

# Package ‘naive’

January 5, 2023

**Type** Package

**Title** Empirical Extrapolation of Time Feature Patterns

**Version** 1.2.2

**Description** An application for the empirical extrapolation of time features selecting and summarizing the most relevant patterns in time sequences.

**License** GPL-3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.2.1

**Depends** R (>= 4.1)

**Imports** purrr (>= 0.3.4), ggplot2 (>= 3.3.5), readr (>= 2.1.2),  
lubridate (>= 1.7.10), imputeTS (>= 3.2), fANCOVA (>= 0.6-1),  
scales (>= 1.1.1), tictoc (>= 1.0.1), modeest (>= 2.4.0),  
moments (>= 0.14), greybox (>= 1.0.7), Rfast (>= 2.0.6),  
fastDummies (>= 1.6.3), entropy (>= 1.3.1), philentropy (>= 0.7.0)

**URL** [https://rpubs.com/giancarlo\\_vercellino/naive](https://rpubs.com/giancarlo_vercellino/naive)

**NeedsCompilation** no

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**Repository** CRAN

**Date/Publication** 2023-01-05 16:30:02 UTC

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naive

*naive***Description**

Empirical Extrapolation of Time Feature Pattern

**Usage**

```
naive(
  df,
  seq_len = NULL,
  ci = 0.8,
  smoother = FALSE,
  cover = NULL,
  stride = NULL,
  method = NULL,
  location = NULL,
  n_windows = 10,
  n_samp = 30,
  dates = NULL,
  error_scale = "naive",
  error_benchmark = "naive",
  seed = 42
)
```

**Arguments**

df	A data frame with time features on columns (all numerics or all categories, but not both). In case of missing values, automatic missing imputation through kalman filter will be performed.
seq_len	Positive integer. Time-step number of the forecasting sequence. Default: NULL (random selection within boundaries).
ci	Confidence interval for prediction. Default: 0.8
smoother	Logical. Flag to TRUE for loess smoothing (only for numeric series). Default: FALSE.
cover	Positive numeric. The quantile cover around the location parameter (between 0 and 1). Default: NULL (random selection within boundaries).
stride	Positive integer. Shift between subsequent sequences. Default: NULL (random selection within boundaries).
method	String. Distance method using during the comparison of time sequences. Possible options are: "euclidean", "manhattan", "minkowski". Default: NULL (random selection).
location	String. Statistic used to center the cover parameter. Possible options are: "mean", "mode" (parzen method), "median". Default: NULL (random selection).

n_windows	Positive integer. Number of validation windows to test prediction error. Default: 10.
n_samp	Positive integer. Number of sample selected during random search. Default: 30.
dates	Date. Vector with dates for time features.
error_scale	String. Scale for the scaled error metrics. Two options: "naive" (average of naive one-step absolute error for the historical series) or "deviation" (standard error of the historical series). Default: "naive".
error_benchmark	String. Benchmark for the relative error metrics. Two options: "naive" (sequential extension of last value) or "average" (mean value of true sequence). Default: "naive".
seed	Positive integer. Random seed. Default: 42.

### Value

This function returns a list including:

- exploration: collection of all the models explored with random search
- history: a table with the explored models' hyper-parameters and validation errors
- best\_model: best combination resulting from the average prediction score across different ranks and features, including:
  - quant\_preds: min, max, q25, q50, q75, quantiles at selected ci, mean, sd, mode, skewness, kurtosis, IQR to range, above to below median range, upside probability and divergence for each point fo predicted sequences
  - errors: testing errors for each time feature averaged across validation windows
  - plots: standard plot with confidence interval for each time feature
- time\_log

### Author(s)

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**Maintainer:** Giancarlo Vercellino <giancarlo.vercellino@gmail.com> [copyright holder]

### See Also

Useful links:

- [https://rpubs.com/giancarlo\\_vercellino/naive](https://rpubs.com/giancarlo_vercellino/naive)

### Examples

```
{
naive(time_features[, 2:3, drop = FALSE], seq_len = 30, n_samp = 1, n_windows = 5)
}
```

---

time_features	<i>time features example: IBM, AAPL, AMZN, GOOGL and MSFT Close Prices</i>
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**Description**

A data frame with with daily with daily prices for some Big Tech Companies since March 2017.

**Usage**

```
time_features
```

**Format**

A data frame with 6 columns and 1336 rows.

**Source**

[finance.yahoo.com](http://finance.yahoo.com)

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