

Package ‘descriptr’

December 9, 2020

Type Package

Title Generate Descriptive Statistics

Version 0.5.2

Description Generate descriptive statistics such as measures of location, dispersion, frequency tables, cross tables, group summaries and multiple one/two way tables.

Depends R(>= 3.3.0)

Imports dplyr, ggplot2, magrittr, rlang, scales, stats, tibble, tidyr, utils

Suggests covr, gridExtra, knitr, rmarkdown, testthat, vdiff, xplorerr

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URL <https://descriptr.rsquaredacademy.com/>,
<https://github.com/rsquaredacademy/descriptr>

BugReports <https://github.com/rsquaredacademy/descriptr/issues>

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descriptr

descriptr *package*

Description

Generate descriptive statistics and explore statistical distributions

ds_auto_freq_table *Multiple One & Two Way Tables*

Description

ds_auto_freq_table creates multiple one way tables by creating a frequency table for each categorical variable in a data frame. ds_auto_cross_table creates multiple two way tables by creating a cross table for each unique pair of categorical variables in a data frame.

Usage

```
ds_auto_freq_table(data, ...)
```

```
ds_auto_cross_table(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Details

ds_auto_freq_table is an extension of the ds_freq_table function. It creates a frequency table for each categorical variable in the dataframe. ds_auto_cross_table is an extension of the ds_cross_table function. It creates a two way table for each unique pair of categorical variables in the dataframe.

Deprecated Functions

ds_oway_tables() and ds_tway_tables() have been deprecated. Instead use ds_auto_freq_table() and ds_auto_cross_table().

See Also

[link{ds_freq_table}](#) [link{ds_cross_table}](#)

Examples

```
# multiple one way tables
ds_auto_freq_table(mtcars)
ds_auto_freq_table(mtcars, cyl, gear)

# multiple two way tables
ds_auto_cross_table(mtcars)
ds_auto_cross_table(mtcars, cyl, gear, am)
```

ds_auto_group_summary *Tabulation*

Description

Generate summary statistics for all continuous variables in data.

Usage

```
ds_auto_group_summary(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Examples

```
ds_auto_group_summary(mtcars, cyl, gear, mpg, disp)
```

ds_auto_summary_stats *Descriptive statistics and frequency tables*

Description

Generate summary statistics & frequency table for all continuous variables in data.

Usage

```
ds_auto_summary_stats(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Examples

```
ds_auto_summary_stats(mtcars)  
ds_auto_summary_stats(mtcars, disp, hp)
```

ds_cross_table	<i>Two way table</i>
----------------	----------------------

Description

Creates two way tables of categorical variables. The tables created can be visualized as barplots and mosaicplots.

Usage

```
ds_cross_table(data, var1, var2)

## S3 method for class 'ds_cross_table'
plot(x, stacked = FALSE, proportional = FALSE, print_plot = TRUE, ...)

ds_twoway_table(data, var1, var2)
```

Arguments

data	A data.frame or a tibble.
var1	First categorical variable.
var2	Second categorical variable.
x	An object of class cross_table.
stacked	If FALSE, the columns of height are portrayed as stacked bars, and if TRUE the columns are portrayed as juxtaposed bars.
proportional	If TRUE, the height of the bars is proportional.
print_plot	logical; if TRUE, prints the plot else returns a plot object.
...	Further arguments to be passed to or from methods.

Examples

```
k <- ds_cross_table(mtcars, cyl, gear)
k

# bar plots
plot(k)
plot(k, stacked = TRUE)
plot(k, proportional = TRUE)

# alternate
ds_twoway_table(mtcars, cyl, gear)
```

ds_css	<i>Corrected Sum of Squares</i>
--------	---------------------------------

Description

Compute the corrected sum of squares

Usage

```
ds_css(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector.
data	a data.frame or tibble.
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

Examples

```
ds_css(mtcars$mpg)
ds_css(mpg, mtcars)
```

ds_cvar	<i>Coefficient of Variation</i>
---------	---------------------------------

Description

Compute the coefficient of variation

Usage

```
ds_cvar(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector
data	a data.frame or tibble
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

Examples

