Package 'mafs'

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Type Package

Title Multiple Automatic Forecast Selection

Version 0.0.1

Description Fits several forecast models available from the forecast package and selects the best one according to an error metric. Its main function is select_forecast().

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LazyData TRUE

Imports fracdiff, tseries, timeDate, cmprsk, etm, forecast, forecastHybrid, CombMSC, Epi, quadprog, colorspace, zoo, Rcpp, gtable, scales, plyr, numDeriv, ggplot2, munsell, tidyr, ggseas, stats

Suggests testthat

Depends

URL http://github.com/sillasgonzaga/mafs

BugReports http://github.com/sillasgonzaga/mafs/issues

RoxygenNote 5.0.1

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R topics documented:

`apply_all_models` *Fit several forecast models*

Description

Create a list of all possible forecast models for the inputed time series object.

Usage

```
apply_all_models(x, horizon)
```

Arguments

`x`	A ts object.
`horizon`	The forecast horizon length

Details

This functions loops the output from available_models(), uses it as the model.name argument for apply_selected_model() and return a list of length 18 in which each element is a forecast model. Depending on some of the characteristics of the time series object used as the input for this function, the model might not be created. For example, if you try to fit a neural network model to a short time series, it will return an error and fail to create the fit. In order to overcome this issue, if the model returns an error, it will return a NA as the list element instead.

Value

A list of forecast objects from apply_selected_model()

Examples

```
## Not run:
apply_all_models(austres, 6)

## End(Not run)
```

apply_selected_model *Select a model to forecast a time series object.*

Description

Apply a chosen forecast model to a time series object. Basically a wrapper for many functions from the forecast package. Please run avaiableModels() to see the list of available modes to use as the model.name argument of this function.

Usage

```
apply_selected_model(x, model_name, horizon)
```

Arguments

x	A ts object.
model_name	A string indicating the name of the forecast model.
horizon	the forecast horizon length

Value

A forecast object

Examples

```
apply_selected_model(AirPassengers, "auto.arima", 6)
```

available_models *List of available models in mafs package*

Description

List of available models in mafs package, imported from the forecast package.

Usage

```
available_models()
```

Value

A character vector of the forecast models that can be used in this package.

Examples

```
available_models()
```

error_metrics *list of available error metrics in mafs package*

Description

See forecast::accuracy() for more details.

Usage

```
error_metrics()
```

Details

There is an internal function in this package (removeTheil()) that removes Theil'U metric from the output. This was necessary because for some time series, forecast::accuracy() does not output the value for this metric.

Value

A character vector of the error metrics that can be used in this package.

Examples

```
error_metrics()
```

gg_fit *Graphical results of forecast models*

Description

Applys a selected forecast model to a time series and plot the fitted series and the forecasted values along with the original series.

Usage

```
gg_fit(x, test_size, model_name)
```

Arguments

x	A ts object.
test_size	Integer. The desired length of the test set object to be used to train the model and compare the forecasted with the observed values.
model_name	A string indicating the name of the forecast model.

Value

A ggplot object

Examples

```
gg_fit(AirPassengers, 12, "snaive")
```

`select_forecast` *Selects best forecast model*

Description

select_forecast is the main function of this package. It uses apply_all_models() and other internal functions of this package to generate generate multiple forecasts for the same time series object.

Usage

```
select_forecast(x, test_size, horizon, error)
```

Arguments

`x`	A ts object.
`test_size`	The desired length of the test set object to be used to measure the accuracy of the forecast models.
`horizon`	The forecast horizon length
`error`	The accuracy metric to be used to select the best forecast model from apply_all_models(). See error_metrics() for the available metrics.

Details

TODO

Value

A list of three objects:

df_models

A data.frame with the accuracy metrics of all models applied to x

best_forecast

A forecast object created by applying the best forecast method to x

df_comparison

A dataframe showing both the forecasted and the observed test set

Examples

```
## Not run:
select_forecast(austres, 6, 12, "MAPE")

## End(Not run)
```

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