



Forecasting Analytics

Forecasting soda-sizes for promotional stands

Group 11
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From business to forecasting and beyond...

Business problem

“To optimise the use of 2.25l soda bottle promotional stands in order to develop a more targeted sales strategy”

Forecasting problem

“To create a model that predicts weekly 2.25l soda bottle sales”

1 Using provided data, we will...

Develop an appropriate forecasting model

2 Using the forecasting model, we can...

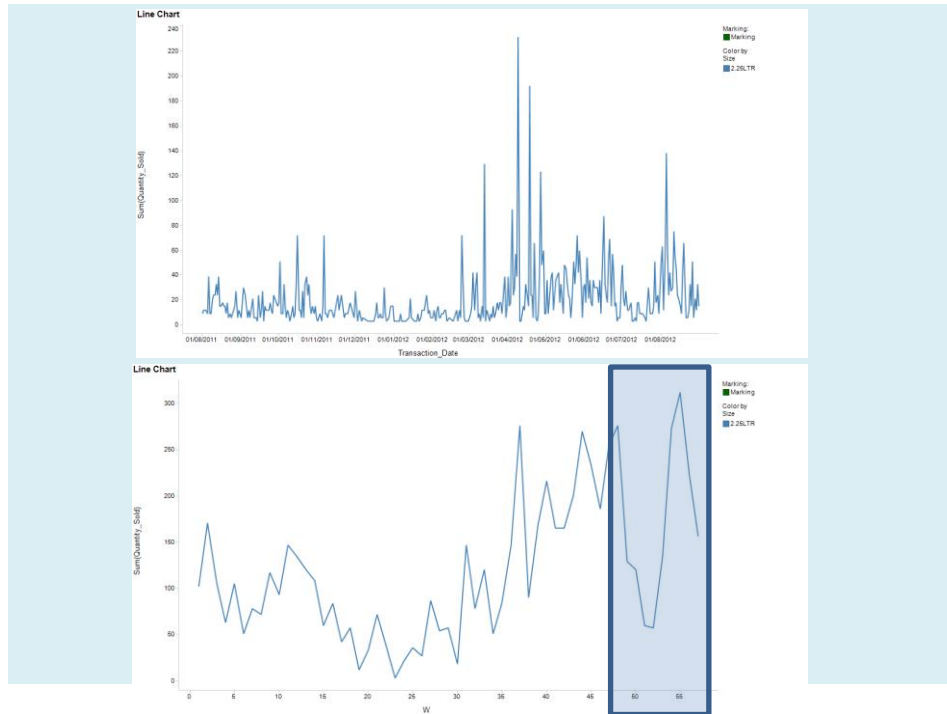
Optimise the use of promotional stands for 2.25l soda bottles

3 Utilising the forecasting model, we can possibly...

Capture more accurate demand, stimulating future revenue / customer satisfaction

Preparing the data for forecasting...

Data cleaning snapshots



Comments

- Aggregation of soda container data using 2.25l soda sizes
- Semi-monthly analysis provided too few data points
- Separated data by weekday and weekend

- Focus on 2.25l soda containers
- Exclusion of week 49 to 58 due to unexplainable rise of level and trend
- Exclusion of mystery buyers, identified using customer IDs

Critical assumptions made for model development...

Platforms contribute significantly to product purchases

Week 49 to 58 assumed to be made up of noise or recording mistakes

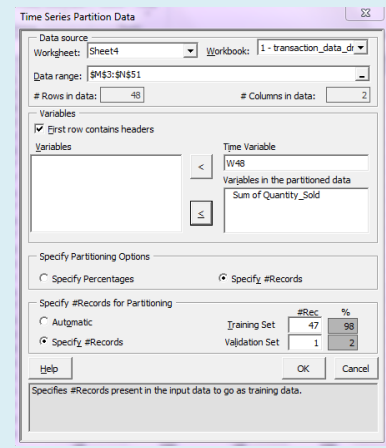
Promotional stands can change on a continuous basis

Promotions not visible, no price changes

The forecasting model...

