Sales forecasting for the European drug store Rossman

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1 Introduction

Predicting sales is a vital part for any business across all sectors, from manufacturing, retail, logistics to wholesale. However, this is one of the most difficult tasks a business can undertake due to the complexities involved. Sales are driven by a great deal of different factors such as the macro scale of seasonality within the year, to the micro scale of the time of day and the day of the week (Hasan, 2024).

2 Methodology

2.0.1 Store data cleaning

Have a look at the structures of the stores data

Describe the steps used to

2.0.2 Decision Tree

Review the available data and describe it in terms of its variables, quality, and relevance to the sales forecasting

Link data sets together as appropriate

Pre-process the data as appropriate for further analytics, for example, you may want to encode any categorical data, create new variables, identify how many missing values there are and deal with them appropriately, etc.

Identify the key factors affecting sales, for example, you may want to check whether competition and promotions have an impact on sales, and how public holidays cause sales fluctuations.

Build a forecasting model (which can be a linear regression model, a neural network model or something else) using the variables you identified. Please make sure to justify the choice of your modelling approach.

Use the Root Mean Square Percentage Error (RMSPE) to forecast accuracy

3 Results

Interpret key results, assumptions and limitations of your analysis.

4 Conclusion

4.1 Limitations

4.2 Implications

4.3 Recommendations

References

Hasan, M.R. 2024. Addressing seasonality and trend detection in predictive sales forecasting: A machine learning perspective. *Journal of Business and Management Studies*. **6**(22), pp.100–109.