```
ds_cvar(mtcars$mpg)
ds_cvar(mpg, mtcars)
```

ds_extreme_obs	<i>Extreme observations</i>
----------------	-----------------------------

Description

Returns the most extreme observations.

Usage

```
ds_extreme_obs(data, column)
```

Arguments

data	A data.frame or tibble.
column	Column in data.

Examples

```
ds_extreme_obs(mtcars, mpg)
```

ds_freq_table	<i>Frequency table</i>
---------------	------------------------

Description

Frequency table for categorical and continuous data and returns the frequency, cumulative frequency, frequency percent and cumulative frequency percent. `plot.ds_freq_table()` creates bar plot for the categorical data and histogram for continuous data.

Usage

```
ds_freq_table(data, variable, bins = 5)
```

```
## S3 method for class 'ds_freq_table'  
plot(x, print_plot = TRUE, ...)
```

Arguments

data	A data.frame or a tibble.
variable	Column in data.
bins	Number of intervals into which the data must be split.
x	An object of class ds_freq_table.
print_plot	logical; if TRUE, prints the plot else returns a plot object.
...	Further arguments to be passed to or from methods.

See Also[ds_cross_table](#)**Examples**

```
# categorical data
ds_freq_table(mtcars, cyl)

# barplot
k <- ds_freq_table(mtcars, cyl)
plot(k)

# continuous data
ds_freq_table(mtcars, mpg)

# barplot
k <- ds_freq_table(mtcars, mpg)
plot(k)
```

`ds_gmean`*Geometric Mean*

Description

Computes the geometric mean

Usage

```
ds_gmean(x, data = NULL, na.rm = FALSE, ...)
```

Arguments

<code>x</code>	a numeric vector
<code>data</code>	a <code>data.frame</code> or <code>tibble</code>
<code>na.rm</code>	a logical value indicating whether NA values should be stripped before the computation proceeds.
<code>...</code>	further arguments passed to or from other methods

See Also[ds_hmean mean](#)**Examples**

```
ds_gmean(mtcars$mpg)
ds_gmean(mpg, mtcars)
```

ds_group_summary *Groupwise descriptive statistics*

Description

Descriptive statistics of a continuous variable for the different levels of a categorical variable. `boxplot.group_summary()` creates boxplots of the continuous variable for the different levels of the categorical variable.

Usage

```
ds_group_summary(data, gvar, cvar)

## S3 method for class 'ds_group_summary'
plot(x, print_plot = TRUE, ...)
```

Arguments

<code>data</code>	A <code>data.frame</code> or a <code>tibble</code> .
<code>gvar</code>	Column in data.
<code>cvar</code>	Column in data.
<code>x</code>	An object of the class <code>ds_group_summary</code> .
<code>print_plot</code>	logical; if <code>TRUE</code> , prints the plot else returns a plot object.
<code>...</code>	Further arguments to be passed to or from methods.

Value

`ds_group_summary()` returns an object of class `"ds_group_summary"`. An object of class `"ds_group_summary"` is a list containing the following components:

<code>stats</code>	A data frame containing descriptive statistics for the different levels of the factor variable.
<code>tidy_stats</code>	A <code>tibble</code> containing descriptive statistics for the different levels of the factor variable.
<code>plotdata</code>	Data for boxplot method.

See Also

[ds_summary_stats](#)

Examples

```
# ds_group summary
ds_group_summary(mtcars, cyl, mpg)

# boxplot
k <- ds_group_summary(mtcars, cyl, mpg)
plot(k)

# tibble
k$tidy_stats
```

ds_group_summary_interact

Category wise descriptive statistics

Description

Descriptive statistics of a continuous variable for the combination of levels of two or more categorical variables.

Usage

```
ds_group_summary_interact(data, cvar, ...)
```

Arguments

data	A data.frame or a tibble.
cvar	Column in data; continuous variable.
...	Columns in data; categorical variables.

See Also

[ds_group_summary](#)

Examples

