Package ‘summarytools’

August 24, 2019

<table>
<thead>
<tr>
<th>Type</th>
<th>Package</th>
</tr>
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<tbody>
<tr>
<td>Title</td>
<td>Tools to Quickly and Neatly Summarize Data</td>
</tr>
<tr>
<td>Version</td>
<td>0.9.4</td>
</tr>
<tr>
<td>Description</td>
<td>Data frame summaries, cross-tabulations, weight-enabled frequency tables and common univariate statistics in concise tables available in a variety of formats (plain ASCII, Markdown and HTML). A good point-of-entry for exploring data, both for experienced and new R users.</td>
</tr>
<tr>
<td>Imports</td>
<td>checkmate, dplyr, grDevices, htmltools, lubridate, magick, matrixStats, methods, pander, pryr, rapportools, RCurl, stats, tcltk, tibble, tidyr, utils</td>
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<tr>
<td>Suggests</td>
<td>forcats, knitr, magrittr, rmarkdown, rstudioapi</td>
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<tr>
<td>Depends</td>
<td>R (&gt;= 2.10)</td>
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<tr>
<td>VignetteBuilder</td>
<td>knitr</td>
</tr>
<tr>
<td>LazyData</td>
<td>true</td>
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<td>License</td>
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<tr>
<td>URL</td>
<td><a href="https://github.com/dcomtois/summarytools">https://github.com/dcomtois/summarytools</a></td>
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<tr>
<td>BugReports</td>
<td><a href="https://github.com/dcomtois/summarytools/issues">https://github.com/dcomtois/summarytools/issues</a></td>
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<td>RoxygenNote</td>
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<td>no</td>
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<tr>
<td>Author</td>
<td>Dominic Comtois [aut, cre]</td>
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<td>Maintainer</td>
<td>Dominic Comtois <a href="mailto:dominic.comtois@gmail.com">dominic.comtois@gmail.com</a></td>
</tr>
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summarytools-package  Extensive Summarizing Tools With Flexible Output

Description

summarytools provides users with functions to neatly and quickly summarize numerical and categorical data. Data frame summaries, frequency tables and cross-tabulations, as well as common univariate statistics can be produced in a straightforward manner. Users with little to no prior R programming experience but who are familiar with the concepts (and maybe with some procedures coming from other software packages) should find their way easily.

Details

These are the four core functions:

dfSummary  Extensive yet legible data frame summaries.

descr All common univariate descriptive stats for single vectors or for all numerical vectors in a data frame.
etable Cross-tabulations for two categorical vectors or factors. Choose between Total, Columns or Rows proportions.

Output formats are:

plain ascii Ideal when looking at results in the console.
markdown Ideal when writing short papers or presentations.
html This format is well integrated in RStudio (but will work with any browser). Use the view() function to see results appear directly in RStudio’s Viewer or in your default Web Browser.

Author(s)

Maintainer: Dominic Comtois <dominic.comtois@gmail.com>

See Also

Useful links:
• https://github.com/dcomtois/summarytools
• Report bugs at https://github.com/dcomtois/summarytools/issues

cleartmp  Delete Temporary Html Files

table

Description

Delete temporary files created when using generic print method with method='browser' or method='viewer', or when calling view() function.

Usage

cleartmp(all = TRUE, silent = FALSE, verbose = FALSE)

Arguments

all Logical. When TRUE (default), all temporary summarytools files are deleted. When FALSE, only the latest file is.
silent Logical. Hide confirmation messages (FALSE by default).
verbose Logical. Display a message for every file that is deleted. FALSE by default.

Details

All temporary files are deleted automatically when R session is ended. This function is thus an overkill in most circumstances.

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>
ctable  
Cross-Tabulation

Description
Cross-tabulation for a pair of categorical variables (or factors) with either row, column, or total proportions, as well as marginal sums.

Usage
ctable(x, y, prop = st_options("ctable.prop"), useNA = "ifany",
totals = st_options("ctable.totals"), style = st_options("style"),
round.digits = 1, justify = "right",
plain.ascii = st_options("plain.ascii"),
headings = st_options("headings"),
display.labels = st_options("display.labels"), split.tables = Inf,
dnn = c(substitute(x), substitute(y)), chisq = FALSE, weights = NA,
rescale.weights = FALSE, ...)

Arguments
x First categorical variable - values will appear as row names.
y Second categorical variable - values will appear in as column names.
prop Proportions to display; “r” for rows (default), “c” for columns, “t” for total, or “n” for none. This option can be set globally; see st_options.
useNA Argument passed on to table; One of “ifany” (default), “no”, or “always”.
totals Logical. Should row and column totals be displayed? Defaults to TRUE. To change this default value globally, see st_options.
style Style to be used by pander when rendering output table; One of “simple” (default), “grid”, or “rmarkdown”. This option can be set globally; see st_options.
round.digits Number of significant digits to display. Defaults to 1. To change this default value globally, see st_options.
justify String indicating alignment of columns; one of “l” (left) “c” (center), or “r” (right). Defaults to “r”.
plain.ascii Logical. pander argument; when TRUE, no markup characters will be used (useful when printing to console). Defaults to TRUE unless style = ‘rmarkdown’, in which case it will be set to FALSE automatically. To change the default value globally, use st_options.
headings Logical. Set to FALSE to omit heading section. Can be set globally via st_options.
display.labels Logical. Should variable / data frame label be displayed in the title section? Default is TRUE. To change this default value globally, use st_options.
split.tables Pander argument that specifies how many characters wide a table can be. Inf by default.
Names to be used in output table. Vector of two strings; By default, the character values for arguments x and y are used.

Logical. Display chisq statistic along with p-value in a message.

Vector of weights; must be of the same length as x.

Logical parameter. When set to TRUE, the total count will be the same as the unweighted x. FALSE by default.

Additional arguments passed to pander.

Rmarkdown does not, to this day, support multi-header tables. Therefore, until such support is available, the recommended way to display cross-tables in .Rmd documents is to use ‘method=render’ with the ‘print()’ or ‘view()’ functions. See package vignettes for examples.

A frequency table of classes matrix and summarytools with added attributes used by print method.

