Package ‘stlARIMA’

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Type Package

Title STL Decomposition and ARIMA Hybrid Forecasting Model

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Imports forecast

Depends R (>= 2.10)

NeedsCompilation no

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Data_potato  
*Normalized Monthly Average Potato Price of India*

**Description**

Normalized monthly average potato price of India from January 2014 to July 2020.

**Usage**

```r
data("Data_potato")
```

**Format**

A time series data with 79 observations.

```r
price: a time series
```

**Details**

Dataset contains 79 observations of normalized monthly average potato price of India.

**Source**

Department of Consumer Affairs, Govt. of India

**References**

https://consumeraffairs.nic.in/

**Examples**

```r
data(Data_potato)
```

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**STLARIMA**

*STL Based ARIMA Forecasting Model*

**Description**

The STLARIMA function forecasts a time series using a hybrid model made of a decomposition technique called seasonal trend decomposition based on loess (STL) and a forecasting technique called ARIMA. The function further computes the values of different forecasting evaluation criteria.

**Usage**

```r
STLARIMA(data, stepahead=10)
```
Arguments

data              Input univariate time series (ts) data.
stepahead         The forecast horizon.

Details

This function decomposes a nonlinear, nonstationary and seasonal time series into trend-cycle, seasonal and remainder component using STL (Cleveland et al., 1990). ARIMA model is used to forecast these components individually (Box et al., 2015, Jha and Sinha, 2013). Finally, the prediction results of all the three components are aggregated to formulate an ensemble output for the input time series.

Value

data_test         Testing set used to measure the out of sample performance.
STLcomp_forecast  Forecasted value of all individual components.
stlARIMA_forecast Final forecasted value of the stlARIMA model. It is obtained by combining the forecasted value of all individual components.
MAE_stlARIMA      Mean Absolute Error (MAE) for stlARIMA model.
MAPE_stlARIMA     Mean Absolute Percentage Error (MAPE) for stlARIMA model.
rmse_stlARIMA     Root Mean Square Error (RMSE) for stlARIMA model.

References


Examples

data("Data_potato")
STLARIMA(Data_potato)
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