```
ds_group_summary_interact(mtcars, mpg, cyl, gear)
```

ds_hmean	<i>Harmonic Mean</i>
----------	----------------------

Description

Computes the harmonic mean

Usage

```
ds_hmean(x, data = NULL, na.rm = FALSE, ...)
```

Arguments

x	a numeric vector.
data	a <code>data.frame</code> or <code>tibble</code> .
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.
...	further arguments passed to or from other methods

See Also

[ds_gmean mean](#)

Examples

```
ds_hmean(mtcars$mpg)
ds_hmean(mpg, mtcars)
```

ds_kurtosis	<i>Kurtosis</i>
-------------	-----------------

Description

Compute the kurtosis of a probability distribution.

Usage

```
ds_kurtosis(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector
data	a <code>data.frame</code> or <code>tibble</code>
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

References

Sheskin, D.J. (2000) Handbook of Parametric and Nonparametric Statistical Procedures, Second Edition. Boca Raton, Florida: Chapman & Hall/CRC.

See Also

ds_skewness

Examples

```
ds_kurtosis(mtcars$mpg)
ds_kurtosis(mpg, mtcars)
```

ds_launch_shiny_app *Launch Shiny App*

Description

Launches shiny app

Usage

```
ds_launch_shiny_app()
```

Deprecated Function

launch_descriptr() has been deprecated. Instead use ds_launch_shiny_app().

Examples

```
## Not run:
ds_launch_shiny_app()

## End(Not run)
```

ds_mdev	<i>Mean Absolute Deviation</i>
---------	--------------------------------

Description

Compute the mean absolute deviation about the mean

Usage

```
ds_mdev(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector
data	a <code>data.frame</code> or <code>tibble</code>
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

Details

The `ds_mdev` function computes the mean absolute deviation about the mean. It is different from `mad` in `stats` package as the statistic used to compute the deviations is not `median` but `mean`. Any NA values are stripped from `x` before computation takes place

See Also

[mad](#)

Examples

```
ds_mdev(mtcars$mpg)
ds_mdev(mpg, mtcars)
```

ds_measures_location	<i>Measures of location</i>
----------------------	-----------------------------

Description

Returns the measures of location such as mean, median & mode.

Usage

```
ds_measures_location(data, ..., trim = 0.05)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
trim	The fraction of values to be trimmed before computing the mean.

Examples

```
ds_measures_location(mtcars)
ds_measures_location(mtcars, mpg)
ds_measures_location(mtcars, mpg, disp)
```

ds_measures_symmetry *Measures of symmetry*

Description

Returns the measures of symmetry such as skewness and kurtosis.

Usage

```
ds_measures_symmetry(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Examples

```
ds_measures_symmetry(mtcars)
ds_measures_symmetry(mtcars, mpg)
ds_measures_symmetry(mtcars, mpg, disp)
```

ds_measures_variation *Measures of variation*

Description

Returns the measures of location such as range, variance and standard deviation.

Usage

```
ds_measures_variation(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Examples

```
ds_measures_variation(mtcars)
ds_measures_variation(mtcars, mpg)
ds_measures_variation(mtcars, mpg, disp)
```

ds_mode *Mode*

Description

Compute the sample mode

Usage

```
ds_mode(x, na.rm = FALSE)
```

Arguments

x	a numeric vector containing the values whose mode is to be computed
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

Details

Any NA values are stripped from x before computation takes place.

Value

Mode of x

See Also[mean](#) [median](#)**Examples**

```
ds_mode(mtcars$mpg)
ds_mode(mtcars$cyl)
```

ds_percentiles	<i>Percentiles</i>
----------------	--------------------

Description

Returns the percentiles

Usage

```
ds_percentiles(data, ...)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.

Examples

```
ds_percentiles(mtcars)
ds_percentiles(mtcars, mpg)
ds_percentiles(mtcars, mpg, disp)
```

ds_plot_bar	<i>Generate bar plots</i>
-------------	---------------------------

Description

Creates bar plots if the data has categorical variables.

Usage

```
ds_plot_bar(data, ..., fill = "blue", print_plot = TRUE)
```


Arguments

data	A data.frame or tibble.
...	Column(s) in data.
fill	Color of the bars.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
ds_plot_bar(mtcars)
ds_plot_bar(mtcars, cyl)
ds_plot_bar(mtcars, cyl, gear)
```

ds_plot_bar_grouped *Generate grouped bar plots*

Description

Creates grouped bar plots if the data has categorical variables.