Dominic Comtois, <dominic.comtois@gmail.com>

table, xtabs

data("tobacco")
ctable(tobacco$gender, tobacco$smoker)

# Use with() to simplify syntax
with(tobacco, ctable(smoker, diseased))

# Show column proportions, without totals
with(tobacco, ctable(smoker, diseased, prop = "c", totals = FALSE))

# Simple 2 x 2 table
with(tobacco, ctable(gender, smoker, totals = FALSE, headings = FALSE, prop = "n"))

# Grouped cross-tabulations
with(tobacco, stby(list(x = smoker, y = diseased), gender, ctable))

## Not run:
c <- ctable(tobacco$gender, tobacco$smoker)
# Show html results in browser
print(ct, method = "browser")
define_keywords

# Save results to html file
print(ct, file = "ct_gender_smoker.html")

# Save results to text file
print(ct, file = "ct_gender_smoker.txt")

## End(Not run)

define_keywords

Modify Keywords Used In Outputs

Description
As an alternative to use_custom_lang, this allows temporarily modifying the keywords used in the outputs.

Usage
define_keywords(...)

Arguments
... one or more pairs of keywords and their new values see Details.

Details
On systems with GUI capabilities, a window will pop-up, allowing the modification of the \texttt{custom} column. The changes will be active as long as the package is loaded. A dialog will show up prompting the user to save the modified set of keywords in a custom csv language file.

Here is the full list of modifiable keywords. Check out the \texttt{language_template.csv} file in the package's \texttt{includes} directory.

- \texttt{title.freq} main heading for \texttt{freq()}
- \texttt{title.freq.weighted} main heading for \texttt{freq()} (weighted)
- \texttt{title.ctable} main heading for \texttt{ctable()}
- \texttt{title.ctable.weighted} main heading \texttt{ctable()} (weighted)
- \texttt{title.ctable.row} indicates what proportions are displayed
- \texttt{title.ctable.col} indicates what proportions are displayed
- \texttt{title.ctable.tot} indicates what proportions are displayed
- \texttt{title.descr} main heading for \texttt{descr()}
- \texttt{title.descr.weighted} main heading for \texttt{descr()} (weighted)
- \texttt{title.dfSummary} main heading for \texttt{dfSummary()}
- \texttt{n} heading item used in \texttt{descr()}
- \texttt{dimensions} heading item used in \texttt{dfSummary()}
define_keywords

duplicates heading item used in dfSummary()
data.frame heading item (all functions)
label heading item (all functions) & column name in dfSummary()
variable heading item (all functions) & column name in dfSummary()
group heading item (all functions when used with stby())
by heading item for descr() when used with stby()
weights heading item - descr() & freq()
type heading item for freq()
logical heading item - type in freq()
character heading item - type in freq()
numeric heading item - type in freq()
factor heading item - type in freq()
factor.ordered heading item - type in freq()
date heading item - type in freq()
datetime heading item - type in freq()
freq column name in freq()
pct column name in freq() when report.nas=FALSE
pct.valid.f column name in freq()
pct.valid.cum column name in freq()
pct.total column name in freq()
pct.total.cum column name in freq()
pct.cum column name in freq()
valid column name in freq() & column content in dfSummary()
invalid column content in dfSummary() (emails)
total column grouping in freq(), html version
mean row name in descr()
sd.long row name in descr()
sd cell content (dfSummary)
min row name in descr()
q1 row name in descr() - 1st quartile
med row name in descr()
q3 row name in descr() - 3rd quartile
max row name in descr()
mad row name in descr() - Median Absolute Deviation
iqr row name in descr() - Inter-Quartile Range
cv row name in descr() - Coefficient of Variation
skewness row name in descr()
se.skewness  row name in descr() - Std. Error for Skewness
kurtosis  row name in descr()
n.valid  row name in descr() - Count of non-missing values
pct.valid  row name in descr() - pct. of non-missing values
no  column name in dfSummary() - position of column in the data frame
stats.values  column name in dfSummary()
freqs.pct.valid  column name in dfSummary()
graph  column name in dfSummary()
missing  column name in dfSummary()
distinct.value  cell content in dfSummary() - singular form
distinct.values  cell content in dfSummary() - plural form
all.nas  cell content in dfSummary() - column has only NAs
all.empty.str  cell content in dfSummary() - column has only empty strings
all.empty.str.nas  cell content in dfSummary() - col. has only NAs and empty strings
no.levels.defined  cell content in dfSummary() - factor has no levels defined
int.sequence  cell content in dfSummary()
rounded  cell content in dfSummary() - note appearing in Stats/Values
others  cell content in dfSummary() - nbr of values not displayed
codes  cell content in dfSummary() - When UPC codes are detected
mode  cell content in dfSummary() - mode = most frequent value
med.short  cell content in dfSummary() - median (shortened term)
start  cell content in dfSummary() - earliest date for date-type cols
end  cell content in dfSummary() - latest date for data-type cols
emails  cell content in dfSummary()
generated.by  footnote content
version  footnote content
date.fmt  footnote - date format (see strptime)

Examples

## Not run:
define_keywords(n = "Nb. Obs.")

## End(Not run)
Description

Calculates mean, sd, min, Q1*, median, Q3*, max, MAD, IQR*, CV, skewness*, SE.skewness*, and kurtosis* on numerical vectors. (*) Not available when using sampling weights.

Usage

descr(x, var = NULL, stats = st_options("descr.stats"), na.rm = TRUE, 
round.digits = st_options("round.digits"), 
transpose = st_options("descr.transpose"), 
style = st_options("style"), plain.ascii = st_options("plain.ascii"), 
justify = "r", headings = st_options("headings"), 
display.labels = st_options("display.labels"), split.tables = 100, 
weights = NA, rescale.weights = FALSE, ...) 

