Package 'DemographicTable'

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Type Package

Title Creating Demographic Table

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Description Functions for creating demographic table with simple summary statistics, with optional comparison(s) over one or more groups. Numeric variables are summarized in means, standard deviations, medians, inter-quartile-ranges (IQR), skewness, Shapiro-Wilk normality test and ranges, and compared using two-sample t-test, Wilcoxon test, ANOVA and/or Kruskal-Wallis test. Logical and factor variables are summarized in counts and percentages and compared using chi-squared test and/or Fisher's exact test.

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Author Tingting Zhan [aut, cre, cph] (<https://orcid.org/0000-0001-9971-4844>)

Maintainer Tingting Zhan <tingtingzhan@gmail.com>

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`DemographicTable-package`

Create Demographic Table

Description

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Author(s)

Maintainer: Tingting Zhan <tingtingzhan@gmail.com> (ORCID) [copyright holder]

`as_flextable.DemographicTable`

Convert DemographicTable to flextable

Description

Convert a DemographicTable to flextable object.

Usage

```
## S3 method for class 'DemographicTable'
as_flextable(x, ...)
```

Arguments

`x`	a DemographicTable object
`...`	potential additional parameters, not currently in use

Value

Function as_flextable.DemographicTable returns a flextable object.

Note

End user may use set_caption to add a caption to the output demographic table.

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class1List *First Class of Each Element in a Recursive Object*

Description

First class of each element in a recursive object

Usage

```
class1List(x)
```

Arguments

x	a recursive object, e.g., data.frame or list

Value

Function class1List returns a list of character elements. Each element is a collection of the names of the elements of each specific class.

Examples

```
class1List(esoph)
class1List(lm(Ozone ~ Wind + Temp, data = airquality))
```

DemographicTable *Create Demographic Table*

Description

Create a demographic table with simple summary statistics, with optional comparison(s) over one or more groups.

Usage

```
DemographicTable(data, ...)

## S3 method for class 'data.frame'
DemographicTable(
  data,
  data.name = substitute(data),
  groups = NULL,
  keep_missing_group = TRUE,
  exclude = NULL,
  exclude_pattern,
  include,
  include_pattern,
  paired = FALSE,
  robust = TRUE,
  overall = TRUE,
  compare = TRUE,
  pairwise = 3L,
  ...
)
```

Arguments

data	a data.frame
...	additional parameters, currently not in use
data.name	character scalar, or the argument call of data. A user-friendly name of the input data.
groups	character scalar or vector, the name(s) of sub-group(s) for which the summary statistics are to be provided. Default NULL indicating no sub-groups.
keep_missing_group	logical scalar. If TRUE (default), the subjects with missing group are put into a new group ('.missing'). if FALSE, these subjects are removed from group-wise summary statistics.
exclude	character vector, the name(s) of variable(s) to be excluded. Default NULL indicating no variable are to be excluded.
exclude_pattern	(optional) character scalar as regex (regular expression), the pattern of the names of the variable(s) to be excluded.
include	character vector, the name(s) of variable(s) to be included. Default names(data) indicating all variables are to be included.
include_pattern	(optional) character scalar as regex (regular expression), the pattern of the names of the variable(s) to be included.
paired	logical scalar, whether to perform paired test (default FALSE)
robust	logical scalar. If TRUE (default), use non-parametric methods for non-normally distributed numeric variables.

`overall`	logical scalar. If `TRUE` (default), a column of overall summary statistics will be provided.
`compare`	logical scalar. If `TRUE` (default), comparisons between group(s) will be made.
`pairwise`	integer scalar, minimum number of groups where pairwise comparisons need to be performed. Default `3L`.

Details

A demographic table with simple summary statistics, with optional comparison(s) over one or more groups, is created.

numeric variables are summarized in means, standard deviations, medians, inter-quartile-ranges (IQR), skewness, p-value of Shapiro-Wilk normality test and ranges. If `group` is specified, they are compared using two-sample t.test, wilcox.test (Wilcoxon / Mann-Whitney), one-way aov (ANOVA) and/or kruskal.test (Kruskal-Wallis).

logical and factor variables are summarized in counts and percentages. If `group` is specified, they are compared using prop.test (chi-squared) and/or fisher.test (Fisher's exact).

Value

Function DemographicTable returns an object of S3 class `'DemographicTable'`, which inherits from matrix.

