Package ‘normalr’

March 30, 2018

Title Normalisation of Multiple Variables in Large-Scale Datasets

Version 1.0.0

Description The robustness of many of the statistical techniques, such as factor analysis, applied in the social sciences rests upon the assumption of item-level normality. However, when dealing with real data, these assumptions are often not met. The Box-Cox transformation (Box & Cox, 1964) <http://www.jstor.org/stable/2984418> provides an optimal transformation for non-normal variables. Yet, for large datasets of continuous variables, its application in current software programs is cumbersome with analysts having to take several steps to normalise each variable. We present an R package ‘normalr’ that enables researchers to make convenient optimal transformations of multiple variables in datasets. This R package enables users to quickly and accurately: (1) anchor all of their variables at 1.00, (2) select the desired precision with which the optimal lambda is estimated, (3) apply each unique exponent to its variable, (4) rescale resultant values to within their original X1 and X(n) ranges, and (5) provide original and transformed estimates of skewness, kurtosis, and other inferential assessments of normality.

Depends R (>= 3.3.0)

License GPL

Encoding UTF-8

LazyData true

Imports MASS, parallel, purrr, magrittr, rlang, shiny

Suggests testthat, covr

RoxygenNote 6.0.1

URL https://github.com/kcha193/normalr

BugReports https://github.com/kcha193/normalr/issues

NeedsCompilation no

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Repository CRAN

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### Description

Computes optimal lambda value using `boxcox` function from the provided data.

### Usage

```r
getLambda(dat, lambda = seq(-10, 10, 1/100), parallel = TRUE)
```

### Arguments

- `dat`: a data frame containing the variables of numeric or integer vectors.
- `lambda`: a vector of values of lambda – default (-10, 10) in steps of 0.01.
- `parallel`: perform the computation in parallel, default setting is TRUE.

### Value

a numeric vector

### References


### Examples

```r
## Not run: getLambda(mtcars)
getLambda(mtcars, parallel = FALSE)
```
normalise

Apply normalisation on a numeric vector using a specific Lambda value

Description

Apply normalisation on a numeric vector using a specific Lambda value

Usage

normalise(x, lambda = 3)

Arguments

x                  a numeric vector to be normalised.
lambda             a numeric vector from the boxcox function

Value

a numeric vector

Examples

x <- c(1, 5, 9, 9, 9, 10, 10, 10, 11, 11, 12)
normalise(x, lambda = 3)

normaliseData

Apply normalisation on a data frame using specific Lambda value

Description

Apply normalisation on a data frame using specific Lambda value

Usage

normaliseData(dat, lambdas)

Arguments

dat            a data frame containing the variables.
lambdas        a numeric vector from the boxcox function

Value

a data frame
**Examples**

```r
## not run: normaliseData(mtcars, getLambda(mtcars, parallel = FALSE))
normaliseData(mtcars, getLambda(mtcars, parallel = FALSE))
```

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**normalrShiny**  
*Shiny application of the normalr*

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**Description**

Shiny application of the normalr

**Usage**

```r
normalrShiny(example = "normalr")
```

**Arguments**

- `example`  
  name of the shiny apps

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**Examples**

```r
## not run: normalrShiny()
```

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**testData**  
*Test dataset for the paper*

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**Description**

Test dataset for the paper

**Usage**

```r
testData
```

**Format**

An object of class `data.frame` with 957 rows and 9 columns.
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