Arguments

x A numerical vector or a data frame.
var Unquoted expression referring to a specific column in x. Provides support for piped function calls (e.g. df %>% descr(some_var).
stats Which stats to produce. Either “all” (default), “fivenum”, “common” (see Details), or a selection of: “mean”, “sd”, “min”, “q1”, “med”, “q3”, “max”, “mad”, “iqr”, “cv”, “skewness”, “se.skewness”, “kurtosis”, “n.valid”, and “pct.valid”. This can be set globally via st_options ("descr.stats").
na.rm Argument to be passed to statistical functions. Defaults to TRUE. Can be set globally; see st_options.
round.digits Number of significant digits to display. Defaults to 2, and can be set globally (see st_options).
transpose Logical. Makes variables appears as columns, and stats as rows. Defaults to FALSE. To change this default value, see st_options (option “descr.transpose”).
style Style to be used by pandar when rendering output table; One of “simple” (default), “grid”, or “rmarkdown” This option can be set globally; see st_options.
plain.ascii Logical. pandar argument; when TRUE, no markup characters will be used (useful when printing to console). Defaults to TRUE unless style = 'rmarkdown', in which case it will be set to FALSE automatically. To change the default value globally, see st_options.
justify Alignment of numbers in cells; “l” for left, “c” for center, or “r” for right (default). Has no effect on html tables.
headings Logical. Set to FALSE to omit heading section. Can be set globally via st_options. TRUE by default.
display.labels  Logical. Should variable / data frame labels be displayed in the title section? Default is TRUE. To change this default value globally, see st_options.

split.tables  Pander argument that specifies how many characters wide a table can be. 100 by default.

weights  Vector of weights having same length as x. NA (default) indicates that no weights are used.

rescale.weights  Logical. When set to TRUE, the total count will be the same as the unweighted x. FALSE by default.

...  Additional arguments passed to pander.

Value

An object having classes matrix and summarytools containing the statistics, with extra attributes used by print method.

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

Examples

data("exams")

# All stats for all numerical variables
descr(exams)

# Only common statistics
descr(exams, stats = "common")

# Arbitrary selection of statistics, transposed
descr(exams, stats = c("mean", "sd", "min", "max"), transpose = TRUE)

# Rmarkdown-ready
descr(exams, plain.ascii = FALSE, style = "rmarkdown")

# Grouped statistics
data("tobacco")
with(tobacco, stby(BMI, gender, descr))

# Grouped statistics, transposed
with(tobacco, stby(BMI, age.gr, descr, stats = "common", transpose = TRUE))

## Not run:
# Show in Viewer (or browser if not in RStudio)
view(descr(exams))

# Save to html file with title
print(descr(exams),
      file = "descr_exams.html",
      report.title = "BMI by Age Group")
dfSummary

footnote = "<b>Schoolyear:</b> 2018-2019<br/> <b>Semester:</b> Fall")

## End(Not run)

dfSummary | Data frame Summary

### Description
Summary of a data frame consisting of: variable names, labels if any, factor levels, frequencies and/or numerical summary statistics, and valid/missing observation counts.

### Usage
```
dfSummary(x, round.digits = st_options("round.digits"),
          varnumbers = st_options("dfSummary.varnumbers"),
          labels.col = st_options("dfSummary.labels.col"),
          valid.col = st_options("dfSummary.valid.col"),
          na.col = st_options("dfSummary.na.col"),
          graph.col = st_options("dfSummary.graph.col"),
          graph.magnif = st_options("dfSummary.graph.magnif"),
          style = st_options("dfSummary.style"),
          plain.ascii = st_options("plain.ascii"), justify = "l",
          col.widths = NA, headings = st_options("headings"),
          display.labels = st_options("display.labels"),
          max.distinct.values = 10, trim.strings = FALSE,
          max.string.width = 25, split.cells = 40, split.tables = Inf,
          tmp.img.dir = st_options("tmp.img.dir"),
          silent = st_options("dfSummary.silent"), ...)
```

### Arguments
- **x** A data frame.
- **round.digits** Number of significant digits to display. Defaults to 2 and can be set globally; see `st_options`.
- **varnumbers** Logical. Should the first column contain variable number? Defaults to TRUE. Can be set globally; see `st_options`, option “dfSummary.varnumbers”.
- **labels.col** Logical. If TRUE, variable labels (as defined with `rapportools`, `Hmisc` or `summarytools` label functions) will be displayed. TRUE by default, but the labels column is only shown if at least one column has a defined label. This option can also be set globally; see `st_options`, option “dfSummary.labels.col”.
- **valid.col** Logical. Include column indicating count and proportion of valid (non-missing) values. TRUE by default, but can be set globally; see `st_options`, option “dfSummary.valid.col”.

## End(Not run)
na.col Logical. Include column indicating count and proportion of missing (NA) values. TRUE by default, but can be set globally; see \texttt{st_options}, option \texttt{"dfSummary.na.col"}.

graph.col Logical. Display barplots / histograms column in html reports. TRUE by default, but can be set globally; see \texttt{st_options}, option \texttt{"dfSummary.graph.col"}.

graph.magnif Numeric. Magnification factor, useful if the graphs show up too large (then use a value < 1) or too small (use a value > 1). Must be positive. Default to 1. Can be set globally; see \texttt{st_options}, option \texttt{"dfSummary.graph.magnif"}.

style Style to be used by \texttt{pander} when rendering output table. Defaults to “multiline”. The only other valid option is “grid”. Style “simple” is not supported for this particular function, and “rmarkdown” will fallback to “multiline”.

plain.ascii Logical. \texttt{pander} argument; when TRUE, no markup characters will be used (useful when printing to console). Defaults to TRUE. Set to FALSE when in context of markdown rendering. To change the default value globally, see \texttt{st_options}.

justify String indicating alignment of columns; one of “l” (left) “c” (center), or “r” (right). Defaults to “l”.

col.widths Numeric or character. Vector of column widths. If numeric, values are assumed to be numbers of pixels. Otherwise, any CSS-supported units can be used. NA by default, meaning widths are calculated automatically.

headings Logical. Set to FALSE to omit headings. To change this default value globally, see \texttt{st_options}.

display.labels Logical. Should data frame label be displayed in the title section? Default is TRUE. To change this default value globally, see \texttt{st_options}.

max.distinct.values The maximum number of values to display frequencies for. If variable has more distinct values than this number, the remaining frequencies will be reported as a whole, along with the number of additional distinct values. Defaults to 10.

trim.strings Logical; for character variables, should leading and trailing white space be removed? Defaults to FALSE. See \texttt{details} section.

max.string.width Limits the number of characters to display in the frequency tables. Defaults to 25.

split.cells A numeric argument passed to \texttt{pander}. It is the number of characters allowed on a line before splitting the cell. Defaults to 40.

split.tables \texttt{pander} argument which determines the maximum width of a table. Keeping the default value (\texttt{Inf}) is recommended.

tmp.img.dir Character. Directory used to store temporary images when rendering \texttt{dfSummary()} with \texttt{"method = "pander"}, \texttt{"plain.ascii = TRUE"} and \texttt{"style = "grid"}. See \texttt{Details}.

silent Logical. Hide console messages. FALSE by default. To change this value globally, see \texttt{st_options}.

