Package ‘ForecastTB’

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Type Package

Title Test Bench for the Comparison of Forecast Methods

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Maintainer Neeraj Dhanraj Bokde <neerajdhanraj@gmail.com>

Description Provides a test bench for the comparison of forecasting methods in uni-variate time series. Forecasting methods are compared using different error metrics. Proposed forecasting methods and alternative error metrics can be used. Detailed discussion is provided in the vignette.

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Imports PSF, decomposedPSF, ggplot2, gridExtra, imputeTestbench, methods, reshape2, forecast, circlize, RColorBrewer, stats, graphics, utils

Encoding UTF-8

LazyData true

RoxygenNote 7.0.2

Suggests knitr, testthat (>= 2.1.0)

VignetteBuilder knitr

NeedsCompilation no

Author Neeraj Dhanraj Bokde [aut, cre]

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Function to append new methods in the study

Description

Function to append new methods in the study

Usage

`append_(object, Method, MethodName, ePara, ePara_name)`

Arguments

- `object`: as output of `prediction_errors()` function
- `Method`: as the list of locations of function for the proposed prediction method
- `MethodName`: as list of names for function for the proposed prediction method in order
- `ePara`: as type of error calculation (RMSE and MAE are default), add an error parameter of your choice in the following manner: `ePara = c("errorparametername")` where errorparametername is should be a source/function which returns desired error set
- `ePara_name`: as list of names of error parameters passed in order

Value

Returns error comparison for additional forecasting methods

Examples

```r
## Not run:
library(forecast)
test3 <- function(data, nval){return(as.numeric(forecast(ets(data), h = nval)$mean))}
a <- prediction_errors(data = nottem)
b <- append_(object = a, Method = c("test3(data,nval)"), MethodName = c('ETS'))
choose_(object = a)
## End(Not run)
```
choose_

Function to select the desired methods in the study

Description
Function to select the desired methods in the study

Usage
choose_(object)

Arguments

object as output of `prediction_errors()` function

Value
Returns error comparison for selected forecasting methods

Examples
## Not run:
a <- prediction_errors(data = nottem)
choose_(object = a)
## End(Not run)

monte_carlo

Function to use Monte Carlo strategy

Description
Function to use Monte Carlo strategy

Usage
monte_carlo(object, size, iteration, fval = 0, figs = 0)

Arguments

object as output of `prediction_errors()` function
size as volume of time series used in Monte Carlo strategy
iteration as number of iterations models to be applied
fval as a flag to view forecasted values in each iteration (default: 0, don’t view values)
figs as a flag to view plots for each iteration (default: 0, don’t view plots)
plot.prediction_errors

Value

Error values with provided models in each iteration along with the mean values

Examples

```r
## Not run:
library(forecast)
test3 <- function(data, nval){return(as.numeric(forecast(ets(data), h = nval)$mean))}
a <- prediction_errors(data = nottem,
  Method = c("test3(data, nval)"),
  MethodName = c("ETS"), append_ = 1)
monte_carlo(object = a1, size = 144, iteration = 10)

## End(Not run)
```

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plot.prediction_errors

*Function to plot comparison of Prediction methods*

Description

Function to plot comparison of Prediction methods

Usage

```r
## S3 method for class 'prediction_errors'
plot(x, ...)
```

Arguments

- **x**  
as output object of `prediction_errors()` function
- **...**  
arguments passed to or from other methods

Value

Returns error comparison plots for forecasting methods

Examples

```r
a <- prediction_errors(data = nottem)
b <- plot(a)
```
plot_circle

Function to plot comparison of Predicted values in a circular ring

Description
Function to plot comparison of Predicted values in a circular ring

Usage
plot_circle(x, ...)

Arguments
x as output object of ’prediction_errors()’ function
... arguments passed to or from other methods

Value
Returns error comparison plots for forecasting methods

Examples
a <- prediction_errors(data = nottem)
plot_circle(a)

prediction_errors
Function working as testbench for comparison of Prediction methods

Description
Function working as testbench for comparison of Prediction methods

Usage
prediction_errors(
data, nval, ePara, ePara_name, Method, MethodName, strats, dval, append_ )
prediction_errors

Arguments

- **data**: as input time series for testing
- **nval**: as an integer to decide number of values to predict
- **ePara**: as type of error calculation (RMSE and MAE are default), add an error parameter of your choice in the following manner: `ePara = c("errorparametername")` where `errorparametername` is should be a source/function which returns desired error set
- **ePara_name**: as list of names of error parameters passed in order
- **Method**: as the list of locations of function for the proposed prediction method (should be recursive) (default:arima)
- **MethodName**: as list of names for function for the proposed prediction method in order
- **strats**: as list of forecasting strategies. Available : recursive and dirrec
- **dval**: as last d values of the data to be used for forecasting
- **append_**: suggests if the function is used to append to another instance

Value

Returns error comparison for forecasting methods

Examples

- `prediction_errors(data = nottem)`
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