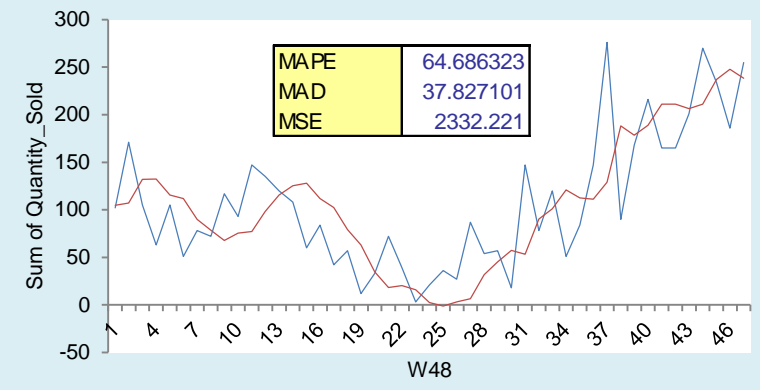
Data partitioning

- Training from W1-W47, Validation W48



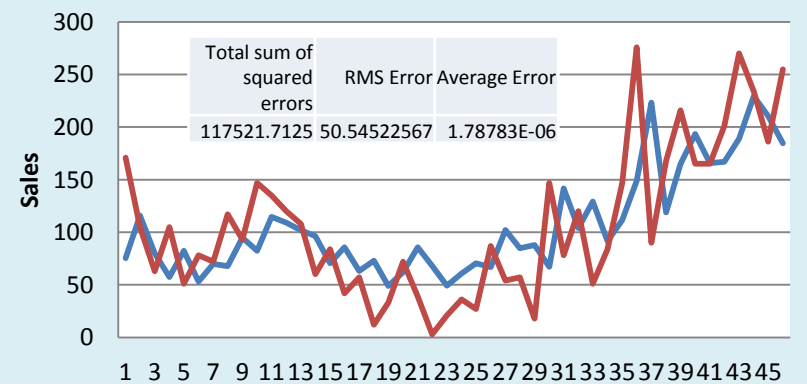
Holt-Winter's additive

Time Plot of Actual Vs Forecast (Training Data)