... Additional arguments passed to \texttt{pander}.
dfSummary

Details

The default plain.ascii = TRUE option is there to make results appear cleaner in the console. When used in a context of rmarkdown rendering, set this option to FALSE.

When the trim.strings is set to TRUE, trimming is done before calculating frequencies, so those will be impacted accordingly.

Specifying tmp.img.dir allows producing results consistent with pandoc styling while also showing png graphs. Due to the fact that in Pandoc, column widths are determined by the length of cell contents even if said content is merely a link to an image, we cannot use the standard R temporary directory to store the images. We need a shorter path; on Mac OS and Linux, using “/tmp” is a sensible choice, since this directory is cleaned up automatically on a regular basis. On Windows however, there is no such convenient directory and the user will have to choose a directory and cleanup the temporary images manually after the document has been rendered. Providing a relative path such as “img” is recommended. The maximum length for this parameter is set to 5 characters. It can be set globally using st_options; for example: st_options(tmp.img.dir = ".").

Value

A data frame with additional class summarytools containing as many rows as there are columns in x, with attributes to inform print method. Columns in the output data frame are:

No Number indicating the order in which column appears in the data frame.
Variable Name of the variable, along with its class(es).
Label Label of the variable (if applicable).
Stats / Values For factors, a list of their values, limited by the max.distinct.values parameter. For character variables, the most common values (in descending frequency order), also limited by max.distinct.values. For numerical variables, common univariate statistics (mean, std. deviation, min, med, max, IQR and CV).
Freqs (% of Valid) For factors and character variables, the frequencies and proportions of the values listed in the previous column. For numerical vectors, number of distinct values, or frequency of distinct values if their number is not greater than max.distinct.values.
Text Graph An ascii histogram for numerical variables, and ascii barplot for factors and character variables.
Valid Number and proportion of valid values.
Missing Number and proportion of missing (NA and NAN) values.

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

Examples

data("tobacco")
dfSummary(tobacco)

# Exclude some columns
dfSummary(tobacco, varnumbers = FALSE, valid.col = FALSE)
examens

Description

Jeu de données simulées contenant les notes de 30 étudiants, avec les colonnes suivantes:

• etudiant Nom de l’étudiant.
• sexe Variable catégorielle (facteur). Deux niveaux: “Fille”, “Garçon”.
• francais Note en français (numerique).
• math Note en maths (numerique).
• geographie Note en géographie (numerique).
• histoire Note en histoire (numerique).
• economie Note en économie (numerique).
• anglais Note en anglais (numerique).

Usage

data(examens)

Format

Un data frame de 30 rangees et 8 colonnes

Details

Données simulées. Les notes de chaque etudiant sont centrées autour d’une moyenne personnelle et écart-type randomisées.

A copy of this dataset is available in English under the name “exams”.
Description

A simulated dataset with grades for hypothetical 30 students, with the following variables:

- student Student’s name.
- gender Factor with 2 levels: “Girl”, “Boy”.
- french French Grade (numerical).
- math Math Grade (numerical).
- geography Geography Grade (numerical).
- history History Grade (numerical).
- economics Economics Grade (numerical).
- english English Grade (numerical).

Usage

data(exams)

Format

A data frame with 30 rows and 8 variables

Details

All names and grades are simulated. Grades for each student are centered around a personal randomized average and standard deviation.

A copy of this dataset is also available in French under the name “examens”.

Description

Displays weighted or unweighted frequencies, including <NA> counts and proportions.
Usage

freq(x, var = NULL, round.digits = st_options("round.digits"),
    order = "default", style = st_options("style"),
    plain.ascii = st_options("plain.ascii"), justify = "default",
    cumul = st_options("freq.cumul"), totals = st_options("freq.totals"),
    report.nas = st_options("freq.report.nas"), rows = numeric(),
    missing = "", display.type = TRUE,
    display.labels = st_options("display.labels"),
    headings = st_options("headings"), weights = NA,
    rescale.weights = FALSE, ...)

Arguments

x Factor or vector, or data frame when y is also provided, usually in a piped call.

var Unquoted expression referring to a specific column in x. Provides support for
    piped function calls (e.g. df %>% freq(some_var).

round.digits Number of significant digits to display. Defaults to 2 and can be set globally;
    see st_options.

order Ordering of rows in frequency table; “names” (default for non-factors), “levels”
    (default for factors), or “freq” (from most frequent to less frequent). To invert
    the order, place a minus sign before or after the word. “-freq” will thus display
    the items starting from the lowest in frequency to the highest, and so forth.

style Style to be used by pander when rendering output table; One of “simple” (de-
    fault), “grid”, or “rmarkdown” This option can be set globally; see st_options.

plain.ascii Logical. pander argument; when TRUE, no markup characters will be used (use-
    ful when printing to console). Defaults to TRUE unless style = 'rmarkdown',
    in which case it will be set to FALSE automatically. To change the default value
    globally, see st_options.

justify String indicating alignment of columns. By default (“default”), “right” is used
    for text tables and “center” is used for html tables. You can force it to one of
    “left”, “center”, or “right”.

cumul Logical. Set to FALSE to hide cumulative proportions from results. TRUE by
    default. To change this value globally, see st_options.

totals Logical. Set to FALSE to hide totals from results. TRUE by default. To change
    this value globally, see st_options.

report.nas Logical. Set to FALSE to turn off reporting of missing values. To change
    this default value globally, see st_options.

rows Character or numeric vector allowing subsetting of the results. The order given
    here will be reflected in the resulting table. If a single string is used, it will be
    used as a regular expression to filter row names.

missing Characters to display in NA cells. Defaults to "".

display.type Logical. Should variable type be displayed? Default is TRUE.

display.labels Logical. Should variable / data frame labels be displayed? Default is TRUE. To
    change this default value globally, see st_options.
freq

headings Logical. Set to FALSE to omit heading section. Can be set globally via st_options.
weights Vector of weights; must be of the same length as x.
rescale.weights Logical parameter. When set to TRUE, the total count will be the same as the unweighted x. FALSE by default.
...