Examples

```
DemographicTable(esoph)
DemographicTable(ToothGrowth, groups = 'supp', include = 'len')
DemographicTable(ToothGrowth, groups = 'supp', include = 'len', paired = TRUE)
DemographicTable(ToothGrowth, groups = 'supp', include = 'len', compare = FALSE)
DemographicTable(warpbreaks, groups = c('wool', 'tension'))
DemographicTable(mtcars, groups = c('vs', 'am'), include = c('mpg', 'cyl', 'disp'))

# with missing value
DemographicTable(airquality, groups = 'Month', exclude = 'Day')
DemographicTable(MASS::survey, groups = 'Smoke', keep_missing_group = FALSE)
DemographicTable(MASS::survey, groups = 'Smoke', keep_missing_group = FALSE, useNA = 'always')

# write to Word file
library(flextable)
library(officer)
x = read_docx() |> body_add_flextable(value = as_flextable(DemographicTable(esoph)))
(out = file.path(tempdir(), 'demotable.docx'))
print(x, target = out)
# system(paste('open', out)) # works on Mac & Windows, but requires Microsoft Word
file.remove(out)
```

`pval_shapiro` *p-value from modified Shapiro-Wilk Normality Test*

Description

Obtain p-value from shapiro.test, taking into consideration of several exceptions.

Usage

```
pval_shapiro(x, CLT = FALSE, ...)
```

Arguments

`x`	double vector
`CLT`	logical scalar, whether to allow the use of Central Limit Theorem, default `FALSE`
`...`	additional parameters, currently not in use

Details

Function pval_shapiro provides a pseudo p-value for several exceptions of shapiro.test, serving as a criteria of whether robust statistics/tests need to be used

`length(x) < 3L` returns $p = 0$, indicating that robust methods are needed.

`length(x) > 5e3L` returns $p = 1$, indicating that no robust method is needed. For such large sample size, robust methods could be too slow.

`CLT & length(x) > 30L` returns $p = 1$, indicating that no robust method is needed because of the use of Central Limit Theorem.

all `x` values are identical (or all.equal, to be implemented in future release) returns $p = 0$, indicating that robust methods are needed.

Otherwise use the p-value from shapiro.test.

Value

Function pval_shapiro returns a double scalar.

Examples

```
pval_shapiro(rnorm(5))
sapply(with(airquality, split(Ozone, f = Month)), FUN = pval_shapiro)
```

summaryText *Summary Text*

Description

Provide the summary text of an R object

Usage

```
summaryText(x, fmt, ...)

## Default S3 method:
summaryText(x, fmt = "%.2f", ...)

## S3 method for class 'factor'
summaryText(x, fmt = "%.1f", useNA = c("no", "always"), ...)

## S3 method for class 'ordered'
summaryText(x, fmt = "%.1f", useNA = c("no", "always"), ...)

## S3 method for class 'character'
summaryText(x, ...)

## S3 method for class 'logical'
summaryText(x, fmt = "%.1f", ...)
```

Arguments

x	an R object
fmt	character scalar, format string, see sprintf
...	additional parameters, currently not in use
useNA	character scalar, 'no' (default) or 'always', see table

Value

Function summaryText returns a character scalar.

Examples

```
x = rpois(n = 20L, lambda = 2)
x[sample.int(length(x), 3L)] = NA_integer_
summaryText(x)

# factor
x = state.region
x[2L] = NA_integer_
summaryText(x)
```

```
# binary
summaryText(c(TRUE, FALSE, TRUE, NA))
summaryText(c(TRUE, FALSE, TRUE))
summaryText(c(FALSE, FALSE, NA))
summaryText(c(FALSE, FALSE, FALSE))
summaryText(c(NA, NA, NA))
```

`xtable.DemographicTable`

Write DemographicTable to LaTeX

Description

Write DemographicTable to LaTeX.

Usage

```
## S3 method for class 'DemographicTable'
xtable(x, ...)
```

Arguments

`x`	a DemographicTable object
`...`	additional parameters of xtable

Value

Function xtable.DemographicTable returns an xtable object.

Examples

```
(tb = DemographicTable(ToothGrowth, groups = 'supp'))
library(xtable)
print(xtable(tb), sanitize.text.function = identity,
 sanitize.colnames.function = NULL, include.rownames = FALSE)
```

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