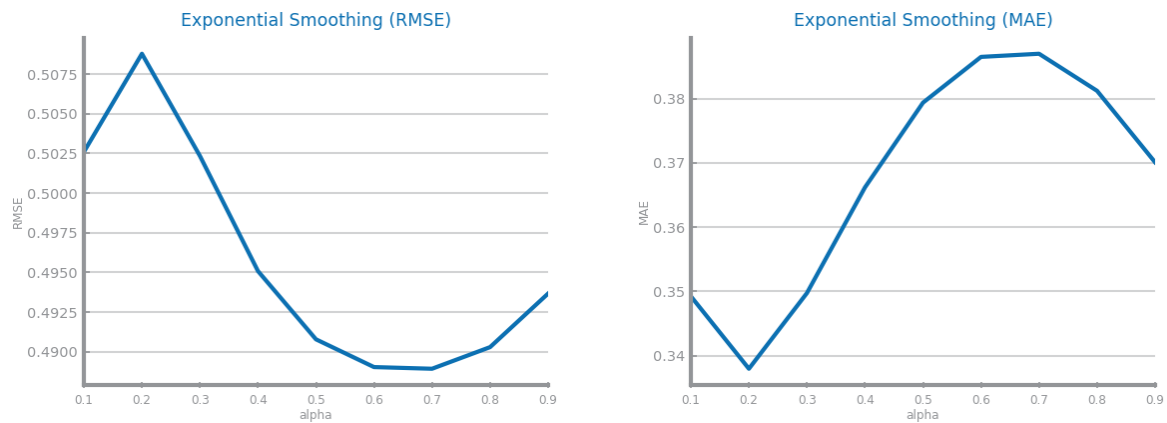# Inflation Rate Time Series

Exponential Smoothing

Figure 19: Exponential Smoothing RMSE and MAE study for Inflation Rate Time Series
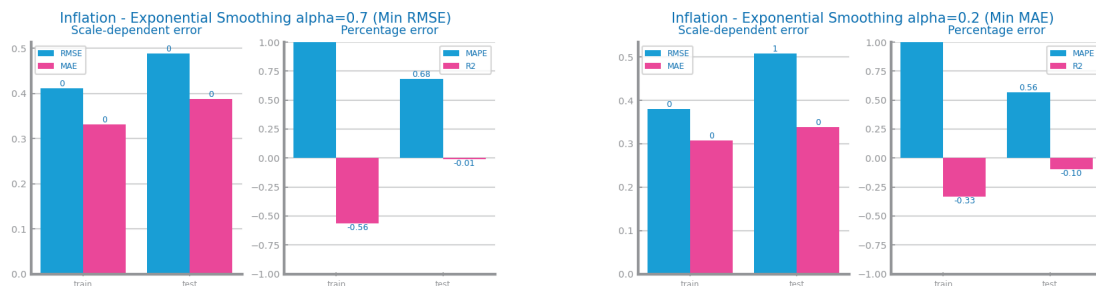

Figure 20: Exponential Smoothing RMSE and MAE evaluation results for Inflation Rate Time Series
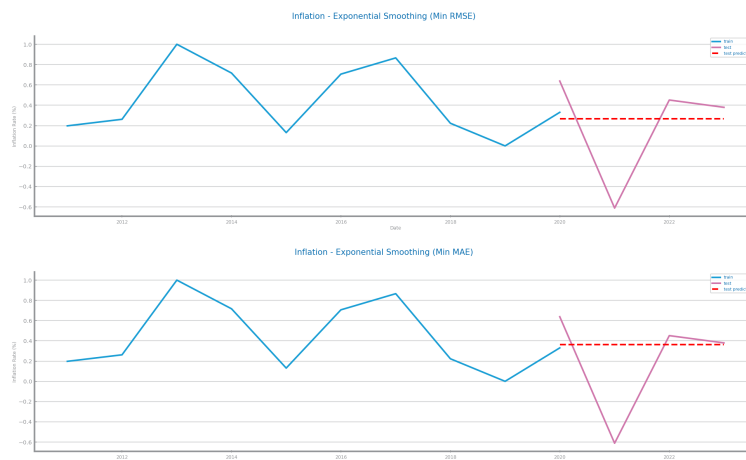

Figure 21: Exponential Smoothing RMSE and MAE forecasting for Inflation Rate Time Series

Multi-layer Perceptron
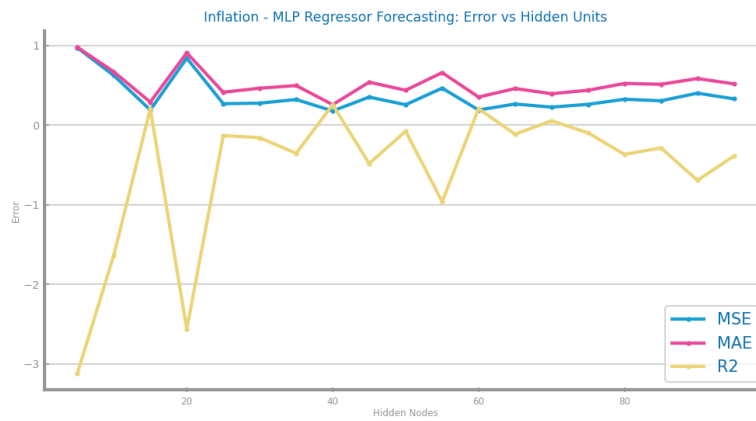
Used a lag of k=4 (years)