Additional arguments passed to pander.

Details

The default plain.ascii = TRUE option is there to make results appear cleaner in the console. To avoid rmarkdown rendering problems, this option is automatically set to FALSE whenever style = "rmarkdown" (unless plain.ascii = TRUE is made explicit in the function call).

Value

A frequency table of class matrix and summarytools with added attributes used by print method.

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

See Also

table

Examples

data(tobacco)
freq(tobacco$gender)
freq(tobacco$gender, totals = FALSE)

# Ignore NA's, don't show totals, omit headings
freq(tobacco$gender, report.nas = FALSE, totals = FALSE, headings = FALSE)

# In .Rmd documents, use the two following arguments, minimally
freq(tobacco$gender, style="rmarkdown", plain.ascii = FALSE)

# Grouped Frequencies
with(tobacco, stby(diseased, smoker, freq))
(fr_smoker_by_gender <- with(tobacco, stby(smoker, gender, freq)))

# Print html Source
print(fr_smoker_by_gender, method = "render", footnote = NA)

# Order by frequency (+ to -)
freq(tobacco$age.gr, order = "freq")

# Order by frequency (- to +)
freq(tobacco$age.gr, order = "-freq")

# Use the 'rows' argument to display only the 10 most common items
label

Get or Set Variable or Data Frame Labels

Description

Assign a label to a vector or data frame, or returns value previously stored in the object’s label attribute (or NA if none found).

Usage

label(x, all = FALSE, fallback = FALSE, simplify = FALSE)
label(x) <- value

Arguments

x An R object to extract labels from.
all Logical. When x is a data frame, setting this argument to TRUE will make the function return all variable labels. By default, its value is FALSE, so that if x is a data frame, it is the data frame’s label that will be returned.
fallback a logical value indicating if labels should fallback to object name(s). Defaults to FALSE.
simplify When x is a data frame and all = TRUE, coerce results to a vector when TRUE, otherwise (default) return a named list containing only non-NULL/non-NA elements.
value String to be used as label.

Note

Loosely based on Gergely Daróczy’s label function.
print.list

Author(s)
Dominic Comtois, <dominic.comtois@gmail.com>.

print.list  Print Method for Objects of Class “list”

Description
Displays a list comprised of summarytools objects created with lapply.

Usage
## S3 method for class 'list'
print(x, method = "pander", file = "", append = FALSE, report.title = NA, table.classes = NA,
bootstrap.css = st_options('bootstrap.css'),
custom.css = st_options('custom.css'), silent = FALSE,
footnote = st_options('footnote'), collapse = 0,
escape.pipe = st_options('escape.pipe'), ...)

Arguments

x  A summarytools object that was generated with freq, descr, ctable or dfSummary.
method  One of “pander”, “viewer”, “browser”, or “render”. For print(), default is “pander”; for view(), default is “viewer”. If “viewer” is used outside RStudio, “browser” will be used instead. Use “render” if function is called from an Rmd document.
file  File name to write output to. Defaults to “”.
append  Logical. When file argument is supplied, this indicates whether to append output to existing file. FALSE by default.
report.title  For html reports, this goes into the <title> tag. Defaults to NA, in which case <title> will be generic.
table.classes  Character. Additional classes to assign to output tables. All Bootstrap css classes can be used. It also allows user-defined classes (see custom.css parameter). See details section. NA by default.
bootstrap.css  Logical. Set to FALSE to omit Bootstrap css. TRUE by default. To change this default value globally, see st_options.
custom.css  Path to a user-defined .css file. Classes defined in this file can be used in the table.classes parameter. NA by default. To change this default value globally, see st_options.
silent  Hide console messages (such as ignored variables or NaN to NA transformations).
footnote  footnote in html output. When set to “default”, this is the package name and version, R version, and current date). Has no effect when method is “pander”. Set to “default”, provide your own text, or set to NA to omit. To change this default value globally, see st_options.
collapse  Numeric. 0 by default. Set to 1 to make freq() sections collapsible (when clicking on the variable name). Future versions might provide alternate collapsing options.

escape.pipe  Logical. Set to TRUE when using style='grid' and file argument is supplied if the intent is to generate a text file that can be converted to other formats using Pandoc. To change this default value globally, see st_options.

Additional arguments can be used to override parameters stored as attributes in the object being printed. See Details section.

print.stby  Print Method for Objects of Class “stby”

Description

Displays a list comprised of summarytools objects created with stby.

Usage

## S3 method for class 'stby'
print(x, method = "pander", file = "",
      append = FALSE, report.title = NA, table.classes = NA,
      bootstrap.css = st_options('bootstrap.css'),
      custom.css = st_options('custom.css'), silent = FALSE,
      footnote = st_options('footnote'),
      escape.pipe = st_options('escape.pipe'), ...
)

Arguments

x  A summarytools object that was generated with freq, descr, ctable or dfSummary.

method  One of “pander”, “viewer”, “browser”, or “render”. For print(), default is “pander”; for view(), default is “viewer”. If “viewer” is used outside RStudio, “browser” will be used instead. Use “render” if function is called from an Rmd document.

file  File name to write output to. Defaults to “”.

append  Logical. When file argument is supplied, this indicates whether to append output to existing file. FALSE by default.

report.title  For html reports, this goes into the <title> tag. Defaults to NA, in which case <title> will be generic.

table.classes  Character. Additional classes to assign to output tables. All Bootstrap css classes can be used. It also allows user-defined classes (see custom.css parameter). See details section. NA by default.

bootstrap.css  Logical. Set to FALSE to omit Bootstrap css. TRUE by default. To change this default value globally, see st_options.
Description

Display summarytools objects in the console, in Web Browser or in RStudio's Viewer, or write content to file.

