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In this paper, a new approach is proposed for forecasting a time series with multiple seasonal patterns. A state space model is developed for the series using the single source of error approach which enables us to develop explicit models for both additive and multiplicative seasonality. Parameter estimates may be obtained based on the Kalman filter by using a powerful software call MATLAB. The proposed model is used to examine hourly and daily patterns in hourly data for both utility loads and traffic flows. Our formulation provides a model for several existing seasonal methods and also provides new options, which result in superior forecasting performance over a range of prediction horizons. The approach is likely to be useful in a wide range of applications involving both high and low frequency data, and it handles missing values in a straightforward manner

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