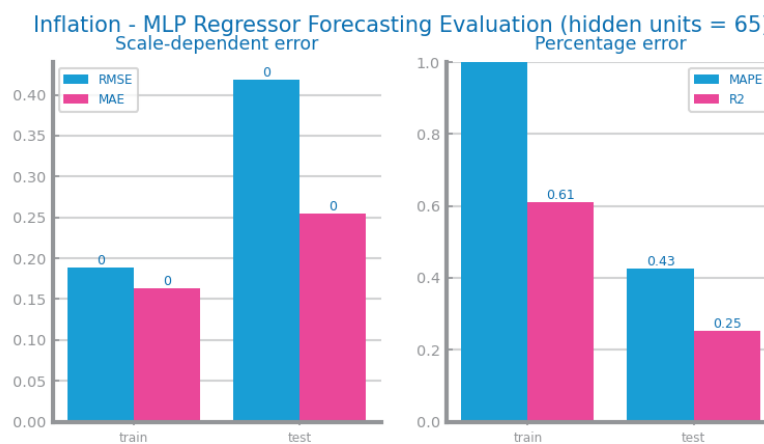Figure 22: MLP RMSE, MAE and R2 study for Inflation Rate Time Series

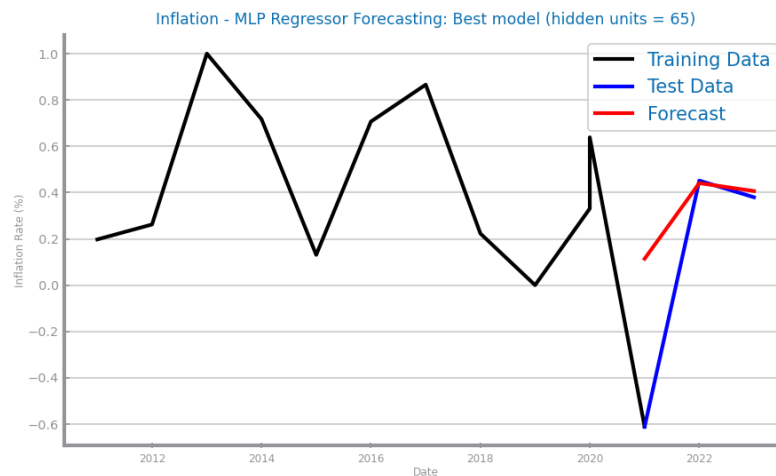Figure 23: MLP R2 evaluation results for Inflation Rate Time Series

Figure 24: MLP Best model (based on R2) forecasting for Inflation Rate Time Series
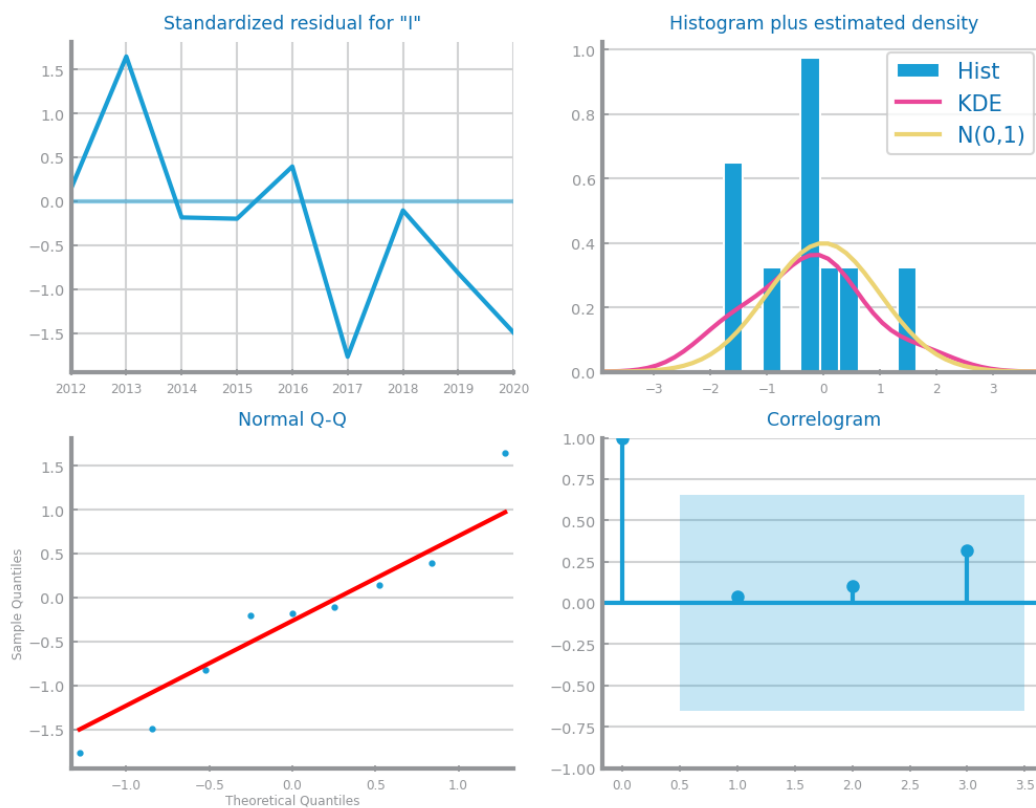
ARIMA