Usage

## S3 method for class 'summarytools'
print(x, method = "pander", file = "", append = FALSE, report.title = NA, table.classes = NA, bootstrap.css = st_options('bootstrap.css'), custom.css = st_options('custom.css'), silent = FALSE, footnote = st_options('footnote'), max.tbl.height = Inf, collapse = 0, escape.pipe = st_options("escape.pipe"), ...)

Arguments

x A summarytools object that was generated with freq, descr, ctable or dfSummary.
method One of "pander", "viewer", "browser", or "render". For print(), default is "pander"; for view(), default is "viewer". If "viewer" is used outside RStudio, "browser" will be used instead. Use "render" if function is called from an Rmd document.
file File name to write output to. Defaults to "".
append Logical. When file argument is supplied, this indicates whether to append output to existing file. FALSE by default.
report.title For html reports, this goes into the <title> tag. Defaults to NA, in which case <title> will be generic.
table.classes  Character. Additional classes to assign to output tables. All Bootstrap css classes can be used. It also allows user-defined classes (see custom.css parameter). See details section. NA by default.

bootstrap.css  Logical. Set to FALSE to omit Bootstrap css. TRUE by default. To change this default value globally, see st_options.

custom.css  Path to a user-defined .css file. Classes defined in this file can be used in the table.classes parameter. NA by default. To change this default value globally, see st_options.

silent  Hide console messages (such as ignored variables or NaN to NA transformations).

footnote  footnote in html output. When set to “default”, this is the package name and version, R version, and current date). Has no effect when method is “pander”. Set to “default”, provide your own text, or set to NA to omit. To change this default value globally, see st_options.

max.tbl.height  Maximum table height (in pixels) allowed in rendered dfSummary() tables. When this argument is used, results will show up in a <div> with the specified height and a scroll bar. Intended to be used in Rmd documents. Has no effect when method is “pander”. Inf by default.

collapse  Numeric. 0 by default. Set to 1 to make freq() sections collapsible (when clicking on the variable name). Future versions might provide alternate collapsing options.

escape.pipe  Logical. Set to TRUE when using style='grid' and file argument is supplied if the intent is to generate a text file that can be converted to other formats using Pandoc. To change this default value globally, see st_options.

...  Additional arguments can be used to override parameters stored as attributes in the object being printed. See Details section.

Details

Plain ascii and rmarkdown tables are generated via pander. See References section for a list of all available pander options.

The following additional arguments can be used to override formatting attributes stored in the object to be printed. Refer to the function’s documentation for details on these arguments.

- style
- round.digits (except for dfSummary objects)
- plain.ascii
- justify
- headings
- display.labels
- varnumbers (dfSummary objects)
- labels.col (dfSummary objects)
- graph.col (dfSummary objects)
- valid.col (dfSummary objects)
print.summarytools

- na.col (dfSummary objects)
- col.widths (dfSummary objects)
- split.tables
- report.nas (freq objects)
- display.type (freq objects)
- missing (freq objects)
- totals (freq and ctable objects)
- caption (freq and ctable objects)

The following additional arguments can be used to override heading elements to be printed:

- Data.frame
- Data.frame.label
- Variable
- Variable.label
- Group
- date
- Weights (freq & descr objects)
- Data.type (freq objects)
- Row.variable (ctable objects)
- Col.variable (ctable objects)

Value

NULL when method="pander"; a file path (returned invisibly) when method="viewer" or method="browser". In the latter case, the file path is also passed to shell.exec so the document is opened in default Web Browser.

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

References

RStudio Summarytools on GitHub List of pander options on GitHub Bootstrap Cascading Stylesheets

See Also

pander
stby

Obtain Grouped Statistics With summarytools

Description

This is essentially the base by function, except for the class of the returned object.

Usage

stby(data, INDICES, FUN, ..., simplify = TRUE)
stby(data, INDICES, FUN, ..., simplify = TRUE)

Arguments

data an R object, normally a data frame, possibly a matrix.
INDICES a factor or a list of factors, each of length nrow(data).
FUN a function to be applied to (usually data-frame) subsets of data.
... Further arguments to FUN.
simplify Logical. Essentially a placeholder to maintain full compatibility with base by. For more details, see tapply.

Value

An object having classes “list” and “summarytools”.

See Also

by, tapply

Examples

data("tobacco")
Description

Generates the css needed by summarytools in Rmarkdown documents.

Usage

st_css(main = TRUE, global = FALSE, bootstrap = FALSE, style.tag = TRUE, ...)

Arguments

main Logical. Include summarytools.css file. TRUE by default. Affects only summarytools objects.

global Logical. Include the additional summarytools-global.css file, which affects all content in the document. Provides control over objects that were not html-rendered; in particular, table widths and vertical alignment are modified to improve layout. FALSE by default.

bootstrap Logical. Include bootstrap.min.css. FALSE by default.

style.tag Logical. Includes the opening and closing <style> tags. TRUE by default.

... Character. Path to additional css file(s) to include.