Usage

```
ds_plot_bar_grouped(data, ..., print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
mt <- dplyr::select(mtcars, cyl, gear, am)
ds_plot_bar_grouped(mt)
ds_plot_bar_grouped(mtcars, cyl, gear)
```

ds_plot_bar_stacked *Generate stacked bar plots*

Description

Creates stacked bar plots if the data has categorical variables.

Usage

```
ds_plot_bar_stacked(data, ..., print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
mt <- dplyr::select(mtcars, cyl, gear, am)
ds_plot_bar_stacked(mt)
ds_plot_bar_stacked(mtcars, cyl, gear)
```

ds_plot_box_group *Compare distributions*

Description

Creates box plots if the data has both categorical & continuous variables.

Usage

```
ds_plot_box_group(data, ..., print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
mt <- dplyr::select(mtcars, cyl, disp, mpg)
ds_plot_box_group(mt)
ds_plot_box_group(mtcars, cyl, gear, mpg)
```

ds_plot_box_single *Generate box plots*

Description

Creates box plots if the data has continuous variables.

Usage

```
ds_plot_box_single(data, ..., print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
ds_plot_box_single(mtcars)
ds_plot_box_single(mtcars, mpg)
ds_plot_box_single(mtcars, mpg, disp, hp)
```

ds_plot_density *Generate density plots*

Description

Creates density plots if the data has continuous variables.

Usage

```
ds_plot_density(data, ..., color = "blue", print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
color	Color of the plot.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
ds_plot_density(mtcars)
ds_plot_density(mtcars, mpg)
ds_plot_density(mtcars, mpg, disp, hp)
```

ds_plot_histogram *Generate histograms*

Description

Creates histograms if the data has continuous variables.

Usage

```
ds_plot_histogram(data, ..., bins = 5, fill = "blue", print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
bins	Number of bins in the histogram.
fill	Color of the histogram.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
ds_plot_histogram(mtcars)
ds_plot_histogram(mtcars, mpg)
ds_plot_histogram(mtcars, mpg, disp, hp)
```

ds_plot_scatter *Generate scatter plots*

Description

Creates scatter plots if the data has continuous variables.

Usage

```
ds_plot_scatter(data, ..., print_plot = TRUE)
```

Arguments

data	A data.frame or tibble.
...	Column(s) in data.
print_plot	logical; if TRUE, prints the plot else returns a plot object.

Examples

```
ds_plot_scatter(mtcars)
ds_plot_scatter(mtcars, mpg, disp)
```

ds_range	<i>Range</i>
----------	--------------

Description

Compute the range of a numeric vector

Usage

```
ds_range(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector or column name.
data	a data.frame or tibble.
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

Value

Range of x

See Also

[range](#)

Examples

```
ds_range(mtcars$mpg)
ds_range(mpg, mtcars)
```

`ds_rindex`*Index Values*

Description

Returns index of values.

Usage

```
ds_rindex(data, values)
```

Arguments

<code>data</code>	a numeric vector
<code>values</code>	a numeric vector containing the values whose index is returned

Value

Index of the values in data. In case, data does not contain index, NULL is returned.

Examples

```
ds_rindex(mtcars$mpg, 21)  
ds_rindex(mtcars$mpg, 22)
```

`ds_screener`*Screen data*

Description

Screen data and return details such as variable names, class, levels and missing values. `plot.ds_screener()` creates bar plots to visualize of missing observations for each variable in a data set.

Usage

```
ds_screener(data)  
  
