

Forecasting Hotel Daily Demand using SARIMA, ANN and LSTM Approaches

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ABSTRACT

Hotel demand forecasting is one of the key points in hotel management as it is used to predict the daily total number of guests as well as correctly establish the suitable room prices, thus potentially help the hotel to maximize the revenue. This study aims to forecast hotel daily demand using SARIMA, ANN and LSTM. The dataset is addressed as univariate data where the total number of stays per night is considered as the variable. With two categories of hotel (resort and city hotel) which behaves differently, it was observed that the data pattern also contributes to the performance of SARIMA, ANN and LSTM. In a data with larger variability, the forecast of SARIMA tends to get less accurate whereas ANN and LSTM prove to be reliable and do not degrade significantly. In this study, ANN was able to reach a similar result to LSTM through longer training process. It is notable that performing these approaches in different datasets and contrasting conditions such as addressing it as multivariate data may generate contrasting analysis and insights.

Keyword: Forecasting 、 Demand 、 SARIMA 、 ANN 、 LSTM

