Package 'binomialtrend'

July 22, 2025

Title Calculates the Statistical Significance of a Trend in a Set of Measurements

Version 0.0.0.3

Description Detection of a statistically significant trend in the data provided by the user. This is based on the a signed test based on the binomial distribution. The package returns a trend test value, T, and also a p-value. A T value close to 1 indicates a rising trend, whereas a T value close to -1 indicates a decreasing trend. A T value close to 0 indicates no trend. There is also a command to visualize the trend. A test data set called gtsa_data is also available, which has global mean temperatures for January, April, July, and October for the years 1851 to 2022. Reference: Walpole, Myers, Myers, Ye. (2007, ISBN: 0-13-187711-9).

License GPL-3

Encoding UTF-8

RoxygenNote 7.2.3

Depends R (>= 2.10)

LazyData true

Imports pheatmap

NeedsCompilation no

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Repository CRAN

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binomialtrend *Calculates The Statistical Significance Of A Teend In A Set Of Measurements*

Description

The package calculates whether there is a statistically significant trend in the date provided by the user. This is based on the a signed test based on the binomial distribution. The package returns a trend test value, T, and also a p-value. A T value close to 1 indicates a rising trend, whereas a T value close to -1 indicates a decreasing trend. A T value close to 0 indicates no trend. There is also a command to create a heatmap visualizing the trend.

Version 0.0.1. Author: Dr. Matthew Cserhati Email: csmatyi@protonmail.com December 14, 2022

Arguments

data	a data frame with the measurement values

Value

The p-value and trend value of the data

References

Walpole, Myers, Myers, Ye. (2007) Probability & Statistics for Engineers and Scientists. Upper Saddle River, NJ, Pearson Prentice Hall.

Examples

```
meas <- c(1.1,4.5,7.8,5.9,10.2)
binomialtrend(meas)
binomialtrend(c(1,2,3,4,2,4,5,6,8,5,4,7,10,11))
```

gsta_data *CRUTEM World Mean Temperature Data Set from 1851 to 2022*

Description

CRUTEM World Mean Temperature Data Set from 1851 to 2022

Usage

```
gsta_data
```

Format

gsta_data:

A data set with 172 rows and 4 columns, for Jan, Apr, Jul and Oct from 1851-2022

Jan world mean temperature for January

Apr world mean temperature for April

Jul world mean temperature for July

Oct world mean temperature for October

Source

https://crudata.uea.ac.uk/cru/data/temperature/CRUTEM.5.0.1.0.stat4post.txt.gz

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trendmap *Calculates The Statistical Significance Of A Teend In A Set Of Measurements*

Description

The package calculates whether there is a statistically significant trend in the date provided by the user. This is based on the a signed test based on the binomial distribution. The package returns a trend test value, T, and also a p-value. A T value close to 1 indicates a rising trend, whereas a T value close to -1 indicates a decreasing trend. A T value close to 0 indicates no trend. There is also a command to create a heatmap visualizing the trend.

Version 0.0.1. Author: Dr. Matthew Cserhati Email: csmatyi@protonmail.com December 14, 2022

Arguments

data	a data frame with the measurement values

Value

nil

References

Walpole, Myers, Myers, Ye. (2007) Probability & Statistics for Engineers and Scientists. Upper Saddle River, NJ, Pearson Prentice Hall.

Examples

```
meas <- c(1.1,4.5,7.8,5.9,10.2)
trendmap(meas)
trendmap(c(1,2,3,4,2,4,5,6,8,5,4,7,10,11))
```

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