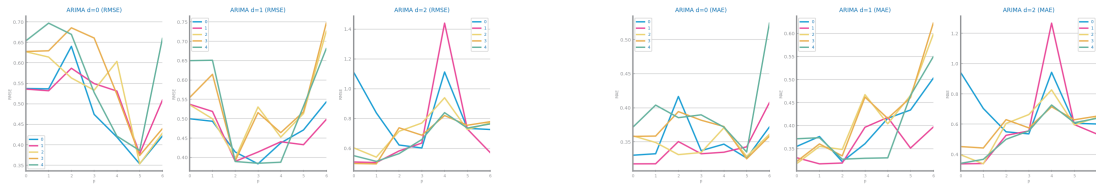Figure 25: ARIMA diagnostics for Inflation Rate Time Series

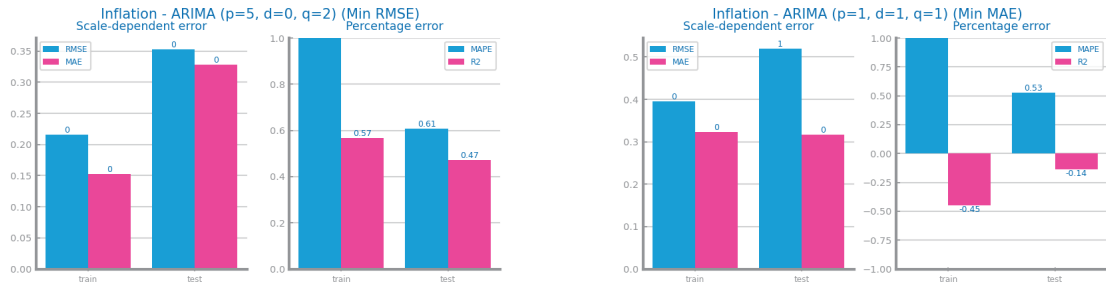Figure 26: ARIMA RMSE and MAE study for Inflation Rate Time Series

Figure 27: ARIMA RMSE and MAE evaluation results for Inflation Rate Time Series

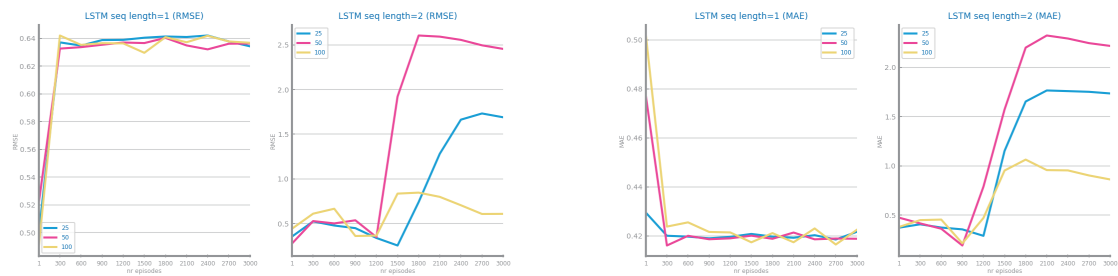Figure 28: ARIMA RMSE and MAE forecasting for Inflation Rate Time Series

LSTM

Figure 29: LSTM RMSE and MAE study for Inflation Rate Time Series
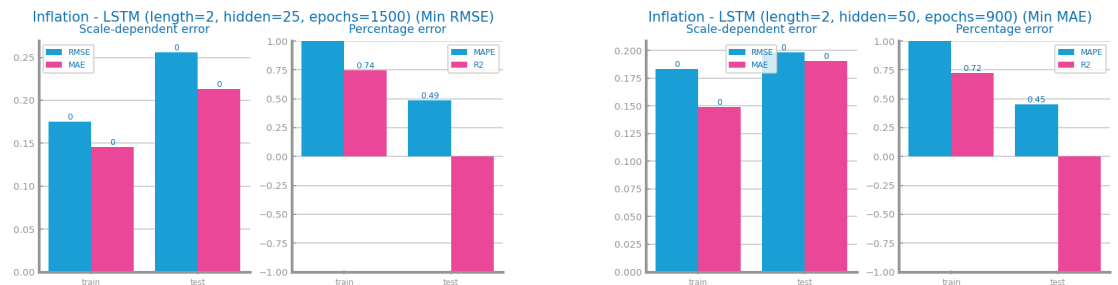

Figure 30: LSTM RMSE and MAE evaluation results for Inflation Rate Time Series

Figure 31: LSTM RMSE and MAE forecasting for Inflation Rate Time Series