## S3 method for class 'ds_screener'  
plot(x, ...)
```

Arguments

<code>data</code>	A tibble or a data.frame.
<code>x</code>	An object of class <code>ds_screener</code> .
<code>...</code>	Further arguments to be passed to or from methods.

Value

ds_screener() returns an object of class "ds_screener". An object of class "ds_screener" is a list containing the following components:

Rows	Number of rows in the data frame.
Columns	Number of columns in the data frame.
Variables	Names of the variables in the data frame.
Types	Class of the variables in the data frame.
Count	Length of the variables in the data frame.
nlevels	Number of levels of a factor variable.
levels	Levels of factor variables in the data frame.
Missing	Number of missing observations in each variable.
MissingPer	Percent of missing observations in each variable.
MissingTotal	Total number of missing observations in the data frame.
MissingTotPer	Total percent of missing observations in the data frame.
MissingRows	Total number of rows with missing observations in the data frame.
MissingCols	Total number of columns with missing observations in the data frame.

Examples

```
# screen data
ds_screener(mtcars)
ds_screener(airquality)

# plot
x <- ds_screener(airquality)
plot(x)
```

ds_skewness	<i>Skewness</i>
-------------	-----------------

Description

Compute the skewness of a probability distribution.

Usage

```
ds_skewness(x, data = NULL, na.rm = FALSE)
```

Arguments

x	a numeric vector
data	a data.frame or tibble
na.rm	a logical value indicating whether NA values should be stripped before the computation proceeds.

References

Sheskin, D.J. (2000) Handbook of Parametric and Nonparametric Statistical Procedures, Second Edition. Boca Raton, Florida: Chapman & Hall/CRC.

See Also

kurtosis

Examples

```
ds_skewness(mtcars$mpg)
ds_skewness(mpg, mtcars)
```

ds_std_error	<i>Standard error of mean</i>
--------------	-------------------------------

Description

Returns the standard error of mean.

Usage

```
ds_std_error(x)
```

Arguments

x A numeric vector.

Examples

```
ds_std_error(mtcars$mpg)
```

ds_summary_stats	<i>Descriptive statistics</i>
------------------	-------------------------------

Description

Range of descriptive statistics for continuous data.

Usage

```
ds_summary_stats(data, ...)
```


Arguments

data A data.frame or tibble.
 ... Column(s) in data.

See Also

[summary ds_freq_table ds_cross_table](#)

Examples

```
ds_summary_stats(mtcars, mpg)
```

ds_tailobs	<i>Tail Observations</i>
------------	--------------------------

Description

Returns the n highest/lowest observations from a numeric vector.

Usage

```
ds_tailobs(data, n, type = c("low", "high"))
```

Arguments

data a numeric vector
 n number of observations to be returned
 type if low, the n lowest observations are returned, else the highest n observations are returned

Details

Any NA values are stripped from data before computation takes place.

Value

n highest/lowest observations from data

See Also

[top_n](#)

Examples

```
ds_tailobs(mtcars$mpg, 5)
ds_tailobs(mtcars$mpg, 5, type = "high")
```

ds_tidy_stats	<i>Tidy descriptive statistics</i>
---------------	------------------------------------

Description

Descriptive statistics for multiple variables.

Usage

```
ds_tidy_stats(data, ...)
```

Arguments

data	A tibble or a data.frame.
...	Columns in x.

Value

A tibble.

Deprecated Functions

ds_multi_stats() have been deprecated. Instead use ds_tidy_stats().

Examples

```
ds_tidy_stats(mtcars)
ds_tidy_stats(mtcars, mpg, disp, hp)
```

hsb	<i>High School and Beyond Data Set</i>
-----	--

Description

A dataset containing demographic information and standardized test scores of high school students.

Usage

```
hsb
```

Format

A data frame with 200 rows and 10 variables:

id id of the student

female gender of the student

race ethnic background of the student

ses socio-economic status of the student

schtyp school type

prog program type

read scores from test of reading

write scores from test of writing

math scores from test of math

science scores from test of science

socst scores from test of social studies

Source

<https://nces.ed.gov/surveys/hsb/>

mtcarz

mtcarz

Description

Copy of mtcars data set with modified variable types

Usage

mtcarz

Format

An object of class `data.frame` with 32 rows and 11 columns.

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