Details

Typically the function is called in the first R chunk of an Rmarkdown document. For instance:
```
```
(r,include=FALSE) library(knitr) opts_chunk$set(results = "asis") library(summarytools) st_options(plain.ascii = FALSE,style = "rmarkdown") st_css()
```

Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

st_options

Query and set summarytools global options

Description

To list all summarytools global options, call without arguments. To display the value of one or several options, enter the name(s) of the option(s) in a character vector as sole argument. To reset all options, use single unnamed argument ‘reset’ or 0.
st_options

Usage

```r
st_options(option = NULL, value = NULL, style = "simple",
plain.ascii = TRUE, round.digits = 2, headings = TRUE,
footnote = "default", display.labels = TRUE, bootstrap.css = TRUE,
custom.css = NA, escape.pipe = FALSE, freq.cumul = TRUE,
freq.totals = TRUE, freq.report.nas = TRUE,
freq.ignore.threshold = 25, ctable.prop = "r",
ctable.totals = TRUE, descr.stats = "all", descr.transpose = FALSE,
descr.silent = FALSE, dfSummary.style = "multiline",
dfSummary.varnumbers = TRUE, dfSummary.labels.col = TRUE,
dfSummary.valid.col = TRUE, dfSummary.na.col = TRUE,
dfSummary.graph.col = TRUE, dfSummary.graph.magnif = 1,
dfSummary.silent = FALSE, tmp.img.dir = NA,
subtitle.emphasis = TRUE, lang = "en")
```

Arguments

- **option**: `option(s)` name(s) to query (optional). Can be a single string or a vector of strings to query multiple values.
- **value**: The value you wish to assign to the option specified in the first argument. This is for backward-compatibility, as all options can now be set via their own parameter. That is, instead of `st_options(quotename = 'Var', plain.ascii = FALSE)`, use `st_options(plain.ascii = FALSE)`. 
- **style**: Character. One of “simple” (default), “markdown”, or “grid”. Does not apply to `dfSummary`. 
- **plain.ascii**: Logical. TRUE by default. Set to FALSE when using summarytools with a rendering tool such as knitr or when creating markdown output files to be converted with Pandoc. Note however that its value will automatically be set to FALSE whenever `style` is set to “markdown”). 
- **round.digits**: Numeric. Defaults to 2. 
- **headings**: Logical. Set to FALSE to remove all headings from outputs. Only the tables will be printed out, except when `by` or `lapply` are used. In that case, the variable or the group will still appear before the tables. FALSE by default. 
- **footnote**: Character. When the default value “default” is used, the package name & version, as well as the R version number are displayed below html outputs. Set no NA to omit the footnote, or provide a custom string. Applies only to html outputs. 
- **display.labels**: Logical. TRUE by default. Set to FALSE to omit data frame and variable labels in the headings section. 
- **bootstrap.css**: Logical. Specifies whether to include Bootstrap css in html reports head section outputs. Defaults to TRUE. Set to FALSE when using the “render” method inside a shiny app to avoid interacting with the app’s layout. 
- **custom.css**: Character. Path to an additional, user-provided, CSS file. NA by default. 
- **escape.pipe**: Logical. Set to TRUE if Pandoc conversion is your goal and you have unsatisfying results with grid or multiline tables. FALSE by default. 
- **freq.cumul**: Logical. Corresponds to the cumul parameter of `freq`, TRUE by default.
freq.totals Logical. Corresponds to the totals parameter of `freq`. TRUE by default.

freq.report.nas Logical. Corresponds to the display.nas parameter of `freq`. TRUE by default.

descr.stats Character. Corresponds to the stats parameter of `descr`. Defaults to “all”.

descr.transpose Logical. Corresponds to the transpose parameter of `descr`. FALSE by default.

descr.silent Logical. Hide console messages. FALSE by default.


dfSummary.varnumbers Logical. In `dfSummary`, display variable numbers in the first column. Defaults to TRUE.

dfSummary.labels.col Logical. In `dfSummary`, display variable labels. Defaults to TRUE.

dfSummary.valid.col Logical. In `dfSummary`, include column indicating count and proportion of valid (non-missing). TRUE by default.

dfSummary.na.col Logical. In `dfSummary`, include column indicating count and proportion of missing (NA) values. TRUE by default.

dfSummary.graph.col Logical. Display barplots / histograms column in `dfSummary` html reports. TRUE by default.

dfSummary.graph.magnif Numeric. Magnification factor, useful if `dfSummary` graphs show up too large (then use a value between 0 and 1) or too small (use a value > 1). Must be positive. Default to 1.

dfSummary.silent Logical. Hide console messages. FALSE by default.

tmp.img.dir Character. Directory used to store temporary images. See Details section of `dfSummary`. NA by default.

subtitle.emphasis Logical. Controls the formatting of the “subtitle” (the data frame or variable name, depending on context. When TRUE (default), “h4” is used, while with FALSE, “bold” / “strong” is used. Hence the default value gives it stronger emphasis.

lang Character. A 2-letter code for the language to use in the produced outputs. Currently available languages are: ‘en’, ‘fr’.
Details

To learn more about summarytools options, see the GitHub project’s page.

Examples

```r
## Not run:
# show all summarytools global options
st_options()