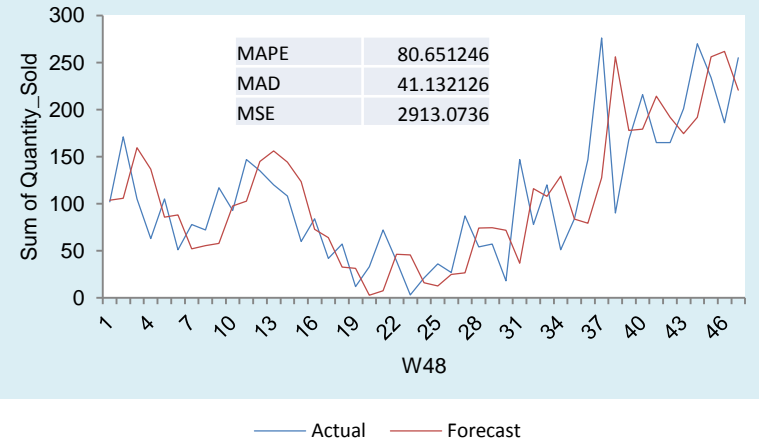
Linear lag-1 regression

Linear with Lag t-1



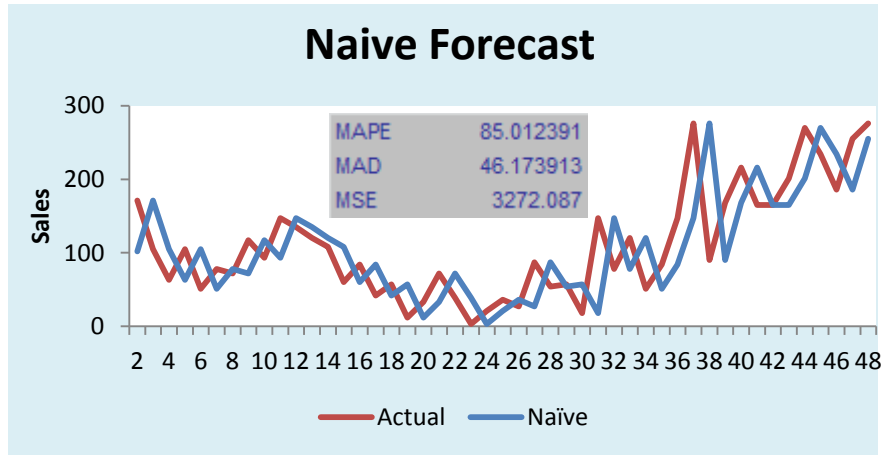
Holt-Winter's multiplicative

Time Plot of Actual Vs Forecast (Training Data)

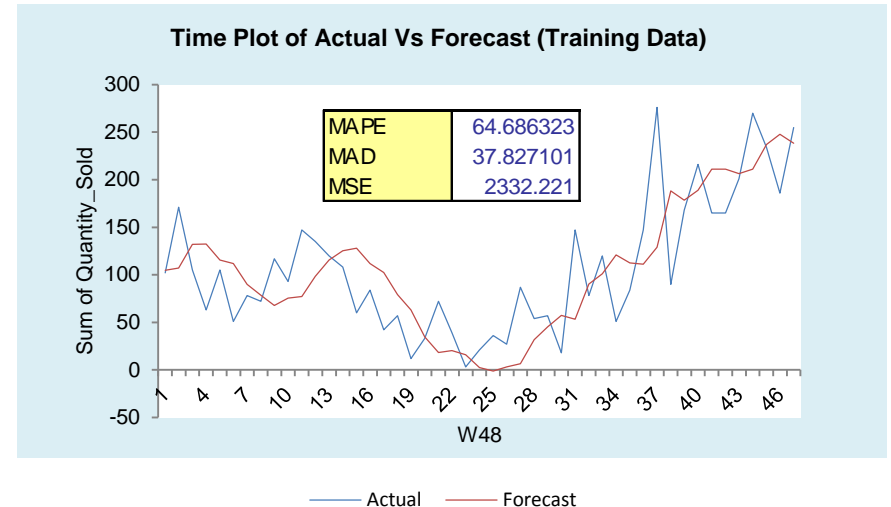


Measuring performance of the chosen model...

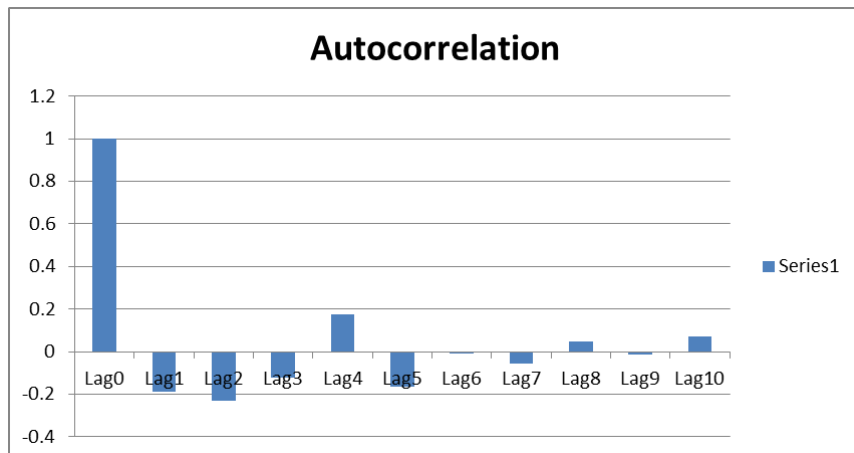
Naïve Forecast



Holt-Winter's additive



Autocorrelation



Comments

- Holt-Winter's model beats naïve forecast
- Autocorrelation shows no seasonality in the data

- Recommendations
 - Implement model during Aug-May and exclude during unpredictable summer season
 - Possible implementation of rolling forward forecast 6 months from now

