Package 'tsfngm'

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Type Package

Title Time Series Forecasting using Nonlinear Growth Models

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Depends R (>= 2.6),stats

Description
Nonlinear growth models are extremely useful in gaining insight into the underlying mechanism. These models are generally 'mechanistic,' with parameters that have biological meaning. This package allows you to fit and forecast time series data using nonlinear growth models.

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R topics documented:

FFNGM *Fitting and Forecasting using Nonlinear Growth Models*

Description

The FFNGM function fits nonlinear growth models to time series data and computes the h step ahead forecast values.

Usage

```
FFNGM (x, t, model=c("Monomolecular", "Logistic", "Gompertz"), k, y, r, h)
```

Arguments

x	a univariate time series data.
t	a numeric vector containing time points.
model	"Monomolecular" or "Logistic" or "Gompertz".
k	Initial estimate of carrying capacity (maximum limit of the considered time series data).
y	Initial estimate of starting value of the considered time series data.
r	Initial estimate of growth rate.
h	The forecast horizon.

Details

Using the nonlinear least squares method, this function estimates the parameters of nonlinear growth models for time series data. This function returns the fitted model summary, as well as the model's fitted values and various evaluation criteria. This function also returns the fitted model's h step ahead forecasted values.

Value

modelsummary	Summary of the fitted model
fitted.values	Fitted values of the model
MAE	Mean Absolute Error (MAE) of the fitted model
MAPE	Mean Absolute Percentage Error (MAPE) of the fitted model
MSE	Mean Square Error (MSE) of fitted the model
RMSE	Root Mean Square Error (RMSE) of the fitted model
forecasted.values	h step ahead forecasted values of the fitted Model

Author(s)

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References

Pal, S. and Mazumder, D. (2015). Forecasting groundnut production of India using nonlinear growth models. Journal Crop and Weed, 11, 67-70.

Seber, G. A.F. and Wild, C. J. 2003. Nonlinear Regression, 2, New York: John Wiley.

See Also

nls

Examples

```
t<-c(0:12)
x<-c(57.97,66.02, 72.62, 77.87, 81.95, 85.07, 87.43, 89.20, 90.52, 91.50, 92.22, 92.75, 93.1)
FFNGM(x,t,"Gompertz",94, 55, 0.1, 3)
```

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