# show a specific option
st_options("round.digits")

# show two (or more) options
st_options(c("plain.ascii", "style", "footnote"))

# set one option
st_options(plain.ascii = FALSE)

# set one options, legacy way
st_options("plain.ascii", FALSE)

# set several options
st_options(plain.ascii = FALSE,
    style = "rmarkdown",
    footnote = NA)

# reset all
st_options('reset')
# ... or
st_options(0)

## End(Not run)
```

Description

Jeu de données simulées de 1000 sujets, avec les colonnes suivantes:

- age Numerique.
- age.gr Groupe d’âge - variable catégorielle, 4 niveaux.
- IMC Indice de masse corporelle (numerique).
- fumeur Variable catégorielle, 2 niveaux (“Oui” / “Non”).
- cigs.par.jour Nombre de cigarettes fumees par jour (numerique).
- malade Variable catégorielle, 2 niveaux (“Oui” / “Non”).
- maladie Champs texte.
- ponderation Poids echantillonal (numerique).

---

tabagisme  
Usage du Tabac et etat de Sante (Donnees simulees)
tb

Usage

data(tabagisme)

Format

Un data frame de 1000 rangees et 9 colonnes

Details

Note sur la simulation des donnees: la probabilite pour un sujet de tomber dans la categorie “malade” est basee sur une fonction arbitraire faisant intervenir l’age, l’IMC et le nombre de cigarettes fumees par jour.

A copy of this dataset is available in English under the name “tobacco”.

---

**tb**

*Convert Summarytools Objects into Tibbles*

---

**Description**

Make a tidy dataset out of freq() or descr() outputs

**Usage**

tb(x, order = 1, na.rm = FALSE)

**Arguments**

- **x**: a freq() or descr() output object
- **order**: Integer. Usefull for grouped results (produced with stby only. When 1 (default), the levels of the grouping variable are used to sort the table, followed by the values of the other grouping variables (if any), and either variable names (for descr objects) or variable values (for freq objects). When “order” = 2, the same columns are used for sorting, but they are fed to the order function in the reverse order.
- **na.rm**: Logical. For freq objects, remove <NA> rows (or (Missing) rows if NA values were made explicit with forcats::fct_explicit_na(). Has no effect on descr objects.

**Value**

A tibble which is constructed following the tidy principles.
**Tobacco Use and Health - Simulated Dataset**

**Description**
A simulated datasets of 1,000 subjects, with the following variables:

**Usage**
```
data(tobacco)
```

**Format**
A data frame with 1000 rows and 9 variables

**Details**
- gender Factor with 2 levels: “F” and “M”, having roughly 500 of each.
- age Numerical.
- age.gr Factor with 4 age categories.
- BMI Body Mass Index (numerical).
- smoker Factor (“Yes” / “No”).
- cigs.per.day Number of cigarettes smoked per day (numerical).
- diseased Factor (“Yes” / “No”).
- disease Character.
- samp.wgts Sampling weights (numerical).

A note on simulation: probability for an individual to fall into category “diseased” is based on an arbitrary function involving age, BMI and number of cigarettes per day.

A copy of this dataset is also available in French under the name “tabagisme”.

**Clear Variable and Data Frame Label(s)**

**Description**
Returns the object with all labels removed. Both the “label” attribute and **Hmisc**’s “labelled” class are removed.

**Usage**
```
unlabel(x)
```
arguments

x An R object to remove labels from.

Author(s)
Dominic Comtois, <dominic.comtois@gmail.com>,

See Also
label

---

use_custom_lang Import and use a custom language

Description
If your language is not available or if you wish to customize the outputs’ language to suit your preference, you can set up a translations file (see details) and import it with this function.

Usage
use_custom_lang(file)

Arguments
file Character. The path to the translations file.

Details
To build the translations file, copy the language_template.csv file located in the installed package’s includes directory and fill out the ‘custom’ column using a text editor, leaving column titles unchanged. The file must also retain its UTF-8 encoding.

---

view view

Description
Visualize results in RStudio’s Viewer or in Web Browser
Usage

view(x, method = "viewer", file = "", append = FALSE, report.title = NA, table.classes = NA, bootstrap.css = st_options("bootstrap.css"), custom.css = st_options("custom.css"), silent = FALSE, footnote = st_options("footnote"), max.tbl.height = Inf, collapse = 0, escape.pipe = st_options("escape.pipe"), ...)

Arguments

x
A summarytools object that was generated with freq, descr, ctable or dfSummary.

method
One of "pander", "viewer", "browser", or "render". For print(), default is "pander"; for view(), default is "viewer". If "viewer" is used outside RStudio, "browser" will be used instead. Use "render" if function is called from an Rmd document.

file
File name to write output to. Defaults to "".

append
Logical. When file argument is supplied, this indicates whether to append output to existing file. FALSE by default.

report.title
For html reports, this goes into the <title> tag. Defaults to NA, in which case <title> will be generic.

table.classes
Character. Additional classes to assign to output tables. All Bootstrap css classes can be used. It also allows user-defined classes (see custom.css parameter). See details section. NA by default.

bootstrap.css
Logical. Set to FALSE to omit Bootstrap css. TRUE by default. To change this default value globally, see st_options.

custom.css
Path to a user-defined .css file. Classes defined in this file can be used in the table.classes parameter. NA by default. To change this default value globally, see st_options.

silent
Hide console messages (such as ignored variables or NaN to NA transformations).

footnote
footnote in html output. When set to "default", this is the package name and version, R version, and current date). Has no effect when method is "pander". Set to "default", provide your own text, or set to NA to omit. To change this default value globally, see st_options.

max.tbl.height
Maximum table height (in pixels) allowed in rendered dfSummary() tables. When this argument is used, results will show up in a <div> with the specified height and a scroll bar. Intended to be used in Rmd documents. Has no effect when method is "pander". Inf by default.

collapse
Numeric. 0 by default. Set to 1 to make freq() sections collapsible (when clicking on the variable name). Future versions might provide alternate collapsing options.

escape.pipe
Logical. Set to TRUE when using style='grid' and file argument is supplied if the intent is to generate a text file that can be converted to other formats using Pandoc. To change this default value globally, see st_options.
Additional arguments can be used to override parameters stored as attributes in the object being printed. See Details section.

Details

Creates html outputs and opens them in the Viewer, in a browser or renders the html code appropriate for Rmarkdown documents.

For objects of class “summarytools”, this function is simply a wrapper around print.summarytools with method set to “viewer”.

Objects of class “by” or “list” are dispatched to the present function, as it can manage multiple objects, whereas print.summarytools can only manage one object at a time.

what.is Obtain Extended Properties of Objects

Description

Combination of most common “macro-level” functions that describe an object.

Usage

what.is(x, show.all = FALSE, ignore.size.warn = FALSE)

Arguments

x Any object.
show.all Logical. When TRUE, all logical results from the “is.” identifier functions will be displayed, with a warning message when the result applies only to the first element in the structure. FALSE by default.
ignore.size.warn Set to TRUE to force execution of the function for large (> 20 K-bytes) objects. Defaults to FALSE.

Details

An alternative to calling in turn class, typeof, dim, and so on. A call to this function will readily give all this information at once.

Value

A list with following elements:

properties A data frame with the class(es), type, mode and storage mode of the object as well as the dim, length and object.size.
attributes.lengths A named character vector giving all attributes (c.f. “names”, “row.names”, “class”, “dim”, and so forth) along with their length.
extensive.is A character vector of all the identifier functions. (starting with “is.”) that yield TRUE when used with x as argument.
function.type When x is a function, results of ftype are added.
Author(s)

Dominic Comtois, <dominic.comtois@gmail.com>

See Also

class, typeof, mode, storage.mode, dim, length, is.object, otype, object.size, ftype

Examples

what.is(1)
what.is(NaN)
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